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1915

LILLY'S
SEEDS

POULTRY FOODS

BEE SUPPLIES

FERTILIZERS

SPRAY MATERIAL

POULTRY SUPPLIES

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BEES AND QUEENS

ITALIAN STOCK, ACCLIMATED IN WESTERN WASHINGTON

FREE FROM FOUL BROOD AND DISEASE

WE HAVE ARRAIGNED with the breeding yards of Roy E. Powers, Inc., breeders of the famous Powers strain of Italian Queens and Bees, to fill orders for queens and colonies. Their stock is from some of the best breeders of Italy and the United States, producing a gentle and hardy race of bees, especially adapted to our Northwestern climate.

The breeding yard is located in an isolated section, thus eliminating danger of the various diseases so commonly known to the bee keeper.

Queens

Tested Golden Italian Queens, \$3.00 each.

Selected Golden Italian Breeding Queens, \$10.00 each.

Hybrid Tested Queens, \$1.00 each.

In the event the queen dies during transportation we will furnish another queen, provided cage with dead queen is returned unopened. We do not recommend the purchasing of Hybrid queens. However, we are prepared to supply them.

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Complete colonies in good eight frame hive from September 1st to April 1st, \$5.00 each; from April 1st to September 1st, \$7.50. \$1.00 extra for bees in ten frame hives. Price including packing. Purchaser to pay transportation charges from Seattle.

We are very careful in the selecting of swarms and guarantee them to be in good condition when shipped, however, we do not assume responsibility for damage in transportation.

LILLY'S

**COMPLETE ANNUAL
1915**

**Bee Supplies Spray Materials
Poultry Supplies
Fertilizers
Seeds**



THE CHAS. H. LILLY CO.

ESTABLISHED 1885

Portland

Seattle

VEGETABLE SEEDS

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If your neighbor has not a copy of this book, a post card will get it.



Farm produce grown from Lilly's Seeds, exhibited by Mr. L. W. Kaylor at the Southwest Washington Fair.

\$10.⁰⁰

CASH PRIZES FOR BEST EXHIBITS

At All Agricultural Fairs in Washington, Oregon, Idaho

To the exhibitor receiving the fair association's highest award for best exhibit of farm and garden produce at any agricultural fair in Washington, Oregon, or Idaho, we will give an additional prize of \$10.00 cash, provided there is displayed with the exhibit a card, furnished by us, reading

"GROWN FROM LILLY'S SEEDS"

Those wishing to compete for this prize must notify us before the opening of the fair, and we will furnish cards to display with the exhibit. To the successful competitor we will mail our check for \$10.00 immediately on receipt of the fair association's certificate of award.

We will give \$2.00 additional for good photographs of exhibits taking these prizes.

To Judges and Secretaries of Agricultural Fairs in Washington, Oregon and Idaho:

With your Highest Award for Best Exhibit of Farm and Garden Produce we hereby authorize you to make an additional award of Ten Dollars (\$10.00) cash, provided there is displayed with the exhibit in a conspicuous manner a card reading "Grown From Lilly's Seeds."

Our check will be mailed to the successful competitor immediately on receipt of your certificate of award.

We will be pleased to have you incorporate this offer in your Premium List.

REGARDING ORDERS

Kindly Observe the Following Suggestions, and Assist Us in Our Endeavor to Give Prompt and Efficient Service.

ORDER EARLY. During the spring planting season, from the middle of March to the middle of May, we are crowded to full capacity, and, although our facilities and system of handling orders are highly efficient, occasional delays and errors are bound to occur; also, late in the season, we are liable to be sold out of some varieties. It is to your advantage, as well as ours, to order before the spring rush.

USE OUR ORDER BLANKS to avoid delay and chance for error.

WRITE NAME AND ADDRESS DISTINCTLY. We receive many orders which are illegible or the name or address omitted, and are unable to fill the order until we receive a complaint.

WE ACKNOWLEDGE RECEIPT of all orders amounting to twenty-five cents or more. If you do not receive an acknowledgment card promptly, it is evidence that the order has not been received by us. In case it is necessary to write to us in regard to any order for which you have received an acknowledgment card, please refer to our number, which is shown on the card. Orders are usually filled the same day that they are received by us. If, for any reason, there will be a delay of more than a few days, we will write to you explaining the delay.

PRICES of some seeds, foods and fertilizers are liable to fluctuate, and, to avoid making them high enough to cover any advance in the market, prices shown in this catalog are subject to change. Before ordering, if the price list enclosed herewith is not of recent date, write for Current Price List.

OUR PRICES are as low as is consistent with the quality of goods, and are net. We allow no discounts and give no premiums.

MARKET GARDENERS and others requiring seeds in very large quantities will please write for special quantity prices, stating varieties and quantities wanted.

REMITTANCE in full is required with all orders. To ship goods C. O. D. would cause considerable unnecessary labor, confusion and expense. We are always prompt to adjust any reasonable complaints, and any goods which are not entirely satisfactory may be returned to us, and purchase price will be refunded. Remittance should be made in the form of Post Office Money Order, Express Money Order, Bank Draft or Registered Letter. We will accept stamps in small amounts, but cannot assume responsibility for stamps or coin lost in the mails.

WE DO NOT PAY TRANSPORTATION CHARGES except when prices are quoted "post-paid." We pay transportation charges, by parcel post, express or freight, at our option, on flower seeds and vegetable seeds in lots of one pound or less, except Beans, Corn, Peas, Mushroom Spawn and Onion Sets. Except in the few cases where we specify that prices are "postpaid," if goods are to be shipped by parcel post, a sufficient amount must be remitted to pay postage; otherwise the goods will be shipped by express or freight. If goods are to be shipped by express or freight to a station at which there is no agent, a sufficient amount must be remitted to pay transportation charges.

WE MAKE NO CHARGE for sacks, or packing. Seeds, grains and feeds are sold on gross weights.

NON-WARRANTY. Most failures of seeds and plants to grow are caused by unfavorable weather, soil, or cultural conditions, which are entirely beyond our control, and it is impossible for us to guarantee success. We exercise every precaution to grow and secure only the very best seeds and plants, but give no warranty as to description, quality or productiveness of any seeds or plants, and will not be in any way responsible for the crops. Orders for goods listed in this catalog will be filled on these conditions only.

PARCEL POST RATES

On packages weighing not more than 4 ounces, the rate is 1c per ounce to all zones. More than 4 ounces takes the zone rate per pound.

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First and Second Zones. To any postoffice within 150 miles. 5c for the first pound, 1c for each additional pound.

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Eighth Zone. All over 1,800 miles, and to all points in Alaska and Canada. 12c for the first pound and 12c for each additional pound.

The limit of weight is 50 pounds to the Local, First and Second Zones; all other zones, 20 pounds. Limit of weight to Canada is 4 pounds 6 ounces.

The limit of size of a package that will be accepted by parcel post is 72 inches in length and girth combined.

Poisons cannot be shipped by parcel post.

To insure prompt and full delivery, place your order early.

LILLY'S

VEGETABLE GARDEN ASSORTMENTS

Choice Collections at Reduced Prices

THESE ASSORTMENTS consist of our choicest varieties, the same seeds and packages as are listed among our specials in the following pages. The varieties and quantities are carefully chosen as suitable for the average home garden, and, unless one has had experience, will prove more practical than most persons would be able to select from the general list. These assortments are packed ready for shipment, and cannot be changed in any way. By packing them during the dull season, and large quantities at one time, we are enabled to offer them at greatly reduced prices.

Additional seeds may, of course, be included in the order at regular prices. Order by assortment number only.

Assortment No. 1

Regular price, 75c.

Assortment price, 50c, postpaid.

1 pkt. Crimson Globe Beet, 1 pkt. Golden Half Long Carrot, 1 pkt. Delicious Lettuce, 1 pkt. Palo Alto Parsnip, 1 pkt. Gradus Peas, 1 pkt. Crimson Giant Radish, 1 pkt. Lucullus Swiss Chard, 1 pkt. Snowball Turnip, and 1 Crop Book.

Assortment No. 2

Regular price, \$1.55.

Assortment price, \$1.00, postpaid.

1 pkt. Jones' Stringless Wax Beans, 1 pkt. Crimson Globe Beet, 1 pkt. Glory Cabbage, 1 pkt. Golden Half Long Carrot, 1 pkt. Golden Bantam Corn, 1 pkt. Pride of the Pacific Cucumber, 1 pkt. Delicious Lettuce, 1 pkt. Longkeeper Onion, 1 pkt. Palo Alto Parsnip, 1 pkt. Lincoln Peas, 1 pkt. Crimson Giant Radish, 1 pkt. Icicle Radish, 1 pkt. Delicata Squash, 1 pkt. Lucullus Swiss Chard, 1 pkt. Puget Sound Special Tomato, 1 pkt. Snowball Turnip, and 1 Crop Book.

Assortment No. 3

Regular price, \$2.25.

Assortment price, \$1.50, postpaid.

1 pkt. Golden Jersey Wax Beans, 1 pkt. Longfellow Beans, 1 pkt. Crimson Globe Beet, 1 pkt. Early Jersey Wakefield Cabbage, 1 pkt. Copenhagen Market Cabbage, 1 pkt. Golden Half Long Carrot, 1 pkt. Jack Frost Corn, 1 pkt. Pride of the Pacific Cucumber, 1 pkt. Lilly's Forcing Lettuce, 1 pkt. Wonderful Lettuce, 1 pkt. Improved Rocky Ford Muskmelon, 1 pkt. Sweet as Honey Watermelon, 1 pkt. Longkeeper Onion, 1 pkt. White Queen Onion, 1 pkt. Palo Alto Parsnip, 1 pkt. Washington Wonder Peas, 1 pkt. Thomas Laxton Peas, 1 pkt. Earliest of All Radish, 1 pkt. Icicle Radish, 1 pkt. Delicata Squash, 1 pkt. Lucullus Swiss Chard, 1 pkt. Puget Sound Special Tomato, 1 pkt. Golden West Turnip, and 1 Crop Book.

Assortment No. 4

Regular price, \$3.00.

Assortment price, \$2.00, postpaid.

1 pkt. Golden Jersey Wax Beans, 1 pkt. Jones' Stringless Wax Beans, 1/4 lb. Crimson Globe Beet, 1 pkt. Half Long Beet, 1 pkt. Early Jersey Wakefield Cabbage, 1 pkt. Glory Cabbage, 1 pkt. Golden Bantam Corn, 1 pkt. Pride of the Pacific Cucumber, 1 pkt. Batavian Broad Leaved Endive, 1 pkt. Emerald Isle Kale, 1 pkt. Delicious Lettuce, 1 pkt. Immensity Lettuce, 1 pkt. Improved Rocky Ford Muskmelon, 1 pkt. Sweet as Honey Watermelon, 1 pkt. Longkeeper Onion, 1 pkt. White Queen Onion, 1 pkt. Palo Alto Parsnip, 1 lb. Lincoln Peas, 1 lb. Gradus Peas, 1 pkt. Crimson Giant Radish, 1 pkt. Earliest of All Radish, 1 pkt. Icicle Radish, 1 pkt. Delicata Squash, 1 pkt. Hubbard Squash, 1 pkt. Lucullus Swiss Chard, 1 pkt. Mammoth Victoria Spinach, 1 pkt. Puget Sound Special Tomato, 1 pkt. Snowball Turnip, and 1 Crop Book.

Assortment No. 5

Regular price, \$3.85.

Assortment price, \$2.50, postpaid.

1 lb. Golden Jersey Wax Beans, 1 pkt. Jones' Stringless Wax Beans, 1/4 lb. Crimson Globe Beet, 1 oz. Half Long Beet, 1 pkt. Early Jersey Wakefield Cabbage, 1 pkt. Glory Cabbage, 1 pkt. Golden Half Long Carrot, 1 pkt. Early Alba Cauliflower, 1 pkt. Vilmorin's Paris Golden Yellow Celery, 1 pkt. Golden Bantam Corn, 1 pkt. Metropolitan Corn, 1 pkt. Pride of the Pacific Cucumber, 1 pkt. Batavian Broad Leaved Endive, 1 pkt. Emerald Isle Kale, 1 pkt. Delicious Lettuce, 1 pkt. Wonderful Lettuce, 1 pkt. Improved Rocky Ford Muskmelon, 1 pkt. Sweet as Honey Watermelon, 1 pkt. Longkeeper Onion, 1 pkt. White Queen Onion, 1 pkt. Palo Alto Parsnip, 1 lb. Washington Wonder Peas, 1 lb. Thomas Laxton Peas, 1 pkt. Crimson Giant Radish, 1 pkt. Earliest of All Radish, 1 pkt. Icicle Radish, 1 pkt. Delicata Squash, 1 pkt. Hubbard Squash, 1 pkt. Lucullus Swiss Chard, 1 pkt. Mammoth Victoria Spinach, 1 pkt. Puget Sound Special Tomato, 1 pkt. Snowball Turnip, 1 pkt. Golden West Turnip, and 1 Crop Book.

Order early; and, to avoid errors, use enclosed order blank.

LILLY'S

VEGETABLE SEEDS

BEST FOR THE WEST

FOLLOWING ARE OUR SPECIALTIES, which have been selected as being the most desirable, and best suited to the West. If you are not familiar with the varieties, you will be safe in choosing these which experience has proven to be the best. Other good and standard varieties are listed in the Complete List of Vegetable Seeds.

Plant only the very best seed that can be procured; cheap seed is poor economy. The seed is the smallest item of expense in planting a garden, and the difference in cost between good seed and poor seed is insignificant compared with the results.

We do not claim that our seeds are cheaper than others, but they are as cheap as is consistent with the quality, and LILLY'S SEEDS are the best that are to be had at any price.

LILLY'S

Large French Green Globe Artichoke

THIS is entirely different from the Jerusalem Artichoke, of which the edible portion is the tubers, and which, in this country, is used mostly for stock food. The Green Globe Artichoke is a delicious vegetable which deserves to be more generally grown in American gardens, and is worthy of the estimation which it enjoys in other countries.

The plant resembles a giant thistle, and the edible portion is the immature flower head, which is boiled and served with a butter dressing. The young suckers are sometimes served in the same manner as asparagus.

The plants bear few, if any, heads the first year, but bear freely the second and many succeeding years.

Packet, 5c; ounce, 35c; 1/4 pound, \$1.15; 1 pound, \$3.50; postpaid.



LILLY'S

Columbia Mammoth Asparagus

A SUPERIOR VARIETY, of recent introduction, surpassing all others in size, color and yield, and commanding the highest price in all markets. The delicacy of its color notably distinguishes it; the thick stalks are unusually tender, succulent, and of delicious flavor. It is the largest asparagus grown, a bunch of twelve stalks sometimes weighing two pounds.

Three years are required to grow asparagus from seed; one year may be saved by purchasing the roots. Cultural directions are given in the Crop Book, which will be furnished free with any order when requested.

Packet, 5c; ounce, 10c; 1/4 pound, 25c; 1 pound, 75c; postpaid.

Asparagus Plants are listed on page 71.

LILLY'S SELECTED STRAIN JONES' STRINGLESS WAX BEAN

A Splendid Yellow Podded Bush Bean—
Brittle, Stringless, Delicious—
White Seeded, A Good Shell Bean

A COMPARATIVELY new variety, becoming more popular each year. Some of our customers claim that there is no other wax podded bean equal to it.

The plants are of medium size, erect, thick stemmed, without runners, early and productive.

The pods are of uniform size, long, slightly curved, round, plump, full, yellow, very brittle, entirely stringless, without fiber, and of excellent quality.

The ripe dry seeds are good for winter shelled beans; are of medium size, rather slender, roundish through cross section, truncate or rounded at ends, almost straight at eye, and solid white except a minute area of yellow around the eye.

Our strain is selected with special care, and is sold only in sealed packages.

Packet, 10c; 1 lb., 30c; 10 lbs., 25c per lb.

If to be shipped by parcel post, postage will be additional at regular parcel post rates.

Write for special prices on large quantities.

LILLY'S

CARMINE POLE BEAN

The Best Pole Bean for the
Northwest

THE BEST and most handsome all-round pole bean for snap, green shell, or dry shell beans, either for home or market.

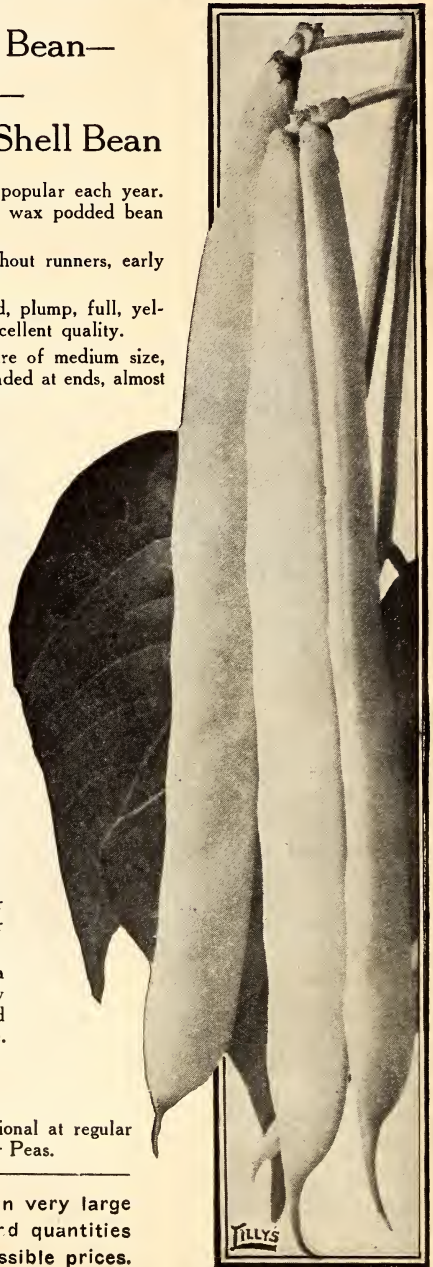
The pods are brilliantly splashed with bright carmine on a greenish-yellow background; very long and flat, generally straight; surface smooth, very brittle, entirely stringless and without fiber; of splendid quality, and free from anthracnose.

Lilly's select stock, sold only in sealed packages.

Packet, 10c; 1 lb., 35c; 10 lbs., 30c per lb.

If to be shipped by parcel post, postage will be additional at regular parcel post rates. We do not pay postage on Beans, Corn or Peas.

Market gardeners and others requiring seeds in very large quantities, will please give us a list of seeds and quantities wanted, and we will be glad to quote lowest possible prices.



LILLY'S GOLDEN JERSEY WAX BEAN

Best Yellow Podded Bush Bean

Early

Prolific

Stringless

AN IMPROVED strain of the old standard Golden Wax, which has been so universally grown in all sections of the country for so many years. Although Golden Wax was a splendid variety, this new strain excels it.

The plants are small, hardy, very erect, vigorous, thick stemmed, without runners, early and very productive.

The pods are rich golden yellow, large and handsome; they are broad and thick, solid fleshed, of splendid quality, tender, brittle, and absolutely stringless.

The dry seeds are of medium size; white, with mottling of violet and yellow around eye and ends.

Sold only in sealed packages.

Packet, 10c; 1 lb., 30c; 10 lbs., 25c per lb.

We do not pay postage on Beans, Corn or Peas. If to be shipped by parcel post, remit a sufficient amount to pay postage.

LILLY'S

LONGFELLOW

Best Green Podded Bush Bean

Early

Long Pods

Finest Quality

FOR those who prefer a green podded bush bean, Longfellow is a superior snap variety. The plant is rather large and spreading, weighted down with heavy outstretched branches, but without runners. It is early, and very productive.

The pods are very long and straight, round, dark green, and brittle. They are rather stringy, but of good quality and fine flavor.

The dry seeds are dingy brownish-red freely splashed with pale buff; medium size; very slender and straight.

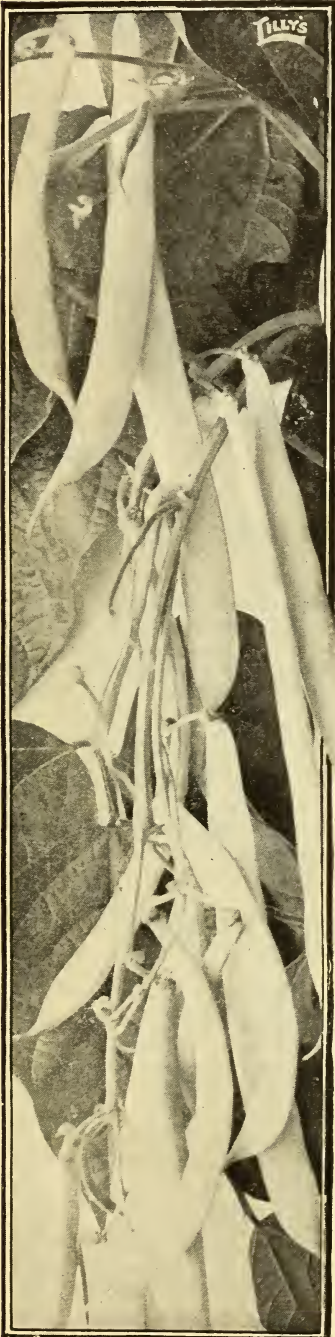
Lilly's Select Stock, sold in sealed packages only.

Packet, 10c; 1 lb., 30c; 10 lbs., 25c per lb.

If to be shipped by parcel post, postage will be additional.

Write for special prices on large quantities.

LILLY'S CROP BOOK contains cultural directions and much other useful information. It will be furnished free with any order if requested.





LILLY'S

CRIMSON GLOBE

THE BEST

Second Early

Main Crop Beet

A MAGNIFICENT variety, the finest of all for the home garden; also popular with market gardeners. It is not quite so early as Crosby's Egyptian, but for second early and succession it has no equal, on account of the exquisite quality and delicious flavor.

The beet is nearly globular, slightly elongated; of medium size, about three inches in diameter; with small tops and very small tap-root.

The flesh is deep crimson, beautifully ringed or zoned, and is entirely free from stringiness or woodiness.

The extreme tenderness, sweetness, fine flavor, and attractive appearance makes this the highest type of blood turnip beet.

Our seed is especially selected from the choicest strain, and is sold in sealed packages only.

Packet, 10c; ounce, 15c; $\frac{1}{4}$ pound, 50c; 1 pound, \$1.50; postpaid.

If postage is not to be paid by us, deduct 5c per pound from postpaid prices.

LILLY'S SELECTED STRAIN

CROSBY'S EGYPTIAN BEET

The Earliest Good Blood Turnip Beet

THIS IS AN IMPROVEMENT over the old-time favorite, Extra Early Egyptian. It is fully as early as the old variety, and excelling it in all other respects, being larger, smoother, thicker, and of much finer quality.

In color it is peerless, rich vermilion, slightly zoned; is fine grained, tender and sweet; does not become woody or hard; and the tops are not as

large as those of the old variety. It is a great favorite with market gardeners.

Lilly's select seed is sold only in sealed packages
Packet, 10c; ounce, 15c; $\frac{1}{4}$ pound, 50c;
1 pound, \$1.50; postpaid.

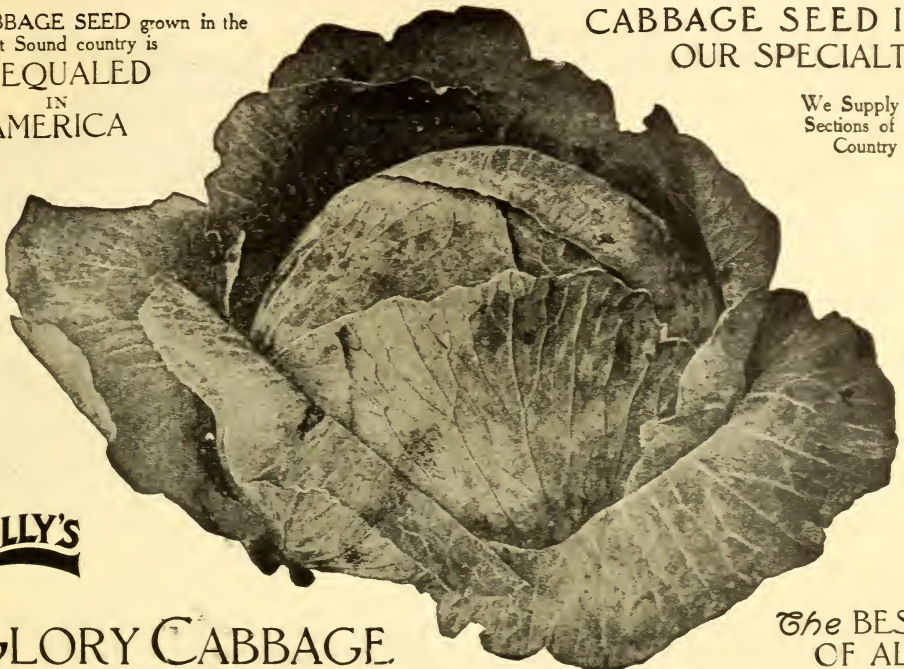
Market gardeners and others requiring seed in large quantities will please write for special quantity prices.

Stock Beets are splendid for cattle and poultry. See Farm Seeds Section.

CABBAGE SEED grown in the
Puget Sound country is
UNEQUALED
IN
AMERICA

**CABBAGE SEED IS
OUR SPECIALTY**

We Supply all
Sections of the
Country




GLORY CABBAGE

*The BEST
OF ALL*

LILLY'S GLORY CABBAGE is as early as Early Flat Dutch, but is also one of the very best winter cabbages, and is unexcelled in delicious flavor, crispness, solidity, and keeping qualities. No other cabbage combines so many excellent qualities in such marked degree.

The Puget Sound country is noted as being especially adapted to growing the finest cabbages. Seed grown here is acknowledged to be the best, and

Lilly's Glory is the best cabbage that is produced even in the Puget Sound country. It produces a large per cent of solid heads; large, round, thin ribbed, and very hard. A vigorous grower, good shipper, particularly attractive for market, true to type, symmetrical, uniform in size and shape, with few outside leaves, and the inside is white, crisp, tender and sweet.

Sold only in sealed packages. Pkt., 10c; oz., 20c; ¼ lb., 75c; 1b., \$2.50, postpaid.

EARLY JERSEY WAKEFIELD



Grown on Puget Sound

EARLY JERSEY WAKEFIELD has long been the leading extra early cabbage, and is the most popular for both private and market gardeners use. It is more generally grown than all other first-early varieties, and can always be depended upon for earliness and a sure crop.

Lilly's Selected Stock is carefully grown under our personal supervision, and selected by our own expert. Users of our seed write us from all parts of the United States that Puget Sound seeds produce cabbages that head early and hard.

The heads are conical in shape; solid and heavy, with thick, heavy outer leaves.

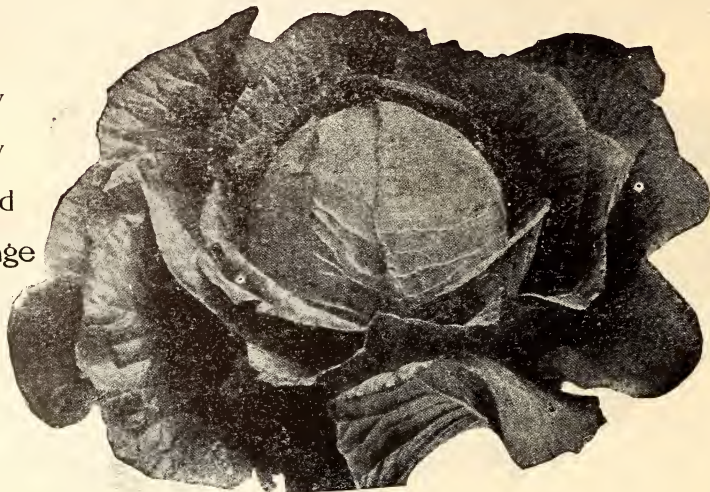
Sold only in sealed packages. Pkt., 10c; oz., 20c; ¼ lb., 75c; 1b., \$2.50, postpaid.



Early Jersey Wakefield

COPENHAGEN MARKET CABBAGE

A
New
Early
Round
Cabbage



A
Money
Maker
For
Market
Gardeners

THIS SUPERB NEW CABBAGE originated in Denmark, where the Government is active in encouraging the production and perfection of new and superior varieties of vegetables, and has created quite a sensation during the past season. It is undoubtedly without a rival as the finest large round-headed early cabbage in cultivation.

The type is thoroughly fixed; the heads all mature at the same time; average about ten pounds each; are very solid; with small core and of fine quality.

It matures as early as Charleston Wakefield, and yields much heavier than that popular variety. The plant is short stemmed, the heads being produced almost on the ground level. The leaves are light green, rather small, saucer shaped, and always tightly folded. The plants can be set closer than is usual with varieties of similar size.

Sold in sealed packages only. Pkt., 10c; oz., 20c; $\frac{1}{4}$ lb., 75c; lb., \$2.40, postpaid.



LILLY'S
TEST

All Seasons

LILLY'S

ALL SEASONS CABBAGE

AN EXCELLENT VARIETY; a sure header and long keeper. As its name indicates, it may be planted either early or late, and although it is classed as a second early variety, it has few equals for either medium early, main crop or late use. It is of large size; heads hard and uniform; of handsome color and the finest quality. Nearly as early as Early Summer, and much larger. It comes true to type under all conditions, and has no tendency to run to seed. Very popular among market gardeners for main crop.

Our strain is specially selected, and is sold in sealed packages only.

Pkt., 10c; oz., 20c; $\frac{1}{4}$ lb., 60c; lb., \$2.00, postpaid.

We can furnish Cabbage Plants in season. They are listed on page 71.



DANISH BALLHEAD CABBAGE

LILLY'S

PUGET SOUND
STRAIN

OURS is an improved strain of this splendid, hard-heading, winter cabbage; grown in the Puget Sound country, and producing an unusual percentage of large, solid heads.

The heads are large, round, and very compact, weighing more than other varieties of the same size. It is unsurpassed in quality, being crisp, tender and sweet, and it is unequalled in keeping and shipping qualities. It is hardy, withstands hot weather, does not burst in wet seasons, and will stand longer in the ground than other varieties.

Sold only in sealed packages. Pkt., 10c; oz., 20c; $\frac{1}{4}$ lb., 75c; 1 lb., \$2.50. Postpaid.

DRUMHEAD SAVOY

The Best of the
Crumpled Leaved
Cabbages

THE SAVOY cabbages are noted for their fine and delicate flavor. The leaves are wrinkled in a peculiar and characteristic manner. The heads of our strain of Drumhead Savoy are large and very compact, and of a most attractive appearance. It is an excellent winter keeper. Especially recommended for home use. The finest cabbage for making sauer kraut.

Pkt., 5c; oz., 20c; $\frac{1}{4}$ lb., 60c; lb., \$2.00. Postpaid.



Puget Sound Cabbage Seed

CABBAGE SEED is one of our specialties, and we produce a quality unexcelled in America. The Puget Sound country is one of the very few localities in the United States where Cabbage and Cauliflower seed of the highest quality is produced. Our Puget Sound grown seed will produce a greater percentage of large, firm heads than any other stock to be had; it has become noted all over the country, and we supply seedsmen in all parts of North America, as well as our own local trade. Our cabbage seed, being grown and acclimated in this country, is especially adapted to the Northwest.

LILLY'S GOLDEN HALF - LONG

THE BEST
MAIN-CROP CARROT

Delicious,
Sweet, Crisp,
and Tender

GOLDEN HALF-LONG is by far the best carrot for home use and for market, and by many is preferred for stock feeding, for, although it is not so large as some of the stock carrots, it equals them in yield; often twenty-five to thirty tons per acre.

It is of large size; cylindrical and smooth; the roots taper to a blunt point with very small tap-root; the color is a rich orange, and the flesh is sweet, crisp and tender.

Carrots should be more generally grown. They are a delicious vegetable, in perfect condition for eating at any time during their growth from the time they are the size of a lead-pencil until long after they are matured, and on the Pacific Coast they may be left in the ground all winter, and pulled as wanted. They are easy to grow, and our soil and climate is especially adapted to them. They are also one of the most valuable root crops for stock feeding.

Sold only in sealed packages. Pkt., 10c; oz., 15c; ¼ lb., 50c; lb., \$1.60, postpaid.



LILLY'S

CROP BOOK

The Crop Book has become so popular that we are compelled to discontinue giving it free to all who ask for it, but it will be given with any order if asked for.

LILLY'S EARLY FORCING CARROT

Best for Extra Early Forcing

THE EARLIEST of all carrots, and the best for forcing in hot-beds, cold-frames, or for very early out of doors. The roots are small, globular and smooth, with small tap-root. The color is orange-red; flavor excellent, and very tender.

They are recommended only for early forcing, as

the larger varieties are better for main crop. One or two light top-dressings of nitrate of soda will do wonders in producing a quick, early crop. The quicker they can be grown, the better the quality.

Sold only in Sealed packages. Pkt., 10c; oz., 15c; ¼ lb., 50c; 1 lb., \$1.50; postpaid.

Use LILLY'S COMPLETE FERTILIZERS and you will have a garden to be proud of.

LILLY'S EARLY ALBA CAULIFLOWER

EARLIEST
SOLIDEST
WHITEST

BEST EARLY
ALWAYS
GOOD



LILLY'S
BEST

EARLY ALBA CAULIFLOWER

EARLY ALBA is the best cauliflower grown, either for early or late, home use or market, for forcing or for outdoor culture. It is the largest early cauliflower, and is equally good for either extra early or for main crop. It is a sure producer of large, solid, compact, snow-white heads of unequalled quality, flavor, and beauty.

Sold only in sealed packages. Pkt., 25c; $\frac{1}{4}$ oz., 75c; $\frac{1}{2}$ oz., \$1.40; 1 oz., \$2.50, postpaid.

The Puget Sound country is noted as being peculiarly adapted to growing cauliflower, and there is no other place on the American continent where high-grade seed is produced. Our soil and climate, cool summers, mild winters and uniform temperature are ideal for the production of the plants and maturing the seed.

DANISH DRY-WEATHER CAULIFLOWER

Best for Dry Climates---Best Main Crop for Market

DANISH DRY-WEATHER Cauliflower is especially adapted for growing in dry localities where other varieties fail to make good heads, but is also an excellent variety for more favorable conditions.

It is not as early as Early Alba, and is not suitable for forcing, but the heads are large, solid, pure white, of splendid quality, and for main crop is ex-

celled by none, as it is the surest header known, and therefore the most profitable for the market gardener. It will make a good crop in dry climates where it has heretofore been considered impossible to grow good cauliflower.

Sold only in sealed packages. Pkt., 25c; $\frac{1}{4}$ oz., 75c; $\frac{1}{2}$ oz., \$1.40; 1 oz., \$2.50, postpaid.

If your garden has not been satisfactory, try **LILLY'S COMPLETE FERTILIZERS**; they will produce wonders.



LILLY'S SELECT STOCK

VILMORIN'S PARIS GOLDEN YELLOW

The Best Celery for Home or Market

THIS DELICIOUS French variety is deservedly popular, and our seed is the best that it is possible to produce, coming direct from the originators, Vilmorin, Andrieux & Co., Paris.

The plants are of medium size, with beautiful yellowish-green foliage, and as they mature the inner stalks and leaves become a beautiful golden-yellow;

as nearly self-blanching as any variety in existence.

The handsome color, crispness, tenderness, freedom from stringiness, delicious nutty flavor, sturdy growth, ease of blanching, and earliness of this variety make it unequaled for either the home garden or for market. Sold only in sealed packages.

Pkt., 10c; oz., \$1.50; 1/4 lb., \$5.00, postpaid.

LILLY'S SILVER PLUME CELERY

A Favorite for Market

AHANDSOME, early variety, popular with market gardeners on account of its very attractive appearance and requiring a very short time for blanching.

The plants are of medium size, and the foliage forms handsome silver-white plumes, so aptly suggested in the name. As the plants mature, the inner stems and leaves naturally turn white, requiring but a very short time to blanch.

The stalks are thick and heavy, with pure white hearts; brittle, crisp and tender; free from stringiness; and unexcelled in flavor.

Sold only in sealed packages.

Pkt., 10c; oz., 75c; 1/4 lb., \$1.75; lb., \$5.00, postpaid.

LILLY'S GIANT WHITE WINTER CELERY

The Best Late Variety

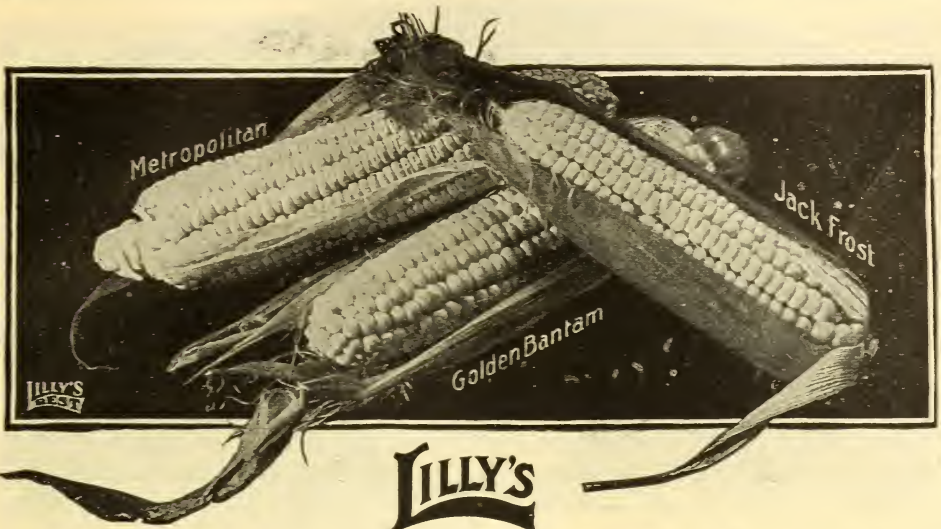
GIANT WHITE is unequaled as a late winter celery. Like other winter celeries, it is not self-blanching, and must be blanched by banking with earth. On the Pacific Coast it may be left in the garden until wanted for market, and will be fit for use as late as March or April.

This variety is unexcelled in keeping qualities; grows very tall but with large solid stalks; makes a splendid appearance; and when properly blanched is pure white and the flavor is delicious, the stalks being so tender and crisp that they will almost break with their own weight.

Sold only in sealed packages.

Pkt., 10c; oz., 75c; 1/4 lb., \$1.75; lb., \$5.00, postpaid.

Kainit is the best fertilizer for Celery and Asparagus. See Fertilizer Section.



GOLDEN BANTAM CORN

The Sweetest and Most Delicious Sweet Corn

GOLDEN BANTAM is the sweetest and most deliciously flavored sweet corn that has ever been grown, and has no equal for the home garden or early market. In earliness it is excelled only by Jack Frost, and in flavor it is equaled by none.

Price: Pkt., 10c; lb., 15c; 10 lbs., 12½c

The ears are short, thick, and compactly filled with large, plump, creamy-yellow kernels, which become golden-yellow as they ripen. The stalks are of dwarf habit, sturdy and very productive. It is one of the hardiest varieties, may be planted early, and is especially adapted to the Northwest. Sold only in sealed packages.

per lb. If shipped by parcel post, postage will be additional.

LILLY'S

JACK FROST The Earliest Sweet Corn

THE VERY EARLIEST variety of sweet corn, and peculiarly adapted to the Pacific Coast, where it was originated by us. The ears are small, about five inches long, and are well filled with large, white kernels of delicate flavor and melting tenderness.

It remains tender and fit for use longer than other varieties. The plant is dwarf, and each stalk bears two or more ears. On account of its extreme earliness it is popular with market gardeners, as well as for home use.

Sold in sealed packages only.

Pkt., 10c; lb., 15c; 10 lbs., 12½c per lb.

LILLY'S

METROPOLITAN Early—Large—Productive

METROPOLITAN is a great favorite in the Northwest, where few of the larger varieties can be depended upon. It is as large as Stowell's Evergreen, and nearly as early as the small, extra early varieties, making it a valuable second early and main crop variety for market gardeners.

The plants are strong, rather tall, and bear two or three ears each. The ears are nine inches long, ten to twelve rowed, and filled to the tip with large, deep, white, very tender kernels of the richest flavor.

Sold in sealed packages only.

Pkt., 10c; lb., 15c; 10 lbs., 12c per lb.

We do not pay transportation charges on Corn, Beans or Peas in any quantity. If they are to be shipped by parcel post a sufficient amount must be remitted to pay postage. A 10c packet weighs about six ounces.



LILLY'S PRIDE OF THE PACIFIC CUCUMBER

The Finest for Slicing
Early, Prolific, Handsome and Uniform

PRIDE OF THE PACIFIC is a highly improved strain of the White Spine family, brought to its present state of perfection by the most careful methods of selection and cultivation. It is the best variety for green-house culture, and is unsurpassed for growing outdoors, either for market or home use.

Pkt., 10c; oz., 20c; $\frac{1}{4}$ lb., 60c; $\frac{1}{2}$ lb., \$1.15; 1b., \$2.00, postpaid.

LILLY'S

PICKLING CUCUMBER

Unequaled

For Large or Small Pickles

LILLY'S PICKLING CUCUMBER grows to a large size, frequently ten inches in length, is of good shape, of the finest quality and flavor, and is unequaled for pickling, either when small or large. The young cucumbers are covered with small spines, and possess the distinctly roughened surface so much desired in small pickles.

The vines are hardy, vigorous, exceedingly prolific, and continue bearing much longer than most sorts.

Sold only in sealed packages.

Pkt., 10c; oz., 20c; $\frac{1}{4}$ lb., 60c; $\frac{1}{2}$ lb., \$1.00; 1b., \$1.75, postpaid.

The hardy, vigorous vines produce immense crops of smooth, rich deep green fruit, very large, symmetrical, and wonderfully uniform. It is ideal for slicing, the flesh being compact, fine-grained, sparkling white, and of a delicious flavor. Sold only in sealed packages.

DAVIS PERFECT CUCUMBER

Sells for Fancy Prices

A COMPARATIVELY new cucumber, growing nine to twelve inches long, and perfect in shape, color, quality, and flavor. It is very early, and when grown outdoors so closely resembles hot-house fruit that it often brings the same fancy prices.

It is uniform in shape, and handsome in appearance. The glossy, dark green color is maintained almost to maturity, and it retains its color and freshness longer than other varieties, making it splendid for market.

Lilly's Select Stock, sold only in sealed packages.

Pkt., 10c; oz., 15c; $\frac{1}{4}$ lb., 40c; $\frac{1}{2}$ lb., 70c; 1b., \$1.25; postpaid.

Market Gardeners and others requiring Garden Seeds in very large quantities will please give us a list of varieties and quantities wanted, and we will quote special prices.

LILLY'S BROAD-LEAVED BATAVIAN ENDIVE (ESCAROLLE)



Hardy Winter Variety
Best for the
Pacific Coast

ENDIVE is an excellent salad vegetable, similar to lettuce, may also be cooked as greens, and by judicious planting may be had at all seasons of the year. It is extensively grown by market gardeners, especially for early spring use when lettuce is not to be had, but is not as generally grown in the home garden as it deserves to be.

Batavian Broad-Leaved Endive is especially adapted to conditions on the Pacific Coast, and is the best variety for late summer and fall planting, as it is very hardy, and west of the Cascades may be left in the garden until wanted for use

during the winter or early spring. It is equally good for early spring or summer planting in any locality, and will stand dry, hot, summer weather much better than most varieties of lettuce, and lasts longer. It may be improved somewhat by tying the leaves together to bleach it.

Sold only in sealed packages. Pkt., 10c; oz., 20c; $\frac{1}{4}$ lb., 50c; lb., \$1.50, postpaid.

LILLY'S EMERALD ISLE KALE (BORECOLE)

Hardest
Most Compact
Densely Curled

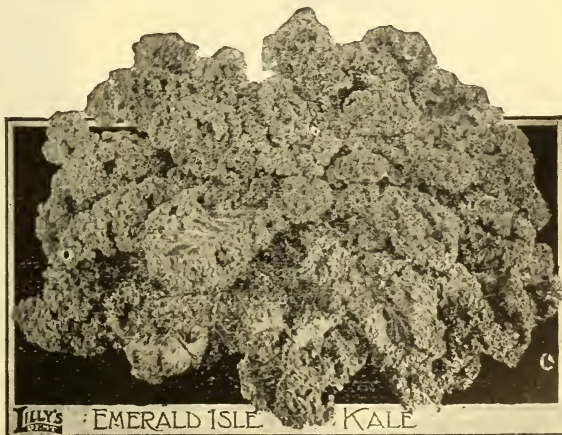
EMERALD ISLE is a comparatively new variety of Green Curled Winter Kale, and is most desirable on account of its hardness, excellent quality, and beautiful appearance.

It is of medium height, the leaves are so finely fringed and curled as to resemble parsley, and of a beautiful rich, emerald green color.

This variety is so hardy that it is rarely injured by freezing, is improved by frost, and may be cut at any time during the winter.

The seed is generally planted in late summer or early fall, for fall, winter, and early spring use; but it may be planted very early in spring for summer use. It supplies splendid greens at times when greens are scarce.

Sold only in sealed packages. Pkt., 10c; oz., 15c; $\frac{1}{4}$ lb., 30c; lb., \$1.00, postpaid.



Thousand Headed Kale is the best winter green feed for stock and poultry. See Field Seeds section.

LILLY'S FORCING LETTUCE

BEST

For Green-House Forcing

OR

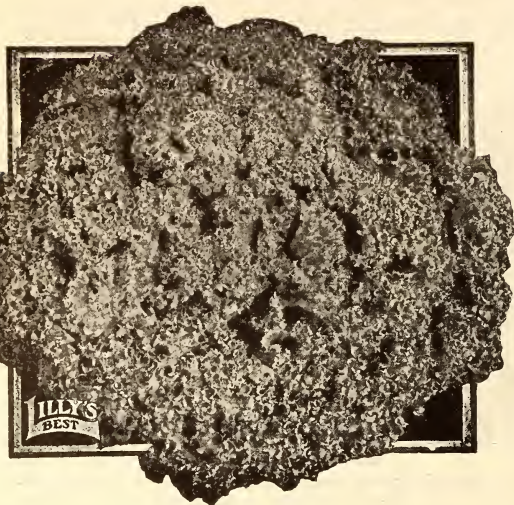
Extra Early Outdoors

FOR FORCING in green-house or cold-frames, or for extra early culture outdoors, Lilly's Forcing Lettuce has no equal. The plant grows upright; does not form heads, but makes a quick growth of large, thin, light green leaves; finely curled, crimped and savoyed; of handsome appearance and excellent quality.

It is not liable to rot; remains in condition for cutting for a considerable time; does not wilt quickly; and stands shipping better than most varieties, making it the best variety for winter forcing in green-house.

Sold only in sealed packages.

Pkt., 10c; oz., 20c; $\frac{1}{4}$ lb., 50c; lb., \$1.25, postpaid.



NONPAREIL HANSON HEAD LETTUCE

LILLY'S

IMPROVED STRAIN

NONPAREIL HANSON is a highly improved strain of the always popular Hanson Head Lettuce, and is the finest variety of head lettuce for either market or home use for late summer.

The plant is compact, and forms large, solid, cabbage-like heads of the finest quality and flavor; remaining in good condition longer than most other sorts.

The outer leaves are bright yellowish-green; broad; somewhat crumpled and frilled at the edges; and with distinctive midrib. Inner leaves are white, very crisp, and sweet.

Sold only in sealed packages.

Pkt., 10c; oz., 20c; $\frac{1}{4}$ lb., 50c; lb., \$1.50, postpaid.

If transportation charges are to be paid by us, deduct 5c per lb. from prepaid prices.



Lettuce, to be crisp and tender, must be grown quickly. Nitrate of Soda or Nitrate of Lime will produce wonderful results. An article on this subject is contained in the Crop Book, which will be furnished free with any order if requested.

LILLY'S DELICIOUS LETTUCE

BEST

Early and Main Crop
Head Lettuce

THIS SPLENDID NEW VARIETY is very early, forming handsome, compact, firm heads of medium size and the finest quality earlier than any other head lettuce.

The color is a light yellowish-green, the outer leaves slightly tinged with reddish-brown, and the inner leaves, forming practically the entire head, blanching a rich golden-yellow, having a delicious, rich, buttery flavor peculiarly its own, and the thick leaves are tender and crisp.

Although generally used for early outdoor culture, and for succession, it is excellent for forcing, and is equally satisfactory for home use and for market, as the round, solid heads are so firmly folded that they

Sold only in sealed packages. Pkt., 10c; oz., 20c; ¼ lb., 50c; lb., \$1.50, postpaid.



stand shipping well.

We especially recommend this variety for main crop, and if planted for succession, fine heads may be had all summer and fall.

LILLY'S

WONDERFUL

A Head Lettuce
Of Mammoth Size and Solid
as a Cabbage

A POPULAR variety, thriving in all sections and during all seasons. It is a crisp, cabbage-heading lettuce, producing heads which are extremely large, sometimes measuring twelve to fifteen inches in diameter and weighing two to three pounds. On account of being slow to run to seed, it is admirably adapted for growing during the summer months, either in the North or South.

The leaves are attractively crumpled, the heart is large and blanches well, and the quality is excellent, crisp and tender. It is unexcelled as a market-gardener's lettuce, and stands shipping well.

Sold only in sealed packages.

Pkt., 10c; oz., 20c; ¼ lb., 50c; ½ lb., 85c; lb., \$1.50; postpaid.

LILLY'S

IMMENSITY

A Splendid Head Lettuce
For Summer and Fall

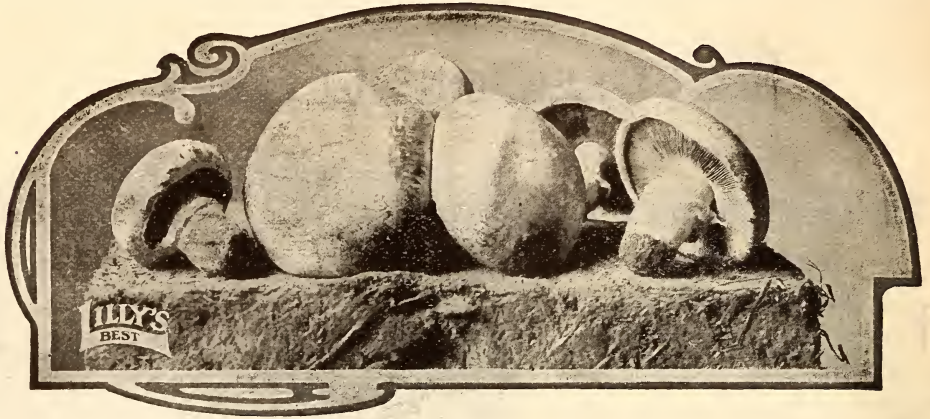
IMMENSITY LETTUCE, although of great size, is of splendid quality, and is tender, sweet and crisp. The heads are solid, and often three feet in circumference. It has great heat resisting qualities, and is very reliable for a late crop when other varieties are unfit for use. Although of immense size, it is not coarse or bitter; even the outer leaves are tender.

Sold only in sealed packages.

Pkt., 5c; oz., 20c; ½ lb., 50c; ¼ lb., 85c; lb., \$1.50; prepaid.

Market Gardeners and others requiring seeds in very large quantities will please write for special prices, giving a list of seeds and quantities wanted.

When transportation charges are not to be paid by us, deduct 5c per lb. from postpaid prices.



PURE CULTURE MUSHROOM SPAWN

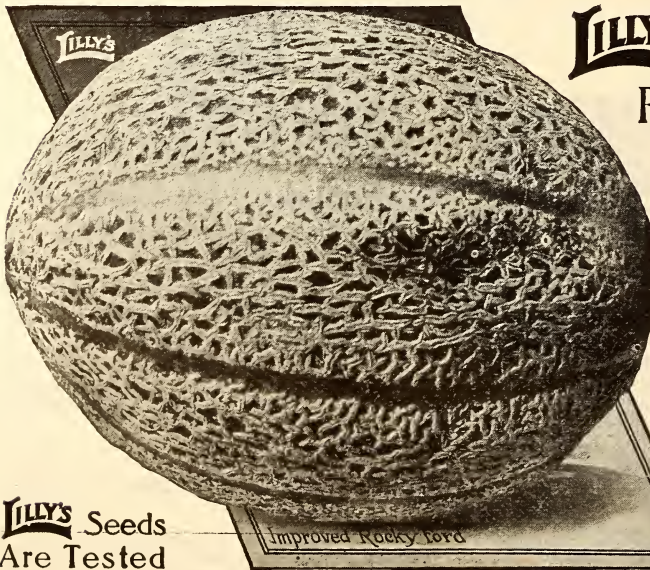
From Pedigree Stock

PURE CULTURE mushroom spawn is produced by a new system, and bears the same relation to the old English and French spawn that a grafted tree does to a wild seedling. The pure cultures are taken direct from selected speci-

Price: 1 brick, 25c; 5 bricks, \$1.00; 10 bricks, \$1.80; 25 bricks, \$4.25; 50 bricks, \$8.00; 80 bricks, \$12.00; 100 bricks, \$15.00; 160 bricks (full case), \$22.40.

If Mushroom Spawn is to be shipped by parcel post a sufficient amount must be remitted to pay postage.

mens, producing large, well-shaped mushrooms of the finest quality and of one uniform variety. We can furnish either the White, Cream-White, or Brown varieties. It is pressed in bricks weighing about 1 1/4 lbs. One brick is sufficient to spawn nine square feet of bed.



LILLY'S Seeds
Are Tested

an exceedingly small seed cavity. This seed is grown for us by one of the most reliable growers in Rocky Ford, Colorado, and is of the famous Pollock Strain. Sold only in sealed packages.

Ounce, 10c; 1/4 lb., 40c; 1/2 lb., 70c; pound, \$1.25; postpaid.

Market Gardeners will please write for special prices on large quantities.

LILLY'S IMPROVED ROCKY FORD MUSKMELON Pollock Strain

THE ROCKY FORD is the cantaloupe that is served in all of the best hotels, brings highest prices in the markets, and is famous for its sweet, luscious, melting flesh and delicious flavor. There is no other melon to compare with it in flavor.

The melon is small, about five inches in diameter, oval in form, and the skin is rich greenish gold covered with a beautiful yellow netting, giving it a very attractive appearance.

The flesh is light green, very deep, ripening clear to the rind, very solid and with

LILLY'S KING AND QUEEN WATERMELON

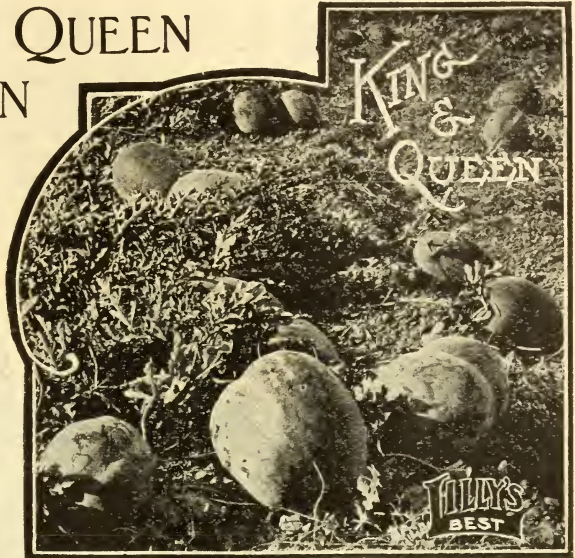
Best for Market

KING AND QUEEN is the best watermelon for market and for shipping. The fruit is of uniform, medium size; round; smooth, and of fine appearance. It is very early, and yields prodigiously. The flesh is a beautiful bright red, crisp and of delicate texture, granulated, cool and sparkling. It has very few seeds, the heart is solid, and the fine quality is sustained clear to the rind.

Sold only in sealed packages.

Oz., 10c; $\frac{1}{4}$ lb., 35c; lb., \$1.25, postpaid.

If seeds are wanted in larger quantities, write for special quantity prices.



LILLY'S SWEET AS HONEY WATERMELON

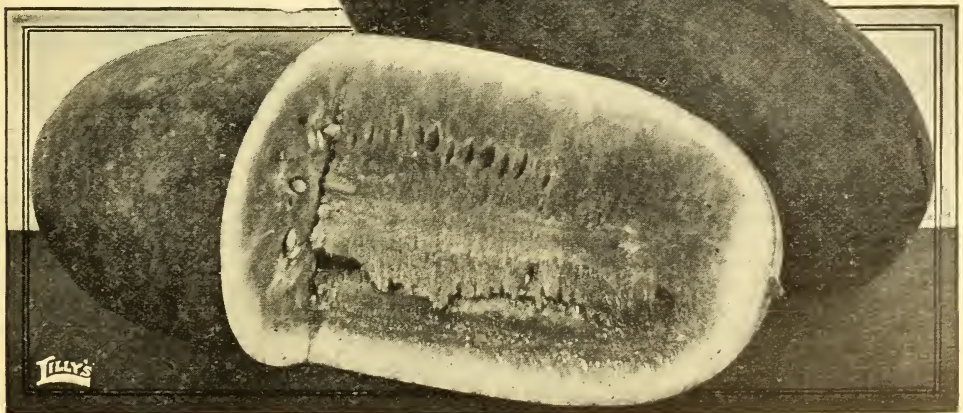
Unequaled for Home Use

THE BEST and most delicious of all early watermelons for the home garden. Especially adapted to the Northwest. Medium in size, oblong in form, and the skin is a rich, dark green. The flesh is bright scarlet clear to the rind, and entirely free from stringiness. The seeds lie close to the rind, leaving a very large, solid core, lusciously sweet, crisp and melting. The rind is too thin to make it a

good long-distance shipper, but for home consumption, or for nearby markets, it is unequaled, especially for the country west of the Cascades, where only the earliest melons can be made to mature.

Sold only in sealed packages.

Pkt., 10c;
 $\frac{1}{4}$ lb., 35c; lb.,
\$1.25; post-
paid.



LILLY'S LONGKEEPER ONION

Best for Home or Market in the Northwest

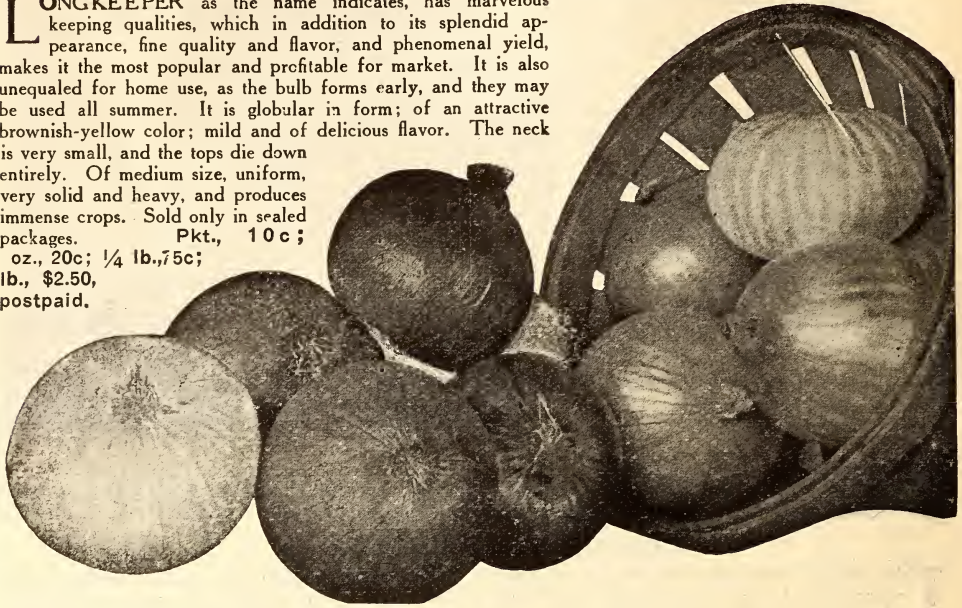
LONGKEEPER as the name indicates, has marvelous keeping qualities, which in addition to its splendid appearance, fine quality and flavor, and phenomenal yield, makes it the most popular and profitable for market. It is also unequaled for home use, as the bulb forms early, and they may be used all summer. It is globular in form; of an attractive brownish-yellow color; mild and of delicious flavor. The neck is very small, and the tops die down entirely. Of medium size, uniform, very solid and heavy, and produces immense crops. Sold only in sealed packages.

Pkt., 10c;

oz., 20c; ¼ lb., 75c;

lb., \$2.50,

postpaid.



LILLY'S WESTERN WETHERSFIELD

The Best Red Onion

AN IMPROVED strain of the Wethersfield, acclimated to the Pacific Coast, and as popular in the west as the Red Wethersfield is in the east. We highly recommend it for those who wish a large red onion. In shape it is flattened like the Red Wethersfield, it is very large, and our Select

Stock seed produces large crops, free from necky or misshapen bulbs. The color is a rich dark red, the flesh is a sparkling purplish-white, and the flavor is good. Sold only in sealed packages.

Pkt., 10c; oz., 20c; ¼ lb., 75c; lb., \$2.50, postpaid.

LILLY'S PRIZETAKER SELECT STOCK

PRIZETAKER is recognized as one of our best standard varieties, but the seed must be genuine Prizetaker. Our Select Stock seed is grown with special care, and produces bulbs enormous in size and prodigious in yield. It is the largest onion grown in this country, and almost equal to the mammoth Spanish onions. The skin is pale yellow, and the flesh clear, sparkling white.

Sold only in sealed packages.

Pkt., 10c; oz., 20c; ¼ lb., 75c; lb., \$2.50, postpaid.

LILLY'S WHITE QUEEN For Pickles or Green Onions

THIS is the variety used by all the big pickle factories of this country. It is also a favorite for the home garden and market garden, because young onions can be produced from seed nearly as early as from onion sets. They are extra early; very small; round; not necky; handsome; and very hard and crisp. The color is a beautiful waxy white, and the flavor deliciously mild.

Sold only in sealed packages.

Pkt., 10c; oz., 20c; ¼ lb., 75c; lb., \$2.50, postpaid.

Market Gardeners and others using very large quantities, please ask for special prices.

LILLY'S

ONION SETS

Yellow Danvers Bottom Sets

OUR ONION SETS are northern grown; hardy, handsome, small, and of uniform size. We grow only the Yellow Danvers sets, as that variety has proved to be the best for this purpose.

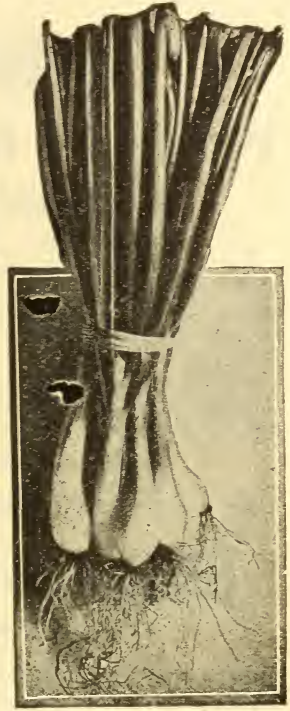
These sets, if planted very early, will produce the earliest green onions. On the Pacific Coast they may be planted in the fall, or any time during the winter or early spring.

They will also produce mature onions, but for that purpose seed is generally sown.

Price: 1 lb. 15c; 10 lbs, 12½c per pound.

If to be shipped by parcel post, postage will be additional.

If wanted in larger quantities write for prices.



LILLY'S

PALO ALTO PARSNIP

The Highest Improved Type

PALO ALTO is a particularly fine and improved strain, and is a favorite with all our customers. The flesh is white and of fine texture, tender, free from core and stringiness, and of superior flavor, sweet and rich. One of the finest table vegetables for winter use. It is very hardy, and may be left in the ground all winter, or until wanted for use. Frost improves the quality and flavor.

If grown in favorable soil, the roots are smooth, well rounded and tapering. They are heavy at the shoulder, and are half-long, rendering them easy to harvest. This parsnip yields immense crops, and in addition to being the most delicious table parsnip grown, is a splendid stock food. There is no other to compare with it.

Sold only in sealed packages.

Pkt., 10c; ¼ lb., 30c; 1 lb., \$1.00; postpaid.

LILLY'S

SEEDS

ARE

TESTED

If you have poultry, or wish to have, you will be interested in the Poultry section of this book. We make a specialty of Poultry Foods and Supplies. It is not a side line with us. We employ a poultry expert who is always glad to advise or assist you.

If seeds are not to be shipped "postpaid," deduct 5c per lb. from prices shown "postpaid"



WORLD'S RECORD PEA

A Splendid New Variety

WORLD'S RECORD has proved to be perfectly adapted to the Northwest, and the yield and quality are wonderful for a pea so extremely early. The vines are semi-dwarf, growing only two and one-half to three feet high, and it is not absolutely necessary to furnish support for them, although it is best to do so if convenient.

The pods are large, dark green, of the Gradus type, and are filled with eight to ten large, wrinkled peas. The peas are as large, sweet, and of as fine flavor as any of the later varieties.

Packet, 10c; 1 lb., 20c; 10 lbs., \$1.75.

If to be shipped by parcel post, postage will be additional.



LINCOLN PEA

Dwarf—Second Early

THIS GRAND new variety originated in England, but our seed is grown and acclimated in the Northwest. The vines are dwarf, growing only about eighteen inches high, making it popular with those who dislike the labor of making a support for them.

The pods are borne in pairs, literally covering the plants, and are long, curved, deep green, and well filled with large, wrinkled peas of excellent quality.

Packet, 10c; 1 lb., 20c; 10 lbs., \$1.75.

If shipped by parcel post, postage will be additional.



WASHINGTON WONDER

An Extra Early Dwarf Pea

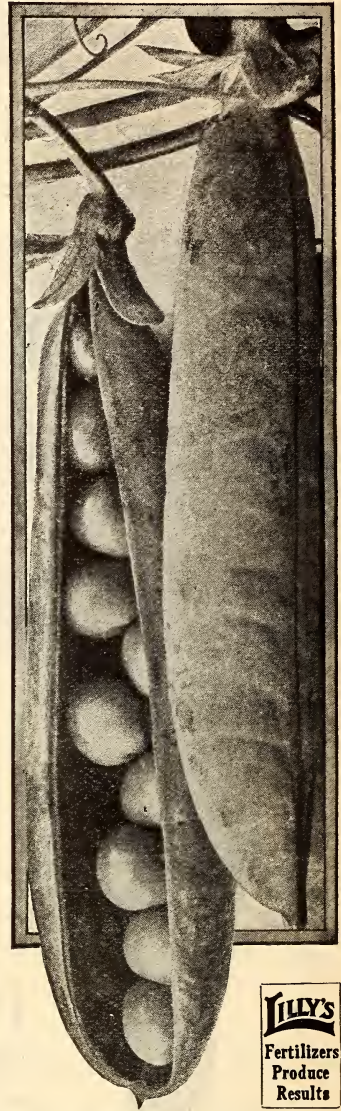
AN OLD FAVORITE, and a splendid extra early dwarf pea. It grows only about sixteen inches high, and requires no support if sown in double rows. It is quite prolific, and produces a good crop of well filled pods containing six to nine good sized, wrinkled peas of excellent flavor. It is sufficiently hardy to be sown in the fall on well drained soil, producing peas nearly a month earlier than spring sown seed.

Washington Wonder is as early as any of the extra early smooth varieties, and very much superior in quality and flavor. Its dwarf habit, not requiring support, makes it a favorite with many of our customers. Sold only in sealed packages.

Packet, 10c; 1 lb., 20c; 10 lbs., \$1.75.

We do not pay postage on Peas, Beans or Corn. If to be shipped by parcel post, add a sufficient amount to pay postage at parcel post rates. A 10c packet weighs about six ounces.

Market gardeners, and others requiring seeds in larger quantities than quoted in this catalog, will please send us a list of varieties and quantities wanted, and we will quote quantities.




Fertilizers
Produce
Results



Peas
Grown in
the Puget
Sound
District
are
Unexcelled

LILLY'S

GRADUS PEA

Extra Early

Large—Wrinkled—Sweet

THIS GRAND, extra early pea has no superiors, and few equals. It is practically as early as the little, hard, smooth, round peas generally grown for extra early, and is so much better in every other way that it is fast displacing them for first early crop. It is equal in quality to any of the late varieties, and many of our customers use it exclusively, sowing in succession for early, medium, and late.

The vine is vigorous, robust, heavy stemmed, and grows only two and one-half to three feet high. The pods are large, and are filled with six to ten large, wrinkled, marrow peas of the most delicious flavor, as large, as sweet, and as tender as the finest late pea.

Lilly's Select Stock is grown from the original strain, acclimated in the Northwest. Sold only in sealed packages.

Pkt., 10c; 1 lb., 20c; 10 lbs., \$1.75.

If to be shipped by parcel post, postage will be additional at parcel post rates.

LILLY'S CROP BOOK contains cultural directions for vegetables, flowers, and farm crops, and much other valuable information. We will furnish it free with any order, if asked for.

LILLY'S

THOMAS LAXTON PEA

As Early as the Earliest

As Good as the Latest

THOMAS LAXTON peas are very similar to Gradus in every way except the shape of the pods, the ends of which are square, and the pods and vines are a darker green. It is nearly or quite as early as Gradus,

and the large, wrinkled, dark green peas are sweet, tender, delicious, and unexcelled in quality by any of the late varieties. The vines grow about three feet high, and produce an abundance of large pods, each containing seven or eight extra large, dark green, wrinkled peas of the most delicious flavor.

They are quite hardy, and on the Pacific Coast may be planted in the fall, producing peas much earlier than if planted in the spring. Our seed is grown in the Puget Sound country, from the original strain imported from England, is thoroughly acclimated, and by careful selection is improved in quality. Sold only in sealed packages.

Packet, 10c; 1 lb., 20c; 10 lbs., \$1.75.

If to be shipped by parcel post, postage will be additional. A 10c package weighs about six ounces.

Prices shown for Beans, Corn, Peas and Mushroom Spawn do not include postage.



LILLY'S EARLIEST OF ALL

A DELICIOUS
BREAKFAST RADISH

A VERY SUPERIOR extra early forcing radish, equally good for early outdoor culture. It is small, very uniform, round, and the color is bright scarlet with a distinct and attractive white tip, and very small tap-root.

It is very early, and when properly grown will be ready for use in about twenty days after the seed is sown. The flesh is sparkling white, mild, crisp and tender. Sold only in sealed packages.

By mail, postpaid, ounce, 10c; $\frac{1}{4}$ lb., 30c; lb., 85c.

LILLY'S

WHITE ICICLE

The Best Long White Radish

THE FINEST early long white radish. It matures nearly as quickly as the early turnip-shaped varieties, and remains in good condition longer than any other early variety.

The tops are very small, and the roots long, slender, pure white, and very attractive. Equally desirable for home use or for market.

The flesh is not only crisp, tender, sweet and delicious when young, but remains in that condition until the roots have attained large size, requiring less frequent planting for succession.

Our seed is carefully grown and selected, and is sold only in sealed packages.

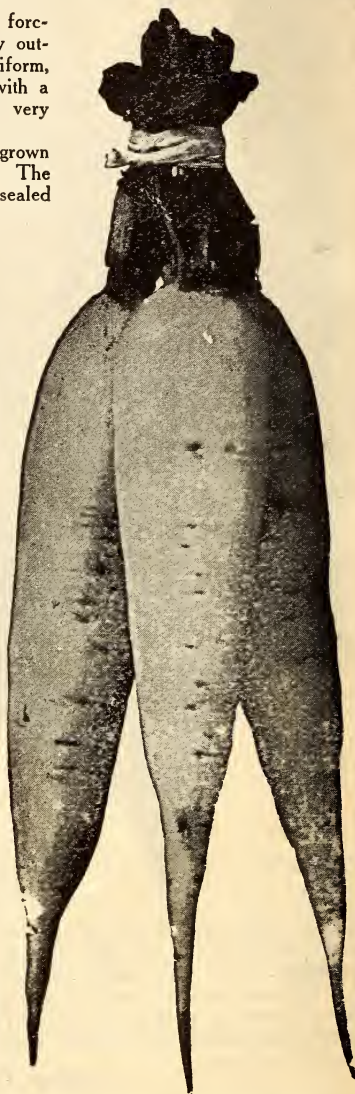
By mail, postpaid, ounce, 10c; $\frac{1}{4}$ lb., 30c; lb., 85c.

LILLY'S SEEDS ARE TESTED

We maintain a very complete Seed Testing Laboratory, where samples from various parts of each sack of each lot of seed is carefully tested for both germination and purity before being offered to our customers.

An article on the importance of purchasing only tested seeds appears in the Crop Book. We also publish a pamphlet explaining how seeds are tested, which we will mail free on request.

Properly tested seeds can be procured from but a very few of the highest-class seedsmen.





LILLY'S

CRIMSON GIANT

The King of All Early Turnip Shaped Radishes

CRIMSON GIANT is double the size of any other variety of the early turnip shaped type, often six inches or more in circumference, but notwithstanding its great size it does not become hollow or pithy; the flesh remaining sparkingly white, solid, crisp, tender and juicy, and of the mildest flavor, for a much longer period than any other. It

is equally suitable for forcing or for early planting out doors, and for succession.

The shape varies from round to oval, but the bright, deep crimson color of the skin is always the same, and the texture and flavor is unequalled.

Our seed is grown and selected with special care, and is sold only in sealed packages.

By mail, postpaid, ounce, 10c; ¼ lb., 35c; lb., \$1.00.

Radishes, to be good, must be grown quickly. This can be accomplished by the proper application of Nitrate of Soda. The Crop Book tells how to do it, and will be furnished free with any order for any of our goods, regardless of amount, if asked for with the order. It will not be furnished free except with orders, and it not for sale at any price.

LILLY'S WHITE BALL RADISH

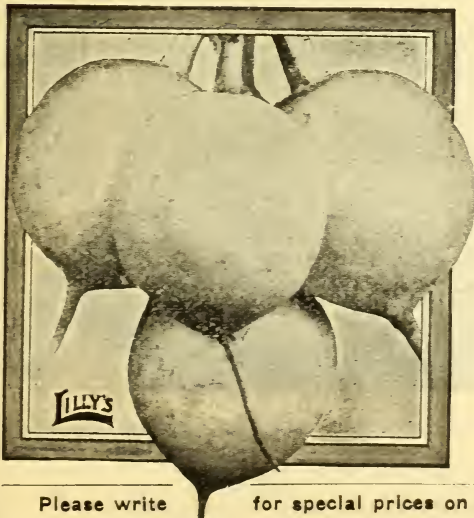
Early—Round—White

AHANDSOME, early, turnip-shaped radish, as early as Scarlet Turnip, and equally good for forcing or outdoor culture. The skin is pure white, and the flesh is transparent white, crisp, mild, and of a pleasing flavor. It has a very small top and tap-root, remains fit for use a considerable time, and will stand more drought than most varieties.

Sold only in sealed packages.

Ounce, 10c; ¼ lb., 30c; ½ lb., 50c; lb., 85c, postpaid.

LILLY'S SOLUBLE SULPHUR COMPOUND is the latest and best form of sulphur spray. It is fully as effectual as Lime and Sulphur Solution, is more convenient, cheaper, and you do not pay freight charges on water.



Please write

for special prices on large quantities, stating quantities wanted.



LILLY'S DELICATA SQUASH

A Delicious Squash for Both Summer and Winter

DELICATA is the earliest vine squash, maturing nearly as early as the bush varieties, which it is rapidly supplanting on account of superior quality. Being a hybrid, it varies considerably in form and color, but the quality is uniformly good. There is no other variety that can be used for so long a sea-

son. It is as dry, sweet, and deliciously flavored as the winter varieties, and, if properly stored, will keep nearly as long. The vines are very productive, and although the fruits are not large, they are very solid and heavy. The flesh is thick, of fine texture, pale yellow in color, and is dry and mealy, either baked or boiled. There is none better for pies.

Ounce, 10c; $\frac{1}{4}$ lb., 30c; $\frac{1}{2}$ lb., 55c; lb., \$1.00; postpaid.

LILLY'S HUBBARD SQUASH

An Old Favorite

The Best

Winter Squash

AN IMPROVED strain of the true Hubbard, which has long been the most popular winter squash, and is still one of the very best. The vines are strong, vigorous and prolific. The squashes are large, sometimes weighing as much as twenty-five pounds. The shell is dark green, extremely hard, tough, and densely warted. The flesh is golden yellow, thick, fine grained, richly flavored, sweet and dry; equally delicious when boiled, steamed or baked. No other squash can be compared with it in flavor. It is unequaled as a winter keeper and shipper.

Ounce, 10c; $\frac{1}{4}$ lb., 30c; $\frac{1}{2}$ lb., 55c; lb., \$1.00; postpaid.



LILLY'S
SEEDS
ARE
TESTED
AND
WILL
GROW

LILLY'S

CROP BOOK will be furnished free with any order if requested.

LILLY'S MAMMOTH VICTORIA SPINACH



Long-Standing
Tender
Delicious

SPINACH is one of the best of the vegetables grown for greens, and Mammoth Victoria is a very superior variety. It is especially good for early spring and successive plantings for summer use, but is also an excellent variety for fall planting for winter and early spring use.

Mammoth Victoria is a long-standing variety, very slow in going to seed, and remains in an edible condition much longer than others.

The long, pointed leaves have very small midribs, are of a deep

green color, thick, fleshy, heavily crinkled, tender, delicately flavored, and delicious. Our seed is carefully grown and selected, and is sold only in sealed packages.

By mail, postpaid, pkt., 10c; oz., 15c; ¼lb., 25c; 1b., 60.

LILLY'S LUCULLUS SWISS CHARD SPINACH BEET

LUCULLUS is the newest, largest, and best variety of Swiss Chard or Spinach Beet; with large yellow leaves finely crinkled, and with broad, white, tender midribs.

Swiss Chard is a type of beet grown for its large, tender, succulent leaves and stems. The thick, fleshy leaf-stalks are cooked and served like asparagus, and are most delicious. The leaves are boiled like spinach, making excellent greens.

The seed is planted early in spring, like beets, and the tops are cut off as wanted during the summer. New, tender shoots spring up quickly after the tops have been cut off, so that it is not necessary to make successive plantings, and a few short rows in the garden will supply all that a family can use.

It is ready for use early in summer, continues until killed by freezing weather, and comes up again very early the next spring. A new crop should be planted each spring, for that planted the previous year is liable to go to seed during the summer.

Our seed is specially grown for us, carefully selected, and is sold in sealed packages only.

Pkt., 5c; oz., 10c; ¼ lb., 30c; 1b., 85c, postpaid.



Any varieties listed among our Specials may be depended upon as being best for the Northwest.

LILLY'S PUGET SOUND SPECIAL

BEST
EXTRA
EARLY
TOMATO

A TOMATO THAT
WILL MATURE
ON THE
PACIFIC COAST



GOOD
ANYWHERE

BEST
WEST OF
THE CASCADES
FOR EITHER
EARLY
OR
MAIN CROP

PUGET SOUND SPECIAL in addition to being one of the very earliest tomatoes, is one of the best, and is decidedly the best tomato that may be depended upon to mature in the country west of the Cascade Mountains.

It is equaled in earliness only by the Earliana, sometimes producing ripe fruit, when grown outdoors, as early as July 4th, and, although an early tomato is seldom equal to the later varieties in quality, Puget Sound Special is of particularly fine quality.

Pkt., 10c; oz., 40c; $\frac{1}{4}$ lb., \$1.25; $\frac{1}{2}$ lb., \$2.25; lb., \$4.00, postpaid.

The flesh is solid, meaty, and of delicious flavor, with few seeds and no hard core or pulpy cavities. It is a heavy yielder of splendid firm fruits, which, although not perfectly round, are of good shape and rich red color.

It is the best early tomato for any locality, and for the Pacific Coast it is the best for either early, late, or hot-house culture.

Sold only in sealed packages.

The Crop Book contains some good articles on Tomato Culture. It will be furnished free with any order, regardless of amount, if asked for. If requested, we will furnish Littooy's "Early Tomato Culture" free with an order for one-half pound or more of tomato seed. Price is 25c.



LILLY'S
IMPROVED STRAIN
EARLIANA TOMATO
The Earliest Variety

ALTHOUGH this is an extremely early variety, the earliest good variety grown, the quality is excellent. It produces large clusters of medium size, deep red fruit, uniform in size and of good shape; very solid and of fine flavor. It is a popular variety for greenhouse forcing, and is excelled only by Puget Sound Special for outdoor culture on the Pacific Coast. Lilly's improved strain is sold only in sealed packages.

Packet, 10c; oz., 35c; $\frac{1}{4}$ lb., \$1.00; $\frac{1}{2}$ lb., \$1.75; lb., \$3.00, postpaid.

LILLY'S

PUGET SOUND FORCING TOMATO
Best for Greenhouse Culture

THIS SPLENDID extra early strain is especially valuable for greenhouse culture. It is a prolific bearer, and most of the fruit is borne close to the main stalk, allowing close pruning. The fruit is of

medium size, excellent shape for an early tomato, and of splendid quality. The flesh is firm and meaty, deep red, and fine flavor. Sold only in sealed packages.

Packet, 10c; oz., 40c; $\frac{1}{4}$ lb., \$1.25; $\frac{1}{2}$ lb., \$2.25; lb., \$4.00, postpaid.

LILLY'S SELECT
STOCK
PONDEROSA

Immense Size—Finest Quality

PONDEROSA is massive in size, often attaining a circumference of eighteen inches and weighing two to four pounds, of good form, smooth, free from wrinkles, and does not crack. The flesh is solid and meaty, free from cavities, almost seedless, and of the most delicious flavor.

The plant is luxuriant, healthy, independent of drought, free from blight, and a continuous and prolific bearer. It is medium late, and cannot be depended upon to mature west of the Cascade Mountains, but it is a splendid variety for the country east of the mountains. Sold only in sealed packages.

Packet, 10c; oz., 35c; $\frac{1}{4}$ lb., \$1.15; $\frac{1}{2}$ lb., \$2.00; lb., \$3.50, postpaid.

LIVINGSTON'S
CORELESS
A Splendid New Variety
Large—Late
Best for Canning

CORELESS is a medium large, late tomato of recent introduction, is a good variety for slicing, and is especially desirable for canning. In shape it is almost perfectly globular, with little or no depression at the stem-end. There is no hard core, and the seed cells are surrounded by bright red, heavy, meaty, and delicious flesh. It is very productive, the fruit being produced in large clusters at close intervals along the stem, and, on account of its superior solidity, it is a good long distance shipper. Sold only in sealed packages.

Packet, 10c; oz., 35c; $\frac{1}{4}$ lb., \$1.15; $\frac{1}{2}$ lb., \$2.00; lb., \$3.50, postpaid.

LILLY'S

SNOWBALL

The Finest Early White Turnip

THIS DELICIOUS TURNIP is the best early white variety grown. It is equaled in earliness only by Extra Early White Milan, to which it is in every other way superior. Under favorable conditions it will be ready for use six weeks after the seed is sown. It is small, and uniform in size and shape, which is almost perfectly globular. The skin is smooth, white, and thin; and the flesh is pure sparkling white, sweet, tender, crisp, and delicious. Sold only in sealed packages.

Ounce, 10c; $\frac{1}{4}$ lb., 25c; $\frac{1}{2}$ lb., 40c; lb., 75c, postpaid.

LILLY'S

GOLDEN WEST

The Best Early Yellow Turnip

THE FINEST yellow fleshed early table turnip in cultivation. The bulb is small, round, smooth, and handsome, with yellow skin and small tap-root. The flesh is deep yellow, fine grained, tender, sweet and rich; and the flavor is unequaled. It is of quick growth, and is adapted for either spring, summer, or early fall planting. Sold only in sealed packages.

Ounce, 10c; $\frac{1}{4}$ lb., 25c; $\frac{1}{2}$ lb., 40c; lb., 70c, postpaid.

LILLY'S

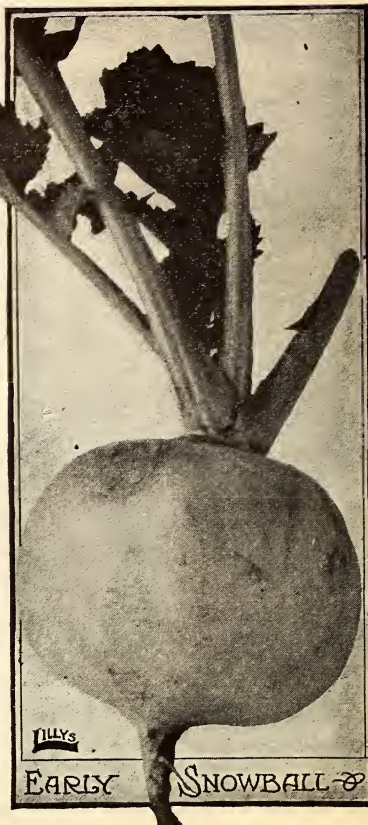
EXTRA EARLY
WHITE MILAN TURNIP
The Very Earliest

AN EXCELLENT table turnip, and the earliest of all varieties; adapted for very early spring planting. The tops are small; the bulbs of medium size, flattened, and ivory-white in color. The flesh is fine grained, tender, and of a mild, sweet flavor. It remains in good condition for a long period of time, and does not become pithy or stringy. Lilly's Special Strain is sold only in sealed packages.

Ounce, 10c; $\frac{1}{4}$ lb., 25c; $\frac{1}{2}$ lb., 40c; lb., 75c, postpaid.

If seeds are to be sent by express or freight, not prepaid, deduct 5 cents per lb. from prepaid prices.

Market Gardeners and others requiring garden seeds in very large quantities, will please give us a list of seeds and quantities wanted, and we will quote lowest possible quantity prices.



LILLY'S

PETROWSKI TURNIP
A New Yellow Variety

THIS NEW early yellow turnip was imported from Finland, and promises to become very popular in this country. The United States Department of Agriculture has experimented with it in Alaska, and following is description furnished by Prof. C. C. Georgeson, Special Agent in Charge of Alaska Investigations: "Turnip of medium size; top short, spreading, so that the lower leaves generally lie on the ground. Flesh yellow, tender, very pleasant. Shape, rounded, almost spherical; quite uniform in size and shape. Medium early. An excellent keeper, and altogether the best turnip we have ever tried in Alaska." Sold only in sealed packages.

Ounce, 10c; $\frac{1}{4}$ lb., 30c; $\frac{1}{2}$ lb., 55c; lb., \$1.00, postpaid.



LILLY'S

COMPLETE LIST

VEGETABLE SEEDS

WE PREPAY TRANSPORTATION CHARGES ON THE FOLLOWING SEEDS, EXCEPT BEANS, CORN, PEAS, MUSHROOM SPAWN AND ONION SETS, BY PARCEL POST, EXPRESS OR FREIGHT, AT OUR OPTION.

If vegetable seeds, with the above exceptions, are to be shipped by express or freight, and charges paid at destination, or to be shipped by parcel post and postage is remitted separately, deduct 5c per pound from these prices.

ARTICHOKE

	DELIVERED FREE			
	Pkt.	Oz.	¼ lb.	1 lb.
One ounce will produce 500 plants.				
LARGE FRENCH GREEN GLOBE. See Specialties.....	\$0.05	\$0.35	\$1.15	\$3.50
Jerusalem. Tubers. See page 74.....				

ASPARAGUS

	One ounce for 500 plants. 1 lb. per acre.			
COLUMBIA MAMMOTH. See Specialties.....	.05	.10	.25	.75
Colossal. A splendid variety; productive and of fine quality.....	.05	.10	.20	.60
Palmetto. Early, prolific and of large size.....	.05	.10	.20	.60
Asparagus Roots. See page 72.....				

BEANS. See page 43

BEEF

	One ounce to 50 feet of drill. 5 lbs. per acre			
CRIMSON GLOBE. See Specialties.....	.10	.15	.50	1.50
CROSBY'S EGYPTIAN. See Specialties.....	.10	.15	.50	1.50
Early Egyptian. The old standard extra early blood turnip beet. The roots are flattened, of medium size, and the tops small.....	.05	.10	.35	1.00
Early Blood Turnip Beet. A standard medium early variety of excellent quality. Color deep blood-red.....	.05	.10	.35	1.00
Eclipse Blood Turnip Beet. Extremely early; of uniform globular form; deep red color; fine grained, tender and sweet.....	.05	.10	.35	1.00
Detroit Blood Turnip Beet. An improved strain of the Early Blood Turnip Beet. Remarkably uniform and smooth; medium size; fresh fine grained and tender. Excellent for either early or late use.....	.05	.10	.35	1.00
Half Long. A half-long blood beet of superior quality; tender, sweet and free from woody fiber. Unequaled for winter use.....	.05	.10	.35	1.00
Long Smooth Blood-Red. An excellent late variety, and a great improvement over the common Long Blood Beet.....	.05	.10	.35	1.00
SPINACH BEET, or SWISS CHARD. See Specialties.....	.05	.10	.30	.85

If seeds are to be shipped F. O. B. Seattle or Portland deduct 5c per pound from these prices.

BEET—SUGAR

	DELIVERED FREE		
	Pkt.	½ lb.	1 lb.
One ounce to 50 feet of drill. 5 lbs. per acre.			
Klein Wanzleben Sugar Beet. See Farm Seeds Section.....	\$0.10	\$0.30	\$0.50
French White Sugar Beet.....	.10	.30	.50

BEET—STOCK, or MANGEL WURZEL

	DELIVERED FREE		
	Pkt.	½ lb.	1 lb.
One ounce to 50 feet of drill. 5 lbs. per acre.			
DANISH SLUDSTRUP MANGEL. See Farm Seeds Section.....	.10	.30	.50
Golden Giant Mangel.....	.10	.30	.50
Half Sugar Mangel.....	.10	.30	.50
Royal Red Mangel.....	.10	.30	.50
Long Red Mangel.....	.10	.30	.50
Yellow Globe Mangel.....	.10	.30	.50
Golden Tankard Mangel.....	.10	.30	.50
Giant Intermediate, or Gate Post Mangel.....	.10	.30	.50

BROCCOLI

	DELIVERED FREE			
	Pkt.	Oz.	¼ lb.	1 lb.
One ounce to 2,000 plants.				
Large White French. A winter substitute for cauliflower, to which it is similar but inferior.....	\$0.05	\$0.40	\$1.25	...

BRUSSELS SPROUTS

	DELIVERED FREE			
	Pkt.	Oz.	¼ lb.	1 lb.
One ounce to 2,000 plants.				
Dwarf Improved. A dwarf, compact growing sort, producing sprouts of fine quality. Sow in June for fall crop.....	.05	.15	.45	1.50

CABBAGE

One ounce for 1,500 plants. ½ lb. per acre.

EXTRA EARLY VARIETIES

	Pkt.	Oz.	¼ lb.	1 lb.
COPENHAGEN MARKET. See Specialties.....	.10	.20	.75	2.40
EARLY JERSEY WAKEFIELD, SELECT. See Specialties.....	.10	.20	.75	2.50
Early Jersey Wakefield. The old standard extra early cabbage. Pointed heads; splendid flavor.....	.05	.20	.60	1.75
Early Winningstadt. A good early cabbage, not so early as the Wakefield. Pyramidal shaped heads.....	.05	.20	.60	1.75
Charleston Wakefield. Large, solid heads of excellent quality. Same shape as Early Jersey Wakefield, but a little later.....	.05	.20	.65	2.00

SECOND EARLY VARIETIES

	Pkt.	Oz.	¼ lb.	1 lb.
GLORY. See Specialties.....	.10	.20	.75	2.50
ALL SEASONS. See Specialties.....	.10	.20	.60	2.00
Early Spring. A good early flat-headed variety, only one week later than the extra early varieties.....	.05	.20	.65	2.00
Early All Head. A very early flat-headed cabbage of good quality, size, and uniform shape.....	.05	.20	.65	2.00
Henderson's Early Summer. A very popular flat-headed mid-season's cabbage, ten days later than Wakefield.....	.05	.20	.60	1.75
Early Flat Dutch. A very popular second early flat-headed cabbage of excellent quality.....	.05	.20	.65	2.00

WINTER VARIETIES

	Pkt.	Oz.	¼ lb.	1 lb.
DANISH BALLHEAD. See Specialties.....	.10	.20	.75	2.50
DRUMHEAD SAVOY. See Specialties.....	.10	.20	.60	2.00
Surehead. A good strain of Late Flat Dutch. A reliable header and good keeper.....	.05	.20	.60	1.75
Premium Late Flat Dutch. An excellent standard late cabbage for fall use; tender and of superior flavor.....	.05	.20	.60	1.75
Large Late Drumhead. A splendid shipper. Heads large, heavy and solid.....	.05	.20	.60	1.75
Autumn King. A fine winter variety of vigorous growth. Large, well formed, globular heads of bluish green color.....	.05	.20	.65	2.00
Pottler's Brunswick. Heads large, flat and solid. A sure header. Short stemmed.....	.05	.20	.60	1.75
Red Dutch. A popular hard headed sort for pickling. Rather small but of excellent quality.....	.05	.20	.65	2.00

Cabbage Plants. See page 72.

CAULIFLOWER

	DELIVERED FREE			
	Pkt.	¼ Oz.	½ oz.	1 oz.
One ounce for 2,000 plants.				
EARLY ALBA. See Specialties.....	\$0.25	\$0.75	\$1.40	\$2.50
DANISH DRY WEATHER. See Specialties.....	.25	.75	1.40	2.50
Snowball. A splendid early variety, and a sure header.....	.05	.60	1.10	2.00
Early Dwarf Erfurt. Good sized heads of excellent quality. Plants dwarf and compact.....	.05	.75	1.40	2.50
Large Late Algiers. A good late variety for fall use, producing fine large heads.....	.05	.25	.40	.75

Cauliflower Plants. See page 72.

Market Gardeners and others requiring seeds in very large quantities will please give us a list of varieties and quantities wanted and we will be glad to quote special quantity prices.

CARROT

	DELIVERED FREE			
	Pkt.	Oz.	¼ lb.	1 lb.
One ounce for 125 feet of drill. 4 lbs. per acre.				
GOLDEN HALF-LONG. See Specialties.....	\$0.10	\$0.15	\$0.50	\$1.60
LILLY'S EARLY FORCING CARROT. See Specialties.....	.10	.15	.50	1.50
Early French Forcing. Extra early and a popular variety for forcing. Roots small and globular; color orange-red.....	.05	.15	.50	1.50
Short Horn, or Early Scarlet Horn. An excellent variety for early planting outdoors. Roots about three inches long; reddish-orange; good flavor.....	.05	.15	.40	1.25
Chantenay, or Model. An excellent stump-rooted variety, about six inches long and very broad at the shoulder; free from core, fine grained and tender; orange-red.....	.05	.15	.40	1.25
Oxheart, or Guerande. About six inches long, thick and blunt rooted; orange-red. Desirable in soils too stiff and hard for longer sorts.....	.05	.10	.35	1.00
Danver's Half-Long. A favorite standard variety of splendid quality; equally desirable for table or stock.....	.05	.10	.35	1.00
Improved Long Orange. A splendid variety for either table or stock; grows about twelve inches long and three inches in diameter....	.05	.10	.35	1.00
Improved Short White. The most productive white variety. Popular for stock feeding.....	.05	.10	.30	.85
White Belgian. A large and very productive stock carrot.....	.05	.10	.25	.75
MASTODON. See Farm Seeds Section.....	.10	.10	.30	.85

CELERY

	One ounce for 3,000 plants.			
VILMORIN'S PARIS GOLDEN YELLOW. See Specialties.....	.10	1.50	5.00	...
SILVER PLUME. See Specialties.....	.10	.75	1.75	5.00
GIANT WHITE WINTER. See Specialties.....	.10	.75	1.75	5.00
Golden Self Blanching. A good standard early variety; blanching easily. The heart is rich golden-yellow, the outer leaves yellowish green.....	.05	.60	1.75	6.00
Giant Pascal. A popular variety for winter use. It blanches easily, and is one of the best keepers.....	.05	.25	.75	2.50
Giant White Solid. A good late variety of immense size.....	.05	.20	.60	2.00
Boston Market. A late variety with solid, half-round, green stalks, blanching white and crisp; dwarf and robust.....	.05	.20	.60	2.00

CELERIAC, or TURNIP-ROOTED CELERY

Large Frague. Large, round, smooth, turnip-like roots; used for flavoring soups or as a salad.....	.05	.20	.60	1.75
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CHERVIL

Curled. Very finely curled, resembling parsley; used in soups and salads.....	.05	.10	.30	1.00
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CHICORY

Large Rooted. Used as a substitute for coffee; and the young blanched shoots are used for salad.....	.05	.15	.40	1.25
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CHIVES, or SCHNITTLAUCH

Chives. Has a mild flavor of young onions, and is used in soups and salads.....	.10	.50
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COLLARDS

Georgia. A loose form of cabbage grown in the South for greens. Not adapted to the Northwest.....	.05	.15	.30	1.00
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CORN. SEE PAGE 44

CUCUMBER

	One ounce for 60 hills. 2 to 3 pounds per acre.			
PRIDE OF THE PACIFIC. See Specialties.....	\$0.10	\$0.20	\$0.60	\$2.00
LILLY'S PICKLING. See Specialties.....	.10	.20	.60	1.75
DAVIS PERFECT. See Specialties.....	.10	.15	.40	1.25
Cool and Crisp. An excellent strain of White Spine; early, prolific, and bears the whole season; long, straight, and tapering at both ends; color, dark green.....	.05	.15	.35	1.00
White Spine, Improved. A popular standard variety for both home use and market. It is early, and produces an abundant crop of long straight, light-green fruit of splendid quality.....	.05	.15	.40	1.25
Early Cluster. An early, prolific, prickly, short green variety, adapted either for forcing or outdoor culture.....	.05	.10	.35	1.00
Green Prolific. A short, green, productive variety for pickling.....	.05	.10	.35	1.00
Long Green. Dark green fruits twelve to fourteen inches long; firm, crisp, and excellent for either slicing or pickling.....	.05	.15	.40	1.25
Early Frame, or Short Green. Very productive; fruits straight, but small at ends; bright green.....	.05	.10	.35	1.00
West India Gherkin. A small prickly variety, used for pickles only..	.05	.20	.65	2.00
Boston Pickling. A popular variety for pickling.....	.05	.10	.35	1.00
Chicago Pickling. A prolific, deep green pickling cucumber; medium size and pointed at both ends.....	.05	.10	.35	1.00

CORN SALAD

DELIVERED FREE

	Pkt.	Oz.	¼ lb.	1 lb.
Large Headed Petticus, or Lamb's Lettuce. Hardy little plants grown for a late fall, winter and spring substitute for lettuce..	.05	.10	.25	.75

CRESS

Water Cress. Used as a salad and garnish for meats. Must be grown in shallow water.....	.05	.35	1.00	...
Curled Cress, or Pepper Grass. Crisp, pungent leaves; used as a condiment and for garnishing .....	.05	.10	.20	.50

EGG PLANT

New York Improved. The standard market variety. Fruits large, nearly round, dark purple .....	.95	.30	1.00	3.50
Black Pekin. Early and prolific; fruit large, round, solid, purplish-black .....	.05	.30	.90	3.00

ENDIVE

BROAD-LEAVED BATAVIAN. See Specialties.....	.10	.20	.50	1.50
Green Curled. A standard green variety for fall and winter use....	.05	.15	.40	1.25
White Curled. Leaves pale green; grows to a large size; always crisp and tender .....	.05	.15	.40	1.25

HERB SEEDS

Anise .....	.05	.10	.25	...
Basil, Sweet .....	.05	.15	.45	...
Caraway .....	.05	.10	.25	...
Catnip .....	.05	.40	1.00	...
Dill .....	.05	.10	.25	...
Fennel, Sweet .....	.05	.10	.25	...
Lavender .....	.05	.15	.50	...
Sweet Marjoram .....	.05	.15	.50	...
Rosemary .....	.05	.35	...	...
Sage .....	.05	.15	.45	...
Summer Savory .....	.05	.10	.35	...
Thyme .....	.05	.25	...	...

KALE or BORECOLE

One ounce for 150 feet of drill.

EMERALD ISLE. See Specialties.....	.10	.15	.30	1.00
Tall Scotch. A hardy variety, growing about thirty inches high; very curly and a beautiful plant.....	.05	.10	.35	.75
Siberian, or Dwarf German. A dwarf, compact plant with beautiful curled yellowish-green leaves .....	.05	.10	.25	.75
THOUSAND HEADED. See Farm Seeds Section.....	.10	.10	.20	.40

KOHL-RABI

One ounce for 300 feet of drill.

Early White Vienna. The standard variety for home or market. Very early; flesh white; skin greenish-white.....	.05	.20	.60	2.00
Early Purple Vienna. Similar to White Vienna, except that the skin is purple. The flesh is white and tender.....	.05	.20	.60	2.00

LETTUCE

One ounce for 3,000 plants.

CURLED VARIETIES

LILLY'S FORCING. See Specialties.....	\$0.10	\$0.20	\$0.50	\$1.25
Early Curled Simpson. A popular market variety for forcing or very early planting outdoors. Forms a dense mass of finely curled leaves of excellent quality .....	.05	.15	.35	1.00
Black Seeded Simpson. Very large, loose heads of thin, tender, curly, yellow leaves .....	.05	.15	.35	1.00
Grand Rapids. A splendid forcing lettuce; large, beautifully curled, crisp and tender .....	.05	.15	.40	1.25
Early Curled Silicia. An excellent early, curled variety .....	.05	.15	.35	1.00

HEAD VARIETIES

DELICIOUS. See Specialties.....	.10	.20	.50	1.50
NONPAREIL HANSON. See Specialties.....	.10	.20	.50	1.50
WONDERFUL. See Specialties.....	.10	.20	.50	1.50
IMMENSITY. See Specialties.....	.10	.20	.50	1.50
Boston Market, or White Seeded Tennisball. A popular, small, compact head variety for early outdoor culture or for forcing.....	.05	.15	.40	1.25
Hanson Head. A handsome, large headed summer lettuce of excellent quality .....	.05	.15	.40	1.25
Deacon. A large firm-heading variety for summer and fall use. Light green outside, creamy-yellow inside.....	.05	.15	.35	1.00
May King. This is a very hardy variety, and will stand much cold, damp weather. Can be planted outdoors or under glass, and in either case will produce fine heads much sooner than any other variety.....	.05	.15	.35	1.00
Black Seeded Tennisball. A hardy, very early, small, hard-headed variety for forcing or early outdoor culture.....	.05	.15	.35	1.00
Frizehead. A popular variety. Green tinged with red.....	.05	.15	.35	1.00
Paris White Cos. A popular old variety with long heads and narrow leaves. May be blanched by tying the leaves together.....	.05	.15	.35	1.00

G. B. Lewis Co. Bee Supplies are the best. They are listed elsewhere in this catalog.



LEEK

One ounce for 100 feet of drill.

	Pkt.	Oz.	$\frac{1}{4}$ lb.	1 lb.
Large American Flag. A very superior variety, producing large, thick stems of good flavor.....	.05	.15	.45	1.25
Musselburg. Grows to very large size, with broad leaves spreading like a fan .....	.05	.15	.45	1.25

MELON—MUSK, or CANTALOUPE

One ounce for 60 hills. 3 lbs. per acre.

IMPROVED ROCKY FORD. See Specialties.....	.10	.10	.40	1.25
Rocky Ford, or Netted Gem. The sweet and luscious green-fleshed melon that has become world-famous.....	.05	.10	.35	1.00
Casaba. The largest muskmelon grown; form oblong; flesh green and of good quality .....	.05	.20	.65	2.00
Osage, or Miller's Cream. Large and round, with light green netted skin and salmon-colored flesh.....	.05	.10	.35	1.00
Nutmeg. A popular old variety. Skin deep green, finely netted; flesh greenish-yellow, sweet and sugary.....	.05	.10	.35	1.00
Extra Early Hackensack. Of large size and attractive appearance; skin netted; flesh green and very sweet.....	.05	.10	.35	1.00
Large Hackensack. An excellent green-fleshed, late variety; ends flattened; thick, irregular ribs and coarse netting; flavor sweet and delicious .....	.05	.15	.40	1.25
Early Jenny Lind. A small, round, very early melon; deeply ribbed and netted; flesh yellowish-green and of good flavor.....	.05	.10	.35	1.00

MELON—WATER

One ounce for 30 hills. 4 lbs. per acre.

SWEET AS HONEY. See Specialties.....	.10	.10	.35	1.25
KING AND QUEEN. See Specialties.....	.10	.10	.35	1.25
Cuban Queen. Very large, oval melons; striped; flesh red and of excellent quality .....	.05	.10	.25	.75
Cole's Early. An excellent early variety with thin rind, large heart, and flesh of fine texture and flavor.....	.05	.10	.25	.75
Dixie. Early, productive, and of good quality; a good shipper.....	.05	.10	.25	.75
Ice Cream, or Peerless. Medium size, almost round; skin light green mottled; flesh scarlet; white seeded.....	.05	.10	.25	.75
Gypsey, or Georgia Rattlesnake. Oblong; skin mottled and striped; medium early; flesh crimson .....	.05	.10	.25	.75
Kleckley Sweet, or Monte Cristo. Large; oval; dark green mottled; rind thin; flesh sweet, crisp and sugary .....	.05	.10	.25	.75
Sweetheart. An early, oval melon; light green mottled; thin, tough rind; flesh light red and of fine quality.....	.05	.10	.25	.75
Florida Favorite. Large, oval, striped; rind thin but hard; flesh crimson, sweet and melting.....	.05	.10	.25	.75
Lodi. A popular California variety. Fruit large, oblong, green, slightly mottled; rind thin but tough; flesh bright red and sweet; seeds white .....	.05	.10	.25	.75
Citron. Small and round; for preserves only.....	.05	.10	.25	.75

MUSHROOM SPAWN. See page 45

MUSTARD

Southern Curled. A large variety with finely curled leaves. Used for greens and salads.....	.05	.10	.25	.75
White English. Light green, tender leaves. Seed light yellow.....	.05	.10	.15	.40

OKRA

Dwarf Green. The green pods are used in soups, stews, etc., to which they impart a rich flavor05	.10	.20	.60
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PARSLEY

One ounce for 300 feet of drill.

Champion Moss Curled. Densely crimped and curled dark green leaves. Beautiful for garnishing.....	.05	.10	.30	.90
Triple Curled. A popular dwarf variety, finely curled.....	.05	.10	.30	.90
Plain. A very hardy variety; leaves not curled.....	.05	.10	.30	.90

PARSNIP

One ounce for 200 feet of drill. 6 lbs. per acre.

PALO ALTO. See Specialties.....	.10		.30	1.00
Hollow Crown. A heavy cropping variety; half-long; round, smooth, white and of fine texture and flavor.....	.05	.10	.25	.75
Long White Dutch. More productive than other varieties, but inferior in other respects.....	.05	.10	.25	.75

For prices F. O. B. Seattle or Portland, deduct 5c per pound from these prices.

ONION

DELIVERED FREE

	Pkt.	Oz.	¼ lb.	1 lb.
One ounce for 250 feet of drill. 5 lbs. per acre.				
LONGKEEPER. See Specialties.....	\$0.10	\$0.20	\$0.75	\$2.50
WESTERN WETHERSFIELD. See Specialties.....	.10	.20	.75	2.50
PRIZETAKER, SELECT. See Specialties.....	.10	.20	.75	2.50
WHITE QUEEN, SELECT. See Specialties.....	.10	.20	.75	2.50
Prizetaker. Of immense size, globular shape, and good quality. The skin is light yellow, the flesh pure white.....	.05	.20	.50	1.50
White Queen. A very small, pure white onion; used for pickling and for early green onions.....	.05	.30	.75	2.25
Extra Early Red Flat. Very early; medium size; flat; skin light red; flesh fine grained, white and mild.....	.05	.20	.60	1.75
Large Red Wethersfield. A very large onion, flattened in shape, with skin of a purplish-red color, and flesh purplish-white; rather strong flavored, but good, and an excellent keeper.....	.05	.15	.45	1.25
Australian Brown. Early; medium size; nearly globular in shape; very solid; of an attractive brown color and milk flavor.....	.05	.15	.35	1.00
Yellow Globe Danvers. A very popular variety, especially for market. Globular in form; very solid, and one of the best shippers; skin brownish-yellow; flesh fine grained, white, and mild.....	.05	.20	.60	1.75
Oregon Yellow Danvers. Similar to the Yellow Globe Danvers, except that it is flattened.....	.05	.20	.60	1.75
Yellow Flat Danvers. Early, very productive, and reliable; form round, flattened, small neck; thin, pale yellow skin; flesh white.....	.05	.15	.45	1.25
White Portugal, or Silver Skin. A splendid early, flat, white variety; one of the best for home use, and much grown by market gardeners for early green onions.....	.05	.25	.70	2.00
Southport Red Globe. A handsome, perfectly globular, purplish-red onion of large size; flesh white and of superior quality; a good keeper.....	.05	.20	.60	1.75
Southport White Globe. Very large, globular in form, with pure white skin and flesh; very handsome, productive and of fine quality.....	.05	.30	.75	2.25
Southport Yellow Globe. An excellent, large, globular, yellow onion, almost identical with Southport Red Globe except in color.....	.05	.15	.45	1.25
Yellow Dutch, or Strasburg. Similar to the Yellow Flat Danvers in shape, size and color. Popular for growing onion sets.....	.05	.15	.45	1.25
Italian Tripoli. A large white onion; globular in form; with mild, sweet, pearl-white flesh.....	.05	.30	.75	2.25

ONION SETS. See page 45

PEPPER

One ounce for 1,000 plants.

Large Bell, or Bull Nose. Early; large red fruit; very mild.....	.05	.25	.75	2.50
Golden Dawn. Similar to Large Bell, except that the color is golden-yellow.....	.05	.25	.75	2.50
Ruby King. The most popular variety. Very large, ruby-red, thick fleshed and very mild.....	.05	.25	.75	2.50
Long Red Cayenne. A late variety. Small, bright scarlet, cone-shaped pods used for pickling.....	.05	.25	.75	2.50

PEAS. See page 44.

POTATOES. See Field Seeds Section.

PUMPKIN

One ounce for 30 hills. 4 lbs. per acre.

Sugar, or Sweet Pie. A small, handsome and productive pie pumpkin of delicious flavor. A good keeper.....	.05	.10	.25	.75
Connecticut Field. A large, productive, orange-colored field pumpkin, generally grown for stock, but good for pies.....	.05	.10	.20	.50
Jumbo, or King of Mammoths. The largest pumpkin grown. Under favorable conditions it produces specimens weighing 200 to 250 pounds.....	.05	.10	.35	1.00
Mammoth Tours. An old favorite of very large size.....	.05	.10	.35	1.00
Cushaw. Almost white; has a curved neck, hard skin, and very solid flesh.....	.05	.10	.25	.75

RADISH

One ounce for 100 feet of drill. 10 lbs. per acre.

EARLY ROUND VARIETIES

CRIMSON GIANT. See Specialties.....	\$0.10	\$0.10	\$0.35	\$1.00
EARLYST OF ALL. See Specialties.....	.10	.10	.30	.85
WHITE BALL. See Specialties.....	.10	.10	.30	.85
Early Scarlet Turnip Radish. A popular, small, early, bright red turnip-shaped radish.....	.05	.10	.25	.75
Early Scarlet Turnip White Tip. An excellent early round radish; scarlet with attractive white tip.....	.05	.10	.25	.80
French Breakfast. A general favorite; oval shape; bright scarlet with white tip.....	.05	.10	.25	.75
Early White Ball. Similar to Early Scarlet Turnip, except that it is pure white.....	.05	.10	.25	.75

The Crop Book, containing cultural directions, will be furnished free with any order if requested.



RADISH—Continued
EARLY LONG VARIETIES

DELIVERED FREE

	Pkt.	Oz.	¼ lb.	1 lb.
WHITE ICICLE. See Specialties.....	.10	.10	.30	.85
White Vienna, or Lady Finger. Long and tapering; pure white; very attractive; mild and tender.....	.05	.10	.25	.80
Long Bright Scarlet. A standard, early, long, scarlet variety; six inches long; matures in about twenty-five days.....	.05	.10	.25	.75
Long Scarlet White Tip. Similar to the Long Bright Scarlet, with lower third of the root pure white.....	.05	.10	.25	.75
Half-Long Scarlet. Early; half-long; medium size; bright scarlet; flesh white, crisp and tender; an excellent market garden sort....	.05	.10	.25	.75

LATE VARIETIES

Chartier. A large, long, summer radish; crimson at the top, fading to white at the tip.....	.05	.10	.25	.75
White Strasburg. An excellent summer radish; five inches long; tapering; flesh and skin white.....	.05	.10	.25	.80

WINTER VARIETIES

China Rose Winter Radish. A splendid winter radish; about five inches long and two inches in diameter, largest at the bottom; color bright rose; flesh firm and crisp.....	.05	.10	.25	.80
Round Black Spanish. Roots round or top-shaped; skin black; flesh white; a good keeper.....	.05	.10	.25	.80
California White Mammoth. Pure white; about one foot long and two or three inches in diameter; flesh tender and crisp.....	.05	.10	.30	.90

RHUBARB, or PIE PLANT

One ounce for 600 plants.

Mammoth Victoria. The largest and finest cooking variety; has thick, red stalks; is vigorous and very productive.....	.05	.15	.50	1.50
Burbank's Crimson Winter. For winter forcing. With proper culture it will bear almost continuously during the entire year.....	.10	.20	.65	2.00

SALSIFY, or OYSTER PLANT

One ounce for 75 feet of drill.

Mammoth Sandwich Island. The most popular variety, growing twice the size of any other, and resembling a parsnip in appearance. Very mild and delicately flavored.....	.05	.15	.50	1.50
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SPINACH

One ounce for 100 feet of drill. 10 pounds per acre.

MAMMOTH VICTORIA. See Specialties.....	.19	.15	.25	.60
Thick Leaved Improved. For either fall or spring sowing. Produces large, thick, bright green, crumpled leaves of excellent quality. Very slow in running to seed.....	.05	.10	.20	.40
Prickly Winter. An exceedingly hardy variety for fall sowing; leaves long and pointed.....	.05	.10	.20	.40
Long Standing. An excellent compact variety with thick, fleshy, dark green leaves. It grows slowly, but remains a long time fit for use.....	.05	.10	.20	.40
Bloodsdale Savoy Leaved. A very early variety; hardy, and suitable for early spring use.....	.05	.10	.20	.40
Viroflay. Has very large, thick, dark green leaves; a favorite with market gardeners; for either fall or spring sowing.....	.05	.10	.20	.40

SQUASH

SUMMER VARIETIES

One ounce for 50 hills. 6 lbs. per acre.

Early Summer Crookneck. A popular early brush variety; deep yellow; densely warted; quality and flavor good.....	\$0.05	\$0.10	\$0.25	\$0.75
Mammoth Yellow Summer Crookneck. Similar to Early Crookneck, but larger and later.....	.05	.10	.25	.80
Mammoth White Bush Scallop. An early bush squash; large, often twelve inches in diameter; thick, and with deeply scalloped	.05	.10	.30	.85
English Vegetable Marrow. Very popular in England, and can be grown equally as well here. They should be eaten when less than half grown, at which time the flesh is very tender, and may be cooked like other squash or fried like eggplant. Oblong in shape; color creamy-white.....	.05	.10	.35	1.00

WINTER VARIETIES

One ounce for 20 hills. 4 lbs. per acre.

DELICATA. See Specialties.....	.10	.10	.30	1.00
HUBBARD. See Specialties.....	.10	.10	.30	1.00
Boston Marrow. A very popular squash for fall use; skin thin, reddish-yellow; flesh dry, fine grained and delicious.....	.05	.10	.25	.75
Fordhook. A desirable variety for either summer or winter use; oblong in form; eight to ten inches long; flesh thick, yellow and of fine flavor.....	.05	.10	.30	.90
Sibley, or Pike's Peak. Large, dark olive-green squashes, tapering to a point at the end; flesh light golden and of excellent quality..	.05	.10	.35	1.00
Golden Hubbard. Similar to the old favorite, Hubbard, but the skin is golden red.....	.05	.10	.30	1.00
Mammoth Chili. The largest of all squashes, often weighing 200 pounds; flesh rich and fine flavored.....	.05	.10	.30	1.00

Write for special prices on large quantities stating varieties and quantities desired.

SUNFLOWER

DELIVERED FREE

	Pkt.	Oz.	¼ lb.	1 lb.
Mammoth Russian. Immense heads and large seeds. A splendid food for poultry0520

SWISS CHARD

LUCULLUS. See Specialties05	.10	.25	.75
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TOBACCO

Connecticut Seed Leaf. Hardy; adapted to this climate05	.20	.60	2.00
Havana. Less hardy, but better flavor05	.40	1.20	4.00

TOMATO

One ounce for 1,500 plants. ¼ lb. per acre.

PUGET SOUND SPECIAL. See Specialties .....	.10	.40	1.25	4.00
PUGET SOUND FORCING. See Specialties .....	.10	.40	1.25	4.00
SPARK'S EARLIANA. See Specialties .....	.10	.35	1.00	3.00
PONDEROSA. See Specialties .....	.10	.35	1.15	3.50
LIVINGSTON'S CORELESS. See Specialties .....	.10	.35	1.15	3.50
Early Michigan. A smooth, solid, perfectly shaped tomato. A favorite early variety for market gardeners .....	.05	.20	.65	2.00
Beauty. Early and prolific; medium size, smooth and solid; color purplish-red; fruits until late in the season .....	.05	.20	.65	2.00
Dwarf Champion. Dwarf and compact; requires no stake and may be planted close; fruit round, smooth, and ripens with little sunshine .....	.05	.25	.75	2.50
Early Ruby. Very early; uniform in size and shape; color rich red; solid and of fine quality .....	.05	.25	.75	2.50
Favorite. A large, handsome, uniform shaped tomato; solid and smooth; ripens evenly .....	.05	.20	.65	2.00
New Stone. Large, handsome, and of good quality and color; very solid and a splendid shipper .....	.05	.25	.75	2.25
Atlantic Prize. An extra early variety of good size, smooth surface and fine quality .....	.05	.25	.75	2.50
Acme. An old, well known, early variety; medium size, smooth, solid and prolific; color purplish-pink .....	.05	.25	.75	2.50
Trophy. An old favorite, much esteemed for its productiveness and hardness .....	.05	.20	.65	2.00
Perfection. An old popular variety; early, medium size, smooth and productive; good color, and ripens evenly .....	.05	.20	.65	2.00
Red Cherry. Fruit only one to two inches in diameter; excellent for preserving .....	.05	.25	.75	2.50
Red Pear. Pear-shaped; two to three inches long; bright scarlet; used for preserves .....	.05	.25	.75	2.50
Yellow Pear. Small; pear-shaped; borne in great profusion; excellent for salads and cooking .....	.05	.25	.75	2.50
Yellow Plum. Oval-shaped yellow fruits, two inches in diameter .....	.05	.25	.75	2.50

TURNIP

One ounce for 150 feet of drill. 2 lbs. per acre.

SNOWBALL. See Specialties	\$0.10	\$0.10	\$0.25	\$0.75
EARLY WHITE MILAN. See Specialties .....	.10	.10	.25	.75
GOLDEN WEST. See Specialties .....	.10	.10	.25	.70
PETROWSKI. See Specialties .....	.10	.10	.30	1.00
Extra Early Purple Top Milan. White with purple top; somewhat flattened; flesh snow-white .....	.05	.10	.25	.70
Early White Flat Dutch. A standard early variety; flesh white and mild .....	.05	.10	.20	.60
Cowhorn. A long, white-fleshed turnip, growing half above ground; large, but of fine quality .....	.05	.10	.25	.75
Purple Top Strap Leaf. An old and popular variety; medium size; flesh white and of good quality .....	.05	.10	.20	.60
Purple Top White Globe. Globular shape, handsome and of fine quality, either for table or stock; early, productive and a good keeper .....	.05	.10	.20	.60
White Egg. Matures very quickly and is good for either spring or fall sowing; egg-shaped, white, very smooth, fine grained .....	.05	.10	.25	.65
Golden Ball, or Orange Jelly. One of the most delicious and sweetest of yellow fleshed turnips; not large, but firm and hard .....	.05	.10	.25	.70
Yellow Aberdeen. A fine, large, globe-shaped, yellow-fleshed turnip of fine quality, for either table or stock .....	.05	.10	.20	.60

RUTABAGA, or S WEDISH TURNIP

One ounce for 150 feet of drill. 2 lbs. per acre.

KING OF SWEDES. See Farm Seeds Section .....	.10	.10	.25	.60
American Purple Top Improved .....	.10	.10	.25	.60
Skirving's Improved Purple Top .....	.10	.10	.25	.60
Sweet Russian .....	.10	.10	.25	.60
Monarch, or Tankard .....	.10	.10	.25	.60

It is difficult to make tomatoes mature properly on the Pacific Coast unless you know how, and grow the earliest varieties. LILLY'S CROP BOOK tells how to grow them. It will be furnished free with any order if requested.



BEANS

F. O. B. Seattle or Portland

DWARF, WAX OR YELLOW-PODDED VARIETIES.

One pound to 100 feet of drill. 50 lbs. per acre.

Pkt. 1 lb. 10 lbs.

GOLDEN JERSEY WAX. See Specialties.....	\$0.10	\$0.30	\$2.50
JONES' STRINGLESS WAX. See Specialties.....	.10	.30	2.50
Prolific Black German Wax. The earliest of the wax beans. Pods of medium length, generally curved. Fine quality, stringless and tender .....	.10	.25	2.00
Davis White Kidney Wax. Immensely productive. Good either green or as a dry bean.....	.10	.30	2.50
Golden Wax. A standard variety; medium early. The pods are stringless, very tender, and of excellent quality.....	.10	.25	2.25
Wardwell's Kidney Wax. A splendid wax bean. The pods are long, flat, delicate waxy-yellow, stringless and brittle.....	.10	.30	2.50
Flageolet Wax. Excellent for either home use or market; very early and unusually free from rust. The pods are flat, often twelve inches long .....	.10	.30	2.50

DWARF, OR BUSH, GREEN-PODDED VARIETIES

One pound to 100 feet of drill. 50 lbs. per acre.

LONGFELLOW. See Specialties.....	.10	.30	2.50
Refugee, or 1,000 to 1. A popular medium to late variety; very productive, and the pods are handsome and tender. Extensively grown for pickling .....	.10	.35	3.00
Burpee's Stringless Green Pod. A very early and hardy stringless, green-podded bean. The pods are round, straight, and about five inches long .....	.10	.30	2.50
Horticultural Dwarf. A bush variety of the popular Tall Horticultural. A good shell bean.....	.10	.30	2.50
Improved Red Valentine. Very early; particularly stringless; full, round, meaty pods .....	.10	.25	2.25
Long Yellow Six Weeks. Early, productive, and of excellent quality; pods often eight inches long.....	.10	.30	2.50

POLE, OR CLIMBING VARIETIES.

One pound for 150 hills. 15 lbs. per acre.

CARMINE POLE BEAN. See Specialties.....	.10	.35	3.00
Indian Chief, or Tall Black Wax. An old favorite, producing tender, succulent pods in great abundance. Black-seeded, with thick golden-yellow pods .....	.10	.30	2.50
White Creaseback. An excellent early pole bean; productive, stringless, tender, and of superior quality. The mature beans are white, and are good shelled.....	.10	.30	2.50
Kentucky Wonder, or Old Homestead. One of the best pole beans. excelled only by Lazy Wife for the home garden.....	.10	.25	2.00
White Dutch Case-Knife. A good pole bean, but not a very vigorous grower .....	.10	.25	2.00
Tall Horticultural, or Speckled Cranberry. An old and popular variety; useful either as a snap bean or as a dry shelled bean... ..	.10	.20	1.50
Lazy Wife. The most popular pole bean for the home garden. The pods are broad, thick and stringless.....	.10	.30	2.50
Scarlet Runner. Popular for both ornamental and culinary purposes. Grows about ten feet high, bearing large scarlet flowers followed by large green-podded beans; excellent either as snap or shelled beans .....	.10	.30	2.50

BEANS—LIMA

One pound for 100 hills.

King of the Garden, or Large White Lima. The standard pole lima bean, but not so well adapted to the Northwest as the bush varieties	\$0.10	\$0.25	\$1.60
Burpee's Bush Lima. A medium early bush lima bean, growing about twenty inches high, and bearing exceptionally large pods and beans of fine quality.....	.10	.25	1.75
Dreer's Bush Lima. A splendid bush variety; vigorous, and bearing liberally, large, thick, sweet, succulent beans.....	.10	.25	1.60
Henderson's Bush Lima. The earliest of all bush lima beans, and two weeks earlier than the pole varieties. The beans are small, but of delicious flavor .....	.10	.25	1.60

We do not pay postage, express or freight charges on any goods except when so specified in this catalog. If seeds or other goods, except vegetable seeds, flower seeds, and few other goods which we list "delivered free," are to be shipped by parcel post, or by express or freight to a station at which there is no agent, a sufficient amount must be remitted to pay transportation charges. If vegetable seeds are to be shipped by express or freight, and charges paid at destination, or if an additional amount is remitted to pay postage, 5c per pound may be deducted from "delivered" price.



CORN—SWEET

One pound for 200 hills. 15 lbs. per acre.

F. O. B. Seattle or Portland

	1 lb.	10 lbs.
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EARLY VARIETIES.

JACK FROST. See Specialties.....	.10	.15	1.25
GOLDEN BANTAM. See Specialties.....	.10	.15	1.25
METROPOLITAN. See Specialties.....	.10	.15	1.00
Peep O'Day. Extra early and very prolific. Popular with market gardeners.....	.10	.15	1.25
Early Cory, Red Cob. One of the best extra early varieties; sweet and tender; plants stocky.....	.10	.15	1.00
Early White Cob Cory. Very early; ears six to seven inches long; kernels milky-white, sweet and tender.....	.10	.15	1.00
Early Minnesota. A standard variety of dwarf growth; a little later than Cory; ears of fair size and good quality.....	.10	.15	1.00

MEDIUM EARLY VARIETIES.

Crosby's Early. A popular second early variety; ears about seven inches long, and of fine quality.....	.10	.15	1.00
Mammoth White Cory. Similar to Early White Cob Cory, and nearly as early; kernels are broader and ears are longer.....	.10	.15	1.00
Perry's Hybrid. A popular second early of stocky growth, with usually two ears of good size set low on the stalk; ears well filled with large, sweet, tender kernels.....	.10	.15	1.00
Early Mammoth. A good second early variety. The ears are very large, and the kernels are large and sweet.....	.10	.15	1.00
Early Evergreen. Resembles Stowell's Evergreen, but is earlier... ..	.10	.15	1.00

LATE VARIETIES.

Country Gentleman. The finest of all late varieties for home use. Ears eight to nine inches long; cob small and irregularly crowded from end to end with long white kernels; sweet, tender and delicious.....	.10	.15	1.25
Stowell's Evergreen. The standard late variety for home, market, and canning. The kernels are long, exceptionally tender and sugary, and remain long in the "milk".....	.10	.15	1.00
Black Mexican. A splendid late variety, with ears about eight inches long, filled with large kernels which are white until ripe, when they become black.....	.10	.15	1.00

CORN—POP

Ten pounds per acre.

White Rice Pop Corn. The best corn for popping and for the market; early; small, white, pointed kernels.....	.10	.10	.80
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CORN—FIELD AND FODDER. See Field Seeds Section.

PEAS

One pound to 100 feet of drill. 100 lbs. per acre.

EARLY VARIETIES

GRADUS, or PROSPERITY. See Specialties.....	.10	.20	1.75
THOMAS LAXTON. See Specialties.....	.10	.20	1.75
WASHINGTON WONDER. See Specialties.....	.10	.20	1.75
LINCOLN. See Specialties.....	.10	.20	1.75
WORLD'S RECORD. See Specialties.....	.10	.20	1.75
Nott's Excelstor. Early and productive, with large pods well filled with wrinkled peas of good flavor. Height 14 inches.....	.10	.20	1.25
American Wonder. Of dwarf, compact growth, ten to twelve inches high. The peas are of good size, wrinkled, and of the finest quality.....	.10	.20	1.25
Little Gem. Fifteen inches high; a little later than American Wonder; peas wrinkled, sweet and delicious.....	.10	.20	1.25
Premium Gem. Similar to Little Gem.....	.10	.20	1.25
Alaska. Very early and hardy; two feet high; round, blue pods three inches long, filled with small, smooth, blue-green peas....	.10	.20	1.00

LATE, OR MAIN CROP VARIETIES.

Alderman. A splendid new variety, imported from England. Vines five feet high; pods are very large and well filled with wrinkled peas of fine flavor.....	.10	.20	1.50
Quite Content. Another imported pea, growing five to six feet high, and producing an abundance of immense pods, even larger than Alderman.....	.10	.20	1.50
Yorkshire Hero. An excellent main crop pea, growing about three feet high. The pods are well filled with large wrinkled peas of good flavor.....	.10	.20	1.00
Stratagem. Vines twenty inches high, strong and robust, requiring no support; peas dark green, wrinkled, rich and sweet.....	.10	.20	1.00
Dwarf Telephone. Height eighteen inches, vigorous and very productive.....	.10	.20	1.25
Telephone. A popular market gardener's variety. Height four and one-half feet; very productive; pods large; peas wrinkled and of splendid flavor.....	.10	.20	1.00
Champion of England. An old, popular, wrinkled variety of unexcelled flavor. Height five feet.....	.10	.20	1.00

We do not pay transportation charges on Beans, Corn or Peas.

PEAS—FIELD AND COW. See Farm Seeds Section.

POTATOES. See Farm Seeds Section.

MUSHROOM SPAWN

One brick for one square yard.

Lambert's Pure Culture Standard Mushroom Spawn. See Specialties.

Price per brick, F. O. B. Seattle or Portland:

1 brick, 25c; 5 bricks, \$1.00; 10 bricks, \$1.80; 25 bricks, \$4.25; 50 bricks, \$8.00; 80 bricks, \$12.00; 100 bricks, \$15.00; 160 bricks (one full case), \$22.40.

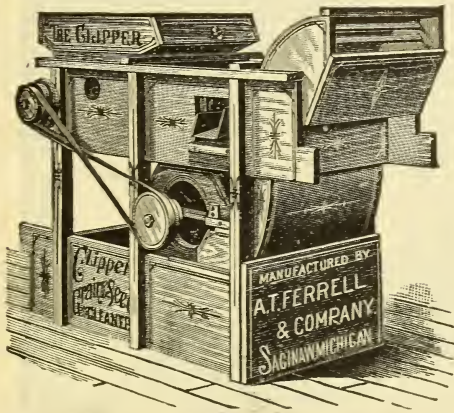
If spawn is to be shipped by parcel post, sufficient amount must be remitted to pay postage. One brick weighs $1\frac{1}{4}$ to $1\frac{1}{2}$ lbs.

ONION SETS

One pound to 75 feet of drill. 400 lbs. per acre.

Yellow Danvers Bottom Sets. See Specialties. F. O. B. Seattle or Portland, 1 lb., 15c; 10 lbs., \$1.25. Write for prices on large quantities. Prices increase as the season advances.

Bean's Corn, Peas, Mushroom Spawn and Onion Sets are not delivered free. If to be shipped by parcel post or by freight or express to a station at which there is no agent, a sufficient amount must be remitted to pay transportation charges.



No. 1

Clipper Seed Cleaner

This cleaner is unequalled for cleaning all classes of grain, seeds, or legumes, such as wheat, corn, oats, barley, rye, beans, peas, buckwheat, kafir corn, millet, clover, alfalfa, timothy, mustard, flax, etc., and is suitable for general farm use.

Capacity, 40 bushels market wheat, or 12 bushels clover seed per hour. Complete with ten screens, 19x29 inches, with spreading boards, and all necessary attachments. Shipping weight 150 lbs.

Price, F. O. B. Seattle, \$26.00.

The CLIPPER GRAIN, SEED and CLEAN CLEANER

THE CLIPPER is the standard seed cleaner, and is the machine most universally used by seedsmen. Lilly's Best Seeds are cleaned with the larger size Clipper Cleaners. They are recommended by all State Agricultural Colleges and by the U. S. Department of Agriculture.

Unlike other mills, the Clipper cleans all classes of seeds and grains thoroughly at one operation, without waste, and leaves no tailings to be rehandled. It does the best work with the least power and with the least amount of repairs. They are guaranteed to do more perfect work than any other hand-power seed cleaner manufactured.

We will mail you the Clipper Seed Cleaner Catalog if you wish it.

No. 2

Clipper Seed and Grain Cleaner

This is a hand-power cleaner of large capacity, is very light-running, and designed especially for cleaning all kinds of fine seeds, such as clover, timothy, alfalfa, millet, flax, red top, blue grass, etc. It is the same as the No. 1 in principle, and will do any work that the No. 1 will do, but it is not recommended as a general grain cleaner for the reason that it requires too much power to turn it by hand on grain or beans where a strong air blast is necessary.

Capacity, 20 bushels clover seed per hour. It is provided with ten screens, 24x33 inches. Shipping weight 250 lbs. Price, F. O. B. Seattle, \$35.00.

Lilly's Seeds are cleaned with Clipper Seed Cleaners.

THERE IS GOOD MONEY IN RAISING HOGS IN THE NORTHWEST. Every farmer who is in position to raise hogs should procure copies of United States Department of Agriculture Farmer's Bulletins No. 599 and No. 271, also Washington State Agricultural Experiment Station Bulletin No. 63. If you wish, we will request that they be mailed to you.

LILLY'S FLOWER SEEDS

A Choice Collection of the Finest Varieties of Flowers
Most Desirable for the West



A FEW FLOWERS, shrubs and trees often make the difference between a habitation and a home, and it is surprising how many unattractive habitations there are when so little labor and investment would transform them into real homes.

Many of the annual flowering plants are easily grown from seed, and are among the prettiest and most satisfactory garden flowers. They are especially pleasing when tastefully arranged with regard to color, height and season of blooming, to harmonize with trees, shrubs and perennial plants.

It would be difficult to imagine anything more beautiful than a trellis covered with sweet peas of harmonizing colors, a rockery or terrace draped with

nasturtiums, a well placed bed of large white asters against a green background of shrubbery or taller plants, or a few bright colored poppies nestled among the plants and shrubbery of a cozy wild corner. And yet, these beautiful flowers require no more care or attention than the vegetables in your kitchen garden.

Our list of flower seeds is condensed, for the reason that only a small proportion of our customers care to make a collection of all the different varieties, and we do not consider it advisable to confuse them with a long list to select from, or to list seeds of plants which are not desirable or adapted to this locality. It is our policy to list only such as will prove satisfactory, and only the best varieties of each.

For starting vegetables or flowering plants early in Spring a hotbed is essential. Lilly's Crop Book gives instructions for building and operating a hotbed, also cultural directions for flowers and vegetables. It will be given free with any order if requested.

CLASSIFICATION AND CULTURAL DIRECTIONS

SOME FLOWER SEEDS may be simply sown broadcast, and require little further attention, but some are quite difficult to get started, and the person who plants them all in the same manner is liable to disappointment. Cultural directions should be followed closely. They will be found in the Crop Book, which we will furnish free with any order if asked for.

Plants are classed as Annuals, Biennials, and Perennials, and these are divided into Hardy, Half-hardy, and Tender.

Hardy Annuals may be sown outdoors in the fall or early spring, preferably fall. They bloom the following summer, and then die.

Half-hardy Annuals require an even temperature of at least sixty degrees to germinate the seed, and will not stand frost. For early blooms the plants must be started under glass or in the house, and not

planted outdoors until danger of frost is past.

Tender Annuals must be grown in pots in greenhouse or in the house, and exposed outdoors only during the most favorable weather.

Biennials are best sown outdoors in September, and will bloom the following summer, after which they will die. If sown in spring they will not bloom until the next year.

Hardy Perennials seldom bloom the first year, but usually bloom the second and many succeeding years. They may be sown in spring, but are best sown outdoors in September.

Half-hardy Perennials require some protection during cold winter weather. The seed should be sown in boxes or pots, or outdoors late in spring.

Tender Perennials require protection during the greater part of the year.

Abronia

A pretty, trailing, hardy annual, thriving in dry situations where other vegetation will not grow. Very useful for covering dry or sandy barren banks. Pink flowers are borne in Verbena-like trusses.

No. 1018. *Abronia umbellata grandiflora*. Pkt., 5c; oz., 40c.

Adlumia Cirrhosa

(Mountain Fringe, or Allegheny Vine)

A graceful hardy biennial climber, growing to a height of about fifteen feet, with attractive pale green foliage, and bearing, the first season, clusters of small rosy-lilac flowers.

No. 219. Pkt., 10c; oz., \$1.50.

Adonis

(Flos Adonis, or Pheasant's Eye)

A hardy annual of easy culture, growing about one foot high; with fine-cut, feathery leaves, and crimson flowers.

No. 220. Pkt., 5c; oz., 25c.

Ageratum

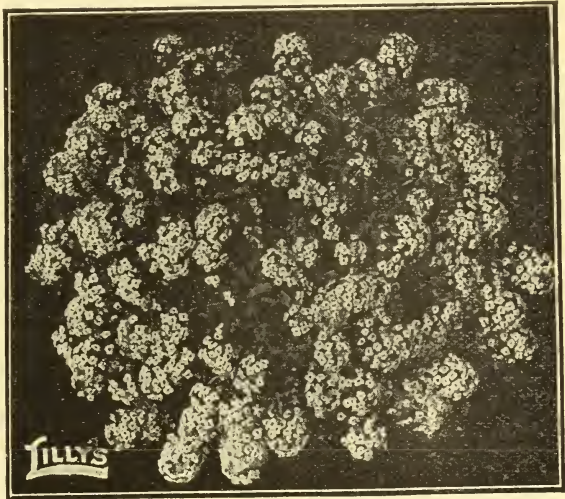
(Floss Flower)

Neat, erect, bushy plants, six to eight inches high, bearing profusely clusters of pretty brush-like flowers throughout the season. Splendid for bedding and borders, and for blue effects in the garden in contrast with other flowers. Hardy annual.

No. 439. Little Dorrit. A perfect mass of blue flowers. The plant is six inches high and a foot wide. Pkt., 10c; oz., \$1.00.

No. 411. Imperial Dwarf. A splendid variety growing about eight inches high, and covered with blue flowers. Pkt., 5c; oz., 30c.

No. 101. Mexicanum, Mixed. About eighteen inches high. Mixed colors. Pkt., 5c; oz., 15c.



ALYSSUM

(Sweet Alyssum)

This dainty little plant is unexcelled for borders, beds, baskets, pots, rockeries, and for cutting. It is a hardy annual, grows about nine inches high, and is covered with spikes of small white flowers during the entire summer and fall. It may also be grown in pots in the house during the winter, where the exquisite fragrance of the pure white flowers is very pleasing.

No. 2. *Alyssum Benthami*.

Pkt., 5c; oz., 20c.

LILLY'S CROP BOOK contains cultural directions for flowers. It will be furnished free with any order, if asked for.

ARCTOTIS GRANDIS

(African Daisy)

A REMARKABLY handsome hardy annual from Africa; easy to grow, and always in bloom in bright sunshine, closing in shadow. Not injured by light frost. The large round buds appear close to the earth at first, but soon rise on long stout stems well above the foliage; the drooping buds opening in large, shining white daisy-like flowers with blue centers surrounded by a narrow golden circle; with the reverse side of the petals a pale lilac.

The plants remind one of the Dusty Miller, being covered with a white down; grow about two and one-half feet high, and the same in breadth.

No. 601. Pkt., 10c; oz., \$1.50.

Amaranthus

Strong growing and highly ornamental hardy annuals, chiefly valuable for their highly colored foliage. Very showy and effective for bedding and backgrounds; lasting a long time, and of rapid growth and easy culture.

No. 270. *Amaranthus Caudatus* (Love-lies-bleeding). Light yellowish-green foliage; long, drooping flower spikes. Three to four feet high. Pkt., 5c; oz., 25c.

No. 102. *Amaranthus Tricolor* (Joseph's Coat). The plant grows about three feet high; with brilliant leaves in variegated red, yellow, green, etc. Pkt., 5c; oz., 25c.

Aquilegia (Columbine)

A delightful hardy perennial, especially adapted to the Pacific Coast, growing about two feet high, and splendid for permanent beds and borders. It thrives in partial shade and under the spray of a fountain, or other moist location. It forms large clumps, and is desirable in a permanent border. Colors, clear blue, white, rose, yellow, purple and striped.

No. 5. Mixed Colors. Pkt., 5c; oz., 25c.

ANTIRRHINUM

(Snapdragon)

Unusually effective bedding displays are made with these unique, bright colored plants. They are half-hardy perennials, but as they bloom the first year from seed, are best grown as annuals.

No. 921. *Lilly's Giant Flowering Black Prince*. The flowers of this splendid Snapdragon are very dark, black-red color, immense size, and splendid texture and substance. They bloom profusely until very late. Two feet tall. Pkt., 10c; oz., \$1.00.

No. 4. Tall Mixed. All the best tall varieties, mixed. Two feet tall. Pkt., 5c; oz., 40c.

No. 104. Dwarf Mixed. All the best dwarf varieties, mixed. Six inches tall. Pkt., 5c; oz., 75c.



LILLY'S

Crop Book

contains cultural directions for most of the common flowers, as well as for vegetables and farm crops; also suggestions for fertilizing. It will be furnished free with any order if asked for.

spray of a fountain, or other moist location. It forms large clumps, and is desirable in a permanent border. Colors, clear blue, white, rose, yellow, purple and striped.



LILLY'S ASTERS

The Most Improved Types of These Magnificent Annuals

ASTERS are one of the most satisfactory annuals that can be grown, especially on the Pacific Coast, where they produce the most perfect blooms in the greatest profusion for a long period, from August until killed by freezing winter weather, during a time that there is a dearth of other flowers. We list only the most improved types, and our seed is the best that can be procured.

CREGO Giant Asters

CREGO'S GIANT ASTERS are the latest and most highly developed type, rivaling the finest chrysanthemums in size, form, color and beauty. The flowers are immense, and the petals are much longer than those of any other variety, beautifully twisted and curled, producing an elegant fluffy effect.

No. 1012, White; No. 1013, Pink;
No. 1036, Crimson; No. 1037, Lavender. Pkt., 10c; oz., \$1.50; postpaid.



Semple's Branching Asters

The best late-flowering, branch aster. They begin blooming about the first of September, and continue until freezing weather.

The flowers are large, very double, of purest colors, and borne on long stems.

The plants are robust, growing about two feet high and nearly as broad, and are covered with blooms.

No. 940, White; No. 941, Pink; No. 942, Lavender; No. 939, All Colors Mixed.

Pkt., 10c; oz., 70c; postpaid.

Improved Victoria

Magnificent flowers, massive and showy, with regular overlapping petals, double clear to the center. The plants are about eighteen inches high, and bloom profusely. No. 109. All Colors Mixed.

Pkt., 10c; oz., \$1.25; postpaid.

Giant Comet

OSTRICH PLUME ASTERS

These grand flowers are of immense size, and composed of long, wavy, twisted petals, gracefully formed into loose, densely double, half globes, resembling some of the finer Japanese Chrysanthemums.

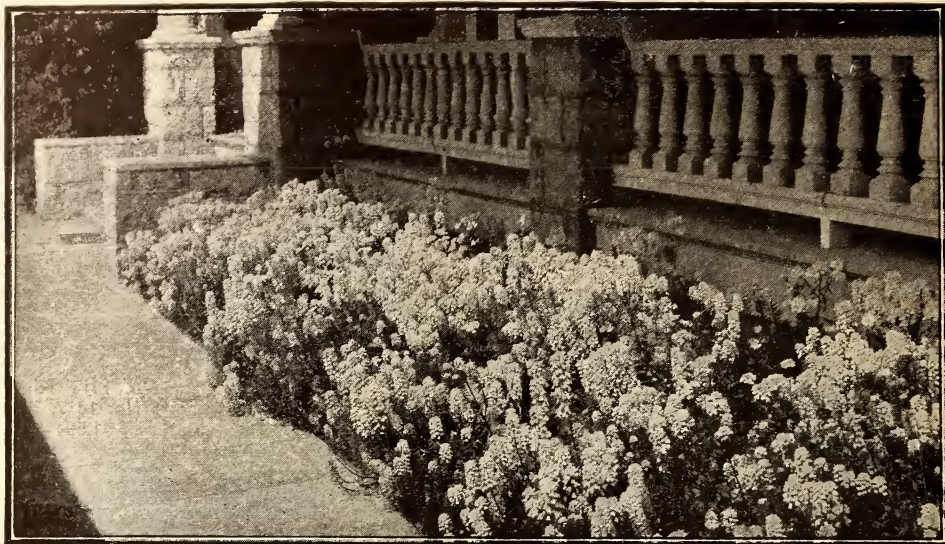
No. 935, White; No. 936, Rose; No. 937, Blue; No. 938, Lavender; No. 322; Mixed.

Pkt., 10c; oz., \$1.25; postpaid.

LILLY'S Mixed Asters

A fine mixture of all the good varieties and colors. No. 900.

Pkt. 5c; oz., 25c; postpaid.



CANDYTUFT

(Iberis)

CANDYTUFT is a hardy annual of the easiest culture, and is a great favorite for bedding, borders, rockeries, and the improved varieties are splendid for pots and for cutting. The plants are dwarf, and produce profusely large spikes or umbels of pretty, pure white flowers for a long season. They are very hardy, and by sowing the seed outdoors in the fall, again early in spring, and at intervals during the summer, blooms may be had continuously.

No. 922. *Empress*. (*Iberis coronaria*). A grand variety, producing enormous spikes of bloom, resembling a white hyacinth. The spikes often measure seven inches long by two and one-quarter inches in diameter. The plant, including bloom, is about twelve inches high. To produce the finest spikes, the plants should be transplanted. Pkt., 10c; oz., 60c.

No. 39. *White Rocket*. (*Iberis coronaria hesperidiflora*). Good spikes of pure white flowers. Pkt., 5c; oz., 10c.

Balsam

(Lady's Slipper)

Among the finest of the old favorites for either garden or pot culture. It is a half-hardy annual, and for early blooms the seed should be sown under glass in March; or it may be sown outdoors in May.

No. 141. *Double, Mixed*. Pkt., 5c; oz., 25c.

Calceolaria

(*Calceolaria scabiosaefolia*)

Herbaceous plants growing one to two feet high, and covered with small pale yellow flowers of peculiar form. This variety is generally grown as an annual, and is excellent for bedding, window-boxes, etc.

No. 1031. Pkt., 25c.

Calendula

(Pot Marigold)

One of the best and showiest free-flowering hardy annuals. The plants grow about one foot high, and produce profusely from early summer until late in fall, large, showy flowers in all shades of yellow.

No. 117. *Mixed Colors*. Pkt., 5c; oz., 25c.

Calliopsis

One of the showiest and most easily grown hardy-annuals. The plants form perfect little bushes about two feet high, and are literally massed with bloom from early summer until killed by frost. Splendid for strengthening the yellow, brown and maroon effects in the garden.

No. 116. *Mixed Colors*. Pkt., 5c; oz., 15c.

Canary-Bird Vine

A pretty, rapid-growing, annual climber, attaining a height of about fifteen feet, and bearing little canary-yellow flowers resembling a bird with its wings half expanded.

No. 148. Pkt., 5c; oz., 25c.

Campanula

(*Canterbury Bells*)

Hardy biennials, of easy culture, but preferring rich, moist soil. They grow about three feet high, and bear a profusion of double and single, bell-shaped, blue, purple, red and white flowers.

No. 15. *Single Mixed*. Pkt., 5c; oz., 20c.

No. 157. *Double, Cup and Saucer Type*. Mixed Colors. Pkt., 10c; oz., 40c.

Lilly's Lawn Grass Mixtures produce the finest lawns.

Cineraria

Magnificent tender perennials, grown principally in conservatory, window-garden, or greenhouse.

No. 19. *Cineraria Hybrida*, Mixed. Immense flowers, two to three inches across, in various bright colors. Pkt., 25c.

Clarkia

Clarkia is one of the prettiest of the hardy annuals, and being a native of the Pacific Coast, is produced here in the greatest perfection. The variety and brightness of its flowers makes a bed of it an attractive sight. Seed sown in the fall will produce blossoms early the next spring. Eighteen inches high.

No. 21. *Clarkia elegans*. Single and double, mixed. Pkt., 5c; oz., 20c.

Cobaea Scandens

A rapid-growing, climbing annual, attaining a height of twenty to thirty feet in a season. It has large leaves, and large trumpet-shaped flowers which are green until nearly grown, when they turn a bright purplish-blue.

No. 120. Pkt., 5c; oz., 80c.

Cockscomb

An odd, picturesque plant, bearing bright colored flowers or plumes, resembling a cock's comb. A hardy annual. Fine for massing or border work.

No. 17. *Celosia cristata nana*. Dwarf; less than a foot high, with highly colored combs of immense size. Pkt., 5c; oz., \$1.75.

No. 119. *Celosia pyramidalis plumosa*. Large flowered, feathered. All colors. Pkt., 5c; oz., 35c.

COSMOS

Cosmos is one of the notable fall flowers. It is a strong, tall growing annual, with bright, bold flowers, and is most effective for backgrounds.

No. 282. *Lilly's Autumn Pride*. A highly improved variety, growing about four feet high, and bearing very large, showy flowers in various bright colors. Pkt., 5c; oz., 35c.

No. 1032. White Pkt., 10c; oz., 50c.

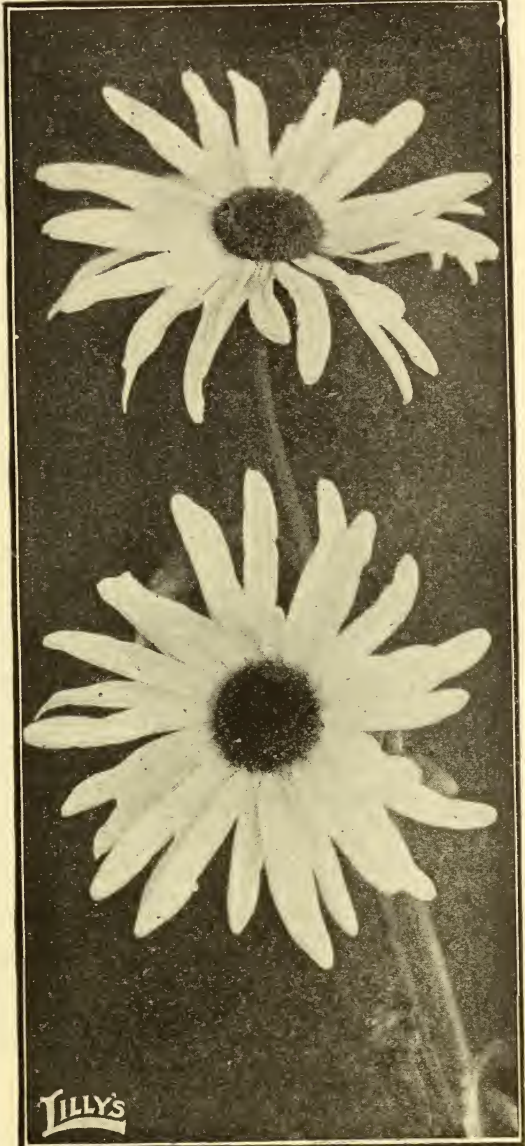
No. 1033. Pink. Pkt., 10c; oz., 50c.

No. 1034. Red. Pkt., 10c; oz., 50c.

Dahlia

These beautiful late summer and autumn flowering annuals will produce large, bright colored, single flowers the first year if seed is sown early.

No. 924. *Lilly's Giant Annual Dahlia*. Mixed colors. Single flowers. Pkt., 10c; oz., \$1.00.



DAISY

No. 1004. *Shasta Daisy*. (*Leucanthemum hybridum*). A splendid hardy perennial, bearing in great profusion large, white, single flowers with yellow centers. Pkt., 10c; oz., \$1.50.

No. 13. *Double Daisy*. (*Bellis perennis*). Excellent border plants, about four inches high, bearing attractive double flowers all spring and summer. Although a hardy perennial, it will bloom the following summer if the seed is sown in the fall or early spring. Mixed colors. Pkt., 10c; oz., \$2.50.

CARNATIONS

(Dianthus)

THESE SPLENDID half-hardy perennials are used for greenhouse florists' trade in winter, and for garden decoration and cut flowers in summer. Old plants flower the earliest, but as young plants produce the largest, finest flowers, they are generally treated as annuals.

No. 16. Mixed, Double Varieties. Pkt., 10c.

No. 419. Choice Double Mixed. Pkt., 25c.

No. 162. Giant Perpetual. Extra choice; double; mixed. Pkt., 25c.

No. 402. Marguerite, White. The Marguerites are strong growers, free flowering; and are especially desirable for garden culture. Pkt., 10c.

No. 284. Marguerite, Mixed. All colors, mixed. Pkt., 10c.

No. 161. Grenadin. A beautiful, early dwarf variety; bearing sweet-scented, double, scarlet flowers. Pkt., 10c.

CENTAUREA

(Corn Flower, Bachelor's Button, Sweet Sultan)

AMONG the most attractive and graceful of the old-fashioned flowers. They are hardy annuals, of simple culture. There are several varieties, all growing one and one-half to two feet high, and are excellent for beds, borders, or for cut flowers.

No. 923. Lilly's Korenbloom. (Cyanus nana compacta Victoria). A highly improved dwarf, compact, variety of Bachelor's Button, producing large azure-blue blossoms in great profusion. The stems are long and graceful making it a delightful flower for cutting; and in the garden its mass of delicate blue coloring makes it very attractive when properly blended. Grows about eighteen inches high. Pkt., 10c.; oz., 75c.

No. 225. Cornflower. Bachelor's Button, Ragged Sailor, or Bluebottle. An old-fashioned favorite. Hardy annual. Two feet high. Pkt., 5c; oz., 20c.

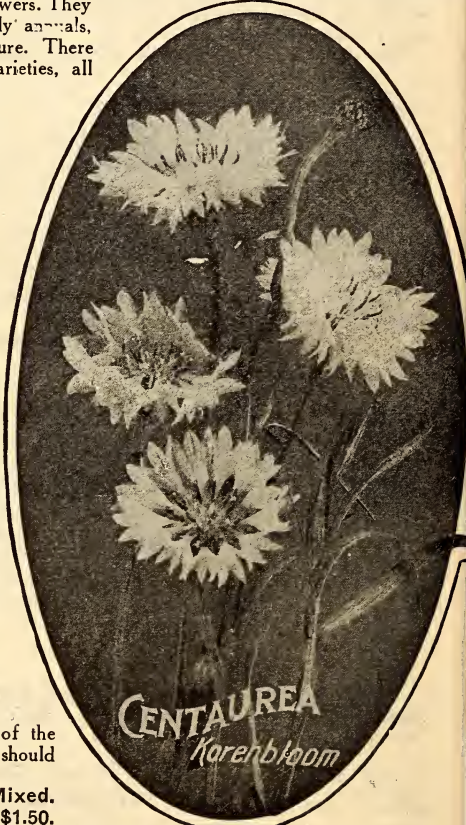
No. 1016. Royal Sweet Sultan. (Centaurea Imperialis). The finest of all Sweet Sultans for cutting, lasting a long time in water. Beautiful, artistic, sweet scented flowers, borne on long, strong stems. Mixed colors. Pkt., 10c; oz., \$1.00.

No. 1017. Dusty Miller. (Centaurea Gymnocarpa). Narrow, silvery-gray foliage; purple flowers; excellent for bedding. Half-hardy perennial. Eighteen inches high. Pkt., 5c; oz., 75c.

Chrysanthemums

The half-hardy annual varieties of these royal flowers of the Orient are easily grown from seed outdoors, and they should have a place in every garden.

No. 329. Choice Japansen Chrysanthemums, Mixed. The best Japanese annual varieties. Pkt., 10c; oz., \$1.50.



ESCHSCHOLTZIA

(California Poppy)

THE STATE FLOWER of California, and a hardy annual of striking character both in form and color bright, rich, orange-yellow. The plants are about one and one-half feet in height, with attractive silvery foliage, branching freely, and producing large poppy-like flowers lavishly from spring until killed by frost.

They are most effective when grown in beds of considerable size, over which the seed may be thinly sown broadcast, and lightly raked in. The seed may be sown very early in spring, or late in fall for early blooms next spring.

No. 192. True California Poppy
Bright orange-yellow. Pkt., 5c; oz., 15c

No. 167. Eschscholtzia Californica
alba. Creamy white. Pkt., 5c; oz., 20c

Forget-Me-Not

(Myosotis)

A hardy perennial, growing six to twelve inches high, bearing pretty little star-like flowers, in clusters, on long stems. The plant is of easy culture, and blooms the first year if seed is sown early. Thrives best in a cool, moist location.

No. 310. Lilly's Victoria Dwarf
Forget-me-not. A very beautiful variety; of dwarf, bushy habit; bearing large clusters of the brightest azure-blue flowers on long, graceful stems; rendering them splendid for cutting. Pkt., 5c; oz., 70c.

No. 53. Myosotis azarica. A trailing variety. Mixed colors.

Pkt., 5c; oz., 50c.

Four-O'Clock

(Marvel of Peru. Mirabilis Jalapa)

A perennial in warm climates, but generally grown as a half-hardy annual in this locality. The plant is two to three feet high, erect and bushy. The flowers are shaped like the morning glory, and open late in the afternoon. Prevailing color white, shaded and striped with various colors.

No. 51. Choice Mixed. Pkt., 5c; oz., 10c.

Foxglove

(Digitalis)

A hardy perennial, blooming the second year from seed, and especially adapted to this vicinity. Grows three to five feet tall, producing freely long spikes of

gloxinia-like flowers in various colors. Splendid for permanent beds, borders, masses, and for backgrounds. Thrives best in a cool, shady location.

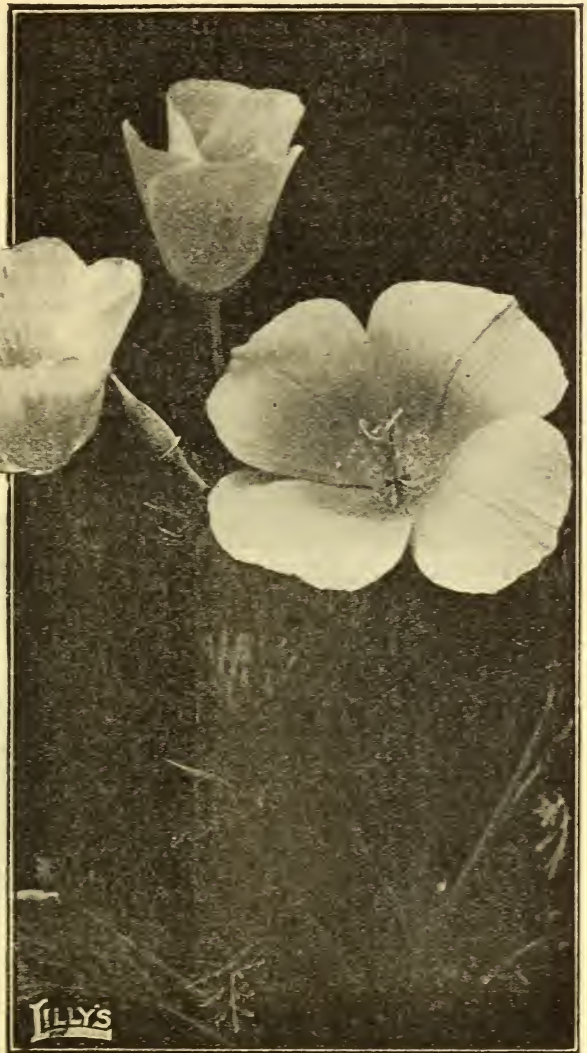
No. 165. Mixed Colors. Pkt., 5c; oz., 20c.

Gaillardia

A showy hardy-annual of the easiest culture. The plants grow in compact, bushy form, about one foot high and the same in breadth, bearing freely until late in fall, large, brilliant flowers in red and yellow, blended and shaded, on long slender stems. Splendid for borders and for cut flowers.

No. 444. Single, Annual, Mixed.

Pkt., 5c; oz., 50c.





GYPSOPHILA

(Baby's Breath)

Very pretty free-flowering plants; of easy culture; graceful and delicate; and of especial value for mixing with other flowers in bouquets.

No. 925. Lilly's Snowflake. (*Gypsophila elegans alba pura*). An improved large-flowering annual variety, producing graceful sprays of pure white blossoms. Two feet high. Pkt., 10c; oz., 25c.

No. 917. *Gypsophila elegans*. Annual. White. One and one-half to two feet high.

Pkt., 10c; oz., 25c.

No. 376. *Gypsophila elegans*, mixed. Annual. Mixed colors. Pkt., 5c; oz., 20c.

No. 918. *Gypsophila paniculata*. Hardy perennial. White. Two and one-half feet high.

Pkt., 10c; oz., 40c.

Godetia

(Evening Primrose)

An attractive hardy annual, of compact growth, about ten inches high, bearing a profusion of satiny, cup-shaped flowers in red, pink and white, shaded and blended.

No. 494. Semi-dwarf varieties; mixed colors. Pkt., 5c; oz., 25c.

Gourds

Rapid growing half-hardy annual climbers. The ornamental foliage makes them useful for covering arbors, fences, stumps, etc., and the oddly shaped and highly colored fruits make them interesting.

No. 476. Mixed Varieties.

Pkt., 5c; oz., 15c.

Heliotrope

A popular half-hardy perennial for bedding and pots. Flowers sweetly scented. Height two feet. No. 127. Choice Mixed.

Pkt., 10c; oz., \$1.50.

Japanese Hop

(*Humulus Japonicus*)

A very ornamental and fast-growing half-hardy annual, making a growth of ten to twenty feet in one season. The dense foliage resembles the common hop, but does not bear hops.

No. 412. Japanese Hop. (*Humulus japonicus*). Luxuriant, dark green foliage.

Pkt., 5c; oz., 50c.

No. 413. Variegated Japanese Hop. (*Humulus japonicus foliis variegatis*). Leaves liberally striped and blotched with silvery-white and gray on deep green.

Pkt., 10c; oz., 60c.



HELIANTHUS

(Sunflower)

These hardy annuals are splendid for backgrounds, or even for bedding, and must not be confused with the common sunflower bearing one immense single flower. These grow four to six feet tall, branching, and bearing a multitude of small, artistic flowers.

No. 926. Lilly's Miniature Sunflower. (*Helianthus cucumerifolius*). A magnificent variety growing about four feet high, and bearing small, single, yellow, daisy-like flowers, with black centers. Makes an artistic background, and is good for cutting. Pkt., 10c; oz., 25c.

No. 128. Dwarf, Double Sunflower. (*Helianthus nanus fl. pleno*). A very double, dwarf variety, altogether different from the ordinary single varieties, and much more beautiful. About four feet high.

Pkt., 5c; oz., 15c.

HOLLYHOCK

ONE OF THE MOST MAJESTIC of hardy plants, and unequaled for planting among shrubbery or for backgrounds for other plants.

They grow six to ten feet high, bloom for a long period, and are very easy to grow. The tip may be pinched off when they reach the desired height, thus inducing earlier development of the side branches, and forming a bush. If not pinched back, the center spike will reach a height of eight or ten feet, after which it will throw out branches three to five feet long, with spikes on each, in the form of a canelabra.

No. 961. Lilly's Annual Everblooming Hollyhocks. This splendid new variety of the old favorite, hollyhock, is a hardy annual, and if planted early will begin blooming in July or August of the same year, and continue until killed by frost. The diversity of forms and colors among the flowers affords many delightful surprises. Some of the plants will produce densely double flowers, others semi-double, and others single, of unique forms and beautiful colors. Pkt., 10c; oz., \$1.50.

No. 37. Double Hollyhocks. The best double perennial hollyhocks in mixed colors. Pkt., 10c; oz., 80c.

Kudzu Vine

(*Pueraria thunbergiana*)

An immensely vigorous vine, producing stems fifty feet long in a season after it has become well rooted. At home, in Japan, it is covered with clusters of fragrant, sweet pea shaped, purple flowers. In this country it is an uncertain bloomer, but covers everything in reach with its luxuriant foliage. The vines die down in winter, but the roots throw out new sprouts in spring. It is a valuable forage plant, and is being experimented with for that purpose in this country. It is rather difficult to start from seed, but is easily grown from cuttings.

No. 994. Pkt., 10c; oz., 40c.

LARKSPUR

(*Delphinium*)

Popular garden plants of easy culture. The tall varieties are suitable for shrubberies and borders, and the dwarf varieties for beds. Both are splendid for cutting.

No. 927. Lilly's Giant Larkspur. A splendid hardy annual larkspur, growing only one foot high, and producing giant, double, hyacinth-like blooms in a variety of charming colors. Excellent for cutting and for beds. Pkt., 10c; oz., 30c.

No. 208. Perennial Larkspur. (*Delphinium elatum hybridum flore pleno*). Hardy perennials, growing three to five feet high, with long spikes covered with large double and semi-double flowers. Mixed colors. Pkt., 5c; oz., 20c.

Linum

(Flowering Flax)

A hardy annual, about one foot high, of slender and graceful appearance, with smooth stems and bright red flowers which are borne in great profusion. Can be sown early outdoors, and thrives in partial shade.

No. 243. *Linum grandiflorum rubrum*. Pkt., 5c; oz., 20c.

Lupins

(*Lupinus*)

Hardy, ornamental, free-flowering annuals, growing two to three feet high, bearing richly colored pea-shaped flowers on long graceful spikes.

No. 46. Mixed Colors. Pkt., 5c; oz., 15c.

Lychnis

(Jerusalem Cross. *Lychnis chalcedonica*)

Handsome hardy perennial plants, growing two to three feet high, and bearing bright scarlet flowers. Excellent for massing in beds and borders. Will bloom the first year if seed is sown early.

No. 47. Mixed Colors. Pkt., 5c; oz., 50c.

Make your home more cheerful. Plant some flowers.



LOBELIA

A pleasing half-hardy annual, growing four to six inches high, forming compact little bushes, literally covered with small bright flowers. Splendid for borders or hanging baskets.

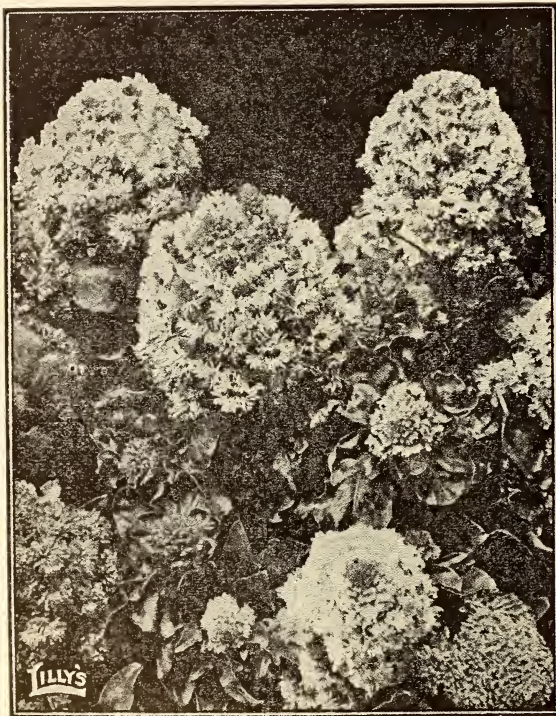
No. 195. **Emperor William.** A very dwarf, compact variety, completely covered with white, blue-margined flowers from June to November.

Pkt., 10c; oz., \$2.00.

No. 196. **Crystal Palace.** Compact plants, dark foliage, and rich deep blue flowers.

Pkt., 5c; oz., \$2.50.

No. 304. **Gracilis.** A trailing variety, with light green foliage light blue flowers. Pkt., 5c; oz., 75c



MIGNONETTE

No garden is complete without this old favorite. It is a hardy annual, growing a foot or more in height, and bearing pyramidal-shaped flower spikes about six inches long, and made up of thickly set florets, which are exceedingly fragrant. Valuable for potting, bedding, or borders.

No. 420. **Parson's White.** A tall variety, with long, almost pure white spikes. Pkt., 5c; oz., 20c.

No. 252. **Golden Queen.** Compact, with very fragrant, golden-yellow flowers. Pkt., 5c; oz., 30c.

No. 139. **Reseda Odorata.** The old-fashioned Sweet Mignonette. Mixed colors.

Pkt., 5c; oz., 15c.

MARIGOLD

Another of the good old-fashioned plants, without which no garden is complete. They are hardy annuals; the foliage is bright green, deeply cut and graceful, and flowers in various shades of yellow and brown are borne until killed by frost. The tall varieties are valuable for bedding and backgrounds, and the dwarf varieties for borders.

No. 409. **Tall Double African.** (*Tagetes erecta* fl. pl.). About eighteen inches high. Mixed colors. Pkt., 5c; oz., 25c.

No. 410. **Tall Double French.** (*Tagetes patula* fl. pl.). Tall; double flowers; mixed colors.

Pkt., 5c; oz., 30c.

No. 146. **Dwarf Double French.** (*Tagetes patula nana* fl. pl.). Nine to twelve inches high; double flowers; mixed colors. Pkt., 5c; oz., 25c.

Mimulus

A half-hardy perennial, flowering the first year from seed if started under glass, and may be handled as a half-hardy annual.

No. 928. **Hose-in-Hose.** (*Mimulus quinquevulnerus maximus duplex*). A new five-spotted *Mimulus*, with extra fine flowers, sulphur ground spotted with scarlet and pink. Very fine, and well suited to the Pacific Coast. Pkt., 10c; oz., \$2.50.

No. 49. **Musk Flower.** (*Mimulus moschatus*). Very fragrant. Small yellow flowers spotted with brown. The plants are trailing, and are fine for hanging-baskets and window gardens.

Pkt., 5c; oz., \$2.50.

No. 50. **Monkey Flower.** (*Mimulus tigrinus*). Curiously shaped yellow flowers, spotted like a tiger's skin. About eight inches high. An effective pot plant. Pkt., 5c; oz., \$2.50.

Mina Lobata

A half-hardy Mexican climbing annual, attaining a height of eighteen to twenty feet. The buds are a vivid red, turning to orange-yellow before opening, and the flowers when fully opened are creamy-white; covering the plant from bottom to top. Seed should be planted early under glass or in the house.

No. 384. Pkt., 10c; oz., \$2.50.

MOON FLOWER VINE

The most rapid growing of all climbing flowering annuals, invaluable for trellis or arbor, quickly attaining a height of twelve to fifteen feet, and producing a dense mass of heart-shaped leaves as a background for the thousands of large, sky-blue, fragrant flowers, which open in the evening, and remain open until the next noon. It is never troubled with insects.

No. 959.

Pkt., 10c; oz., 40c.

Don't plant cheap seed. The best seed is the most economical.

MORNING GLORY

Well known hardy climbing annuals, growing about ten feet high, and bearing pretty flowers in a variety of colors and tints, fully expanded only in the morning. Of easy culture and quick growth.

No. 600. Imperial Japanese Giant Morning Glory. Of remarkable size. The vines present a beautiful wall of luxuriant foliage, thick with flowers of gigantic dimensions, measuring four to six inches across, and of exquisite colors and shadings.

Pkt., 10c; oz., 15c.

No. 41. Convolvulus Major. The old-fashioned Morning Glory. Makes a growth of ten or twelve feet. Mixed colors. Pkt., 5c; oz., 15c.

No. 23. Convolvulus Minor. A dwarf, or bush, variety, growing about one foot high, bearing flowers same as the tall variety. Pkt., 5c; oz., 15c.

Nemophila

(Love Grove)

A pretty, hardy annual, growing about six inches high, with small cup-shaped blossoms about one inch in diameter, in white and various shades of blue. In blossom throughout the summer. Thrives best in a cool, moist location.

No. 54. Choice varieties, mixed.

Pkt., 5c; oz., 25c.

Nigella

(Devil-in-a-Bush, or Love-in-a-Mist)

A compact, free-flowering, hardy annual, growing about one foot high; with finely cut foliage, oddly shaped blossoms in blue and white, and curious seed pods.

No. 248.

Pkt., 5c; oz., 20c.



NICOTIANA

(Flowering Tobacco)

Showy and profuse flowering half-hardy annuals, giving a continuous display of brilliant flowers during the entire summer and autumn. The plants are of branching habit, about three feet high, and bear a profusion of bright colored, fragrant flowers in clusters.

No. 825. *Nicotiana Sanderae*. This beautiful new hybrid Flowering Tobacco gives a gorgeous display of bright purple, violet, rose, crimson, pink, and white flowers from early summer until killed by frost.

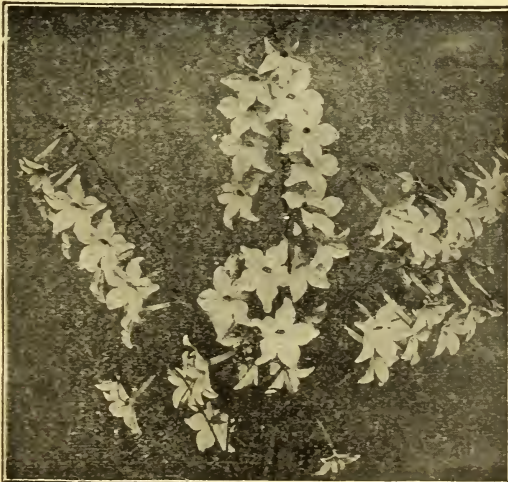
Pkt., 15c; oz., \$1.00.

No. 247. *Nicotiana Affinis*. A sweetly fragrant annual, with pure white, star-like flowers that bloom continually.

Pkt., 5c; oz., 30c.

No. 447. *Nicotiana Sylvestris*. One of the most ornamental of the Flowering Tobaccos. It grows about four feet high, with rich, deep green foliage, and pure white, very fragrant, drooping flowers.

Pkt., 5c; oz., 30c.



There may be cheaper seeds than LILLY'S SEEDS, but there are none better.



LILLY'S

CONCENTRATED
FERTILIZERwill improve size
and color of
your Flowers.

LILLY'S Giant-Flowering Nasturtiums

Bloom Profusely the Entire Season

NASTURTIUMS are among the most satisfactory and easily grown annuals, and there is nothing more pleasing than the harmonious blending of the various shades of green, yellow, brown and red in a border or bed of Dwarf Nasturtiums, or a trellis or wall covered with the climbers.

They are especially adapted to the climate of the Pacific Coast and with very little care the largest and most perfect blooms may be had from early summer until late in the fall.

Climbing Nasturtiums

No. 901. Zanderi Nigrum. (Roi des Noirs, or King of the Blacks.) Very dark red. Dark foliage.

No. 903. Golden Queen. Pure golden-orange.

No. 904. Lilli Schmidt. Orange-scarlet.

No. 905. Giant of Battles. Light yellow, spotted with bright red.

No. 906. Pearl. Creamy white.

No. 263. Coccineum. Scarlet.

Pkt., 5c; oz., 10c, postpaid.

No. 262. **LILLY'S ROYAL MIXED, TALL.**

A splendid mixture of the best varieties, and including all the harmonizing colors.

Pkt., 5c; oz., 10c; lb., 50c, postpaid.

Dwarf Nasturtiums

No. 907. Vesuvius. Salmon-rose. Dark foliage.

No. 908. Dwarf Pearl. Creamy white.

No. 909. Ruby King. Ruby-red. Dark leaved.

No. 910. Spotted King. Dark yellow, brown spotted, with dark foliage.

No. 911. Chameleon. Cream-white bright scarlet spotted, with dark scarlet edges. Dark leaves.

No. 264. Empress of Indian. Brilliant dark scarlet. Very dark foliage.

Pkt., 5c; oz., 10c; postpaid.

No. 929. Queen of Tom Thumbs. A magnificent bedding variety, bearing large, brilliant scarlet, velvety flowers, and variegated foliage.

Pkt., 10c; oz., 25c; postpaid.

No. 87. **LILLY'S ROYAL MIXED, DWARF.**

The choicest dwarf varieties; similar to the Royal Mixed, Tall, except that the plants are of dwarf, bushy growth, suitable for bedding or borders.

Pkt., 5c; oz., 10c; lb., 65c; postpaid.

LILLY'S CROP BOOK gives cultural directions, and will be furnished with any order.



LILLY'S SUPERB PANSIES

Choicest Varieties—Magnificent Flowers

PANSIES, although always garden favorites, have been improved by selection and hybridizing until they are now greatly superior to the pansies of a few years ago; attaining immense size, and blooming profusely and continuously.

The pansy demands considerable attention, but no flower will respond more readily, or repay more liberally.

We have taken great care in selecting the choicest varieties, and our collection is noted for wonderful size, splendid colors, and productiveness.

No. 89. **Fine Mixed.** English Pansies. Finest varieties and colors, mixed. Plants of compact habit. Pkt., 5c; oz., \$1.00.

No. 90. **Giant Mixed.** French varieties. Immense size. Mixed colors. Pkt., 5c; oz., \$1.00.

No. 91. **Odier, or Blotched.** Extra choice. Finest strain of three and five-blotched show pansies. Pkt., 25c; oz., \$3.50.

No. 92. **Trimardeau, or Giant.** A very showy class, of vigorous, compact growth. Flowers of enormous size. Finest strain. Pkt., 10c; oz., \$1.50.

No. 94. **Lord Beaconsfield.** Large. Purple-violet, top petals white. Pkt., 10c; oz., \$1.50.

No. 95. **Snowflake.** Very large. Satiny white, light yellow center. Pkt., 10c; oz., \$2.00.

No. 96. **White Trimardeau.** White with three purple blotches. Very large. Pkt., 10c; oz., \$1.50.

No. 176. **Silver-edged.** Dark purple, white edged. Extra fine. Pkt., 10c; oz., \$1.50.

No. 177. **Cassier's Large-flowered Blotched.** The largest flowered class of blotched pansies. Very showy. Pkt., 25c; oz., \$6.00.

No. 178. **Faust, or King of the Blacks.** Very dark, almost black. Immense size. Pkt., 10c; oz., \$1.50.

No. 179. **Gold-margined.** Purple, with gold border. Large and showy. Pkt., 5c; oz., \$1.50.

No. 203. **Emperor William.** Cornflower-blue. Immense size and very showy. Pkt., 10c; oz., \$1.50.

No. 429. **Goldelse, or Yellow Gem.** Pure golden-yellow. Large. Pkt., 10c; oz., \$2.25.

No. 930. **LILLY'S COLOSSAL MIXED.** A splendid mixture of all the choicest large-flowering varieties and best colors. Pkt., 25c; oz., \$15.00.

PINKS

(Dianthus)

THIS FAVORITE family embraces some of the most beautiful and sweet-scented flowers, producing a great variety of beautiful and pleasing colors and shades. They are hardy annuals, easy to grow, and will flower the first season from seed sown outdoors early in spring, continuing to bloom during the entire summer. Excellent for cutting, as well as for bedding. Height one foot.

No. 122. **Japanese Pinks.** (Dianthus Hedde-wigi laciniatus.) Finest single-flowered Japanese

Pinks, mixed. Pkt., 5c; oz., 50c.

No. 123. **Diadem Pinks.** (Dianthus Hedde-wigi diadematus fl. pl.) Large, double Japanese Pinks. Mixed colors. Pkt., 5c; oz., 30c.

No. 28. **Chinese Pinks.** (Dianthus Chinensis fl. pl.) A mixture of the choicest double varieties. Pkt., 10c; oz., 75c.

No. 288. **May Pinks.** (Dianthus plumarius.) The old-fashioned, single-flowered, garden, or border Pink. Pkt., 5c; oz., 25c.

PETUNIAS

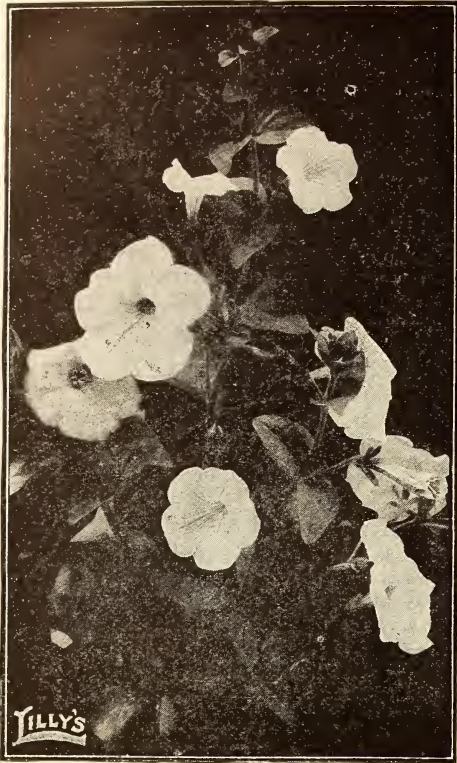
PETUNIAS are half-hardy annuals, and are easy to grow, especially the single varieties. The plants bloom early and profusely, furnishing a wealth of bright colors and delicate shades until killed by frost. They are particularly useful for massing against shrubbery, and may also be grown in pots for winter decoration.

The double varieties are most difficult to grow. The plants should be started under glass, and the seed is very expensive, as it can only be produced by hand pollination.

No. 65. Lilly's Fringed Large-flowered Double Petunia. (*Grandiflora fimbriata* fl. pl.) This is the highest development of the Petunia, improved by careful selection and artificial pollination until it little resembles the old varieties. About thirty-five per cent of the flowers will be double, the balance being immense, fringed, single flowers of the most beautiful colors. Pkt., 25c.

No. 66. Choice Double Petunia, Mixed. (*Hybrida* fl. pleno.) Some of the choicest double varieties and best colors, mixed. Pkt., 25c.

No. 61. Choice Single Petunias, Mixed. (*Hybrida*.) A mixture of fine single varieties. These are easy to grow, and the seed may be sown outdoors after danger of frost is past. Pkt., 5c.



POPPIES

EARLY in spring the garden will begin to be gay with poppies, and in some one or another of their forms they will continue to bloom until killed by frost. No other plants produce such bold and brilliant flowers with the same grace of stem, airiness of poise, and delicacy of texture.

No. 314. Shirley Poppy. Large fluted and crinkled flowers, produced in a variety of forms, colors, tints, and markings Pkt., 5c; oz., 25c.

No. 57. Carnation Poppy. Splendid double flowers; fringed. Mixed. Pkt., 5c; oz., 25c.

No. 55. Peony-flowered Poppy. Large, showy, double, globular flowers. Mixed. Pkt. 5c; oz., 15c.

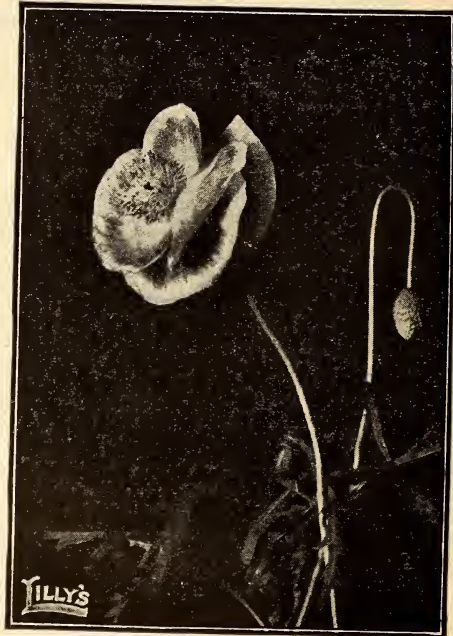
No. 268. Tulip Poppy. Large, tulip-shaped, single flowers. Bright scarlet. Pkt., 10c; oz., 75c.

No. 58. Umbrosium Poppy. Brilliant vermilion with black spots. Single. Pkt., 5c; oz., 15c.

No. 341. Iceland Poppy. Graceful, delicate, single flowers, the petals resembling tissue paper. A hardy perennial, but will bloom the first year from seed. Pkt., 10c; oz., 75c.

No. 351. Mixed Poppies. All the single, annual varieties and colors mixed. Pkt., 5c; oz., 20c.

No. 1030. Oriental Poppy, Mixed Hybrids. Hardy perennials, producing gorgeous colors. Pkt., 10c; oz., 75c.



PHLOX

FOR beds and massing, nothing can surpass these beautiful hardy annuals. They produce immense trusses of large, brilliant flowers, of a great variety of colors and shades, throughout the summer. The plants grow twelve to eighteen inches high.

No. 336. Lilly's Star Phlox. The beauty and brightness of this variety cannot be over-praised. The plants are dwarf, about twelve inches high, and are lavishly covered with large umbels of star-shaped flowers of the most brilliant colors. They are of the easiest culture, and are unexcelled for bedding. Mixed colors. Pkt., 5c; oz., \$1.25.

No. 919. Lilly's Large-flowering Phlox. (*Phlox Drummondii Grandiflora*.) This is the finest type, having the largest heads of bloom and the largest individual flowers. Our seed is from a highly improved strain, producing immense trusses of extra large, perfectly round flowers, with petals over-lapping each other. All the best colors, mixed. Pkt., 10c; oz., \$2.50.

No. 67. Phlox Drummondii, Mixed. The flowers are not so large as the grandiflora type, but are just as free-blooming and bright colored. Pkt., 5c; oz., \$1.00.

No. 931. Dwarf Phlox. (*Nana Compacta*.) This strain is of dwarf, compact habit, making them desirable pot plants, as well as for beds and borders. The plants are only six inches high, with flowers as large as the taller types. Pkt., 10c; oz., \$2.50.



Portulaca (Sun Plant)

A creeping, half-hardy annual, with thick foliage, and bearing a profusion of brilliantly colored, cup-shaped flowers. Thrives in dry, sunny positions.

No. 69. Single, Mixed. Pkt., 5c; oz., 45c.
No. 70. Double, Mixed. Pkt., 5c; oz., \$3.00.

Pyrethrum

A hardy perennial, with bright foliage. Splendid for edging and borders.

No. 76. Golden Feather. (*Pyrethrum parthenifolium aureum*.) Bright, golden-yellow foliage. Pkt., 5c; oz., 50c.

No. 342. Pyrethrum Roseum Hybridum. Large, single flowers in various shades of red and pink. Pkt., 10; oz., \$1.00.

Salpiglossis (Painted Tongue)

A half-hardy annual, growing about three feet high, bearing trumpet-shaped flowers in rich colors. Valuable for bedding and massing, and its long stems make it excellent for cutting. No. 406. Pkt., 5c; oz., 50c.

Ricinus (Castor Bean)

Ornamental annual plants of stately growth, picturesque foliage and brilliant colored fruit, producing a semi-tropical effect.

No. 140. Pkt., 5c; oz., 10c.

SALVIA (Flowering Sage)

Favorite bedding and border plants where bright colors are desired. They are half-hardy perennials, blooming the first year from seed if sown early. Also useful for pot plants, for window boxes, conservatories, and for cut flowers. The plant is bushy, grows two to three feet high, and bears a profusion of flowers in drooping spikes. Very fragrant.

No. 920. Scarlet Sage. (*Salvia Splendens*.) The most intense, glistening scarlet. Produces a gorgeous effect in a bed, and is splendid in working out color schemes if properly used. Pkt., 5c; oz., \$3.00.

No. 142. Blue Sage. (*Salvia Patens*.) This is as blue as the Scarlet Sage is red. Pkt., 15c; oz., \$8.00.



LILLY'S

CROP
BOOK

contains
cultural
directions.
We will
furnish it
free with
any order
if asked
for.



No. 170. Emperor Ten Weeks Stocks. A magnificent, perpetual-blooming variety. If seed is sown in March or April, they will begin to bloom in July, continuing to bear a mass of very double and delightfully fragrant flowers of great beauty, until killed by frost. Splendid for cutting. Mixed colors. Pkt., 10c; oz., \$5.50.

No. 932. Dresden Ten Weeks Stocks. Flowers are double and very large. The finest for cutting. Pkt., 10c; oz., \$4.25.

No. 84. Large-flowering Dwarf Ten Weeks Stocks. Dwarf plants and very large flowers. Pkt., 10c; oz., \$2.00.

No. 377. Large-flowering Tall Wallflower-leaved Ten Weeks Stocks. The plants are about one and one-half feet tall, and bear a profusion of immense flowers. Pkt., 10c; oz., \$3.50.

No. 85. Brompton, or Winter, Stocks. These are biennials. Pkt., 10c; oz., \$5.00.

PRIMROSE

(Primula)

PRIMROSES are among the most charming perennials for winter and spring decoration in the house or conservatory, being splendid winter blooming pot plants. They are also excellent for beds and borders, especially on the Pacific Coast, where they may be grown outdoors without protection.

No. 72. Chinese Primrose. (*Primula chinensis fimbriata* fl. pl.) A splendid mixture containing only the finest fringed, free-flowering, double, Chinese Primroses. Pkt., 25c.

No. 73. *Primula Auricula*. A dwarf plant, splendid for rockeries, borders or pots, bearing clusters of large, single, fragrant flowers. Pkt., 25c; oz., \$6.00.

No. 74. Japanese Primrose. Hardy, robust plants, three feet high, bearing for a long period, large trusses of bright and showy flowers. Pkt., 10c; oz., \$3.00.

No. 75. *Primula Veris*. The early, spring flowering, old-fashioned, border primrose. Pkt., 10c; oz., \$2.00.

No. 315. *Primula Obconica Grandiflora*. Bears trusses of large, fringed flowers. Splendid for either pots or beds. Mixed colors. Pkt., 25c; oz., \$6.00.

Scabiosa

(Mourning Bride)

This splendid hardy annual is the old favorite, Mourning Bride, much improved in size and form. It begins to bloom early in July, and continues without interruption until killed by hard frost. The plants grow about two and one-half feet high, and are excellent for borders and beds.

No. 130. Tall, Mixed Colors. Pkt., 5c; oz., 25c.
No. 143. Dwarf, Double, Mixed Colors. Pkt., 5c; oz., 20c.

STOCKS

(Gilliflower)

Stocks are among the most popular half-hardy annuals for bedding, edgings, pot culture, and for cut flowers. For brilliancy and diversity of color, fragrance, profusion and duration of bloom, they are unsurpassed.

The plants are of good habit, and grow about two feet high.



We are agents for the celebrated G. B. Lewis Co. Bee Supplies.

They are the best.

LILLY'S SWEET PEAS

SPENCER
TYPENo. 949
Countess
Spencer

The original of the superb Spencer type. Bright, clear pink, shaded to a richer and deeper pink at the edges.

No. 993
Gaiety
Spencer

Rosy-magenta flaked on white—One of the best of the Spencers.

No. 1001
White Spencer

Pure white, and of the true Spencer form. Extra large and wavy, with very long stems.

No. 1002
Primrose Spencer

Clear, distinct primrose, without a trace of other colors. Fine, large, wavy standard and wings.

No. 953
Helen Lewis Spencer

Standard rich crimson-orange; wings orange-rose. A beautiful, distinct variety.

No. 978
John Ingman Spencer

Beautiful rose-carmine, showing veins of a deeper shade.

No. 992
Mrs. Walter Wright Spencer
Rose-purple, self colored; large; shell-shaped. Very beautiful.

No. 1005
Asta Ohn Spencer
Soft pinkish-lavender; very large and wavy. The best of the lavender Spencers.

No. 1006
Flora Norton Spencer
Bright blue with a slight tint of purple. Nicely waved.

No. 1011
Mrs. Routzahn Spencer

A beautiful blending of straw-color tinted with bluish-pink and shading to apricot and rose at the edges.

Prices, All Spencer Sweet Peas:

No. 1008
Dainty Spencer
White with rose-pink edges; very large. One of the most beautiful Spencers.
Packet, 10c; ounce, 40c, postpaid.

No. 1010

Mrs. Joseph Chamberlain Spencer
White striped with rose. Large and elegantly
waved.

No. 1009

King Edward Spencer
The best pure red Spencer. Very large, with
immense wings.

No. 1014

Florence Morse Spencer
Delicate blush with pink margin. A beautiful
flower of very large size

No. 1019

Florence Nightingale Spencer
Lavender with a bluish cast. Large, wavy flowers
of fine shape and good substance.

No. 1023

Black Knight Spencer
Very dark, glossy, deep maroon; fine open form;
very large.

No. 1024

America Spencer
Pure red or crimson-scarlet striped on a ground
of ivory white. Large size and splendid form.

LILLY'S Mixed Spencer Sweet Peas

No. 1007

This splendid mixture contains nearly all varieties of the Spencer type, mixed for the benefit of those who wish all varieties, but do not care to keep them separate. The flowers are the same as those produced by the straight varieties.

Prices. all Spencer Sweet Peas: 10c per packet; 40c per ounce, postpaid.

LILLY'S SWEET PEAS

UNWIN TYPE

No. 951

Gladys Unwin

This belongs to a class by itself, very similar to the Spencer type, but slightly smaller and more free-flowering. The color is a clear, bright, light pink, shaded a little deeper at the edges.

No. 974

Frank Dolby

Beautiful light lavender. Bold wavy standard and widely spreading wings.

No. 982

Mrs. Alfred Watkins

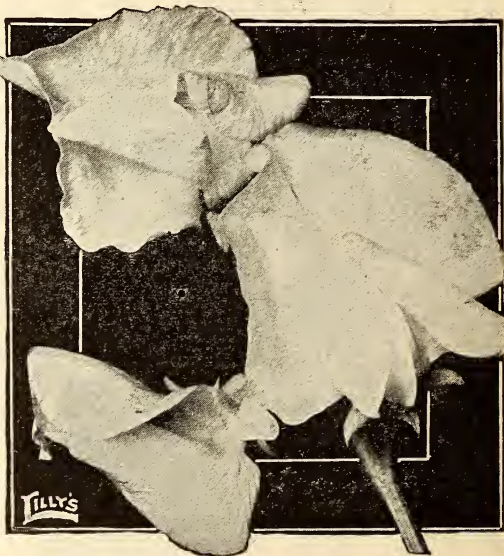
Standard pink at the base, shading to blush and buff at edges. Wings blush at base, shading to rose at edges.

No. 971

E. J. Castle

Bright rose-crimson with veins of deeper rose. Magnificent open form.

Prices: Packet, 10c; ounce, 40c, postpaid.



LILLY'S ROYAL MIXED SWEET PEAS

Included in this mixture are some of the best of all types and varieties of Sweet Peas. Every seed is of some worthy variety. If you do not care to keep the colors separate, you will find this mixture more than satisfactory.

No. 958. Packet, 5c; ounce, 20c, postpaid.

LILLY'S Christmas Blooming Sweet Peas

These varieties, if sown early in fall indoors, will bloom by Christmas and continue all winter. They may also be sown outdoors for extra early spring blooms.

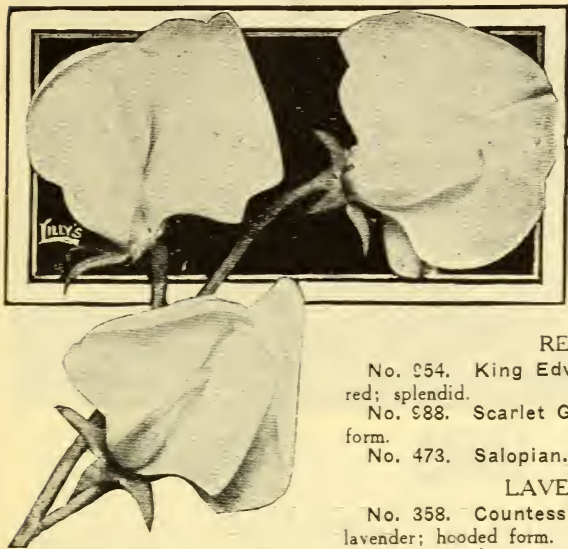
No. 1020. Christmas White... Pkt., 5c; oz., 30c

No. 1021. Christmas Pink... Pkt., 5c; oz., 30c

No. 1028. Christmas Blue... Pkt., 5c; oz., 30c

No. 457. Christmas Yellow... Pkt., 5c; oz., 30c

On the Pacific Coast, Sweet Peas may be planted in the fall for blooms early in spring



LILLY'S

SWEET PEAS

Grandiflora Type

BLUE PICOTEE EDGE.

No. 981. Maid of Honor. White shaded with lilac, blue edged; hooded form; very pretty.

RED AND SCARLET.

No. 954. King Edward VII. Very large; open form; bright red; splendid.

No. 988. Scarlet Gem. Bright scarlet; medium size; open form.

No. 473. Salopian. Deep rich red. Stands sun well.

LAVENDER AND MAUVE.

No. 358. Countess of Radnor. Standard light mauve; wings lavender; hooded form.

WHITE.

No. 969 Dorothy Eckford. Pure white and large; best of the semi-hooded form.

PINK SHADES.

No. 965. Bolton's Pink. Large, semi-hooded form; salmon pink veined with rose.

No. 966. Countess of Lathom. Cream pink on primrose ground; hooded form.

No. 977. Janet Scott. Clear, deep, bright pink; very distinct; hooded form; large.

No. 930. Lovely. Deep pink shading to light at edges; hooded form; large.

No. 472. Royal Robe. Pure pink; medium size; hooded.

CREAM OR LIGHT YELLOW.

No. 976. Hon. Mrs. E. Kenyon. Light primrose; large; semi-hooded form; late.

BLUSH.

No. 990. Sensation. Standard very light pink and buff; wings pure white; hooded.

PINK AND WHITE.

No. 964. Blanche Ferry. Standard bright carmine-rose; wings white tinged with pink; open form.

No. 968. Dainty. White, shaded light pink on edges; hooded form; beautiful.

MAROON SHADES.

No. 365. Black Knight. Very deep maroon; the darkest variety; large; open form.

No. 471. Othello. Very dark maroon, showing veins almost black; large; hooded form.

ROSE AND PINK.

No. 991. Sybil Eckford. Standard light salmon and buff; wings buff; open form.

No. 474. Triumph. Rose and crimson pink veined with scarlet rose and crimson; open form.

No. 465. Lady Grisel Hamilton. Standard mauve; wings very light lavender; hooded form.

No. 984. Mrs. Geo. Higginson, Jr. The clearest delicate blue; hooded form.

ROSY PURPLE SHADES.

No. 436. Captivation. Purple magenta; open form; medium size, somewhat crumpled.

No. 464. Emily Eckford. Rose purple, changing to lilac and blue; hooded form.

BLUE AND PURPLE SHADES.

No. 461. Captain of the Blues. Standard bluish purple; wings blue; hooded form.

No. 973. Flora Norton. Bright, clear blue; open form; medium size.

No. 983. Senator. Standard maroon and violet; wings violet and indigo, both striped on white; large; hooded form; splendid.

ROSE SHADES.

No. 979. Lord Roseberry. Bright magenta rose with veins of deeper shade; hooded.

No. 983. Mrs. Dugdale. Crimson rose on primrose ground; large; semi-hooded form.

No. 985. Prince of Wales. Rose crimson; large; hooded form; fine.

ORANGE AND SALMON.

No. 475. Gorgeous. Standard intense scarlet orange; wings bright rose; open form.

No. 975. Henry Eckford. Beautiful orange yellow; open form; large.

STRIPED AND VARIEGATED.

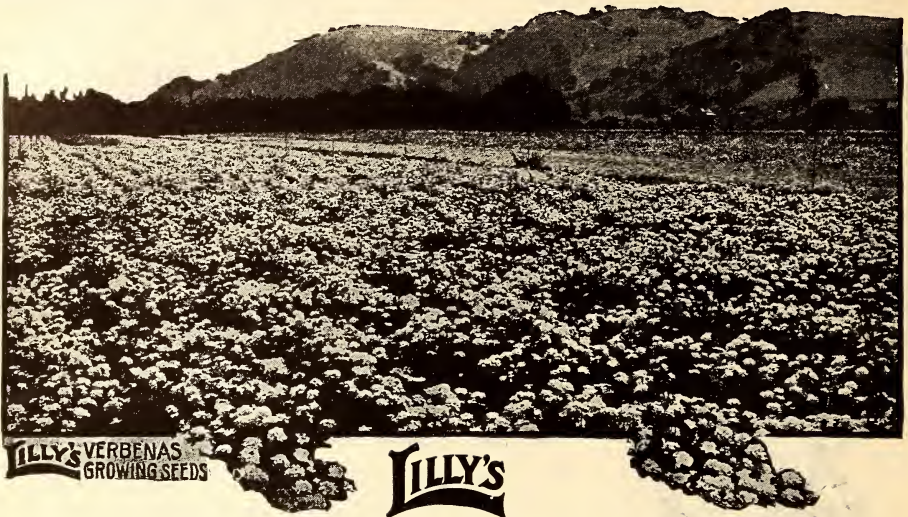
No. 364. America. Crimson scarlet striped on white; open form; large; good.

No. 483. Aurora. Orange rose striped on white; large size; hooded form.

No. 952. Helen Pierce. Pure white veined, mottled and marbled with bright blue; large; hooded form.

Price: Fkt., 5c; oz., 20c; postpaid.

Do not fail to plant Sweet Peas. They are the most satisfactory flowers that can be grown.



GIANT HYBRID VERBENAS

VERBENAS are low-growing, creeping, half-hardy annuals, splendid for beds, borders, rockeries, hanging baskets, window boxes, and for cut flowers. The plants are vigorous, bloom freely, and produce large trusses of flowers ranging in color from white through the shades of lilac and rose to purple. Plants from seed sown in the house or in hotbed in March will produce blooms in June; or if sown outdoors in May will produce blooms in August, and will bloom continuously until killed by freezing weather.

No. 88. Finest Giant Hybrid Verbenas, Mixed colors.

Packet, 10c; ounce \$1.25.

Schizanthus

(Butterfly Flower, or Fringe Flower)

One of the airiest and daintiest flowers imaginable. A hardy annual, growing about eighteen inches high; excellent for borders, and a charming house plant for winter blooming.

No. 80. Mixed colors. Pkt., 5c; oz., 20c.

Smilax

A tender climbing perennial with beautiful, bright green, glossy leaves. Much esteemed for conservatories on account of the glossy foliage.

No. 374. Pkt., 10c; oz., 40c.

Snow-on-the-Mountain

(*Arabis Alpina*—Rock Cress)

Unequaled for rockeries or edgings. Grows about six inches high, forming a spreading plant a foot or more in diameter, which, very early in spring is completely covered with pure white flowers. It is a hardy perennial, easy to grow, and blooming the second year from seed.

No. 1035. Pkt., 10c; oz., 75c.

Summer Cypress

(*Belvidere*—*Kochia Trichophylla*)

An easily grown annual, which, sown thinly, outdoors, early in spring, soon forms a symmetrical, bright green, cypress-like hedge, attaining a height of about three feet by midsummer; turning deep red in fall.

No. 1029. Pkt., 10c; oz., 75c.

Silene

(Catch-fly)

A bright colored, free flowering annual, suitable for rockeries and borders.

No. 82. Mixed colors. Pkt., 5c; oz., 15c.

Violets

These little favorites are deliciously fragrant, and are unexcelled for borders and for cutting. They are perennials, quite hardy, but the plants are rather difficult to grow from seed.

No. 319. Large Single Violets, Mixed.

Pkt., 10c; oz., \$1.50.

Sweet William

(*Dianthus Barbatus*)

An old-fashioned plant, producing clusters of gorgeously colored flowers of great fragrance. It is a hardy perennial, but blooms the first year from seed; grows about one foot high, and is good for beds and borders.

No. 26. Single.

Pkt., 5c; oz., 15c.

No. 27. Double.

Pkt., 5c; oz., \$1.00.

Thunbergia

(Black-eyed-Susan)

A hardy climbing annual, growing about four feet high, valuable for hanging baskets and for covering fences. The blossoms are very pretty, in buff, white and orange, with dark centers.

No. 147. Mixed colors. Pkt., 5c; oz., \$1.00.



Lawn Grass Seeds produce the finest lawns.

WALLFLOWER

AN OLD European favorite, deserving of more appreciation than is shown it in America. It is especially adapted to the Pacific Coast, where it is entirely hardy, although it must be protected during the winter in colder climates. They are perennials, grow about eighteen inches high, are

bushy, and very early in spring bear long spikes of deliciously fragrant flowers in bright colors.

No. 98. Double German Wallflower, Mixed Colors. Pkt., 10c; oz., \$3.00.

No. 99. Single Wallflower, Mixed Colors. Pkt., 5c; oz., 20c.

Wild Cucumber (Echinocystis)

One of the quickest growing annual vines. The foliage is dense, and it is one of the best vines for covering trellises, old trees, fences, or any place where a quick, but not permanent growth is desired. A profusion of fragrant white flowers is followed by an abundance of ornamental prickly seed pods.

No. 995. Pkt., 10c; oz., 25c.

WILD-FLOWER GARDEN

There are few things more pleasing than a wild-flower garden hidden away in some secluded spot or among shrubbery. This mixture is ideal for the purpose, being composed of such hardy annuals as will require little care beyond scattering the seed, and producing a great profusion and variety of pretty flowers.

No. 438.

Pkt., 5c; oz., 30c.



ZINNIAS

THIS old favorite half-hardy annual has been greatly improved, and produces a profusion of large, double flowers; excellent for bedding and for bouquets. The plants form handsome, compact bushes, two feet high, covered with flowers of a great variety of colors and shades. They commence blooming early in summer, and continue until killed by hard frost.

No. 933. Lilly's Giant Mixed Zinnia. A choice mixture including the best and largest types, producing plants of handsome, compact form, and immense, perfectly formed, double flowers in brilliant mixed colors. Pkt., 5c; oz., \$1.00.

No. 100. Mixed Zinnia. A splendid mixture of good varieties and colors.

Pkt., 5c; oz., 40c.

LILLY'S CHOICEST ROSES

Two-Year-Old Plants—Field Grown

OUR COLLECTION of roses includes only such varieties as are most desirable and best suited to this locality. They are field grown plants, two years old, and are much superior to the rooted cuttings or pot-grown plants commonly furnished. Prices do not include postage.

SUNBURST

(Hybrid Tea)

A splendid new French rose, introduced in 1912, and taking highest honors at all European exhibitions. The buds are long and pointed; stems strong; flowers very large, full and well formed; color orange and copper.

Price 60c each; \$6.00 per dozen.

LADY HILLINGDON

(Tea)

A very striking and lovely new rose. The plant is luxuriant, with beautiful narrow foliage, and very productive. The buds are long, slender and pointed; the color is a beautiful deep apricot and chrome yellow.

Price 60c each; \$6.00 per dozen.

FRAU KARL DRUSCHKI

(Hybrid Perpetual)

The very highest type of its class, and the best snow-white rose that has ever been introduced. The plants are strong, branching freely, and with luxuriant foliage. The flowers are glorious, of immense size, very double, of the purest white when fully opened, and are produced in great profusion on long, stiff stems.

Price 35c each; \$3.00 per dozen.

ROSE QUEEN

(Hybrid Tea)

A fine new rose, the same shade of pink as Mad. Caroline Testout, but shaded yellow at base of petals. The buds are beautifully formed, intensely colored, and are borne on long stems. Particularly fine for cutting.

60c each; \$6.00 doz

Prince de Bulgaire

(Hybrid Tea)

A splendid rose, and constant bloomer. The plant is vigorous, with large, bright green foliage. The buds and flowers are large, full, and of beautiful form. The color is a delicate pink shading to salmon and yellow.

Price 35c each; \$3.00 per dozen

Dean Hole

(Hybrid Tea)

A grand new rose; awarded gold medal by the English Rose Society. The flowers are very large, full, and of fine form; color silvery carmine shaded salmon.

Price 35c each; \$3.00 per dozen



Winnie Davis

(Hybrid Tea)

A new rose of rare merit. The plant is strong, upright, healthy, and a profuse bloomer. The flower is of good size, and the buds extremely pretty and well formed. The color is a pretty apricot-pink.

Price 35c each; \$3.00 per dozen

Killarney

(Hybrid Tea)

This splendid Irish rose is considered by many to be the most beautiful of its class and color. The flowers are large, semi-double, of beautiful form, and the color is a shell pink of the most exquisite shade.

Price 25c each; \$2.50 per dozen.

White Killarney

(Hybrid Tea)

A sport from Killarney, to which it is identical except in color, which is pure white except that in some soils and climates the edges of petals are tinged with pink.

Price 35c each; \$3.00 per dozen

If to be shipped by parcel post, remittance must include a sufficient amount to pay postage.



Mrs. Kate Moulton

(Hybrid Tea)

One of the finest pink roses. The plant is strong, healthy, and a profuse bloomer; the buds are long and pointed; and the flowers are a beautiful clear pink with prettily reflexed petals tipped with white.

Price 25c each; \$2.50 per dozen.

General McArthur

(Hybrid Tea)

A splendid bright crimson-scarlet rose of good size and shape. The plant is vigorous, healthy, and very productive.

Price 25c each; \$2.50 per dozen.

Ulrich Brunner

(Hybrid Perpetual)

A magnificent rose, similar to American Beauty, but much superior for outdoor culture. Color, bright cherry-red; petals broad, round, and of good substance. The perfectly formed flowers are raised high above the foliage on long, strong stems.

Price 25c each; \$2.50 per dozen.

Hugh Dickson

(Hybrid Perpetual)

The plants are robust and free from mildew; the blooms large, full and of good form, richly fragrant, and of a pleasing, bright, clear red color.

Price 25c each; \$2.50 per dozen.

Madame Abel Chatenay

(Hybrid Tea)

A very beautiful rose of novel and distinct color, rich golden pink or rose, flushed with orange or fawn.

Price 25c each; \$2.50 per dozen.

Mrs. John Laing

(Hybrid Perpetual)

A beautiful and popular rose. The flowers are large and of fine form, produced on long, strong stems; color soft pink; very fragrant.

Price 25c each; \$2.50 per dozen.

LYON ROSE

(Hybrid Tea)

A superb new rose, magnificently formed and beautifully colored; shrimp-pink at edge of petals, coral-red at center, shaded with chrome-yellow. The plant is sturdy, and produces bountifully.

Price 35c each; \$3.00 per dozen.

My Maryland

(Hybrid Tea)

One of the new American roses which is proving highly popular. The plant is robust, clean in growth, and a prolific bloomer. The flowers are large, full, deliciously fragrant, and the color is a deep pink, not blended with any other shade.

Price 25c each; \$2.50 per dozen.

Belle Siebrecht

(Hybrid Tea)

A superb pink rose of recent introduction. The buds are long and pointed, with gracefully reflexed petals; flowers beautifully formed and sweetly perfumed; color rich solid pink.

Price 25c each; \$2.50 per dozen.

Madame Caroline Testout

(Hybrid Tea)

The most popular and most satisfactory rose grown in the Northwest. The plant is hardy, robust, and free from disease. The foliage is very large and dark green. The flowers are borne in great profusion, for a long season, on long, stiff stems. Both buds and blooms are large, distinct and pretty in form, with a brilliant satiny-pink color and a delicious fragrance.

Price 25c each; \$2.50 per dozen.

Climbing Caroline Testout

(Hybrid Tea)

A sport from the popular Madame Caroline Testout, producing the same beautiful clear pink flowers, and almost as profusely. It climbs vigorously, and is the best climber of its class and color.

Price 25c each; \$2.50 per dozen.

Papa Gontier

(Tea)

A strong, vigorous plant, and constant bloomer. The buds are very large and the flowers magnificent. The color is a vivid cherry-red, shaded yellow, with reverse of petals crimson.

Price 25c each; \$2.50 per dozen.

Gruss an Teplitz

(Hybrid Tea)

For intense and dazzling color, there is no other rose to compare with this. The flowers are produced in profusion during the entire growing season, are of good size and form, and the color is a rich fiery red shaded with a dark velvety sheen.

Price 25c each; \$2.50 per dozen.

These prices do not include transportation charges. If rose bushes are to be shipped by parcel post a sufficient amount must be remitted to pay postage. Packed for shipment, one plant weighs about two pounds, or a dozen weighs about ten pounds. We recommend that plants be shipped by express, as they reach destination in better condition, and the charges are little, if any, more.

General Jacqueminot

(Hybrid Perpetual)

The "Jack Rose" has long been the most popular hardy crimson rose, and is the standard of perfection in that color. The plant is strong and vigorous, and a profuse bloomer. The flowers are bright, shining crimson, rich and velvety.

Price 25c each; \$2.50 per dozen.

Madame Alfred Carriere

(Hybrid Noisette)

One of the best white climbers. The flowers are of good size, double, highly fragrant, and the color is a rich creamy white faintly tinged with blush and pale yellow.

Price 25c each; \$2.50 per dozen.

Bessie Brown

(Hybrid Tea)

A prime new rose, very pleasing in form and color. The plant is of strong, upright growth, with good foliage, and a heavy bloomer. The flowers are very large, extremely full and double, and the color is white tinged with flesh.

Price 25c each; \$2.50 per dozen.

Richmond

One of the most valuable introductions of recent years, and the most satisfactory red rose in existence. The plant is sturdy and free flowering; the buds are beautifully formed; and the flowers are of good size, deep, not very full, and the form and color are splendid; beautiful crimson-scarlet; does not fade.

Price 25c each; \$2.50 per dozen.

Crimson Rambler

(Polyantha)

A strong and rapid climber, producing a great profusion of small crimson flowers in large pyramidal panicles.

Price 25c each; \$2.50 per dozen.

Dorothy Perkins

(Polyantha)

A beautiful pink rambler, similar to the well-known Crimson Rambler except in color and it is not so liable to mildew.

Price 25c each; \$2.50 per dozen.

Kaiserin Augusta Victoria

(Hybrid Tea)

This grand white rose is unsurpassed in beauty. The large flowers are beautifully formed, with gracefully reflexed outer petals. The beautiful, long, pointed buds are slightly tinged with green, or sometimes pink, but the full-blown roses are a delicate, waxy, almost pure white.

Price 25c each; \$2.50 per dozen.

Wm. Allen Richardson

(Noisette)

A very pretty climbing rose. Color coppery yellow flushed with carmine; flowers of good size.

Price 25c each; \$2.50 per dozen.

Marechal Neil

(Noisette)

A splendid climbing rose. The flowers are large, globular, very full, highly scented, and the color is a beautiful deep sulphur-yellow.

Price 25c each; \$2.50 per dozen.

La France

(Hybrid Tea)

This has long been one of the most popular roses, and still has few equals. The buds and flowers are of lovely form, and the color is a beautiful shade of pink tinged with crimson.

Price 25c each; \$2.50 per dozen.



Tausendschon (Thousand Beauties)

(Polyantha)

A beautiful new climber, and by far the best of the ramblers. The plant makes a wonderful growth, is literally covered with blooms for a long season, and the coloring is beautiful, showing a great variety of shades of pink.

Price 25c each; \$2.50 per dozen.

We guarantee delivery in good condition when shipped by express, but not when shipped by parcel post or freight. If not in good condition when received they should be returned to us at once; otherwise we cannot replace them.



LILLY'S VEGETABLE PLANTS AND ROOTS

Tomato Plants

Good, sturdy, well rooted plants. We can furnish Puget Sound Special and Earliana plants only, as they are best adapted to the Northwest.

Season May 1st to June 30th.

Transplanted: Dozen, 25c; 100, \$1.00.

Not transplanted: Dozen, 20c; 100, 75c.

Write for prices on large quantities.

Celery Plants

The early self-blanching varieties, Vilmorin's Paris Golden Yellow, Silver Plume, White Plume, and Golden Self Blanching.

Season May 1st to July 31st.

Dozen, 20c; 100, 50c; 1,000, \$3.50.

Write for prices on large quantities.

Rhubarb Roots

Strong, field-grown roots, grown from seed. Lin-neaus and Mammoth Victoria.

	Each	Doz.	100
One year old:	\$0.10	\$0.50	\$3.00
Two years old:	.15	1.00	6.00

Season Nov. 1st to May 15th.

Horseradish Roots

Season Nov. 1st to May 15th.

Price: 25c per dozen; \$1.50 per 100.

Cabbage Plants

Strong, healthy plants of the following varieties: Early Jersey Wakefield, Lilly's Glory, Copenhagen Market, All Seasons, Danish Ballhead and Premium Late Flat Dutch. Season March 1st to June 30th.

Dozen, 20c; 100, 50c; 1,000, \$3.50.

Write for prices on large quantities.

Cauliflower Plants

We can furnish Early Alba and Snowball Cauliflower plants only, as we consider them best for either market garden or home use.

Season April 1st to June 30th.

Dozen, 20c; 100, \$1.00; 1,000, \$7.50.

Write for prices on large quantities.

Asparagus Roots

Fine, hardy, field-grown roots of Columbia Mammoth and White Colossal. Season Nov. 1st to May 15th.

One year old:	\$0.20	\$0.75	\$ 6.00
Two years old:	.25	1.50	10.00

Chives, or Schnittlauch

Large clumps; may be divided. Season Nov. 1st to May 15th.

Price: 10c per clump; \$1.00 per doz. clumps.

Prices do not include postage. If to be shipped by parcel post, postage will be additional.

BURBANK'S PHENOMENAL BERRY

ONE of Luther Burbank's greatest triumphs; the result of a cross between the California Dewberry and the Cuthbert Raspberry. It is different from any other berry except the Loganberry, which it closely resembles, but is larger, sweeter, has a smaller core, will make twice the amount of jelly, and the canes are stronger, more vigorous, and more productive. A half-dozen plants will produce all of this delicious fruit that an ordinary family can use.

20c each; \$2.00 dozen; \$12.50 per 100.

Loganberry

A cross between the blackberry and raspberry, superior to either in size and flavor, and entirely different from any other berry except the Phenomenal.

15c each; \$1.50 dozen; \$10.00 per 100.



BLACKBERRIES

HIMALAYA GIANT

A remarkable berry, producing immense crops of exceedingly large, sweet, juicy berries, with a delicious aromatic flavor. The plant is a rampant grower, single canes often making a growth of fifty feet in one season. The berries are produced in immense clusters, beginning to ripen in July and continuing until winter. The original plants were brought from the Himalaya Mountains, where they have been grown for many centuries, and the severe climate has made them unusually hardy, enabling them to withstand extremes of cold, heat and drought.

Prices, 15c each; \$1.50 per dozen; \$10.00 per 100.

NEW MAMMOTH

The Mammoth Blackberry is in a class by itself, and no other blackberry can be compared with it in size or flavor, berries two and one-half inches long being not uncommon. The fruit ripens three weeks earlier than the Evergreen.

Lucretia Dewberry

A trailing blackberry, the finest of its class. It bears profusely, fine, large, glossy black berries; rich, sweet and luscious.

GRAPES

Concord

The most popular black grape; flavor sweet and pleasant; bunches compact; very hardy.

Muscadine

The old reliable white grape; one of the most prolific and finest for home use.

Prices, 15c each; \$1.50 per dozen; \$10.00 per 100.

Delaware

A most desirable garden variety; berries small, violet red, very sweet and highly flavored.

Salem

A splendid coppery-red grape of good flavor and quality; quite hardy.

IMPROVED SUPERLATIVE RED RASPBERRY

THIS SPLENDID new raspberry was introduced by us in 1907, and has proved to be the very best red raspberry in cultivation. The berry is of immense size, very firm, with small, brittle seeds, a rich, soft crimson color, and a delicious aromatic flavor, less acid than others.
15c each; \$1.50 per dozen; \$10.00 per 100.

Cuthbert Red Raspberry

A popular standard variety for market and home use. Produces an abundance of large, rich, deep crimson berries. Stands heat and sun well, and is a good shipper.

15c each; 75c per dozen; \$5.00 per 100.

PLUM FARMER BLACK RASPBERRY

A new variety, and the best black raspberry ever introduced. The plants are hardy, vigorous, and very productive. The berries are extra large, exceedingly early; thick meated and of exquisite flavor.

20c each; \$1.50 per dozen; \$10.00 per 100.

PERFECTION CURRANT

This splendid new variety is the highest development in currants. The berries are a beautiful bright red, and both berries and bunches are very large. They are borne in great abundance, and are rich, mild, sub-acid, with plenty of pulp and few seeds; of better quality and flavor than any other currant.

Price, 20c each; \$2.00 per dozen; \$14.00 per 100.

Red Cherry Currant

One of the very best varieties. A strong grower and good yielder of large red berries.

Black Victoria Currant

Similar to Victoria, except that it is larger, sweeter and almost jet black when ripe.

Price, 15c each; \$1.50 per dozen; \$8.00 per 100.

Victoria Currant

Medium sized, bright red fruit in long bunches; excellent quality; late.

White Grape Currant

The best white variety. Large; yellowish white. Very hardy and productive.

GOOSEBERRIES

Downing

A large, handsome berry of pale green color and excellent quality. A great favorite for home and market. The bush is vigorous, and free from mildew.

Oregon Champion

Very popular. Berries very large; pale green; very sweet; bush strong and prolific.

Price, 15c each; \$1.50 per dozen; \$8.00 per 100.

Industry

Of English origin. Bears immense crops of large red berries. Very successful in this country.

Smith's Improved

Fruit large, pale green, thin skinned and sweet; a prolific yielder, and excellent for market or home use.

Prices do not include postage. If to be shipped by parcel post, postage will be additional.



LILLY'S SEED POTATOES

True Strains of Varieties Adapted to the Northwest

	Price per pound in lots of 10 lbs.	50 lbs.	100 lbs.
BOVEE. Best of the early sorts, maturing before Early Rose, and more productive. Fine quality, pinkish color, and of uniform size .....	.04	.03½	.03
PRIDE OF MULTNOMAH. An excellent main crop potato; very productive; uniform in shape and size; eyes shallow; skin and flesh white .....	.04	.03½	.03
EARLIEST OF ALL. Extra early, white, and of the finest quality. Makes a vigorous, healthy growth, and is quite productive .....	.04	.03½	.03
EARLY PURITAN. Early and very productive. The tubers are of good size, oval, with smooth white skin. The flesh is white and of fine quality .....	.04	.03½	.03
BEAUTY OF HEBRON. An early potato resembling the Early Rose in every way except that it is nearly white .....	.04	.03½	.03
EARLY ROSE. The old standard early variety, and still good, provided pure seed is procured .....	.04	.03	.02½
AMERICAN WONDER. Medium early, and unexcelled for main crop. The tubers are white, large, smooth, and the eyes are shallow. Very productive, and of the finest quality. It is rapidly supplanting the Burbank .....	.04	.03½	.03
NETTED GEM. One of the very best main crop potatoes. Rather long, smooth, and the light russet skin is finely netted. The flesh is very white, floury, and they bake quickly .....	.04	.03	.02½
GOLD COIN. A splendid main crop potato; very hardy; vigorous and most productive. It is oblong, with small eyes, and the skin is smooth with a light golden tint. The flesh is pure white, and cooks dry .....	.04	.03½	.03
BURBANK. A standard main crop variety .....	.04	.03	.02½

Jerusalem Artichokes

By some these tubers are considered a great delicacy, but in this country they are grown mostly for stock food. Grown the same as potatoes. Price, \$2.50 per 100 lbs.; less than sack lots, 4c per lb.



FERTILIZERS will double your crops.



LILLY'S SEEDS ARE TESTED

The Reason Why Lilly's Seeds Are Good Seeds

"That there are many frauds in the seed trade no good seedsman will deny, but much of the complaint about poor seed is due to the fact that dealers themselves are ignorant of the quality of the seeds they sell."—United States Department of Agriculture, Farmers Bulletin No. 111.

THERE IS A DIFFERENCE in seeds; and this is especially true of clover and grass seeds. No farmer would intentionally sow a pound of weed seeds on an acre of his land, yet many are sowing more than that amount of weed seeds each year, mixed with clover and grass seeds. Some do this carelessly, not realizing the results; others do it to save the few cents difference in price between good seed and poor seed.

The Pure Seed Laws are a splendid thing for both the farmer and the reliable seedsman, and they have made a great improvement in the quality of seed used; but it is possible to produce better seed than the law requires, and the careful farmer demands the best. The law requires that red clover seed must not be less than 92% pure, which is considered very good seed, but allows eight pounds of foreign seeds in each hundred pounds, or more than a pound to be sown on each acre.

In addition to this weed seed, red clover may contain as much as twenty per cent of dead seeds; that is, seeds which will not germinate, and, although not harmful like the weed seeds, they are utterly useless. Thus, it will be seen, good commercial red clover seed, complying strictly with the Pure Seed Law, and much better than some of the seed sold in other states, may contain twenty-eight per cent of seed which is worthless, or worse, and the farmer who buys this seed pays more per pound for the good seed contained in it than if he purchased the very best seed to be had, and paid the highest price.

Any seed packed in sealed bags branded "Lilly's Best" may be depended upon to be the very best seed that can be produced.

Few seedsmen have facilities equal to ours for producing good seed. We handle only the very best seed that can be grown, and it is cleaned and re-cleaned with our splendid seed-cleaning machinery until it is as near perfect as it can be made, and then tested for purity and germination. We do not handle any seed that is not considerably better than is required by the Pure Seed Law.

We have a complete seed testing laboratory, with the same apparatus as is used by the United States Government, and every lot of seed is accurately tested before being offered for sale.

YOU ARE TAKING NO CHANCES WHEN YOU SOW LILLY'S BEST SEEDS.

LILLY'S GRASS, CLOVER AND GRAIN SEEDS



LILLY'S IMPORTED LAWN GRASS SEED For Extra Fancy Lawns

FOR those who wish an extra fancy lawn, and are willing to pay for the best seed that money can buy, we have prepared a mixture composed of the choicest imported lawn grass seeds, carefully selected as being adapted to conditions on the Pacific Coast, producing a firm, rich, green, velvety turf of uniform color, and which in our climate remains green all the year.

Perfect lawns, such as may be produced in our ideal climate and soil, are entirely too scarce. A lawn is permanent, and as little can be done to improve it after it is established, great care should be taken in preparing the soil. As the greatest expense

of establishing a perfect lawn is in properly preparing the soil, it is poor economy to sow any but the very best seed.

As the grasses contained in this mixture are not so easily started as the more hardy grasses, we would recommend the Nonpareil Lawn Grass for those who do not care to give the lawn the extra care which an especially fine lawn requires.

Sold only in sealed packages. Price: 35c per quart package; \$1.50 per 4-lb. carton.

If shipped by Parcel Post, postage will be additional.

Prices do not include postage, freight or express charges, except when so stated.



LILLY'S NONPAREIL LAWN GRASS SEED

Forms a Tough and Enduring Turf—Always Green

NONPAREIL LAWN GRASS SEED is a mixture of many of the best imported and domestic grasses; early, medium, late, short, tall, bunch, and those with creeping roots, scientifically selected to produce a lawn which will be green all the year, forms a thick, matted turf, which will actually be improved by tramping, with roots reaching far into the ground to withstand drought and prevent heaving in winter, and especially adapted to the climate and soils of the Pacific Coast.

This mixture contains some White Clover, to make a quick showing and act as a nurse crop for the grasses, and the grasses are more hardy and not so fine as those in the Imported Lawn Grass Mixture,

but it will produce a splendid lawn with less care, and is preferable for the ordinary lawn, where utility and endurance are more desired than the satisfaction of having the very finest that it is possible to obtain.

As lawns are kept trimmed, and not allowed to reseed themselves, they will naturally need to be reseeded about every third year. One pound of this seed is sufficient for about three hundred square feet of new lawn, or half that amount to renew an old lawn.

Quart package (about one pound), 25c; five pounds or more, 20c per pound; postage additional.

LILLY'S MAKALAWN

Produces Remarkably Quick Results

A COMBINATION of choice, selected lawn grass seeds and quick acting fertilizers, held in a dormant state until combined with soil and water, when it springs into life immediately, and produces a splendid lawn in an incredibly short time. It is equally good for establishing new lawns or re-

newing old lawns. Five pounds is sufficient for one thousand square feet of new lawn, or two thousand square feet of old lawn.

Packed in 5-lb. packages only. Price, \$1.00 per package.

It is a crime to have an unsightly lawn in this country, where the most perfect lawns are so easily produced and maintained. The seed is an insignificant part of the expense, and none but the best should be sown. The Crop Book contains a good article on making and care of the lawn. It will be furnished free with any order if requested with the order.



LILLY'S GOLF LINKS MIXTURE

Forms an Indestructible Turf; Smooth, Firm, Elastic

A TURF, to be suitable for a golf course, must, in addition to making a good appearance, and remaining green all the season, be smooth, firm, elastic, tough, and capable of standing a great deal of abuse. To meet these requirements, we have prepared a formula composing such foreign and domestic grasses as will make a short, fine growth, with densely intermingling roots reaching deep into the ground.

Prices: Quart package (about 1 lb.), 35c; 5 lbs. or more, 35c per lb.; 100 lbs., \$30.00.

LILLY'S

PUTTING GREEN MIXTURE

THIS MIXTURE, in addition to forming a smooth, green, velvety lawn of the very finest quality, forms a deep, closely interwoven root-system that is not injured by constant tramping. It is equally good for forming new greens or for rejuvenating old ones. For new greens, one pound of seed is sufficient for three hundred square feet, but heavier seeding will give better results.

Prices: Quart package (about 1 lb.), 35c; 5 lbs. or more, 35c per lb.; 100 lbs., \$32.00.

LILLY'S

SHADY LAWN MIXTURE

THE UNSIGHTLY bare spots under trees and shrubbery may be overcome with this mixture. It is also suitable for entire lawns and parks where, on account of being more or less shaded, other mixtures do not thrive. Ground that is sour or mossy must first be sweetened with Ground Lime Rock or Lime, and fertilized, after which this mixture will produce a good turf in the shadiest spots.

Prices: Quart package (about 1 lb.), 35c; 5 lbs. or more, 30c per lb.; 100 lbs., \$28.00.

The splendid golf links of Seattle, Everett, Bellingham, Aberdeen, and other cities in the Northwest are practical demonstrations of the excellence of Lilly's Grass Seed Mixtures.



LILLY'S ALFALFA SEED

(Medicago Sativa)

99 1/2 PER CENT. PURE

Free From Dodder and Other Noxious Weed Seeds

LILLY'S BEST ALFALFA SEED is the acme of perfection in seeds. It never tests less than 99 1/2% pure, is free from dodder and other noxious weed seeds, and consists only of big, plump seeds; all small and shrunken seeds having been removed. Hand picked seed could hardly be better.

We formerly handled a second grade of Alfalfa seed, but the modern farmer demands the very best seed that it is possible to procure, realizing that the difference in price is insignificant compared with the difference in crops produced, and the demand for the second grade has decreased to such an extent that we now handle only one grade, Lilly's Best, the best that can be produced.

Price: \$20.00 per 100 lbs.; less than sack lots, 21c per lb.; F. O. B. Seattle or Portland.
Subject to change. Write for current price list before ordering.

To maintain this high standard requires that the greatest care be exercised in growing and harvesting the seed, it is never grown in localities infested with dodder, and we have installed the most perfect seed cleaning machinery in use in the West.

There is nothing else so prolific as weeds, and few farmers are now willing to sow even the four per cent weeds allowed by the Pure Seed Law. It is unsafe to sow any seed which has not been tested, and the test guaranteed. Lilly's Best Alfalfa Seed sown on land reasonably free from weeds is good insurance of a bumper crop. Sow at the rate of eight to fifteen pounds per acre.

Prices at the time this catalog was printed were as follows:

LILLY'S CROP BOOK

Containing Cultural Directions and other valuable information. will be given free with any order if requested.

TURKESTAN ALFALFA

(Medicago Turkestanica)

Dry Land Alfalfa

This variety was brought from Central Asia under the auspices of the United States Department of Agriculture, and, being very hardy, is adapted to very dry and unirrigated land. In appearance it is almost identical with Medicago Sativa.

The seed should be sown rather thickly, about 15 lbs. per acre; otherwise the stalks are inclined to be coarse and hard.

Price: \$20.50 per 100 lbs.; less than sack lots, 21 1/2c per lb.; F. O. B. Seattle or Portland.

These prices are subject to change. Write for current Price List before ordering.

LILLY'S GIANT WHITE CLOVER

(*Trifolium parviflorum*)

Of Special Value to the Dairies of the Northwest

HAVING heard of the merits of a clover used by the dairymen of Austria-Hungary, we procured some of the seed, gave it a thorough trial, and found it perfectly adapted to this country. It produces a heavy crop of hay of excellent quality, and is especially valuable for pasture. In growth and size it is similar to Red Clover, but the blossoms are white, and in appearance and quality it resembles White Clover. It is very high in food value, and is relished by cattle. Not suitable for lawns.

The quantity of hay produced is about the same as Red Clover or Alsike. It may be pastured in spring to retard the first crop of hay until good haying weather may be depended upon.

This seed was imported by us direct from Austria-Hungary, and we believe that we are the first seedsmen to introduce it into this country.

Price: \$28.00 per 100 lbs. Less than sack lots, 29c per lb.

LILLY'S

WHITE CLOVER

(*Trifolium repens*)

97% PURE

Free From Noxious Weed
Seeds

For lawns, especially, none but the very best White Clover seed obtainable should be sown, as ordinary seed is very liable to contain Sorrel.

Lilly's Best White Clover Seed is grown on land free from noxious weeds, is thoroughly re-cleaned, and is as nearly perfect as it can be produced.

We have a second grade White Clover seed, which is better than is required by the Pure Seed Law, but we do not recommend it for lawns when Lilly's Best can be had. For lawns, sow at the rate of 25 lbs. or more per acre; for pasture, 8 to 10 lbs. mixed with grass seeds.

LILLY'S BEST WHITE CLOVER: \$55.00 per 100 lbs.; less than sack lots, 57c per lb.

Choice White Clover: \$44.00 per 100 lbs.; less than sack lots, 46c per lb.

BOKHARA CLOVER

(*Melilotus alba*)

(Sweet Clover)

Bokhara grows erect, sometimes five feet high, and thrives on poor and dry soils. It is covered with small white blossoms of great fragrance and very sweet. In the past it has been used mostly for bee pasture, for which it is unequalled, but is becoming popular for early spring pasture and for forage and hay.

Price: \$33.00 per 100 lbs.;

less than sack lots, 34c per lb.

YELLOW BLOSSOM BOKHARA

(*Melilotus officinalis*)

Similar to the White Blossom Bokhara except in color of the blossoms, and it is not so popular.

\$18.00 per 100 lbs.; less than sack lots, 19c per lb.

LILLY'S ALSIKE

(*Trifolium hybridum*)

98% PURE

A Clover for Wet Land

Alsike is good in both pasture and hay mixtures, will stand a considerable amount of water, and is especially useful on land that is too wet for Red Clover.

The nature of the seed makes it very difficult to clean with ordinary seed cleaning machinery, and great care should be exercised in purchasing.

We have a second grade, at a slightly less price, but the difference in price does not warrant the use of any but Lilly's Best. Sow at the rate of 8 to 10 lbs. per acre.

LILLY'S BEST ALSIKE: \$20.00 per 100 lbs.; less than sack lots, 21c per lb.

Choice Alsike: \$19.00 per 100 lbs.; less than sack lots, 20c per lb.

Crimson Clover

(*Trifolium incarnatum*)

Crimson Clover is an annual, useful principally as a cover crop and to plow under for green manure. It is a good crop in California, and may be grown in the Willamette Valley, but further north we do not recommend it. Sow 12 to 20 lbs. per acre.

Price: \$20.00 per 100 lbs.; less than sack lots, 21c per lb.

Espartette, or Sanfoin

(*Onobrychis sativa*)

A perennial, leguminous, fodder plant, thriving on light, dry, or sandy soils. Sow in spring, covering the seed quite deeply, at the rate of 80 to 100 lbs. per acre.

Price: \$17.00 per 100 lbs.; less than sack lots, 18c per lb.



LILLY'S RED CLOVER SEED

(*Trifolium pratense.*)

99% PURE

Absolutely Free From Dodder
Recleaned and Tested

LILLY'S BEST RED CLOVER SEED is one of our hobbies, and we have reason to be proud of it. It is guaranteed to test not less than 99 per cent pure, and we make it as much better as possible, usually as high as 99½ per cent pure, which, before the installation of our new and perfected seed cleaning machinery, was considered an impossible state of purity for Red Clover seed. The Pure Seed Law requires only 92 per cent purity, which is much better than much of the seed used before that law went into effect.

Lilly's Best Red Clover Seed has never tested less than 99 per cent pure, and it is by maintaining that high standard that we have gained a reputation for this seed, and now handle practically

all of the high-grade Red Clover seed used in the Northwest.

The United States Department of Agriculture and others have done excellent work in demonstrating the importance of pure seed, and the farmers now demand the best that is to be had.

Although Red Clover is a very important crop west of the Cascade Mountains, it is not nearly so universally grown as it could be profitably. It is not only the most valuable hay, forage and silage crop, but it is also of inestimable value for fertilizing and improving the texture of the soil, either when plowed under or when removed from the field.

In common with other legumes, it has the power of drawing nitrogen from the air and distributing it through its roots into the soil; also, the roots, reaching deep into the soil, loosen and pulverize it, and, especially when plowed under, it forms humus, a thing much needed in most soils. There is much unfertile land that could be made productive by plowing under a crop of Red Clover, and much unused land that could be improved by seeding and pasturing it.

We have a second grade of Red Clover which is very good seed, better than is required by the Pure Seed Law, and better than most seed offered in the market, but the demand for this grade is steadily decreasing, and we do not encourage its use when Lilly's Best Red Clover Seed is to be had.

LILLY'S BEST RED CLOVER: \$20.50 per 100 lbs.; less than sack lots, 21½¢ per lb.

Choice Red Clover: \$19.50 per 100 lbs.; less than sack lots, 20½¢ per lb.

Subject to change. Write for current price list before ordering.

"I am desirous of obtaining Clover, Alsike and Timothy seed to sow about twenty acres of land this spring, and have had great difficulty in obtaining pure seeds, free from poisonous weeds, etc. In order to escape these results I have written to the Bureau of Plant Industry at Washington, D. C., and have been recommended to your firm as one upon which I could rely to get pure seeds free from weeds and other poisonous matters. Please let me have your prices on the seeds named, and also whether or not you guarantee the same. Also let me know if you handle corn seed, and if so your prices, and the kind of corn you would recommend for silage purposes in this section of the country."

O. L. BROWN,
Bellingham, Wash.

Mammoth Red Clover

(*Trifolium medium.*)

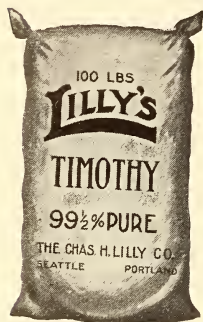
Mammoth Red Clover is very similar to the common Red Clover, but the stalks are very coarse, making it of little use for hay or forage, and it is used almost exclusively as a green manure, to plow under. It is valuable for that purpose on account of its deep rooting habits, and its ability to draw nitrogen from the air. It is usually sown at the rate of 10 to 20 lbs. per acre.

We have only one grade, which complies strictly with the Pure Seed Law.

Price, 1 lb., 25¢; 10 lbs., 23¢ per lb.; 50 lbs., 22½¢ per lb.; 100 lbs., \$22.00.

Prices subject to change. Write for Price List.

If it's in sealed bags branded **LILLY'S** it's good.



LILLY'S

TIMOTHY SEED

(Phelum pratense.)

99 1/2%
PURE

The Best Seed That Can Be Produced

LILLY'S BEST TIMOTHY has never tested less than 99 per cent pure, and that has always been considered as near perfect as seed could be made, but since the installation of our new seed cleaning machinery we have been able to raise the standard to 99 1/2%. It usually tests even better than that; never less.

It is grown in Idaho, on land that is free from weeds; is harvested with the greatest care to prevent damage and discoloration from rain or dew; and in cleaning all small and light seeds are removed, as well as all foreign matter.

We also have Choice Timothy Seed, which, although second grade, is better than the Pure Seed Law requires. However, the difference in price does not justify the use of this seed when Lilly's Best can be had. Timothy seed, when sown alone, is usually sown at the rate of 25 lbs. per acre.

Write for current Price List before ordering. Prices at the time this catalog was printed were as follows:
LILLY'S BEST TIMOTHY: \$8.00 per 100 lbs.; less than sack lots, 9c per lb.

Choice Timothy: \$7.50 per 100 lbs.; less than sack lots, 8 1/2c per lb.

LILLY'S

Kentucky Blue Grass

(Poa pratensis.)

Kentucky Blue Grass is a true perennial, lasting indefinitely and improving each year. Its densely creeping root-stocks, spreading habit, even growth, fine texture, and rich green color renders it one of the very best grasses for lawns. It forms a close turf, starts very early in spring, and on the Pacific Coast remains green practically all the year.

Our seed is imported in carload lots direct from one of the most reliable growers in Kentucky. It is free from Canadian Blue Grass and other undesirable seeds, is carefully re-cleaned, and is the best seed obtainable. Sow at the rate of 50 lbs. per acre, alone, or in that proportion mixed with other seeds.

Price, 1 lb., 25c; 10 lbs., 18c per lb.; 50 lbs., 17 1/2c per lb.; 100 lbs., \$17.00.

Canadian Blue Grass

(Poa compressa.)

Canadian Blue Grass, although not so popular as Kentucky Blue Grass for lawns, is more hardy, easier to get started, makes a very tough turf, and is of fine texture. It is also a splendid grass in pasture mixtures for dairy cows.

Sow 20 to 60 lbs. of seed per acre.

Price, \$14.00 per 100 lbs. Less than sack lots, 15c per lb.

Creeping Bent, or Florin

(Agrostis Stolonifera.)

One of the very best lawn grasses. Its creeping, rooting stems form a tough, compact turf that is actually improved by constant tramping. It is equally good in pasture mixtures. Sow at the rate of 50 lbs. per acre, alone, or in the same proportion when mixed with other grasses.

Price, 40c per lb.; \$33.00 per 100 lbs.

These prices are subject to change. Write for current Price List before ordering.

RED TOP

(*Agrostis vulgaris*.)

Red Top, or Herd's Grass, is valuable in wet places, where other grasses will not thrive. It is rather slow in starting, but when a good stand is secured it makes one of the best permanent pastures and a fair grade of hay. It is usually best mixed with other grasses, such as Timothy, White Clover, and Alsike.

We have two grades of Red Top; Fancy and Choice. We recommend the Fancy Red Top, as it is solid seed, free from chaff, requires only about half as much per acre, and is easier to sow. Choice Red Top may be just as pure, but as half the weight is chaff, there is no economy in sowing it.

If sown alone, use 30 lbs. of Fancy seed, or 60 lbs. of Choice seed per acre.

FANCY RED TOP: \$33.00 per 100 lbs.; less than sack lots, 34c per lb.

Unhulled Red Top: \$18.50 per 100 lbs.; less than sack lots, 19 $\frac{1}{2}$ c per lb.

Brome Grass

(*Bromus inermis*.)

Brome Grass will stand a great deal of drought, has creeping root stalks, which quickly form a thick, firm turf. It is very valuable in the semi-arid regions where less hardy grasses cannot be grown, but it is not high in food value, and there are other grasses more valuable for the country west of the Cascade Mountains. It is most valuable as a pasture grass, but grows tall enough to use for hay. Sow 35 to 40 lbs. per acre.

Price, 1 lb., 25c; 10 lbs., 17 $\frac{1}{2}$ c per lb.; 50 lbs., 17c per lb.; 100 lbs., \$16.50.

Bermuda Grass

(*Cynodon dactylon*.)

A valuable grass for the south, for both pastures and lawns. It is of dwarf habit, with long creeping stems, rooting at the joints and covering the ground with a mat of fine turf which no amount of tramping can destroy. As it cannot endure frost, it is of no value north of California. It thrives on poor, sandy soil, and resists extreme drought and heat. Sow 10 lbs. per acre.

Price, 1 lb., 60c; 10 lbs., 55c per lb.

Reed Canary Grass

(*Phalaris arundinacea*.)

Reed Canary Grass is grown mainly on account of the seeds furnishing food for trout and wild fowl, but while young it may be cut for green forage for cows. It prefers stiff, wet land, and is grown on the banks of rivers and lakes, where its strong, creeping root-stocks render it valuable for binding the banks. It is the only grass that will endure being flooded for any great length of time. Sow at the rate of about 30 lbs. per acre.

Price, 1 lb., 70c; 10 lbs., 63c per lb.

Prices shown on this page are the prices in effect at the time this catalog was printed, and are subject to change. Current Price List will be mailed on request.

ORCHARD GRASS

(*Dactylis glomerata*.)

Orchard Grass, or Cock's Foot, is one of our most useful grasses. It comes very early in spring, furnishing pasture earlier than any other grass. It makes good hay if cut as soon as in blossom; later it becomes hard and woody.

It is especially valuable, mixed with other grasses and clovers, for pastures and for sowing on logged-off and burned-over land. It is very hardy, and thrives in shady places where other grasses will not grow, but is not suitable for lawns. Being a bunch grass, it is best mixed with other grasses. Sow at the rate of 40 to 60 lbs. per acre, alone, or in the same proportion when mixed with other grasses.

Price: \$20.00 per 100 lbs.; less than sack lots, 21c per lb.

Tall Meadow Oat Grass

(*Avena elatior*.)

Valuable for pasture on account of its early and luxuriant growth; it also produces a heavy yield and good quality of hay, which is relished by all stock. It is deep rooting, hardy, withstands drought, and is grown very successfully in Eastern Washington and California. It is best sown with other grasses, and should not exceed one-fifth of the total amount of seed sown.

Price, 1 lb., 25c; 10 lbs., 21c per lb.; 50 lbs., 20 $\frac{1}{2}$ c per lb.; 100 lbs., \$20.00.

Crested Dog's Tail

(*Cynosurus cristatus*.)

A perennial grass, forming a smooth and lasting turf, excellent in mixtures for lawns, putting-greens and pastures. It thrives best on rich, moist land, but can accommodate itself to almost any soil, and, as the roots penetrate deeply into the ground, it can stand severe drought. Height, one to two feet. Sow at the rate of 30 lbs. per acre if sown alone, or in that proportion if mixed with other grasses.

Price, 1 lb., 50c; 10 lbs., 40c per lb.

Mesquite

(*Holcus lanatus*.)

Mesquite, also known as Velvet Grass and Meadow Soft Grass, is of little agricultural value, except for pastures on light sandy or marshy soil, where other grasses will not grow. It has little food value, is not relished by stock, and on account of its spreading habit, it is liable to become a nuisance.

Price, 1 lb., 20c; 10 lbs., 17 $\frac{1}{2}$ c per lb.; 50 lbs., 17c per lb.; 100 lbs., \$16.50.

Johnson Grass

(*Sorghum halpense*.)

Johnson Grass belongs to the Sorghum family, is sweet and nutritious, and is relished by stock, but it will not stand frost, is of no use in the Northwest, and its sale is prohibited in California on account of its spreading habit and the difficulty of eradicating it.

Write for prices.



ENGLISH RYE GRASS

(*Lolium perenne*.)

English, or Perennial, Rye Grass is especially adapted to the country west of the Cascade Mountains, where it is becoming more popular each year, but is not yet as generally grown as it deserves. It has high feeding value, is relished by all kinds of stock, and is good in both hay and pasture mixtures. It prefers moist, rich loams or clay soils, but does well almost any place. It makes a quick, strong growth, and when sown thickly is excellent in mixtures for lawns or golf links.

For pasture or hay, sow at the rate of 60 lbs. per acre, alone, or in that proportion mixed with other grasses.

Price: \$11.50 per 100 lbs.; less than sack lots, 12½¢ per lb.

Meadow Fescue

(*Festuca pratensis*.)

This is also known as English Blue Grass, and is valuable in pastures and meadows, mixed with other grasses. It thrives on thin, dry soils, and will stand a great deal of abuse. Sow 40 lbs. per acre.

Price: \$16.50 per 100 lbs.; 17½¢ per lb.

Sheep's Fescue (*Festuca ovina*.)

Though of dwarf growth, it grows thickly, yielding a large amount of nutritious herbage, and is valuable in pasture mixtures. It prefers dry uplands, and thrives in poor, shallow, gravelly soils, where other grasses would fail. Though a bunch grass, it may be included in lawn mixtures on account of its fine foliage and dwarf, dense growth.

Sow at the rate of 35 lbs. per acre.

Price, 1 lb., 35c; 10 lbs., 28c per lb.

ITALIAN RYE GRASS

(*Lolium italicum*.)

Italian Rye Grass is supposed to be a biennial, but on the Pacific Coast it will last almost indefinitely, and is one of the most valuable pasture grasses, as it produces green feed late in the season, after other grasses are past their prime. It makes a rapid growth, and will furnish more green pasture in midsummer than any other grass.

It is valuable for sowing on logged-off land, and may be sown either in fall or spring. Sow at the rate of 50 lbs. per acre, alone, or in that proportion mixed with other grasses.

Price: \$11.50 per 100 lbs.; less than sack lots, 12½¢ per lb.

Fine Leaved Fescue

(*Festuca tenuifolia*.)

Similar to Sheep's Fescue, but with much finer leaves; has the same dwarf growth and drought-resisting qualities, and is suitable in pasture mixtures for dry and inferior soils. Also suitable for dry slopes on lawns. 30 lbs. per acre.

Price, 1 lb., 50c; 10 lbs., 43c per lb.

Hard Fescue (*Festuca duriscula*.)

More dwarf and less vigorous than Sheep's Fescue, but useful in pasture mixtures for dry uplands and poor soils. 30 lbs. per acre.

Price, 1 lb., 35c; 10 lbs., 28c per lb.

Red Fescue (*Festuca rubra*.)

A creeping rooted species, forming a close and lasting turf, resisting extreme drought, and thriving on inferior soils, gravelly banks and exposed hillsides. Sow 30 lbs. per acre.

Price, 1 lb., 35c; 10 lbs., 28c per lb.

These prices are subject to change. Write for current Price List before ordering.



LILLY'S GRASS MIXTURES

For Pastures and Meadows

WHETHER to be used for Hay or for Pasture, much is gained by sowing a mixture of several varieties of grass and clover seeds. The season or soil that is not adapted to one variety may be ideal for other varieties, so that with a well selected mixture, failure is practically impossible.

It is especially desirable for pasture, as by selecting the proper grasses, we have a mixture containing early, medium and late grasses. Also, by using a combination of bunch grasses, deep-rooting grasses and grasses with creeping, rooting stalks, we have a mixture which will produce a tough and lasting turf,

which constant tramping and close cropping will not injure.

A mixture for hay must contain grasses which will mature at the same time, are tall-growing and will produce the maximum amount of hay of the best quality.

The grasses in our mixtures have been carefully selected by experts, and are the best combinations possible to make for the purposes, conditions and soils for which they are intended. The seeds contained in them are the same as listed elsewhere in this catalog, and comply strictly with the Pure Seed Law.

LILLY'S BEST PASTURE MIXTURE NO. 1 is especially prepared for wet bottom lands. It contains Meadow Fescue, Red Top, Alsike, English Rye Grass, Kentucky Blue Grass, Canadian Blue Grass, Red Clover, Italian Rye Grass and Orchard Grass.

LILLY'S BEST PASTURE MIXTURE NO. 2 is for dry uplands, and is especially useful for sowing on logged-off and burned over lands west of the Cascades. It is composed of White Clover, English Rye Grass, Italian Rye Grass, Canadian Blue Grass, Meadow Fescue and Kentucky Blue Grass.

LILLY'S BEST PASTURE MIXTURE NO. 3 contains grasses adapted to the dry, sandy soils east of the Cascades, as follows: Meadow Fescue, Kentucky Blue Grass, Brome Grass, English Rye Grass, Italian Rye Grass and White Clover.

LILLY'S BEST HAY MIXTURE NO. 1 is composed of grasses and clovers suitable for wet bottom-lands, as follows: Red Top, Alsike, Red Clover, Orchard Grass, Meadow Fescue, Timothy and English Rye Grass.

LILLY'S BEST HAY MIXTURE NO. 2 is suitable for uplands and other soils west of the Cascades, except very wet land. It is composed of Timothy, English Rye Grass, Red Clover, Meadow Fescue and Canadian Blue Grass.

LILLY'S BEST HAY MIXTURE NO. 3 is adapted to the dry, sandy soils east of the Cascades, and contains Timothy, Red Clover, English Rye Grass, Meadow Fescue and Brome Grass.

Any of these mixtures may be sown either in spring or fall, and should be sown at the rate of 20 to 30 lbs. per acre. As the heavier seeds are inclined to settle to the bottom, they should be thoroughly stirred before sowing.

PRICES: ANY OF THE ABOVE PASTURE OR HAY MIXTURES:

Pound, 20c; 10 lbs., 16c per lb.; 50 lbs., 15c per lb.; 100 lbs., \$14.00.

Prices shown in this catalog are subject to change. Current Price-List will be mailed on request.



LILLY'S SUN WHEAT

Chosen and Grown Especially for the Northwest

OWING to the present high price of wheat, and the consequent profits to be gained by growing it, especially in the vicinity of the Pacific Coast markets, it will undoubtedly be grown in greater quantities in the Northwest in future. An important problem to be considered is, what variety will be most profitable under our conditions, and we are pleased to be able to answer authoritatively.

Following our regular policy, we have for some time been experimenting with many varieties of wheat for the purpose of choosing the varieties best suited to conditions in the Northwest. Our tests have proven that Sun Wheat and Pedigreed Bluestem Wheat excel all others in both yield and quality, especially in that portion west of the Cascade Mountains.

Price: \$4.50 per sack of 125

Sun Wheat is a remarkable new winter wheat, imported from southern Sweden, and is the heaviest yielder of them all. It ripens earlier than most other varieties. The grain is plump, of a reddish color, and the weight per bushel is above the average. It does well on rather light soil, and is resistant to rust and smut. The heads are compact, firm and uniform; very similar to Club Wheat, but much longer. Its stooling habit is especially good. The straw is of medium height, erect and very stiff.

In a comparative test, in adjoining fields and under identical conditions, Sun Wheat yielded 55 bushels and Club Wheat 40 bushels per acre.

This seed is grown for us on contract, from specially selected seed, and is under the direct supervision of our grain expert from the time the land is plowed until the wheat is threshed and cleaned.

Price: \$4.50 per sack of 125 lbs.; less than lots, 4 $\frac{1}{2}$ c lb.

LILLY'S

PEDIGREED BLUESTEM WHEAT

Specially Selected Seed

THIS SPLENDID WHEAT is still the best of the native varieties, and, with the exception of Lilly's Sun Wheat, the only really satisfactory wheat for the country west of the Cascade Mountains. It produces large crops of the finest quality grain. The heads are large, plump, and well filled, the kernel is hard, and the plant stools freely.

Price: \$3.40 per sack of 125 lbs.; less than sack lots, 3 $\frac{1}{2}$ c per lb.

Although Bluestem is generally considered a spring wheat east of the Cascade Mountains, it is sown either in fall or spring west of the mountains.

While the yield is not so great as the Sun Wheat, Bluestem is more desirable for hay on account of producing heavier straw with more leaves.

Lilly's Poultry Foods for specific purposes produce definite results.

LILLY'S WHITE HULLESS BARLEY

Both Beardless and Hulless
Extra Fancy Seed

BARLEY is one of the very best stock foods, either as grain or hay, but many farmers will not grow it on account of the long, stiff beards. This is entirely overcome in White Hulless Barley, which is beardless, as shown in accompanying half-tone, and when threshed is hulless, like wheat, to which the large, plump, hard grain is very similar. The hay is superior to any of the other grain hays, and the grain, especially when rolled or ground, is unexcelled as a grain food for horses, hogs, or other stock.

White Hulless Barley is more productive than wheat, and matures about two weeks earlier. West of the Cascade Mountains it may be sown either in fall or spring. It may be sown as late as the first of July, provided sufficient moisture may be depended upon, making it a valuable catch crop. About 100 lbs. of seed per acre is sufficient.

Price: \$4.00 per sack of 125 lbs.; less than sack lots, 4c per lb.; F. O. B. Seattle or Portland.

VERMONT BEARDLESS BARLEY

Entirely Free from Beards

This is a highly improved strain of beardless barley, entirely free from bearded heads, making it best for hay, also preferable for grain as it is as easy to handle and thresh as oats.

Barley is one of the best nurse crops for grasses and clovers, also one of the best grains to sow with vetch or peas. It is not a crop to sow on poor land or on new land not thoroughly prepared. No crop responds more readily to good tillage.

Price: \$3.25 per 100 lbs.; less than sack lots, 4c lb.

Beardless Barley

The ordinary grade of Beardless Barley, which until very recently has been the best obtainable. It is excellent seed, and will produce good crops, but on account of not being thoroughly perfected by selection, it may produce some bearded heads.

Price: \$2.50 per 100 lbs.; less than sack lots, 3c lb.

Six-Row White Barley

Specially selected re-cleaned seed of the common, white, six-rowed, bearded barley which has been most generally grown. It may be sown either in fall or spring.

Price: \$2.25 per 100 lbs.; less than sack lots, 3c per lb.; F. O. B. Seattle or Portland.



Prices of Seed Grains, Grass Seeds, Clover Seeds, Fertilizers, Poultry Foods, etc., shown in this catalog are prices in effect at time of going to press, and are subject to change. To publish prices which would be good the entire season, we would have to make them high enough to cover any possible rise in the market. Before ordering, see current price list enclosed herewith, or, if not of recent date, write for later issue.

LILLY'S VICTORY OATS

**Excels All Others
in Yield**

IN OUR TESTS to choose from all promising varieties the best oat for the Northwest, we have found that a new variety, the Victory, imported from Sweden, is as far ahead of all others in yield as Swedish Select is in quality.

The superiority of the Victory Oat is particularly striking in heavy and medium soil. In our experiment for two years, and in the official variety trials of Sweden extending over several years, the Victory has always turned out the best yield.

Owing to its many good qualities, we believe that this is the coming oat for the Northwest. It is medium in maturity. The grain is somewhat smaller than the Swedish Select, and is of a slightly reddish shade. The straw is of medium height, particularly firm and elastic, making it resistant to lodging.

While the Victory Oat is not of such specially fine quality of grain as the Swedish Select, owing to the immense yield it is the oat that the farmer will find profitable.

In our comparison tests, on medium heavy soil, on San Juan Island, under identical conditions, the yields were as follows: Victory 3620 lbs., Swedish Select 3440 lbs., a local variety 2980 lbs. per acre.

Price: \$3.50 per 100 lbs.; less than sack lots, 4½c per lb.; F. O. B. Seattle or Portland.



LILLY'S SWEDISH SELECT OATS

Heavy Yield—Early—Choicest Quality

Swedish Select has long been popular, but the variety deteriorated. We procured from Garton Bros., the famous plant breeders of England, a quantity of pure strain, and it is from this stock that our seed is grown. It is grown in the Northwest, and thoroughly acclimated.

It is a large, white, head oat; plump and very heavy, weighing 48 lbs. to the measured bushel. It

Price: \$2.50 per 100 lbs.; less than sack lots, 3½c per lb.; F. O. B. Seattle or Portland.

American Banner Oats

A very popular white, head oat. The kernels are short, plump and white; the straw is stiff, and stands up well.

Price: \$2.25 per 100 lbs.; 3c per lb.

is about two weeks earlier than most other varieties, and yields 15% more than any other variety that we have tested except Victory.

The straw is medium long and extra large, making it less liable to lodge than any other oat. This in addition to the big yield and splendid quality makes it a most valuable oat for the Northwest.

Oregon Gray Winter Oats

A very hardy gray oat, used almost exclusively for fall planting; excellent for sowing with vetch. It yields well, and the oats are large and plump.

Price: \$2.25 per 100 lbs.; 3c per lb.

Our seed oats are grown in the Northwest under our direct supervision.

LILLY'S BLACK ALASKA WINTER OATS

Pure Seed of a Perfected Strain

Black Alaska is by far the best winter oat. Our seed is grown in the Northwest from seed of a perfected strain imported from Sweden.

It is a very heavy, head oat, with thick, black hull, and large, plump, dark colored kernels. It is

Price: \$2.50 per 100 lbs.; less than sack lots, 3½¢ per lb.

extremely hardy, and withstands our most severe winters. The straw is large and strong, not liable to lodge. It stools freely, and is a splendid support for vetch.

LILLY'S PETKUSER RYE

The Best Winter Rye for the Northwest

AFTER TESTING all the promising varieties of rye for several years, we are convinced that Petkuser is by far the best suited to the Northwest. Our tests prove conclusively that it outclasses all other varieties in both yield and quality.

Our original seed stock was imported from Sweden, where this variety has proved to be best in that country, where rye is one of the main crops. From that

Price: Per sack, 125 lbs., \$3.75; less than sack lots, 4¢ per lb.

seed we have grown splendid crops, and now have a good stock of seed which is thoroughly acclimated to the Northwest, and which we are pleased to recommend to our customers.

The heads are long, four-rowed, and the kernel is larger than the common rye. It will not lodge under ordinary weather conditions, and will fill well on soil that is usually considered too rich for rye.

LILLY'S RUSSIAN WINTER RYE

A Russian variety, and, next to the Petkuser Rye, the best in yield and quality for grain, grain hay, straw, or green forage. Our seed is specially re-cleaned, and only the largest and heaviest kernels are retained.

Rye is a valuable and hardy crop, providing green

Price: Per sack, 125 lbs., \$2.90;

fodder in late fall and early spring. It matures more quickly than most other crops, and can be made to yield a good crop on soil that is too poor for other cereals. It is splendid to sow with vetch or field peas. In food value it is very similar to wheat, and is a very good hog food.

less than sack lots, 3¢ per lb.

LILLY'S VETCH

One of the Most Valuable Crops for the Northwest

VETCH is one of the most valuable crops that can be grown in the Northwest for hay, silage, pasture, soiling, green manure, or for a cover crop for orchards. In food value it is about equal to alfalfa, is consumed with less waste and is relished by all stock. It is especially valuable for a dairy food, being a great milk producer.

Like other legumes, it has the power of drawing nitrogen from the air and distributing it in the soil. A crop of vetch plowed under is equal in fertilizing value to a heavy application of stable manure. The names "Spring Vetch" and "Winter Vetch" are misleading, and do not apply to the country west of the Cascade Mountains.

Common, or Spring Vetch

(Vicia Sativa)

Common Vetch is best for the country west of the Cascade Mountains for either fall or spring sowing, and is of inestimable value to the dairyman, taking the place of alfalfa to a great extent.

It is best sown early in fall, at the rate of sixty to ninety pounds per acre, with about fifty pounds of oats, wheat, rye, or barley to support the vines and add to the value of the hay or forage.

Price: \$4.50 per 100 lbs.; 5½¢ per lb.

Hairy, Sand, or Winter Vetch

(Vicia Villosa)

Winter, Sand, or Hairy Vetch is the variety most generally grown east of the Cascade Mountains, where it is best sown in fall, but may be sown early in spring. It makes splendid hay, forage or silage, and is the best cover crop for orchards.

The seed is smaller than Common Vetch, and little more than half the quantity is required.

Price: \$17.00 per 100 lbs.; 18¢ per lb.

We make no charge for sacks or packing. Feed, grain and seeds sold on gross weights.



LILLY'S WASHINGTON GROWN SEED CORN

Choice Selected Ears. Sold on the Cob

TO GROW AND MATURE CORN in the Northwest, soil and cultivation must be right and the seed must be acclimated. Being acclimated is of the utmost importance, more important with corn than any other seed. We have chosen two varieties, Golden Nugget and Silver King, as being best suited to the Northwest, procured thoroughbred seed and have grown and acclimated them in Washington.



WASHINGTON GOLDEN NUGGET CORN

This has proved to be the best yellow dent corn for the Northwest. Stalks grow to a good height producing one or two good ears each. The ears are ten to eleven inches long, fourteen to sixteen rowed, and well filled over butt and tip. The cobs are small, and the kernels are deep, flinty, slightly dented, and of a beautiful golden yellow color.

We have grown splendid crops of this corn, perfectly matured, proving that it can be grown in the Northwest.

Sold either on the cob or shelled.



WASHINGTON SILVER KING CORN

A new and extremely early variety; the largest and best early white corn, and especially recommended for the Northwest.

The stalks generally grow seven to eight feet in height, with ears two and one-half feet from the ground. The ears are seven to nine inches long, smooth, straight rowed, and of perfect shape, showing careful selection and perfect pedigree.

The kernels are large, pure white, dented, and are deeper than any other early white corn.

This corn is grown and acclimated in Washington from the purest thoroughbred seed. Prices same as Golden Nugget.

SELECTED EARS, in individual cartons; 15c each; 2 for 25c; \$1.00 per dozen ears.
Shelled: 1 lb., 10c; 10 lbs., 9c per lb.; \$8.00 per 100 lbs.

If shipped by parcel post, postage will be additional. One ear weighs about one pound.

	1 lb.	10 lbs.	50 lbs.	100 lbs.
Leaming Improved. Early yellow dent corn; long, narrow kernels.....per lb.	\$.10	\$.05	\$.04½	\$.04
Iowa Gold Mine. A medium early golden-yellow dent corn .....	.10	.05½	.05	.04½
Pride of the North. A splendid quick-growing yellow dent corn .....	.10	.05	.04½	.04
Champion White Pearl. A large, late, white dent corn .....	.10	.05½	.05	.04½
Early Canada. An early, yellow, flint variety.....	.10	.05	.04½	.04
King Phillip. An early, red, flint corn, adapted to the Northwest .....	.10	.05½	.05	.04½
Sanford White Flint. A reliable, early, large, white flint corn .....	.10	.05½	.05	.04½
Minnesota King. Yellow dent; recommended for the Northwest .....	.10	.05½	.05	.04½
Sweet Fodder Corn. A sweet corn, producing an abundance of leaves.....	.10	.05½	.05	.04½
Red Cob Ensilage Corn. A field corn, for fodder and ensilage .....	.10	.05½	.05	.04½

Buy Seed Corn on the Cob to know that you are getting correct Type and Quality.



LILLY'S FIELD PEAS

Makes Hog Raising Profitable in the Northwest

GREAT INTEREST is being developed in hog raising in the Northwest, and there is no reason why it should not become one of our most important and profitable industries. Heretofore it has been generally considered that the difficulty of maturing corn in this section precluded the possibility of fattening hogs profitably. Although corn is excellent for fattening hogs, there are other grains as good. No section excels this in the production of forage crops and the essentials for growing pigs, and peas are equal to corn for fattening them. We are handy to the best markets, our climate is ideal, and diseases are not prevalent. No other section can produce pork more profitably than this.

Every farmer in the Northwest should procure copies of U. S. Dept. of Agriculture Farmers' Bulletins No. 599 and No. 271, and Washington State Agricultural Experiment Station Popular Bulletin No. 63. These bulletins apply especially to hog raising in the Northwest, and are of great value to farmers in this section. Nos. 599 and 271 can be procured, free, from the U. S. Dept. of Agriculture, Washington, D. C., and No. 63 from Washington State Agricultural Experiment Station, Pullman, Wash. If requested we will procure them for you.

Canadian Field Peas

Field Peas are especially adapted to conditions in Western Washington and Western Oregon, where they thrive on most all varieties of soil. They are grown for grain, hay, ensilage, green feed and for "hogging down." Like other legumes, they are valuable for enriching the soil.

The grain, preferably ground, is equal to corn for fattening hogs, and is also a splendid food for poultry and other stock. The hay and ensilage is very nutritious, and is relished by most all stock. As pasture or green food, peas are excellent for growing pigs or other stock.

The Yellow Canadian is the most popular variety for all purposes. Our seed is specially selected, is carefully re-cleaned, and only the largest and plumpest seed is retained.

Price: \$3.50 per 100 lbs.; less than sack lots, 4 1/2¢ per lb.

Green Field Peas

Larger than Yellow Canadian Field Peas, and of a bluish color. Similar in other respects.

Peas are generally sown in spring, but west of the Cascades may be sown in fall.

Price: \$4.00 per 100 lbs.; less than sack lots, 5¢ per lb.

Whip-Poor-Will Cow Peas

Extensively grown in the south for fodder and to plow under for fertilizer. They may be grown in eastern Washington, but should not be sown until the ground becomes thoroughly warmed. They cannot be grown successfully west of the Cascade Mountains.

Price: \$8.00 per 100 lbs.; less than sack lots, 9¢ per lb.

Read Bulletins 599, 271 and 63. We will procure them for you if you wish.

LILLY'S

THOUSAND HEADED KALE

Green Feed
for Cows, Sheep,
Hogs and Poultry
in Winter.

THOUSAND HEADED KALE is a very valuable green, succulent feed for cows, sheep, hogs and poultry during the winter. It is hardy, and, in our mild climate, may be left in the ground and cut as wanted during the winter.

Dairymen find it almost indispensable. It is excellent and economical feed for sheep and hogs, and it solves the problem of winter green feed for poultry. The plants grow about four feet high, often weighing thirty pounds, and producing sixty tons of green feed per acre.

There is considerable information on this subject in The Crop Book, which will be given free with any order. One pound of seed will produce sufficient plants to transplant one acre.

Price: Ounce, 10c; lb., 35c; 10 lbs., 30c per lb.



MARROWCABBAGE CHOU MOELLIER or White Stemmed Marrow Kale

THIS IS DESCRIBED in Washington State Agricultural Experiment Station Bulletin No. 95 as a valuable dairy and poultry food, in many ways very similar of Thousand Headed Kale, and even more prolific.

The plants average four to six feet in height, with stalks five to six inches in diameter, and weigh fourteen to twenty pounds. The stalks are edible, and are relished by cows. The lower leaves are broken off and fed as they mature.

The plant is not so hardy as Thousand Headed Kale, but is most valuable for green feed in fall and early winter.

Culture is the same as for kale and cabbage. One pound of seed will produce plants for one acre.

Price: Oz., 10c; lb., \$1.00.

For prices on larger quantities, see enclosed Price List, or later issues, which will be mailed on request.

DWARF ESSEX RAPE

Pasture and Green Feed
During the Dry Season

DWARF ESSEX RAPE supplies pasture and green feed for hogs, sheep, cattle and poultry during the dry season in summer when green feed is scarce.

It is usually sown very early in spring, but for fall use it may be sown as late as July, after some early crop has been harvested. About eight weeks after sowing it should reach a height of twelve to fourteen inches, at which time pasturing or cutting may commence.

If not cut too close it will sprout up again in the fall, and, as it will stand considerable frost, will furnish green feed until far into the winter.

Explicit cultural directions will be found in The Crop Book.

Price, 1 lb., 15c (postage 10c); 10 lbs., 11c per lb.; 100 lbs., \$10.00.

Prices do not include postage, except when so stated.



Siberian Millet

A comparatively new variety, imported from Russia; earlier than either German or Hungarian, and very hardy, withstanding more heat and drought than any other variety. It makes a rank growth, with abundance of leaves, and produces immense crops of excellent hay.

Price, \$5.50 per 100 lbs.; less than sack lots, 6½¢ per lb.

SUDAN GRASS

In a search for a forage plant without rootstocks, suitable for dry sections, the Department of Agriculture introduced Sudan Grass from Egypt. It is recommended as being a great drought resisting hay and forage crop, especially adapted to hot, dry sections, but will stand considerable moisture.

In appearance it resembles Johnson Grass, but does not have the aggressive rootstocks, will not become a weed, stools more freely, and has more and broader leaves.

Sudan Grass is an annual, and must be seeded each year, like millet and sorghum. The seed should not be sown until the ground becomes thoroughly warmed in spring. It may be broadcasted or drilled at the rate of 16 to 24 lbs. per acre, in which case it usually grows 3 to 5 feet in height; or it may be sown in rows and cultivated, at the rate of 4 to 6 lbs. per acre, and sometimes grows 6 to 9 feet high.

It may be cut several times during the season, is palatable, and stock does well when fed on the hay.

Price: \$40.00 per 100 lbs.; less than sack lots, 42¢ per lb.

LILLY'S MILLET

A Valuable Catch Crop for Hay

MILLET is a quick growing annual, and is mostly useful as a catch crop for hay. It may be sown as late as the last of July, after some early crop has been removed; or it may be sown early and harvested in time to plow the ground for a fall-sown crop; thus utilizing the ground between crops, or at a time when it would otherwise lie idle.

For hay it should be sown at the rate of about fifty pounds per acre; for seed it should be sown much thinner. It produces two to five tons per acre of very nutritious hay: which should be cut before the seed begins to mature. The seed is excellent for poultry food when fed with other grains.

German, or Golden Millet

A medium early variety, growing four to five feet high, and making a very good quality of hay or forage, although coarser than some varieties. It sometimes produces as much as five tons of hay or seventy bushels of seed per acre.

Price, \$5.50 per 100 lbs.; less than sack lots, 6½¢ per lb.

Hungarian Millet

Grows three to four feet high, with slender stems and abundant leaves, producing two to three tons of excellent hay per acre. It is a week earlier than German Millet, and requires less moisture.

Price, \$5.50 per 100 lbs.; less than sack lots, 6½¢ per lb.

Japanese Barnyard Millet

Grows six feet or more in height, and is more tender than most tall varieties of millet. It makes excellent fodder and thrives on almost any soil. It may be sown any time from the middle of May to the first of August. It may be fed green, cured as hay, or used as ensilage. About twelve pounds of seed is sufficient for an acre.

Price: \$10.00 per 100 lbs.; 11¢ per lb.

R. F. D. No. 2, Seattle, Sept. 7th, 1914.

The Chas. H. Lilly Co.,
Seattle.

Dear Sirs:

I have delayed writing you regarding experiments I have made on different golf courses with your seeds until the end of the season so as to test thoroughly their growth. I am pleased to say that at Aberdeen, Bellingham and Earlington there has not been the slightest failure. Kentucky Blue Grass, Creeping Bent and all the Fescues used were clean and of high germinating quality; also Red Top and English Rye Grass.

The Fair Greens at Aberdeen were a mass of lawn in sixty days after sowing, with not three feet square of bare spots in any place on the sixty acres seeded, and were simply perfect when I played over them last week.

Yours truly,

JOHN BALL.

Landscape Gardener and Expert Designer and
Constructor of Golf Links.

LILLY'S EMMER, OR SPELTZ

A Grain for the Semi-Arid Regions

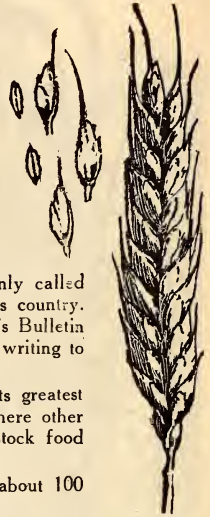
EMMER is a species of wheat, botanically known as *Triticum dicoccum*, resembling two-rowed barley in appearance, and is extremely hardy and drought-resisting, making it especially valuable for stock food in the semi-arid regions where other grains and forage crops cannot be grown successfully, or are uncertain.

Emmer has been grown in this country for several years, but has been commonly called Speltz, which is in error, as Speltz is an entirely different grain, little known in this country. It is highly recommended by the United States Department of Agriculture in Farmer's Bulletin No. 139, "Emmer, A Grain for the Semi-arid Regions," which may be procured by writing to your Congressman, or to U. S. Department of Agriculture, Washington, D. C.

It will produce fair crops under almost any condition of soil or climate, but its greatest value lies in its ability to produce a crop in hot, dry localities, and on poor soil, where other grains would fail. Under such adverse conditions it will produce more and better stock food than any other grain. In feeding value it equals barley or rye.

It is usually sown in spring, in the same manner as wheat, etc., at the rate of about 100 lbs. of seed per acre.

Price: 10 lbs., 3¼c per lb.; 50 lbs., 3¼ per lb.; 100 lbs., \$2.75.



Japanese Buckwheat

Excels all other varieties. The grain is larger than Silver Hull, yields much heavier, ripens earlier, stands up better, and the flour is fully equal in quality to that from any other variety. It remains a long time in bloom, and is excellent for bee pasture.

Price: 5½c per lb.; \$4.50 per 100 lbs.

Flax Seed

Destined to become an important crop in the Northwest. It thrives either east or west of the Cascades on land which it moist but not wet. The seed is sown in spring, at the rate of thirty pounds per acre if sown for seed, or twice that amount for fiber.

Price: 5½c per lb.; \$4:50 per 100 lbs.

Soja Beans

They thrive in hot, dry climates, and are quite extensively grown in the South; but are of little value in the Northwest. East of the Cascades they would probably produce a crop for forage or green manure, but could not be depended upon to mature seed.

Price: 7c per lb.; \$6.00 per 100 lbs.

Feterita

A non-sacharine sorghum of special value in the dry farming sections. It produces immense crops in the driest seasons and matures about a month earlier than Kaffir Corn. It makes excellent fodder or produces a good yield of grain.

Price: \$10.00 per 100 lbs.; 11c per lb.

Kaffir Corn

A splendid forage plant for the country east of the Cascades, where it produces large quantities of seed or excellent fodder, but it is of little value on the coast.

Price: 4c per lb.; \$3.00 per 100 lbs.

Broom Corn

Another non-sacharine cane, grown for seed, fodder, and for manufacturing brooms, under the same conditions as Kaffir Corn.

Price: 9c per lb.; \$8.00 per 100 lbs.

Sorghum (Early Amber Cane)

East of the Cascade Mountains it will produce a good crop of seed, or two or more crops of splendid forage, being very rich, sweet and succulent. West of the mountains it will not produce seed, and although it will produce fair crops of fodder, it is not especially recommended, as there are other crops more profitable.

Price: 7c per lb.; \$6.00 per 100 lbs.

Mammoth Russian Sunflower

The largest variety, bearing heads fifteen to twenty inches in diameter, and producing an immense amount of seed. The seed is excellent poultry food when mixed with grains, and should be more generally grown by poultrymen.

Price: 1 lb., 15c; 10 lbs., 9c per lb.

Prices shown in this catalog are prices in effect at time of going to press, and are subject to change. Current price list will be mailed on application. We make no charge for sacks or packing. Seeds, grain and feed are sold on gross weights. Prices are F. O. B. Seattle or Portland, unless otherwise stated.

LILLY'S DANISH SLUDSTRUP MANGEL

Valuable Food for Stock and Poultry

THIS SPLENDID new variety is undoubtedly the best mangel grown. Our customers who grew Sludstrup last season were delighted with it; and in our trial grounds it made a much better showing than any other. It is a long mangel, smoother than others, of a reddish-yellow color, grows well above ground and is easy to pull. It is highest in food value, and yields phenomenally.

Our seed was procured from the originator in Denmark, where the variety has been awarded a first-class certificate by the Danish government. The Danish government has done much to improve the quality of farm and garden products, and their approval of a variety is evidence of its superiority. Sold only in sealed packages.

Prices: Pkt., 10c; ½ lb., 25c; 1 lb., 45c; 5 lbs., 40c per lb.; 10 lbs., 35c per lb.

These prices do not include postage. If to be shipped by parcel post, postage will be additional.

GOLDEN GIANT MANGEL

An excellent variety, of immense size and uniform shape. The flesh is light yellow, fine grained, and very rich. It is a good keeper, and produces wonderfully—forty to sixty tons per acre. Sold only in sealed packages.

Prices same as Danish Sludstrup.

ROYAL RED MANGEL

The roots are very large, uniformly straight, well formed and solid; tops small; color deep red. It produces immense bulk and tonnage, roots weighing twenty pounds being not uncommon. Sold only in sealed packages.

Prices same as Danish Sludstrup.

Giant Intermediate, or Gate Post Mangel

Intermediate between the long and globe-shaped varieties. The roots are large; neck small and short; flesh nearly white, sweet and tender. A big cropper.

Prices: Pkt., 10c; ½ lb., 25c; 1 lb., 45c; 5 lbs., 40c per lb.; 10 lbs., 35c per lb.

These prices do not include postage.

If to be shipped by parcel post, postage will be additional.

Klein Wanzleben Sugar Beet

The variety most generally grown for sugar. It gives good returns in ordinary soil, and is very rich in feeding qualities.

Prices: Pkt., 10c; ½ lb., 25c; 1 lb., 45c; 5 lbs., 40c per lb.; 10 lbs., 35c per lb.

These prices do not include postage. If to be shipped by parcel post, postage will be additional.



HALF SUGAR MANGEL

Very sweet, succulent, and highly nutritious. The flesh is white, firm, crisp, and is greedily eaten by stock. It combines the size of the mangel with the great food value of the sugar beet. It is a heavy yielder, and the roots grow partly above ground, making harvesting easy. Sold only in sealed packages.

Prices same as Danish Sludstrup.

Yellow Globe Mangel

This variety is desirable only in shallow soils. The shape is globular; flesh yellow and white.

Prices same as Giant Intermediate.

Long Red Mangel

A large variety; producing immense crops. It grows much above ground, and is easy to harvest. The flesh is white shaded with red. Requires deep, loose soil.

Prices same as Giant Intermediate.

Golden Tankard Mangel

A well-known and popular stock beet. Large size; flesh yellow, nutritious, and well liked by all stock. It will grow in rather shallow soil.

Prices same as Giant Intermediate.

French White Sugar Beet

One of the best sugar beets, containing a large percentage of sugar. It is very nutritious, and is well liked by all stock.

LILLY'S

KING OF SWEDES

Rutabaga or Swedish Turnip

AN IDEAL yellow fleshed rutabaga. The flesh is sweet, remarkably fine grained, juicy, tender, solid to the center, bright yellow and very attractive, making it especially desirable for the table. Its enormous size and productiveness, hardiness and splendid keeping qualities make it equally desirable as a succulent winter feed for stock. Sold only in sealed packages.

Ounce, 10c; $\frac{1}{4}$ pound, 20c; pound, 60c; postpaid.

American Purple Top Improved

A popular variety for both field and table use. Very hardy and productive; flesh yellow, solid and sweet. A good keeper.

Pkt., 5c; oz., 10c; $\frac{1}{4}$ lb., 20c; lb., 60c; postpaid.

Skirving's Improved Purple Top

An excellent variety of large size and strong growth. A heavy cropper. Similar to American Purple Top, but larger. Flesh yellow.

Pkt., 5c; oz., 10c; $\frac{1}{4}$ lb., 20c; lb., 60c; postpaid.

Sweet Russian

A white fleshed variety of large size and good quality, but lacking the richness of the yellow fleshed varieties.

Pkt., 5c; oz., 10c; $\frac{1}{4}$ lb., 20c; lb., 60c; postpaid.

LILLY'S
CROP BOOK
will be given
FREE
with any order
if requested



Monarch or Tankard

A very distinct type, being of tankard, or oval shape. Very large and yields immensely. Flesh yellow.

Pkt., 5c;
oz., 10c;
 $\frac{1}{4}$ lb., 20c;
lb., 60c;
postpaid.



LILLY'S KING OF SWEDES RUTABAGA

LILLY'S MASTODON CARROT

The Best Stock Carrot

LILLY'S SELECT STOCK MASTODON CARROT is undoubtedly the best variety for stock feeding. It is a long way ahead of the long rooted varieties in yield, and is easier to harvest. The color is white; shape, short and thick, sometimes six inches in diameter, and has yielded as high as twenty-five tons per acre.

Carrots are excellent and economical stock food, equal to mangel wurzels in food value, and among the best substitutes for green food.

Sold only in sealed packages.

Ounce, 10c; $\frac{1}{4}$ lb., 30c; pound, 85c; postpaid. Write for prices on large quantities.

Lilly's Fertilizers will increase the quantity and improve the quality of your crops.

LILLY'S FERTILIZERS

Why You Should Use Commercial Fertilizers How to Use Them Profitably

FERTILIZERS FOR THE RICH SOILS OF WASHINGTON AND OREGON? YES, as a matter of fact we have more need for fertilizers than they have in the East and Middle West, where crop rotation provides a great deal of the necessary plant food. On the rich land of Washington and Oregon we can make greater profits by growing special crops, intensive farming, and by buying fertilizer to replace the plant food consumed. It is the highly specialized crop that pays, and those of us who are getting best results are returning the plant food to the soil in the concentrated form of commercial fertilizers in connection with green crops turned under to maintain the humus in the soil.



Fertilizer Needs of Washington Soils

By Prof. R. W. Thatcher.

MOST SOILS in the state of Washington are as yet fairly new. Their native or virgin fertility is not yet exhausted. There are, however, many different types of soils in the state, some of which do not naturally contain very large supplies of the different elements of plant food needed by crops.

Such soils are likely soon to "run out", and need application of fertilizers carrying the particular elements in which they are deficient. Other soils which carry fairly good supplies of the different elements of plant food have been improperly handled or wastefully cropped until badly out of condition. These can best be restored or built up in fertility by the use of fertilizers to stimulate increased

growth until the soils can be properly brought back into good condition.

Fertilizers may, therefore, be used for two separate purposes; namely, the application of some one or more single elements of fertility to correct deficiencies in those particular elements, or the application of a complete mixed fertilizer to stimulate crop growth.

The only possible means of determining whether fertilizers for either of these purposes can be profitably used is by field experiments. A chemical analysis of the soil indicates the total amounts of plant food which are present but does not show how much of this is available for use of different crops, nor does it prove whether the use of any given fertilizer would yield enough increase in crop growth to pay for the cost of the fertilizer. Field trials

Study your soil; it is the source of wealth.

with fertilizers are, therefore, the only conclusive evidence of their value.

But chemical analyses do indicate which elements are likely to be deficient because of an insufficient total supply. The Washington State Experiment Station has completed a soil survey in the course of which samples of every type of soil found in the state have been analyzed. The following brief statement of the conclusions to be drawn from these analyses will serve as a basis for field experiments with fertilizers on the different types of soil as mentioned.

Reclaimed tide flats are usually well supplied with all the essential elements of fertility but are likely to be "sour" because of excess of organic acids resulting from the decay of large amounts of organic matter. They, therefore, generally need lime as a fertilizer to correct this acidity.

The red-fir uplands or second bench lands usually contain fairly good supplies of mineral plant foods but limited amounts of humus, and need the plowing under of some clover crop or the addition of a complete fertilizer.

Alder bottom lands are rich in decaying vegetable matter but usually low in phosphorus and lime.

The potash content of all soils west of the Cascade Mountains is usually low, and for those crops like fruit and vegetables, which need large proportions of potash, fertilizers carrying potash are generally very beneficial.

Phosphorus is usually present in sufficient quantities in upland soils, but likely to be deficient in the lower lands.

Nitrogen is present in abundance in the bottom land soils, but often deficient in upper gravelly or clayey soils, particularly if they have grown large forests of fir and pine.

Special types of soil such as shot clay, beaver dam, gravel prairie, etc., require special treatment.

Marshy bottom lands, whatever the type, are almost invariably sour, because of the excess of decaying organic matter and lack of lime.

Shot clays are usually strong soils, ordinarily carrying a good supply of phosphorus and nitrogen, but are apt to be somewhat deficient in potash. The percentage of lime is rarely very high, but seems in most cases to be sufficient for plant needs. The plowing under of vetches or clovers gives specially good results on this type of soil.

The sage brush soils of the irrigated valleys east of the Cascade Mountains are very rich in lime, carry fair supplies of potash and phosphorus and are very low in nitrogen and humus. The addition of nitrogen carrying fertilizers or plowing under of leguminous crops is the first necessity, while for special fruit crops potash fertilizers are generally profitable.

Most of the upland soils of eastern Washington are very rich in all the mineral elements of fertility. The supply of humus and nitrogen is only moderate, and in regions of low rainfall is quite low. The proper attention to the humus supply will probably be all that will be necessary for long continued fertility, particularly for extensive cropping. For intensive cropping, such as market gardening, fruit growing, etc., the addition of humus forming fertilizers will give profitable results.

Available Fertility

By Prof. R. W. Thatcher.

SOIL FERTILITY means essentially favorable conditions for crop growth. This naturally depends upon many different things. For example, a soil might be abundantly supplied with all the necessary elements of plant food in proper form, yet if the soil were to remain dry throughout the season, no crops would grow in it. Again, a soil might contain abundant available fertility and plenty of moisture but remain frozen through an entire season, in which case no crop would grow. In a broad sense, therefore, fertility requires favorable conditions of moisture supply, temperature, state of tillage, sufficient supply of plant food of proper kind, etc. As commonly used, however, the term fertility means a sufficient supply of plant food in available form.

What is available plant food? A little thought will show that it is plant food in such form that it will dissolve in soil, water or plant root juices. Plants have no power or ability to absorb food in solid form. Plant food is taken from the soil through the roots and circulates in the sap. It must, therefore, be in liquid form, and available plant food is that

form of plant food which can be dissolved from the soil and so be taken up in liquid form. The availability of plant food is, therefore, measured by its solubility in plant juices.

All the chemical elements in the soil (of which there are about fifteen) may be taken up by the plants, but not all of them are of equal use or value. Some are not necessary at all to plant growth. Others which are necessary for plant growth are always present in the soil in abundance. A few which are absolutely necessary for all plant growth are commonly present in the soil in comparatively small proportions. These are the so-called "critical elements" of fertility; namely, nitrogen, phosphorus, potash and lime.

The element nitrogen is used by plants in building up the green growing foliage. Phosphorus is essential for the production of seeds. Potash aids in the building up of starches or sugars, which are essential parts of all plants. Lime is in some obscure way connected with the building of woody fiber.

Your land is like a store room; the plant food in the land is your stock in trade. To continue in business you must keep the stock replenished.

Obviously then, all these elements are necessary for every kind of farm crop, although different amounts are needed by different crops.

Lime, in addition to its value as a direct plant food, has much to do with the physical condition of the soil and the availability of plant food. Fertility, from the standpoint of plant food, therefore, requires a sufficient supply of each of these four critical elements in proper or available form.

Lime, potash and phosphorus are all found in rocks. They are the mineral elements of fertility.

Nitrogen is not a mineral element, and is not found in rocks. Nitrogen comes originally from the air, but must be converted into liquid or available form by the decay of plant tissue containing it. It can be taken from the air only by the bacteria which grow on the roots of leguminous clover plants, including alfalfa, clovers, vetches, peas, beans, etc. These bacteria take nitrogen from the air, and when they die and decay make the nitrogen which they contain available for other plants.

Most soils contain considerable supplies of all the essential elements of fertility, generally enough to last for a hundred years or more. The problem of fertility is that of getting this plant food into available form.

The chief agencies for dissolving mineral plant food materials are the bacteria and acids which are developed in decaying vegetable and animal matter. Rotting vegetation, or humus, is therefore the best agency for maintaining or increasing the availability of plant food.

This accounts for the well known beneficial effect of manure. The actual benefit of manure when applied to soils is at least

double the value of the plant food which the manure supplies, because of the fact that the manure in rotting dissolves and makes available plant food which was already present in the soil in unavailable form.

One of the best means of increasing fertility of soils is, therefore, the plowing under of some humus forming material. For this purpose barnyard manure is best. Next in value are so-called "green manures" or green crops plowed under. Of these the legumes are by far the best because they are the nitrogen gathering crops.

A red clover crop when plowed under adds to the soil about \$20.00 worth of nitrogen which the bacteria associated with it have taken from the air.

Other green crops, like rye, buckwheat, etc., when plowed under, produce humus, and, therefore, help to make available the plant food already present in the soil, but they do not add to the soil any of the critical elements of fertility which were not already present in the soil.

In the absence of a sufficient supply of barnyard manure, commercial fertilizers may profitably be used; particularly if the price of land, or market conditions make it undesirable to lose the use of the land while green leguminous crops are being grown to be plowed under.

Again, the addition of available fertility in the form of commercial fertilizers often profitably supplements the supply of available fertility which is naturally present in the soil or is developed by proper handling of the land.

The chief determining factor in the use of commercial fertilizer is, of course, the profit which may be obtained from their use.



Stable manure, although a complete fertilizer, is not a correctly balanced fertilizer. It contains too much nitrogen, and is liable to produce an excess of foliage at the expense of roots, fruit, or grain. The use of potash fertilizers in conjunction with stable manure is usually highly profitable.

Lime for Correcting Acidity in the Soil

By Prof. E. B. Stookey.

BASED on chemical analyses, it may safely be said that most soils in western Washington are in need of lime. The analyses in the U. S. Reconnaissance soil surveys of western Washington show a deficiency of from 0 to 30,000 pounds of limestone per acre, with the large number of samples showing a need of less than 2,000 pounds per acre.

This means that this much limestone is required to neutralize the acid in the soil. It is generally conceded that the greatest need of lime in the soil is to counteract acidity. Lime, however, is essential to plant growth, has a beneficial effect on the physical condition of soils, and aids in liberating plant food.

Where lime is needed the character of the plant growth is usually such as to indicate it. Sorrel and horse-tail rush are generally present, and replaces red clover. Red clover shows the need of lime in the soil as quickly as any other plant. The litmus paper test is fairly satisfactory. Blue litmus paper, pressed against moist soil, will turn red or pink if the soil is in need of lime. The length of time it requires to change color indicates in a general way the amount of lime required. If the action is slow, probably one thousand pounds of lime, or one ton of ground lime rock, per acre, would be sufficient. A light soil will require less lime than a heavy one.

The kind of lime to apply will depend on the soil condition and the result to be accomplished. This will be better understood if we know what the different forms of lime are, and the effect of each.

Lime, or calcium oxide, is known as quick-lime, burned lime, stone lime, lump lime, unslacked lime, etc. Calcium oxide is composed of forty parts calcium and sixteen parts oxygen by weight. In all lime fertilizer compounds, calcium is the element that should be considered.

We may consider the weight of calcium oxide as 56. When quick-lime is slaked it combines with water and forms hydrated lime, known chemically as calcium hydroxide. If we slake 56 pounds of pure lime there is produced 74 pounds of hydrated lime. The weight is increased almost half, and the bulk is more than doubled by this chemical addition of water. If just a sufficient amount of water is used, the lime will fall apart into a fine white powder.

If this 74 pounds of slaked or hydrated lime is exposed to the air a few days it will completely air slake, the water taken up chemically will be replaced by carbonic acid gas from the air, and there is produced 100 pounds of air slaked lime, known chemically as calcium carbonate.

Ground limestone rock is made from calcium carbonate rock, and is chemically the same as air slaked lime. Air slaked lime is usually in a finer state of division than ground limestone, and will contain some quick-lime and some hydrated lime.

If 100 pounds of pure limestone rock is kiln burned it will form 56 pounds of quick-lime. We see then that 56 pounds of quick-lime equals 76 pounds of hydrated lime or 100 pounds of air slaked lime or ground lime rock.

Some recent experiments carried on by the Pennsylvania State College show that ground lime rock is as effective for the correction of soil acidity as an equivalent amount of quick lime.

Quick lime is caustic in its effect; that is, it burns substances that it comes in contact with if moisture is present. If water is applied to lime it generates heat, and expands. Barreled lime often breaks the barrels, because of the absorption of moisture and exposure to air. If quick lime is put on the soil it does not remain long in lump form. As soon as water falls on lime it slakes and forms hydrated lime, and the hydrated form soon changes to the air slaked or carbonate form.

Theoretically the humus in the soil is burned by the lime undergoing these changes, and practically we find that the humus content of the soil organisms diminishes under such treatment. This decrease is probably due in part to the increased activity of the soil organisms working on the humus.

Ground lime rock or fully air slaked lime applied to the soil does not have a caustic action, and is not so chemically active, so the action of soil organisms is not so greatly accelerated. It does, however, correct soil acidity. Ground limestone and fully air slaked lime are therefore the safest forms of lime to apply.

On soils that are rich in humus, such as the peat and muck soils, the loss of humus will not be serious, and on such soils quick lime or hydrated lime may be used. Many soils in western Washington, in fact most upland soils, are deficient in humus, so that it would seem unwise to put anything on them that would burn out the small supply.

Lime will not take the place of manure or commercial fertilizers, nor will manure or commercial fertilizers take the place of lime.

If quick lime is to be used it may be applied in several different ways. The lump lime may be placed in small piles over the field, and slaked with a pail of water, or the lime piles may simply be covered with earth. In this way the lime will slake by drawing moisture. After the lime is slaked the piles of lime are scattered evenly over the ground. When applied in this way the application is usually made in the fall or during the winter. Lime in this form is caustic, so must be applied a considerable length of time before a crop is to be put on the land. After the lime is spread, it should be well incorporated with the soil by discing or harrowing.

Fertilizers are not effective on sour soil. If your soil is sour, sweeten it with Ground Lime Rock before applying fertilizers.

The quick lime is sometimes slaked and then applied. Considerable care is necessary to use just enough water so the lime crumbles into a fine state of division. It should not be allowed to burn, nor should too much water be used, as that makes it hard to handle. In this form it should be applied during the winter or very early spring. This form is caustic, and would injure a crop planted too soon after the lime is applied.

Finely divided quick lime is sometimes spread directly on the land. Applications of this kind should be made in the fall or winter. It should be borne in mind that all forms of quick lime are caustic. It is doubtful if this form should be used on a light soil. On a heavy clay soil, or a soil rich in humus, it may be profitably used, or if a soil is very strongly acid and it is desired to correct the acidity immediately this form of lime is desirable. After the acidity is once corrected it is perhaps advisable to use a safer form of lime, and in a smaller amount.

Hydrated lime can be secured commercially, and is in a finely divided state. Quick lime that is no longer fresh enough for building purposes is sometimes sold for hydrated lime. If air slaked lime is used, there will probably be some quick lime in it. The quick lime should be slaked before using.

Quick lime is easily converted into hydrated lime by slaking with water. It will sometimes be cheaper to buy quick lime and slake it at home, than to buy lime in any other form. Any form of hydrated lime is caustic, therefore it should be applied in the late fall to early spring, as a crop would be injured by it. It should be disced or harrowed to thoroughly incorporate it with the soil.

Ground lime rock, fully air slaked lime, ground shells, and such carbonaceous materials, can be obtained commercially, and at a reasonable figure. These forms of lime can safely be applied at any time, as they are not caustic and will not injure a growing crop or sprouting seeds.

Any of these forms, to give the best results, should be in a very fine state of division. Although it requires more of these than of the other forms of lime to be as effective, yet they can be used without danger of burning a crop or the humus in the soil. It may well be said that they embody the good qualities of the other forms of lime, but will not injure the soil or a crop. If more than necessary is used, there need be no fear of injury.

Experiments at the Illinois Experiment Station seem to indicate that two tons per acre of ground limestone usually give the highest returns. Subsequent applications of a ton per acre should be used whenever the soil begins to show signs of acidity. It is considered

good practice to apply one or two tons of carbonate of lime per acre every five or six years.

Any of the caustic forms of lime should not be applied with manure. The carbonate forms of lime, however, could safely be applied with manure, but it is seldom done. Manure should be plowed under, but any form of lime should be applied to the surface and thoroughly incorporated with the soil by discing or harrowing.

Lime can be applied broadcast, but is more easily applied with a fertilizer attachment or a fertilizer drill.

It should be remembered that the highest returns cannot be secured unless the fertility and humus supply of the soil is maintained.

Different crops are affected differently by liming. While some crops are benefited, some do not give any reaction one way or the other, and some are injured if there is too much lime present. The last are known as acid loving. The following classification of plants is taken from the report of work done by the Rhode Island Experiment Station, and bulletin No. 6 of the U. S. Dept. of Agriculture.

Plants usually benefited by lime applications are alfalfa, asparagus, beans, beets, barley, blue grass, cantaloupe, cherry, cabbage, clovers, cucumbers, cow pea, dandelion, egg plant, gooseberry, lettuce, onions, oats, parsnip, pepper, pea, peanut, plum, pumpkin, red raspberry, rhubarb, spinach, squash, tobacco, timothy, and wheat.

Plants indifferent to lime are apple, corn, cotton, carrot, millet, peach, pear, red top, Rhode Island bent grass, and rye.

Plants impaired by large amounts of lime in the soil are blue grass, blackberry, black raspberry, potato, radish, seradella, and watermelon.

Plants adapted to acid conditions are blueberry, buckwheat, carrot, corn, cranberry, hairy vetch, millet, oats, potato, raspberry, red top, rye, strawberry, and turnip. While these plants are adapted to acid conditions, some of them will be benefited by liming. It will be noticed that some of the plants in the last list are included in one of the other classifications.

Brief Points on Liming.

1. The different forms of lime contain different amounts of calcium.
2. To improve a poor, acid soil, plow under manure, apply lime and disc in, and grow legume crops in the rotation as much as possible.
3. Lime corrects acidity, but rarely acts as a true fertilizer.
4. Use burnt lime with caution.
5. Ground limestone and thoroughly air slaked lime are not injurious to soils or crops.
6. Lime is not a "cure all" for every soil ailment.

OREGON AGRICULTURAL EXPERIMENT STATION.

The Chas. H. Lilly Co., Seattle.

Gentlemen:—

Referring to your letter of April 14 will say that our examinations indicate that the soil deficiencies which are liable to occur in Western Oregon soils are a lack of organic matter, consequently a lack of nitrogen, and acidity. The acidity in some soils runs quite high. In other states it has been found a sound agricultural practice to add ground limestone for neutralizing acidity in soils. I think that this will have to be done in the western part of this state, if ground limestone can be obtained at a reasonable figure.

Yours truly,

H. V. Tartar, Chemist.

Humus, or Green Manuring in Conjunction with Commercial Fertilizers

MUCH has been said in regard to Nitrogen, Phosphorous Acid and Potash, in agriculture. While these are the elements which produce all vegetation, their application alone cannot be said to be all that is required for fertilizing for profitable farming. The mechanical condition of the soil, whether it be clay, loam, muck, or sand, tends very largely toward increased or decreased production. One of the most important factors of the soil condition is Humus or Organic Matter, which tends to loosen a soil too stiff, or increase the density of one too sandy or loose, producing a condition which is more retentive of moisture and nitrogen, thereby lessening the effects of drouth.

Humus is best secured by what is called Green Manuring or growing some crop of green stuff and plowing it under. The best crops for this purpose are Legumes, such as clover, alfalfa, vetch, peas and

beans, because of their ability to absorb nitrogen from the air and store it in the soil, so that when the plant is turned under it is available for the next crop.

The advantage of using leguminous plants as green manure is readily realized when we stop to think that nitrogen is the most expensive of the three elements of plant food; one pound of nitrogen costing two or three times as much as one pound of either potash or phosphoric acid.

It is not enough that the farmer of today know the nature of manures, but he must, especially if he proposes to use the individual materials, know how to make the most of each and all of them.

Therefore, we again say to the busy truck gardener or farmer who has not the time to devote to study of chemical fertilizers: Use some guaranteed brand of complete mixed fertilizer, and keep up the supply of humus by turning under green crops.

Swamp Lands

How They May Be Made Productive and Valuable

MOST farmers are familiar with swampy lands of black soil. Nearly every farm has a low, wet place where the soil is black and sticky. In the western states there are many acres of such land which frequently are not cultivated, so much in fact that experiment stations have made special study of this class of soil.

Farmers have generally been taught to believe that the black soils are generally very rich in plant food, and this is generally true. Here nature has deposited great quantities of plant food, which can be made useful by proper treatment.

The swamp must be drained with tile or open ditches. When this is done the land can be worked by the usual methods.

Frequently it is noticed that when grass is seeded in these drained swamps it usually makes a good growth for a few years. Small grain also does fairly well, though inclined to lodge or fall down. In many swamps potatoes make heavy vines, but produce poor tubers. Farmers have often observed these facts about black soil or muck, and have wondered why this apparently rich soil fails. In theory it ought to be nearly as rich as manure, yet it is true that the swamp lands

seldom give permanent satisfaction without the addition of some form of fertilizer.

What is the matter with the soil?

The answer, by chemical analysis, and practical experience alike, is that they lack available potash. Analyses were made of many such soils and in every case a deficiency of potash was shown. In most cases there was less than one-tenth of the potash found in average soils.

In most cases a chemical analysis of a soil is of little value to the farmer, but this one gives a clue to the solution of a puzzling farm question. Here we have a soil containing as much nitrogen as a large proportion of the chemical fertilizers, three to four times as much phosphoric acid as a good average soil, but only about one-tenth as much potash as will be found in average clay loam. It is easily seen from this why such soils fail to produce good crops year after year. There is nitrogen and phosphoric acid enough to last five hundred years, but the lack of potash renders these elements useless for the production of crops like potatoes or grain. Even the potash found naturally in such soil is, for the most part, unavailable, being in such forms that the plants cannot use it.

Nitrogen as a Fertilizer

THE influence of nitrogen in its various forms upon plant growth is shown by at least three striking effects:

First: The growth of stems and leaves is greatly promoted, while that of buds and flowers is retarded.

Second: The next effect of nitrogen upon plants is to deepen the color of the foliage, which is a sign of increased vegetative activity and health.

Third: Another effect of nitrogen is to increase in a very marked degree the relative proportion of nitrogen in the plant.

Nitrogen is a gas, and, in this form, cannot be used in fertilizers. Therefore, whenever we speak of nitrogen in fertilizers, we do not mean that nitrogen

exists in them as simple nitrogen. The nitrogen in fertilizers is always combined with other elements, and may be present in one or more different forms: (1st) in the form of nitrates, as nitrate of soda; (2nd) in the form of ammonia compounds, as sulphate of ammonia; and (3rd) in the form of organic matter, animal or vegetable, as dried blood, meat, tobacco-stems, etc.

The mineral forms of nitrogen, such as nitrate of soda and sulphate of ammonia, both dissolve easily in water, thence they would soon wash into subsoil and out of reach of the plants. The so-called organic forms of nitrogen, like cotton-seed meal, tankage, fish scrap, dried blood, etc., are less soluble, and experience indicates that they are largely retained in the soil.

The Functions of Phosphoric Acid

EXPERIMENTS have shown that plants will die before reaching maturity, unless they have phosphoric acid to feed upon. Phosphates appear to perform three distinct functions in plants.

First: They aid in the nutrition of the plant by furnishing the needed quantities of phosphoric acid.

Second: They aid the plant, in some way not well understood, to make use of or assimilate other ingredients. Phosphates are found in the seeds of plants, and, as already stated, a plant does not come to maturity and so does not produce seeds, unless phosphates are present in the soil for the plants to feed upon. The liberal application of available phosphate compounds appear to hasten the maturity of plants.

Third: Certain forms of phosphates render the

albuminoids sufficiently soluble to enable them to be carried from the growing parts of plants to the seeds, in which they accumulate in quantity.

Phosphoric acid, as used in connection with fertilizers, is a compound containing phosphorus and oxygen, which in fertilizers is never found by itself, but in combination with lime.

The phosphoric acid in raw materials such as ground bone or ground phosphate does not readily leach out of the soil. In especially prepared materials, however, like dissolved bone or dissolved phosphate (acid phosphate) the phosphoric acid is quite soluble and would be removed from the soil by drainage water, were it not for the fact that immediately after application the phosphoric acid becomes changed into another form which is not apt to leach away.

Potash in Agriculture

POTASH is essential in the formation and transference of starch in plants. Starch is known to be first formed in the leaves of plants, after which in some way it becomes soluble enough within the plant cells to enable it to pass through the cell-walls gradually and later to be carried into the fruit, where it accumulates and changes back to its insoluble form. It is well established that potash is intimately connected with the formation of starch in the leaves and with its transference to the fruit. No other element can take the place of potash in performing this work. Potash is important on account of its influence upon the development of the woody parts of stems and fleshy portions of fruits.

Potash, as used in connection with fertilizers, always means a compound containing potassium and oxygen, known chemically at potassium oxide. Potash is never found as such in fertilizers, but chemists use this form of expressing the results of analyses as a convenient standard for reference. Fertilizers gen-

erally contain potash in such forms as sulphate of potash, muriate of potash, or carbonate of potash. Instead of stating the amount of sulphate, muriate or carbonate of potash present in a fertilizer, its equivalent amount is stated only in the form of actual potash in giving the results of analyses. Potash soluble represents the amount of potash that dissolves in water and is available for the use of plants. The different forms of potash commonly used in fertilizers are readily soluble in water.

It has been found by experience that the potash salts do not wash away to any appreciable extent because they form certain combinations in the soil which are not soluble, but which at the same time are readily available to the growing crop.

In addition it may be said, in general, that loss of plant food is greatest in sandy soils; the coarser the sand, the greater the loss, the other conditions being the same. Clay and humus have very marked power in retaining plant food.

Why Use Commercial Fertilizers

EVERY foot of your land has cost money, and should be made to pay dividends. The more productive it can be made, the greater will be the profits. It costs no more to plant, cultivate and harvest a full crop than a half crop.

As explained by Prof. Thatcher in the preceding pages, land, to be fertile, must contain an abundant supply of nitrogen, phosphoric acid, and potash in available form. Every crop removed from the land removes a certain amount of these elements, and if they are not replaced, the land is bound to become exhausted and unproductive. These elements may be returned to the land in the form of stable manure, but, except in the case of a few dairy farms where considerable feed is purchased, the farm does not produce enough to keep up the fertility of the farm. Every pound of produce sold from the farm contains some of these elements which have been removed from the soil.

If, to maintain the fertility of the farm, fertilizer must be bought, the commercial fertilizers are nearly always the most economical. In them can be purchased the exact elements to correctly balance the fertility in the soil, which cannot be done with stable manure for the reason that it contains far too much nitrogen in proportion to phosphoric acid and potash.

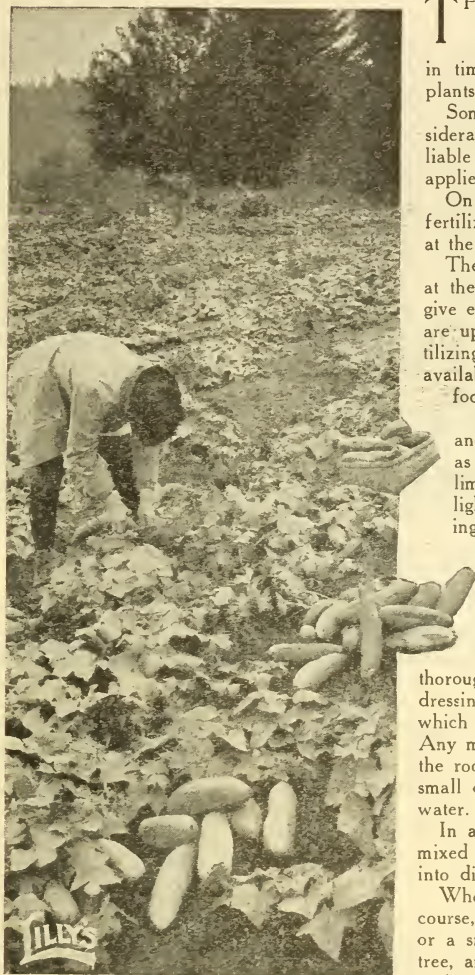
When stable manure is used, potash fertilizer should be used in conjunction with it, to balance the excess of nitrogen in the manure. If manure is used alone, the crops will use more phosphoric acid and potash than the manure replaces, and eventually the soil will produce an excess of stems and foliage at the expense of roots, fruit, or grain. By applying phosphoric acid and potash in the form of commercial fertilizers to balance the nitrogen in the manure, bumper crops will be produced indefinitely.

One hundred pounds of complete mixed fertilizer contains more plant food than a ton of stable manure, and contains the fertilizing elements in correct proportions. It is much more convenient and economical to handle and distribute, and is the cheapest and most effective fertilizer, especially for intensive farming.



Market gardeners use commercial fertilizers in great quantities, and find them profitable.

How and When to Apply Commercial Fertilizers



THE BEST METHOD and time for applying commercial fertilizers depends upon conditions and the kind of fertilizer used. They should be gotten into the ground in time to become dissolved and available when the young plants are ready to use the plant food.

Some of the slow acting fertilizers are best applied a considerable time before the seed is sown, and on heavy soils not liable to be washed by winter rains those fertilizers may be applied during the winter or fall prior to sowing the seed.

On light sandy or gravelly soils, from which some of the fertilizer might be washed by rains, it is best to apply them at the time of seeding, or a few days before.

The complete mixed fertilizers are usually best applied at the time of seeding or a short time before, but will often give excellent results if used as a top dressing after the plants are up. These fertilizers are composed of a variety of fertilizing ingredients, some of which are almost immediately available and others are slower acting and release the plant food only as fast as it is required by the plants.

Most of the nitrogen fertilizers are readily soluble, and should not be applied until the seed is sown, or used as a top dressing later. Nitrate of soda and nitrate of lime have produced best results when applied in several light applications at intervals of two or three weeks during the early growing season.

Commercial fertilizers may be sown broadcast evenly all over the field, and harrowed in before the seed is sown; they may be drilled in with a special fertilizer drill, either at the time the seed is sown or later; they may be scattered in the hills or drills where the seed is to be sown provided they are scattered evenly and thoroughly mixed with the soil; or they may be used as a top dressing after the seed is sown or after the plants are up, in which case rain and cultivation will work them into the soil. Any method that will distribute them evenly in the soil where the roots of the plants will reach them will be effective. In small operations they are sometimes applied by dissolving in water.

In any case they should be applied evenly and thoroughly mixed with the soil, so that no considerable quantity will come into direct contact with the seeds or roots.

When used for fruit trees, berry bushes, etc., they must, of course, be used as a top dressing, and may be sown broadcast or a small quantity may be distributed around each plant or tree, and cultivated into the soil.

An excellent way to use the potash fertilizers in conjunction with stable manure is to scatter a small quantity over the manure pile. In addition to adding potash to the manure, they help to retain the ammonia in the manure, greatly increasing the value.

When fertilizers are applied with a drill or in the hills or rows, it is well to mix them evenly with several times their bulk of mellow earth or dust, to insure even distribution.

The quantity of fertilizer to apply depends upon which fertilizer is used, and what crop it is used upon. Estimates of the quantities that will be advisable to use will be found elsewhere under the heads of the various fertilizers. The rule that "if a little is good, more will be better" does not always apply, for the plants can take up only a certain amount of plant food, and although a large part of what is left would be available the next season, some of it would probably be lost.

Feed your crops scientifically, the same as the modern dairyman feeds his cows. Study conditions, requirements and food values. Much can be gained by correct feeding; much can be lost by improper feeding.



COMPLETE FERTILIZERS

COMPLETE FERTILIZERS are those containing correct proportions of all of the essential plant foods, viz.: Nitrogen, Phosphoric Acid and Potash. Different crops require different proportions of these plant foods, and for convenience and best results to our customers we mix fertilizers for various crops, as described elsewhere.

When preferred, we furnish the various materials used in these fertilizers, individually, but unless the farmer has made a study of the subject, experimented, and knows exactly what his soil requires, better results will be obtained by using the complete mixed fertilizers.

All of our Complete Fertilizers are guaranteed to contain as much or more of each of the plant food elements as is shown in analysis printed on each package, in accordance with the state law. The law is very strict in regard to this, and is a blessing to both the farmer and the reliable dealer. Without this law the value of commercial fertilizers would be very uncertain, as there is nothing in their appearance to indicate their worth.

There is little danger of purchasing a commercial fertilizer in the State of Washington which does not contain all of the plant food shown in the analysis printed on the packages. Still there is a great difference

in Complete Fertilizers, in the ingredients of which the analysis is made up. Our Complete Fertilizers are composed of materials containing the required plant foods in the forms best adapted to the purposes for which they are intended.

We are pioneers in the manufacture of Complete Fertilizers in the Northwest. For more than ten years we have been doing everything possible to build up the business on a solid foundation. It is not our object to sell as much fertilizer as possible this year, regardless of whether it is properly used and produces satisfactory results, but to induce our customers to use it understandingly, and in such a manner that every dollar invested in fertilizers will pay dividends in increased crops. We are looking forward to a great future for commercial Fertilizers in the Northwest, and we intend to stay in the business.

In this little book we will endeavor to give as much information as possible on the subject, but we would suggest that the thoughtful farmer should not let his studies stop with this. He should procure all of the Government and State Experiment Station bulletins, and other works on the subject. However, we must allow for difference in localities and conditions, and to some extent for differences of opinion of different writers.



Lilly's



Lilly's LAWN DRESSING

**A Complete Fertilizer For Lawns
And Flower Beds.**

GUARANTEED ANALYSIS:

Nitrogen	5.00%
Nitrogen expressed as Ammonia	6.07%
Available Phosphoric Acid	8.00%
Phosphoric Acid expressed as Bone Phosphate.....	17.46%
Potash	5.00%
Potash expressed as Sulphate of Potash.....	9.25%

THIS complete fertilizer is proportioned especially for the feeding of grasses, but will be found very satisfactory for flower beds and rose bushes as well as lawns, in any locality.

A portion of the plant food is immediately available and the balance is given up gradually as needed, consequently the results are lasting. The composition is easily handled, comparatively odorless and not unsightly, as there is no coarse material in it,

and it is free from the unnumbered weed seeds contained in barnyard manure, of which one would have to use from one to two tons to get the same amount of plant food contained in 100 pounds of our Lawn Dressing.

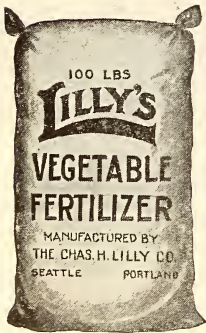
One hundred pounds worked into each 1000 square feet of surface before seeding, or 100 pounds to 2500 square feet when used as a top dressing, gives good results. Put up in 100-pound and 25-pound bags.

25 lbs., 75c; 100 lbs., \$2.50; ton, \$44.00; F. O. B. Seattle or Portland.



VEGETABLE FERTILIZER

A Complete Fertilizer For The Vegetable Garden



GUARANTEED ANALYSIS.

Nitrogen	3.00%
Nitrogen expressed as Ammonia.....	3.66%
Available Phosphoric Acid.....	11.00%
Phosphoric Avid expressed as Bone Phosphate.....	24.01%
Potash	5.00%
Potash expressed as Sulphate of Potash.....	9.25%

FOR GENERAL USE where any one thing is not planted extensively, we prepare this formula containing an average percentage of each of the three plant food elements which combine to make all vegetation, to give the best results on the great majority of crops in all varieties of soils. Consequently it is the most satisfactory and economical fertilizer for the truck gardener and for the home vegetable garden.

At the rate of one thousand pounds to the acre would be a fair dressing, and would be

equal in fertilizing value to about ten tons of ordinary stable manure. It is free from the millions of weed seeds invariably found in stable manure.

Like other Complete Fertilizers, it may be sown broadcast on the plowed ground, and harrowed in, before planting; or it may be drilled in close to the rows of seeds or plants after seeding or during the early growing season.

25 lbs., 75c; 100 lbs., \$2.25; ton, \$40.00.
F. O. B. Seattle or Portland.

To use the incomplete chemical and animal fertilizers advantageously it is necessary to first ascertain what is required to correctly balance the soil; which can be done only by experimenting. In the absence of such knowledge, Lilly's Complete Fertilizers should be used. They contain all the fertilizing elements, and although some of those elements may be present in the soil in sufficient quantities, the complete fertilizer is bound to produce the desired results without the trouble and delay of experimenting.



Lilly's POTATO FERTILIZER

For Potatoes, Beets, Turnips, Carrots,
and all other Root Crops.

GUARANTEED ANALYSIS:

Nitrogen	3.00%
Nitrogen, expressed as Ammonia	3.66%
Available Phosphoric Acid, P ² O ⁵	6.00%
Phosphoric Acid, expressed as Bone Phosphate.....	13.16%
Potash	11.00%
Potash, expressed as Sulphate of Potash.....	20.36%



THIS formula is prepared for potatoes and other roots, such as beets, carrots, etc., which require greater percentages of potash and smaller proportions of nitrogen and Phosphoric Acid.

The elements in this composition promote root development without creating an excessive leaf growth, insuring the greater crop from smaller acreages of almost any kind of soil with proper cultivation.

The use of our potato fertilizer greatly les-

sens the danger of scab, black spots, and other diseases which are usually fostered by heavy applications of stable manure, and 1,000 lbs. per acre will yield plant food equal to eight to ten tons of manure.

If strict economy be practiced this fertilizer may be applied directly at the hill where the potato is to be planted, but should not be allowed to come in direct contact with the seed. Put up in 100-lb. and 25-lb. bags.

25 lbs., 75c; 100 lbs., \$2.25; ton, \$42.00; F. O. B. Seattle or Portland.

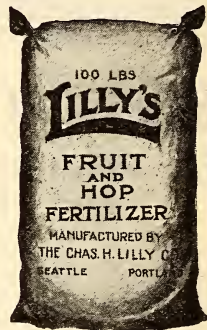


Lilly's FRUIT and HOP FERTILIZER

For Western Washington and
Western Oregon.

GUARANTEED ANALYSIS:

Nitrogen	4.00%
Nitrogen expressed as Ammonia	4.85%
Available Phosphoric Acid	8.00%
Phosphoric Acid expressed as Bone Phosphate	17.46%
Potash	9.00%
Potash expressed as Sulphate of Potash	16.65%



THE largest and thriftiest looking tree or plant does not always yield the most and best fruit. An excess of nitrogen will cause too great a growth of wood and other ill effects such as plenty of blossoms but fruit fails to set.

This formula is made up with the fruit grower's object in view, viz., to get the most and best fruit from the minimum plants and acreage.

The plant food elements are proportioned so as to increase quality, and at the same time properly develop the plant without excess.

This fertilizer is of the greatest value to berry growers of the Pacific Coast, as it improves the color, flavor and texture of the fruit, and the firmness it imparts makes the berries stand up well on long shipments, one of the most important points of consideration to the commercial grower.

500 to 800 pounds per acre will give excellent results. Care should be taken when applied to growing plants, not to allow the fertilizer to get on the foliage, especially in warm weather. Put up in 100-pound and 25-pound bags.

25 lbs., 75c; 100 lbs., \$2.40; ton, \$44.00; F. O. B. Seattle or Portland.



LILLY'S FISH AND BONE FERTILIZER

For Fruits, Etc.,
East of the Cascade Mountains

GUARANTEED ANALYSIS:

Nitrogen	4.20%
Nitrogen expressed as Ammonia	5.10%
Available Phosphoric Acid	11.00%
Phosphoric Acid expressed as Bone Phosphate.....	24.00%
Potash	2.00%
Potash expressed as Sulphate of Potash.....	3.70%

A BALANCED FERTILIZER especially adapted for fruit orchards, melons, tomatoes, hops, etc., in the soils of eastern Washington and eastern Oregon. The high priced fruit lands of these sections are in need of commercial fertilizers to insure greatest profits. They are used for the same crop year after year, rotation is not possible or profitable, and a certain amount of plant food is removed with each crop, which, if not returned in the form of fertilizer, is bound to impoverish the soil, eventually impairing the quantity and quality of the fruit.

Green crops should be turned under to furnish humus, and plant food should be supplied by applying Lilly's Fish and Bone Fertilizer as follows:

Apply about ten pounds of the fertilizer around

each tree at the time of cultivating early in spring, and follow that up by an application of about half the quantity in summer or early fall. This is for an orchard in full bearing. On young orchards the quantity may be reduced according to size of the trees.

For hops, use about 700 lbs. per acre, and for tomatoes, melons, etc., about 1200 lbs. per acre.

Lilly's Fish and Bone Fertilizer will increase the quantity of fruit, but the greatest gain is in improved color, size, and quality. If you wish it, we will mail you a circular describing the experience of Mr. F. H. Gilbert, North Yakima. He applied Lilly's Fish and Bone Fertilizer on half of a two-acre orchard, and that half produced \$71.83 greater net profit than the other half.

Packed in 200-lb. sacks. 100 lbs., \$2.50; 200 lbs., \$4.40; ton, \$44.00; F. O. B. Seattle or Portland.

Write for special prices on fertilizers delivered at your railroad station.



LILLY'S

CONCENTRATED FERTILIZER

A General Fertilizer for All Purposes

GUARANTEED ANALYSIS:

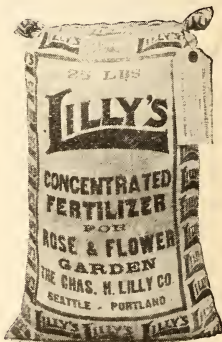
Nitrogen	2.00%
Nitrogen expressed as Ammonia	2.43%
Available Phosphoric Acid	6.00%
Phosphoric Acid expressed as Bone Phosphate	13.10%
Potash	4.00%
Potash expressed as Sulphate of Potash	7.40%

THIS COMPLETE FERTILIZER is prepared to supply the demand of those who require only a small quantity of fertilizer for various purposes, such as house plants, flower gardens, roses, shrubbery, small lawns, vegetable gardens, etc., and do not care to purchase each of the special fertilizers.

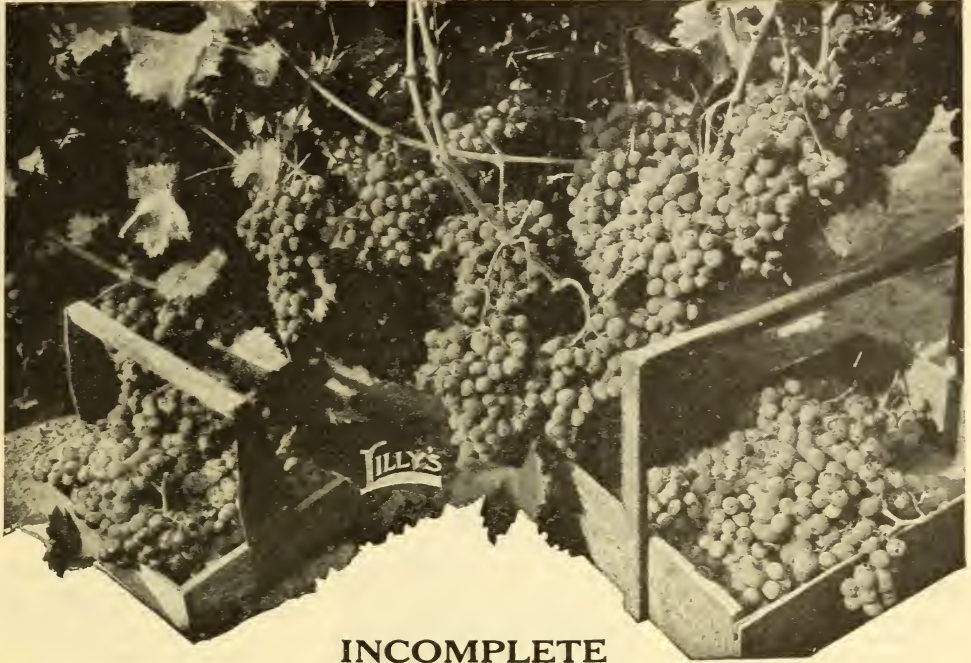
The analysis is the average required by various plants, and will give excellent results when applied upon almost anything requiring fertilizer around the small home. For more extensive fertilizing, we would, of course, recommend the fertilizer adapted to the particular purpose for which it is to be used. This fertilizer is composed of plant foods in the forms most suitable for use around the home. It is not offensive in any way, and is not unpleasant to handle. A part of the plant food is in a quickly available form, causing the plants to assume a greener, thriftier appearance within a very few days, while the balance is slower in action, and the benefit will be lasting.

It may be applied dry by scattering it around the plants and raking it into the soil, or it may be dissolved in water. Packed only in 5-lb. cartons and 25-lb. bags. It may be shipped by parcel post.

Price, 5 lbs., 25c; 25 lbs., \$1.00; F. O. B. Seattle or Portland.



There is neither profit nor pleasure in growing poor, weak, sickly plants or crops.



INCOMPLETE CHEMICAL AND ANIMAL FERTILIZERS

ALTHOUGH these fertilizers are incomplete, or not correctly balanced to furnish plant food in the proportions required for plant life, they are often the most economical, and will produce the desired results when correctly used to balance or make available the plant food which is already in the soil.

To use them advantageously, the farmer must first have ascertained which of the elements are lacking in his soil, and which of the fertilizers will produce best results. This information can be gained only by experimenting with small quantities of the various fertilizers in different combinations. In the absence of that knowledge, it is best to use the complete mixed fertilizers, for they contain all the fertilizing elements, and are bound to be beneficial.

As a basis for experiments, we would suggest that nearly all the land west of the Cascade Mountains, especially the bottom lands, will be found to be deficient in potash; and that most of the land east of the mountains is deficient in nitrogen.

Suphate of Potash

GUARANTEED ANALYSIS:

Potash 50%.

Potash is the element most needed in the soils of western Washington and western Oregon, and that is the main reason that our fruit does not have as good color or texture as fruit grown east of the mountains.

This is a highly concentrated form of potash, containing more than 50% available potash, and as it is free from chlorides, is perfectly safe to use for potatoes, sugar beets, tobacco, etc., which may be damaged by chlorides. It is in fine mechanical condition, and is easily applied, either with a drill or by hand. Packed in 225-lb. sacks.

Prices: 100 lbs., 225 lbs.,
ton F. O. B. Seattle or Portland.

Muriate of Potash

GUARANTEED ANALYSIS:

Potash 50%.

This is another highly concentrated form of potash, containing the same amount of plant food as sulphate of potash, is used in the same manner, is equal to it for most purposes, and is less expensive. It contains chlorides, and for that reason is not recommended for potatoes, sugar beets, or tobacco.

Muriate of potash is used in great quantities by fruit growers. In addition to increasing the quantity of fruit, it improves the color, size and texture, so that it stands shipment better, and brings better prices. It is generally applied at the rate of 200 to 500 lbs. per acre. Packed in 225-lb. sacks.

Prices: 100 lbs., 225 lbs.,
ton, F. O. F. Seattle or Portland.

Owing to the war in Europe, and the fact that potash fertilizers must come from Germany, prices of Potash and Kainit are very uncertain and liable to change. Write for current price list before ordering.



LILLY'S
CROP BOOK
 FREE WITH ANY
 ORDER

Nitrate of Soda

GUARANTEED ANALYSIS:

Nitrogen 13%.

Nitrate of Soda contains 13% or more of nitrogen in quickly available form, and is generally used as a top-dressing. It is seldom advisable to apply it on the soil before the seed is sown, for the reason that all the benefits will be had from it within two or three weeks, and if the plants are not ready to make use of all the plant food some of it will be lost.

It is best applied in several light applications of about 150 lbs. each per acre, at intervals of two or three weeks, during the early growing season. If applied too late, the plants will continue to grow foliage, and maturity will be retarded. It is used for forcing such crops as lettuce, celery, radishes, etc., requiring a quick growth, and produces wonderful results.

The Crop Book contains an article showing the advantage to be derived from the use of nitrate of soda as a stimulant for garden vegetables. The same will apply to any crop requiring encouragement early in the season. Packed in 200-lb. sacks.

100 lbs., \$3.50; 200 lbs., \$6.00; ton, \$60.00;
 F. O. B. Seattle or Portland.

On account of the European war, prices of Kainit and other potash fertilizers are uncertain and liable to change. Write for current price list before ordering.

Kainit

GUARANTEED ANALYSIS:

Potash 12%.

This is a raw product containing only one-fourth as much actual potash as the high grade muriate and sulphate. It is preferred for celery, asparagus, and mangel wurzels, and has some value for ridding the soil of cut-worms, white grubs, root maggots, etc.

It is also valuable as a retainer of ammonia in manure. When scattered over the manure heap at the rate of a couple of handfuls per day for each cow or horse, it has a tendency to prevent the escape of valuable ammonia, besides adding potash to the manure, making it a more nearly balanced fertilizer.

Used at the rate of 200 to 1,000 lbs. per acre. Packed in 225-lb. sacks.

Prices: 100 lbs., \$2.00; 225 lbs., \$3.40; ton, \$30.00; F. O. B. Seattle or Portland.

Nitrate of Lime

GUARANTEED ANALYSIS:

Nitrogen 13%.

Nitrate of Lime is another quick acting nitrogenous fertilizer, made by electrically combining nitrogen from the air with lime. It contains the same amount of nitrogen as does nitrate of soda, and the manner of using and benefits derived are identical, while the cost is less. The article in the Crop Book in regard to the use of nitrate of soda on garden vegetables will also apply to nitrate of lime.

Packed in barrels containing about 250 lbs.

100 lbs., \$3.25; 250 lbs., \$7.00; ton, \$56.00;
 F. O. B. Seattle or Portland.

Land Plaster, or Gypsum

Land Plaster is not really a fertilizer, as it contains no plant food, but it causes a chemical change in the soil, releasing the potash which is already there in unavailable form. It is very beneficial to clover, alfalfa, peas, beans, and other legumes, and is sown broadcast at the rate of 100 to 500 lbs. per acre.

100 lbs., \$1.00; ton, \$14.00.

Ton prices apply on fertilizers in lots of one-half ton or more of one article.

Bone Meal

GUARANTEED ANALYSIS:

Nitrogen 3%; Phosphoric Acid 12 to 20%.

Bone Meal is the basis of almost all mixed fertilizers, and for some purposes is the best and cheapest form of nitrogen and phosphoric acid. It is slow in action, and there is no waste, as the plant food is released only as fast as it is taken up by the roots of the plants.

Our bone meal is made from fresh bones, and has not lost any of its value. The quantity to use depends entirely upon the purpose for which it is used. Light applications are beneficial, but for permanent work, such as forming soil for lawns, rose beds, etc., it should be used in very large quantities, the more the better.

Packed in 10-lb. cartons and 100-lb. sacks.

10 lbs., 35c; 100 lbs., \$2.25; ton, \$40.00; F. O. B. Seattle or Portland.

Fish Guano

GUARANTEED ANALYSIS:

Nitrogen 8%;

Phosphoric Acid 8%.

Made from salmon scrap, is high in nitrogen and phosphoric acid in quickly available form, and will produce good results on any crop where a quick and large growth of foliage is desired. It is splendid for lawns, but the odor is rather objectionable. Applied at the rate of 500 to 1,000 lbs. per acre. Packed in 100-lb. sacks.

100 lbs., \$2.65; ton, \$49.00.

Pulverized Sheep Manure

Pure sheep manure is the best of nature's fertilizers, containing nitrogen, phosphoric acid and potash in liberal proportions. To retain this high value, it must be handled properly, and the ammonia must not be allowed to escape.

Lilly's Pulverized Sheep Manure is secured from the stock yards feeding sheds, where it is not exposed to the weather, is thoroughly dried and pulverized. It may be applied either before the seed is planted or used as a top-dressing, and the heavier the application the better will be the results. Packed in 10-lb. cartons and 100-lb. sacks.

Carton, 25c; 100 lbs., \$1.25; ton, \$20.00.



Blood and Bone

GUARANTEED ANALYSIS:

Nitrogen 4%; Phosphoric Acid 12%.

An animal fertilizer, rich in nitrogen and phosphoric acid, and having additional value on account of a certain warmth and vitality which it imparts to the soil. It is a quick acting fertilizer, and for that reason it is for some purposes more valuable than bone meal, although the effect is not so lasting. It should not be applied a great length of time before the seed is planted, and may be used as a top-dressing. It is usually applied at the rate of 500 to 1,000 lbs. per acre.

Packed in 100 lb. sacks.

100 lbs., \$2.10; ton, \$39.00.

Superphosphate

GUARANTEED ANALYSIS:

Phosphoric Acid 17%.

This is what is known as Acid Phosphate, being phosphate rock treated with acid to make the phosphoric acid available. While the phosphoric acid in this is not so valuable as that in bone meal, it is more quickly available, and in some cases more useful.

Superphosphate is recommended as a top-dressing for grass lands and for grain. It is generally used at the rate of 500 to 1,000 lbs. per acre. Packed in 125 lb. sacks.

100 lbs., \$1.40; 125 lbs., \$1.65; ton, \$26.00.

Ground Phosphate Rock

Raw phosphate rock finely ground. It is slower acting than superphosphate, and is recommended by many manufacturers as the most economical form of phosphoric acid.

100 lbs., \$1.25; ton, \$20.00.

Ground Lime Rock

This is the best form of lime for sweetening sour soil. It is fully as effective as air-slaked lime, does not burn the humus in the soil, is more convenient, and is less expensive.

Read the article by Prof. Stookey, "Lime for Correcting Acidity in the Soil", in preceding pages of this book

100 lbs., 75c; 200 lbs., \$1.00; ton, \$10.00;

F. O. B. Seattle or Portland.

We can make very low prices on car-oad lots, in bulk, shipped direct from the mines. Write for prices.

Write for special prices on fertilizers in large quantities, stating quantities wanted.

THE MULFORD NITRO-GERM



Uninoculated

ALFALFA

Inoculated

Will Increase Your
Crops of

**ALFALFA, VETCH
CLOVER
PEAS, BEANS**

And Other Legumes
and will

**IMPROVE THE
SOIL**

FAILURE to produce satisfactory crops of Clover, Alfalfa, Vetch, Peas, Beans and other legumes is more often attributable to lack of the necessary bacteria in the soil than merely to poor soil.

When these germs are present in sufficient numbers, small nodules form on the roots of leguminous plants, as shown in accompanying cut, and the nodules store up the nitrogen which is drawn from the air by the plant.

Without these germs a good crop is impossible, but, if they are lacking,

they may be introduced into the soil in two ways. Soil from a field which is bearing good crops of the desired legume may be distributed on the land at the rate of three hundred pounds or more per acre; but that is not always convenient; inoculated soil may be difficult to obtain, or must be hauled a long distance; it is a laborious operation, and there is danger of transferring noxious weed seeds.

An easier, cheaper, safer, and surer way is by inoculating the seed with The Mulford Nitro-Germ, which contains active nitrogen-fixing bacteria, and is used to treat or inoculate the seeds or soil at the time of planting legume crops. The bacteria in this product have all been proved by actual test to be active and vigorous. It is easily and quickly used; the directions which accompany each package are so complete and explicit that anyone can use it.

The legumes are among the most profitable crops that can be grown in the Northwest, furnishing high-grade food for cattle and other stock, and at the same time improving the soil. As is well known, the legumes have the power of drawing nitrogen from the air and distributing it in the soil. As nitrogen is the most expensive fertilizing ingredient when supplied in the form of commercial fertilizers, the plowing under of a leguminous crop is the cheapest manner of building up the soil, provided a good stand of these crops can be secured, which difficulty is easily and inexpensively overcome by using The Mulford Nitro-Germ.

A specific strain of bacteria is required for each variety of legume. We can furnish Nitro-Germ for the following legumes:

Alfalfa, Red Clover, White Clover, Sweet Clover (Bokhara), Alsike Clover, Field Peas, Common, or Spring Vetch, Hairy, or Winter Vetch, Garden Peas, Garden Beans, Sweet Peas.

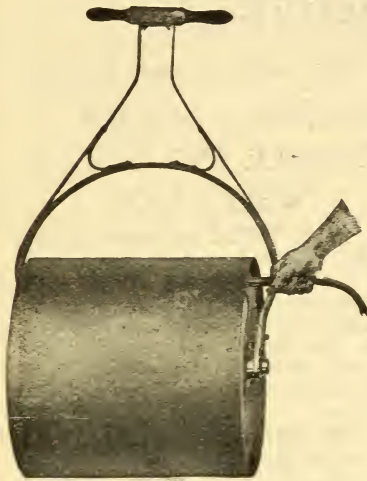
Nitro-Germ for any one of these legumes would be of no benefit if applied to any other crop.

The Mulford Nitro-Germ is packed in hermetically sealed bottles, and, if not opened until ready to use, the bacteria will live and remain active almost indefinitely; but, to insure the best results, it should be used before the expiration of the time limit stamped on packages.

Garden size ($\frac{1}{4}$ acre), 50c; 1 acre size, \$2.00; 5 acre size, \$9.00; postpaid.

The 5-acre size is not carried in stock, and orders for that size should reach us at least ten days before the Nitro-Germ will be required for use.

If your soil is fertile, maintain it; if it is unfertile, build it up. The fertilizing problem is a vital one.



DUNHAM Water or Sand Ballast LAWN ROLLERS

A GOOD LAWN cannot be maintained without the use of a roller. The surface must be kept perfectly smooth, and the turf compacted to make it tough and elastic and the grass fine and uniform in color. The Dunham Rollers are standard, and are universally used in all sections of the country. The weight is adjusted by filling with water or sand. They have roller bearings, are made of the best materials, and are superior in every way. Write for descriptive catalog.

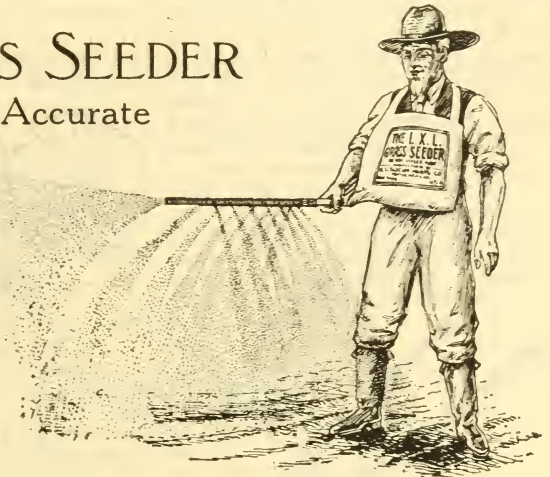
No.	Diameter, Inches	Length, Inches	Sections	Weight Empty	Filled Water	Filled Sand	Price
3	14	20	1	60	200	300	\$10.00
5	18	24	1	75	300	500	13.00
7	24	24	1	125	500	800	17.00
11	18	24	2	100	300	500	18.00

I. X. L. GRASS SEEDER

Light, Simple, Accurate

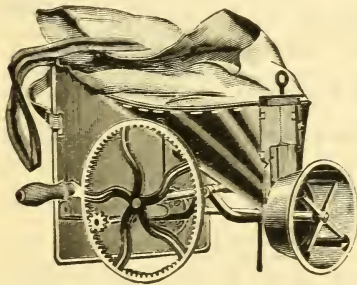
Although the price is low, this seeder is entirely practical, and sows seed accurately, evenly, and rapidly. It is very light, weighing less than one pound, and is well made of the best material. It can be regulated to sow any amount from one pint to ten quarts per acre, and will sow a strip from 45 to 60 feet wide each round.

Write for circular. Price, \$1.00.



Cahoon Broadcast Seeder

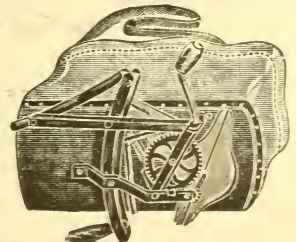
The best and most popular broadcast seeder. It will sow evenly and accurately any grass or grain seed at the rate of four to six acres per hour. Made to last a lifetime. Fully guaranteed. Weight, 6 lbs. Price, \$3.50.



Little Giant Broadcast Seeder

The best little broadcast seeder for the price. It is light, strong, accurate, and does the work much easier and better than can be done by hand. Weight only 3 1/2 lbs. Price, \$1.90.

LILLY'S GRASS SEEDS are tested and are the best that are to be had. The best seed is always the cheapest, regardless of price, for it is poor economy to purchase at any price seed containing a large percentage of weed seed. Weeds are bad enough at the best, without sowing the seed.



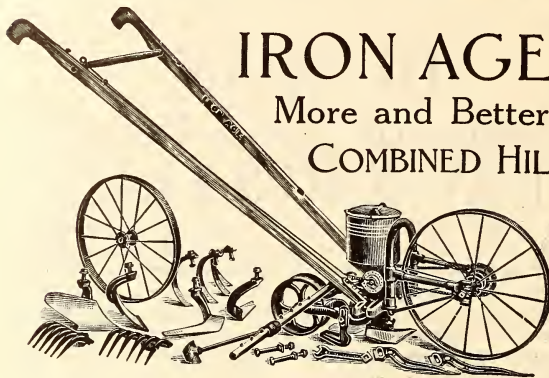
IRON AGE FARM AND GARDEN IMPLEMENTS

More and Better Work with Less Labor

COMBINED HILL AND DRILL SEEDER

DOUBLE AND SINGLE

WHEEL HOE



No. 6.

sown in either hills or drills, covered and rolled; the plants may be hoed, cultivated, raked or ridged, either astride or between the rows. If unable to purchase a complete equipment at the outset, one of the lesser combinations may be purchased and additional attachments added at any time.

No. 6. **DOUBLE AND SINGLS WHEEL HOE, HILL AND DRILL SEEDER.** Complete, as shown in above cut.....Price, \$14.50

No. 7. **HILL AND DRILL SEEDER.** The same as No. 6 without Cultivating attachments. Those attachments may be added at any time, per list on next page.....Price, \$11.00

No. 14. **HILL AND DRILL SEEDER WITH HOES AND TEETH.** The same as No. 6 without plows or rakes \$12.80

No. 4. **DOUBLE AND SINGLE WHEEL HOE AND DRILL SEEDER.** The Seeder sows in drills only. Equipped with Hoes, Plows, Cultivator Teeth, and Rakes, the same as No. 6. . \$13.35

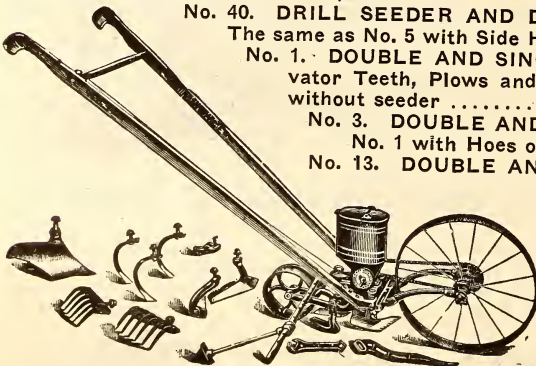
No. 5. **DRILL SEEDER.** Drill Seeder only. The same as No. 4 without cultivator attachment \$9.95

No. 40. **DRILL SEEDER AND DOUBLE AND SINGLE WHEEL HOE.** The same as No. 5 with Side Hoes..... \$11.70

No. 1. **DOUBLE AND SINGLE WHEEL HOE.** With Hoes, Cultivator Teeth, Plows and Rakes. The same as No. 6 and No. 4 without seeder \$8.65

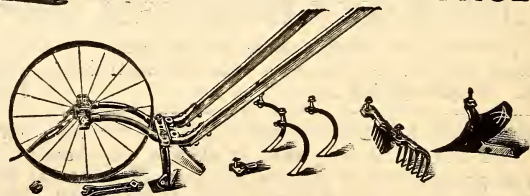
No. 3. **DOUBLE AND SINGLE WHEEL HOE.** The same as No. 1 with Hoes only..... \$5.45

No. 13. **DOUBLE AND SINGLE WHEEL HOE.** With Hoes and Cultivator Teeth. Same as No. 1 without plows or rakes.... \$6.85



COMBINED
HILL AND DRILL SEEDER
SINGLE WHEEL HOE

No. 15. **SINGLE WHEEL HOE, HILL AND DRILL SEEDER.** Sows seed either in drills or in hills. Equipped with Hoes, Rakes, Cultivator Teeth and L and side Plow, as shown in above cut..... \$13.25



We will mail you the IRON AGE Catalog if you wish it.

- No. 16. HILL AND DRILL SEEDER. The same as No. 15 without cultivator....\$10.25
- No. 17. SINGLE WHEEL HOE AND DRILL SEEDER. Sows in drills only. Cultivator equipment the same as No. 15.....\$12.00
- No. 18. DRILL SEEDER. Drill Seeder only. The same as No. 17 without cultivator attachments. Weight, 39 lbs.....\$9.15
- No. 20. SINGLE WHEEL HOE. Same as No. 17 without seeder. Weight 28 lbs.\$7.30
- No. 21. SINGLE WHEEL HOE. Same as No. 20 with Side Hoehoes only. Weight, 23 lbs.\$4.85

No. 22. COMBINED FERTILIZER DISTRIBUTOR HILL & DRILL SEEDER

This implement sows seed accurately, either in hills or drills, and at the same time distributes fertilizer either in line with the seed or at side of the drill. Neither the drill or fertilizer distributor are interchangeable with the other implements, and no cultivating attachments can be used with this implement. Weight 65 lbs. No. 22. Price, \$20.50

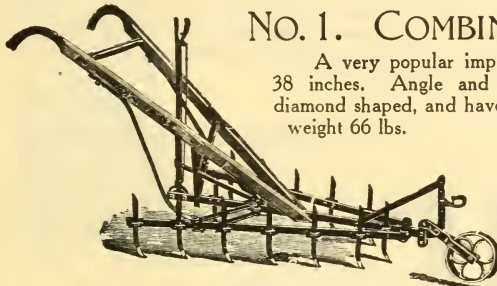
No. 23. FERTILIZER DISTRIBUTOR. Hill and Drill Seeder Attachment. Fig. 398 may be attached to this, making it a No. 22. Weight, 40 lbs.\$15.00



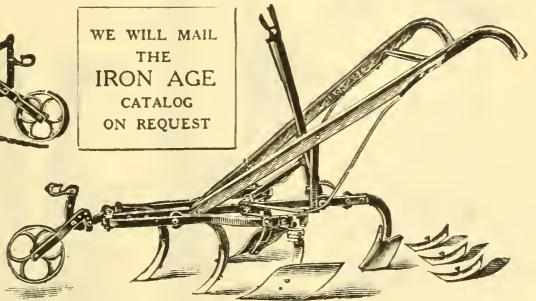
No. 22

No. 1. COMBINED HARROW & CULTIVATOR

A very popular implement. The width is adjustable from 11 inches to 38 inches. Angle and depth are also adjustable. The teeth are steel, diamond shaped, and have small cultivator points forged on one end. Shipping weight 66 lbs. Price, \$5.20



WE WILL MAIL THE IRON AGE CATALOG ON REQUEST



No. 6. HORSE HOE AND CULTIVATOR

This implement is adjustable to many forms and uses, and is almost indispensable to the market gardener and farmer. It is simple, strong, compact, light, and the material is of the best. The width and depth may be regulated instantly, while in motion. Weight 83 lbs. Price, \$8.75

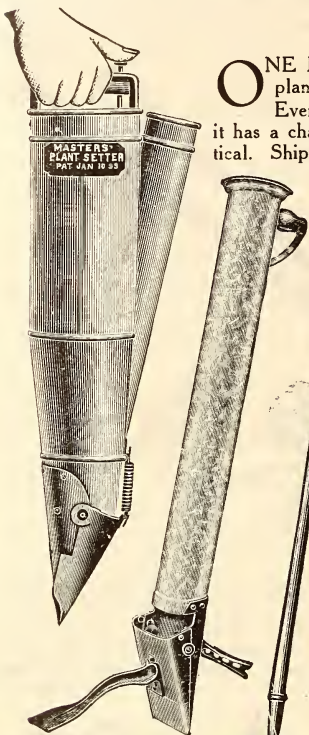
Attachments for IRON AGE Implements

- Fig. 133. DRILL SEEDER. May be used with either the Single Wheel or Double Wheel Hoe frame.....\$5.00
- Fig. 134. HILL AND DRILL SEEDER. May be used with either the Single Wheel or Double Wheel Hoe frame.....\$6.00
- Fig. 184. FERTILIZER DISTRIBUTOR. May be used on the Single Wheel Hoe frame. Cannot be attached with the seeder..\$5.40
- Fig. 170. DOUBLE MOULDBOARD PLOW.....\$1.60
- Fig. 112. CENTER TOOTH ATTACHMENT......65
- Fig. 216. SPECIAL FENDER SIDE HOES..... 1.60

- Fig. 33. ONION SET GATHERER.... .95
- Fig. 236. HILLING ATTACHMENT... 1.40
- Fig. 84. WEEDER ATTACHMENT... .95
- Fig. 81. DOUBLE WEEDER ATTACHMENT..... 1.25
- Fig. 169. DISC AND FENDER ATTACHMENT..... 1.25
- Fig. 82. LANDSIDE PLOW.....\$1.05
- Fig. 369. DISC CULTIVATOR..... 2.35
- C-26. LEFT HAND PLOW......50
- C-30. RIGHT HAND PLOW......50
- C-29. RAKE......50
- 30-A. CULTIVATOR TOOTH......20
- C-19. RIGHT HAND SIDE HOE......50
- C-20. LEFT HAND SIDE HOE......50

MASTER'S PLANT SETTER

ONE MAN with one of these plant setters will set, fertilize, and water more plants than three men can set by hand, and will do it easily, without stooping. Every plant is well set and securely rooted by absorption, nature's way, so that it has a chance to grow. The machine is durably constructed, and is entirely practical. Shipping weight 5 lbs. Price \$4.00.



Eureka Tubular Potato Planter

Eliminates back-ache. Plants any size seed, and any number of pieces, at an adjustable, uniform depth. The operator stands upright, drops seed into top of tube, steps on hopper to force planter into the ground, tips planter forward to trip it, and steps forward to next hill. Weight 4 lbs. Price \$1.25.

Acme Hand Potato Planter

This planter works on the same principle as the Eureka, but has no tube, and the planter must be raised and the seed dropped into the hopper. Weight 3 lbs. Price \$1.00.

Acme Rotary Automatic Corn Planter

The best planter made for corn, beans, peas, or similar seeds. It is operated with one hand; is very light, 5 1/2 lbs., and plants any number of seeds with extreme accuracy. Price \$1.50.

Acme Corn Planter

A two-handled planter; light, durable, well made, and accurate. It plants corn, beans, peas and similar seeds, and does not crack the seed. Shipping weight 5 lbs. Price \$1.00.

Hot-Bed Thermometer

To be inserted in the earth in hot-bed or mushroom bed. Encased in wood, with brass point. Weight 3 oz.

No. 1068.

Price 90c.

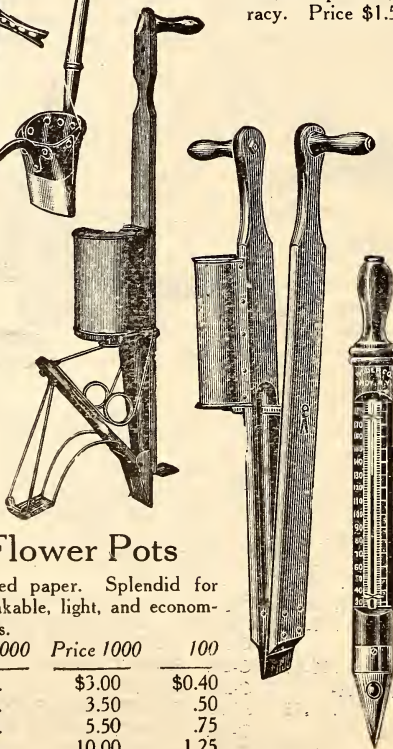
Self-Registering Thermometer

Registers both the coldest and warmest temperature during any given time. May be used as a check on the night-watchman, or to keep tab on the weather during the night. Weight 7 oz.

No. 1067.

Price \$2.00.

LILLY'S POULTRY FOODS
For Every Purpose
Produce Desired Results



LILLY'S
FERTILIZERS
ARE
PROFITABLE
INVESTMENTS

Neponset Flower Pots

Made of heavy waxed paper. Splendid for shipping plants. Unbreakable, light, and economical. Write for samples.

Size.	Weight per 1000	Price 1000	100
2 1/4 inch	15 lbs.	\$3.00	\$0.40
2 1/2 inch	18 lbs.	3.50	.50
3 inch	28 lbs.	5.50	.75
4 inch	58 lbs.	10.00	1.25

If goods are to be shipped by parcel post, remit sufficient to pay postage.

GOPHERS
SQUIRRELS

Erickson's



Exterminator

PRAIRIE-DOGS
COYOTES



**SURE DEATH TO
GOPHERS, SQUIRRELS, PRAIRIE DOGS,
RABBITS, RATS AND MICE.**

A poison that gophers will eat. Kills ten gophers where traps get one. Put up in cans of four sizes. The large can will kill 800 to 1000 gophers. Cannot be mailed. Prices, 25c; 50c; \$1.00, and \$2.50.



Official Rat Trap

Rats nibble upward; hence, other traps often fail to catch. This is released by either upward or downward pressure, and is sure to catch.

Price, 25c each; \$2.00 per dozen; postpaid.

Official Mouse Trap

The same as the Official Rat Trap, except that it is smaller.

Price, 10c each; \$1.00 per dozen; postpaid.

Reddick Mole Trap

The simplest, safest, strongest, and surest. It is set by simply pulling up the plunger rod. Made of heavy cold rolled steel, galvanized. Weight 2½ lbs.

Price, 75c

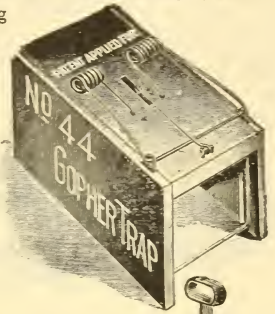
Out o' Sight Mole Trap

Neat and effective. No mole can pass under it and live. Weight 1½ lbs.

Price, 75c.

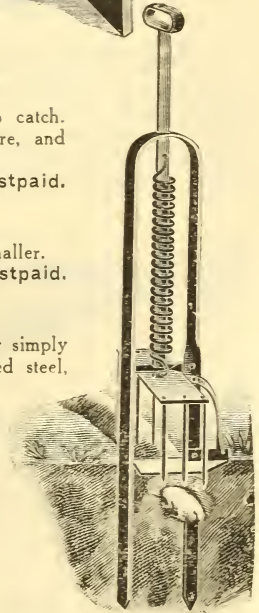
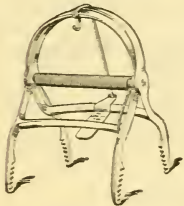
Raffia

Natural color, for nursery work or for making baskets. Price, 25c per lb.; 10 lbs. or more, 18c per lb.; bale (about 225 lbs.), 12c per lb.



No. 44 Gopher Trap

A box and spring arrangement. Catches them every time. Weight 1 lb. 25c each; \$2.50 dozen.



Tree Labels

	Weight	Price	Price
Wood, painted.	per 100	100	1000
3½ inch. Notched	6 oz.	\$.15	\$.80
3½ inch. Copper wired	7 oz.	.25	1.30

Pot Labels

	Weight	Price	Price
Wood, painted.	per 100	100	1000
4 inch	5 oz.	\$.10	\$.85
5 inch	6 oz.	.15	1.00
6 inch	8 oz.	.20	1.25
10 inch	16 oz.	.65	3.25

Grafting Wax

Our own make; very superior. Packed in pound and half-pound packages only.

Price, half-pound, 15c; pound, 25c.

Garden Stakes

	Weight	Price	Price
Wood, painted.	per 100	100	1000
12x1½ inches	2½ lbs.	\$.80	\$7.50

Bamboo Plant Stakes

Six feet long. Cannot be mailed. Weight 12 lbs. per 100.

25c doz.; 75c per 100; \$6.00 per 1000.

LILLY'S NO. 2 PRUNING SHEAR

The best pruning shear made. They are made for real service, and will be appreciated by the nurseryman and orchardist. The material is of the very best; they are strong, durable, and are the easiest cutting pruning shears made. Each shear is carefully tested and is fully guaranteed. If broken within six months with ordinary usage, we will replace them. They are fitted with adjustable nut and brass springs. Length $8\frac{3}{4}$ inches.

Price \$2.50, postpaid.



No. 3 Pruning Shear

This is also an excellent shear, although the material and workmanship are not quite so good as the No. 2. The pattern is the same. They have polished blades, but the handles are black. Length $8\frac{3}{4}$ inches.

Price \$1.50, postpaid.



No. 4 Pruning Shear

This, although a cheaper pruner, is good for ordinary light work. It may also be used for orchard work, but is built on a lighter design than the No. 2 and No. 3. It has polished blades and black filled handles. Length $8\frac{1}{4}$ inches.

Price 80c, postpaid.



Picking Shear

A combined shear and holder. In pruning rose bushes or shrubbery, or picking flowers or fruit, the prunings, flowers or fruit are held firmly by the shears, leaving the other hand free. As a grape picker there is nothing equal to it. Length $6\frac{3}{4}$ inches.

Price 75c, postpaid.

MASTICA

For glazing greenhouses, etc. Better than putty, and much easier to apply. It is applied with a special machine, listed below. One gallon is sufficient for 290 lineal feet. In one-gallon cans only. Weight 15 lbs.

Price \$1.60 per gallon.

Mastica Machine

For applying Mastica. Weight 20 ounces.
Price \$1.40, postpaid.

Peerless Glazing Points

For greenhouse and hot-bed sash. Only two required for each pane of glass, and so constructed that the glass cannot slide. Weight per 1,000, 1 lb.

Price 75c per 1,000, postpaid.

LILLY'S Tree Pruner

The best pruner for heavy work. They are 28 inches long over all, handles 22 inches long. They are forged from a very high grade of tool steel, finely tempered, and the workmanship is of the best. They have lock nuts which cannot work loose.

Price \$2.50, postpaid.



Waters Tree Pruner

A pruning shear mounted on a long pole. Indispensable for pruning tops of trees.

Cannot be shipped by parcel post.

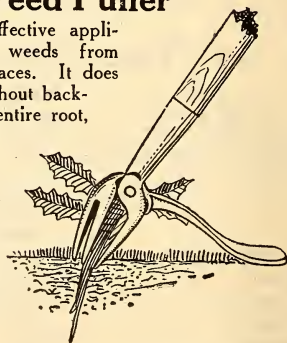
With 8-foot pole. \$1.00
With 10-foot pole... 1.10
With 12-foot pole... 1.25



Simplex Weed Puller

A simple and effective appliance for pulling weeds from lawns and other places. It does the work easily, without back-ache, and gets the entire root, so that they will not grow again.

Price, \$1.00,
postpaid.



SOLUBLE SULPHUR COMPOUND is the latest and best form of the standard sulphur spray. It is fully as effective as Lime and is more convenient, and you do not have to mix with water. See description on page 130.

LILLY'S SPRAY MATERIALS AND APPLIANCES

How and When to Spray for Best Results

IT IS UNNECESSARY for us to dwell upon the necessity of spraying, for all progressive fruit-growers know that fruit cannot be grown profitably without spraying. The main thing is to know how to spray in a manner that will be most effective and with the least labor and expense. It does not pay to spray unless it is done carefully and at the correct time.

For the purpose of control, insects may be, in the main, divided into two classes, namely: those that exist by sucking the sap or juice from under the bark or skin, such as San Jose Scale, Oyster Shell Scale and Aphids. These must be controlled by a contact spray—a spray that acts upon the body of the insect. The other class is the biting or eating insects, such as the Codling Moth, Curculio and Caterpillars. These must be controlled with a poison.

It is not necessary to spray separately for each kind of insect; the group of same class can usually be controlled with one application. Thus, one without any specific knowledge of the various insects can be reasonably sure of being on the safe side by following the general rules as herein laid down and by using sprays of known effectiveness.

The two sprays of general use throughout all fruit growing districts in the United States and Canada are the Sulphur Sprays and Arsenical Sprays, with the Tobacco and Soap sprays in favor for certain things.

Next to insects, if not of equal importance, are the fungus diseases, such as Apple Scab, Anthracnose, Mildew, etc. Most of these can be controlled with the sulphur sprays—some with the Bordeaux Mixture.

Lime and Sulphur Solution was long found to be the best contact insecticide and fungicide. Now Soluble Sulphur Compound has come into general favor, being equally or more effective, more convenient, and cheaper.

Follow carefully each and every year the following schedule, and make such other applications as conditions seem to demand.

FIRST APPLICATION

On Apples, Pears, Plums, Prunes, Cherries, and Most Shrubs, Rose Bushes, Etc.

For Scales, Aphis Eggs, Leaf Blister Mite, Bud Moth and other insects, and for Scab, Mildew and other fungus, use Soluble Sulphur Compound at the rate of 20 pounds to 100 gallons of water at the time the buds are swelling in spring, or just before that time. If Scale is bad use 25 pounds to 100 gallons of water. If this application is made in fall, winter or very early spring, while all life is dormant and scales fortified by winter covering, the stronger solution should be used.

Never omit this application.

On Apples.

For all Scales, Aphis Eggs, Blister Mite, Mildew, and as the first and most important application for Scab, use 20 pounds of Soluble Sulphur Compound to 100 gallons of water when the buds are beginning to open, or up to the time that the leaves are as large as squirrel ears. If the leaves are slightly burned no damage is done as they will quickly recover.

If Bud Moth is present, this application will have to be made before buds open. For Scab control the later application is better.

Never omit this application. It is very important as a general clean-up. Its omission may be disastrous.

On Peaches and Apricots.

For Leaf Curl, Twig Borer or Peach Worm, Peach Blight, and Scales use 20 pounds Soluble Sulphur Compound to 100 gallons of water just before buds swell; not after buds open, except as determined by individual trial.

On Grapes and Berry Bushes.

For Mildew use 20 pounds Soluble Sulphur Compound to 100 gallons of water just before leaf buds open.

SECOND APPLICATION

On Apples and Pears.

For Scab and Mildew use 4 to 6 pounds Soluble Sulphur Compound to 100 gallons of water when the flower buds are "in the pink," or just before blooms open.

This and subsequent applications should be with a fine nozzle with sufficient force to make a good mist. Cover well, but do not drench.

THIRD APPLICATION

On Apples and Pears for Codling Moth and Scab.

This is the first application for Codling Moth, and should be applied as the last bloom petals are falling. Use 2 pounds of Electro Arsenate of Lead Powder to 100 gallons of water, to which may be added, if necessary, 2 pounds of Soluble Sulphur Compound. Always dissolve the Soluble Sulphur before adding to the Arsenate of Lead.

If the first and second applications of Soluble Sulphur have been thoroughly made, subsequent sprays for scab may not be necessary under certain favorable conditions and in some districts, but if conditions warrant it a light application should be made ten days after the first Arsenate of Lead spray, 2 pounds of Soluble Sulphur to 100 gallons of water. In some cases it may be advisable to repeat this later. In some districts and under certain climatic conditions, one or more applications after the fruit is formed is very important.

A second and third application of Arsenate of Lead Powder may be advisable to get the second brood of Codling Moth. The time to spray for control of Codling Moth should be determined by one familiar with the work. It is important to know when, and that can only be determined by one on the ground.

FALL SPRAYING

When Scale is very bad, a thorough drenching in fall, after leaves are off, with Soluble Sulphur Compound at the rate of 25 pounds to 100 gallons of water will be of great value; but do not let this spray take the place of the late spring spray, on account of the importance of the late spring spray for controlling Scab,

For Anthracnose or Black Spot Canker.

Immediately after the first fall rain, before fruit is picked, spray with Electro Bordo-Pulp, 12 pounds to 100 gallons of water, or a 4-4-50 Bordeaux Mixture; and again in thirty days with Electro Bordo-Pulp or a 6-6-50 Bordeaux Mixture.

INSECTS AND FUNGI

How to Know Them and How to Destroy Them

ANTHRACNOSE—BEAN

A fungus growth causing dark spots on pods, stems, leaves and seeds of beans. It is also known as Bean Rust and Bean Pod Spot. To prevent carrying it over in the seed, soak the seed in a solution of Electro Bordo-Pulp. Spray with Electro Bordo-Pulp, 6 pounds to 50 gallons of water, when the plants break through the ground; again when the first two leaves expand; and again when the pods have set.

ANTHRACNOSE—RASPBERRY

This fungus attacks the young canes of raspberries, blackberries and dewberries during June and July. The infected parts are circular and later oval in outline. The center is gray surrounded by a purple line. The areas are sunken. Cut and burn the infected canes. Spray, before leaf buds open in spring, with Soluble Sulphur Compound, 12½ pounds to 50 gallons of water; and in summer spray with Electro Bordo-Lead Mixture, 6 to 8 pounds to 50 gallons of water.

Soluble Sulphur Compound may prove valuable as a summer application. Its transparent character is much in its favor.

APHIS—BLACK

Shining black plant lice infesting the roots, twigs and leaves of peach and cherry trees. They are especially injurious on the roots, causing an enfeebled condition of the trees, and are difficult to destroy. Treatment same as for Woolly Aphis.

APHIS—GREEN

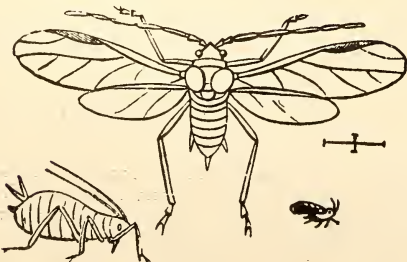
These small green lice infest fruit and ornamental trees and shrubs during the spring and early summer, sucking the sap and curling the leaves. The lice hatch early in spring from eggs which have remained on the trees during the winter. They increase very rapidly and there are several generations each season. They continue to breed until midsummer, when they leave the trees and migrate to grasses and plants. There they continue to breed until fall, when they return to the trees, where they lay small oval eggs on the twigs and buds.

Many of the eggs are destroyed by the regular Soluble Sulphur spring spray recommended on previous page. When insects appear, spray with Black Leaf 40, Lilly's Tobacco Extract, or other tobacco solution. Repeat as often as is necessary.

APHIS—WOOLLY

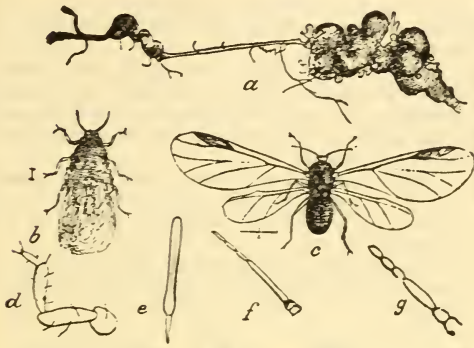
These appear as masses of white woolly substance under which will be found one or more small yellowish plant lice. They attack the limbs, trunks and roots of apple trees, and those on the roots are especially difficult to destroy. Their presence on roots is readily detected by the knotted appearance of the infested rootlets. They are especially liable to infest young trees, causing stunted and galled roots, and nursery stock so injured should never be planted.

Treatment for Woolly Aphis on the roots is difficult, and often ineffective. Remove as much of the soil from around the roots as can be done without injury to the tree, and spray thoroughly with Soluble Sulphur Compound, or Black Leaf 40 or other



GREEN APHIS. A, Wingless female; B, Winged male; both much enlarged. C, Natural size.

There are various forms of Arsenate of Lead; Electro Arsenate of Lead Powder is the best.



WOOLLY APHIS. A. Galls on rootlets; B. Wingless louse; D. Leg; C. Beak; F. Antenna. All enlarged except A.

tobacco solution. Also apply tobacco dust or tobacco stems liberally. Kainit applied around the roots is sometimes effective.

For the Woolly Aphis above ground, spray the same as for Green Aphis.

BALDWIN SPECK, OR FRUIT SPOT

Small deep red specks appearing on the surface of apples about the middle of August, becoming larger and turning brown as the fruit ripens. Under the spots the fruit is dry and brown. There is no known remedy.

BLIGHT—POTATO

Blight is especially prevalent during warm, damp weather. Grayish brown spots appear on the foliage, becoming hard and brittle, and the tubers stop growing. Do not confuse blight with Tip Burn, where the tips of the leaves dry and break off during hot, dry weather. Spray, soon after the plants are up, with Electro Bordo-Pulp, 6 or 7 pounds to 50 gallons of water. The fungicide is a preventive, not a cure, and where blight is prevalent it should be applied before the blight appears, and should be applied at frequent intervals. If Potato Beetles or Flea Beetles are present, combine poison with the fungicide by spraying with Electro Bordo-Lead Mixture, 8 to 10 pounds to 50 gallons of water.

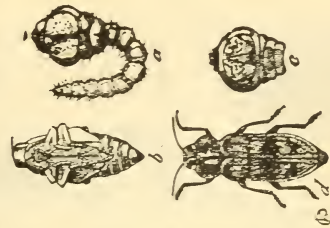
BLIGHT—PEACH

Prune out dead twigs. Spray while dormant, before buds open in spring, with Soluble Sulphur Compound, 20 pounds to 100 gallons of water. Soluble Sulphur has been used with good effect as a summer spray, after fruit is formed, but we would advise summer applications only after testing the extent to which spray can be used with safety in the particular district affected.

BLISTER MITE

A small insect related to the Red Spider. They feed in the leaves of apple and pear trees, causing blisters which are first green, then red, and finally brown, causing the leaves to fall. During the winter the mites lie between the scales of the buds.

The regular spring spraying with Soluble Sulphur Compound will control them.



FLATHEAD BORER. A. Larva; B. Pupa; C, Front of Larva; D. Adult.

BORERS

There are several varieties of these larvae, attacking orchard and other trees, boring their way into the trunks of the trees, usually near the surface of the ground. Dig the worms out with a knife, or follow the holes with a flexible wire. Paint the trunks of the trees with Soluble Sulphur Compound, 10 to 15 pounds to 50 gallons of water, and cover with a thick coat of whitewash.

BROWN ROT, OR FRUIT MOLD

Affects blossoms and fruit of prune, plum, cherry and peach. It causes the blossoms to turn brown and dry. It affects the green fruit at any time, but causes greatest damage at harvest time. On the fruit it first appears as a small brown spot which rapidly enlarges and assumes a moldy appearance.

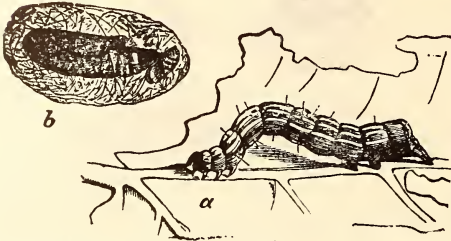
Until the Western Washington Experiment Station makes further tests on control of Brown Rot of Prune, we will advise the use of Soluble Sulphur Compound, 20 pounds to 100 gallons of water, just as leaf buds are coming out (the regular spring spray for scales). Spray again with Soluble Sulphur Compound, 4 pounds to 100 gallons of water, soon after the petals have fallen, to cover newly formed fruit, and repeat in ten days or two weeks, 3 pounds to 100 gallons of water.

BUD WORM, OR TWIG BORER

A small brown caterpillar, less than one-fifth of an inch long, with black head and legs, appears early in spring and begins depredations on apple, pear and peach trees mainly. When full grown it is about one-half inch long. It eats into the center of the buds, and when the leaves become larger it fastens some of them together, forming a tube within which it lives most of the time. After six or eight weeks it spins a cocoon within which it changes to pupa, and about ten days later it emerges as a moth. The moth resembles the Codling Moth, and is dark ashen gray with creamy-white blotches on the front wings, which expand about one-half inch. It deposits its eggs at night, one in a place, on the under side of the leaves. In about ten days the larvae is hatched, and begin feeding on the under side of the leaves near the midrib, where they construct silken nests within which they retreat when not feeding. In August they go from the leaves to the twigs, where they construct cocoons within which they pass the winter.

The regular spring Soluble Sulphur Compound spray will destroy many of the cocoons. Spray with Electro Arsenate of Lead Powder, 1 pound to 50 gallons of water, when buds are beginning to open.

Soluble Sulphur Compound is the latest and best form of sulphur spray.



CABBAGE WORM. A, Larva; B, Pupa or Chrysalis showing through thin silken cocoon.

CABBAGE WORM

A common white butterfly with black spots on the wings, which when extended measure about one and one-half inches, deposits eggs on the leaves of cabbage, cauliflower, kale and brussels sprouts. The worms are green, round, velvety, and when full grown are about one and one-quarter inches long. They are very destructive, and if not attended to promptly will completely destroy the plants.

Spray, as soon as the plants are set out, with Electro Arsenate of Lead Powder, one pound to 50 gallons of water, and repeat as frequently as is necessary.

Careful experiments have proven that there is no danger in eating cabbages which have been sprayed with Arsenate of Lead.

CANKER WORM

These are commonly called "measuring worms" on account of their peculiar method of traveling. They may often be seen suspended from the branches of trees by strands of silk. They eat the leaves of ornamental and fruit trees, especially apple trees, leaving only a network of veins. In a short time the worms crawl down the trees into the ground, where they change into the pupal state, emerging in the fall as moths. The male has large wings, while the female is wingless and of an ashy-gray color. The female crawls up the tree and deposits on the twigs and branches compact masses of a hundred or more small, cylindrical eggs. From these eggs the Canker or Measuring Worms are hatched about the time the leaves open in spring.

The regular spring spray with Soluble Sulphur Compound, 20 pounds to 100 gallons of water, will destroy many of the eggs, and the regular arsenate of Lead spray for Codling Moth will control the worms.

CUTWORMS

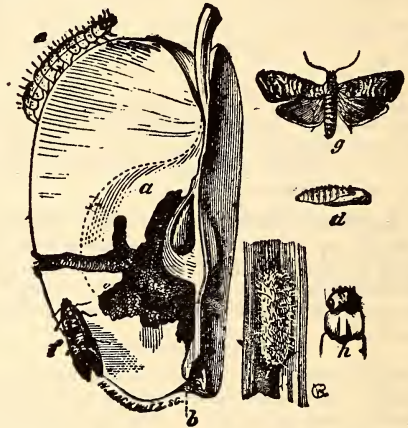
There are several varieties of cutworms, all of which are the larvae of night-flying moths; are rather thick, naked worms, three-quarters to one and one-quarter inches long, and are similar in habits. The eggs are deposited on the branches of trees and shrubs, the larvae descending to the ground in search of food as soon as hatched. Most of them feed upon grass or clover when young, becoming about half grown by winter, when they burrow into the ground. In spring they attack a variety of young plants, cutting off the stems just below the surface of the ground.

They are very destructive, and difficult to exterminate. There are three methods which have proved more or less effective.

Mix one pound Electro Arsenate of Lead Powder with five pounds of bran or middlings, and sweeten with sugar. Sprinkle this poisoned bait on the ground near the plants. Be careful to keep poultry and animals away from it.

Small pieces of boards may be laid on the ground and the worms will come to the surface under the boards, where they may be destroyed early in the morning.

When plants are found cut off, the worms may be dug out with the fingers, to prevent further deprivations.



CODLING MOTH. A, Burrowings of Larvae; B, Larvae; C, Larva with wings expanded; D, Moth with wings closed; E, Moth with wings expanded; F, Head of Larvae; G, Cocoon killed by spraying.

CODLING MOTH

The greatest and most generally injurious insect pest among apples, pears and quinces, causing wormy fruit. There are two broods in a season. The first develops from pupae which have survived the winter in cocoons in protected places. A small, chocolate colored moth appears in spring, flying at night, and deposits its eggs, generally in the blossom end of the young fruit. From these eggs are hatched small worms which eat their way toward the core of the fruit. They increase in size until at the end of three or four weeks they are one-half inch or more in length. They then leave the fruit and find a crevice in the bark, or other protected place, where they spin cocoons in which they change to pupae. In about two weeks they emerge as moths, and these moths lay eggs for the second generation.

The regular fall and spring Soluble Sulphur sprays will destroy many of the pupae in the cocoons. Spray with Electro Arsenate of Lead Powder when the last flower petals are falling, before the fruit turns downward; again about ten days later; and again, for the second brood, about six weeks after the first Arsenate of Lead spray.

FIRE BLIGHT

Affects apple, pear, plum and quince, and is caused by bacteria which is carried by insects, curculio, and the pruning knife. Leaves on affected limbs appear to have been scorched by fire. Prune out every sign of blight, cutting well below the disease. Dip the knife frequently in a solution of corrosive sublimate, 1 part to 1,000 parts water, and wash pruned surfaces with the same solution.

FLEA BEETLE

A small black beetle, about one-sixteenth of an inch long, which punctures the leaves of potato, tomato, tobacco, egg plant and pepper plants, encouraging the spores of blight to enter. Spray, when the insects appear, with Electro Bordo-Lead, 1 pound to 5 gallons of water.

LEAF HOPPER

A small, white, hopping plant louse. They suck the sap from the under side of the leaves of apple trees and grape vines, causing them to turn brown and dry up. Spray with Black Leaf 40 or other tobacco solution when the insects appear.

MILDEW

A very troublesome fungus disease on peach, apple, grape, currant, gooseberry, rose and other trees and plants. It has the appearance of white dust or mold on plants, leaves and flowers. To kill the spores, spray with Soluble Sulphur Compound, 10 pounds to 50 gallons of water, after most of the leaves have fallen in the fall, and again before buds open in spring. On the first appearance of the disease spray with Soluble Sulphur, summer strength, 1 pound to 50 gallons of water; or dust with dry powdered sulphur or Hammond's Grape Dust.

MOSS AND LICHENS

All fruit trees, small fruits, shade and ornamental trees and shrubbery are subject to these fungus diseases, and they are more destructive than most persons realize. The regular fall and spring Soluble Sulphur sprays will destroy the spores. In extreme cases scrape them off and wash affected parts with Soluble Sulphur Compound, 10 pounds to 50 gallons of water.

OYSTER SHELL SCALE

Small yellow lice are hatched in May and crawl about over the bark a few days until they find a suitable place to insert their beaks. There they increase in size and by the end of the season have formed small elongated scales, about one-eighth of an inch long, resembling miniature oyster shells.

This pest does not multiply so fast as the San Jose Scale, and therefore is not so serious, but when unchecked its work is equally as disastrous. It is more difficult to control by dormant sprays, but is quite easily controlled when the young are hatching by spraying with Soluble Sulphur Compound at the times recommended for the control of Scab. Follow directions as for apples and pears in first, second and third sprays for Scales and Scab.



PEACH LEAF CURL

A fungus disease causing the leaves of peach trees to curl, turn various shades of yellow and red, and to finally drop off. Spray, before buds open in spring, with Soluble Sulphur Compound, 10 pounds to 50 gallons of water.

PLANT LICE

Small lice infesting nearly all vegetation. The regular spring spraying with Soluble Sulphur Compound, 10 pounds to 50 gallons of water, will destroy many of the eggs. When the insects appear, spray with Lilly's Tobacco Extract, Black Leaf 40, or other tobacco solution.

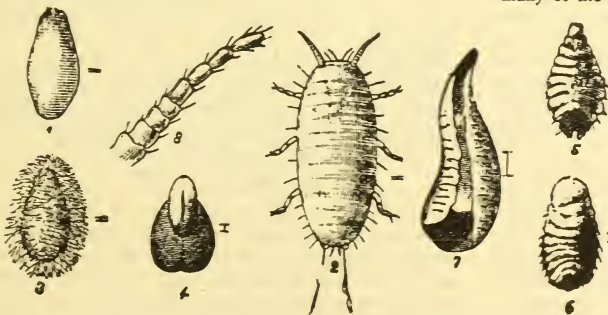
These insects increase very rapidly, and it will probably be necessary to repeat the spray at frequent intervals.

RED SPIDER

Minute reddish mites operating on the under side of leaves of plants, mostly in greenhouses. Spray with Soluble Sulphur Compound, 3 pounds to 100 gallons of water, when the mites appear.

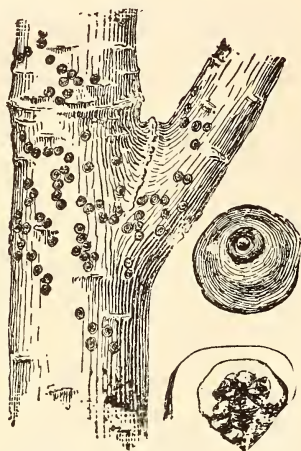
SAN JOSE SCALE

San Jose Scale is a minute yellow insect, related to the Oyster Shell



OYSTER SHELL SCALE. 1. Egg; 2. Larvae just hatched; 3. Larvae when forming scale; 4. Scale after second plate is formed; 5 and 6. Forms of louse taken from scale; 7. Fully formed scale. All greatly enlarged

As much depends upon spraying at the right time as upon using the correct spray.



SAN JOSE SCALE. Showing the mature winter scale; also the insect itself, with its threadlike feeding organs.

Scale, but easily distinguished by the dark colored circular scale under which they lie. The scales are about the size of a pin-head, and at the center of each scale is a small, round, black or yellowish point encircled by a ring. The scales lie so close to the bark, and sometimes so close together, that they are hardly distinguishable without a magnifying glass. The general appearance is of a grayish, slightly roughened, scurvy deposit. When crushed by scraping, a yellowish oily liquid will appear. This is one of the surest identifications of San Jose Scale.

The young insects appear in spring soon after the leaves open. They crawl about for a short time, until they find a suitable place to locate, when the females become stationary, insert their bills and begin to suck the sap or juice of the tree or fruit. The males develop a tiny pair of wings.

The scales remain on the trees during the winter. Their power of reproduction is enormous, and as San Jose Scale is very liable to be overlooked in its early stages, and is difficult to destroy after it becomes established, it should be watched very carefully, and upon first appearance treated strenuously. Not only your own interests but also those of the entire community are at stake.

The regular fall and spring Soluble Sulphur Compound spray, 20 to 25 pounds to 100 gallons of water, is especially designed to control San Jose Scale, and at the same time will destroy a multitude of other insects, eggs and fungi.

SCAB—APPLE

A most damaging fungus disease, prevalent in districts subject to frequent rains during spring and early summer. It winters over on dead leaves and on twigs of the trees. With the coming of warm days in spring, when buds begin to open, the spores shoot out and attach themselves to foliage, and later to

fruit. Unchecked it develops rapidly, forming spots and scabs, and, wherever these attach, the fruit becomes stunted and deformed.

Scab is very difficult to control because of the varying conditions of the seasons, and because, in order to destroy it, there is also danger of injury to foliage and fruit. Scab is one form of plant life growing upon another and higher form of plant life.

The great difficulty has been to determine what spray best to use, when best to spray, and what strength will at once be effective and safe.

Sulphur, for Scab as well as for most all fungi, has been found most effective and safest. Lime-Sulphur solutions have for several years been well established as valuable for scab control. Soluble Sulphur Compound, the perfected sulphur spray, is now conceded to be the best all-round fungicide.

The time of application is all-important. The omission of one application may result in failure. The spray must, for best results, be present before infestation of scab occurs.

The only safe and sure way is to begin spraying with the so-called dormant application, at or just before the time when the buds are opening. At that time use Soluble Sulphur Compound at the rate of 20 pounds to 100 gallons of water. This application at one and the same time accomplishes the purpose of all dormant spraying.

Second: When bloom buds are in pink, just before petals open, spray with Soluble Sulphur Compound at the rate of 6 pounds to 100 gallons of water.

Third: A week or ten days after petals fall, spray again with Soluble Sulphur Compound, 2 pounds to 100 gallons of water.


If desired, an application can be made in combination with Electro Arsenate of Lead Powder when the last petals are falling, in order to control Codling Moth with the same application. We prefer, however, not to so combine the sprays. The poison for Codling Moth at this time should be driven in with a driving pressure, while the application for Scab is better applied in a fine mist, to cover foliage without drenching.

Subsequent applications should be made from two to four weeks apart, to keep expanding fruit and foliage covered. Use 2 pounds Soluble Sulphur Compound to 100 gallons of water for these later applications.

Success in this is won only by care, thoroughness, and by taking no chances by omitting the early applications. When using Soluble Sulphur Compound follow our directions closely, and our directions only. Stir the powder until completely dissolved.

SCAB—POTATO

A scab-like fungus on the skins of potatoes. It is carried over on seed, in the soil and in manure. Do not plant in soil which has previously produced scabby potatoes, and do not apply fresh stable manure a short time before the seed is planted. If seed

SOLUBLE SULPHUR COMPOUND is manufactured on the Pacific Coast by THE CHAS. H. LILLY CO. ONLY, under Niagara Sprayer Co. patents. There is no other sulphur spray even similar. It has been so successful that inferior imitations are being manufactured. The genuine bears our well known trade mark, 

shows the least sign of scab, soak it one hour in a solution of 1 pound (1 pint) of Formalin (Formaldehyde) to 45 gallons of water.



SLUG. A, Larvae; B, Adult; C, Larvae on leaf.

SLUGS

These small, slimy, dark green larvae skeletonize the leaves of pear, cherry, quince and plum trees. They originate from eggs deposited on the leaves early in June by a four-winged black fly. The larvae become full grown in four or five weeks, and are then nearly a half inch long. They then shed their slimy skins, appearing in a clean yellow suit, after which they leave the trees and burrow into the ground, where they change to pupae, and about two weeks later appear as four-winged flies. There are two broods each season; the second appearing in August.

When the insects appear, spray with Electro Arsenate of Lead Powder, 1 pound to 50 gallons of water; or dust with lime or road dust. Repeat as frequently as is necessary.

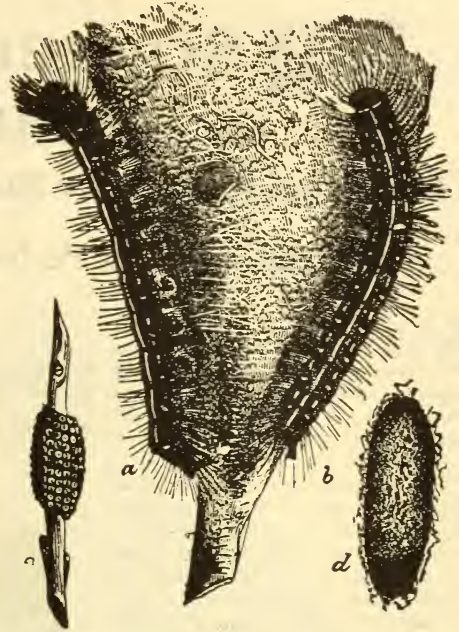
TENT CATERPILLAR

Tent Caterpillars are easily known by the compact web or tent which they form on the limbs of all orchard and some shade trees, especially alder and wild cherry. The eggs are deposited in July upon the twigs, and coated with a varnish which protects them. They remain in this state until spring, when the little caterpillars emerge and begin feeding on the foliage. In a few days they begin forming tents in the forks of the branches. They have regular times for their meals, and retire to their tents when not feeding and during cold and wet weather.

The caterpillars become full grown in about six weeks, and are then nearly two inches long, with a hairy body and having a distinct white stripe along the middle of the back, on each side of which there are numerous short yellow lines. The sides are partly covered with paler lines, spotted and streaked with blue, while the lower surface of the body is black.

Most of the caterpillars leave the trees where their nests are as soon as they become full grown, to find a suitable place to pupate in, usually under a board or in the cracks of a fence. Here they spin an oval, yellow cocoon within which they change to the pupae or chrysalis state. In two or three weeks reddish-brown moths emerge from these cocoons, and there in a short time deposit their eggs, as stated above, after which they soon die. There is but one brood each season.

If it is worth while to spray, it is worth while to do it right. Spraying carelessly, at any but the proper time, or with inferior materials, is a waste of time and money.



TENT CATERPILLAR. A and B, Larvae; C, Eggs, D, Cocoon.

The Tent Caterpillar, although serious if neglected, is easily controlled. The regular Soluble Sulphur spray, 20 pounds to 100 gallons of water, in fall and spring, will destroy many of the eggs, and the regular Arsenate of Lead spray for Codling Moth, when the last petals are falling in spring, will destroy the caterpillars. Burn the tents, with a torch, in the morning before the caterpillars leave the tents.

SMUT—WHEAT AND OAT

"There are few agricultural problems in the State of Washington of greater importance than the smut problem. That the presence of this parasite in the wheat fields of Eastern Washington results in the loss of from five to ten million bushels of wheat annually is a very conservative estimate. A further loss results from a deterioration in quality of the wheat produced."

The above is from Washington Agricultural Experiment Station Popular Bulletin No. 73, in regard to "Stinking Smut in Wheat," which all wheat growers should procure. Bulletins No. 54 and No. 83 also treat on Wheat and Oat Smut.

In brief, the Bluestone treatment is as follows: Soak the seed ten minutes in a solution of 1 pound copper sulphate (bluestone), 1 pound salt and 5 gallons water.

In the formaldehyde treatment the seed is soaked not less than thirty minutes in a solution of not less than 1 pound of formaldehyde to 40 gallons of water.

LILLY'S SOLUBLE SULPHUR COMPOUND

Manufactured Under Niagara Sprayer Co. Patents

The Sulphur Spray Perfected

SOLUBLE SULPHUR COMPOUND is powdered by a fusion process (not by boiling) whereby sulphur is combined with a true solvent (soda ash). A perfectly soluble compound, high in sulphur as polysulphides, is the result.

This compound is analogous in chemical form to the calcium polysulphides of a high grade lime-sulphur solution.

Extensive use of this material during the past three years, in volume equal to 24,000 barrels of lime-sulphur solution the past season, and entering into nearly every fruit district of the United States and Canada, fully demonstrates the value, economy and convenience of Soluble Sulphur Compound.

Soluble Sulphur is the sulphur spray with the water left out.

It is ready for the user to add the water and in an instant have a true sulphur solution. It dissolves readily, it being necessary to stir for a few moments only as the material is put into the water. Once dissolved it remains in solution for an indefinite time.

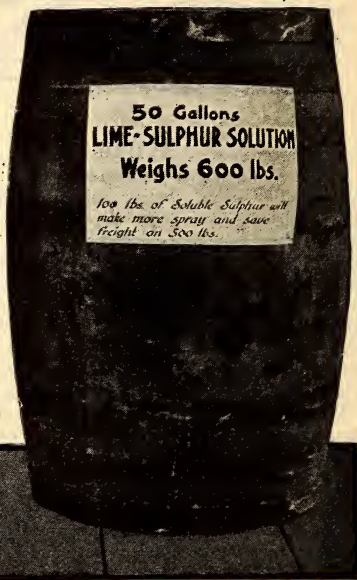
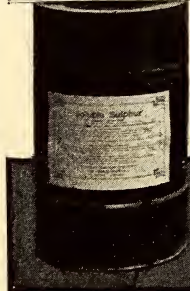
One hundred pounds of Soluble Sulphur Compound makes more spray than a fifty-gallon barrel of thirty-three degree lime-sulphur solution weighing over six hundred pounds, thus effecting a saving on freight charges and hauling of five hundred pounds.

There is no leakage, no freezing, no crystallization, no barrel to return or pay for.

It is not only safe to trees, but is a benefit.

It is the most economical of all sprays used as lime-sulphur as an insecticide and fungicide. It should be used on all kinds of trees and shrubs in spring, before buds open, for Scales, Aphids, Curl Leaf, Mildew, and as a general clean-up; and later for control of Scab and Fungus Diseases.

In order to determine amount required, when one is familiar with lime-sulphur solution, order a one hundred pound drum in place of a barrel of solution. For average use, one hundred pounds of Soluble Sulphur will be sufficient for two acres of orchard.



Soluble Sulphur Compound will keep indefinitely, without loss of strength, if the can is kept tightly covered and in a dry place.

In this book will be found general directions for most all necessary sprays. We will, however, issue a folder giving special directions in more detail. Be sure to write for a copy. Follow our directions only for results.

PRICES

1-pound can	\$0.20
10-pound can	1.25
100-pound drum	7.50

F. O. B. Seattle or Portland.

The 1-lb. and 10-lb. cans may be shipped by parcel post.

WARNING:—The success attained by Soluble Sulphur Compound during three years of severe trial has encouraged the placing on the market of inferior sodium and caustic soda compounds. Beware of these. The only reliable and guaranteed Soluble Sulphur Compound is made and sold on the Pacific Coast under the label

Why pay freight charges on water? You have plenty of water at home.

ELECTRO ARSENATE OF LEAD POWDER

Different from any Other Arsenate of Lead

ELECTRO ARSENATE OF LEAD POWDER is different from any other arsenate of lead. It is not a paste that has been dried and ground, it is a precipitate, and is so fine that it will mix with water readily, will not lump, and when used as a dust spray will stick to the dry leaves as well as ordinary Arsenates of Lead when applied wet.

It is the strongest and most effective, as well as the safest and easiest to use.

By a special process which no other manufacturer can employ, there is combined properly with lead $32\frac{1}{2}$ to $33\frac{1}{2}$ per cent arsenic oxide with less than one-half of one per cent free or water soluble arsenic. Arsenic oxide is the active agent, and free arsenic oxide will injure the foliage if in excess. This gives a killing strength much greater than that of other brands, and consequently, much less Electro Arsenate of Lead Powder is needed to do the work.

This is the original form of dry arsenate of lead suitable for both wet spraying and dusting, and the only form that is not granular or crystalline. There is no other as good.

There are several distinct advantages in Electro Arsenate of Lead in powder form:

You do not pay freight charges on 40 to 60 per cent of water, which all paste forms contain.

It is an impalpable powder, hence there is a greater and more even distribution over the foliage. As it does not lump, there is no clogging of nozzles. Every particle is of value.

It is indestructible; age does not impair its value. Every one familiar with spraying knows the annoy-

ance of using old pastes and that the lumps that remain in the tank and are useless. This annoyance does not exist with Electro Arsenate of Lead Powder. It is always in fine mechanical condition, does not

lump, is free from granulation or grit, and there is no waste.

Electro Arsenate of Lead Powder may be used either as a dust spray or mixed with water as a wet spray.

Electro Arsenate of Lead Powder when dusted on a dry leaf will stick as well as ordinary arsenate of lead used with water.

The fineness of the powder and the increased strength makes action quicker, as the insect has to eat to kill it.

In sticking quality it is unequalled. Even after the leaves have fallen in the fall, if examined with a microscope, they will be found to be covered with a perfect film of the poison. One or two sprays insure insect control continuously throughout the season.

Electro Arsenate of Lead Powder may be combined with the sulphur spray by mixing



with Niagara Soluble Sulphur Compound.	
1/2-lb. Carton	\$.25
1-lb. Carton .....	.40
10-lb. Drum	3.00
25-lb. Drum	6.75
50-lb. Drum	13.00
100-lb. Drum	24.00
F. O. B. Seattle or Portland	

Arsenate of Lead and other poisons cannot be shipped by parcel post.



LILLY'S LIME AND SULPHUR SOLUTION

Best of the Old Style Sulphur Sprays

FOR THOSE who still prefer the old style sulphur spray we can still furnish Lilly's Lime and Sulphur Solution. This has been used by the orchardists of the Northwest for many years, and has long been the standard sulphur spray. We recommend Lilly's Soluble Sulphur Compound as being just as effective, more convenient and less expensive, but some who have used our Lime and Sulphur Solution with entire satisfaction will no doubt be averse to changing.

Prices: Gallon, 50c; five-gallon can, \$1.75; barrel (about 50 gallons), \$9.00.

It is a clear, cherry-red solution, free from sediment, and tests 33 degrees Baume, which is as concentrated as it is possible to make a lime and sulphur solution which will remain in solution.

For winter or early spring spraying, before buds are open, it is used at the rate of one gallon of solution to eleven gallons of water. For summer spraying it is diluted with about twenty-eight parts water.

ELECTRO BORDO-PULP

This is a scientific compound of copper sulphate (blue vitriol) and high grade lime for use as a fungicide only. It is a Bordeaux Mixture in a concentrated form.

Although Soluble Sulphur Compound is superior for most purposes, for controlling fungi on some kinds of vegetation such as potatoes, meltons, cucumbers, beans, grapes, etc., Electro Bordo-Pulp is preferable.

One of the serious drawbacks which has brought Bordeaux Mixture into disfavor, especially among fruit growers, is that it is liable to cause russeting of the fruit. In Electro Bordo-Pulp all excess of caustic lime is removed and this russeting is reduced to a minimum.

Cannot be shipped by parcel post.

PRICES

1-lb. jar\$0.30
10-lb. kit 2.00

Electro Kerosene Emulsion

For spraying plant lice, scale, leaf hoppers, etc. It is readily soluble in water, and is ready for use by simply adding the proper amount of water. Directions for use accompany each package.

Price: 1-gallon can\$1.00

Electro Creosote of Pine Tar

It is essential in tree surgery work where there is disease present, such as canker, that the wound be protected against further infection. This protection, which is a very simple one, will often mean the saving of a tree.

Creosote has been found to be the best antiseptic; and pine tar creosote only should be used, as it has considerable advantages over the coal tar creosote.

Price: 1-gallon can\$1.00

ELECTRO BORDO-LEAD

A combination of Electro Bordo-Pulp and Arsenate of Lead in proper proportions, and is especially adapted for a combined spray on grapes, ground crops, etc. Ten pounds of this mixture in fifty gallons of water is equivalent to five pounds of 20% Arsenate of Lead and in Bordeaux to the 4-4-50 formula.

The statements in regard to Electro Bordo-Pulp are also true of the Bordeaux part of this mixture. It is a very desirable combined insecticide and fungicide ready for use; requiring only the addition of water.

As it is a poison, it cannot be shipped by parcel post.

PRICES

1-lb. jar\$0.35
10-lb. kit 2.50

Electro Insecticide Soap

This is a whale-oil soap especially prepared, and does not contain free alkali. This is a very important item, as the presence of free alkali means severe injury to foliage and fruit. It is valuable as a spray for plant lice and soft-bodied larvae.

It is to be dissolved in hot water and diluted at the rate of 1 lb. of soap to 5 to 7 gallons of water for plant lice. For scale insects dilute with 4 gallons of water.

PRICES

1-lb. package\$0.20
10-lb. kit 1.80
100-lb. keg13.00

SOLUBLE SULPHUR COMPOUND is manufactured on the Pacific Coast BY THE CHAS. H. LILLY CO. ONLY, under Niagara Sprayer Co. patents. There are on the market inferior imitations, packed in similar packages with misleading labels. Be sure to get the genuine, bearing our well known trade mark.

Electro Arsenate of Lead Powder is in every way superior to the old paste form.



LILLY'S LAWN LIME

A chemical compound which, when applied as a lawn dressing, burns up all broad leaved weeds such as dandelion, daisy, plantain, dock, sorrel, chickweed, etc. One application will usually destroy all coarse growing weeds. It is not only harmless to the narrow leaved grasses, but acts as a splendid fertilizer.

Prices: 2 lbs., 25c; 5 lbs., 50c; 25 lbs., \$2.00; 50 lbs., \$3.50; 100 lbs., \$6.00.

BLACK LEAF 40

A highly concentrated tobacco extract, guaranteed to contain 40% nicotine. It is the best spray for Aphis and other soft bodied insects. Tobacco stems, tobacco powder and other home-made tobacco decoctions vary so greatly in strength that they are very liable to be applied so weak as to be useless or so strong as to be harmful. Black Leaf 40 is uniform in strength, and by adding the correct amount of water any desired strength may be obtained. It is the best and most convenient form of tobacco spray.

As it is a poison, it cannot be shipped by parcel post.

PRICES

1/2-lb. can. Makes 47 gallons spray \$.85
 2 1/2-lb. can. Makes 240 gallons spray 3.25
 10 1/2-lb. can. Makes 1000 gallons spray 12.50

Nico-Fume Paper

For fumigating greenhouses and other places where fumes can be confined. Considered indispensable by our most successful greenhouse men.

It may be shipped by parcel post.

Prices: 24 Sheets, \$1.00; 144 Sheets, \$4.50; 288 Sheets, \$8.50.

Nico-Fume Liquid

A highly refined solution of free nicotine, guaranteed to contain 40% nicotine, for spraying or vaporizing. One to two teaspoonfulls makes a gallon of spray. Poison; cannot be shipped by parcel post.

Prices: 1/4 lbs., 60c; 1 lb., \$2.00; 4 lbs., \$7.00; 8 lbs., \$13.50.

Fumigating Tobacco Powder

A finely ground tobacco powder for burning in greenhouses and other places where fumes can be confined.

Price: 100 lbs., \$5.00; less than sack lots, 7 1/2c per pound.

Dusting Tobacco Powder

For applying as a dust spray for Aphis and other soft bodied insects where fumes cannot be confined.

Price: 100 lbs., \$5.00; less than sack lots, 7 1/2c per pound.



TOBACCO EXTRACT

A tobacco and soap compound for the destruction of Aphis and other Plant Lice. Especially useful on rose bushes and house plants. One bottle makes three gallons of spray. Cannot be shipped by parcel post.

Price: 7-ounce bottle25c

Formaldehyde Tree Soap

A soap compound for destroying Green Aphis, Woolly Aphis, Hop Aphis, Oyster Shell Scale, Codling Moth, Canker Worm, Caterpillars, and for preventing all fungus diseases. Especially adapted for rose bushes.

Price: 1-lb. cake15c

Hammond's Slug Shot

A non-poisonous powder for the destruction of currant worms, potato bugs, cabbage worms, chicken lice, slugs, etc.

Prices: 1 lb., 15c; 5 lbs.50c

Hammond's Grape Dust

A dust fungicide. Very efficient in destroying mildew and preventing blight.

Prices: 1 lb., 15c; 5 lbs.50c

Sulpho-Tobacco Soap

Destroys insects on plants, shrubbery, vines, small fruits and trees; also on animals of all kinds; and is valuable as an exterminator of moths, carpet bugs, etc. One cake makes one and one-half gallons of solution.

Price: 3-ounce cake10c

Whale-Oil Soap

Used as a wash during the summer. Destroys aphid and other insects and prevents spread of scales and fungus.

Price: 50-lb. box, \$3.25; less than box lots, 10c per pound.

Paris Green

Kills caterpillars and all insects which chew the leaves. Cannot be shipped by parcel post.

Price: 1-lb. can25c

Quassia Chips

For destruction of plant lice on cabbage, cauliflower, fruit trees, etc.

Prices: 1 lb., 10c; 10 lbs., 7c per lb.

Sulphur

The best grade fine ground sulphur for spraying and fumigating. Write for prices on large quantities.

Prices: 100 lbs., \$2.50; 50 lbs., \$1.50; less quantities, 5c per pound.

Bluestone

Copper Sulphate, for spraying. Prices fluctuate; if wanted in large quantities, write for quotation.

Price: 1 lb., 15c; 10 lbs.10c per lb.

IDEAL SPRAY OUTFIT



THIS OUTFIT is light, compact, easy to operate, and may be handled in small space. The tank holds fifteen gallons, and is mounted in such a way that it will not slop or spill. It has the largest air chamber of any spray pump of similar size, enabling the operator to keep a uniform pressure at the nozzle. A pressure of 150 lbs. is easily maintained. The pump barrel is 1 3/4 inches in diameter, and 7 inches long. The plunger is made of brass, and is self-oiling. The packing is cotton wick, which resists action of chemicals, and may be tightened without removing from the pump. The valves are bronze balls 5/8 of an inch in diameter, which allows free passage of the liquids, and prevents clogging. Both valves are removable.

The outfit includes the following equipment: 10 feet 3/8 inch Pressure Hose; 8 feet Pipe Extension in two pieces; 1 Ideal Nozzle; 1 Brass Shut-off Cock. Shipping weight 60 lbs. Price, \$20.00

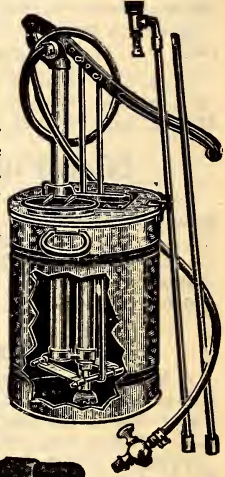
The outfit includes the following equipment: 10 feet 3/8 inch Pressure Hose; 8 feet Pipe Extension in two pieces; 1 Ideal Nozzle; 1 Brass Shut-off Cock. Shipping weight 60 lbs. Price, \$20.00

Auto-Spray Whitewash Sprayer

Especially for whitewashing, but equally valuable for any other kind of spraying, and is the best general purpose small sprayer on the market. The heavy galvanized steel tank holds eight gallons of solution.

The pump is made of heavy brass, and is very powerful.

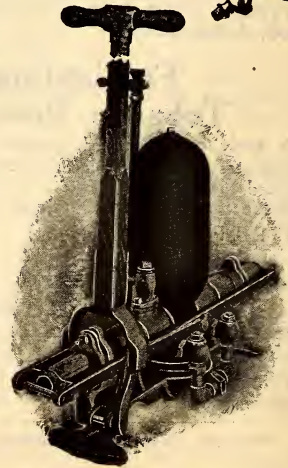
Price, Complete with 8-ft. Spray Hose, Stop Cock and Perpetual Nozzle\$12.50



Perfection Sprayer

A compressed air sprayer without the faults so common in many knapsack sprayers. It is extra strong and well-made. The galvanized steel tank holds three gallons of solution.

It will spray Whitewash, Water Paints, Bordeaux Mixture, etc. Weight, empty, 9 lbs. Price, \$5.00

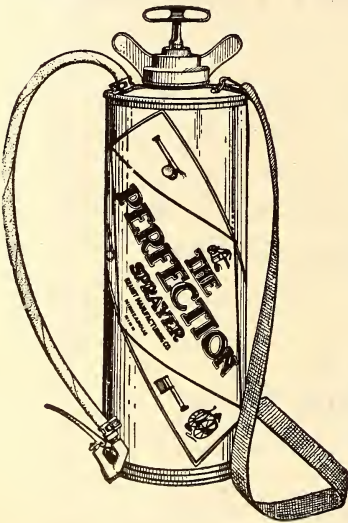


AUTO-SPRAY ORCHARD SPRAYER

We are over-stocked with this large capacity hand-power orchard sprayer, and to reduce our stock are offering them at greatly reduced prices. It is a horizontal pump, with vertical handle and two cylinders, with extra long stroke, and is equaled in capacity by only the large power sprayers. It easily develops 100 to 120 lbs. constant pressure, and will supply two leads of hose with four nozzles each if desired. If interested, write for further particulars.

No. 7 AUTO-SPRAY. Pump only.....\$15.00

No. 7-B AUTO-SPRAY. Pump with Suction Hose, two 25-ft. leads Spray Hose, Pressure Gauge, and two Perpetual Nozzles\$25.00



KING BARREL PUMPS

THESE SPRAY PUMPS have great capacity, and are designed for spraying orchards and large trees. They have extremely large air chambers, insuring uniform pressure; large cylinders, giving great capacity; and removable ball valves.

The plungers are self-oiling, and are so constructed that the packing may be tightened without taking the plunger out of the cylinder.

No. 4 KING PUMP. 1¾-inch Cylinder; 2-inch Air Chamber. Fastens to chimes of barrel. Pump only. \$7.50.

No. 6 KING PUMP. 2½-inch Cylinder; 3-inch Air Chamber. Fastens to head of barrel. Pump only. \$12.50.

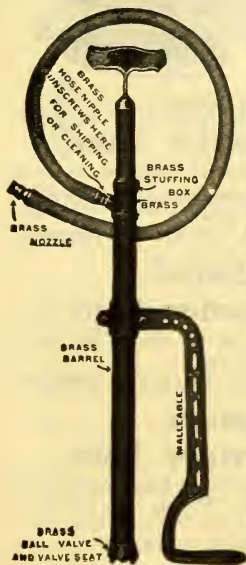


YANKEE BARREL PUMP

A POWERFUL spray pump for spraying orchards, vineyards, small fruits, potatoes, etc., and for whitewashing. The cylinder is made of heavy brass, and all valves and valve seats are made of brass ground together, so that all parts are absolutely air tight, and will not corrode

or rust. Two leads of hose may be used by attaching a "Y." It may be attached to any tight barrel.

No. 25 YANKEE BARREL PUMP, complete with Agitator, 5 ft. ½-inch 3-ply Hose, and Demorel Nozzle, with-out barrel\$8.00



Modoc Spray Pump

Especially adapted for spraying whitewash, but equally useful for washing wagons and windows, and spraying trees, shrubbery, etc. It is made entirely of brass, except the handle and stirrup, which are malleable iron. The air chamber is large, enabling the operator to keep a constant pressure of 50 to 100 lbs. with very little exertion. It will fit any bucket. Weight 5½ pounds.

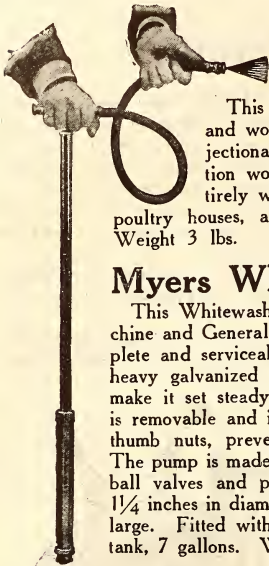
Price, \$3.00



Little Giant Bucket Pump

A splendid bucket pump for any kind of spraying except whitewashing. Made of brass, not affected by spraying chemicals. Produces a continuous spray or throws a solid stream fifty feet. Furnished with two brass nozzles.

Price, \$2.50



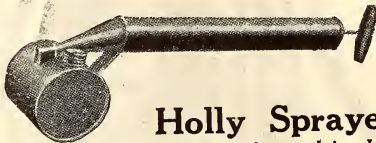
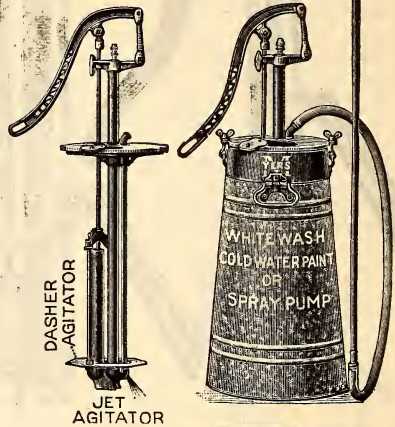
Junior Spray and Force Pump

This bucket pump requires no fastening of any kind; it holds itself down, and works anywhere and everywhere. It does away entirely with the objectionable foot rest, clamps, leather suction packing, etc., the all-brass suction working within a brass cylinder, with all-brass valves, does away entirely with leather, rubber or other packing. It is especially useful around poultry houses, and will spray whitewash as well as insecticides and fungicides. No. 5. Price, \$2.75
Weight 3 lbs.

Myers Whitewash Sprayer

This Whitewash and Cold Water Painting Machine and General Purpose Sprayer is a most complete and serviceable outfit. The tank is made of heavy galvanized iron and has a wide bottom to make it set steady when in operation. The cover is removable and is held securely in place by two thumb nuts, preventing any spilling or splashing. The pump is made of brass, and is fitted with brass ball valves and patent agitator. The cylinder is 1 1/4 inches in diameter, and the air-chamber is extra large. Fitted with Bordeaux Nozzle. Capacity of tank, 7 gallons. Weight, 25 lbs.

No. 329. Price, \$11.00



Holly Sprayer

A single tube tin sprayer for applying Lice Killer and Fly Killer, and for applying any kind of liquid spray to roses, shrubbery, flowers, vegetables or animals. Price, 40c, postpaid.



Lowell Continuous Sprayer

For spraying any kind of liquid. It has an air chamber which causes it to throw a continuous spray, not effected by strokes of the plunger. Capacity one quart. Well made of heavy tin.

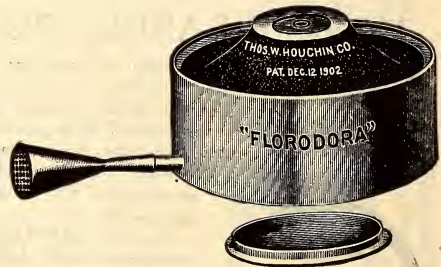
Price, 75c, postpaid.



Lowell Powder Sprayer

For applying any kind of insecticide, fungicide, or disinfectant in powder form. The ball valve in end of cylinder is positive in its action, and it is impossible to draw any powder into the cylinder. The powder can holds one quart.

Price, 75c, postpaid.



Florodora Insect Powder Gun

Especially adapted for dusting plants, shrubbery or animals with any kind of powder. It is extra large, holding one-half pound of powder.

No. 1071. Price, 35c, postpaid.

Whirlwind Insect Powder Gun

For the same purposes as the above, but not so large. Holds 1/4 lb. of powder.

No. 1040. Price, 25c, postpaid.

Defender Insect Powder Gun

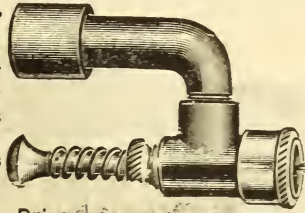
Small. Gold lacquered tin. Large opening for powder.

No. 1041. Price, 10c, postpaid.

Soluble Sulphur Compound is the latest development of the sulphur spray.

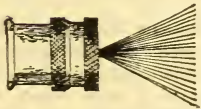
Jasmin Spray Controller

An ingenious contrivance for controlling the flow of liquid through any extension pipe. The operator does not have to take his eyes off his work. A quarter turn of the handle shuts off the flow.



No. 105. Price \$1.50, postpaid

**JASMIN
SPRAY CONTROLLER**
PAT APPLIED FOR



Plain Nozzle

The simplest and most compact. Produces a fine spray.

No. 30650c, postpaid



Stop Cock

Fits one-half-inch hose and any standard nozzle or extension rod.

No. 964.....50c, postpaid



Hose and Nozzle Coupling

For connecting three-quarter-inch hose and any standard nozzle or extension.

No. 966.....40c, postpaid



For connecting one-half-inch hose and nozzle or extension.

No. 749 30c, postpaid



Extension Rods

No. 29. Bamboo Extension. Eight to ten feet long; lined with brass; with stop-cock\$3.00

No. 306. 2-ft. Brass Extension. Any number may be screwed together, making any length desired...40c. Postpaid.

No. 104. 3-ft. Brass Extension.....60c. Postpaid.

No. 34. Lowell 2-ft. Extension. For Lowell Compressed Air Sprayer only.....80c. Postpaid.

No. 33 Lowell Curved Extension. For Lowell Compressed Air Sprayer only\$1.00. Postpaid.

Vermorel Nozzle

No. 26. 1 Point...\$1.00. Postpaid.

No. 27. 2 Point...\$1.25. Postpaid.

No. 28. 4 Point...\$2.00. Postpaid.

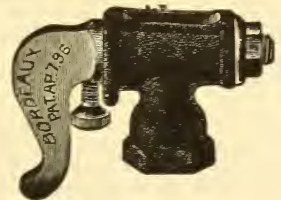


The Winkle Mist Spray Nozzle

Light, strong and has no projecting parts to catch on limbs. Made in two styles, straight like cut, and with curved neck.

No. 107. Straight 75c. Postpaid

No. 108. Angle Neck 75c. Postpaid



Bordeaux Nozzle

The best for spraying Bordeaux Mixture or Whitewash. Makes a flat spray or a solid round stream.

No. 965.....50c. Postpaid.

Spray Hose

1/2 inch, 5-ply.....15c per foot

1/2 inch, 7-ply.....18c per foot

3/4 inch, 5-ply.....18c per foot

3/4 inch, 7-ply.....20c per foot

Above is for fifty-foot lengths. In less than fifty-foot lengths. 25c per pair additional for couplings.



LILLY'S FLY KILLER

A Guaranteed Cure for a Serious Pest

OF COURSE you do not enjoy having your stock pestered and worried by flies, mosquitoes, and fleas, but you do realize that they do more damage, and cost the farmers more money, than all other pests combined?

In addition to causing a great loss in the milk production of your cows, in impaired efficiency of your horses, and in loss of flesh on fattening stock, they are the greatest known spreaders of microbes,

Price: Quart, 35c; Gallon, \$1.00; Five

gallons, \$3.50, f. o. b. Seattle or Portland.

flies abound. Lilly's Fly Killer will eliminate these pests. It is a very easy matter to apply a small quantity of the Fly Killer, with a small hand sprayer, to your cows at milking time, or to your horses at feeding time, and the results are positive. No flies, mosquitoes, or fleas will exist where Lilly's Fly Killer is applied.

LILLY'S

COW CONDITIONER

A Regulator for Cattle

A TONIC and regulator which keeps the cow in perfect physical condition; reducing to a minimum the percentage of undigested food, from which the cow receives no benefit.

By keeping the cow in perfect health, the milk yield is greatly increased, and ailments such as abortion, barrenness, milk fever, retained afterbirth, scours, etc., are prevented.

It is equally good for calves, making them vigorous, strong, and healthy, but it should not be given to any other kind of stock, as it is prepared especially to meet the requirements of cattle only.

If you are not entirely satisfied with the results, we will refund your money.

Price: Small Package (about 2 lbs.), 25c; Large Package (about 4 lbs.), 50c; 25-lb. Pail, \$3.50.

LILLY'S

GERM DESTROYER

AN ANTISEPTIC for Mange, Bed Bugs, Hog Cholera, Sores, Wounds and Castrations; also a disinfectant for closets, sick-rooms, sewers, and urinals. Cannot be sent by Parcel Post.

Price, 25c per Bottle

LILLY'S

STOCK TONE

For Horses, Hogs and Sheep

THE USE of a stock tonic is not to be considered drugging. It is to take the place of the herbs and medicinal properties that would be obtained in the pasture if they were allowed to graze naturally.

Two tablespoonfuls of Lilly's Stock Tone each day will keep a horse in perfect health, acting as a preventive against diseases. When the horse needs toning up, a few doses will give him new life, tone up the system, carry off the waste matter, promote healthy secretion, regulate the kidneys, give him a glossy coat, bright eyes, and put vim into him.

It is especially valuable for hogs and sheep; reducing the time required to fit them for market.

Price: Small Package (about 2 lbs.), 25c; Large Package (about 4 lbs.), 50c; 25-lb. Pail, \$3.50.

LILLY'S

HEAVE REMEDY

WILL CURE any case of Heaves except Bel-lows or Whistling Heaves, which can only be relieved, and will cure Coughs, Colds, Distemper, Epizootic, Lung Fever, etc.

Price, 50c, postpaid

LILLY'S CALF MEAL

A COOKED FOOD FOR CALVES

Equivalent to Whole Milk at a Fraction of the Cost

CALF MEAL makes it profitable for the dairyman to raise calves instead of killing them at birth. It does not pay to raise calves on whole milk, but by feeding Calf Meal they can be raised at a cost less than one-third that of raising them on whole milk, making it highly profitable to raise them to the weaning stage, or for beef or dairy stock.

Lilly's Calf Meal is made from the best materials, correctly blended, thoroughly cooked, and the food value is practically the same as whole milk. It analyzes 25% to 27% protein and 45% to 50% carbohydrates.

Calves eat Lilly's Calf Meal with great relish, and thrive upon it even better than upon whole milk.

Prices: . 25 lbs., \$1.00; 50 lbs., \$1.85; 100

If fed in a sanitary manner they will not be troubled with scours or constipation.

The use of Calf Meal has become very general, and we have handled many carloads of it each season, but heretofore it has been shipped from the east and freight charges have made the cost exorbitant. Upon moving to our new plant, we installed a complete equipment of machinery and cookers, and after extensive experiment and tests we are now manufacturing a Calf Meal fully equal to the best at a very reasonable price. If you wish it, we will be glad to mail you a circular containing description and feeding instructions. Sold by dealers.

lbs., \$3.50; F. O. B. Seattle or Portland.



BLATCHFORD'S CALF MEAL

We have handled this Calf Meal for many years, and it has always given entire satisfaction. One pound makes a gallon of perfect milk substitute, calves thrive upon it, it prevents scouring and insures early maturity. Sold by dealers.

25 lbs., \$1.25; 50 lbs., \$2.25; 100 lbs., \$4.25; F. O. B. Seattle or Portland.

WHITE ROCK HOOF PACKING

A natural rock, just as it comes from the mines. It is strongly antiseptic, will absorb many times its own weight in water, and will hold moisture for months. It is nature's own product for the preservation of the horse's hoofs.

2 lbs., 15c; 25 lbs., \$1.00; 100 lbs., \$4.00.

GROUND FLAX SEED

Pure flax seed, ground, without the oil extracted. One of the best laxatives for all kinds of stock.

100 lbs., \$5.00. Less than sack lots 6c lb.

PIG MEAL

Now that hog raising has become an important industry on the Pacific Coast, there is a demand for a food to carry them over the critical period just before and after weaning. Many promising pigs are ruined at this time by the change from the correctly balanced ration supplied by their mothers to the radically different diet supplied by many growers. Pig Meal is an excellent substitute for sow's milk. It gives them a good start and keeps them growing at a time when a check in their growth would be vital.

25 lbs., \$1.25; 50 lbs., \$2.25; 100 lbs., \$4.25; F. O. B. Seattle or Portland.

LILLY'S WORM POWDER

Colts, lambs and pigs are most susceptible to worms. Lilly's Worm Powder will effectually expell worms from all animals.

Price 50c, postpaid.

LILLY'S GALL REMEDY

This is a guaranteed remedy for galled shoulders and backs on horses.

Price 25c, postpaid.

Prices shown in this Catalog are subject to change. Current Price List will be mailed on application.



LILLY'S BOVENA

A BALANCED DAIRY FOOD

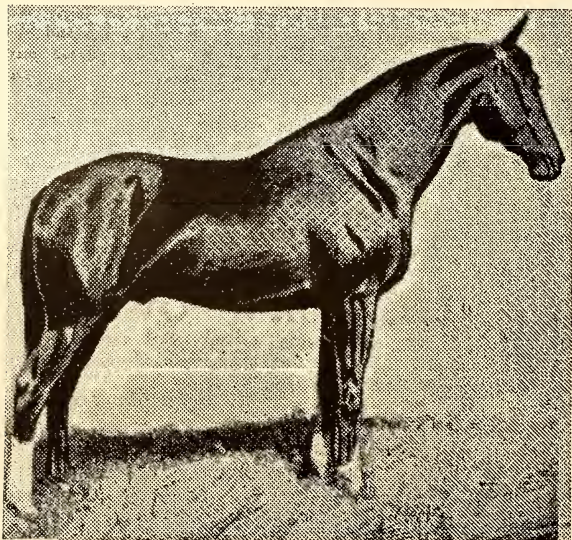
BOVENA is a scientifically balanced dairy ration, carefully prepared from the best ingredients available for heavy milk production. It will produce more milk and more cream; richer cream and better butter; keep your cows in perfect health; costs less than the foods ordinarily fed, and will produce greater profits. It contains a large percentage of sugar, which, in addition to adding to the palatability of the food, is one of the most digestible of all foods.

Bovena, being a ready mixed and properly balanced ration, obviates the necessity of feeding by

guess, as is commonly done, and feeding materials that are unnecessary, or in improper proportions, and from which no beneficial results are obtained. Eight to twelve pounds of Bovena per day, per cow, in addition to the regular hay, silage or pasturage, will produce wonderful results in increased quantity and improved quality of milk. If you wish, we will mail you descriptive circular.

Bovena is also being used as a food for poultry with excellent results.

For prices see enclosed Price List, or later issues, which will be mailed on request.



LILLY'S SKUKUM HORSE FEED

FEEDING dry hay and grain alone to horses is responsible for a great deal of alimentary trouble, for such foods, being difficult to digest, rob the horse of a great deal of its vitality, and consequently lowers its efficiency.

Skukum Horse Feed is a preparation manufactured from the best ingredients for work horses, and includes a large percentage of cane molasses, which is exceedingly high in nutritive values. Horses fed with molasses as a part of their diet have proven by scientific tests to possess far greater working capacity than those fed any other foods.

For prices see enclosed Price List, or later issues.

If you are interested in these foods, please write for further particulars.



LILLY'S POULTRY SUPPLIES

There is a Reason for Their Success

POULTRY RAISING is one of the important industries in the Puget Sound country, is increasing steadily, and is bound to become even more important, for few localities are so well adapted for this business and few other callings are as profitable as is this when handled in a businesslike manner.

Our climate is ideal for poultry, and our markets are the best. Prices obtained for eggs in our markets average higher than in any other markets in the country. Although the state of Washington produced about fifteen million dollars' worth of poultry products last year, the demand greatly exceeds the supply, and immense quantities are imported.

We believe that we have done much to advance

the poultry industry in the Northwest. We early saw the possibilities of it and made it an important department of our business, not an adjunct or side issue. We understood that no one or two foods could produce the various results required by poultrymen, and employed experts who have made a study of food values and who have compounded special foods for special purposes.

We have always been ready to advise and assist our customers in every way possible, and employ a practical poultryman whose business it is to answer inquiries and encourage the business. A letter addressed to our Poultry Department will receive prompt and careful attention.

THE BROODING AND FEEDING OF CHICKS

BEFORE the chicks are expected to hatch, it should be known positively that the brooder is in perfect working order; and it should be heated up the day before the chicks are to be placed in it.

A good litter of about one inch of chaff, alfalfa meal, or chopped straw should be scattered over the floors of both the brooding and exercising compartments, to make a warm place for the chicks to brood and scratch in. Some chick grit should be scattered in the litter where they will find it.

The chicks should be left in the incubator until they are thirty-six to forty-eight hours old, when, if the brooder is heated up and is running properly, they may be moved to the brooder. The

best time to move them is in the forenoon, which will allow the operator to watch them during the day, and be sure that the brooder is running perfectly before he retires for the night.

The temperature under the hover should be kept at about ninety-five degrees at first, gradually decreasing to ninety degrees at the end of the first week, eighty degrees the third week, seventy-five degrees the fourth week, and so on until, before the chicks are ready to be removed from the brooder, no heat is supplied. This refers to the temperature under the hover; in the outer chamber it will of course be lower. The temperature should be kept a little higher at night than during the day.

Many poultry raisers do not use thermometers in their brooders; depending upon the actions of the chicks to indicate whether they are too warm or too cold. The watchful poultryman will soon learn to determine the distress signals of the chicks. The language of the little fellows is equally as indicative of their condition as is that of a child. The happy, peeping sound that they make when all is well is quite different from the sound made when they are too hot, too cold, hungry, or have lost their mother (or foster mother). Observation plays a large part in the successful raising of chicks.

Little chicks are babies in the chicken world, and, although not so helpless as human babies, they should be treated as tender infants. Only those who love and are interested in each individual chick can hope to be successful in raising them.



There are three main causes for failure in raising chicks after they have been properly hatched; viz., over-heating, over-cooling, and improper feeding. Over-heating is probably responsible for the greatest mortality among brooder chicks. Serious loss is often caused by the chicks piling on top of each other in the corners, on account of being cold, or faulty construction of the brooder. Chicks at the bottom of the pile will be either killed or so weakened that they would better be dead.

Feeding is responsible for a great deal of mortality or stunted chicks, but not nearly so much as formerly, as wet mashes, bread crumbs, hard-boiled eggs, or a diet or corn meal only, are

seldom used now. With a properly balanced ration, properly served, loss from this source will be very slight.

Chicks should not be fed or watered for thirty-six to forty-eight hours after being hatched. Nature has provided for them for that time. After placing them in the brooder a mixed grain chick feed should be served, in a chick server or a shallow dish, in the brood chamber. After a day or two this food should be scattered in the litter in the exercising compartment, where they will scratch for it, giving them necessary exercise. At first, this food should be fed five or six times per day, gradually reducing the number of feeds and increasing the quantity as they grow older.

At the same time, a chick server filled with a dry chick mash should be kept before them all the time. Great care should be taken that this mash is properly balanced and contains the correct ingredients. A large proportion of bran should be avoided, as it is too irritating. This mash may be moistened if desired, but should never be made wet; just moist enough to be crumbly when pressed in the hand.

In addition to these, plenty of clean, fresh water; fine chick grit; and green food such as lettuce, cabbage, etc., should be placed where the chicks can have access to them at all times.

This manner of feeding should be continued until the chicks are about six weeks old, when they should be fed as suggested under the head of "Developing Growing Chicks."

CHICK FEED

The Secret of Raising Good Chicks Is Proper Feeding

ALTHOUGH in recent years our knowledge of raising chicks has greatly increased, the greatest losses in the poultry business still takes place during the chick stage. There always will be, we suppose, a certain amount of loss in all infant life, but the high death rate commonly found in the raising of chicks is wasteful and unnecessary.

A great deal of the loss is attributed to improper brooding, but the greater portion is unquestionably the fault of improper feeding.

The digestive organs of a little chick are tender and sensitive, and are easily irritated. All that goes into them must be easily digested and not of an irritating nature.

By feeding Holly Chick Feed and Lilly's High Protein Chick Mash the feeding of chicks is made very simple, the only other things needed being chick grit, green food, and water. Every food element needed by chicks is contained in these companion foods.

LILLY'S HOLLY CHICK FEED

The Original Dry Chick Feed

HOLLY CHICK FEED is the original dry chick feed; we have been making it for more than a decade, and it is the standard which other makers of chick feed copy but have never been able to equal. This is due to our unequalled facilities, the immense quantity manufactured, and the fact that it is always the same.

It is a perfect ration for young chicks; always uniform; made from sweet, fresh grains, seeds and animal matter; and contains all the elements to build bone, muscle, blood and feathers. It contains no grit, therefore grit, also green food and water, must be supplied separately.

Under adverse conditions the raising of chicks is a nightmare, but when it is done with correct foods it is a pleasure.

Prices: 5 lbs., 25c; 10 lbs., 40c; 25 lbs., 90c; 50 lbs., \$1.60; 100 lbs., \$3.00. Subject to change. Write for Price List before ordering.



LILLY'S HIGH PROTEIN CHICK MASH

Companion to Holly Chick Feed

MANY POULTRYMEN are feeding their chicks a ground mash feed in conjunction with Holly Chick Feed. We highly recommend this, but the mash usually consists of bran, or a mixture of bran and shorts, which alone is not a proper feed for young chicks. They do not contain the correct food values, and large quantities of bran is very irritating and liable to cause diarrhoea and bowel trouble.

Lilly's High Protein Chick Mash is carefully prepared and correctly prepared from ground grains and animal matter, and the protein and carbohydrate content is based upon the needs of young chicks, which all authorities agree is 1 to 6.

This food is designed to be fed dry, in hoppers, but if preferred, it may be moistened slightly, just enough to make it crumbly, but never enough to make it sticky.

Prices fluctuate with prices of ingredients; average prices are as follows: 10lbs.; 35c; 25 lbs., 75c; 100 lbs., \$2.50.





DEVELOPING THE CHICKS

GREAT DAMAGE is often done to chicks at the time they are moved from the brooder to the growing house. Although artificial heat may have been entirely removed from the brooder, it will be understood that, on account of the small space, the heat from the bodies of the chicks will make it much warmer than the larger house to which they are to be removed.

The time that the chicks are to be removed from the brooder will vary according to the season. During the early spring it is often necessary to supply a little heat until the youngsters are eight or nine weeks old; while later in the season five weeks may be ample for them to remain in the brooder.

It is best to move the chicks to their new quarters at night. It is not to be expected that they will learn to go onto the roosts immediately, and they should be watched carefully for a time, for it will require considerable patience and ingenuity to keep them from piling up in a corner and crushing the life out of the weaker ones. It will be well to remember that the chicks have a reason for crowding on top of each other; they are cold, and wish to get warm; it is not pure cussedness, as is supposed by some. Just imagine yourself, after being accustomed to a warm bed, being turned out into a big barn without protection or warmth.

The growing house should be built so that the youngsters can gradually adapt themselves to the roosts, which they will do in a surprisingly short time if conditions are congenial. A good method is to place the roosts near the floor, filling in under the roosts with a coarse litter, which is gradually removed, and the roosts gradually raised as the birds become accustomed to them.

Growing stock should be fed a slightly higher protein diet than is required by younger chicks, for the bone, muscle, feathers and blood all draw from this source. Growing mash should be their constant diet, kept before them where they can help themselves at all times. This is best fed in a hopper, dry, but it may be varied by moistening it just enough to make it crumbly, if desired. In addition to the mash, the regular grawing food

(grain) should be scattered in the litter three times each day, in such a manner that they will have to scratch for it. Abundant exercise is of the greatest importance.

Bone, grit, and charcoal should be supplied, preferably in a hopper, or other receptacle that will keep them clean and prevent waste, and where the chicks can help themselves at any time. They should also be supplied with an abundance of green food and clean water.

If convenient to do so, the sexes may be separated as soon as they are sufficiently developed to distinguish. We do not, however, advocate the separation of the cockerels and pullets unless both can have plenty of range. It is not fair to the future breeders to shut them up in close quarters while the pullets have all the range. One of the greatest causes of sterility in breeders is the close penning of young males.

Young growing stock must have plenty of air-space in which to roost. Watch for lice, and see that they are never admitted. Clean the house regularly and frequently; use plenty of whitewash and lice killer; lice are the poultryman's most deadly enemy.

Do not crowd young stock. Give them plenty of range outdoors and plenty of room in the house, with all the sunlight and fresh air that can be had. Fresh air never killed anything if applied correctly, draughts are a different matter, and the greatest care must be taken that none exist.

Feed liberally. Chicks cannot develop properly if fed only enough to exist upon. There is no danger of over-feeding if they have plenty of range and green food; if closely confined more care must be exercised, and troubles are multiplied, but they should not be closely confined.

Keep the birds growing steadily. Any set-back will do damage from which they will never entirely recover.

Cull out all weak, deformed, and undesirable chicks; cull closely, cull now, and keep on culling. In other words, keep only the best. Poor stock is not worth raising.

GROWING FOOD

How to Produce Big, Husky Chickens Quickly

A CRITICAL TIME in the life of a chick begins when they are five or six weeks old, and care must be taken that there is no check in their growth at this time. They have outgrown Chick Feed, and it is no longer a profitable feed, but they are not old enough for an adult ration. It is for this stage that we have Lilly's Growing Food and Lilly's High Protein Growing Mash, which are to be fed in conjunction, and will produce broilers or laying pullets in the least possible time and at minimum expense. Practical poultrymen know the importance of this, and

that their profits depend upon it.

The Growing Mash may be fed either dry, in a hopper, or slightly moistened, just enough to make it crumbly, never wet enough to make it sticky.

This combination contains all the animal matter and other elements necessary or beneficial for growth of chickens, with the exception of grit, green food and water, and should be continued until the broilers are marketed and the pullets ready to be transferred to laying quarters.



LILLY'S GROWING FOOD

Makes Them Hustle

LILLY'S GROWING FOOD is a mixed scratching ration, composed of the proper materials in the correct proportions to be converted into bone and flesh in the shortest possible time, and consequently with the least expense.

When scattered in the litter the growing chicks will scratch for it eagerly, and that exercise and plenty of green food precludes the possibility of overfeeding, as all that they can be induced to eat will be completely digested. The more they eat, the quicker and greater the profits.

Lilly's Growing Food is a complete ration, with the exception of green food and grit, and will produce good results when fed alone, but better results will be obtained, and more economically, by feeding it in conjunction with Lilly's High Protein Growing Mash.

Prices: 10 lbs., 35c; 25 lbs., 75c; 100 lbs., \$2.50. Subject to change. Write for Price List before ordering.

LILLY'S HIGH PROTEIN GROWING MASH

The Elements of Rapid Growth

MODERN METHODS of poultry keeping demand dry mashes. They are not only great labor savers, and the most economical method of feeding, but with them it is easier to obtain a correctly balanced ration, and they supply a needed variety of foods. We would not recommend feeding a meal food only, but it is highly advantageous when fed in conjunction with a scratching food.

Lilly's High Protein Growing Mash is carefully prepared after extensive tests and experiments, and when fed as a companion feed to Lilly's Growing Food, with the addition of grit, green food and water, supplies everything that is needed by growing chickens, and in the correct ratio of protein and carbohydrates (about 1 to 4.5) to produce a sturdy and rapid growth without forcing.

Prices: 10 lbs., 35c; 25 lbs., 70c; 100 lbs., \$2.35. Subject to change. Write for current Price List before ordering.





FEEDING FOR PROFITS

THE IMPORTANCE of correct feeding impresses itself upon us more and more as we come in contact with the varying successes and failures among poultry keepers. All will admit the importance of selection for the building up of a high standard of perfection of all stock, but the whole system of selection avails nothing unless the feeding and care be on a par with the selection.

When we study the effects of breeding of domestic animals during the last century, we find that the most noticeable feature in their development has been their increased capacity for assimilation of food. This has made the wonderful present-day hog, the modern horse, cows with astonishing milk yields, and the two-hundred-egg hen. The best of this high bred stock will quickly deteriorate to the meekest scrubs if improperly fed and cared for.

The changes that have taken place in the various breeds of domestic poultry are truly wonderful, and this high state of perfection is depending upon three factors—selection, care, and feeding. The breeders profits are great or small in proportion to his understanding and practice in the science of feeding.

It is of the utmost importance that the foods be suitable for the purposes for which they are needed. If egg production is the object in view, it is necessary to feed those foods that are high in protein to give maximum results. If for growing of young birds, it will require a food well balanced in all departments to provide for the growth and development of the growing stock. If fattening be the object, those foods containing a high proportion of fat producing elements will be the most economical and give the best results.

It is necessary to make a study of the analysis of food products to be able to determine what foods are most suitable for various purposes, and will produce best results most economically. Until this knowledge is attained, undoubtedly the best method is to purchase foods ready mixed for specific purposes from a reliable manufacturer who makes a specialty of such foods.

There, perhaps, was a time when there was more or less risk in buying mixed foodstuffs, but in these days of scientific feeding, the manufacturers realize the necessity of making foods that produce satisfactory results, for a business is short lived that sells an article that fails to do what is claimed for it.

Chick Foods, Growing Foods, Scratch Foods, Egg Foods, and Fattening Foods made by a manufacturer who has made a study of foods, has made a reputation on them, and has that reputation to maintain, will produce satisfactory results, and at a cost that cannot be lowered by buying the separate ingredients and mixing them at home.

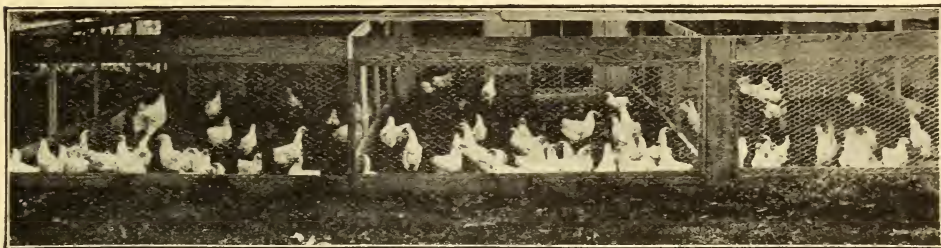
Do not buy foods containing grit and shell. Those articles should be purchased separately, for you cannot afford to pay grain and meat prices for them. Always consider the weight of sacks of food purchased. While it is improbable that any manufacturer would dare to give less than the weight branded on the sacks, some pack foods in sacks containing 75 lbs. or 90 lbs., and although the sacks are branded accordingly, many fail to comprehend that 100 lbs. of food is cheaper at \$2.25 than 75 lbs. at \$1.70, or 90 lbs. at \$2.05.

Always provide an abundance of green food; it is not only highly essential, but is also the cheapest kind of food. Kale, cabbage, lettuce, etc., are excellent green foods.

Never feed scratch food on the bare floor or ground, especially if wet or dirty. It should always be fed in a litter, where the birds will have to scratch industriously for it. They need the exercise.

Mash foods, either wet or dry, should always be fed in hoppers, so that they cannot become dirty or be wasted. The same applies to grit, shell, bone, charcoal, meat scrap, etc.

Feed liberally; all that the birds will eat up clean. They cannot produce good results on only enough food to keep them alive.



LILLY'S SCRATCH FOOD

The Standard Balanced Grain Ration For Poultry

EXERCISE is essential to keep the hens in good, healthy, laying condition. A busy hen is a happy hen; and no music is sweeter to the ear of a poultryman than the song of a perfectly contented hen, for it indicates profits.

In the old days, when the birds had free range of the barnyard and many surrounding acres, it was unnecessary to encourage them to exercise; but modern methods, with limited range, makes it necessary that exercise be induced. Many methods have been devised, but the only practical way to make a hen active is to make her scratch for her food. Scratch Food, as its name implies, is made to supply this demand. When it is scattered in a litter of straw or chaff the hens will scratch for it industriously until the last grain is found.

There are various scratch foods on the market; many of them made of inferior grains, screenings, and mill waste, without regard to food value or forming a balanced ration. Lilly's Scratch Food is the original scratch food. It has been on the market eleven years, during which time it has produced results, and has gained a reputation which we jealously protect.

Lilly's Scratch Food is made of good, sound grains; not such grains as we happen to have in stock and cannot use for other purposes, but of grains best suited to the purposes for which they are intended, and which will produce best results. Many of these grains are imported from foreign countries, and it is only by purchasing in immense quantities, thus securing lowest prices and freight rates, the use of only the most modern and complete machinery and facilities, and figuring the manufacturing cost down to the minimum, that we are able to compete with the cheaper, so called, foods.

Lilly's Scratch Food is not only composed of good grains, but it also contains a great variety of them, chosen for their food values and effects, and mixed in such proportions as to form a *balanced ration*. Study the term "Balanced Ration"; it means something.

Best results will be obtained by feeding Lilly's Scratch Food in conjunction with Lilly's High Protein Egg Mash or Common Sense Egg Food, as suggested on the previous page. These, with the addition of green food, grit and shell, form a complete ration, and will produce the best possible results.

Lilly's Scratch Food contains no grit, shell, or other cheap or heavy materials that can be purchased and fed separately more economically. Neither does it contain any waste material; it is all food, and good food.

Poultry foods should be bought by weight, not by the sack. Some manufacturers pack their foods in sacks containing only 75 lbs. or 90 lbs., and some poultrymen consider them cheaper than Lilly's Poultry Foods, which are packed in sacks containing 100 lbs., without stopping to figure the price per pound.

Even at this date, regardless of all that has been said by those who have made a study of feeds and feeding, many still feed a continuous diet of wheat or corn. No wonder their poultry does not produce profits. Even Lilly's Scratch Food, although composed of a great variety of grains and seeds, is not a complete ration, and we wish to impress upon our customers the necessity of feeding in conjunction with it the other foods mentioned above, to make a complete and ideal diet for poultry; a diet that, if other conditions are right, will produce the maximum egg yield, and profits.



Average prices: 10 lbs., 35c; 25 lbs., 65c; 100 lbs., \$2.25; ton, \$43.00, f. o. b. Seattle or Portland. Prices are subject to change. Current Price List will be mailed on request.

EGG PRODUCTION

THE MAIN ISSUE

THE utility poultryman's success depends to a very great extent upon his ability to produce eggs during the season when the price is high; for it is upon eggs that he must depend mainly for his profits. This condition applies more or less in all localities, but decidedly so on the Pacific Coast.

In the western portions of Oregon, Washington, and British Columbia, the greatest handicap to the poultry business is the excess of dampness during the winter and early spring months. This condition, however, is not nearly so serious as is often supposed, and becomes less a factor as we more fully understand the question of correct housing and feeding to overcome it.

One of the essentials for good egg production during these months is a good, dry, scratching-house, located in a position free from rigorous exposure and well drained, so that the floor will not be damp and cold. A healthy flock of hens housed under these conditions, can, when fed correctly, be depended upon to produce a good supply of eggs.

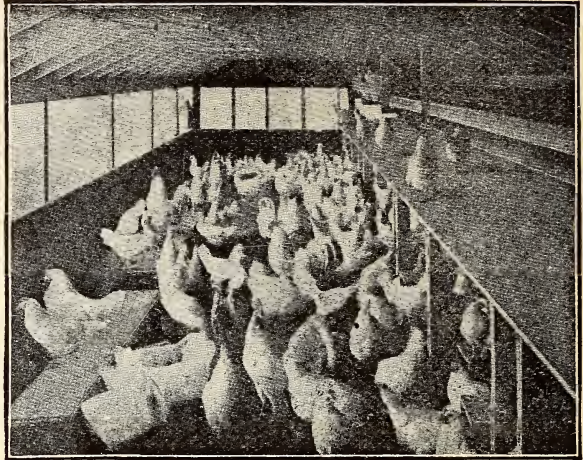
The value of a deep scratching litter, especially during the months when the hens are more or less closely confined, cannot be over-emphasized; and the scratching-house should be so arranged as to get the benefit of all the sunlight that is to be had during the winter months.

A popular and successful method of feeding, one that has been fully tested by time and practice, is the feeding of a dry mash in some form of hopper or receptacle to which the hens have free access at all times. This mash should consist of various ground foods and a liberal amount of animal protein to form a balanced ration.

In addition to the mash food, a regular diet of mixed grains should be scattered in the scratching litter, where the hens will have to scratch industriously to find it. This food should never be scattered on the bare floor or ground, especially if wet or dirty, and even if fed in hoppers its usefulness would be lessened, for the hens need the exercise. Exercise and employment makes healthy, contented flocks; and such flocks produce eggs.

The hens should have free access to hoppers containing granulated charcoal, granite grit, and granulated oyster or clam shell. They must also be supplied with plenty of green food, and, above all, an abundance of clean, fresh water. These are not only cheap food, but are highly important and absolutely necessary for health and egg production.

The foregoing is not the only way to feed poultry, but it is, taking everything into consideration the



most satisfactory. Some feed a moistened mash in preference to the dry mash; enabling them to mix with it kitchen scraps and any other materials that may be available. There is room for considerable latitude in the feeding of poultry. The main objects should be to supply such foods as will produce desired results, and keep the birds occupied the greater part of the day, keeping them healthy, contented, and not giving them leisure to contract vices.

Do not over-feed, but feed plenty to sustain life and produce eggs. Hens cannot produce eggs unless supplied with the necessary materials.

Make it a point to be quiet and gentle among the layers; encourage them to be friendly. Do not allow strange dogs, or even strange people, to have access to the yards and houses.

The poultryman who depends entirely upon poultry literature for his knowledge of feeding, housing and other matters pertaining to poultry, is very likely to become confused. There is a great diversity of ideas among authors of poultry literature, and too many of them are not practical poultrymen. Great confusion is liable to occur on account of difference in conditions and localities. Methods and practices which are entirely practical in the eastern states may not be practical on the Pacific Coast. Climatic conditions are quite different, making a different system of housing necessary. Many of the foods recommended by eastern writers are out of the question here; on account of not being produced in the west, the price makes them unpractical. Usually the foods most available in our immediate vicinity are the most practical.

Most poultrymen could grow a large part of the food necessary for their flocks. The really successful farmer never buys anything that can be produced at home reasonably. It may not be practical to grow corn, or even wheat, here on the coast, but oats, peas, etc., as well as green food such as kale may be grown as in no other locality. Feeding, and other practices, should be made to conform to local conditions.

EGG FOOD

Profitable Egg Production Depends Upon Correct Feeding

ONE OF THE GREATEST fallacies in regard to egg production is the idea that certain strains of hens can produce great yields of eggs regardless of all other conditions. It is of course true that certain strains of the various breeds are better layers than others; this being brought about by careful selection; but plain facts are that there is no hen living, or ever will live, that can produce eggs from an insufficient diet.

We make two brands of egg food. One being the

old original Common Sense Egg Food, which has been the staple mash food among many of the most successful poultrymen for many years, and is in every way excellent for general feeding, for breeding pens, and for normal egg yield.

The other egg food which we manufacture is Lilly's High Protein Egg Mash, which is intended for those who make a speciality of market eggs, and wish to get the maximum number of eggs that their hens are capable of producing.

LILLY'S COMMON SENSE EGG FOOD

A Mash Food for Breeders and Layers

LILLY'S COMMON SENSE EGG FOOD is not a forcing food, and does not contain any tonics or condiments. It is simply a dry mash food composed of ground grains and animal matter in the correct proportions to form a real food, and to supply the material to make muscle, feathers and eggs.

It is usually fed dry, in hoppers, for the reason that most extensive poultrymen have adopted that system of feeding on account of the great saving in time and labor, and in large flocks it produces best results. If preferred, it may be moistened just enough to make it crumbly, but should never be wet enough to make it sticky.

This food is especially good for breeding stock, and will produce a normal yield of eggs from which strong, vigorous chicks may be hatched.

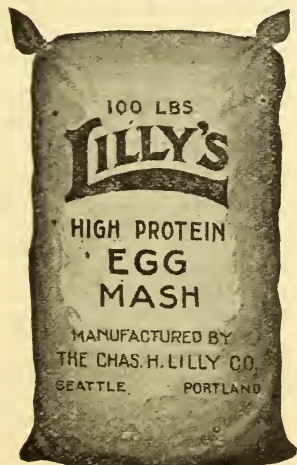
Prices: 25 lbs., 60c; 100 lbs., \$2.10. Subject to change.

Write for current Price List before ordering.



LILLY'S HIGH PROTEIN EGG MASH

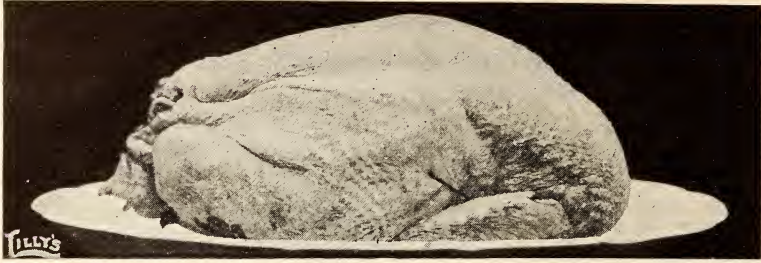
For Forcing Egg Production



CHANGING CONDITIONS have brought about a demand for a more highly concentrated mash diet for maturing pullets and laying hens. Many poultrymen make a speciality of market eggs, and their profits depend upon producing the greatest possible quantity at a time when prices are highest. To do this it is necessary to feed large quantities of food with the maximum protein content.

Lilly's High Protein Egg Mash supplies this demand perfectly, and is the limit in high protein content, the ratio being 1 to 3.4. It contains no condiments or other harmful ingredients, but is extremely high in animal foods, and is intended strictly as an egg producer. It should be fed in conjunction with Lilly's Scratch Food, and the combination together with grit, shell, green food and water forms a complete ration. No additional beef scraps or other meat food should be fed, as this mash contains as much as the welfare of the hens will allow.

Prices: 10 lbs., 35c; 25 lbs., 70c; 100 lbs., \$2.30. Subject to change. Write for current Price List before ordering.



PREPARING POULTRY FOR MARKET

QUALITY is the keynote of success in producing poultry for market. The amount of poorly fattened and badly dressed poultry displayed in our markets is to be deplored, especially as we in the west are the greatest offenders.

There is a general opinion among poultrymen that it does not pay to produce fine table poultry in this part of the country; but that is only partly true. We would not advise entering upon a strictly market poultry business, for there really would be very little profit in that alone, but every utility poultryman has young cockerels and old hens to dispose of, and instead of considering these simply a by-product, they should be made to produce good profits.

The greater portion of the poultry in the Northwest is shipped to market alive, but in many cases the poultrymen have retail customers to whom they furnish dressed poultry direct, and it is in such cases that there is an opportunity to work up a good business, and procure lucrative prices, by supplying properly fattened and attractively dressed poultry.

The Parcel Post creates an opening for progressive poultrymen to do considerable business in dressed poultry direct with the consumer. Many persons in the cities are anxious to purchase fresh, attractive, dressed poultry direct from the producers, and a little judicious advertising will place the poultrymen in touch with them. Good products and fair treatment will quickly procure a list of regular customers who are willing to pay much better prices than are paid by the commission men.

At least two weeks before the birds are to be marketed, they should be confined in crates or pens, where exercise will be very limited. The food which they have been accustomed to may be continued a day or two, and then gradually changed to a fattening food, and the quantity increased until the birds are getting all that they will consume. Food changed to meat in this manner brings a big profit, and the more they can be induced to eat the greater the profit. They should be watched closely, and any that do not appear to be doing well should be released and again placed in the fattening pen at a later date.

It costs as much to raise poor birds as good ones, and often more. Food that is ideal for growth of bone and muscle is not at all satisfactory as a fattening and finishing diet. The fattening food should consist of a variety of grains of a carbonaceous

nature, mixed, and ground to a fine meal. This meal should be made into a soft mash; mixed with buttermilk if available, otherwise water will do. The fattening food should be fed three times each day, and the birds should also be supplied with green food, grit, and fresh water. See that they have plenty of fresh air, and keep the houses clean and free from lice.

In two or three weeks the birds should be in excellent condition for marketing, will make a much better appearance than too much of the poultry which is marketed in this country, and will have gained at least twenty-five per cent in weight, which extra weight will not have cost half as much as a like weight in thin birds. If the birds are to be sent to market alive, place them in clean, attractive crates, place chaff or straw in bottom of crate to keep them clean, and arrange to get them to market as quickly as possible.

If the birds are to be shipped dressed, stop feeding one day before killing, but continue to supply plenty of water. This will empty the intestines, making them keep much better, and improving the quality greatly. The best method of killing is by sticking in the roof of the mouth.

All poultry should be dry-picked, as they make a better appearance and bring better prices. It will take a little practice to attain speed, but after the poultryman has become accustomed to it he will not allow his birds to be picked in any other manner.

If the birds are for retail customers, and are to be used within a few days, we would recommend that they be drawn, and head and legs removed, ready for roasting, similar to the picture at the top of this page. In that case they will of course bring a higher price per pound. If they are for market or cold-storage, they should be dry-picked only, not drawn, and there should not be a break or cut in the body or skin except the small cut in roof of mouth.

This subject is a big one, and to give all the details would require much more space than we have here, but this will have served its purpose if it causes the poultrymen to become interested. To those desiring more information, we would recommend the book, "Profitable Poultry Keeping," listed elsewhere in this catalog. We will be glad to reply to any inquiries, and to do all that we can to help improve the present methods of marketing poultry.

LILLY'S FATTENING FOOD

Makes Market Poultry Profitable

POULTRYMEN little realize how much they lose by marketing their surplus stock in a poor condition. Bone, muscle and feathers are the most expensive parts of a bird. When these have been produced, flesh may be added at small expense by feeding the right kind of food. Each additional pound of flesh produced not only brings the market price for poultry, but by improving the appearance and quality makes the entire bird bring a better price per pound. Stockmen would consider it the height of folly to send their cattle and hogs to market in the condition that most poultrymen market their poultry.

Lilly's Fattening Food would be useless for egg production, for the same reason that Scratch Food and Egg Mash will not produce surplus flesh, but it will produce flesh quickly and at a cost which will make it highly profitable.

There are dealers who buy ordinary market poultry at the regular market price for that grade of stock, feed Lilly's Fattening Food, and sell at increased weight and fancy prices, thus making a splendid profit. If this is profitable for the dealer, it certainly would be profitable for the poultryman.

Lilly's Fattening Food is a mash food, consisting of the correct materials to produce the greatest amount of flesh in the shortest possible time. It should be fed as suggested on the opposite page. This food should not be fed for any other purpose than for fattening, and is a good example of the necessity of feeding for specific purposes. Prices: 10 lbs., 30c; 25 lbs., 70c; 100 lbs., \$2.35.



LILLY'S POULTRY OATS

A Superior Grade for Poultry Food and Sprouting

OATS, sprouted or otherwise, are excellent food for poultry, and should be fed more extensively. Their greatest fault is the varying quality. Ordinary feed oats are unfit for poultry, being light in weight and containing too much coarse

hull and fiber. We are producing a grade of oats especially adapted for feeding poultry, being short, plump, heavy and without beards. These oats are also very superior for sprouting.

Prices: 100 lbs., \$2.15; ton, \$40.00.



HOLLY BIRD SEED

A combination of the best re-cleaned seeds of the correct varieties and proportions to insure health, and thus perfect song, of canaries and other cage birds. The best possible combination for this purpose. A package of Bird Gravel and a piece of Cuttle Bone is included in each package.

Price, per package (about 1 lb.), 10c.

- BIRD GRAVEL. Pure granite rock ground to the proper size for birds. Absolutely necessary for good health.....10c per lb.
- CUTTLE BONE. Two pieces 5c..25c per lb.
- SICILY CANARY SEED.....15c per lb.
- HEMP SEED10c per lb.
- MILLET SEED10c per lb.
- RAPE SEED10c per lb.
- BLUE POPPY SEED15c per lb.
- SUNFLOWER SEED10c per lb.

POULTRY LITERATURE

On pages 206 and 207 of this book will be found a splendid list of poultry books selected by us from a vast offering as being the best works on the various subjects.

We cannot too strongly recommend to our friends, both the professional poultryman and the amateur, that they read these books extensively. The beginner will of course learn much, and the expert will pick up here and there an idea that will be of great value to him.

We also wish to emphasize the necessity for discrimination in adopting the ideas of others. While most of the writers are practical poultrymen, systems which may be perfectly practical for them might be impractical in your locality and under your conditions. Some styles of poultry houses and fixtures which are splendid in some climates would be useless in the Puget Sound country. Some foods which are economical in the East are out of the question in the West on account of cost of transportation.

We make no charge for sacks or packing. Feed, grain and seeds are sold on gross weights.

DUCKS, GEESE, AND TURKEYS

DUCK CULTURE has made a decided advance all over the Pacific Coast during the last few years, and in many places bids fair to rival the chicken end of the poultry business. There is no question that many parts of the Northwest are perfectly situated for duck culture, and the time is not far distant when large quantities of early ducklings will be shipped to the large eastern centers from this section.

The mild winter and early spring makes the breeding of spring ducklings one of the easiest branches of the industry, and one that will give excellent returns. It is of course necessary to study the market conditions as to size of ducklings in demand, and at what time they are in greatest demand.

One of the chief troubles with duck breeders in the Puget Sound country is that they do not get the ducklings to market early enough, and in consequence the greater portion of the duck crop comes to market at one time, which naturally forces prices down.

The preparing of ducks to bring highest market prices is a matter that requires considerable study. For fattening, they are usually fed a diet similar to that suggested elsewhere for fattening chickens for market. It is not necessary to confine them in coops while fattening, as is recommended for fattening chickens, but at the same time it will be an advantage to limit their range. The time required to fatten a duckling for market is usually from ten to twelve weeks, varying according to the season.

No definite time can be laid down to market ducklings, for there are so many factors governing this. They should be marketed as soon as they have their first full coat of feathers, for if they are kept longer than that there is an imperceptible moulting taking place that will cause a loss of flesh for the time being, which will not be regained until they are in possession of their adult plumage.

In shipping ducks to market, great care should be taken that they are not over crowded. No coop should contain more than ten ducks in one section. Most of the successful duck shippers use a coop that can be more or less darkened, which will prevent the birds from getting excited and trampling each other.

Duck eggs generally bring a little higher price than hen eggs, and are in demand for ordinary household purposes and among candy makers and pastry cooks.

Geese, for some reason, are not as popular as they should be on the Pacific Coast. No other fowl or animal of the farm will give as large returns for the time and money expended.

It is, of course, not possible to raise geese in large numbers unless plenty of grazing space is available, but where range and green grass are plentiful the cost of raising geese is almost nil. Many of the valleys all over the Northwest are ideally situated for goose culture, and it is surprising that there are not more of them raised.

Goslings require about the same food and care as little chicks, but are much more independent, and will be hustling for themselves in a surprisingly short time.

There is a limited market for early green geese, but the majority are marketed during the Thanksgiving and Christmas holidays, at which time they are in the best condition, and highest prices are realized.

Although geese will generally be found in good flesh when taken from the range, they will be greatly improved if taken up about four weeks before they are to be marketed, and fed liberally on whole corn and wheat, in conjunction with plenty of green food, water, and grit.

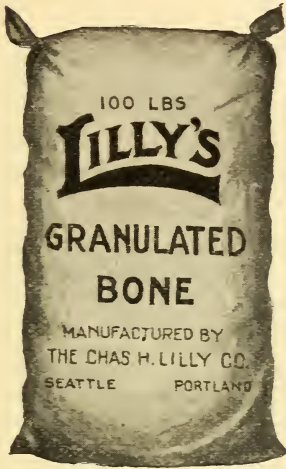
Geese should be warmly housed at night. They can stand a great deal of exposure during the time they are feeding, but at night they should have a well-bedded, dry floor, and be free from annoyance by dogs or anything that would have a tendency to make them nervous, under which condition it is difficult to fatten them.

Turkeys are becoming more popular west of the Rocky Mountains, Northern California leading the other coast states in this respect, and it is no uncommon sight to see flocks of a thousand or more of these splendid birds. There are several large poultry farms in the Puget Sound country where turkeys are the principal stock.

There is never an over-production of turkeys in any part of the country, and prices are at all times such as warrant their being raised in much greater numbers.

It is impossible, in this limited space, to say as much as we would like to in regard to ducks, geese, and turkeys, but to those of our readers who wish more information we would recommend the excellent books listed elsewhere in this book.





LILLY'S

GRANULATED BONE

Fresh Green Bone, Steam Cured

GREEN CUT BONE cannot be handled commercially, as it will not keep any length of time. Lilly's Granulated Bone comes as near being green bone as can be kept without becoming moldy. It is made from fresh, clean, slaughter-house bones, steam-cured, ground and screened to the proper size. The moisture is extracted, leaving the phosphates, lime, protein and fats.

Bone is not only a great producer of eggs, but also produces bone, muscle, and feathers. Many of our customers consider it as necessary for profitable poultry raising as is Scratch Food and Egg Food.

It may be fed either in a hopper or mixed with other food, is usually fed at the rate of ten to fifteen per cent of the total feed, and may be fed every day. It is made in two sizes; Fine Granulated bone for young stock and for mixing with mash foods, and Coarse Granulated Bone for feeding in hoppers to mature fowls.

Price, 10 lbs., 35c; 25 lbs., 75c; 100 lbs., \$2.60; ton, \$49.00; f. o. b. Seattle or Portland.

LILLY'S

GRANULATED BONE

Second Grade

THIS is made from the discolored bones which if mixed with the first grade would render it less attractive. It is made in two sizes, the same as the first grade, but is packed in one hundred pound sacks only.

Price, \$2.35 per 100 lbs.; \$44.00 per ton, f. o. b. Seattle or Portland.

LILLY'S

GRANULATED OYSTER SHELL

The Highest Grade

MADE from eastern oyster shell, which is thicker and harder than the western oyster and clam shell, and is preferred by some. Made in two sizes; coarse, for feeding in hoppers; and fine, for mixing with mash foods and for chicks and pigeons.

Price, 10 lbs., 20c; 25 lbs., 35c; 100 lbs., \$1.10; ton, \$20.00, f. o. b. Seattle or Portland.

LILLY'S

STAR POULTRY SHELL

Lime in the Best Form

TO SECURE a maximum egg yield, lime must be an important part of the hen's ration. All food contains a certain amount of lime, but not nearly sufficient to provide shells for a large egg production. Both oyster and clam shells have a composition that is peculiarly adapted to the production of egg shells, and are in every way superior to any other form of lime for that purpose.

This is good, clean shell, carefully prepared, and crushed to the proper size for poultry. Packed in one hundred pound sacks only.

Price, 85c per 100 lbs.; \$14 per ton, f. o. b. Seattle or Portland.



PIGEONS

THERE has been a very noticeable increase in both fancy and squab breeding in the Northwest recently, and all indications are that pigeons are going to become an important product.

There are few vocations that are capable of giving such keen pleasure to the enthusiast as the raising of pigeons, whether it be for squab purposes or for beauty of the birds alone. An enthusiastic pigeon fancier, with his heart in the right place, can diffuse more enthusiasm in a brief conversation than the owner of a railroad could work up in a lifetime.

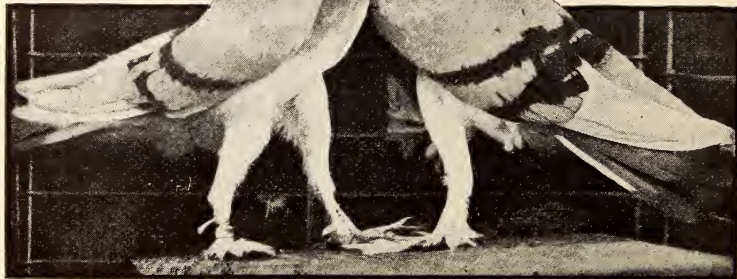
There is something indescribably beautiful in the pigeon, not in plumage alone, but in their exquisite gentleness and faithfulness, and to us that love them it is easy to un-

derstand why they are the symbol of peace.

To the breeder of squabs the larger cities of the Northwest offer a favorable market at all times, and the outlook is becoming better every year, for the users of squabs are becoming alive to the fact that there is a difference between the nice, fresh,

local squabs and squabs that have been in cold storage for perhaps a year.

The foods generally used in the Northwest for pigeons consist of peas, wheat, kaffir corn, buckwheat, millet corn, vetch, hemp and rape. These grains are generally purchased ready mixed. In addition, the pigeons should be supplied with shell, grit, charcoal, salt and fresh water.



A pair of Pouter Pigeons bred by E. Nettle, Seattle.

LILLY'S HOLLY PIGEON FOOD

A Complete Mixed Grain and Seed Ration for Pigeons

HOLLY PIGEON FOOD is a carefully prepared balanced food for both old and young pigeons, and is composed of the various grains and seeds that pigeons thrive upon. For squab grow-

ing, it makes the quickest growth in the shortest time. It contains no grit, shell, charcoal, or salt, and those articles should be fed separately in receptacles that will insure cleanliness.

Price: 10 lbs., 40c; 25 lbs., 80c; 100 lbs., \$2.75; f. o. b. Seattle or Portland.

OTHER PIGEON SUPPLIES

GRIT, SHELL, CHARCOAL, KAFFIR CORN, BUCKWHEAT, MILLET, VETCH, PEAS, RAPE, etc., are listed elsewhere in this catalog and in enclosed price list.

TOBACCO STEMS\$3.00 per 100 lbs.; less than 100-lb. lots, 5c per lb.

ROCK SALT\$1.00 per 100 lbs.; less than 100-lb. lots, 2c per lb.

HALF-GROUND SALT 75c per 100 lbs.; 50c per 50-lb. sack.

PIGEON LEG BANDS are listed elsewhere in this catalog.

THE BEST BOOKS ON PIGEONS.

NATIONAL STANDARD SQUAB BOOK (Rice) Price, postpaid, \$1.00

DISEASES OF PIGEONS (Summers) " " .50

PIGEON QUERIES " " .25

THE PIGEON STANDARD (Twombly) " " .50

SUCCESSFUL PIGEON RAISING: Raise Squabs—It Pays (Price, Jr.) " " .50

SQUABS FOR PROFIT (Wm. E. Rice and Wm. E. Cox)..... " " .50

LILLY'S

MEAT SCRAPS

Highest in Protein. Lowest in Fat
55% Protein

ALL POULTRYMEN know the importance of feeding meat food in some form. The most convenient and cheapest form is a good grade of meat scraps, except in rare instances where the poultryman is fortunately located so that he can procure fresh meat conveniently and at a reasonable price, in which case we recommend the use of fresh meat, provided that it is always strictly fresh and sweet. Tainted meat is extremely dangerous.

Lilly's Meat Scraps are the best grade of commercial meat scrap that it is possible to procure. They are prepared for us by a packing house that we have done business with for many years, and in which we have full confidence. Every shipment is carefully inspected by us before being packed in sacks branded "Lilly's."

On account of the present high price and scarcity of meat, some of the manufacturers are producing a very inferior grade of meat scraps. We have been

many years building up a reputation for Lilly's Meat Scraps, and rather than lower our standard we will discontinue the sale of it.

Price, 10 lbs., 50c; 25 lbs., \$1.20; 100 lbs., \$4.00; ton, \$75.00; f. o. b. Seattle or Portland.



DARLING'S MEAT SCRAPS

A Reliable Brand of Meat Food for Poultry

DARLING & CO. was the first to manufacture a high grade of meat scraps, and is among the few who have maintained their high standard of excellence regardless of the scarcity of meat and the fact that they are unable to fill a large percentage

of their orders.

We have handled many hundreds of car-loads of these meat scraps, and have found them uniformly good. We have many old customers who have used this brand for many years, and will have no other.

In 100-lb. sacks only. \$4.00 per 100 lbs.; \$75.00 per ton, f. o. b. Seattle or Portland.

LILLY'S

BLOOD MEAL

79% Protein; Only 3% Fat

BLOOD MEAL is richer in protein content than any of the other foods used for poultry, and, being so extremely rich, it is necessary to use great care in feeding it. It should not be fed oftener than three times per week, and the quantity for mature fowls should not exceed four per cent of the total feed; for chicks it should not exceed two per cent.

It is used mostly for balancing a ration, and is admirably adapted for that purpose. It is a nice, clean product to handle, and, if kept dry, will keep indefinitely.

Price, 10 lbs., 50c; 100 lbs., \$4.25; ton, \$82.50, f. o. b. Seattle or Portland.

FISH MEAT MEAL
High in Available Protein
Low in Cost

FISH MEAT MEAL has proven to be an excellent and economical meat food for poultry.

The early prejudices have been entirely overcome by a more careful and scientific process which removes from the fish all the ingredients which were objectionable.

It is used by many of the most prominent poultrymen, and is endorsed by the experiment stations.

It is very rich in protein, considerably higher than meat scraps, and in a more available form; and the cost is less. There are some poor grades on the market; we handle only the best.

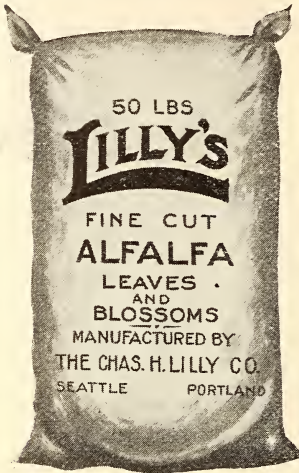
Price, 10 lbs. 45c; 25 lbs. 95c; 100 lbs., \$3.50; ton, \$66.00, f. o. b. Seattle or Portland.

Green Food for Poultry

GREEN FOOD is as necessary for poultry as fresh vegetables are for humans, and, regardless of what has been written in reference to the subject, there is no perfect substitute for green food. Kale, cabbage, green clover, lawn clippings, lettuce, Swiss chard, young rape and young rye are all good food for poultry. Roots such as mangels, potatoes, rutabagas, turnips and carrots are valuable, but not as valuable as the former.

When it is not possible to supply these articles, alfalfa leaves and blossoms or sprouted oats are the best substitutes. If used with discretion, these articles are economical and satisfactory.

Poultrymen should arrange to at all times have a supply of green food at hand. In this section this is not nearly such a difficult matter as it may seem, for there are several green crops, such as kale and cabbage, which may be left in the ground all winter.



LILLY'S

ALFALFA LEAVES AND BLOSSOMS

Specially Prepared for Poultry

ALFALFA is becoming more and more in favor with poultrymen. Its food value is unquestionably in the front rank of vegetable foods, and a more perfect knowledge of its preparation for poultry purposes makes it a great adjunct to the ration.

Lilly's Fine Cut Alfalfa Leaves and Blossoms are filling an urgent need. It contains no stems or coarse fiber; no waste material, and is all food. Ordinary alfalfa meal is very rich in protein, and is a splendid food, but, as the leaves and blossoms contain much more protein than the stems, and do not contain any coarse, indigestible fiber, it will be readily understood that this is a much more valuable food.

These leaves and blossoms are not ground to a fine powder, as is alfalfa meal, but are evenly cut to the proper size for either hens or dust are screened out. It is also a splendid food for all kinds of stock,

chicks, and all fine particles and dust are screened out. It is also a splendid food for all kinds of stock, but is especially prepared for poultry.

It is usually mixed with the mash food, either dry or moistened. Best results are obtained by scalding it with a small quantity of boiling water, covering with a blanket, and leaving it to steam for several hours, then mixing with the mash food at the rate of ten to fifteen per cent alfalfa.

Price, 10 lbs., 25c; 50 lbs., \$1.00; 100 lbs., \$1.85; ton, \$34.00; f. o. b. Seattle or Portland.

OIL CAKE MEAL

A Valuable Conditioner

AHIGH GRADE oil cake meal, properly processed and prepared especially for poultry. It is extremely rich in protein, and containing an abundance of oil makes it an excellent conditioner.

Many poultrymen and stockmen use it as a conditioner for show birds and animals. It gives them a glossy coat, and at the same time regulates the bowels.

It should not be fed in too great quantities, but a small amount mixed with the mash food at frequent intervals will be very beneficial.

Less than sack lots, 4c per lb.; \$3.00 per 100 lbs., f. o. b. Seattle or Portland.

SOY BEAN MEAL

Very Rich in Protein

SOY BEAN MEAL contains a higher percentage of protein than any other vegetable matter available for poultry food. This makes it a valuable egg producer, and, being rich in oil, it is an excellent conditioner, making quick growth of feather with great luster.

It is generally mixed with the mash food, but may be fed alone, in a hopper, as there is no danger of over-feeding. No bad results will follow from feeding large quantities.

It is also a valuable food for cows, horses, and other stock. Price, 10 lbs., 35c; 100 lbs. \$2.40; ton, \$44.00, f. o. b. Seattle or Portland.

LILLY'S CRYSTAL GRIT

Hard, Sharp, Clean. A Necessary Part of the Ration



GRIT is as essential as food. A great many poultrymen make the mistake of thinking that because their land may be gravelly, they do not need to supply grit. Gravel and sand are generally of little use as grit. They are not hard and sharp enough for masticating purposes, and after a time cause debility.

Lilly's Crystal Grit is pure granite rock, ground and screened to the proper size, and being inlaid with mica, the edges remain sharp as long as a particle remains in the gizzard.

Grit should be kept before the birds at all times, and should be in a receptacle that will keep it clean. The best thing for the purpose is our grit and shell box, listed elsewhere in this book.

Experienced poultrymen are aware that grit is as necessary to poultry as teeth are to human beings, and to get good results from proper feeding, it is necessary to supply a good grade of grit. The value of poultry grits is variable, and some of them are soft and worthless. Lilly's Crystal Grit is as hard as flint, clean, and of uniform size. It is the best possible material for the purpose.

Made in three sizes: No. 1 for chicks and young ducks; No. 2 for growing chicks, small hens, and ducks; No. 3 for large hens, turkeys, and geese.

Prices: 10 lbs., 15c; 25 lbs., 30c; 100 lbs., 75c.

LIMESTONE GRIT

For Mastication and Formation of Egg Shells

A GREAT MANY of our customers have enquired for limestone grit, and in order to supply those requiring this grit, we are now manufacturing it. It is a nice, clean product, free from dust, and of uniform size.

Some poultrymen are using both kinds of grit, depending upon the Limestone Grit to supply lime for forming egg shells.

It is made in three size, the same as Crystal Grit.

Prices: 10 lbs., 15c; 25 lbs., 30c; 100 lbs., 75c.

DETAILS

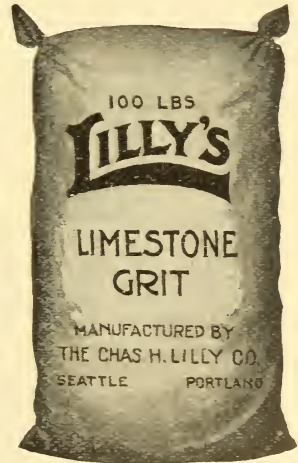
TO BE SUCCESSFUL in the poultry business, as in all other business, it is necessary to take care of the details; to see that the birds are comfortable, and do not lack any element essential for their welfare. Oftimes the lack of grit, which costs so little, or perhaps, the lack of shell forming material for the eggs, will cause a great falling off in the egg yield.

Do you know that there is sufficient lime in one hundred pounds of good oyster shell to produce one hundred dozen egg shells? It is true that there is lime in grain, and that the hen can produce shells from it, but it would require probably a ton of grain to produce as many shells as one hundred pounds of oyster shell would produce at a fraction of the cost.

Profits in any business are in proportion to the correct management or mismanagement of the business. Eternal vigilance is the price of success. It is the little things that count. The chief object must be to

increase efficiency, production and income, and to decrease expenses.

Farming and poultry raising, in the past, have suffered from mismanagement more than any other line of business. Fortunately, the business is getting on a more systematic basis, has become a science, and is fast ceasing to be a drudge.





A Chase Farm White Orpington

LILLY'S POULTRY TONIC

Tones Up the System

WE DO NOT advise the indiscriminate and constant use of any form of tonic. There are times, however, when the flock may be benefited to a wonderful extent by the correct use of a properly prepared tonic. During cold, wet weather, or after moulting, the birds are very often in need of a stimulant.

Lilly's Poultry Tonic is intended for use at such times. It stimulates the appetite and aids digestion, enabling the hen to get the full benefit of her food, and convert it into eggs. By regulating the blood, liver and digestive organs, it imparts warmth to the body, and healthy activity to all the organs. By keeping the system in a vigorous, healthy condition, it wards off disease.

It is best fed mixed with a mash food at the rate of two heaping tablespoonsful to every twelve hens, or thirty to forty chicks. In cold, damp weather the amount should be doubled.

Price: Small package (about 1 $\frac{3}{4}$ lbs.), 25c; large package (about 3 $\frac{3}{4}$ lbs.), 50c; 25-lb. pail, \$3.50. F. O. B. Seattle or Portland.

LILLY'S GRANULATED CHARCOAL

Purifies the System and Prevents Disease

THE VALUE of properly prepared charcoal for poultry and stock cannot be overestimated. Its cost is insignificant compared to its value as a regulator, purifier, aid to digestion, and as a preventive of bowel trouble and sour crop for both young and old poultry. It is equally valuable for hogs and stock of all kinds.

A small quantity of charcoal is contained in most of our mixed foods. All poultry should be supplied with fresh charcoal at all times; preferably in

Price: Carton (about 3 lbs.), 25c; 100 lbs., \$2.50; ton, \$45.00, f. o. b. Seattle or Portland.

a hopper, where they may have access to it at any time, as their appetites are the best indication of the amount required.

Lilly's Granulated Charcoal is made from eastern willow, specially prepared for poultry and stock. It helps egg production, and is a great aid to the reproducing organs of both poultry and stock. It is screened to two sizes; coarse, for hens; and fine, for chicks.

LILLY'S

POULTRY PEPPER

Stimulates the Ovaries

POUULTRY PEPPER is very stimulating, and should be used with discretion, but may often be used to advantage, and results obtained that could not be had from any other source. In cold, wet weather it gives tone to the system, puts vim and snap into the birds, and is a great help to egg production.

Lilly's Poultry Pepper is pure cayenne pepper, finely ground. It is best fed with the mash food at the rate of one tablespoonful to each ten hens.

Price Small carton (about $\frac{3}{4}$ lb.), 25c;

LILLY'S

POULTRY MUSTARD

Aids Digestion

TO CARE for the rapidly growing demand for mustard for poultry, we have arranged for the milling of a high grade of mustard; pure and fresh.

It is a valuable condiment for poultry and stock, is a great aid to digestion, is very heating, and a splendid stimulant in bad weather.

A teaspoonful in the mash for each six to ten birds over two months old will often be very beneficial. It should not be fed to chicks.

Price: Small carton (about $\frac{3}{4}$ lb.), 25c;

LILLY'S LICE KILLER

Solves a Vital Problem

LICE AND MITES need no introduction to poultry keepers. Many authorities claim that if lice and mites could be entirely eliminated, poultry diseases would practically cease to exist. By using Lilly's Liquid Lice Killer, it is a simple matter to eliminate lice and mites. It is generally used as follows:

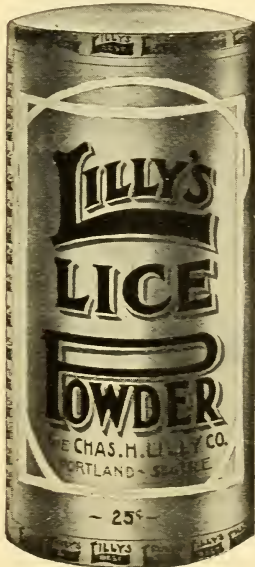
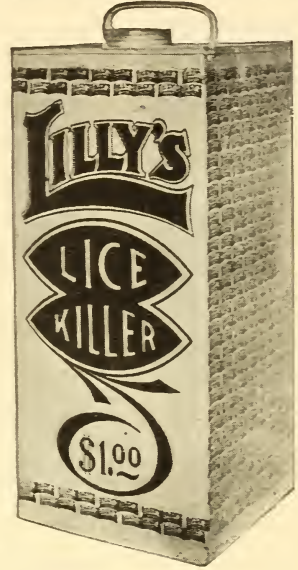
Arrange an eight-inch board under each roost; paint or spray this with the lice killer, so that when the birds go to roost, it will evaporate, and the fumes will kill the lice. Also spray the roosts and all cracks, nest boxes, and any place where lice can hide. Never apply the liquid lice killer directly on the bird, but apply it as near as possible, so that the fumes will do the work.

Repeat frequently, to catch the newcomers.

The best manner to control the lice question is to see that they never get a start. By using Lilly's Lice Killer as a preventative, as directed on the can, lice and mites will not be a serious menace.

Sold by dealers. Be sure that you get LILLY'S. If your dealer does not have it, order direct from us.

Quart, 35c; 1/2 gallon, 60c; gallon, \$1.00; five gallons, \$3.50.



LILLY'S LICE POWDER

Comfort for the Setting Hen

WHEREVER it is practical, we recommend the use of Lilly's Lice Killer, but in some cases the use of the liquid is impracticable, such as for setting hens, young chicks, exhibition birds, etc. To set a hen without first dusting her and the nest with lice powder is running great risk of having her desert the nest before the chicks are hatched; or, if the chicks are hatched, they will be sure to inherit lice.

All this can be avoided by a liberal use of Lilly's Lice Powder. Sprinkle it in the nests; hold the hen up by the legs and dust well into the feathers; dust around the crevices of the house, and sprinkle some in the dust bath.

It will be found of great value for the extermination of insects in the garden, among house-plants, on dogs, cats and other animals; in fact, all noxious insects.

It is ground finer than most lice powders, is more effective, and goes further. It is dependable, and is not to be compared with the cheap powders so commonly sold.

If your dealer does not have Lilly's Lice Powder, order direct from us. Price, small carton (about 1 lb.), 25c; large carton (about 3 lbs.), 50c; 7 lbs., \$1.00.

LILLY'S LICE OINTMENT

Reduces Mortality Among Chicks

DURING THE SPRING AND SUMMER the young chicks are very subject to the dreaded Head Lice. These parasites attach themselves to the young and tender birds at the base of the skull, and are responsible for much mortality among the young chicks. Lice powder is useless to dislodge them, as they sink their heads clear into the birds.

It is also effectual in the treatment of Scaly Leg and Sore Head.

Price, 25c. Postage 5c additional.



DISEASES OF POULTRY

PERHAPS the best advice to be offered in regard to poultry diseases is how to prevent them, rather than how to cure them. We do not wish to convey the impression that poultry diseases are not curable, but we do wish to emphasize the fact that most of them are unnecessary. As a matter of fact, there are very few of the diseases and common ailments that cannot be easily cured if properly treated, but the constant effort of the poultryman should be to prevent the appearance of disease in the first place.

Should disease creep in, which it will sometimes do despite the utmost precautions, the first treatment should be to remove the cause, after which the trouble will be infinitely easier to combat.

A very large percent of all diseases in the poultry yard may be traced to "colds." Oftimes, before a

cold is checked, it may have developed into a much more serious matter.

Improper feeding, bad housing, lice and mites, are all contributing factors to diseases of poultry, for it is from such causes that birds are weakened and debilitated, and become easy prey to any unfavorable conditions that may arise.

In the pages of this book will be found the various remedies and medicines that we recommend for the prevention and cure of poultry ailments.

Do not get the habit of habitually doctoring your birds; they do not need it. When they do need the help of drugs and condiments, give them only the best. Our experience with poultry troubles has taught us that when treating them we must use the same intelligence that we would use in treating disease in human beings.

LILLY'S GERM DESTROYER

Prevents Disease, Heals Wounds, Destroys Germs

FOR THE DESTRUCTION of germs in any form, and as a general disinfectant, Lilly's Germ Destroyer is highly recommended. It may be used for cuts, sores, castrations, mange, in sick-rooms, closets, pig-pens, to kill bed-bugs; in fact, any place where a disinfectant or sanitary and healing wash is required.

It is in highly concentrated form, and is put up only in 8 oz. bottles. One bottle should be diluted with eight gallons of water, and may be kept in that condition indefinitely, ready for use when required.

Price 25c per 8-oz. bottle. If sent by parcel post, postage 5c additional.

LILLY'S

MICROZONE

Health for Poultry

A GERM KILLER and disease preventer for the treatment of Roup, Cholera, Indigestion, Bowel Troubles, Chickenpox, Swelled Head, Sore Eyes, Sores, Cuts and Wounds.

Microzone will help you with your poultry troubles, and should be kept on hand and used continually by all poultrymen. It is prepared in tablet form, each tablet making one gallon of liquid, and should be used freely, both as a treatment for disease and as a preventive among poultry, hogs, and other stock.

The tablets will keep indefinitely, and may be dissolved in water as required. Directions for use are contained in each package.

Price 25c per box.

If your dealer does not have Microzone, we will mail you a box, postpaid, at above price.

LILLY'S

WHITE DIARRHOEA REMEDY

THE TREATMENT of White Diarrhoea in little chicks has been a serious problem with many poultry raisers, and is constantly causing great losses in some sections. The reason that it has been so troublesome in the past, and treatment unsuccessful, is that it has been so little understood. It has now been proven that it is a bacteria disease, and must be treated accordingly.

Lilly's White Diarrhoea Remedy is the most reliable treatment yet discovered. It is made in the form of tablets, which may be administered either in the drinking water or in the food.

Price 25c per box.

If your dealer does not have Lilly's White Diarrhoea Remedy, we will mail you a box, postpaid, at above price.

Lilly's ROUP REMEDY

For Roup, Rousy Colds, Catarrh, Canker, Diphtheria, Sore Head, Inflamed Eyes.

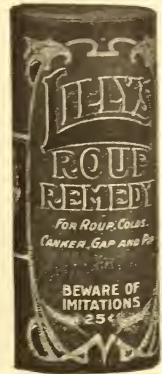
RROUP is the most common and the most easily contracted of all diseases among poultry. It is a germ disease that develops rapidly if not attended to. The common source of roup is a cold in the head, eyes, nose or throat. If the cold is attended to promptly, it can generally be cleaned up, but when it is allowed to go on without any attention, roup invariably develops, and oftentimes proves fatal.

The symptoms of roup are as follows: A froth and bubbles in the corners of the eyes, sneezing, and a watery discharge from the eyes and nose. The discharge has a foul odor, by which the disease is readily recognized. When the head swells, the eyes bulge out, and cheesy masses form in the throat, mouth, and beneath the eyelids, the disease is known as diphtheritic roup. It is highly contagious; afflicted fowls should be immediately isolated, and the balance of the flock should be treated to prevent contagion.

LILLY'S ROUP REMEDY acts as a preventative as well as a cure. It comes in a powdered form, and is applied in the drinking water. Whenever there is a trace of colds in the poultry yard, this remedy should be used immediately and thoroughly; it will save a lot of trouble.

LILLY'S ROUP REMEDY is also effective in the treatment of Blackhead, White Comb, Canker, Sore Head and any disease of a bacteria origin.

Price 25c; postage 5c additional.



Lilly's CHOLERA REMEDY

For Cholera and Affections of the Intestines.

CHOLERA is a disease dreaded by all raisers of poultry. Once it is fairly started there seems to be no limit to its ravages. Fortunately for us, in this section it is not very prevalent. There is, however, a common form of diarrhoea that very much resembles cholera, and is oftentimes fatal to adult birds.

LILLY'S CHOLERA REMEDY should be used in all cases of diarrhoea as a preventative against its developing into cholera.

Cholera is highly contagious, and is spread in stagnant pools and unsanitary surroundings. Isolation and cleanliness are necessary in all cases. Do not waste a moment's time when this dreaded disease makes its appearance; but it should always be borne in mind that it is a thousand times easier to prevent cholera than to cure it.

LILLY'S CHOLERA REMEDY is valuable in cases of indigestion, constipation, and all bowel troubles in adult fowls. It should not be used for young chicks, for which Lilly's Intestinal and Liver Remedy will be found efficient.

Price 25c; postage 5c additional.



INTESTINAL and LIVER REMEDY

For White Diarrhoea, Liver Trouble, Worms, and all Affections of the Intestines.

THE GREAT LOSSES among young chicks has brought many remedies, some of which are good, and many of which are bad. Before offering Lilly's Intestinal and Liver Remedy we convinced ourselves positively that it would do the work required of it. In addition to its curative qualities, it is a valuable tonic, and can be used for birds when in a debilitated or run-down condition. Directions for use are on each bottle.

Price 25c; postage 5c additional.



ARTIFICIAL INCUBATION

THE MANAGEMENT of an incubator commences practically before the eggs are laid. Too many people forget that unless the eggs are produced right it is impossible for the machine to hatch them successfully.

It may be as well to mention here a few things necessary for the production of good eggs that will hatch strong, vigorous chicks.

The selection of the breeding pen should be made carefully from healthy stock. Never use a male bird that has had any serious sickness, and be sure that he is from good stock. Select the females from well matured birds. Allow the breeding pen as much exercise as possible.

Feed generously, but not extravagantly, on good food, at all times allowing plenty of green food.

When the eggs are laid, let it be in clean nests, and collect them at least once each day. All eggs that are intended for the incubator should be kept in a clean place where the temperature does not vary below 50 or above 65 degrees.

Do not expose eggs to draughts or air currents, as they will cause excessive evaporation. Never let eggs stand in hot sun.

When the incubator is unpacked, the first thing to do is to search for the maker's directions. In the Pacific Coast Ideal they will be found in the egg tray. These instructions tell how to set the machine up, and how to place the lamp. As the manufacturers know every detail of their machines, their instructions should be followed to the letter, regardless of the operator's own ideas in regard to how an incubator should be run.

The first question that will present itself to the operator will be where the incubator should be placed.

Generally the house cellar or basement is the most satisfactory, provided the air is sweet and not unpleasant to the operator. A good general rule, we find, is to figure that anything that is unpleasant to the human in the way of draughts and smells is equally detrimental to the hatching of chicks.

If no cellar is available, the root house or barn, or even the attic, will give good results if a little ingenuity be used. If the walls of the building are thin and porous, it is quite easy to supplement them with a little added protection near where the machine is situated.

See that the machine stands quite level. This gives a more equal circulation, and consequently a more uniform temperature.

In starting the incubator, run for a while with a low lamp flame. This may be increased as the machine warms up, and when the full temperature of 102 to 103 degrees is reached the flame should be turned to the height that will hold the temperature at that point.

When the operator is satisfied that the machine is regulated according to the maker's instructions, it is then time to place the eggs in the incubator.

Do not be over zealous to fill the incubator to its full capacity. Select the eggs carefully. Discard all that are irregular or under sized. Do not use either very large or very small eggs. A nice uniform lot of eggs will give the best results.

When certain that the incubator is properly regulated, place the eggs in it and *leave it alone* until the temperature again reaches 103 degrees. With the Ideal Incubator, this will take from six to twelve hours.

Just when the temperature is hanging around the 103 point, it is well to take a look at the thermometer occasionally, and if it should by chance run over 103½, raise the damper, with the thumb screw, just a trifle. This will release a little heat, and the machine will find its proper level.

Regarding the ventilation. During winter and spring, or cold weather, the ventilator at top of Ideal Incubator should remain about one-fourth open from start to finish. During warmer weather, open one-half to two-thirds, and if very hot, after temperature is up to 103, open full, and keep open.

Commence to turn and air the eggs on the morning of the third day. Most incubator makers advise the *cooling* of eggs. We prefer to use the word *airing*. We never allow our eggs to be in a draught or exposed to cold. If eggs are being aired for, say ten minutes, on a cold morning, throw an old sack or blanket over them. If the weather is warm, this precaution is unnecessary, but we wish to say most emphatically that eggs must not be exposed to low temperatures during the period of incubation.

The eggs should be turned once or twice each day until the eighteenth day, after which they should be left alone until the hatch comes off.

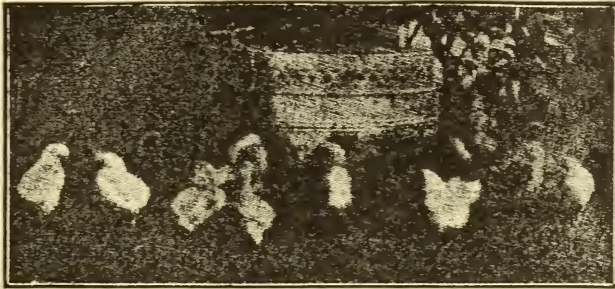
After the chicks are hatched they will come forward to the light, and will fall into the chick nursery. When certain that all of the chicks that are going to hatch have done so, the egg tray and broken shells should be removed from the incubator. This will allow the chicks more room to move around, and they will quickly dry off, and want to sleep.

Most operators leave the chicks in the incubator from 24 to 36 hours, after which time they should be removed to the brooder. See The Brooding of Chicks.



CYCLE HATCHERS AND BROODERS

THE PHILO SYSTEM



THE CYCLE HATCHER is a part of the well-known Philo System, which is so widely used the country over. It is very popular among other poultrymen, as well as those using the Philo System, and is especially adapted to those hatching only a small number of chicks.

They are also used by many of the more extensive poultrymen, enabling them to set a machine each day or each week, avoiding the necessity of holding the eggs until they become stale.

They are the simplest incubators made; are light and easy to handle; may be operated any place, in the kitchen, living-room, or in the barn; and they are made of metal, and entirely fire-proof.

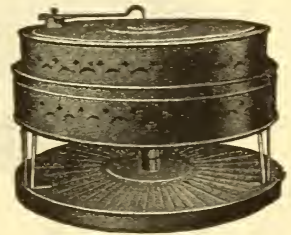
We have heard nothing but praise from those of our customers who purchased Cycle Hatchers and Cycle Brooder-Hatchers last season. They are low in price, but are well made, and have proved to be entirely practical.

THE CYCLE HATCHER

These hatchers are designed to take the place of the hen for incubating purposes. The heat comes from the center, and is radiated in all directions, supplying an abundance of fresh air, and is governed by a double wafer regulator placed close to the eggs. Simple in construction and operation. Capacity 50 eggs. Net weight 12 lbs. Shipping weight 20 lbs.

Complete with Regulator, Thermometer, and Instructions.

Price \$6.00



THE CYCLE BROODER-HATCHER

The Brooder-Hatcher is designed to do double duty, and meet the requirements of both a hatcher and a brooder. The upper part is the same as the Cycle Hatcher, while the lower part serves as a brooder, and is heated by the same lamp. When the chicks are hatched they are transferred to the brooder, and another setting of eggs may be placed in the hatcher. Shipping weight 25 lbs.

Complete with Regulator, Thermometer, and Instructions.

Price \$8.00

PHILO SYSTEM METAL LAMPLLESS BROODERS

These lampless brooders come in sets of three, of varying sizes. The chicks are first placed in the smallest brooder, and are transferred to the larger brooders when they require more room, releasing the

small brooder for a new hatch.

They are circular, made of metal, well insulated inside, and are covered with a quilt or mattress, three inches thick, adjustable to any height.

Price: Large, \$2.75; Medium, \$2.25; Small, \$1.75;
Set of three in one package, \$5.25.

PACIFIC COAST IDEAL INCUBATORS and BROODERS

For Pacific Coast Conditions

OUR EXPERIENCE during the several years that we have handled the Pacific Coast Ideal Incubator has proved conclusively that it is the best all-purpose machine on the market, especially for Pacific Coast conditions. We have handled many of the best makes of incubators, most of them much higher in price, but none of them have given such universal satisfaction as the Pacific Coast Ideal. Considering the great number that are now in use, and the inexperience of many of the users, the percentage of complaints has been phenomenally small.

Its simplicity in operation has made it a great favorite among those who have had little or no experience, as well as poultrymen in general.

The Pacific Coast Ideal Incubator for 1915 is even better than heretofore. A number of details have been added to make it as nearly perfect as it is possible to be. There has been no change in the principle of the machine for nearly fifteen years, which means a great deal when we consider that a

great majority of incubators are changing continually.

The Pacific Coast Ideal is built right and from good material. Chicks hatched in them are started right to make good husky stock.

It is built especially for Pacific Coast conditions, and after a careful study of all the factors that make this section of the country different in respect to incubation.

The Pacific Coast Ideal is hot water heated by a copper heating system that cannot get out of order. It requires no attention other than filling the lamp once each day and turning the eggs.

Each machine is supplied with full directions for operation, thermometer, egg tester, and is in every way complete. It is made in four sizes as described in following pages.

If you are interested in incubators and brooders we will mail you the Ideal Catalog, explaining details of construction and principles of heating and ventilation of these machines. They are different from others, and in that difference lies their secret of success.



No. 8
PACIFIC COAST IDEAL
Hot Water Incubator

The No. 8 Pacific Coast Ideal is the size preferred by many of the more extensive poultrymen. Construction and material is the same in all the four sizes, and is of the best. The walls are over two inches thick, thoroughly insulated, and consist of three separate and distinct walls with air space. The door is $\frac{1}{4}$ inches thick with two thicknesses of glass with dead air space between.

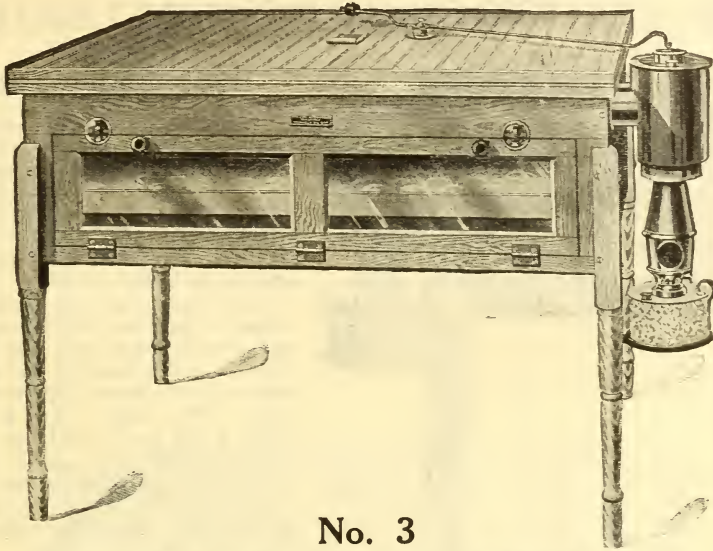
The incubator is hot-water heated. The heater is a tubular copper tank extending around the entire egg chamber, and so constructed that the circulation of water is perfect, insuring an even temperature in all parts of the egg chamber. The regulator and thermometer are of the best.

Capacity, 360 to 400 hen eggs; duck, goose or turkey eggs in proportion to size.

Floor space, 34x53 inches. Height, $32\frac{1}{4}$ inches. Shipping weight, 200 lbs.

PRICE, \$28.00

F. O. B. Seattle, Portland, San Francisco or Los Angeles.



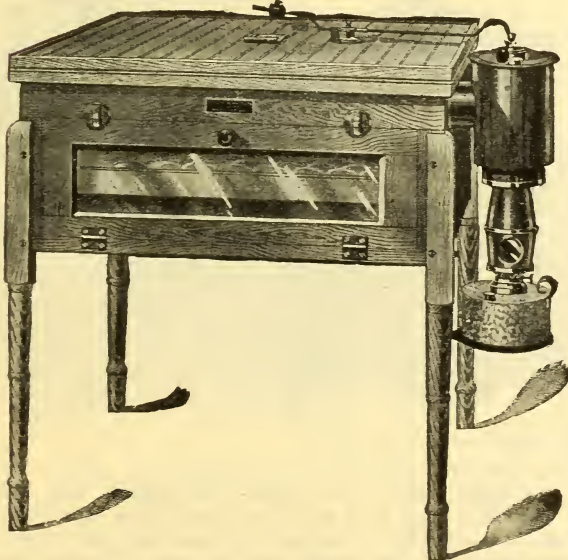
No. 3 PACIFIC COAST IDEAL Hot Water Incubator

This size is suitable for the larger breeders and is also popular with beginners as it allows for expansion; will hatch a small number of eggs equally as well as full capacity, and the expense of running is very little more than for the smaller machines.

Capacity, 240 hen eggs; or duck, goose or turkey eggs in proportion to size.

Floor space, 30x42 inches. Height, 32 $\frac{1}{4}$ inches. Shipping weight, 135 lbs.
PRICE, \$18.00. F. O. B. Seattle, Portland, San Francisco or Los Angeles.

No. 2 PACIFIC COAST IDEAL INCUBATOR Hot Water System



This medium size machine is popular with all classes of poultrymen. It is small enough for the beginner, and many of the more extensive poultrymen prefer several small machines rather than one large machine. The construction and material is the same as in the larger machines.

All sizes of the Pacific Coast Ideal have proved most satisfactory in the hatching of duck, goose and turkey eggs. The hot water principle is the best for all incubation, and especially so for hatching duck, goose and turkey eggs.

Capacity, 120 hen eggs; or duck, goose or turkey eggs in proportion to size.

Floor space, 24 $\frac{1}{2}$ x30 inches.

Height, 32 $\frac{1}{4}$ inches.

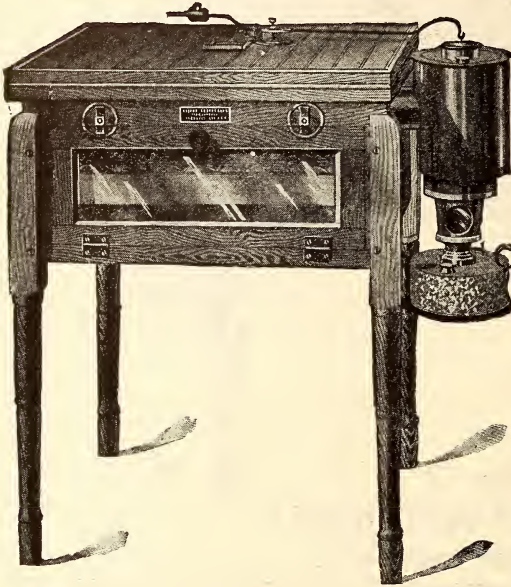
Shipping weight, 90 lbs.

PRICE, \$12.50.

F. O. B. Seattle, Portland, San Francisco or Los Angeles.

We will be glad to mail you the Ideal Incubator and Brooder Catalog if you wish it.

No. 1 PACIFIC COAST IDEAL INCUBATOR



Hot Water System

This size is used mostly by small breeders, but is used by some of the larger poultrymen to set at the same time with larger incubators, transferring the eggs to the larger machines when the unfertile eggs are culled out. It differs from the others only in size, and is perfectly reliable in every way.

This low-priced high-grade incubator makes it possible for those who have only a small flock, and would otherwise depend upon hens for hatching, to secure chicks earlier than would be possible with hens. The early-hatched chick is the most profitable.

Capacity, 60 hen eggs, or duck, goose or turkey eggs in proportion to size.

Floor space, 20x24 inches. Height, 30 3/4 inches. Shipping weight, 65 lbs.

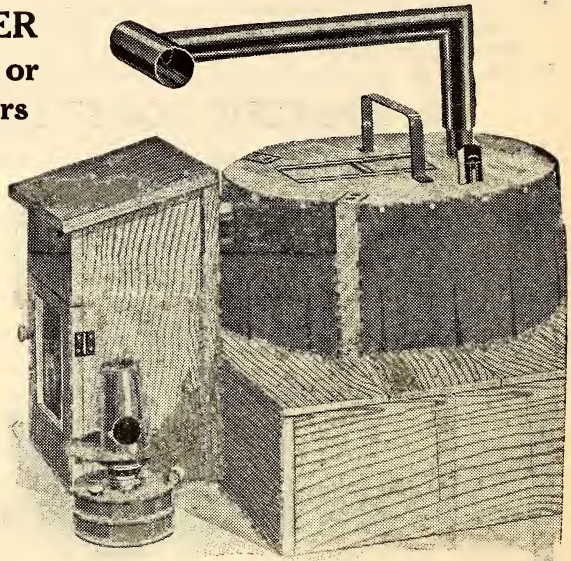
PRICE, \$9.00.

F. O. B. Seattle, Portland, San Francisco or Los Angeles.

THE IDEAL HOVER For Brooder Houses or Home-made Brooders

The Ideal Hover is the complete working parts of a brooder, without the outside case, and may be used in many ways. Any man who can use a saw and hammer can build the outside case, or they may be used in brood-houses, colony houses or outbuildings. They are used in many of the largest poultry plants, and are most generally used in the unit system in brood-houses. Capacity, 100 to 150 chickens.

Price: Complete with Lamp Box, Lamp, Thermometer, etc., as shown in cut.....\$7.00
Without Lamp Box..... 6.00



The Ideal Catalog explains how the Ideal differs from other incubators; why the heating and ventilating systems are superior; why it is so simply and easily operated; why it hatches a larger percentage of chicks; why the chicks are as strong and sturdy as hen-hatched chicks; and how these high-grade incubators can be sold at such low prices. We will mail it to you, free, if you wish it.

IDEAL BROODERS

For Either Indoor or Outdoor Use

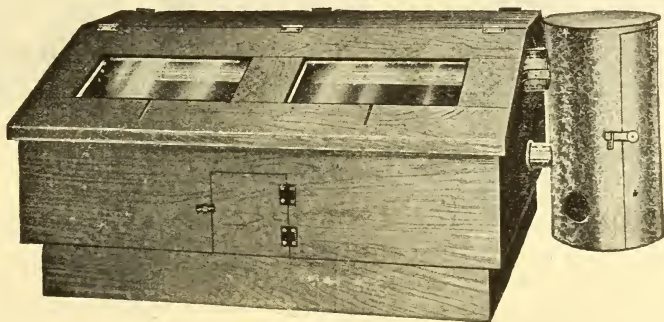
THE IDEAL BROODER has for many years given excellent satisfaction, but the new model has several material improvements. The metal lamp-box is placed outside the brooder, allowing more room for the chicks. There is a glass door over the exercising room and a wooden door over the hover, giving easy access to chicks in the hover.

The brooder is divided into two compartments, the hover and the exercising room. The hover is directly under the heating pipe, and is separated from the exercising room by a heavy felt curtain. The exercising room is slightly cooler than the hover, and is directly under the glass door, giving plenty of light

and sunshine to the chicks. Both doors are hinged and can be raised so that the entire interior of the brooder can be gotten at for cleaning or caring for the chicks.

The brooder is heated by hot air supplied by a high-grade lamp placed in a galvanized iron lamp box outside the brooder, insuring safety.

Although these brooders are intended for use either indoors or outdoors, we do not recommend the use of any brooder, regardless of style or make, outdoors without some shelter over it; especially in this locality, where rainfall is heavy during the spring months.

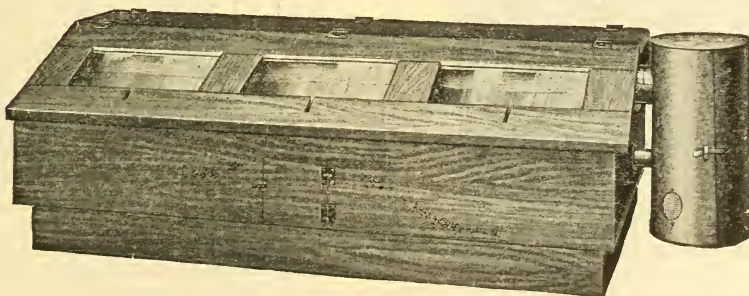


No. 1 Ideal Brooder

Capacity, 100 chicks. Floor space, 24x30½ inches. Shipping weight, 70 lbs.

PRICE, \$8.00.

F. O. B. Seattle, Portland, San Francisco or Los Angeles.



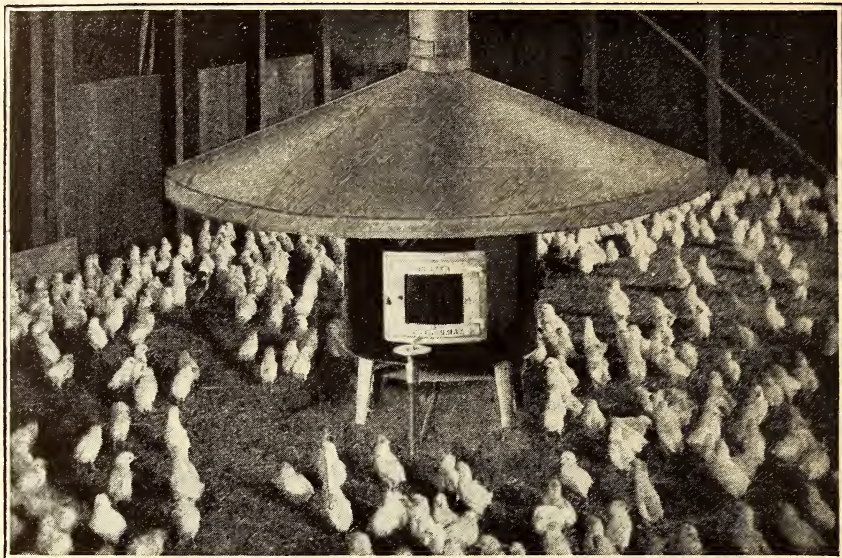
No. 2 Ideal Brooder

Capacity, 200 chicks. Floor space, 24x44½ inches. Shipping weight, 90 lbs.

PRICE, \$10.00.

F. O. B. Seattle, Portland, San Francisco or Los Angeles.

High price and piano finish does not necessarily make a good incubator or brooder.



PETALUMA BROODER STOVE

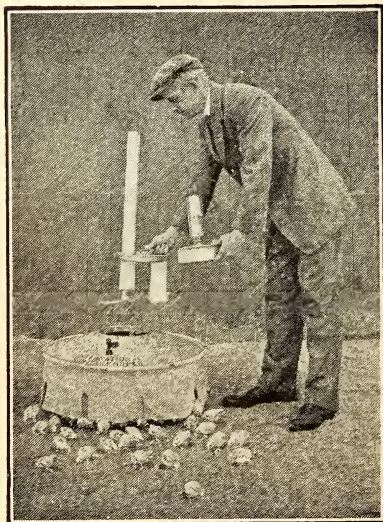
The Original and Most Satisfactory Brooder Stove

FOR THOSE who favor the room-brooding system, we highly recommend the Petaluma Brooder Stove. It is the pioneer in this line on the Pacific Coast, has been improved, kept up to date, and is still far in advance of all others. It is now equipped with an automatic regulator, which effectu-

ally regulates the oil supply, and thus regulates the temperature. It burns either low-grade kerosene or engine distillate equally well, and may be operated very economically.

If you are interested, we will be glad to send you descriptive circulars.

Price \$27.50, freight charges prepaid to your nearest railroad station.



INTERNATIONAL SANITARY HOVER

An All Metal Portable Hover

THIS is the latest development in portable hovers. We have sold a great many of them during the short time that we have had the agency for them, and they are giving splendid satisfaction.

They are made entirely of metal, making them fire-proof, sanitary, and durable.

The heat is distributed so that it is warmest at the curtain, causing the chicks to stay near the curtain, where there is plenty of fresh air, and avoiding crowding.

It is absolutely portable, and does not have to be attached to the building in any way.

It is circular, and there are no corners for the chicks to crowd into.

The lamp is in a holder which may be lifted out through the top, without moving any other part of the hover.

We will mail you descriptive circular if you wish it.

Price \$9.00 f. o. b. Seattle or Portland.

LILLY'S ECONOMY OAT SPROUTER

Increases Food Value.
Decreases Expense.

SPROUTED OATS supply cheaply both green food and a valuable predigested grain food, being a long step forward in solving the important problem of feeding poultry for profit. It is not by any means a new idea, but has not been more popular among ordinary poultry keepers, as the lack of proper appliances made it a messy and difficult matter. Recent developments in this line have made it very simple and easy to at all times have a green food on hand, and at the same time a grain food easily assimilated and of far greater food value than when in its natural form.

The value of sprouted grain cannot be over estimated. The process of germination predigests the food, and makes it almost immediately available for assimilation. The same action takes place in the case of the parent pigeon when taking the food into the crop before feeding to the young; this predigesting process being the reason why a squab pigeon will in about five weeks be as large as at any time



Economy Oat Sprouter, in operation with four extra sections.

during its life. In the case of chickens it is not advisable to produce such extreme early growth, but a quick, vigorous growth is at all times profitable.

To meet the requirements of all grades of poultry keepers, or a growing business, they are made in sections, and may be added to as occasion demands, making the Economy Oat Sprouter suitable for a flock of anywhere from one dozen to seven hundred fifty birds. Each section contains five trays, and one section is ample to supply seventy-five birds when giving a full sprout, or if short sprouted, as preferred by many poultrymen, one section will take care of one hundred and fifty birds. A complete sprouter has five sections, which, it will be seen, is capable of caring for from five hundred to seven hundred and fifty birds, according to length of sprouts desired.

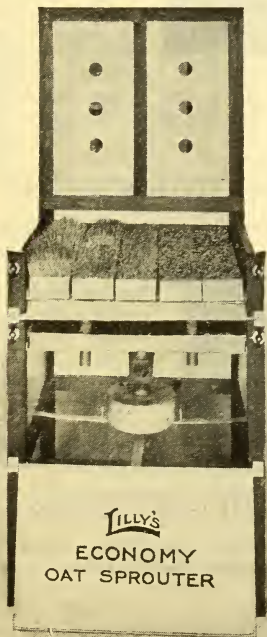
They are heated with a small lamp. The quantity of oil used to run the Economy is almost too small to take into consideration, ten to fifteen cents per week fully covering the expense of running the full five sections.

The Economy Oat Sprouter is simplicity itself; is strong, durable, and is neatly made.

PRICES:

The Economy Oat Sprouter, complete with five trays and all fittings; shipping weight 70 lbs., \$9.50.

Additional sections, with five trays each; shipping weight 25 lbs., \$3.00.



Economy Oat Sprouter, open, without extra sections, showing sprouts one, two, three and four days old.

THERMOMETERS

WHEN SELECTING a line of thermometers for our customers, our one thought was quality. The thermometer is a vitally important item in the poultryman's outfit, and with this in mind we decided to have the very best that could be procured at any cost. By handling the Wilder thermometers our margin of profit is not so great as with the cheaper grades, but our margin of satisfaction is vastly greater.

The Charles Wilder Co. is one of the oldest firms manufacturing incubator thermometers in this country. For fifty years they have been making high grade thermometers, and have set the standard for

quality. The points of superiority in their thermometers are:

Guaranteed accuracy;
Specially fine tubing, properly aged and thoroughly tested;

The purest distilled mercury;

The best metals and finish;

Each scale is made and marked for its individual tube, the tube having been tested at different points;

Every Wilder thermometer is inspected before leaving the factory, and packed for shipment by expert packers.

LILLY'S Certified Incubator Thermometer

These thermometers are made especially to our order. They undergo a test extending over two years. After there is no question as to their accuracy, each individual thermometer is tested, the scale is engraved on the glass tube, and a certificate is made showing the number and test of that particular thermometer.

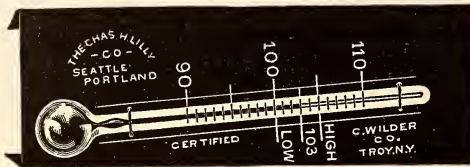
That certificate accompanies the thermometer as a guarantee of accuracy to the customer.

It is unquestionably the most accurate incubator thermometer made, and every poultryman should have at least one, if for no other purpose than for testing other thermometers.

The cost is slightly more than for other thermometers, but it is worth something to know that you have an instrument which is certified to be correct, and can be de-

pended upon at all times. They may be suspended on a wire, or laid directly on the eggs.

No. 1207. Price \$1.00 each; \$10.00 per dozen.



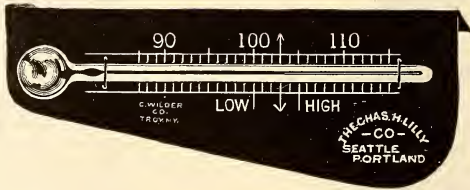
LILLY'S Standard Incubator Thermometer

The Standard Incubator Thermometer is the most generally used of all types of incubator thermometers, being equally adaptable for the smallest to the largest incubators of any make now in common use. They may be suspended on a wire, reclined on a base, which accompanies some incubators, or laid directly on the eggs.

These thermometers give excellent satisfaction, and are entirely dependable.

The regular price is 75c, but by purchasing in immense quantities we are enabled to sell them at a price heretofore considered impossible for a thermometer of this quality.

No. 1064. Price 50c ea; \$5.00 per dozen.



LILLY'S RECLINING INCUBATOR THERMOMETER

A longer type of thermometer, with larger spacing and very large, distinct figures. Included with it is a metal stand which rests on the egg tray, and supports the thermometer in a reclining position immediately above the eggs.

No. 1066. Price 50c each; \$5.00 per dozen.

LILLY'S UPRIGHT INCUBATOR THERMOMETER

This thermometer can be used in any type of incubator in which the egg chamber is three inches or more in depth. It is preferred by many poultrymen, as the bulb comes in direct contact with the eggs. A stand for supporting it accompanies each thermometer.

No. 1065. Price 50c each; \$5.00 per dozen.



Wilder Electric Lighted Thermometer

THE OUTFIT COMPLETE, as illustrated, consists of a guaranteed Wilder Incubator Thermometer, with lamp in a socket attached to the back of the thermometer and connected with a cord to a battery in a flash-light metal case. The purchaser places the thermometer in the incubator, leaving the battery case outside, and when a reading is desired, presses a push-button on the side of the battery case.

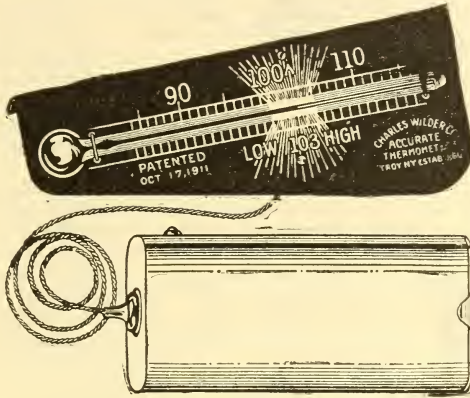
The lamp, battery, and case are standard size, and can be replaced by any electrical supply house or store, or by us direct.

The thermometer scale is cut out between the points 100° and 106°.

placed directly behind this that when a connection is

opening, and so arranged made by pressing a button, a bright light is thrown against and diffused through the thermometer tube, thereby showing plainly the exact position of the mercury column.

By using one of these Electric Lighted Incubator Thermometers a reading can be taken at any time without opening the door or interfering with the hatch. It is a great convenience to be able to read the thermometer at night or when the light is poor, and will be appreciated by many who have had trouble in this direction.



It can be applied to any type of incubator in two minutes.

No. 1206. Wilder Electric Lighted Thermometer, complete, with battery, \$3.00; Extra Batteries, 25c each;

Lilly's Standard Brooder Thermometer

The most generally used type of brooder thermometer. Well made and thoroughly reliable, with metal scale, and wooden base to fit in round hole in top of hover. The bulb is protected by a metal shield. Adaptable for all types of brooders.

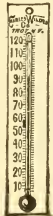
No. 1062. Price 50c each; \$5.00 per dozen.



Metal Back Brooder Thermometer

This thermometer has an all-metal base, with scale registering from 20° to 120°, and is useful in brooders, outside of hover; in brood houses, grain sprouters, and for many other purposes.

No. 1061. Price 35c each; \$3.50 per dozen.



Tycos Incubator Hygrometer

THE HYGROMETER is not a regulator of moisture, but is an indicator of moisture conditions, so that if not correct, they may be made so. In order to control moisture conditions in the incubator they must first be known, and for that purpose a hygrometer is essential.

The hygrometer takes the place of one egg in the egg tray, and shows the actual percentage of moisture surrounding the eggs, just as a thermometer shows the temperature.

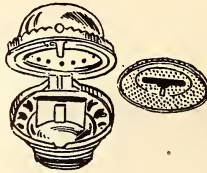
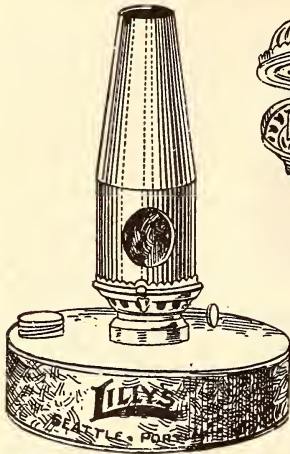
Full directions accompany each instrument, and the necessary instructions are stamped upon the scale of the instrument. There is nothing complicated about the use of it.

Price \$1.50, postpaid.

Extra Wicks, 10c each, \$1.00 per doz., postpaid.



LILLY'S INCUBATOR and BROODER LAMPS



THE LAMP is a very important part of the poultryman's outfit. Cheap, poorly constructed lamps are a menace to his plant. Although there are numerous devices and attachments to be used in connection with incubator and brooder lamps, we believe that the safest and most satisfactory lamp is the one consisting simply of a well-constructed fount and chimney and a Sun Hinge burner.

Our lamps are of the best design, material and workmanship. The burners are the Sun Hinge pattern, with detachable perforated base, easily removed for cleaning.

- No. 1300. No. 1 Incubator and Brooder Lamp complete. Diameter of fount, 6 in. Price, postpaid...70c each; \$7.00 doz.
- No. 1301. No. 2 Incubator and Brooder Lamp complete. Diameter of fount, 7 in. Price, postpaid...75c each; \$7.50 doz.
- No. 1302. No. 3 Incubator and Brooder Lamp complete. Diameter of fount, 8½ in. Price, postpaid...90c each; \$9.00 doz.
- No. 1310. No. 1 Lamp Fount. Postpaid...35c each; \$3.50 doz.
- No. 1311. No. 2 Lamp Fount. Postpaid...45c each; \$4.50 doz.
- No. 1312. No. 3 Lamp Fount. Postpaid...55c each; \$5.50 doz.
- No. 1320. No. 1 Sun Hinge Burner.....20c each; \$2.00 doz.
- No. 1321. No. 2 Sun Hinge Burner.....25c each; \$2.50 doz.
- No. 1322. No. 3 Sun Hinge Burner.....40c each; \$4.00 doz.
- No. 1340. No. 1 Wicks, 5/8 in.....20c doz.
- No. 1341. No. 2 Wicks, 1 in.....20c doz.
- No. 1342. No. 3 Wicks, 1½ in.....25c doz.

- No. 1330. No. 1 Chimney...25c ea.; \$2.50 doz.
- No. 1331. No. 2 Chimney...25c ea.; \$2.50 doz.
- No. 1332. No. 3 Chimney...25c ea.; \$2.50 doz.

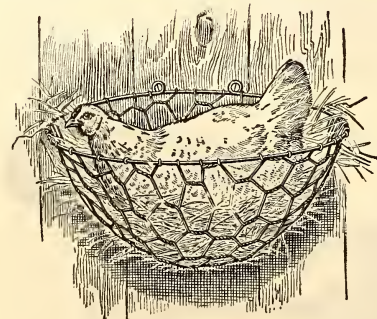
These lamps cannot be used with the Ideal Incubators or Brooders, as the founts are too large. We can furnish Ideal lamps and parts at same prices, but in ordering be sure to specify that they are for the Ideal Incubators or Brooders.

LILLY'S Never-Smoke Brooder Lamp

The Never-Smoke Lamp is made especially for brooders, and may be used in many places where it is not practical to use a chimney. The Never-Smoke burners do not require chimneys. The construction is such that it gives a large amount of heat with a

minimum consumption of oil. It will not blow out, and is always reliable. Diameter of fount is six inches, and height, including burner, is eight inches. They are especially intended for use where there is no sleeve for chimney to fit into. It is made for No. 2 burner only.

- No. 1011. Never-Smoke Lamp complete. Price, postpaid\$1.00 each; \$10.00 doz.
- No. 1315. Never-Smoke Lamp Fount. Postpaid60c each; \$6.00 doz.
- No. 1325. Never-Smoke Burner. Postpaid40c each; \$4.00 doz.



China Nest Eggs

- No. 1019. Weight ¾ lb. per doz. .2 for 5c; 25c doz.; \$2.50 gross

Barbee Wire Nests

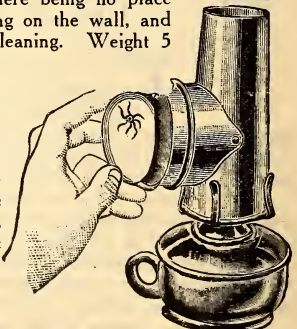
Wire nests are sanitary, there being no place for mites. They may be hung on the wall, and are easily taken down for cleaning. Weight 5 lbs. doz.

- No. 107.....10c each;
- \$1.00 dozen .

Egg Tester

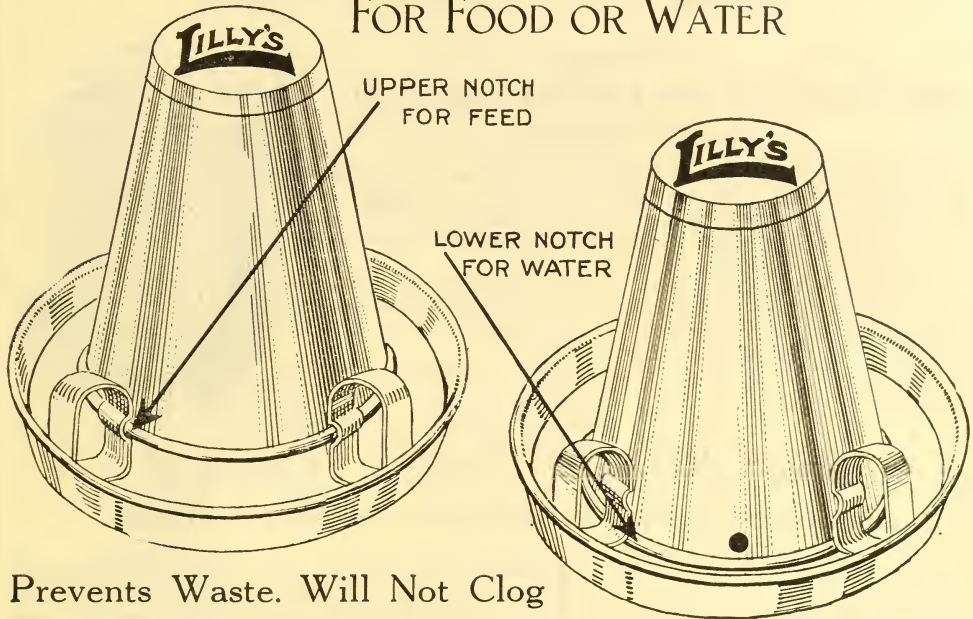
Simple, convenient, practical and cheap. May be used on any lamp with a No. 2 burner, or over an electric light or candle.

- No. 1007. Postpaid...30c



LILLY'S COMBINATION CHICK SERVER

FOR FOOD OR WATER



Prevents Waste. Will Not Clog

Keeps Food and Water Clean and Fresh

Easy to Clean

REGARDLESS of the great number and varied styles of chick servers that have been offered in recent years, there has not been one that would serve both food and water satisfactorily. The Mason jar attachment came nearest to doing so, but even that failed when called upon to serve some kinds of mash foods. On account of the narrow mouth of the jar, some fine meals would clog.

In Lilly's Combination Chick Server this difficulty has been entirely overcome. As is shown in the illustration, the server is used in two positions; the lower being for water, and the upper for food.

When the reservoir is used in the upper notch, any kind of food, from fine meal to whole corn, will be served perfectly. On account of the reservoir being cone-shaped, it is impossible for any kind of food to clog.

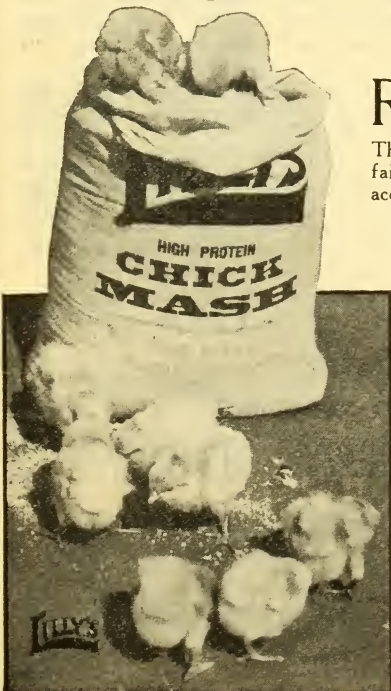
When you buy the Combination, you do not have to provide a Mason jar. The server is complete and ready for use. It is well made of good material, the price is very low, and it will save its cost in the feeding of one flock of chicks.

Lilly's Combination Chick Server saves feed, time, and patience.

PRICE

Two for 40c; Half Dozen, \$1.00; Dozen, \$2.00

POSTPAID



LILLY'S FOOD HOPPER

For Feeding

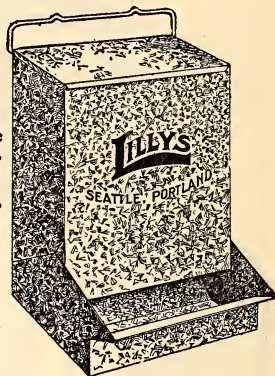
COMMON SENSE EGG AND FEATHER FOOD

Or Other Dry Feed

THE FEEDING OF DRY MASH has done much to simplify the keeping of either large or small flocks of poultry. LILLY'S Common Sense Dry Mash Hopper holds about thirty pounds of mash, only a small portion of which is exposed, the balance becoming accessible, automatically, as required.

It is made with a bib, or apron, in front, so that the food cannot be wasted. The inside is fitted with an inclined back, which forces the food forward. The hopper is constructed of heavy galvanized iron, rustproof. They may be hung on the wall, or stood anywhere.

Made to hold 30 lbs. Common Sense Egg Food. May be used for any kind of dry food.



No. 1008. \$1.00 each; \$10.00 per doz.

LILLY'S GRIT AND SHELL HOPPER

For Feeding Grit, Shell, Bone, Beef Scrap, Beef Meal, Blood Meal, Charcoal



MADE IN TWO SIZES. The larger size holds about fifteen pounds of feed, and has two compartments. This size is generally used for Beef Scraps, Granulated Bone, Blood Meal, or in case of small flocks, Dry Mash.

The smaller size holds about eight pounds of feed, has three compartments, and is generally used for Grit, Shell, Granulated Bone, Charcoal, and in very small flocks, Beef Scraps or Dry Mash.

These hoppers are very economical and useful. No poultryman can afford to feed high priced feeds haphazard; it is the care of these things that determines the profits.

When Bone, Shell, etc., are fed in ordinary shallow pans or boxes the fowls are liable to overturn them, and the contents are trodden into the ground. This is a great waste, and besides, the grain quickly commences to decompose when in contact with the earth. Careful poultrymen realize more and more that there must be no chance for waste in the profitable poultry plant.

The cost of a Grit and Shell Hopper will easily be saved in three months in a flock of twenty birds, besides the sanitary viewpoint.

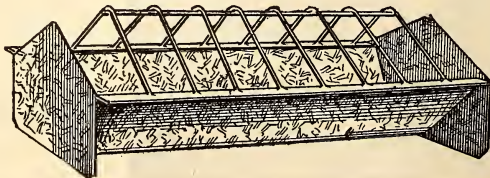
PRICES

No. 1009. Large, Two Compartments; 80c ea.; \$8.00 doz.

No. 1042. Small, Three Compartments; 60c ea.; \$6.00 doz.

LILLY'S BARRED TOP FEED TROUGH

FOR FEEDING CHICK FEED, bran, etc., to young chicks. The trough is arranged so that the youngsters can place their heads between the bars, but are not able to get their feet into the trough. The barred top is detachable, so that the trough can be cleaned thoroughly. Made of galvanized iron and wire.



No. 1007. 35c ea.; \$3.50 doz.

LILLY'S WALL FOUNTS

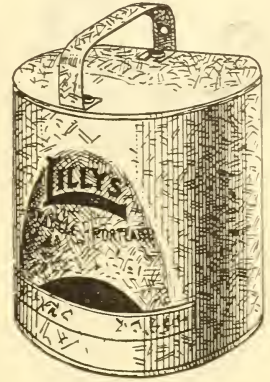
CLEAN, CONVENIENT AND DURABLE

WE HAVE MANUFACTURED this popular style of fount for several seasons. They are the most convenient of any fountain to handle, and it is impossible for dirt or filth to enter them. They may be hung on the wall or stood on the ground. The back is flat, so that they fit tight against the wall. They are made of heavy galvanized iron, and with ordinary use will last for years.

Cleanliness is a very important matter in the poultry business. A frequent cause of disease is stale, filthy water. With these founts, only a small portion of the water is exposed, the balance remaining in the reservoir until required, when it enters the trough automatically.

The small sizes are generally used for chicks and pigeons, and the larger for adults.

No. 1210. One Quart Size.	30c ea.; \$3.00 doz.
No. 1212. Two Quart Size.	40c ea.; \$4.00 doz.
No. 1040. Four Quart Size.	50c ea.; \$5.00 doz.
No. 1041. Eight Quart Size.	60c ea.; \$6.00 doz.



LILLY'S Two Piece Drink Founts

SANITARY—EASY TO CLEAN

THESE FOUNTS are very popular among particular poultrymen because they are easy to clean. No fount can be more sanitary than this separable two-piece style. They are automatic in action, exposing but a small amount of water, which is replaced as used by the birds. The poultryman will find these founts a great advantage over the old-fashioned slip-shod method of supplying water in open vessels, which is at all times a menace to the health of the flock.

They are made from heavy galvanized iron, rustproof and practically indestructible. The one and two quart sizes are generally used for young stock, and the two larger sizes for mature stock.

No. 1037. One Quart Size.	30c ea.; \$3.00 doz.
No. 1038. Two Quart Size.	40c ea.; \$4.00 doz.
No. 1039. Four Quart Size.	50c ea.; \$5.00 doz.
No. 1211. Eight Quart Size.	60c ea.; \$6.00 doz.

Food and Water Cups

FOR EXHIBIT AND SHIPPING COOPS

SPECIALLY adapted for use on inside coops, and whereas they are intended for exhibition purposes, are also very useful to have around the plant. They can be used anywhere that birds are cooped to close quarters. Made of block tin, japanned.

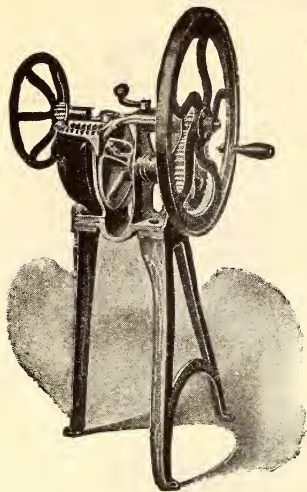
No. 1035. 15c ea.; \$1.50 doz.

Special prices on large quantities to Poultry Shows.

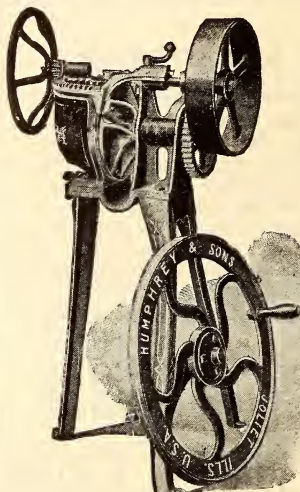


We wish to call our customers' attention to the quality of our galvanized metal goods. Poultry utensils are usually made from thin, poorly galvanized metal, and, as a general rule, the workmanship is very inferior. At considerable expense, we have all metal goods, when possible, made with stamps, which insures evenness and good construction, and we at all times use a grade of metal that will guarantee long life with the hardest kind of usage. The goods are priced as low as is consistent with good material and workmanship.

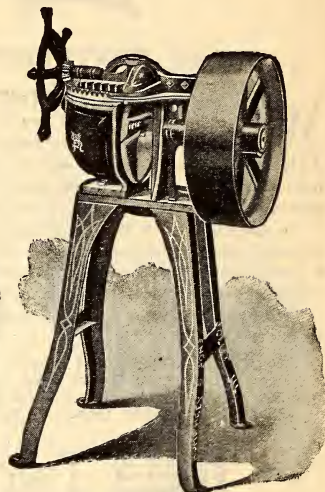
HUMPHREY GREEN-BONE CUTTERS



No. 1



No. 2 1/2



No. 6

THE HUMPHREY GREEN BONE CUTTERS are standard, and are so well and favorably known that little introduction is necessary. It is sufficient to say that the Humphrey is the peer of any bone cutter manufactured. The manufacturers' guarantee, backed by us, is so broad that the purchaser is fully protected.

The workmanship in these machines is of the best, and the materials of the highest grade. All parts are interchangeable, and may be replaced at any time. The open hopper is a great advantage, and will be appreciated by all who have used other styles.

We have had the Pacific Coast agency for these machines for many years, and have sold thousands of them which are now in daily use. Considering

the number sold, complaints have been very few, and those have come from persons who have tried to cut dry bone, which is impossible with any hand machine, or have expected to cut bone with the same ease and rapidity as they would cut vegetables, which is, of course, unreasonable.

A bone cutter is a valuable adjunct to any poultry farm where green bone can be procured. Green bone is unsurpassed as an egg producer. During the winter months, when insect life is scarce, green bone can be fed to great advantage.

If you wish, we will mail you a copy of Humphrey's book, "The Golden Egg," which contains a complete description of these machines, also practical information in regard to feeding bone.

PRICES AND DESCRIPTIONS

No. 1. HUMPHREY GREEN BONE CUTTER. Hand power. The size in most general use. Hopper 4½x5 inches. Four corrugated, oil tempered knives. Cutter Head 9 inches in diameter. Weight 120 lbs. \$13.00

No. 2. HUMPHREY GREEN BONE CUTTER. A small power machine. The same as the No. 1 less the Hand Wheel, but furnished with a 12x2½-inch Tight Pulley, which should be run 300 revolutions per minute. Weight 120 lbs. \$15.00

No. 2½. HUMPHREY GREEN BONE CUTTER. Combined hand and power machine. May be changed from power to hand at a moment's notice, when power is not available. The same as the No. 1, including Hand Wheel, and furnished with Tight Pulley, same as the No. 2. Weight 135 lbs. \$16.50

No. 6. HUMPHREY GREEN BONE CUTTER. A strictly power machine for poultrymen feeding 1,000 to 15,000 hens. Has Tight Pulley, 16x3 inches, to be run 300 revolutions per minute, with two or three horse-power. Cutter Head 10½ inches in diameter. Weight 175 lbs. \$24.00

No. 3. HUMPHREY GREEN BONE CUTTER. Direct power. Capacity practically unlimited. Has Tight and Loose Pulleys, 18x4 inches, to be run 200 to 400 revolutions per minute. Five to six horse-power required. Cutter Head 12 inches in diameter. Weight 240 lbs. \$38.00

No. 4. HUMPHREY GREEN BONE CUTTER. Geared power. Same as the No. 3, except that it is back geared, and the Tight and Loose Pulleys are 12x3 inches, to run at least 600 revolutions per minute, with a small engine of two to four horse-power. Weight 240 lbs. \$45.00

HUMPHREY'S WONDER GRIST MILL

THE long-felt need for a reliable grist mill that would meet supplied in the Wonder Grist Mill. It will crack or grind, the requirements of the poultryman and small farmer is either coarse or fine, any grain, cake, spices or anything that can be ground by the larger and more expensive mills, and do it easily and satisfactorily.

It may be used either by hand or with power. One-half to one horsepower is sufficient. The capacity is two to seven bushels per hour. Diameter of pulley, twelve inches; face, two inches. Shipping weight, 55 lbs.

Each mill is furnished with a set of medium grinding discs. Extra discs, for coarse or fine grinding, 50c per set.

Price: Hand Mill, \$6.00; Combined Hand and Power, \$7.00.

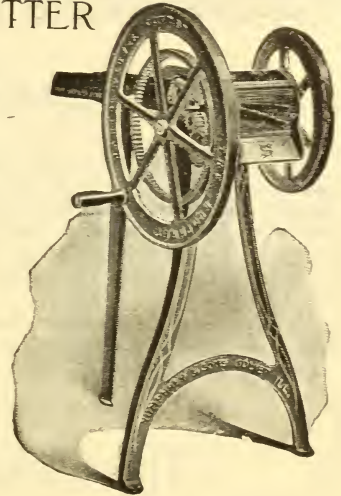


HUMPHREY CLOVER CUTTER

Every poultryman should have a Humphrey Clover Cutter. With this machine it takes but a very few minutes to cut enough clover or alfalfa for a large flock. The cuttings are so small and uniform that there is virtually no waste. It is not an expense, but a profitable investment. Made in two styles.

Stand Clover Cutter, with legs, like cut; shipping weight, 105 lbs. Price \$12.50.

Bench Clover Cutter, with short legs, to stand on bench; shipping weight, 85 lbs. Price \$10.50.



HUMPHREY DRY BONE AND SHELL MILL

A combination roughing roll and plate grinding mill, designed to grind dry bone, shell, etc. It will also grind corn and other grains into a coarse meal. Weight, 32 lbs. Price \$4.50.



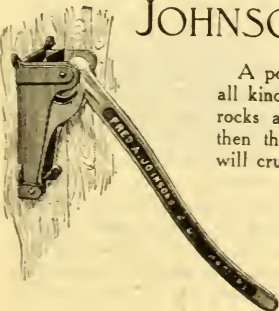
HUMPHREY GRIT MORTAR

A heavy cast-iron mortar for crushing granite, limestone or boulders to the proper size for poultry grit. Nine inches in diameter, 11 inches high. Shipping wt., 40 lbs. Price \$4.75.



JOHNSON GRIT CRUSHER

A powerful little crusher that will crush all kinds of shell and small rocks. If the rocks are too hard, heat them in a fire, then throw cold water on them and they will crush easily. Shipping weight, 24 lbs. Price \$4.00.



A more complete description of these goods will be found in Humphrey's Catalog, "Making the Golden Egg," which we will be pleased to mail to you on request.

The Pilling-Farmer Caponizing Set



This set is very popular among farmers and small poultry keepers. The set consists of Cutting Knife, Spreader, Film Hook, Testicle Spoon, Probe, and Cords with hooks for holding cockerels during operation. The tools are made of the finest steel, and are heavily nickled and finished in a first class manner.

A complete book of instructions is included with each set of instruments.

No. 1026. Price \$2.75, postpaid.

The Pilling-Special Caponizing Set

An improved set of instruments which have been made to meet the demands of the operator who caponizes large numbers of birds. The improved forceps, or testicle spoon, allows for great speed in operating. The set includes Cutting Knife, Spreader, Forceps, Film Hook, Pliers, Probe and Cords with Hooks.

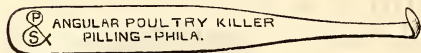
The instruments are splendidly finished, and are equal to any surgical instruments.

Complete instructions are included with each set.

No. 1025. Price \$4.00; postage 10c.



The Pilling-Angular Killing Knife



Makes poultry dressing easy. By a turn of the wrist the veins at roof of throat are easily severed. When poultry are killed in this manner the feathers are more easily removed, and the birds make a better appearance.

No. 1004. Price 50c, postpaid.

CAPONIZING

THE CAPONIZING of poultry a few years ago was looked upon as one of the branches of poultry keeping that was only for the very sophisticated. The practice has, however, made such strides during the last few years that capon is an article of diet in the larger eastern cities that is always in demand, and always to be obtained.

The largest supplies at this time are produced along the Atlantic Coast, New Jersey probably being the largest producer. Philadelphia capons can be bought in Boston at any season of the year, and the price is always good. Some of the specimens to be seen in the old Faneuil Hall Market are worth a journey to go and see.

The western states have lagged behind a little in this respect, but at the same time there is a ready

market on the Pacific Coast for all the capon that can be produced. Los Angeles and San Francisco are getting fairly steady supplies of local production, and prices have always been sufficient to warrant the production. The steward of one of the largest hotels in Seattle recently told us that he could use capon at least eight months in the year.

There is no question but that there is a good market right at home for all the capons we can produce, and the demand will increase.

The operation of caponizing is one that requires quite a little practice and some nerve, but after the rudiments are understood it becomes quite easy.

All poultry keepers who have a surplus of cockerels that would warrant the expense, should learn to caponize, even if the birds are for their own use,

SIZES

Required for Various Breeds. All Styles Except Adjustable.

MALE BIRDS
One Size Larger

No. 1 Pigeon Small Pigeons

No. 2 Pigeon Large Pigeons

No. 1 Bantams

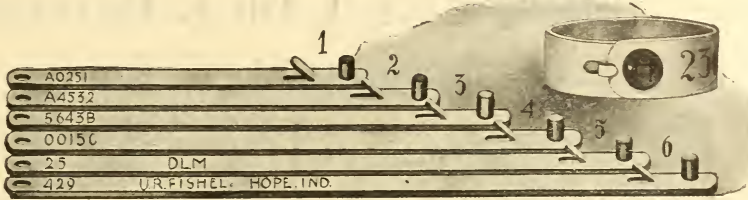
No. 2 Leghorns Anconas Hamburgs Andalusians

No. 3 Minorcas Games Wyandottes R. I. Reds

No. 4 Plymouth Rocks Orpingtons Dorkings Ducks

No. 5 Brahmas Cochins

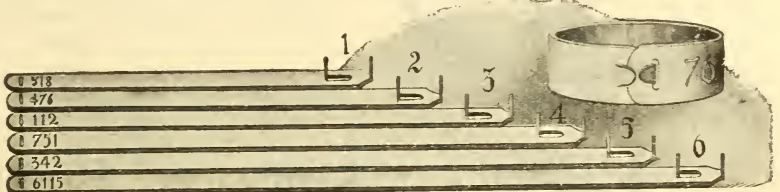
No. 6 Turkeys Geese



No. 1020. SMITH SEALED LEG BANDS.

The best leg band made. Fastened with a soft rivet, and cannot be removed without being destroyed. No two are manufactured bearing the same number. Made in six sizes. Be sure to state size when ordering. Not made in pigeon sizes. Must be applied with the Sealing Pliers, No. 1021.

Price, any size, doz. 25c; 25 for 35c; 50 for 65c; \$1.25 per 100; postpaid.
No. 1021. SEALING PLIERS for sealing Smith Sealed Leg Bands, plain, 50c. With one initial letter on jaw, to make imprint on seal, 75c; postpaid.

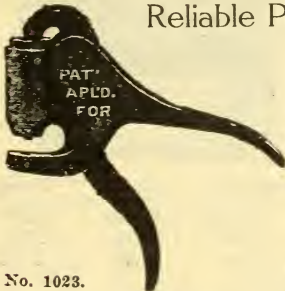


No. 1206. DOUBLE CLINCH LEG BANDS.

One of the most popular bands on the market. Made of aluminum. Has an exceptionally strong fastening, consisting of two clinches which close down over end of band. Made in same sizes as the Smith Sealed, except that we can furnish pigeon sizes.

Price, any size, doz. 20c; 25, 30c; 50, 45c; 100, 75c; postpaid.

**No. 1023
Reliable Poultry Punch**



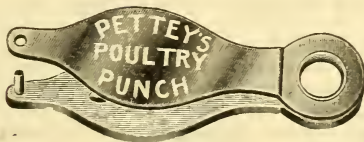
No. 1023.

Makes a clean cut, and can be handled in any position. The handle is self-opening, having a strong coil spring around the plunger.

For marking little chicks until they are old enough to be banded.

Price 25c; postpaid

PETTEY'S POULTRY PUNCH



A very popular punch, to carry in vest pocket or hang on chain. The handiest little punch yet produced. It is light, strong, and fits in between the chick's toes without bruising. Made of fine steel, well nickled.

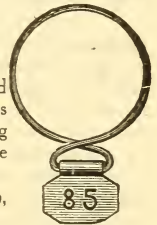
Price 25c; postpaid.

Climax Leg Bands

No. 1024

The original spring wire and clasp band. The spring-brass rings are so bent that the aluminum tag acts as a clasp. Sizes same as the Double Clinch.

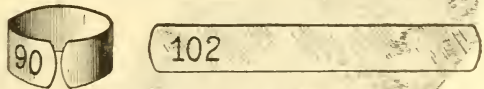
Price: Doz., 15c; 25, 25c; 50, 40c; 100, 60c; postpaid.



No. 1205. Leader Adjustable Leg Band

These can be adjusted to any size required, are very secure, and are made of aluminum. Made in two sizes: No. 1 for small hens, and No. 2 for males, large hens, ducks, geese and turkeys.

Price, either size, same as Double Clinch.



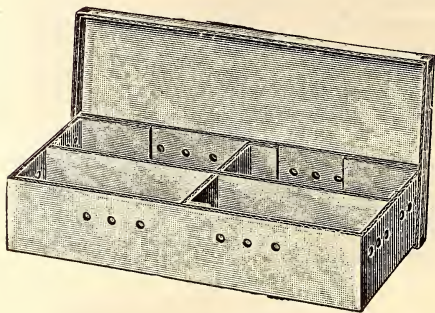
No. 1090. Open Chick Band

Used as temporary bands on little chicks until they are old enough to be properly banded. Sizes No. 1 and No. 2 only.

Price, either size, same as Climax.

LILLY'S LIVE CHICK BOXES

For Shipping Chicks by Express



THOSE who have shipped baby chicks know the importance of a good package. We have a chick box, made especially to our order, which we believe is superior to any previously offered. By having them made in immense quantities, we are able to offer them at prices less than is usual for inferior boxes.

They are made of corrugated strawboard of unusual thickness and quality, protecting the chicks against changes in temperature. Others are made with thin single-play strawboard covers; ours have heavy corrugated strawboard covers, affording better protection. They are properly ventilated, and chicks may be shipped in them any reasonable distance in any kind of weather. They fold flat when not in use.

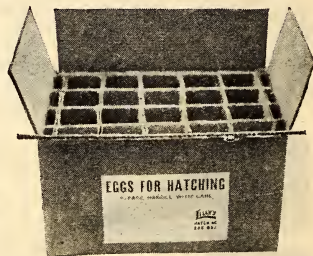
		1	2	Doz.	6 Doz.	Gross
No. 1081.	25 Chick Size	\$.15	\$.25	\$1.10	\$6.00	\$10.20
No. 1082.	50 Chick Size .....	.20	.35	2.00	10.50	18.00
No. 1083.	100 Chick Size .....	.30	.50	2.50	13.50	24.00

LILLY'S EGG SHIPPING BOXES

For Shipping Fancy Eggs by Express or Parcel Post

NO OTHER egg shipping box affords such complete protection for high priced eggs for hatching. They not only meet all requirements of the Parcel Post Law, but also insure safe transportation of eggs. One feature of superiority is the half-inch air space between the eggs and sides of the boxes, protecting them effectually against rough handling, cold and heat. Another feature is the thick corrugated partitions above and below the eggs, giving them additional protection.

With these boxes, hatching eggs may be shipped to any place at any season with entire safety. The boxes fold flat when not in use, and may be used repeatedly. A label for name and address accompanies each box.



		1	2	Doz.	6 Doz.	Gross
No. 1012.	15 Egg Size	\$.15	\$.25	\$1.35	\$7.50	\$13.20
No. 1013.	30 Egg Size .....	.20	.35	2.10	11.10	20.40
No. 1084.	50 Egg Size .....	.30	.50	2.65	14.40	27.00

EYRIE SHIPPING COOP

For Safe Shipment of Fancy Poultry



THE MOST GENERALLY used of all shipping coops for show and breeding birds. It is made in three parts; the top and bottom of wood, and the body of heavy corrugated strawboard in one piece, making a very strong, durable, light and practical shipping coop, and insuring protection against rough handling, draughts, etc.

It folds flat when not in use, making it convenient to store, and minimizing express charges when returned empty.

		Each.	Doz.
No. 1014-C.	12x22x22. For one large or two small birds, weight 6½ lbs.	\$.60	\$6.10
No. 1015-D.	20x22x22. For two large birds. Weight 10 lbs. . . . .	.85	8.40

SHIP DIRECT TO THE CONSUMER

PEOPLE IN THE CITIES are anxious to purchase fresh produce direct from the producers, and of course the producers are glad to have the profits otherwise had by the middlemen. The Parcel Post makes this possible and convenient, but many have not been able to profit by it on account of the restrictions in regard to packages required.

We have procured a line of corrugated fibre boxes which meet all requirements of the Parcel Post, and

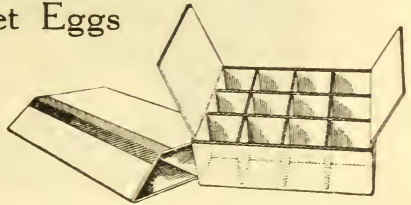
in which eggs, dressed poultry, garden truck, etc., may be mailed direct to the consumer safely and in an attractive manner that will bring highest prices. By purchasing in very large quantities we are able to make prices which make these boxes the cheapest as well as the most attractive package. They are made in a variety of shapes and sizes, adapting them for any kind of produce.

PARCEL POST EGG BOXES

For Mailing Market Eggs

AN EXCEEDINGLY STRONG corrugated fibre box for the safe transportation of market eggs by Parcel Post. The package is so constructed that each egg is separated by corrugated board, and the entire contents are surrounded by a double wall of air-cushioned corrugated board.

They are made in five sizes, fold flat when not in use, and are very light, reducing postage to the minimum.



	Capacity	Dimensions	Packed in bundles of	Weight per Bdl.	1 Doz.	2 Doz.	Gross
No. 1100.	One Dozen Eggs	7 ⁵ / ₈ x5 ⁵ / ₈ x2 ⁵ / ₈	Two Dozen	9 ¹ / ₂ lbs.	....	\$1.00	\$5.65
No. 1101.	Two Dozen Eggs	7 ⁵ / ₈ x5 ⁵ / ₈ x5 ¹ / ₄	Two Dozen	18 ³ / ₄ lbs.	....	1.60	8.90
No. 1102.	Three Dozen Eggs	7 ⁵ / ₈ x5 ⁵ / ₈ x8	Two Dozen	25 lbs.	....	2.15	11.85
No. 1103.	Four Dozen Eggs	11 ¹ / ₂ x7 ⁵ / ₈ x5 ¹ / ₄	One Dozen	32 ³ / ₄ lbs.	\$1.35	....	14.95
No. 1104.	Five Dozen Eggs	9 ¹ / ₂ x7 ⁵ / ₈ x8	One Dozen	38 lbs.	1.55	....	17.20

These boxes can be furnished in full bundles only, as shown above.

CORRUGATED BOXES FOR PARCEL POST

For Mailing All Kinds of Produce

THE STRENGTH and durability of these corrugated boxes, combined with their light weight, makes them suitable for the shipment of all farm and garden produce by Parcel Post. Perishable articles, such as fresh meat, dressed poultry, fruits, vegetables, etc., will be accepted in these boxes

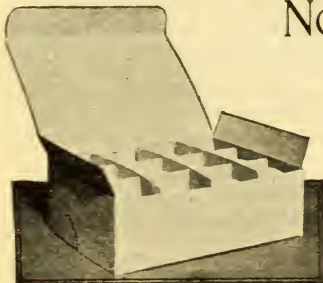
for local delivery without additional wrapping; or, when wrapped, they will be accepted for delivery in the first zone. Articles which do not decay quickly will be accepted in these boxes, without wrapping, for all zones.

	Dimensions	Weight	Per Doz.	of 25	of 50	
No. 1105	10x8x 4	1/2 lb. each; 25	lbs. per bdl. of 50	\$0.60	....	\$1.70
No. 1106.	10x8x 8	3/4 lb. each; 38 ¹ / ₂	lbs. per bdl. of 50	.85	....	2.60
No. 1107.	14x6x 6	3/4 lb. each; 37	lbs. per bdl. of 50	.85	....	2.50
No. 1108.	14x6x10	1 lb. each; 26 ³ / ₄	lbs. per bdl. of 25	1.20	\$1.80	....

These boxes cannot be furnished in lots of less than one dozen of one kind.

NORTHWESTERN EGG BOX

For Market Eggs



THE NORTHWESTERN is the strongest and best market egg box made, and is not to be confused with the cheap, flimsy carton commonly used. It is for delivering eggs to market and to local customers in a convenient and attractive manner, and is not for shipping by Parcel Post or Express.

It is made of one piece of cardboard, with fillers, and folds flat when not in use. Weight: Dozen, 1³/₄ lbs.; 100, 13³/₄ lbs.

No. 1016. Dozen, 15c. 100, \$1.00; 500, \$3.50; 1,000, \$6.50.

Write for special prices on large quantities.



WHITE LEGHORN BABY CHICKS FROM FIRST-CLASS UTILITY STOCK

TO THOSE who are not in position to do their own hatching, we are able to offer first-class White Leghorn chicks. We use great care in choosing the breeders from whom we procure these chicks and take every precaution to insure our customers good vigorous chicks from the best utility stock.

Many poultrymen have procured chicks from us for several years, and their repeat orders are the best evidence of perfect satisfaction.

Our methods of packing and shipping are such that during the last season our losses in transportation were less than one chick in one thousand. We arrange to have all chicks arrive at our store about 4:00 P. M. each Wednesday. This permits us to ship on practically all of the evening boats and expresses out of the city; otherwise the chicks are shipped early the next morning.

We guarantee delivery in good condition on all orders accepted by us, but we must decline to accept any orders to points to which there is not a boat or express leaving Seattle after 4:00 P. M. Wednesday or early Thursday morning, and points to which delivery cannot be made within forty-eight hours from 4:00 P. M. Wednesday.

We ship only by express or boat. Chicks cannot be shipped by freight or parcel post.

When ordering, be sure to give both Post Office address and Express Office or Boat Landing; also, please advise if you are located a great distance from the station. It would be well to also advise how you could be communicated with most quickly; by telephone, telegraph or letter.

Before shipping, we will notify you the exact time that the chicks will be shipped, so that you

may be at the station to receive them immediately on arrival, for chicks must be handled with the utmost dispatch. If they do not arrive on the train or boat upon which they are expected, you should meet the next train or boat, for it is possible that they may miss connections.

They must be fed and watered promptly. The water should be warm. Have brooders warmed up and ready before the chicks are due to arrive. Also have a supply of Holly Chick Food and High Protein Chick Mash. Care on arrival and brooding are of the utmost importance, and failure in these respects is liable to be the cause of vastly greater mortality than is transportation. See the article elsewhere in this book in regard to the brooding and feeding of chicks.

There is no assurance that we will be able to fill orders that are not received at least two weeks before the chicks are to be shipped; especially during the month of April, when the demand usually exceeds the supply. Occasionally we have a surplus, and are sometimes able to fill orders on short notice.

We cannot furnish chicks in lots of less than one hundred, cannot furnish any variety other than White Leghorn, can furnish them from our Seattle house only, and cannot furnish them before the middle of February or after the middle of May.

Cash in full with order is required in all cases.

PRICES.

For delivery in February.....\$12.50 per 100
 For delivery in March..... 12.00 per 100
 For delivery in April..... 11.00 per 100
 For delivery in May..... 10.00 per 100

Write for special prices on large quantities.



G. B. LEWIS CO.

BEE SUPPLIES

We are Pacific Coast Agents for the Celebrated Lewis Bee Supplies, which are generally conceded to be the Best

BEE-KEEPING is a profitable and pleasant occupation, and there are few of our customers who could not advantageously keep a few colonies, at least, and thus supply their tables with one of the most delicious and healthful of foods, in addition to deriving considerable profit from the sale of surplus honey.

The work is light, easy, and there is a fascination about it that makes it worth while even if no pecuniary profits were derived. Any person who is a lover of nature will be delighted with the intelligence displayed in the everyday life of a colony of bees. A study of their little world discloses system, government, social economy, industry and perseverance that we humans would do well to copy.

Many have not entered into the business on account of a fear of stings, but that is a fallacy. Bees are really gentle little beings, and use their stings only for defence.

To obtain satisfactory results from bees, proper appliances and fixtures must be provided.

There is a difference in bee supplies, and the best will be found to be the most satisfactory and economical. The G. B. Lewis Co. has been making hives, sections, etc., for more than forty years, and have earned the reputation of turning out the best and most uniform line of bee supplies. Their goods are made from the best materials and the workmanship is perfect. Their hives, supers, etc., are made from clear eastern white pine, which appears to be the only material suitable for that purpose. Their sections are made from Wisconsin basswood, are white, highly polished, without flaw, and are perfectly uniform. All supplies are exact in size, and no difficulty is ever experienced in putting them together. Every part fits perfectly.

Hives, supers, etc., are packed in bundles of five, in the flat; hence prices are shown in lots of five and we can furnish them at those prices in lots of five or multiples of five only. When one, or less than five, is ordered, they will be shipped nailed up and the price shown for one will apply.

A Few Suggestions for Beginners

BEE-KEEPING is not only interesting but is profitable as well, and judging from the experience of others, we are certain, should you commence this industry, you will continue and increase until you will find that you are deriving no small income from this source every season.

We have endeavored to give here a few points which will aid a beginner in getting properly started.

BUYING BEES.

We do not recommend anyone without experience to start with more than about five colonies of bees and the hives and implements necessary to handle them. We suggest buying bees as close to home as possible, provided you get them cheap enough. We would not advise any beginner in bee-culture to start in buying bees in box hives, or frame hives with crooked combs, as the transfer of bees out of such hives into new ones is usually not an agreeable job and should rather be left to some one who has had experience in that kind of work.

Select colonies strong in bees, housed in a well constructed hive of standard size; make sure that all the combs are straight (crooked combs depreciate the value of a colony greatly). See that they have sufficient honey to last until new honey is coming in. They should have a good, vigorous queen. Last but not least, make sure that bees and brood are healthy. The best time to buy bees is in spring, about the time of fruit bloom, as then all danger of wintering is past and the colonies being light in weight now, they are more readily moved.

MOVING BEES.

After you have bought bees, the next important thing is to get them safely home. Bees may be moved at any time of the year, except very cold weather in winter. During the fall or spring, when the days are cool, they can be moved with the least expense and trouble. It is always better to go about this carefully and correctly, as follows: Take off the hive cover, tack a wire cloth over the entire top of the hive, and if the weather is cold, stop up the entrance entirely, but if it is warm weather, cover the entrance with wire cloth; now nail enough cleats on the sides of the hive (use nails that will not go through into the inside) to hold all parts together; cover the entrance after dark so as to be sure that all of the bees are in the hive; use an easy riding vehicle for hauling the bees, and drive so as to avoid any sudden jerks or drops, as a quick, hard jar is bad for bee comb at any time or place. After

you get your bees home, put them into the place which you should have prepared beforehand and open the hive entrance at once, but provide yourself with a bee veil and lighted smoker first and blow a little smoke into the hive entrance. Do not have any horses or other live stock near, as they are liable to get stung.

LOCATION OF APIARY.

Any place where there is an abundance of honey-producing plants, and which is not overstocked already, is suitable for the location of an apiary. A locality sheltered from high winds should be given the preference; and if shade by a few tall trees can be had, so much the better. Face the hives to the southeast, if the surroundings allow it. Arrange a solid place for each hive to stand on, four or five inches from the ground. Some use bricks for this purpose; others short pieces of 4x4, or stakes driven into the ground and sawed off square, or especially constructed hive stands.

Make sure that each hive stands level sidewise, and a little lower in front to keep out water.

Keep grass and weeds down in front of the hives.

TRANSFERRING.

In case you have bought your bees in common boxes, or in frame hives that have crooked comb, it will become necessary to transfer them into good hives that are up to date.

It does not pay even to attempt to keep bees in a box hive or any other hive which does not permit the interchange of frames or the handling of bees with ease. The old-fashioned way to transfer from old hives was to cut the combs out and fit them into the frames of the new hives. This was always a great deal of trouble, and a sticky, undesirable job for anybody, especially a beginner. Besides having some smashed bees, plenty of stings, and some crooked combs, the results were very seldom satisfactory, because comb taken from old style hive generally has so many drone cells that it is unfit for use. Some prefer, instead of only a starter, to wire the brood frames, buy medium brood foundation, fasten a full sheet in each frame and imbed the wire in the foundation. Then you can feel assured you will have nice, straight combs with but very few drone cells. Having your brood frames straight, all arranged as above described, and the balance of your new hive nailed up complete, give them two coats of pure white paint wherever they will be exposed to the weather.

If your bees are in box hives, you may next proceed to make what we shall call a hiving-box. Make a box 5 to 8 inches deep, just large enough to exactly cover the bottoms of the old hives, no larger, and leave it open on one side only, with not even a small crack on the other sides. It now being the right time in the year, and you having all things ready for transferring, light a fire in your smoker, put on your bee veil over a hat with a broad, stiff rim and fasten veil closely at the neck, gather up the hiving box and "go for the bees." Move the old hive back about four feet, put the new hive where the old one was, turn the old hive up side down, smoke the bees a little, not using too much smoke, then place the hiving-box squarely over the bottom of the old hive and drum on the side of the hive with two pieces of wood, one in each hand, to drive the bees into the hiving-box. When you have most of them in the box, lift it off gently, carry it to the front of the new hive and dump the bees all out, giving the hiving-box a few quick downward jerks so as to jar the bees loose from the sides. Now take a small broom (don't use feathers, as they anger bees) and quickly brush all clinging bees from the hiving-box; set down and watch closely to see that the queen bee goes into the new hive; she is long and slim and will be easily found among the other bees; you must be sure that she is in the new hive, and if you do not see her going in, look inside for her, and if you do not find her, place hiving-box on old hive and drum the bees up, time after time, until you do find her and are positive that she is in the new hive—she must be there or the transferring will not amount to anything. When nearly all of the bees and the queen are in the new hive, turn the old hive right side up and set it down about twenty inches back of the new hive with the entrance turned sideways from the new hive. Let the old hive alone for twenty-one days (it takes that long for working bees to hatch), then turn it up side down again, place hiving-box on it, drum up the bees and dump them in front of new hive, this time getting all of the bees out. The brood now left in the old hive will be drone brood which you do not want. Now take out all of the nice honey fit for use, take out all of the old combs and render them into beeswax, and your job is completed, and you have left an old box fit for nothing else, perhaps, but kindling wood.

If your bees are in a hive with movable frames, you must proceed with transferring in the same manner as with the box hives, except that you do not turn the hive up side down at all, nor do you use a hiving-box. You simply lift out the frames from the old hive, one by one, carry them over and shake off the bees in front of the new hive. In either case you must not expect to take all of the bees away from the old hive at first, as there should be one-fourth of them left to feed the larvae and to keep the brood warm until twenty-one days are up.

WINTER CARE OF BEES.

Whether bees should be wintered in single walled hives on the summer stand, or in Chaff Hives, or whether they should be housed in a frost-proof

cellar, depends entirely on location, and we therefore advise beginners to follow the practices of the successful bee-keepers in their locality. To winter bees successfully in any locality it is necessary to observe the following: The colony must be strong and have a good proportion of young bees. A good supply of wholesome stores must be present in the hive at the opening of winter. The hive must be arranged to prevent the accumulation of moisture during cold weather.

SPRING WORK.

During a nice warm day in early spring, when the bees are flying freely, examine your colonies; see if they all have their queens yet, and if there is sufficient honey in the hives. If you find one which you are sure is queenless, but is still strong in bees, it may pay you to send for a queen at once, and introduce her according to the directions printed on the cage. If queenless and weak besides, unite with another colony that has a queen, in the following manner:

Lay a sheet of newspaper over the brood-frames of the colony having the queen; tear a round hole about two or three inches in diameter in the center of it; then set an empty brood-chamber, without bottom, on top of it, and hang your queenless colony into it; leave no way for the bees in the upper story to get out except through the entrance of the hive below. By this method they will acquire the same scent as the colony below and unite without any fighting. A week or two afterward you can shake the bees off the upper combs, and store hive and combs away.

Colonies found short of stores should be fed, either by giving them combs filled with honey, or giving them liquid honey in a feeder.

In localities where early flowers are lacking, it often pays to expose a few pans full of flour or corn meal, tightly packed down, which the bees will use as a substitute for pollen. Suitable watering places may also be provided, so the bees will not bother stock at their watering trough.

To avoid worry and work later on, the queen's wings should be clipped during the month of April, when they are most readily found.

If you have not made up and painted your hives for increase, put up sections, etc., during the winter months, be sure to do so now.

To cut surplus foundation to the proper size for sections make an ordinary mitre box about four inches deep, twenty inches long, and as wide inside as the width of the foundation, allowing for a little play. Close up the left end, and starting from this, measure off distances corresponding to the depth of the foundation starters desired, and make the usual saw-cuts at these points, square across. Fill up the box with sheets of foundation, and cut the starters with a scalloped bread knife, using a sawing motion, dipping the knife every cut in strong soap-suds.

SUMMER.

When swarming time commences have your empty hives all ready for receiving the swarms, supplied with starters or full sheets of foundation, and stored in a clean, cool place. If you wish to transfer bees

from box hives, or frame hives with crooked combs, do it as soon as there is enough honey coming in to carry on comb building.

If beginners allow their bees to swarm naturally they are most likely to have good success. After they get more experience they may try their hands at artificial swarming, or the entire prevention of swarming.

When a swarm comes out the bees will usually settle on some suitable object near by. It is not necessary to beat tin pans, etc., to make them do so. After the bees are clustered in a compact bunch, hive them, either by shaking them on top of the brood-frames or in front of the hives. When clustered on the trunk of a tree or a post, it is sometimes necessary to lift them off gently with a ladle, or other instrument, and put them in the hive. If the swarm is clustered very near to the ground it is generally sufficient to shove the entrance of the hive close up to them and use a little smoke in driving them in. At other times, it may be found to be more convenient to carry the swarm to the hive. If you have low trees near your bees, you will find the "Manum swarm-catcher," illustrated in this catalogue, a great convenience.

If you have to be absent from home during swarming hours, you can attach an "Alley queen and drone trap" to the hive expected to swarm. This will catch the queen and thereby prevent the swarm from leaving.

If the colony has swarmed during your absence you will generally find some bees clustered on the outside of the trap. Then get your new hive and put it in the place of the old one; open the trap, find the queen and let her run into the new hive; then take out the frames of the old hives, and shake about three-fourths of all the bees into the new hive; return the frames and give the old hive a new place. It is well to shade a newly hived swarm for a few days.

While bees in the act of swarming are not much inclined to sting, there is once in a while a swarm that is very much aggressive. We would therefore advise you to be always supplied with a bee veil and a smoker, ready for use.

HANDLING BEES TO GET THE MOST SURPLUS.

Mark the hive where the swarm came from, after the swarm is hived; go back and move the old hive to a new location some distance away; then bring up the hive with a new swarm and set it in the same place where the old one stood. This will further strengthen your swarm with all the bees coming home from the fields. When using full sheets of foundation in the brood-chamber you can put your super on in about 24 hours; but if you use starters only in the brood-frames, you had better wait for about three days before giving a super, as otherwise there is some danger of the queen depositing eggs in the sections. As the old colony will be deprived of most of the field bees, you may take the super from it and give it to the swarm. If you do this you should give the old colony a new super within two weeks.

If you do not want to watch for swarms, then when new honey begins to come in, and the season

appears favorable for a fair crop of honey, set a new hive with starters in the place of each hive containing a strong colony, as in the above plan, open the hive, look up the queen and hang her with a frame of brood in the hive, then shake or brush most of the bees in front of the new hive. If you do not care for increase, set the old hive some distance away for a few hours or a day, until the artificial swarm has quieted down, then put it by the side of the new hive, and after the brood has hatched out, shake off the remaining bees, as before, and store away the old hive. If you wish to make sure of saving the old queen any young queens in the old hive should first be removed; otherwise, pay no attention to them. When the swarm has built all its combs, look over them carefully, and exchange all those having considerable patches of drone comb for straight worker combs from the old hive. If you wish increase, then remove the old hive at once to a new location after the first shaking, making sure it is supplied with two or three good queen-cells nearly ready to hatch. Usually in going over the yard in this way plenty of combs with queen-cells will be found, which should be set aside for this purpose. Never shake a comb with queen-cells to get the bees off, but always brush it. If the plan is applied annually in a wholesale way without exchanging any combs, and all old combs melted up, the apiary will remain immune from foul brood.

Beginners should be careful not to apply this method to colonies so weak as to be damaged by the operation, or in unfavorable weather, and should be careful to exchange no combs from hives in which there is any suspicion of foul brood.

To avoid absconding of either natural or forced swarms, the queen should be clipped. (See "Spring Work.") When a natural swarm issues with a clipped queen, the queen should be looked for first as she crawls around before the hive trying to fly, and temporarily caged. While the swarm is in the air, the new hive is to be set in the place of the old. When the bees commence to return of their own accord, or when they are brought back on the bough on which they have clustered and are shaken in front, the queen is to be liberated at the entrance, making sure she goes into the hive.

When the first super you have given to a colony is about three-fourths filled, put another one underneath it, by the time this second super is three-fourths finished, the top one will usually be completed; if not, you will have to put a third super below these two. As soon as every section in a super is completely capped over it should be removed from the hive. By using the Porter bee-escape you can get the bees out without the use of smoke.

To prevent having a lot of unfinished sections on hand at the close of the season, you should, during the last few weeks of the honey-flow, gradually reduce the number of supers on the hives to one each and finally have only a super on the very strongest and best working colonies to finish up those sections nearest complete.

Unfinished sections should never be put on the open market. If they are not much soiled by bee-glue they may be extracted and kept over for next

season; otherwise we should advise cutting out the combs and melting them up. Sections that are finished, but have been built together, should either be sold around home or rendered.

PREPARING COMB HONEY FOR MARKET.

Have your honey stored in a warm, dry place, free from dust and flies. Put only sections with nice, straight, well-filled and well-capped combs on to the market; scrape off all traces of bee-glue; grade your honey carefully, and put it up in neat, clean shipping cases. Make sure that the front row is a fair representation of the contents of the case. We would advise you to follow the grading rules adopted by the National Bee-Keepers' Association or those of some state or local association in your section.

EXTRACTED HONEY.

As the economical production of extracted honey requires a greater outlay for fixtures than for comb honey such as extracting combs, extractor, capping and storage tanks, etc., it is mostly carried on by specialists, and we shall, therefore, not devote space to it. Honey should be well ripened in the hive before extracting. The combs of honey must be warm, else it will be difficult to get all of the honey thrown out. The honey-knife should be kept sharp and immersed in hot water when not in use. After the honey is extracted it should be strained through several thicknesses of cheesecloth, and stored in a very warm place for a few days until all air-bubbles have risen to the top and have formed a foam, which should be carefully skimmed off. The honey is then ready to be put into vessels selected for it.

Well-ripened extracted honey weighs 12 pounds to the gallon. All pure extracted honey will granulate, or become solid, some varieties sooner than others.

To bring it back to its former liquid state, put the vessel containing it into another one containing water and heat it gradually, taking care that the water does not come to the boiling point, else the color and flavor of the honey will be injured. After such treatment the honey will generally remain liquid for several months.

ROBBING.

Here the old saying, "An ounce of prevention is worth a pound of cure," is very appropriate. Never leave hives open, or honey exposed, nor manipulate colonies at unseasonable times. See also that there is no chance for bees to get into your honey room. But one of the best preventatives for robbing is to keep all colonies strong, and supplied with queens.

If a colony is getting robbed, contract the entrance and pile some straw loosely in front of the entrance, and sprinkle this with water. Or put a bee-entrance guard in front of the hive. In fact, adopt any ready way to prevent the robbers from gaining rapid access into the hive. Usually only weak, diseased or queenless colonies are getting robbed. Careless and injudicious feeding is also sometimes the cause of robbing. Be especially careful not to get

any robbing started if there is any foul brood in your neighborhood.

FOUL BROOD.

This is a highly contagious disease. It is due to a microbe (*Bacillus alvei*) whose spores are easily transported from hive to hive by the bees themselves in robbing, by the operator, in honey, or in combs changed from one hive to another.

Once established in an apiary it usually spreads, unless speedily and energetically checked, until all of the colonies in the neighborhood are ruined.

The symptoms are: The turning brown of larvae in open cells; many sealed cells have sunken caps, frequently broken in and containing dead larvae in putrid condition, brown or coffee-colored, and ropy in consistency. The latter is the most characteristic symptom of the disease. To determine this, stick a toothpick into the brown mass, twirl it around once or twice, and draw it out; if it adheres to the toothpick and pulls out in the form of a string, you can be assured that it is a case of foul brood. In the more advanced stages of the disease a disagreeable glue-like odor is often perceptible.

TO CURE FOUL BROOD.

Toward evening transfer the bees, simply by shaking them off the combs on to some paper placed in front of the new or clean hive, and run them in. The new hive should be placed where the old one stood, and should contain frames with starters or full sheets of foundation. If possible, the new hive should resemble the old one, otherwise the bees will be confused and enter other colonies and carry the germs of the disease to them. Do not give them combs, as they must use up the honey in their honey-sacs for comb-building to get rid of the spores of the disease.

As the latest experiments have shown that honey from diseased colonies is not safe to feed back to bees unless it has been subjected to boiling for at least one hour, we urgently advise burning up completely all combs of diseased colonies. Do this at night; and after everything that will burn is consumed by fire, bury the rest in a hole two feet deep.

If you wish to save the hive paint the inside of it all over with kerosene, and drop a lighted piece of paper into it. After the whole inside of the hive is slightly charred, smother the fire by putting on the cover. A much handier way is to burn it out with a painter's gasoline torch.

BEEES AND FRUIT CULTURE.

Bees are a great help to the fruit-grower, as they fertilize the blossoms of the fruit trees during a time of the year when other nectar-loving insects are not sufficiently numerous.

As much injury had been done to bee-keepers by the injudicious spraying of trees, laws have been enacted in several states prohibiting the spraying of fruit trees, while in blossom, with poisonous substances.

Experienced horticulturists claim that a week or ten days after the petals of the blossoms have fallen is the proper time to spray for codling moth.

In melting comb on the stove, be careful; the wax

is liable to run over and set fire to your house.

Before pouring the wax into molds, strain it through cheesecloth. Rinse your wax-pans with strong soap-suds, to keep the wax from sticking to them. After pouring the wax allow it to cool very slowly in a warm room, to keep the cakes from cracking. If you get one of the solar wax extractors shown in this catalogue you can produce a better quality of wax with much less trouble.

Whenever you get stung, scrape off the sting as quickly as possible with the thumb nail or a knife; never pull it out, as by doing so you inject more poison into the wound.

Honey is the most healthful sweet known, and its more general use should be encouraged as much as possible.

Bee-keepers should therefore set others a good example, and have honey on their tables at all times. It is cheaper than butter, and children are usually very fond of it. As long as there are so many families who never get a taste of honey, we cannot talk about over-production. Therefore try to induce all your neighbors, friends and everybody else to eat honey.

THE QUEEN.

You may make a change of bees from one stock to another by a change of queens. Before doing this, it is well to know something of the bees to

which you wish to change. Some queen breeders claim that "there is nothing in pure stock." Many very practical ones have devoted several years to the business and have their bees bred up to a strain of excellent honey gatherers who are not descendants of any particular race of bees, but are mixed up with several races, and are simply "hustlers" who do the work and are both gentle and healthy. While we do not criticise those having such bees, we feel partial to the Italian bees, and we think that all that can be desired in honey bees can be found in pure Italian queens (not necessarily imported), bred up "for business," are surely quite enough in the way of beauty, gentleness and profitableness to suit any reasonable requirement.

You can Italianize by purchasing a tested queen, and then introducing her to the colony you wish to change. If the tested queen costs too much to suit you, buy untested queens and introduce them to your bees. Instructions for introducing queens are always included when the queens are sent out, but for a complete treatise on introducing queens and on dividing bees and making more colonies, we refer to any of the standard bee books.

In the foregoing we have, as previously stated, merely endeavored to give a few points which will assist you in getting started, after which it will be to your advantage to obtain one of the good bee books and inform yourself generally.

Bees and Their Homes

A BEE is a little insect belonging to the family of which the scientific name is apis.

Thus the place where bees are kept is sometimes called an apiary, taken from the word apis.

The bee gathers nectar from the flowers, which nectar, after undergoing a chemical process in the bee, becomes honey and is carried to the home of the bee, commonly called a bee-hive. Each hive of bees is known as a colony. Honey is the main food of the bee, and after enough is carried to the hive for it to live on, the balance, sometimes called surplus, is taken from the hive by the bee-keeper to serve as food for the human being. While the amount of honey one bee can carry in a day is almost too small to be appreciable, yet a good colony of bees in a fair season will carry over ten pounds in a single day. Bees then are kept for the production of the honey, which is sold as a staple product to neighbors or to the grocer or to other dealers for profit.

They are also very prolific and by increasing rapidly they help to make the occupation of bee-keeping pay.

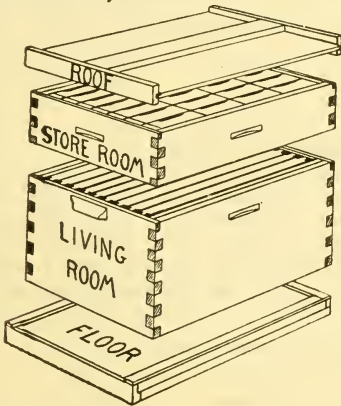
Bee-keeping is easy to learn if one commences in a small way, as we advise everyone to do who is beginning. The very best way to learn, while you are also gaining knowledge by actual experience, is to become closely associated with some experienced bee-keeper near you who has kept bees for years, by watching him work among his bees and by asking him questions. We also advise securing some good bee book and subscribing to a bee journal.

Bees, as a great many wrongly suppose, are not, when correctly kept, dangerous. On the contrary, they are little fellows who are pleasantly fascinating and good-natured to one who understands them; unless molested, they will seldom attempt to sting; so harmless are they in fact that bees are kept in large cities in door-yards and on roofs, etc. It is not an uncommon sight in small towns to see yards within the city limits containing hundreds of bee hives. Apparel such as gloves and veils sufficiently protect the bee-keeper while working among his bees. The fear one usually feels in launching in this new enterprise soon gives way to confidence and enjoyment.

"Insect life is ever presenting the most pleasurable surprises to those who study it. Bees, from their wonderful instincts, curious structure and habits, and the interesting relations which they sustain to vegetable life, are most fascinating objects of study. The observant and appreciative bee-keeper is ever the witness of exhibitions that incite wonder and admiration. This is why bee-keepers are always enthusiasts. I know of no class of laborers who dwell more fondly on their work and business than do bee-keepers. A thorough study of the marvelous economy of the honey-bee must, from its very nature, bring delight and admiration. A farmer once said to me, 'Were it not for the generous profits of the business, I would still keep bees for the real pleasure I receive in the business.'"—Cook's Manual.

Honey production is of two kinds—comb honey and extracted honey. The former, as its name suggests, is produced and put on the market in the comb. The latter is what is first produced in the comb but mechanically later taken out of the comb and put on the market in liquid form, in bottles or cans, etc.

We will now turn our attention to the home of the bee, commonly called a bee-hive, the main parts of which are shown by the cuts below.



MAIN PARTS OF A BEE-HIVE.

Floor—This is known in bee supplies as the Bottom.

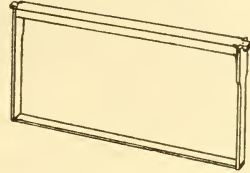
Living Room—This is known in bee supplies as the Body.

Store Room—This is known in bee supplies as the Super.

Roof—This is known in bee supplies as the Cover.

The Living Room or the Body is the room in which the bees live.

The Store Room or the Super is the room in which the bees store the surplus honey.



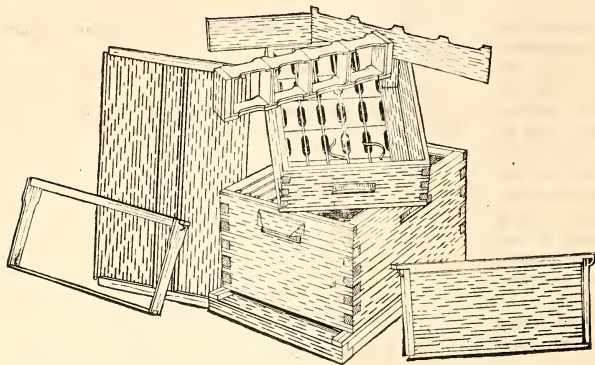
The Brood Frame is the Frame or Rack, eight of which are placed in the Body of an Eight Frame Hive and ten in a Ten Frame Hive, thus the two different sizes of hives commonly called the Eight and Ten Frame are determined by the number of frames they contain. These frames are rapidly filled with honey-comb cells by the bees. In some of these cells are deposited honey or pollen, which serves as food, in other cells brood or young is reared; more of the cells are given up to brood and pollen in the spring and summer and less to honey; while in the fall and winter just the opposite is true, very little brood or pollen being seen and most of the cells filled with honey.



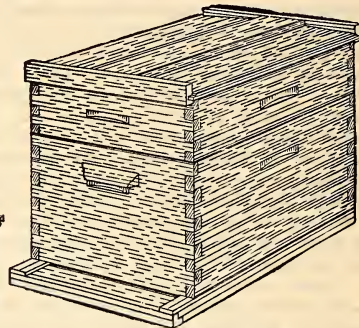
The Section Holder is just what the name signifies; it is a holder consisting of a bottom slat and two end pieces, which holds the sections when placed in the Super.

The Sections or honey boxes are the little square boxes which are placed into the above section holder and then into the Super, which little boxes are then filled with honey by the bees. These little boxes are made of one piece and fold up into shape like a strawberry box, except that they have no bottom, consisting of the four sides only.

DOVETAILED HIVES FOR COMB HONEY



1 1/2-Story Hive, Open.



1 1/2-Story Hive, Closed.

One and One-Half and Two-Story Hives

The Dovetailed Hive as shown above is the Standard Comb Honey Hive. It is furnished in two sizes, eight-frame and ten-frame. If you are beginning to equip a new apiary we recommend the ten-frame.

The above illustrates a 1 1/2 story hive; when two supers are included it is then a 2 story hive for comb honey.

The Bottom as regularly furnished is reversible, so that it can be used either side up, one side forming a 3/8-inch entrance and the other a 7/8-inch entrance for the bees.

The Body or brood chamber is equipped with the Hoffman self-spacing brood frames, eight with the eight-frame hive and ten with the ten-frame hive.

A Division Board is furnished with each body. This is used for reducing the brood space in the case of weak swarms. It just fills out the space in the eight-frame size after all eight frames are in. With the ten-frame size the ten frames alone fill the space, but we always include this division board as it is convenient for the purpose above mentioned.

The Super shown with the above hive is the style most commonly used and is the one always furnished unless you specify otherwise. It takes the regular 4/4x4 1/4x1 7/8 bee-way sections and slotted section holders.

The Separators are the slotted sawed wood style. Equipment includes a follower and springs for squeezing the sections up tight.

The eight-frame size holds twenty-four sections and the ten-frame twenty-eight sections.

As stated, the above super, which is called the No. 1 or regular, is the one most commonly used, but some prefer one of the other styles, which will be furnished at a small additional cost.

The Cover is called the Excelsior style. It is a good substantial cover, flat on the under side and gable roof shape on the top.

HIVES WITH NO. 1 REGULAR SUPERS FOR 4/4x4 1/4x1 7/8 BEEWAY SECTIONS

No Secs. or Foundation	1 Hive	5 Hives	Weight 5 Hives
1 1/2 Story, 8 Frame.....	\$3.15	\$11.20	143 lbs.
1 1/2 Story, 10 Frame.....	3.35	12.25	152 lbs.
2 Story, 8 Frame.....	3.95	14.05	178 lbs.
2 Story, 10 Frame.....	4.25	15.35	188 lbs.
With Secs. and Foundn.			
1 1/2 Story, 8 Frame.....	3.55	12.65	145 lbs.
1 1/2 Story, 10 Frame.....	3.80	13.85	154 lbs.
2 Story, 8 Frame.....	4.65	16.65	182 lbs.
2 Story, 10 Frame.....	5.05	18.20	192 lbs.

WITH NO. 2, NO. 4, OR NO. 3 SUPERS FOR PLAIN NO BEEWAY SECTIONS

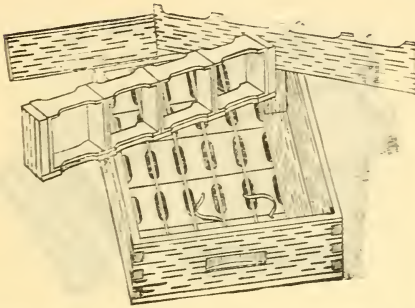
No Secs. or Foundation	1 Hive	5 Hives	Weight 5 Hives
1 1/2 Story, 8 Frame.....	\$3.20	\$11.40	145 lbs.
1 1/2 Story, 10 Frame.....	3.40	12.55	156 lbs.
2 Story, 8 Frame.....	4.05	14.45	182 lbs.
2 Story, 10 Frame.....	4.35	15.95	196 lbs.
With Secs. and Foundn.			
1 1/2 Story, 8 Frame.....	3.60	12.85	147 lbs.
1 1/2 Story, 10 Frame.....	3.85	14.20	158 lbs.
2 Story, 8 Frame.....	4.75	17.10	186 lbs.
2 Story, 10 Frame.....	5.15	18.85	200 lbs.

A 1 1/2 Story Hive includes Cover, Bottom, Brood-Chamber, one Super and all inside furniture. A 2 Story Hive includes the same with one extra Super.

Hives listed above with "No Sections or Foundation" are complete except Section Boxes and Foundation Starters.

Hives listed above "With Sections and Foundation" are complete and include Section Boxes and sufficient Foundation for one-inch starters for the brood frames and Sections. Most bee-keepers prefer to order the Sections and Foundation separately.

DOVETAILED SUPERS FOR COMB HONEY

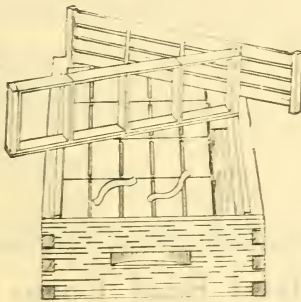


No. 1, or Regular Super

FOR $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{7}{8}$ BEEWAY SECTIONS

This is the same as is shown with the $1\frac{1}{2}$ Story Hive on the preceding page and is the style most commonly used. We always furnish this style unless one of the other styles are specified.

It takes the regular $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{7}{8}$ beeway sections, slotted section holders, slotted sawed separators, and a follower and springs for squeezing the sections tight. The eight-frame size holds twenty-four sections, and the ten-frame twenty-eight sections.

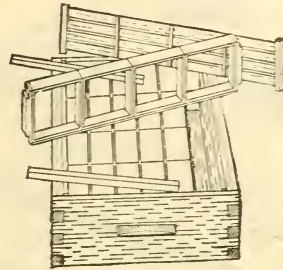


No. 2, or Plain Super

For $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{2}$ PLAIN SECTIONS

This super is preferred by some bee-keepers who claim that they get more even and better filled sections. It is the same size as the No. 1, and holds the same number of sections. The difference is in the inside furniture, being equipped with the fence separator and plain section holders. These section holders take the plain or no bee-way sections, the cleats on the fences taking the place of bee-ways.

The eight-frame size is equipped with six section holders, seven fences and springs, and will hold twenty-four sections. The ten-frame size is equipped with seven section holders, eight fence separators, springs and follower, and will hold twenty-eight sections.



No. 4, or 4x5 Super

FOR $4 \times 5 \times 1\frac{3}{8}$ PLAIN SECTIONS

Another style equipped for the plain or no bee-way sections. It is a trifle deeper than the No. 1 Super, and takes the $4 \times 5 \times 1\frac{3}{8}$ sections standing on end.

Those who favor this style claim that the section shows a greater surface of honey.

The eight-frame size is equipped with six plain section holders, seven fence separators, springs and a thick follower, and will hold twenty-four sections.

The ten-frame size is equipped with eight plain section holders, nine fence separators, springs, and will hold thirty-two sections.

No. 3, or Ideal Super

FOR $3\frac{3}{8} \times 5 \times 1\frac{1}{2}$ PLAIN SECTIONS

The No. 3 or Ideal Super is practically the same as the No. 4 except that it is arranged for the $3\frac{3}{8} \times 5 \times 1\frac{1}{2}$ plain sections, the eight-frame size holding thirty sections and the ten-frame size thirty-five sections.

PRICE LIST: NO. 1 OR REGULAR SUPER

No Sections or Fdn.	1		Weight
	Supers	Supers	
8 Frame.....	\$.85	\$2.85	35 lbs.
10 Frame.....	.90	3.10	36 lbs.
With Sections and Fdn.			
8 Frame.....	1.15	4.00	37 lbs.
10 Frame.....	1.25	4.40	38 lbs.

PRICE LIST: NO. 2, NO. 4, AND NO. 3 SUPERS

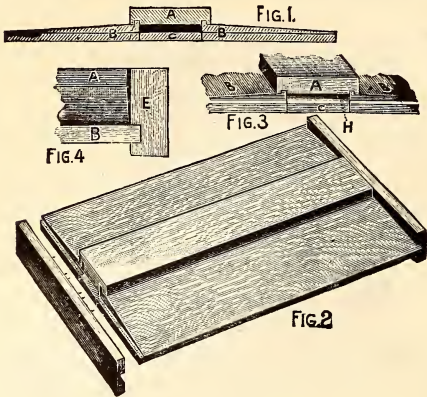
No Sections or Fdn.	1		5		Weight
	Supers	Supers	Supers	5 Supers	
8 Frame.....	\$.90	\$3.05			37 lbs.
10 Frame.....	.95	3.40			40 lbs.
With Sections and Fdn.					
8 Frame.....	1.20	4.25			39 lbs.
10 Frame.....	1.30	4.65			42 lbs.

EMPTY SUPERS: ANY OF ABOVE STYLES

Outside shell only, without any inside fixtures.	1		5		Weight
	Supers	Supers	Supers	5 Supers	
8 Frame.....	\$.45	\$1.60			20 lbs.
10 Frame.....	.50	1.65			20 lbs.

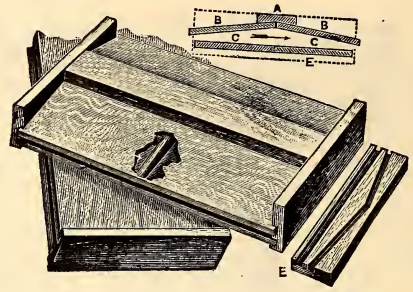
Hives, Supers, etc., are packed in bundles of five, knocked down.

COVERS FOR DOVETAILED HIVES



Excelsior Cover

The Excelsior is the cover regularly furnished with the Dovetailed Hive, and is the style we always ship unless the order specifies one of the other styles. It is a combination of a flat and gable cover, being flat on the under side and slanting like a gable on the top.



Ventilated Gable Cover

This style is preferred by some who wish a double cover, and is very desirable in extremely warm climates with little or no shade.

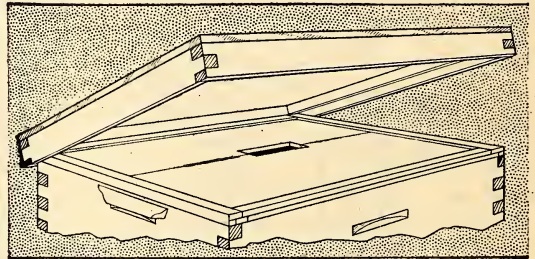
It is constructed of 3/8-inch boards, the ends of which slide into grooves in the end cleats. As there is an open space in the two side edges between the top and bottom boards, constant circulation of air is permitted. If desired, this style is furnished instead of the Excelsior without extra charge.



Colorado Cover

This cover has a rim which allows it to drop partly over the top edge of the hive, effectually keeping out rain and snow. The rim also allows for an air space of about two inches which is desirable in arid sections, preventing the intense heat of the sun's rays from heating the super.

It is intended to be used in connection with an inner cover, which is provided with a hole for a Porter Bee Escape, so that it can be used as a bee escape board.



Metal Roof Cover

One of the latest designs, and rapidly gaining favor with many bee-keepers. It has all the advantages of the Colorado Cover and is lighter and flat on top. It is strong, simple, and the top is covered with metal roofing, making it absolutely tight. It is used in connection with an inner cover, the same as the Colorado Cover.

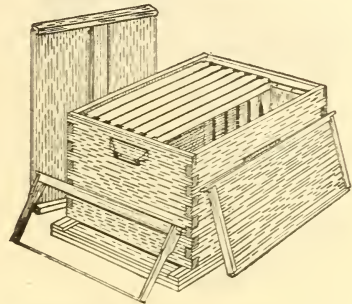
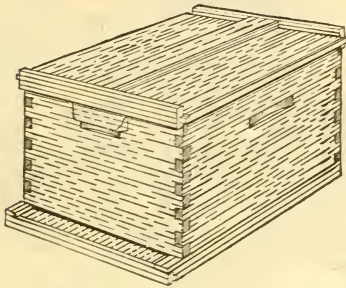
PRICE LIST: COVERS FOR DOVETAILED HIVES

Style and Size.	1	5	Weight
	Cover	Covers		5 Covers
8 Frame Excelsior.....	\$.55	\$2.15	26 lbs.
10 Frame Excelsior.....	.60	2.30	27 lbs.
8 Frame Ventilated Gable.....	.55	2.15	25 lbs.
10 Frame Ventilated Gable.....	.60	2.30	27 lbs.
8 Frame Colorado, Inner Cover.....	.75	3.15	40 lbs.
10 Frame Colorado, Inner Cover....	.80	3.30	42 lbs.
8 Frame Metal Roof, Inner Cover	.75	3.15	38 lbs.
10 Frame Metal Roof, Inner Cover	.80	3.30	40 lbs.

Colorado and Metal Roof without Inner Cover. deduct 14c.

We handle only one grade of hives: The G. B. Lewis Co. eastern white pine; the best.

HIVE BODIES, BOTTOMS AND STANDS



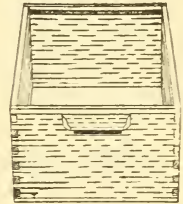
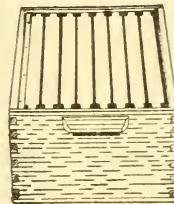
One-Story Dovetailed Hives

This is the same as the four styles 1 1/2 and 2 Story Hive for Comb Honey, and includes the same equipment, with the exception that no super is included. It consists of a Dovetailed Body or Brood Chamber with Hoffman self-spacing brood frames, an Excelsior Cover, and a Reversible Bottom. It is also the same as a 1 Story Hive for Extracted Honey.

Including Dovetailed Body, Excelsior Cover, Reversible Bottom, and Hoffman Self-Spacing Brood Frames.	1 Hive	5 Hives	Weight 5 Hives
1 Story, 8 Frame. Without Foundation Starters.....	\$2.30	\$ 8.35	108 lbs.
1 Story, 10 Frame. Without Foundation Starters.....	2.45	9.15	116 lbs.
1 Story, 8 Frame. Including Foundation for One-Inch Starters.....	2.40	8.70	110 lbs.
1 Story, 10 Frame. Including Foundation for One-Inch Starters.....	2.55	9.55	118 lbs.

Dovetailed Bodies or Brood Chambers

With Brood Frames, Division Board and Metal Rabbets.	1 Body	5 Bodies	Weight 5 Bodies
8 Frame.....	\$1.30	\$4.75	66 lbs.
10 Frame.....	1.40	5.25	71 lbs.
Sides, Ends and Metal Rabbets only. No Brood Frames or Division Boards.			
8 Frame.....	.75	2.95	35 lbs.
10 Frame.....	.80	3.10	40 lbs.



Reversible Bottom

The Reversible Bottom is the regular style furnished with the Dovetailed Hives. It is constructed of 7/8-inch material, and arranged so that it may be used either side up. One side provides a 3/8-inch entrance and the other a 7/8-inch entrance. It is the best and simplest.

	1 Bottom	5 Bottoms	Weight 5 Bottoms
8 Frame Hive Bottom	\$.45	\$1.65	23 lbs.
10 Frame Hive Bottom	.50	1.75	27 lbs.



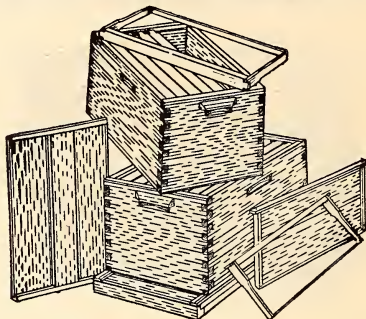
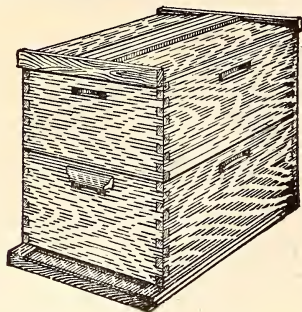
Hive Stand

Hives should never, under any circumstances, be set directly on the ground. The dampness, besides being detrimental to the bees, rots the bottom boards. This stand is serviceable, low-priced, and is the best arrangement for keeping hives off the ground.

	1 Stand	5 Stands	Weight 5 Stands
8 Frame Hive Stand.....	\$.30	\$1.05	30 lbs.
10 Frame Hive Stands.....	.30	1.05	35 lbs.

Hives, Supers, Covers, etc., are packed in bundles of five, in the flat. The price of five will apply on bundles of five or multiples of five. When one only, or less than five, is ordered, it will be nailed up, and the price shown for one will apply.

DOVETAILED HIVES FOR EXTRACTED HONEY



Extracting Hives with Two Regular Bodies

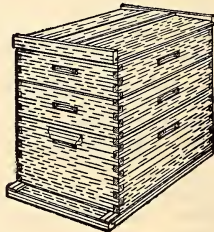
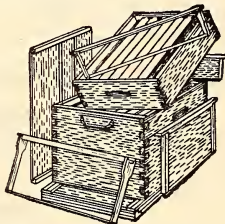
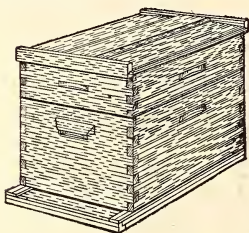
This is the most popular and the most practical hive for the production of extracted honey. As shown above, it consists of two full-sized bodies with brood frames for each.

It consists of two regular Dovetailed Bodies equipped with Hoffman Self-Spacing Brood Frames, Excelsior Cover and Reversible Bottom.

If desired, we also furnish it with Foundation for one-inch starters, as listed opposite, but most bee-keepers prefer to purchase the foundation separately.

HIVES WITH TWO DEEP BODIES

Without Fndn. Start'rs.	1 Hive	5 Hives	Weight 5 Hives
2 Story, 8 Frame Hive....	\$3.60	\$13.05	174 lbs.
2 Story, 10 Frame Hive....	3.85	14.40	187 lbs.
With Found'n Starters.			
2 Story, 8 Frame Hive....	3.85	13.75	175 lbs.
2 Story, 10 Frame Hive....	4.15	15.05	188 lbs.



Extracting Hives with Shallow Extracting Supers

This style has Shallow Extracting Supers, 5 3/8 inches deep, equipped with Shallow Extracting Frames 5 3/8 inches deep, and is adapted to localities where the honey flow is short and colonies of moderate strength.

SHALLOW EXTRACTING SUPERS

With Shallow Frames and Follower. Without Starters.	1 Super	5 Supers	Weight 5 Supers
8 Frame Super.....	\$.85	\$2.95	35 lbs.
10 Frame Super.....	.95	3.35	42 lbs.
With Found'n Starters.			
8 Frame Super.....	.95	3.30	36 lbs.
10 Frame Super.....	1.00	3.70	43 lbs.

EMPTY SHALLOW EXTRACTING SUPERS

Outside shell only. Without Frames or Follower.	1 Super	5 Supers	Weight 5 Supers
8 Frame Empty Super.....	\$.45	\$1.60	20 lbs.
10 Frame Empty Super.....	.50	1.65	20 lbs.

HIVES WITH SHALLOW EXTRACTING SUPERS

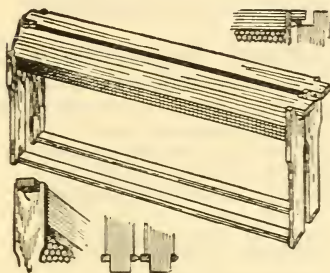
Without Fndn. Start'rs.	1 Hive	5 Hives	Weight 5 Hives
1 1/2 Story, 8 Frame Hive....	\$3.20	\$11.25	143 lbs.
1 1/2 Story, 10 Frame Hive....	3.40	12.40	158 lbs.
2 Story, 8 Frame Hive....	4.00	14.20	178 lbs.
2 Story, 10 Frame Hive....	4.30	15.75	200 lbs.
With Found'n Starters.			
1 1/2 Story, 8 Frame Hive....	3.40	11.95	144 lbs.
1 1/2 Story, 10 Frame Hive....	3.60	13.15	159 lbs.
2 Story, 8 Frame Hive....	4.30	15.20	179 lbs.
2 Story, 10 Frame Hive....	4.60	16.75	201 lbs.

A One-Story Hive for Extracted Honey, or a Hive Body for Extracted Honey, is the same as the Hive and Hive Body for Comb Honey.

Hives, Supers, Covers, etc., are packed in bundles of five, in the flat. One, or less than five, will be nailed up.

The price of five Hives, Supers, Cover, etc., will not apply on less than full bundles.

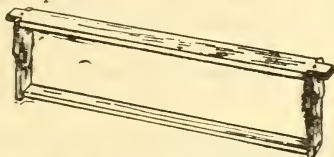
INSIDE FURNITURE FOR BEE HIVES



Hoffman Frame

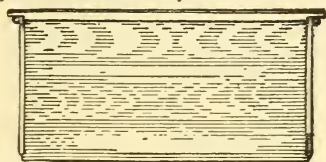
The Hoffman Self-Spacing Frame is the style regularly furnished with the Dovetailed Hive. It is the most popular and undoubtedly the best hanging, self-spacing frame ever designed.

The under side of the thick top bar has a double groove, into one of which the foundation is inserted and into the other a long wedge-shaped strip which holds the foundation securely in place.



Shallow Extracting Frame

The above is the extracting frame, 5 3/8 inches deep, used in the Shallow Extracting Super. It has the self-spacing Hoffman end bar and is end spaced with staples in the same way.

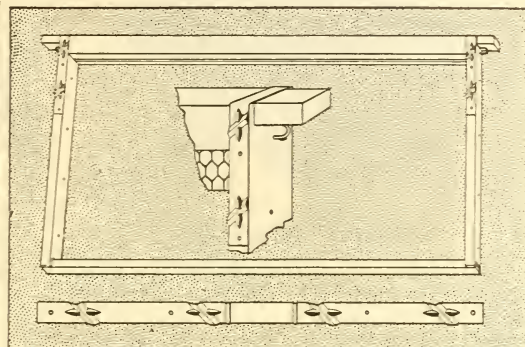


Division Boards

One of these boards is included with each Dovetailed Hive, and is used as a follower with the frames. It is not used with the Ten-Frame Hives except in case of weak swarms for reducing brood space. They are also furnished for Shallow Extracting Supers.

PRICE LIST: DIVISION BOARDS

	1	10	Weight
Division Boards, in flat.....	\$.10	\$.85	15 lbs.
Division Boards, nailed.....	.15	1.05	15 lbs.
Shallow Division Boards, flat	.10	.75	10 lbs.
Shallow Division Boards, nail	.15	.95	10 lbs.

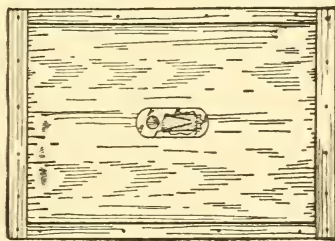


Metal-Spaced Frame

This style is being used by some bee-keepers in localities where propolis is very abundant, sticky and hard, causing the wooden projections of Hoffman endbars to split off when frames are pried apart. The stamped metal spacing device shown above overcomes this trouble. This metal spacer is superior to other similar spacers as it has less surface contact.

PRICE LIST OF FRAMES

In flat, including nails.	10	100	Weight
Self-Spacing Hoffman.....	\$.40	\$3.50	47 lbs.
Metal Spaced.....	.50	4.25	50 lbs.
Shallow Extracting.....	.35	3.00	28 lbs.



Super Cover

These are also known as Inner Covers for Colorado and Metal Roof Covers, and as Bee Escape Boards. There is a hole in the center for the insertion of a Porter Bee Escape when desired.

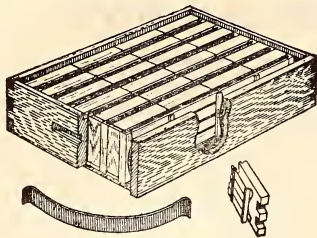
SUPER COVER, INNER COVER, OR BEE ESCAPE BOARD

	1	10	Weight
In flat	\$.15	\$1.40	20 lbs.
Nailed up .....	.20	1.60	20 lbs.
Nailed, with Bee Escape.....	.35	3.00	21 lbs.

Followers

For use in No. 1 Supers to squeeze sections tight. Price: 1, 5c; 10, 30c. Weight: 10, 3 lbs.

When ordering goods to be shipped by parcel post, do not fail to remit sufficient to pay postage.



Super Springs

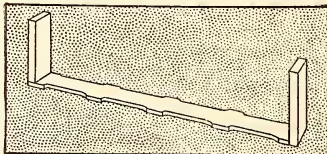
These springs are used for holding sections tight in supers, and are much superior to any wedging device. Weight, $1\frac{1}{2}$ lbs. per 100.

Price: 1c each; 80c per 100; \$6.50 per 1,000.



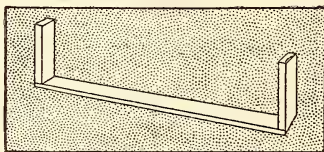
Section Slats

Slotted Section Slats are $\frac{1}{4}$ inch thick, cut same shape as sections, and are same as bottom slat for Section Holders. The Ideal Section Slats are used with No. 3 Super.



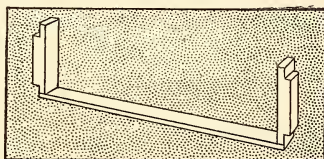
Slotted Section Holder

This is the style furnished with the No. 1 or Regular Dovetailed Super for Bee-way Sections.



Plain Section Holder

This is the style furnished with the No. 2 Super for $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{2}$ Plain Sections.



No. 4 Section Holder

This style is furnished with the No. 4 Super for $4 \times 5 \times 1\frac{3}{8}$ Plain Sections.



Slotted Separators

Slotted Separators are furnished with the No. 1 or Regular Dovetailed Supers in connection with the Slotted Section Holders.



Plain Separators

Plain Separators without slots are used in the old style T tin supers without section holders.



Fence Separators

No. 2 or P Fence. Used in No. 3 or Ideal Super with Plain Section Holders and $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{2}$ Plain Sections.

No. 3 or I Fence. Used in No. 2 or Plain Super with Plain Section Slats and $3\frac{3}{8} \times 5 \times 1\frac{1}{2}$ Plain Sections.

No. 4 or 4x5 Fence. Used in No. 4 or 4x5 Super with Plain Section Holders and $4 \times 5 \times 1\frac{3}{8}$ Plain Sections.

S Fence. Used with $4\frac{1}{4} \times 4\frac{1}{4}$ Plain Sections in Slotted Section Holders.

PRICE LIST

	10	100	Weight 100
Slotted Section Slats.....	\$.20	\$1.40	15 lbs.
Ideal Plain Section Slats.....	.15	1.25	18 lbs.
Slotted Section Holders.....	.30	2.60	30 lbs.
Plain Section Holders.....	.25	2.30	30 lbs.
No. 4 Section Holders.....	.25	2.30	35 lbs.
Slotted Separators.....	.15	1.30	8 lbs.
Plain Separators.....	.15	1.10	6 lbs.
Fence Separators, any style....	.25	2.40	12 lbs.

Metal Parts for Hives

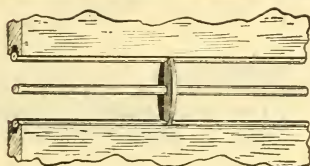
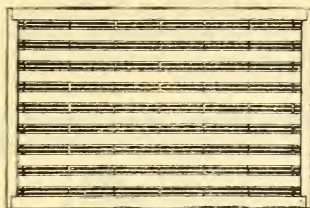
	10	100	Weight 100
Tin Rabbets, 12 inch.....	\$.15	\$1.40	7 lbs.
Tin Rabbets, 14 inch.....	.15	1.40	8 lbs.
T-Tins, 13 inch.....	.15	1.40	7 lbs.
T-Tins, 15 inch.....	.20	1.55	8 lbs.
Flat Tins, 13 inch.....	.10	.60	3 lbs.
Flat Tins, 15 inch.....	.10	.75	4 lbs.

All prices quoted in this catalog, except when otherwise specified, are for goods F. O. B. Seattle or Portland. If goods are to be shipped by parcel post, or by freight to a station where there is no agent, remittance must include amount to prepay charges.

Lewis Hives and Furniture are made right—no rough edges or badly fitting parts.

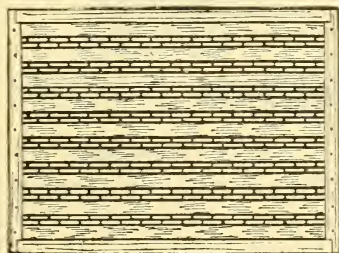
Queen Excluding Honey Boards

Queen Excluding Honey Boards are used to confine the queen to the brood-chamber, and are very generally used in the production of extracted honey.



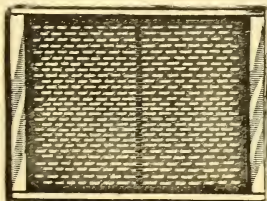
Wood and Wire Excluder

We consider this the best Excluder on the market, and it is becoming more popular each year. It is superior to the perforated metal, as it presents smooth, round edges for the worker bees to pass, and the spaces are more exact.



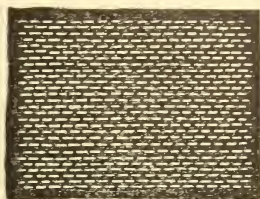
Wood and Zinc Excluder

This is a popular style. It consists of strips of zinc with two rows of holes placed between wood slats, and has a wood rim.



Wood Bound Zinc Excluder

Another style of perforated metal excluder which is used by some bee-keepers, but we do not consider it as good as either of the others.

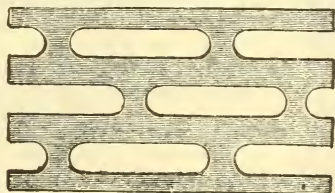


Unbound Zinc Excluder

This Zinc Excluder is simply a sheet of perforated metal. They are placed directly on top of the frames and allow the bees to pass through the holes directly over the spaces between the frames.

QUEEN EXCLUDING HONEY BOARDS

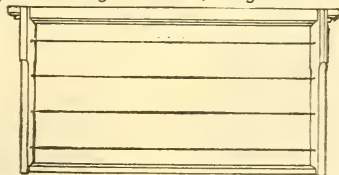
	1	10	Weight
Wood and Wire, 8-frame . . .	\$.40	\$3.20	19 lbs.
Wood and Wire, 10-frame . . .	.45	3.75	24 lbs.
Wood and Zinc, 8-frame . . . . .	.30	2.45	14 lbs.
Wood and Zinc, 10-frame . . . . .	.30	2.65	16 lbs.
Wood Bound Zinc, 8 frame . . . . .	.25	2.30	10 lbs.
Wood Bound Zinc, 10 frame . . . . .	.30	2.50	11 lbs.
Unbound Zinc, 8-frame . . . . .	.25	1.70	6 lbs.
Unbound Zinc, 10-frame . . . . .	.25	1.90	7 lbs.
Unbound Zinc, 16x20 . . . . .	.30	2.10	8 lbs.



Queen Excluding Zinc

We furnish full sheets and strips of perforated zinc for those who require special excluders and wish to make them themselves.

Full Sheets, 32x96 inches. Weight 7 lbs. \$2.00
 Cut to order. Per sq. ft. Weight 1/2 lb.15
 Strips, two rows of holes, 13/16 inches wide,
 19/8 inches long. Per 100, weight 5 lbs. 1.50



Wire for Frames

When full sheets of foundation are used in brood frames we recommend wiring the frames as shown above. All Hoffman end bars are properly pierced for wire.

3/4-oz. spool No. 30 Tinned Wire, wt. 2 oz. \$.05
 1/4-lb. spool No. 30 Tinned Wire, wt. 6 oz.15
 1/2-lb. spool No. 30 Tinned Wire, wt. 10 oz.25
 1-lb. spool No. 30 Tinned Wire, wt. 18 oz.35
 5-lb. spool No. 30 Tinned Wire, wt. 6 1/2 lbs. 1.35

TOOLS AND APPLIANCES FOR BEE KEEPERS



Lewis Section Squeezer

The best device for putting together sections. It is simple, compact, and can be easily adjusted for any size section.

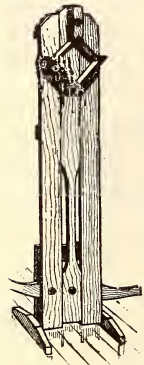
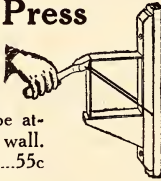
It works perfectly and quickly, and for those who have a large quantity of sections to fold there is nothing better.

Weight, 13 lbs. Price.....\$2.75

Handy Section Press

This is the lowest priced section former, and is very useful if you have only a small quantity of sections to fold. It may be attached to a bench, post, or wall.

Weight, 15 oz. Price55c

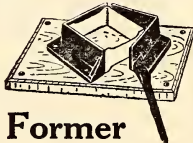


Colorado Section Press

This is a very good section former and one that has been used by many of the largest Colorado bee-keepers with entire satisfaction.

It is a foot power machine, and unlike other low-priced devices for this purpose, it is adjustable for any size section.

Weight, 8 1/4 lbs. Price\$1.75



Lewis Section Former

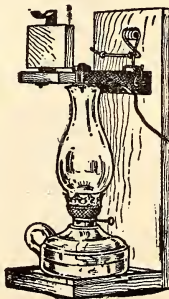
This is a simple device for folding sections, the price is low, and for a limited quantity it is the best.

Weight, 9 lbs. Price\$1.25

Lewis Foundation Fastener

This is undoubtedly the best machine on the market for fastening starters in sections. It can be securely fastened to a wall or table, materially assisting in the work and avoiding the danger of overturning the lamp.

As it can be used with any ordinary lamp, no lamp is furnished with it. Weight 7 1/2 lbs. Price\$1.25



Rauchfuss Combined Section Press and Foundation Fastener

For those who prefer a combined machine for folding sections and fastening starters in one handling, we consider this the best on the market.

Weight, 12 lbs. Price\$3.00

Parker Fastener

For the small bee-keeper this is a simple and low priced device for fastening 4 1/4 x 4 1/4 sections.

Weight, 1 lb. Price, 40c



Daisy Foundation Fastener

While this is a very good machine, it is not equal to the Lewis Foundation Fastener. It is furnished with either one of three sizes of plates, for 4 1/4, 3 3/8, or 4-inch sections. Unless size is specified, we furnish the plate for 4 1/4-inch sections. It may be used with any ordinary lamp. We furnish it either with or without lamp.

With Lamp, weight 6 1/2 lbs., price\$1.40

Without Lamp, weight 6 lbs., price 1.15

Extra Plates, weight 1 lb., price20



Van Deusen Wax-Tube Fastener

A handy tool for fastening foundation to plain top-bars. It will feed a fine stream of hot wax between the foundation edge and the wood, cementing them together.

Weight, 5 ounces. Price25c



Carlin Foundation Cutter

Very convenient for cutting foundation into any desired size. Weight, 3 oz. Price20c



Spur Wire Imbedder

A very handy tool for imbedding the wire into the foundation when wire is used in frames in connection with full sheets. Weight, 3 oz. Price.....25c



Hive Scraper

A very handy tool for scraping hives, supers, bottom boards, etc.
Weight 1/2 lb. Price.....20c



Hive Tool

Made of nicked steel. A very useful scraper and pry. Weight 6 oz. Price.....50c



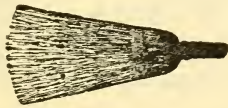
German Bee Brush

A very popular style of bee brush. It is durable and will probably outwear the lower-priced brushes. Weight 7 ounces. Price.....30c



Dixie Bee Brush

The best bee brush on the market. The strands are soft and pliable and the brush is long enough to reach clear across a frame, so that one or two sweeps should clear the comb of bees.
Weight 9 oz. Price.....20c



Cogshall Bee Brush

One of the oldest styles, and preferred by some, although we do not consider it as good as either of the others. Weight 6 oz. Price.....20c



Bingham Honey Knife

An improvement over the old Bingham knife, having flanges on the shaft, providing a grip for finger and thumb. Weight 12 oz. Price.....80c



NEW BINGHAM
BEE SMOKER
Patented

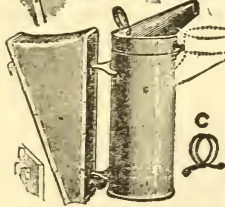
Bingham Bee Smoker

The best smoker on the market. It includes all new improvements; direct draft, bent cap, wire handles, inverted bellows and soot burning device. Furnished in four sizes.



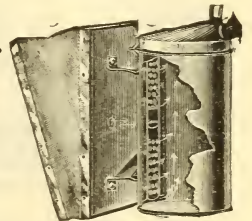
Cornel Smoker

Another good smoker. It is strong, well made and modern. Furnished in two sizes.



Danzenbaker Smoker

A combination cold and hot blast smoker, popular with many beekeepers.

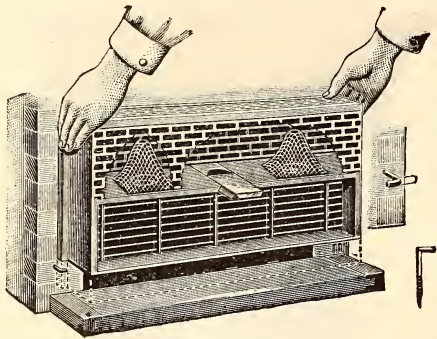


Clark Smoker

A very popular low-priced cold blast smoker; the best for the price.

PRICE LIST OF BEE SMOKERS

	Size	Weight	Price
	Barrel		
Bingham, Smoke Engine.....	4 in.	2 lbs.	\$1.40
Bingham, Doctor	3 1/2 in.	1 1/2 lbs.	1.00
Bingham, Conqueror	3 in.	1 1/4 lbs.	.90
Bingham, Little Wonder.....	2 1/2 in.	1 lb.	.60
Cornel, Standard	3 1/4 in.	1 3/4 lbs.	1.00
Cornel, Junior.....	2 1/2 in.	1 lb.	.80
Danzenbaker		1 3/4 lbs.	1.15
Clark Smoker		1 1/4 lbs.	.70



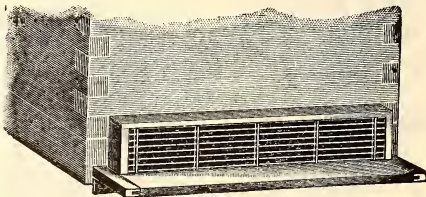
Queen and Drone Trap

Alley's Queen and Drone Trap is used during swarming time to prevent the escape of swarms. When the swarm comes out, the queen, being unable to pass the wire queen excluder, passes into the upper compartment through the wire cones. The trap can then be taken off the hive, the hive removed, and the trap placed on another hive in the old location.

In a very short time the swarm will return, when the slide in the trap may be drawn, allowing the queen to pass downward in with the swarm.

The trap can also be used to prevent mated or undesirable drones from crossing with young queens on their mating flight. The drones, failing to pass the wires, pass upwards through the cones.

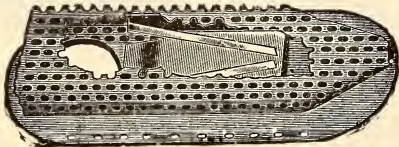
Weight 1 lb. Price.....60c



Bee Entrance Guard

To a limited extent this accomplishes the purpose of the Queen and Drone Trap, but has no compartment in which to trap the queen or drones, only confining them to the hive.

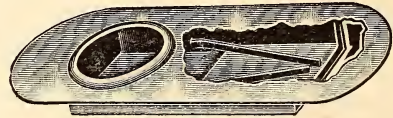
Weight 1/2 lb. Price.....25c



Honey House Escape

For use on doors and windows of extracting rooms or other places where bees get in and you wish them to get out without possibility of returning.

Weight 2 oz. Price, 25c each; \$2.50 per doz.



Porter Bee Escape

The Bee Escape is placed in the hole for that purpose in the Super Cover or Honey Board, and avoids the necessity of smoking and of shaking heavy supers to get the bees out.

Price, postpaid, 20c each.....\$1.90 per doz.

BEE ESCAPE WITH HONEY BOARD

Super Cover or Honey Board for either 8-frame or 10-frame hive, nailed up, with Bee Escape. Weight 2 lbs. each.

Price, 35c each; 10 for.....\$3.00



Bee Gloves

These gloves have long sleeves and the material is durable and practically sting-proof. Three sizes, large, medium and small.

Weight 9 oz. Price.....60c

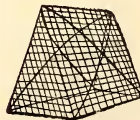


Bee Veils

These veils are made of the best material and are very durable. The Globe Veil is the most popular, especially with those who are a little timid, as it has a folding metal frame which holds the net away from the face.

- Bee Veil, Mosquito Bar.....\$.30
- Bee Veil, Cotton50
- Bee Veil, Cotton with Silk Face......60
- Bee Veil, All Silk90
- Globe Bee Veil.....1.00
- Extra Net for Globe Bee Veil......60
- Bee Hat; flexible rim; fits any head......30

Hive Tent



Made of netting. Very convenient for setting over hives when introducing queens, transferring, etc., when robbers are troublesome. Cannot be shipped by parcel post.

Weight 6 lbs. Price.....\$3.00

There is profit and pleasure in bee-keeping. If not already interested, investigate it.

Hive Clamps

For fastening together the various parts of hives when they are to be moved. Made of malleable iron. Weight, 10 pairs 1½ lbs. Price, with screws, per pair, 5c; 10 pairs.....40c



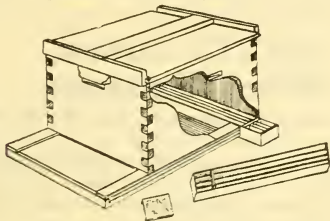
Hive Hooks

Used for the same purposes as the Hive Clamps. Weight, 10 pairs, 1½ lbs. Price, with screws, per pair.....5c
10 pairs.....30c



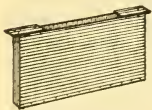
Hive Staples

For the same purposes as Hive Clamps and Hive Hooks. Two inches wide, points three-quarters of an inch long. Price, per pound 20c; five pounds.....70c



Alexander Feeder

The best and most popular feeder on the market. If desired, it may be left in the hive the entire season, and if there is a dearth of honey a hundred colonies can easily be fed in a few minutes by simply moving the end slide and pouring in the feed. As the feed is given to the bees at the rear of the hive, without opening it, there is no disturbance.

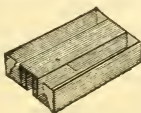


Doolittle Division-Board Feeder

This is also a very popular feeder. It is the same size as a brood frame or division board, and hangs in the brood chamber in the same way. To feed, it is only necessary to move the cover back far enough to expose the opening, through which the feed is poured. The bees are supplied without exposing the cluster, and without using smoke.

Miller Feeder

When feeding is left until the last moment, this style is a good one, for with it 10 to 25 lbs. of feed can be supplied at one time. It is placed inside of the super, on top of the brood frames. It has two compartments for syrup.

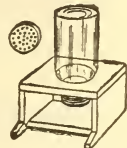


Simplicity Feeder

This may be placed at the entrance at night, over the brood frames, or in the brood-nest by removing two of the brood frames.

Boardman Entrance Feeder

A Mason jar, with perforated cap, allows the feed to pass through no faster than the bees can take it. It is furnished without jars but with cap.



Pepper-Box Feeder

This is simply a tin can with perforated cover, which can be filled with feed, inverted, and placed over the frames.

PRICE LIST, BEE FEEDERS

Style	Nailed up		In flat		Weight
	1	10	1	10	
Alexander	\$.30	\$2.70			15 lbs.
Doolittle .....	.35	3.20	.25	\$2.30	15 lbs.
Miller .....	.45	4.20	.35	3.20	40 lbs.
Boardman .....	.25	2.00	.20	1.50	6 lbs.
Simplicity .....	.10	.90			4 lbs.
Pepper-Box, 1 pint	.10	.80			5 lbs.
Pepper-Box, 1 qt.....	.15	1.00			10 lbs.

When feeders are ordered in flat, they should be coated inside with hot wax or paraffine after being nailed up.

Manum's Swarm Catcher

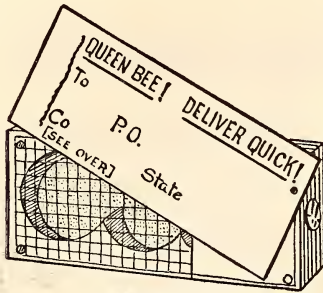


The best device for catching a swarm whose queen is at large with the bees. In using it, open the basket, push it up around the swarm of bees, jar them off the limb, and close the cover by raking it against a limb. Half or more of the bees will be

caught in the basket; then suspend the basket near the balance and they will cluster on the outside, and may be dumped into the hive. Weight 3½ lbs.

Price, without pole.....\$1.35

If you require Bee Supplies in large quantities, please give us a list of articles and quantities wanted and we will be glad to quote you special prices.



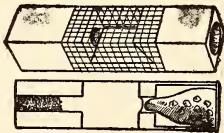
Benton Queen Mailing Cage

Used for shipping queens by mail, also for introducing. Full instructions are printed on the cage. Furnished without candy. Weight 1 ounce. Price, 1, 5c; 10, 35c; 100, \$3.00.



Miller Queen Catcher and Introducing Cage

A very handy little arrangement for catching and introducing queens. Weight 1 ounce. Price.....1, 10c; 10, 90c



Rauchfuss Queen Cage and Cell Protector

This is used in connection with a simple method of raising queens, and can also be used as an introducing cage. Weight 1 ounce.

Price.....1, 5c; 10, 40c

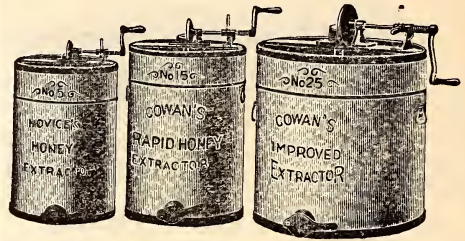
Dadant Uncapping Can

This consists of two 20-inch galvanized cans, one telescoping into the other. The upper can holds the cappings, and the lower the drippings of honey as they percolate through the screen bottom that supports the cappings.

Weight 56 lbs. Price.....\$11.00



The G. B. Lewis Co. bee supplies are the best obtainable, and are fully guaranteed. If not found to be strictly as advertised they may be returned and money will be refunded.



No. 5 Novice Honey Extractor

The Novice is intended for the use of those having a small number of colonies. It is as well built as the larger machines, the difference being in the size and that it is non-reversible. It is equipped for two Langstroth, Hoffman or other frames not over 9 1/2 x 18 1/4 inches. To reverse the frames it is necessary to take them out of the baskets, reverse and replace them. Weight 45 lbs. Price.....\$11.50

No. 15 Cowan Honey Extractor

The Cowan is a reversing machine, and the frames of comb do not have to be taken out to be reversed. The baskets are hung so that they can be turned the other side to by putting the hand down into the can and reversing them while the reel revolves slowly.

These extractors have ball bearings and slip-gear, and are equipped with two baskets. The No. 15 will handle two Langstroth, Hoffman or other frames not over 9 1/2 x 18 1/4 inches, the same as the Novice.

Weight 80 lbs. Price.....\$16.25

No. 25 Automatic Honey Extractor

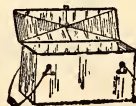
The Automatic Reversible is a still heavier and larger machine, and, as the name signifies, all that is necessary to reverse the basket is a slight pressure on the brake, which slows down the reel, when the baskets automatically turn the other side to without noise and without stopping the machine. These machines, like the others, have ball bearings and slip-gears. The No. 25 is equipped for four Langstroth or Hoffman Frames. Diameter of can, 29 inches.

Weight 210 lbs. Price.....\$37.50

No. 30 Automatic Honey Extractor

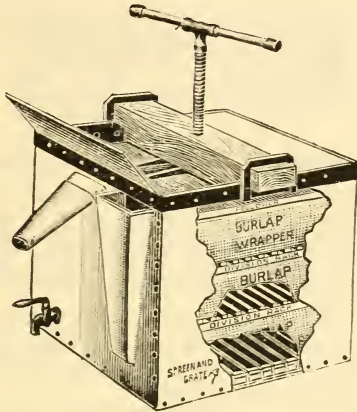
The No. 30 Automatic is the same as the No. 25 except that it is larger and will handle six Langstroth or Hoffman Frames. Diameter of can 34 inches. Weight 280 lbs. Price.....\$52.50

Comb Bucket



For carrying frames to the extracting house. It is dust proof, and catches all the drip.

Weight 5 lbs. Price.....\$1.50



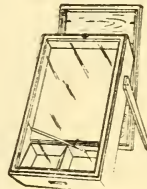
Hersher Wax Press

The Hersher Wax Press is not only the best wax press on the market, but it is an almost perfect device for extracting wax. It is guaranteed to extract within one per cent of all wax contained in the slumgum placed in it if properly operated. Write for circular fully describing this press.

Weight, 150 lbs. Price.....\$29.50

Doolittle Solar Wax Extractor

A low priced extractor for rendering combs by sun heat during the summer. The solar wax extractors are adapted to melting up burr and brace combs and scrapings, but are not suitable for rendering old combs and scrapings containing dirt.



Weight 30 lbs.
Price \$5.00

Nails

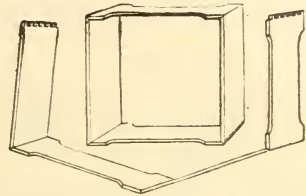
We furnish sufficient nails with all hives and other goods which are shipped in flat, but if required can furnish nails as follows:

FINE, FLAT HEAD, BRIGHT WIRE NAILS One Pound Packages

Length	1 lb.	5 lbs.	10 lbs.	100 lbs.
1/2 inch	\$.20	\$.85	\$ 1.65	\$ 14.50
3/8 inch	.20	.75	1.45	12.25
3/4 inch	.15	.65	1.25	10.65
7/8 inch	.15	.55	1.10	9.00

FINE, FLAT HEAD, CEMENT COATED WIRE NAILS In Bulk

Size	Length	1 lb.	5 lbs.	10 lbs.	Keg
2d	7/8 inch	\$.15	\$.65	\$ 1.30	\$ 11.00
3d	1 inch	.10	.35	.70	6.00
4d	1 1/4 inch	.10	.35	.65	5.45
4d	1 1/2 inch	.10	.35	.65	5.40
6d	2 inch	.10	.35	.65	5.35
7d	2 1/8 inch	.10	.35	.65	5.25
8d	2 1/2 inch	.10	.35	.65	5.25



1	4 1/4	OPEN 1 SIDE
2	4 1/4	OPEN 2 SIDES
3	4 1/4	OPEN 3 SIDES
4	4 1/4	OPEN 4 SIDES
10	4 1/4	PLAIN
11	4 X 5 X 1 1/8	PLAIN
12	3 3/8 X 5 X 1 1/8	PLAIN

Sections

The Lewis One-Piece Bright Polished Sections are the best that are to be had. They are made of Wisconsin basswood, the best material known for this purpose, and each section in every package of the No. 1 grade is perfect in every respect. Sections of the No. 2 grade have some slight defect, but are better than the No. 1 grade put out by some manufacturers.

STANDARD BEEWAY SECTIONS

The 4 1/4 x 4 1/4 x 1 7/8 is the standard section. We can furnish it in four styles, open one, two, three, or four sides. Unless the order specifies otherwise, we always ship the 4 1/4 x 4 1/4 x 1 7/8 open two sides. We can furnish these in either No. 1 or No. 2 grade.

PLAIN SECTIONS

The following Plain or No Beeway sections are carried in stock: 4 1/4 x 4 1/4 x 1 1/2, 4 x 5 x 1 3/8, and 3 3/8 x 5 x 1 1/2. We can furnish these in the No. 1 grade only.

PRICE LIST OF SECTIONS

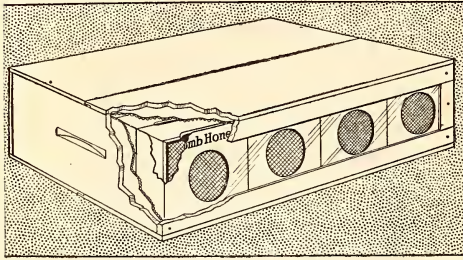
Quantity	Beewa. Sections		Plain Sections	
	No. 1	No. 2	No. 1	No. 2
100	\$.90	\$.80	7 lbs.	\$.90
500	3.25	3.00	35 lbs.	3.25
1,000	6.25	5.75	70 lbs.	6.00

If sections are required in quantities greater than one thousand, please write for special prices, stating quantity and style wanted.

Frame Spacing Staples

One pound, 20c; five pounds.....\$.75

Prices are F. O. B. Seattle or Portland. If goods are to be shipped by parcel post, or to a station at which there is no agent, remit sufficient to pay transportation.



Safety Shipping Cases

The Safety Shipping Case is something new in the way of a package for comb honey shipment. It is especially adapted for single case shipments or in shipments of less cases than is required to fill a crate or carrier, as these Safety Cases do not require same.

The immunity from damage to honey shipped in these cases over shipments made in the regular cases without carriers will more than make up for the additional cost of this new case.

The safety feature of this case is provided for by making the inside measurement of each size a trifle larger than the regular, which allows for a sheet of corrugated paper to be placed on top and under the sections, as well as at the two ends of the case and at the back; in other words, the case is completely lined with corrugated paper with the exception of the front. In addition to this corrugated lining feature, a heavy pulpboard Safety Carton is furnished; twenty-four cartons to each case.

These Safety Cartons still further protect the honey against damage, and in addition permits of the retailing of comb honey in a very neat and sanitary manner.

A sheet of strong plain paper is also furnished to go under the bottom corrugated sheet, the same as is furnished with the regular case, and for the same purpose.

These cases are furnished in 24-lb. size only.

PRICE LIST, SAFETY SHIPPING CASES

Safety Shipping Cases complete, in the flat, including nails, 2-inch glass, Safety Cartons, corrugated paper lining and paper for bottom.

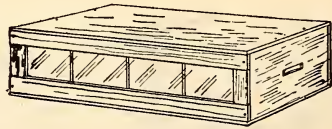
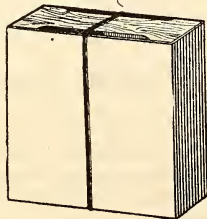
Size—Sections	10	100	Wt. 100
For 4 1/4x4 1/4x1 7/8 Sections....	\$3.60	\$34.00	580 lbs.
For 4 1/4x4 1/4x1 1/2 Sections....	3.50	33.00	560 lbs.
For 4 x5 x1 3/8 Sections....	3.50	33.00	560 lbs.

Unless the order specifies otherwise we will ship cases for 4 1/4x4 1/4x1 7/8 sections.

Safety Cartons

Additional Safety Cartons for use with Safety Shipping Cases; for 4 1/4x4 1/4x1 7/8, 4 1/4x4 1/4x1 1/2, or 4x5x1 3/8 sections, weight 5 lbs. per 120. Price:

120	\$0.50
1200	4.70



Regular Shipping Cases

The regular style shipping case, equipped with a sheet of corrugated paper for the bottom of the case and a sheet of strong plain paper to go under the corrugated sheet, so that if there should be any leakage it will be caught and not run through on the other cases.

When shipping a quantity of comb honey in these cases, the cases should be packed in crates or carriers, cushioned with about two inches of straw to absorb the jar when handled.

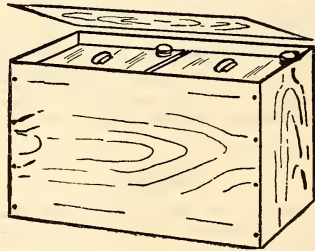
As the 24-lb. case is most practical, we no longer carry the 12-lb. case, and can furnish the 24-lb. case only.

TWENTY-FOUR POUND SHIPPING CASES

Complete, in the flat, including nails, 2-inch glass, corrugated paper and plain paper.

Size—Sections	10	100	Wt. 100
For 4 1/4x4 1/4x1 7/8 Sections....	\$2.40	\$22.00	360 lbs.
For 4 1/4x4 1/4x1 1/2 Sections....	2.30	21.00	340 lbs.
For 4 x5 x1 3/8 Sections....	2.20	20.00	340 lbs.
For 3 5/8x5 x1 1/2 Sections....	2.20	20.00	340 lbs.

If the order does not specify size, we always ship cases for 4 1/4x4 1/4x1 7/8 sections.



Five-Gallon Cans (60 lbs.)

This style can is in general use for shipping extracted honey. They are packed in strong re-shipping cases containing two cans each.

Two Cans, including case. Weight 10 lbs.....\$1.00
Ten Cases, two cans each. Weight 100 lbs..... 9.00



One-Gallon Cans (12 lbs.)

One Gallon Square Cans with Screw Tops, packed in re-shipping cases containing one dozen cans.

One Case, containing 1 doz. cans. Wt. 20 lbs...\$2.25
Ten Cases, 1 doz. cans each. Wt. 200 lbs.....20.00

We pay highest market price for beeswax. Write for quotation.



Fig. 1. Fig. 2. Fig. 3.

Comb Foundation

Considering the start given to a colony of bees by the judicious use of comb foundation, the satisfaction of having nice straight combs to handle, and the power to restrain by its use the overproduction of drones, there is no question in regard to the advisability of using it.

Medium Brood Foundation is recommended for use in brood frames and extracting frames only.

If your object in using brood foundation is only to secure straight combs, and you wish to accomplish that as cheaply as possible, a strip one inch wide and 16½ inches long, securely fastened in the center of the top-bar, will be sufficient. The objection to this plan is that the bees will often build a considerable amount of drone comb, which should be removed and replaced with worker comb.

To overcome this difficulty many bee-keepers use full sheets of foundation, as they are then reasonably sure of securing nice, straight, all-worker comb.

As a set of brood combs will last many years, it is worth while to have them as perfect as possible.

In using full sheets of foundation we advise wiring the frames. Wired combs will not break down in hot weather, when colonies are moved, or when honey is extracted from them.

To obtain satisfactory combs it is absolutely necessary to have the hives stand level sidewise.

Full sheets of Light Brood Foundation should be used only when the frames are wired.

Thin Surplus and Extra Thin Surplus Foundation is used in the production of comb honey and as a starter in the sections. If you wish to use only a narrow starter in the sections we recommend the use of Thin Surplus. If you use a full starter, as shown in Fig. 3, we recommend the use of Extra Thin Surplus.

Fig. 1 shows a section with three-cornered starter at top and a very narrow starter, one-half inch, at the bottom.

Fig. 2 shows another form of starter commonly used, and for which we recommend the use of Thin Surplus Foundation.

Fig. 3 is the one referred to above, and for which Extra Thin Surplus Foundation is recommended. As shown, the section is provided with a narrow bottom starter of about five-eighths of an inch, and a full top starter reaching to within about one-quarter of an inch of the bottom starter. This method is considered the most desirable of any.

If you produce comb honey for market, you will do well to adopt the latter method, as you will thereby secure honey that will bear shipment much better.

Bee-keepers requiring supplies in very large quantities will please write for special prices.

PRICE LIST, COMB FOUNDATION

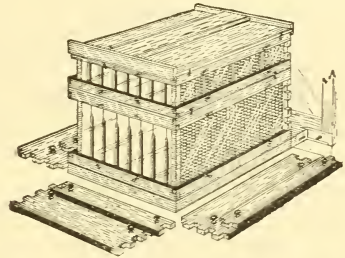
Grade	1 lb.	5 lbs.	10 lbs.	25 lbs.
Medium Brood .....per lb.	\$0.70	\$0.65	\$0.63	\$0.61
Light Brood .....	.70	.67	.65	.63
Thin Surplus .....	.75	.72	.70	.68
Extra Thin Surplus .....	.80	.75	.73	.71

When ordering foundation to be shipped by parcel post, please bear in mind that the gross weight of one pound of foundation is about one and one-half pounds.

SIZE AND NUMBER OF SHEETS PER POUND

We can furnish foundation in the following sizes only.

Medium Brood	16½x7⅞;	7 to 8 sheets per lb.
Light Brood	16½x7⅞;	9 to 10 sheets per lb.
Thin Surplus	16½x3⅞;	28 to 29 sheets per lb.
Extra Thin Surplus	16½x3⅞;	32 to 33 sheets per lb.



Lewis Observation Hive

A complete bee hive fitted with glass sides through which the life, habits and workings of the busy bee may be observed with safety.

In size and general construction it is the same as our regular One and One-Half Story Eight Frame Dovetailed Hive, complete with Sections, Frames and full sheets of Foundation, set up ready to put the bees in.

The body and super have three sides of glass, with removable panels on sides and back. The entrance is so constructed that the hive may be placed next to a window, allowing the bees to pass in and out without entering the room.

The hive is nicely varnished and fitted with brass trimmings, making it an attractive piece of furniture for any room.

Weight, 47 lbs. Price, complete.....\$8.45

LANGSTROTH ON THE HONEY BEE By C. P. Dadant

This has long been recognized as a standard work and one of the best books on bees ever published. In its 575 pages of reading matter and illustrations will be found all the latest information on bee culture.

Price, \$1.20, postpaid.



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SUCCESSFUL POULTRY KEEPING

A complete text book for all persons interested in profitable poultry and egg production. 176 pages, 9x12 inches, illustrated. \$1.00

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Tells how to breed Bantams for pleasure and profit. 68 pages, 9x12, illustrated.50

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Latest revised edition. The official guide for judging, mating and breeding. Cloth.2.00

A B C AND X Y Z OF BEE CULTURE

A very popular bee book, which is up-to-date in every respect. It contains 750 pages, 7½x9½ inches, and is completely illustrated. Many of the greatest authorities have contributed to make this a complete and comprehensive guide for both the beginner and the veteran.2.00

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A book for the beginner and the small home gardener particularly, but also specially serviceable to commercial gardeners. There is no detail overlooked, and yet the book is a model of conciseness, with all its information readily available. Beautifully printed on heavy wove paper, 24 full page illustrations from photographs, 5x7 inches. Written by Adolph Kruhms, a practical gardener of long experience. Bound in cloth1.00

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By E. V. Wilcox and C. B. Smith. A compendium of agricultural science and practice on farm, orchard and garden crops, the feeding and fattening and diseases of farm animals, dairy farming, and poultry. A new, practical, concise and complete presentation of the whole subject of agriculture in its broadest sense. The most perfect Cyclopaedia of Agriculture ever attempted. 700 pages, 500 illustrations. Cloth3.50

RELIABLE POULTRY REMEDIES

Poultryman's handbook of tried and proved remedies for the diseases of poultry. 96 pages, 6x9 inches25

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Quantity of Seed Required

Quantity Per Acre

Alfalfa	10 to 20 lbs.
Alsike	8 to 10 lbs.
Artichoke	1 oz. to 500 plants, 6 oz.
Asparagus	1 oz. to 500 plants, 1 lb.
Barley	100 lbs.
Beans, dwarf	1 lb. to 100 ft. of drill, 50 lbs.
Beans, pole	1 lb. to 150 hills, 25 lbs.
Beet, garden	1 oz. to 50 ft. of drill, 5 lbs.
Beet, sugar or mangel	5 lbs.
Broccoli	1 oz. to 2,000 plants, 4 oz.
Brussels Sprouts	1 oz. to 2,000 plants, 4 oz.
Broom Corn	8 to 12 lbs.
Buckwheat	50 to 60 lbs.
Cabbage	1 oz. to 2,000 plants, 8 oz.
Carrot	1 oz. to 125 ft. of drill, 3 lbs.
Cauliflower	1 oz. to 3,000 plants, 4 oz.
Celery	1 oz. to 5,000 plants, 4 oz.
Cheat	100 lbs.
Chicory	1 oz. to 100 ft. of drill, 4 lbs.
Clover, White, Alsike, and Bokhara	6 to 10 lbs.
Clover, Red, Mammoth Red, and Crimson	8 to 15 lbs.
Collards	1 oz. to 2,000 plants, 4 oz.
Corn, sweet	1 lb. to 200 hills, 15 lbs.
Corn, field	12 to 20 lbs.
Corn, fodder, in drills	75 lbs.
Corn, pop	8 to 10 lbs.
Cress	1 oz. to 150 ft. of drill, 12 lbs.
Cucumber	1 oz. to 100 hills, 2 to 3 lbs.
Egg Plant	1 oz. to 2,000 plants, 4 oz.
Endive	1 oz. to 400 ft. of drill, 4 lbs.
Emmer	100 lbs.
Flax, for seed, 30 lbs.; for fiber	50 lbs.
Grass, lawn, mixed, 1 lb. to 300 sq. ft.	145 lbs.
Grass, Kentucky Blue, Canadian Blue	20 lbs.
Grass, Timothy	12 to 20 lbs.
Grass, Red Top, in chaff	30 to 40 lbs.
Grass, Red Top, solid seed	10 to 12 lbs.
Grass, Rye Grass, English and Italian	40 to 50 lbs.
Grass, Orchard	40 to 45 lbs.
Grass, Meadow Fescue	25 to 30 lbs.

Quantity Per Acre

Hemp	40 to 50 lbs.
Horse Radish Roots	10,000 to 15,000
Kale	1 oz. to 200 ft. of drill, 1 lb.
Kohl Rabi	1 oz. to 150 ft. of drill, 2 lbs.
Kaffir Corn	6 to 10 lbs.
Leek	1 oz. to 300 ft. of drill, 4 lbs.
Lettuce	1 oz. to 400 ft. of drill, 3 lbs.
Melon, Musk	1 oz. to 60 hills, 2 to 3 lbs.
Melon, Water	1 oz. to 30 hills, 3 to 4 lbs.
Millet	20 to 50 lbs.
Nasturtium	1 oz. to 50 ft. of drill, 15 lbs.
Oats	75 to 100 lbs.
Okra	1 oz. to 100 ft. of drill, 8 lbs.
Onion	1 oz. to 300 ft. of drill, 4 to 5 lbs.
Onion, for sets	30 to 80 lbs.
Onion Sets	1 lb. to 40 ft. of drill, 400 lbs.
Parsley	1 oz. to 300 ft. of drill, 3 lbs.
Parsnip	1 oz. to 400 ft. of drill, 3 lbs.
Peas, garden	1 lb. to 50 ft. of drill, 200 lbs.
Peas, field	90 to 150 lbs.
Pepper	1 oz. to 1,500
Potatoes	400 to 600 lbs.
Pumpkin	1 oz. to 30 hills, 3 to 4 lbs.
Radish	1 oz. to 100 ft. of drill, 10 lbs.
Rape, Dwarf Essex	3 to 5 lbs.
Rutabaga	1 oz. to 150 ft. of drill, 2 to 3 lbs.
Rye	90 to 120 lbs.
Salsify	1 oz. to 50 ft. of drill, 8 lbs.
Sorghum, in hills	20 lbs.
Sorghum, in drills or broadcast	60 to 90 lbs.
Spinach	1 oz. to 200 ft. of drill, 8 lbs.
Squash, bush	1 oz. to 25 hills, 3 lbs.
Squash, vine	1 oz. to 12 hills, 2 lbs.
Sunflower	8 lbs.
Tobacco	1 oz. to 5,000 plants, 3 oz.
Tomato	1 oz. to 2,000 plants, 4 oz.
Turnip	1 oz. to 150 ft. of drill, 2 lbs.
Vetch, Common or Spring	60 to 90 lbs.
Vetch, Hairy or Winter	30 to 60 lbs.
Wheat	90 to 120 lbs.

Usual Distances for Planting

Beans, Bush, drills 2 to 3 feet apart.
 Beans, Pole, 3 to 4 feet each way.
 Beets, Early, drills 12 to 18 inches apart.
 Beets, Late, drills 2 to 3 feet apart.
 Blackberries, erect growing, 6 to 9 by 4 feet.
 Blackberries, Mammoth and Himalaya, 8 by 24 feet.
 Cabbage, Early, 16 by 30 inches.
 Cabbage, Late, 24 by 30 inches.
 Carrots, drills 1 to 2 feet apart.
 Corn, Sweet, 3 to 3½ feet by 9 to 24 inches.
 Corn, Field, 3½ to 4 feet each way.
 Cucumber, 4 to 5 feet each way.
 Currants, 5 by 3 feet.
 Egg Plant, 3 by 3 feet.
 Lettuce, drills 18 inches apart.
 Melon, Musk, 5 to 6 feet each way.
 Melon, Water, 7 to 8 feet each way.

Celery, rows 3 to 4 feet 6 inches in row.
 Cauliflower, 2 by 2 to 2 by 3 feet.
 Asparagus, 3 to 4 by 2 feet.
 Gooseberries, 5 by 3 feet.
 Grapes, 8 by 8 to 10 by 12 feet.
 Onions, drills 14 to 20 inches apart.
 Parsnips, drills 18 to 36 inches apart.
 Peas, drills 2 to 3 feet apart.
 Pepper, 15 to 18 inches by 2 to 2½ feet.
 Potatoes, 12 to 18 inches by 2½ to 3 feet.
 Pumpkin, 8 to 10 ft. each way.
 Radish, drills 10 to 18 inches apart.
 Raspberries, 6 to 8 by 3 feet.
 Rhubarb, 2 to 4 feet by 4 feet.
 Salsify, drills 18 to 24 inches apart.
 Spinach, drills, 12 to 18 inches apart.
 Squash, Bush, 3 to 4 feet by 4 feet.
 Squash, Running, 12 feet each way.
 Tomato, 4 feet by 4 to 5 feet.



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