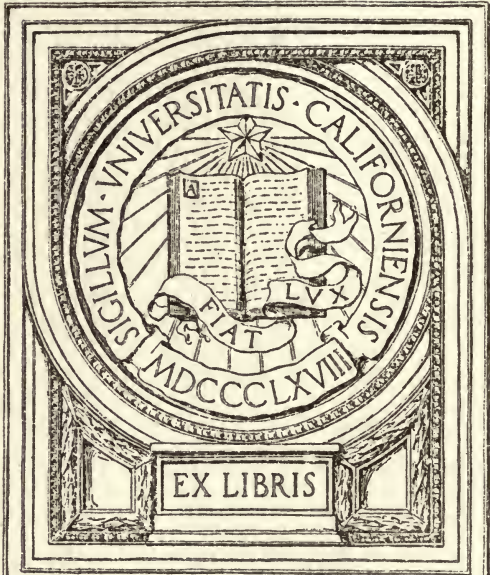
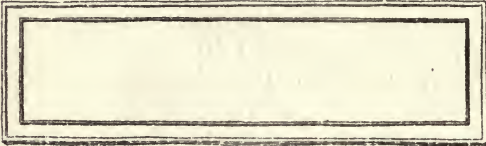


PRACTICAL GARDENING

★ HUGH FINDLAY ★



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PRACTICAL GARDENING

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VEGETABLES AND FRUITS

HELPFUL HINTS FOR THE HOME GARDEN
COMMON MISTAKES AND HOW TO AVOID THEM

BY

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ILLUSTRATED



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DEDICATED TO MY FRIEND
HON. JOHN T. ROBERTS
WHO LOVES THE ART OF GARDENING, AND WHO
FEELS THE HEART THROB OF THE SOIL

415314



FOREWORD

This book is prepared primarily for those practical lovers of Nature who wish to add to the world's great store house more vegetables and fruits.

There have been several books written on the scientific treatment of the vegetable and fruit gardens and also the large commercial tracts of land devoted to the production of these crops for market. This book is constructed with the view of aiding the home gardeners in the fundamental principles involved in growing a few varieties of vegetables and choice fruits. The scientific principles, as far as they may be applied in a practical way to a small garden, have by no means been left out, but they have been put in a language that is not technical.

The general advice is applicable in any section but the dates of putting these principles into operation vary according to the latitude and altitude of your section of the country. The gardener must also be governed by the variation in seasons. All the problems that may confront several gardeners who may live as neighbors cannot be considered in a single book or any number of books. Each individual gardener must try out the soil, seed and methods advised and carefully consider the results, then formulate rules for himself individually to follow.

The cultural requirements, the more common insects and diseases, with the latest method of their control,

FOREWORD

have been expressed in a simple language from practical experience.

The object of the book is not only to aid the gardener in supplying the table with fresh vegetables during the spring and summer months, but to aid in the growing and storing of vegetables and fruits for the home to be used during the non-producing winter months.

I am especially indebted to Mr. E. C. Dinturff of the College of Photography, Syracuse University, for his valuable aid in securing and developing illustrations. Also to Prof. Albert E. Wilkinson for his coöperation in permitting a reprint from "Home Vegetable Gardening," Series No. 2, Cornell Reading Course as found on pages 66-68, 76-95.

My thanks are due to the Macmillan Company for permission to reprint from pages 106-108 of "Bailey's Farm and Garden Rule Book," pp. 62-65, 69-74, and also to the United States Department of Agriculture for suggestions in the selection of varieties, Bulletin No. 485, and for drawings, Figs. 68, 69, 70.

The following magazines have been kind enough to allow me to reprint from the Author's original.

Mother's Magazine, Figs. 21, 22, 23, 32, 51. *Countryside*, Figs. 16, 17, 18, 19, 20, 24, 25, 26, 27, 30, 31, 42, 45, 57, 60, 61, 62, 63 and pp. 52-53, 320-378. *Garden Magazine*, Jan., Article by Adolph Kruhm, Doubleday, Page & Co., N. Y., pp. 88-95 and Fig. 1. *American Agriculturist*, Figs. 71, 72, 73, 74. *Rural Life*, Figs. 7, 8, 9, 10, 11, 12, 13, 14.

I am indebted to many "Back-Yard" gardeners for information contained in this book.

Syracuse, N. Y.

HUGH FINDLAY.

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PRACTICAL GARDENING

CHAPTER I

THE THREE TYPES OF BACK YARD GARDENS

The prosperity of any country depends not alone upon its great manufacturing plants or extensive farming but upon the productiveness of every back yard garden.

THERE are three types of back yard gardens; the city garden with its very limited space to cultivate and in many instances unfavorable conditions to exist in; the village or suburban garden with more space devoted to the raising of vegetables, fruits and flowers, having less unfavorable conditions with which to cope; and finally the rural garden where the space is not limited, with usually a fine loam soil and an adequate supply of manure available, free-air drainage, sunshine and moisture in abundance.

THE CITY GARDEN PRACTICAL GARDENING

With any of the three types of gardens, the keynote of success depends not alone on the location, soil, moisture, sunshine, or plant food available, but also upon the intelligent and persistent effort of the individual to make the most of whatever type of garden he may have. In any one of the types, the aim should be to keep a continual assortment of fresh vegetables for the table during the summer and to find out the varieties that will thrive best in his own soil and climate. Whenever possible a sufficient supply of late crops should be raised in order to supply the table during the entire year.

THE CITY GARDEN

Just because there are many problems that confront the city garden there is no argument for not having one. If the gardener will only study the limits of his given space and allow his better judgment to guide him, the smallest plot may not only furnish exercise out of doors and a large degree of pleasure but also a supply of fresh vegetables for the table. One of

BACK YARD GARDENS

the most difficult problems that confronts the city gardener is the matter of shade. The houses are usually so crowded that the space is

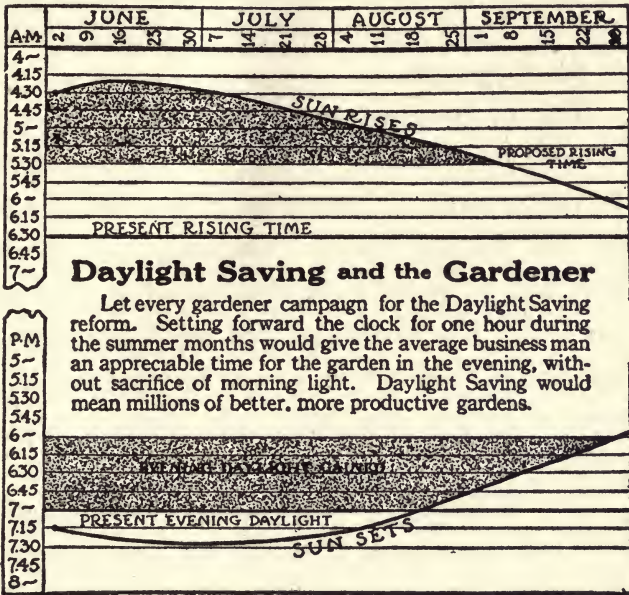


FIG. 1.—Daylight Saving and the Gardener.

not only limited, but the vegetables and fruits and especially small fruits, like currants, are shaded a large part of the day. If by chance you may locate your garden in a place where

PRACTICAL GARDENING

you have the choice between the morning and afternoon sun, by all means select the morning sun. The air is usually free from dust, the plants fresh after the night's rest and moisture, and the direct rays of light are of greater value to plant growth.

The problem of air drainage and gases is of vital importance. Fresh air is as necessary to the growth of plants as it is to the health of any human being. The only suggestion that can be made is to eliminate the cause of the evil. For instance if the gases come from the furnaces of a mill, get in touch with some one in power and have the chimney made higher.

The difficulty in controlling stealing from city lots must be left wholly with the authorities and the owner. The remedy that has cured this disease of the mind in several localities is the application of practical coöperation. Let every one, children and all, have gardens even though they have to travel a mile or more to get them, and the pride of ownership will

BACK YARD GARDENS

develop a sense of civic pride which will cure the evil of thoughtless stealing.

Dogs and cats running over the gardens is another problem that may be met by constructing a close mesh wire fence about the garden and planting tall peas, tall growing tomatoes, grape vines and small fruits along the fence, training the plants over it. In this way the fence is a support to certain crops and it does not spoil the looks of the garden or give an impression of unfriendliness. This practice may be followed in any garden, city or rural.

If there is any one type of garden where intensive gardening should be practiced it should be in the city garden. The soil should be kept busy producing all the time, and just as soon as one crop is removed another should have been started between the ripening crop. It is not always practical to start early crops in flats in the kitchen window for transplanting because the plants are seldom healthy. Buy such plants as tomatoes, cauliflower, cabbage, peppers, celery, etc., and transplant these be-

PRACTICAL GARDENING

tween the rows of ripening radishes, lettuce and other quick growing crops. Little consideration is given to the soil, especially in the city, and usually the plot back of the house is the poorest type of soil but this may be changed by the application of horse manure secured from the city stables.

THE VILLAGE OR SUBURBAN GARDEN

A village or suburban home is not complete without a garden and the one grave danger is the poorness of the soil, especially if a thoughtless contractor happens to skin off the surface soil to fill in some hole near the house. This happens more often in the suburban garden than the village garden. At any rate, if you are contemplating building, make sure that you stipulate the treatment of the soil on which you are to have your garden. While the village and suburban gardens are of moderate size they are usually much larger than those of the city and they are blessed with fresh air, sunshine and sufficient moisture.

BACK YARD GARDENS

Some of the best managed and most beautiful gardens are found in the villages or suburban districts. This may be due to the possibility of securing manure from the city stables, streets, and, in the case of the villages, from a farmer. Wherever possible, keep a compost heap in the making so that a fresh supply of food may be applied at the needed time.

The owner, in looking after the details of the garden, usually sees to it that there is an abundant yield of high quality vegetables for the immediate table use during the spring and summer and a sufficient supply of cabbage, celery, squash and roots for the winter. This may also be partly true of the city garden if properly managed.

One of the worst and commonest enemies of the gardens near the country is the rabbit. He may be kept out by the use of a close mesh wire, embedded in the soil at least two inches and high enough to keep him from jumping over. A trench may be dug about the garden, the wire made secure on strong posts, and the soil

PRACTICAL GARDENING

replaced. This will prevent the rabbit from burrowing under the fence, which may also be made beautiful as suggested in a previous paragraph. Powdered arsenate dusted on the lower leaves when they are moist will destroy the rabbits, but it is not generally recommended.

If in both village and suburb the owners of property will coöperate the entire community may not only be made productive but beautiful. Organize a garden club, get practical men to suggest the places in which to plant such permanent crops as asparagus or rhubarb and also trees and small fruits, and to give talks and demonstrate the planting and culture of annual crops. One man may be successful in raising strawberries, another apples, and still another root crops, etc. Get acquainted and exchange experiences; it is the best indication of progressive, practical gardening.

THE RURAL OR FARM GARDEN

The rural or farm garden varies in size from

BACK YARD GARDENS

a hundred by two hundred feet or less to one-half an acre or more. There are two general requirements, and the first is to have the garden near the kitchen. The housewife and the farmer look after the kitchen crops after work hours, and if it is close to the house it usually receives more attention. The second requirement is a fence to keep out calves, chickens and other farm animals, as well as rabbits and woodchucks.

The soil is usually good, and there is always plenty of manure available to aid in changing the physical conditions and to enrich it. It is almost always plowed instead of being spaded. Horse cultivation is practiced, therefore the space between the rows is from three to four feet.

Economy in labor is one of the most important factors in the rural garden; but if the farmer were to consider the money value of the fresh vegetables used during the growing season and the vegetables stored away for winter, he would find that his quarter of an acre was

PRACTICAL GARDENING

more profitable than any other strip of land of the same size on his farm.

The four principles to be considered in any Home Garden are (1) a sufficient supply of vegetables and fruits for summer and winter, (2) a continuous succession of crops that keeps the soil producing throughout the growing season, (3) economy in labor and especially cultivation, (4) maintenance of the productivity of the soil by the proper application of manure. If these are carefully considered and practiced all soils may be made to produce.

CHAPTER II

THE SOIL AND HOW TO MAKE IT

The soil is alive. Treat it as you would a living thing. Prepare it for its life's work and get acquainted with its good and bad characteristics. In other words, make a friend of the soil.

NO matter what your soil may be, clay, loam, sand, or muck, you may have a garden and raise certain varieties of vegetables successfully. There are several points of preparation that must be considered before the planting operations begin, and one of the most important is drainage. No soil that has standing water on it can support the growth of vegetables, because the air is shut out and disease and decay are common where there is excess moisture. If your lot is low and there seems no place to run the tile, dig a hole four feet in diameter and ten feet deep in the center

PRACTICAL GARDENING

of your garden. Fill this to within three feet of the surface with stone and run the tile about twelve inches below the surface of the soil,

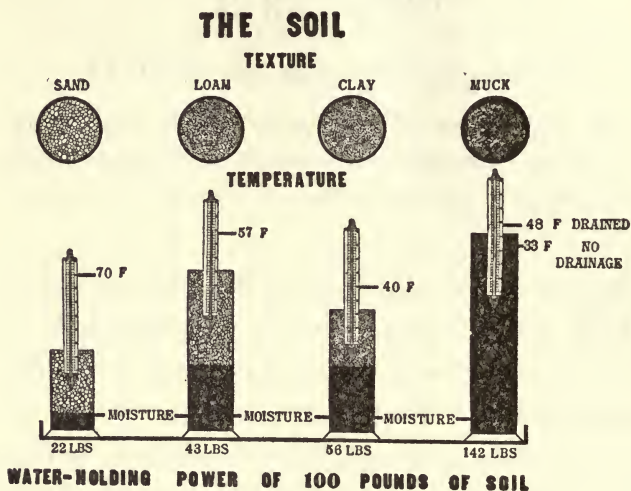


FIG. 2.—The water-holding power and temperature vary according to the texture of the soil and both play an important part in the growth and the time the plant matures.

slanting the tile so that it empties against the stones. Cover the top of the stone with stiff clay for about twelve inches and the remaining

THE SOIL

two feet with garden loam. This blind drain, as it is called, will take care of the surplus water and there is no unsightly pool to spoil the looks of your garden.

In order to get the best results from your garden, the type of soil and its treatment as well as the varieties of vegetables best suited to the various kinds of soil should be considered, also the methods of treating the soil at different seasons of the year in order to get the highest production should be given careful attention.

Don't try to work the soil too early in the spring or directly after a heavy rain. Whenever the soil is worked it should drop freely from the spade or "scour" of the plowshare. All soils should be made fine, not only on the surface but from eight to ten inches in depth before planting. Many gardens fail because the soil is poorly prepared. The soil is the bed in which the seed gives birth to new life and is finally the home of the plant. In order to have quality as well as quantity it is neces-

PRACTICAL GARDENING

sary to make this home comfortable for the plant by supplying moisture, air and sufficient food for growth. The foundation of success in gardening is therefore the proper preparation of the soil before planting.

The sod should not be stripped from the surface of your new garden. It is the most valuable kind of fertilizer, in that it not only adds plant food but changes the texture of the soil. Turn the sod under early in the spring so that it has a chance to decay before planting the seed. If the sod is turned over and the rough, large clods are left exposed to the elements, both the air and moisture will hasten decay and after a week the soil may be made fine in order to proceed with the garden operations. The more decaying plants you can incorporate into the soil in the form of straw in manure and sod, the better chance the plants have during a drought, for this humus acts like a sponge in holding the moisture and if the surface soil is kept fine the moisture does not escape.

THE SOIL

The ideal location and the ideal soil are exceptional, but we may approach the ideal by working for it. The southern slope is the best for early vegetables, since it gets the early morning sun and if the soil is of a sandy formation it warms up quickly. The northern exposure with a clay loam is best for late crops in that it keeps cool, and this is important for such crops as cabbage. A flat strip of land is not at all objectionable and, if treated properly, it may be made to produce regardless of the original type of soil.

Clay. There are three different types of clay—blue, yellow, and red, and no one of them is desirable if very stiff. If a heavy coating of straw manure is applied late in the fall and the soil is left in the rough clods after plowing or spading, the frosts and snows work wonders. The elements break up this stiff soil and early in the spring the soil is again worked over and made fine. Adding well decayed manure in the fall is not generally advised because the available plant food will be

KEY TO PLATE I

- FIG. 3.—Clay soil. This sample of clay was taken from a well tilled garden. Rough as it may seem, it is in fair condition for planting.
- FIG. 4.—Garden loam. Rich in humus and plant food. The best soil for general gardening.
- FIG. 5.—Sand. Note the lack of any humus.
- FIG. 6.—Muck soil. Note the blackness of the soil and the vegetable matter not yet decayed.

PLATE I

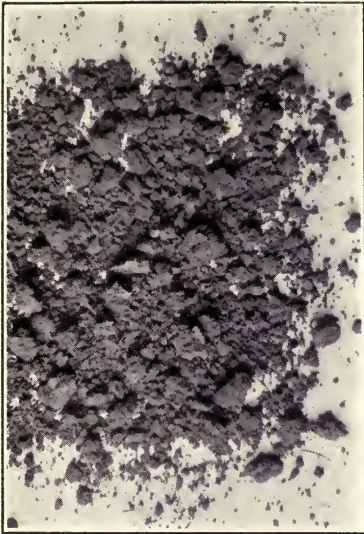


FIG. 3.

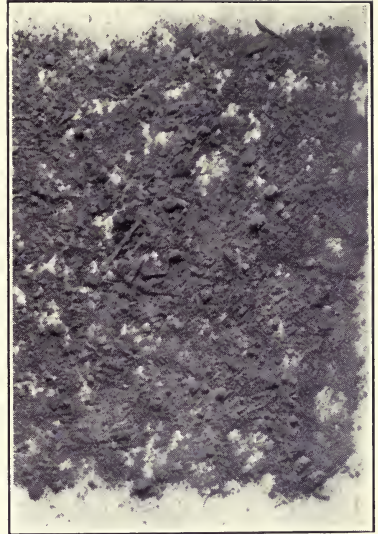


FIG. 4.



FIG. 5.



FIG. 6.



THE SOIL

dissipated and lost by spring, but the continual freezing and thawing of rough straw manure and the clods of clay will change the texture of the soil and make it very productive. Straw manure also prevents clay soil from running together and puddling in low places. Work the decayed manure into the first three or four inches of surface soil in the spring.

Coal ashes are not generally advisable even though they are sifted very fine. There is little or no plant food in them and if they are used in excess the soil dries out quickly and the plants suffer during the months of July and August. On the other hand, some clay soils have been benefited by the use of a little ashes and air-slaked lime, worked into the soil in the fall.

Clay soil is cool and usually rich in plant food but it is only made available by continual cultivation, by the exposure of the soil particles to the elements and by adding horse, sheep and cow manures.

PRACTICAL GARDENING

A loose clay loam is by far the best soil for cabbage, cauliflower, Brussels sprouts, kale, and endive. If the clay is loamy and supplied with sufficient plant food, it may raise almost any garden crop except sweet potatoes, muskmelons and watermelons.

Garden Loam. Garden loam is by far the most desirable type of soil in that it usually contains considerable humus. The particles are fine and therefore the air gets into it, so it may be worked early in the spring and a short time after a rain. It is always benefited if left in the rough during the winter and heavily coated with manure in the spring. Have the soil free from stones and made as fine as possible. Do not neglect to cultivate often, simply because the soil is loose. All varieties of vegetables and fruits do well on a well prepared and well kept garden loam.

Sand. Sand is the poorest type of soil on which to make a garden for two principal reasons. First, it lacks plant food and secondly, it cannot retain sufficient moisture. Never-

THE SOIL

theless, if the sand is not too rough, it may be made to produce by applying three to four inches of horse manure where straw has been used for bedding. Work this into the sand in the fall and make another application in the spring, and after a few years there will be added sufficient humus to make a really good garden soil. Nothing is better than to sow a crop of clover where there is sufficient plant food and moisture to support it, and this is usually possible the third year after applying manure to the sand. After the clover reaches a height of six inches, spade or plow it into the soil. The clover supplies some of the much needed nitrogen as well as humus.

A sandy loam is the best soil for early crops of peas, beets, radishes, or string beans, and is especially adapted to sweet potatoes, muskmelons and watermelons. These crops may be aided by the use of commercial fertilizers and a continual application of water during the dry months.

Muck. Muck soil is seldom found in home

PRACTICAL GARDENING

gardens but it is sometimes introduced. It is a common mistake to think, because the soil is black, that it is rich in plant food. Of course, muck is rich in nitrogen because it is almost wholly made up of decayed and decaying vegetable matter which supplies available nitrogen if the soil is properly drained, and cultivated; but it lacks the other two necessary chemicals, phosphoric acid and potash. These, however, may be supplied as advised in the following chapter.

Muck soil is especially adapted to the culture of lettuce, onions, and celery. The three principal practices to be considered in handling muck are to drain, to supply needed food, and to cultivate frequently.

The Compost Heap. Where plants are started early in the spring in the greenhouse, hotbed, or in pots or boxes in a sunny window, good soil is needed and this is usually hard to get because of the weather. For seed, the compost soil is not necessary, but for transplanting from the seed bed into pots, straw-

THE SOIL

berry baskets or flats, soil properly mixed with manure is invaluable. The soil for seed flats may be kept in the cellar, shed or tool house, thawed out and made fine when needed.

Wherever the compost heap is to be started, the location must be well drained. Secure sod on which clover has been grown, whenever possible, but any sod may do. Invert the sod, grass side down, and build up about six inches of sod, then six inches of well decayed manure and again six inches of sod and garden loam. With each application of manure add a liberal amount of bone meal. After the pile has reached a height of four feet, cover it over with inverted sod and allow it to stand for two or three months, then chop up the sod and mix the soil, sod and manure. Turn the pile over at least three times before using, and then you will be sure to have mixed the fertilizers and soils equally.

Early in the spring is the best time to make the compost, after the grass and clover have

PRACTICAL GARDENING

reached a height of two or three inches. By August or September the soil may be mixed and put in a place where it may be had before the frost and snows have passed. Do not allow the compost heap to dry out but never use dish water to wet it down. The lye from the soap and the grease in the water are both objectionable. Never mix garbage with soil. It has a tendency to make it sour and is also slow to decay.

If the soil is a clay formation or a little sour, as shown by the growth of moss on it, add a little lime to the layers of soil but do not add lime to the manure.

Many gardeners who have only a small space, construct a compost heap in the fall and use it as a top dressing on the soil in the early spring. Sometimes, when a load or two of manure may be had in the fall and you have no place to keep it, a compost heap is most advisable. The fertilizers are retained in the soil and a large per cent. of the gases set free by decomposition is retained by the moisture.

THE SOIL

Wherever wood ashes are available, these may be scattered on the layers of soil.

DO'S AND DON'T'S IN MAKING THE SOIL

Don't's

- Don't try to raise plants where the soil is poorly drained.
- Don't strip the sod from the surface of a new garden.
- Don't add a great quantity of ashes to the soil.
- Don't smooth the surface of clay soil in the fall after digging or plowing.
- Don't try to work the soil when it is wet.
- Don't rob the soil; apply manure each year.
- Don't expect crops suited to a sandy loam to grow well in clay.
- Don't fail to add humus and plant food to sand.
- Don't let the soil get so dry that the plants wilt.
- Don't think because the soil is black that it is rich.
- Don't fail to get acquainted with the needs of your soil.
- Don't throw dish water or garbage on the compost heap.

Do's

- Drain the soil if necessary.
- Add humus in the form of manure to all soil.
- Plow or spade from six to ten inches in depth.
- Apply water only when necessary and do not puddle the soil.
- Work the cultivator. A dust mulch on the surface of the soil will help to retain the moisture.
- Work with the soil, in the soil, and for the soil and you will get results.

CHAPTER III

FERTILIZERS AND HOW TO USE THEM

A comfortable home, food, water, fresh air and sunshine are as necessary to plant growth as they are to the health and happiness of any human being.

SCIENTIFICALLY, we recognize at least ten elements necessary for plant growth and the maturing of a crop. The three most important of these may be secured from the soil, air and water. These three elements, which must be present in any soil in sufficient quantities and in an available form to insure success, are nitrogen, phosphorus, and potassium. No one of these may be left out or the crop will suffer, if indeed, it matures at all.

The important points to consider are the various soils and what they lack and the different crops that need these three elements in certain proportions in order to produce a maxi-

FERTILIZERS

mum yield. This plant food may be secured from different sources. Tillage alone will not render sufficient available plant food to mature a perfect crop in the average soil, therefore the direct application of plant food in the form of animal manures, green manures, or commercial fertilizers, is necessary in every well managed garden.

Stable manure is without doubt the most valuable source of plant food for all soils and all classes of vegetables. Stable manure, if added each year, will not only be a continual source of plant food but will change the physical condition of the soil, while commercial fertilizers may show marked effects quickly but are often disastrous if wrongly applied. Few gardens are large enough to grow a crop of clover or other plants, which may be turned under in one or two years, though this management is one of the most valuable sources of plant food as well as a benefit to the texture of the soil.

Fresh manure, especially where the animals

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have been bedded with straw, is good to apply in the fall, plowed into the soil, with the ridged furrows left for the elements to work on. Well decayed manure may be applied to the same soil, from a thin scattering to two inches over the surface, and worked into the first four inches with the digging fork or disk harrow. The young seedlings come in direct contact with this source of plant food at the beginning of their growth, which is very important especially with early crops.

Horse manure is loose in texture and one of the best manures for the vegetable and fruit garden, providing straw has been used for bedding. Manure mixed with shavings is objectionable. It is slow to decompose and in some cases the turpentine and resin in the chips of wood have a decidedly bad effect on the soil. Horse manure mixed with bone meal, dried blood or tankage is made more valuable as a lasting supply of plant food.

If the manure from young horses, fed oats and bedded in straw, is kept moist and applied

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to the soil when it is partly decayed, the temperature of the soil is sometimes raised three degrees, which means a rapid growth of early spring crops like beets, lettuce, radishes, peas, etc.

Horse manure which separates in thin sheet-like layers and has a gray appearance, should never be used. Manure in this condition is "burned" and the food value is lacking.

Manure should never be left in a pile out of doors over winter. If a shed is not available make a compost heap, and if both are impossible cover the manure pile with soil so as to prevent the loss of ammonia.

Cow manure is very valuable, even though it is not as heating as horse manure. It is a slow-acting manure and especially valuable for cabbage. In fact, well decayed cow manure applied near the time of planting will be of great value to any crop.

Liquid manure is made from fresh cow manure and water. The stock solution may be made in a barrel by mixing the fresh manure

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with water and allowing it to stand for three to five days. During this time the fermentation will cause a thick scum to form on the surface which should be removed. The solution should be stirred at least once each day during this period and always before using. The liquid should look like a weak tea which may be made by diluting the stock solution with water. Always keep a lid on the barrel so as to prevent insects from breeding in the solution, as well as to keep in the odors which practically disappear after a few days. No manure is so cheap or so valuable as liquid manure for a crop of maturing strawberries, peas, beans and other vegetables and fruits, if applied just before a rain or watering. The rural and suburban gardens are best situated for the construction of a liquid manure tank, while the city gardens must necessarily depend on some other source for fertilizers.

Hog manure is sometimes applied, especially in the rural home gardens. It is slow in action and generates very little heat. It

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is foul and is not generally used. It also encourages general root diseases, such as the club root of cabbage.

Sheep manure decomposes and heats rapidly. It contains a great amount of nitrogen and may be obtained at any seed house, pulverized and dry. A little of this fertilizer, scattered along a row of onions after they appear above the ground and worked into the soil just before a rain, is most valuable. A teaspoonful, applied to each hole and mixed a little with the soil before head lettuce is transplanted, will quickly give results. Also, a little applied to hills of corn will show a marked effect. In fact almost every vegetable will respond quickly to sheep manure, and it is strongly advised if used sparingly because it is available, easy to handle and inexpensive, compared to commercial fertilizers.

Hen manure is one of the most valuable of all animal manures, since it contains a large per cent. of potash, phosphoric acid, and nitrogen. No manure can equal it for onions.

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Of course, it must be handled with great care and applied very sparingly. It is not an easy matter to apply hen manure on account of the moisture in it, but if kept in a dry place, mixed with a limited amount of sifted coal ashes or dry soil and pulverized as much as possible, it may be scattered along the rows of growing vegetables, or applied to the hills of beans or corn.

COMMERCIAL FERTILIZERS

All stable manures must undergo a change in decomposition or fermentation before the food is available for the plant, while many of the commercial fertilizers go into solution quickly in combination with water and are immediately available as food for the plant. The slow growth of beets, lettuce and other crops often develops fiber and the vegetable is tough or woody, while a little application of nitrogen, in the form of nitrate of soda, would hasten the crop and prevent the growth of the woody fiber. Also late crops may often be

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successfully matured by the use of commercial fertilizers before the frost checks all growth.

Nitrogen may be secured in the form of nitrate of soda and is valuable according to its availability. It is a leaf builder and should be applied sparingly just before a rain as it is readily soluble. In dry weather a furrow may be drawn close to the growing plants, one or two inches in depth, and a little of the nitrate of soda scattered in it; then cover the furrow as you would seed. The moisture from the soil will dissolve the soda and the plant soon makes use of it.

Nitrate of soda may be dissolved in water, one ounce to one gallon of water, and applied sparingly before watering the garden. The salt in crystal or liquid should never come in contact with the foliage. If it does and the sun is bright, the leaves will burn and turn brown in blotches. There is one exception to this and that is cabbage.

Nitrogen may be secured in dried blood, ground fish, tankage, bone meal, cotton seed

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meal, and Peruvian guano, but for the quickest and best results nitrate of soda is the best source of this most valuable fertilizer.

There are no rules as to the frequency of application, as it all depends on the health of the plant and the desired results looked for, but one thing that must be remembered is that fertilizer must be applied in very small quantities. If the leaves of peas or beans or other plants are turning yellow before the crop has matured the crop is calling for nitrogen. Any fertilizer containing available nitrogen is especially valuable for lettuce, endive, celery, onions and other stem or leaf crops.

Phosphoric acid if lacking in the soil will cause the crop to mature slowly and may in some instances cause a complete failure. This is the ripening element and may be secured in raw or steamed bone meal, rock phosphate, or Thomas slag, all of which vary in the available phosphoric acid. The rate of application depends on the character of the soil, sandy and muck soil usually requiring more phosphoric

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acid than clay or garden loam. It is always better to apply it with care, watch results, and keep a record for reference. A good gardener must know the needs of his soil as well as the varieties of plants best suited for his location.

Potash is often lacking in sandy and muck soils. In fact there are few soils that do not need it, especially where such crops as turnips, carrots, parsnips, and radish are grown. This element is the skeleton or fiber builder of the plant. There are four principal sources from which it may be secured, muriate and sulphate of potash, kainit, containing about twelve per cent potash, and wood ashes, containing from four to six per cent potash. The muriate of potash is considered the best for fruit crops and for general purposes in the vegetable garden but the sulphate of potash has long been considered the most desirable for potatoes. Unleached wood ashes are doubtless the cheapest and easiest source of potash to secure and may be applied freely to the soil without

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doing any harm. Wood ashes, with a little Paris green mixed into them, may be dusted on cucumbers, squash, and pumpkins to prevent the striped beetle and at the same time enrich the soil.

Kainit is sometimes used freely on root crops and asparagus.

Lime is not a fertilizer but it is important in the growth of vegetables since it is better for all vegetables to have the soil slightly alkaline rather than acid. Lime favors the growth of micro-organisms which are beneficial. It changes the physical condition of the soil, makes certain types of plant food available and promotes the decomposition of vegetable matter. A little lime each year, applied in the early spring, will benefit especially soils of a clay formation. Sand is also benefited by the use of lime, which has a tendency to hold the loose particles together, and in this way the sand retains more moisture. From fifteen to thirty-five lbs. per square rod will sweeten a sour or acid soil and aid it to be productive.

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POINTS ABOUT MANURES WORTH KNOWING

Never apply fresh manure to growing crops.

Never allow animal manures to be exposed to the open air. An appreciable amount of plant food is lost in the form of gas.

Manure from young animals is better than manure from old animals.

By applying coarse, fresh manure to the soil and plowing or spading it under, leaving the soil in the rough, you can change the texture of the soil.

The rate of applying any manure depends on the texture of the soil, the need for plant food, the kind of food available in the soil, the age of the manure, and the requirements of the crop.

If stable manure is supplemented with commercial fertilizers, less stable manure is necessary.

Mix bone meal and a very little coarse salt to horse manure to make it more valuable as a plant food.

Never scatter nitrate of soda on the foliage.

There is less danger in applying too little commercial fertilizers than in applying too much.

Never try to substitute lime for any fertilizer. It is not a fertilizer.

Never leave the lid off the liquid manure barrel.

Frequent cultivation will make the plant food in the soil available.

Plants, like children, cannot stand over- or under-feeding.

Know the food values of manures and only apply them when needed.

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THE PLANT FOODS

Select one fertilizer from each group and work it well into the soil

PLANT FOOD NECESSARY	FERTILIZER OR SOURCE	AMOUNT PER SQUARE ROD	HINTS
Nitrogen— Leaf builder	Nitrate of Soda	2 lbs. Apply before a rain	For solution, especially for plants (Lettuce) 1½ lb. to 14 gals. water.
Potash— Stem builder	Kainit Sulphate of Potash Wood } Hard Ashes } wood } best	3½ lbs. 2 lbs. Apply freely	Very difficult to secure Buy early
Phosphoric acid— Fruit builder	Ground rock acid phosphate Dissolved bone Basic Slag	5 lbs. 2 lbs. 5 lbs.	The dissolved bone meal is considered the best. Make your own selection

CHAPTER IV.

TOOLS AND HOW TO USE THEM

To use a hoe or rake properly is an art as well as a science.

THERE is a great variety of tools adaptable to pruning, spraying, planting, transplanting, and cultivating, but a few good tools put to the proper use in the right way will be sufficient for most of the practical backyard gardens. One tool may be used for several different kinds of work in the garden. For example, the rake may be used to smooth the surface of the soil preparatory to sowing the seed, covering the seed, cultivation, and raking the ripe onions into rows to dry.

It is just as important to know how to handle tools properly as it is to know the proper depth to plant seeds. A crop may be spoiled by the wrong method of cultivation. Beets partly matured may be destroyed if the beet is injured

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by the scuffle hoe, which is used to cut the weeds off below the surface of the soil; or the roots of corn may be partly destroyed by a deep, close cultivation with the Norcross weeder. Never select combination tools such as rake and hoe in one. Why lose energy by carrying a hoe about all day when using the rake and vice versa. The metal put in these combination tools is usually very poor and the work that should be done well with an implement suited to the work, is poorly done with these "get more for your money" tools which are expensive even when given away. The same argument holds good in pruning saws. The saw with teeth on both edges is known as "The wrath of God" saw and should never be used. This double edged tool, if used in a crotch to remove one of the branches, bruises and injures the other.

Get good tools, the work will be done better and the results in growth and appearance of the garden will be marked. You save energy and the tools last longer.

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FIG. 7.—The right way to spade. In this position the force of the whole body goes into the operation through arms and foot, spading becomes easy instead of tiresome, and good results are sure to follow.

The Spade or Spading Fork. The large steel spade is not necessary if a strong, well constructed spading fork may be had. The prongs should be straight and fastened by two

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FIG 8.—The wrong way to spade. Notice the position of the foot. This method is tiresome and develops serious pain in the instep. The spade should be forced into the soil, not by the foot but by the whole body.

steel plates on the upper and lower side of the short handle. In using the spading fork, do not strike the freshly turned clods, especially if they are stiff clay, with the back of the

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prongs, strike the soil with the outer prong in order to pulverize it and there will be less danger of breaking the handle.

Hoe. There is no garden implement in



FIG. 9.—“Safety First.” The right way to leave the rake and hoe.

which there is a greater variety of forms than is found in the hoe. The combination hoes and rakes should always be discarded.

It is not necessary to buy a large hoe for general purposes, for the light square blade hoe may be used not only to destroy weeds but also to make furrows in which to plant seed. Keep a medium sized flat file with you and keep the hoe sharp. If the soil is a little moist and it sticks to the blade, strike the back of the hoe lightly on a stone and the jar will clean off the soil. If you desire more than one hoe, the large

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or heavy hoe is useful for a heavy hoeing. The half-moon light hoe is best for general purposes. The scuffle hoe is most useful in light soil to destroy weeds just as they are breaking

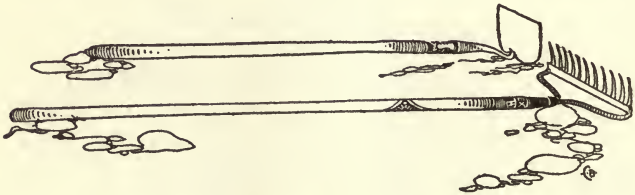


FIG 10.—The wrong way to leave the rake and hoe when not in use.

through the soil. The Warren hoe is especially useful in drawing furrows. The potato hoe made of four strong prongs is useful for digging potatoes but the spading fork may be used to better advantage with less loss of energy. For general purposes one light hoe will answer the need of the average home garden.

Weeders and Cultivators. The Norcross weeder is the best implement for general cultivation and weeding in a small garden. Every gardener should own one. The soil is made

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fine by the proper use of this implement in cultivating between the rows of vegetables very early in their growth. It may also be used in stirring the soil to a depth of two inches before sowing the seed or transplanting.

The double and single wheel cultivators are valuable not only because they are used to destroy weeds and cultivate the soil but because they save energy and time. There are several adjustable parts to each implement, such as a small plow, cultivators of various shapes, and hoes. A garden of one half an acre or more is sufficient land to make such an implement most useful. In using it, stand up to the handles and take short steps, forcing the cultivator forward with each step or drawing it toward you, then backing it a few inches before the next step is taken.

There are many types of hand weeders, but the Eureka, having three steel prongs, bent like fingers in the act of scratching, is considered one of the best. It is light and often used to stir the soil as well as destroy the weeds.

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The Yoder's hand weeder is similar in form only that it is larger, with four fingers and a longer handle. The Excelsior weeder has five



FIG 11.—The right way to push a seeder or hand-cultivator. Stand up to the machine and push it with your body, not your arms. More force and less fatigue.

short fingers and is excellent for surface cultivation. Both the Hazeltine and Lang weeders are made of a flat piece of metal formed to

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make a flat blade with the tip turned up. The knife or blade is forced below the surface and close to the plant, cutting off the young weeds.



FIG 12.—The wrong way to push a seeder or hand-cultivator. It is almost impossible to control the direction of the machine and the operator tires quickly.

Seeders are used only in large gardens but may be bought with the cultivator attachments. The seeder and cultivator cost about \$12, but it is money well invested.

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Rakes differ in size, number of teeth, shape and closeness of teeth and also in length of teeth. The best garden rake is made of solid



FIG. 13.— The right way to hold a rake. The body is free to do its share of the work and the arms have perfect control in forcing the teeth of the rake into the soil.

steel, fifteen and one-half inches in width, with sixteen curved teeth two and one-half inches in length. The handle should be white ash

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and from five to six feet long. The rake is valuable not only in preparing the seed bed and in covering seed but also for cultivation in



FIG 14.—The wrong way to hold a rake while raking the soil. Compare the position of the hands with those in Fig. 13 where all of the rake handle is in use.

forming a fine dust mulch over the surface by breaking up the particles of soil.

A Garden Line is necessary to any well ar-

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ranged garden and is best kept on a galvanized metal reel which may be bought for from 50¢ to \$1.50. A strong hemp line will last for many years if kept dry. If wrapped on the reel wet it will knot and warp. If the rows are long, spring the line by lifting it some distance from the reel or peg and let it spring back into position. In this way the line if kept tight will not catch on stones and soil and cause the furrow to be crooked.

A Watering Can is valuable especially in the early spring for watering the seed beds as well as the young transplanted seedlings. A galvanized can holding about twelve quarts is a fair size. There should be two adjustable sprinkler ends, coarse and fine. For watering individual plants, such as cabbage, both of these may be removed and the spout used, but care should be exercised not to dash the soil away from the roots or to puddle it. In using the watering can get the water to the roots; sprinkling the surface of the soil means nothing to the plant and often causes the soil to bake.

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Spraying equipment for the control of insects may be simple and inexpensive yet effective. If there are only vegetables and small fruits to spray, a brass hand atomizer holding from one to two quarts of spray material is large enough. For fruit trees a compressed knapsack or bucket sprayer holding from five to ten gallons is best.

The Bidwell air sprayer, fitted with the Winkle-mist nozzle will cost about \$15.00 while the Auto spray with nozzle costs only \$7.00. The Deming Knapsack Sprayer, copper tank holding about five gallons, costs about \$14.50. For the home garden orchard any of the Iron Age, Simplex or Paragon barrel sprayers are satisfactory. They range in price from \$20.00 to \$35.00. Always strain the liquid, keep the nozzles clean and wash out the pump before storing the sprayer for winter.

Pruning tools should be made of the best steel, kept clean and always sharp.

The saw is the most important for large trees. The two-edged saw should never be

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used in cutting off a limb, especially in a crotch. While removing the one limb the upper teeth are injuring the other limb. A good saw for small limbs should be twenty-four inches long, three to four inches wide at the butt, with five to seven teeth per inch. If the saw gets gummy clean it with kerosene. Before doing any pruning in the spring have the saw sharpened and reset.

Next in importance in the pruning equipment are the pruning shears. Never buy a cheap pair of shears; the steel is poor and the blade does not keep an edge, therefore the work is done poorly. Either the French or Swiss pruning shears are good, costing about \$1.75 per pair.

The Telegraph or Water's pruners are most unsatisfactory since the operator is too far away from his work to see what he is doing. If the pruning shears tear, but do not cut clean, have them sharpened and also have the nut on the side holding the blades together tightened.

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TOOLS FOR A LARGE GARDEN

In the preparation of larger gardens a good surface plow should be used first, then the disk harrow, and the land finally smoothed with a spike tooth harrow. If clods are to be broken up there is nothing better than a heavy wooden planker. Before the seed is sown the land is rolled but for the average city or suburban garden not all of these operations are possible.

TOOLS FOR OPERATING THE HOME GARDEN

Spading fork.....	\$1.00
Hoe (7 inches).....	.60
Rake (steel bow) 15 teeth.....	.70
Double wheel cultivator.....	5.00
Single garden reel, 120 ft. Italian hemp.....	1.60
Auto spray (galvanized iron).....	5.00
Galvanized Watering Can (12 quarts).....	.80
Hand Weeder .....	.25

Total\$14.95

A garden trowel which is sometimes useful in transplanting (25¢) and also a hotbed soil thermometer (\$1.00) may be added to the above list. But few home gardens have hotbeds though they are most valuable and highly recommended.

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TWENTY RULES FOR HANDLING TOOLS

1. Don't hang up a dirty tool. Clean it.
2. Put each tool in its proper place. Get the habit.
3. Don't leave soil or manure in the wheelbarrow over night. Oil the wheel if it needs it. When not using the sides, lean them upright against some object. Don't forget where you left them. It looks careless.
4. Don't buy a heavy hoe, so that it will last for years. Use a light hoe and save your back. Good judgment.
5. Do not chop weeds with the hoe. Keep the blade close to the surface of the ground. Save energy.
6. Don't buy combination tools. They are hard to handle and often made of poor steel. You can use only one tool at a time. Why carry others with you all day? Common sense.
7. The hoe and rake should be held firmly with the right hand over the handle. Balance the instrument with the left hand and take short strokes with both tools. For raking grass or hay, shift the right hand to the underside of the handle. The best practice.
8. Do not injure vegetables, such as beets and carrots, with the hoe. If you do, the wound will show on harvesting the crop. Sins will out.
9. Don't bend the body too far forward while raking or hoeing. Stand erect.
10. Stand up to, and between the handles of the wheel cultivator or mowing-machine. Push the imple-

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ment with your body, not your arms. Save your strength.

11. Test the seeder before using. Gage it properly by running it over a clean board or paper to observe distribution of seed. Never leave seed in the planter over winter. Shows neglect.
12. Oil the mowing-machine at least five times each day, if used ten hours. Clean the blades before putting the machine in the tool house. If the blades click adjust the blade screws before using. Don't lose time or strength.
13. While in the garden, always leave the teeth of the rake and the edge of the hoe turned down while not in use. Safety first.
14. Use a digging fork to cultivate shrubs and perennials. A spade cuts too many roots. Think before using.
15. Keep the hatchet and the ax sharp. Protect the edge with a leather cap. Good sense.
16. Rub a little linseed oil over the steel part of each implement before storing it for the winter. Rust is waste.
17. If the pruning tools are gummy or dirty, clean them with kerosene. Clean tools equal efficiency.
18. Stamp the handle of each tool by burning your name into the wood. Know your own.
19. Don't forget and leave tools in the garden over night. Never leave the plow in the furrow for a week. Forget to forget.
20. Sweep the tool house at least each Saturday. Be clean.

CHAPTER V

PLANNING THE HOME GARDEN

THE plan of the consumer's garden will differ as the individual tastes differ, but a loss of time and money will be avoided if the garden is well thought out before the planting season arrives.

The assortment and continuous supply of vegetables will depend largely upon the amount of land available as well as upon the method of planning and planting. Of the two types of garden practices, intensive and extensive, the intensive is by far the more important and, in most cases, is necessary if the desired results are to be obtained. The intensive method of gardening, if properly planned and executed, is considered the best in suburban and city gardens especially, because the entire effort and interest is concentrated on a small

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plot which may be heavily fertilized and cultivated more often than the extensive garden.

The man who plants whatever he likes whenever he happens to think of planting, and who buys his seeds as he needs them, is sure to come to grief before the season advances far. He often orders more seed than is necessary, plants some of his crops too early or too late in order to get the best results, and he never follows the intensive method of gardening by starting in a succeeding crop before the first crop has fully matured.

A good time to begin planning the home garden is in January or February. Obtain seed catalogues from several reliable firms and make up your list, send your order in early, and state the time you wish the seed to be delivered. Let the seed firm keep the seed as long as possible for they have conditions in which to store seed, while a few days of dampness or warmth in a steamy kitchen may spoil such seed as lettuce and radish. In ordering early you are never disappointed in having your seeds when

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you want them and there is seldom a mistake in filling the order, because the clerks have time to do their work carefully, while in the rush season mistakes often occur. There are firms which make a specialty of certain varieties of seed, such as corn, peas, etc. Better results are obtained if such seed, full of vitality and true to name, is secured from these special firms. In going over the catalogue, select varieties that will mature at a stated time, such as early peas, corn, beets, etc., for early planting, then follow with the mid-season and late varieties. With most of our vegetables the most edible stage is just before full maturity is reached. Therefore, plan to replace these crops by starting other crops to be transplanted between the rows, or even by planting the seed before the maturing crop has been removed. It is just as important to plan for quality as it is to arrange the crops in order to have quantity.

For the best planned garden it is necessary to understand the influence of temperature on

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the quality and maturity of certain vegetables. For instance, it is impossible to raise radish, cabbage, turnips, and other such crops in a high temperature, while it is equally impossible to raise a good quality of corn, beans, cucumbers, and such tender crops in a low temperature.

Vegetables are therefore classified as "hardy" and "tender" according to their degree of growth and quality in certain temperatures. Cabbage is considered a hardy vegetable because it endures a certain amount of frost and the quality is best if grown in a cool climate and soil, while the tomato may be called "tender" because it is destroyed with the first frost and the quality is poor if the season is cool. The crops may be arranged according to the temperature desired for the best results.

THREE GROUPS OF COOL-SEASON CROPS

The first group consists of leaf lettuce, mustard, early peas, kohlrabi, cress, radish, tur-

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nips, early spinach and early beets. These are planted as soon as soil is fit to work. These crops mature best with an abundant supply of moisture throughout their growth which is provided by the frequent spring rains. They also mature in a short period of time before the heat of summer sets in. If the seed of this group is sown late in the summer and a sufficient supply of moisture is applied during the germinating period several of these crops will mature in the fall.

The second group consists of head-lettuce, cauliflower, cabbage and mid-season peas. These vegetables do best if started early, when the nights are cool. Late cabbage may be planted in July but this group makes its best growth in the autumn and after the first light frost. Early celery, if started in April, will mature before fall, providing sufficient moisture is available during the first part of its growth and throughout the entire season. All of these crops, though started early, endure the summer heat.

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The third group consists of what is known as "long season crops," or those making a strong root growth during the cool, moist spring, enduring the summer heat, and maturing in the summer and autumn. This group includes carrots, parsnips, salsify, beets, leeks, onions, early potatoes, Swiss chard, kale, New Zealand spinach, parsley, Brussels sprouts and upland cress.

The two common garden perennials, asparagus and rhubarb, are also included in this group.

TWO GROUPS OF WARM SEASON CROPS

The first group consists of those vegetables with a sufficiently short period of growth to enable them to mature during the warm weather; sweet corn, cucumbers, string beans, muskmelons, watermelons, squash, Lima beans, pumpkins, okra, all of which should be planted after the soil is warm. While these crops need the spring rains yet they will not grow successfully if planted when the soil is

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cold and the atmospheric temperature is low.

The second crop includes tomatoes, egg-plants, peppers, and sweet potatoes. All of these vegetables do best in a high temperature. On account of the long period of growth necessary to mature these crops, they must be started under glass (greenhouse, hotbed or a well lighted window).

The moisture supply should be considered in planning the garden. If part of the garden is moist all season, such crops as potatoes, beans or peas should not be planted in such soil, while cabbage, celery or onions do their best in a moist cool soil.

Moist soil does not mean a wet soil, for no vegetable will thrive where the water becomes stagnant. If radish and lettuce are planted during a drought they not only lose their flavor and crispness but they seldom mature sufficiently to make them worth while for table use.

In planning your garden consider the moisture content of the soil in reference to its use

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in aiding germination, rapid growth and the maturity of the plant.

Rows running north and south get the sun on the east side of the plant in the morning and on the west side in the afternoon. But as a matter of fact, practical gardeners are not so particular how the rows run on level ground so long as the sun is not shut off from the plants by tall objects such as a well, trees, or shrubs.

The following list of vegetables and the names of satisfactory varieties may be of aid in making your selection of seeds from the catalogues. Other varieties may be just as satisfactory and each gardener is advised to work out for himself those varieties best suited to his soil, climatic conditions, and individual taste.

PERENNIALS

Asparagus.—Strong, well-developed, two-year-old roots of Argenteuil, Palmetto, or Conover's Colossal.

Horse-radish.—Sets of Bohemian.

Rhubarb.—Linnaeus or Victoria.

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Artichokes.—Green Globe—which is cultivated for its flower heads being cooked as asparagus—is the variety most commonly desired. If the edible part wanted is the root, Jerusalem is the variety to use. Plant the latter variety one foot apart in the row, and the former three feet apart.

ANNUALS

Beans, all dwarfs, Green Snap.—Six Weeks and Giant Stringless Green-pod Valentine are very early.

Beans, all dwarfs, shell.—Dwarf Horticultural, The Goddard, and Bush Lima.

Beans, all dwarfs, yellow, or wax.—Wardwell's Kidney Wax, Golden Wax, Stringless Refugee Wax, and others are good.

Beets, early.—Crosby Egyptian, Early Eclipse. The former is very desirable.

Beets, late.—Edmond's Blood for a standard, Detroit Dark Red of a deep, blood-red color.

Brussels sprouts.—Long Island and Danish are very good.

Cabbage, early.—Early Jersey Wakefield, Early Erfurt.

Cabbage, late.—All Seasons, Danish Ball Head, Volga, Drumhead. Extra Choice Drumhead Savoy is a very fancy cabbage.

Cabbage, red.—Red Dutch, Red Rock, Red Erfurt.

Carrots, one-half long.—Danvers One Half Long, Chantenay One Half Long, Ox-heart.

Carrots, long.—Danvers, Long Orange.

Cauliflower.—Snow-ball, Erfurt.

Celeriac.—Apple Shape.

PLANNING THE HOME GARDEN

- Celery, early.—Golden Self-blanching.
- Celery, late.—Self-blanching, Winter Queen, Kalama-zoo, Boston Market, Giant Pascal.
- Chard, Swiss.—Order by name only, or variety Giant Lucullus.
- Corn, early.—Metropolitan, Adam's, Cory, Aristocrat.
- Corn, mid-season.—Quincy, Market, Golden Bantam, Black Mexican, Country Gentleman.
- Corn, late.—Stowell's Evergreen, some of the mid-season varieties planted later.
- Cucumbers.—Arlington White Spine, Davis, Cool and Crisp, Fordhook.
- Eggplant, early.—Black Beauty, New York or Long Island Improved, Black Pekin.
- Endive.—White Curled, Batavian.
- Kohl-rabi.—Early White or Purple Vienna.
- Leek.—Giant Carentan, American Flag.
- Lettuce, forcing.—For forcing in hotbed, Hittinger's Forcing.
- Lettuce (head).—Belmont Mammoth, Salamander, Big Boston, All Heart.
- Lettuce (loose leaf).—Grand Rapids, Early Curled Simpson and Silesian.
- Lettuce (Summer).—Hanson Improved and Iceberg.
- Lettuce (Cos).—Kingsholm Cos, Paris White Cos.
- Musk-melons.—Rocky Ford, Jenhy Lind, Gem, Miller Cream, Hackensack.
- Onions, yellow.—Danvers, Southport, Prize-taker, Australian Brown.
- Onions, red.—Wethersfield, Danvers, Southport.
- Onions, white.—Southport.

PRACTICAL GARDENING

- Onions, top.—Plant in the fall, harvest in the spring.
Multiplier and Egyptian.
- Parsnips.—Hollow Crown.
- Peas, early, dwarf.—Surprise, Gradus, Alaska, Gem, Eureka, Nott's Excelsior.
- Peas, mid-Season, dwarf.—Thomas Laxton, American Wonder, Early Morn, Admiral Dewey, Abundance.
- Peas, late, Dwarf, Telephone. Champion of England is a tall grower on mellow soil. Substitute the Dwarf Champion for better results in the very small gardens; yet there is no better yielder on the market than Champion of England. Dwarf White Sugar.
- Peppers.—Chinese Giant, Ruby King, Red Cayenne.
- Potatoes, early.—Bliss Triumph, Early Rose, Early Northern, Early Ohio.
- Potatoes, late.—Carman 3, Rural New Yorker, Sir Walter Raleigh, Irish Cobbler, Green Mountain, State of Maine.
- Pumpkins.—Sugar, Quaker Pie, Cashaw.
- Radish, early.—Cardinal Globe, Crimson Giant, French Breakfast.
- Radish, summer.—Beckert's Chartier, Icicle.
- Radish, winter.—Long Black Spanish, Celestial, Long White Spanish, Scarlet China.
- Salsify.—Sandwich Island, Long White.
- Spinach.—Giant Thick Leaf, Long Season, New Zealand.
- Squash, early.—White Bush, Crook Neck.
- Squash, late.—Hubbard, English Marrow, Boston Marrow, Delicious.

PLANNING THE HOME GARDEN

Tomatoes.—Earliana, Bonnie Best, Chalk's Jewel, Model, Ponderoso, Stone, Champion.

Turnips, early.—White Milan, Purple Top Milan, Snowball.

Turnips, late.—American Rutabaga, White Rock, White Egg.

ARRANGEMENT OF GARDEN

The question now arises, how to arrange the vegetables in the above list so as to have all or most of them in the garden. It is a considerable task to plan for so many varieties of vegetables. However, by the interplanting of crops and by successive cropping—two of the principles followed in intensive methods of vegetable production—it is possible to include most of the annuals in a plot twenty-five by thirty-five feet and the perennials and annuals in a plot fifty by sixty feet. In many of the small gardens the hotbed and perennials are omitted, the main object being to produce the maximum amount of vegetables in the minimum space.

GARDEN 25 BY 35 FEET

Vegetable	Number of row	Amount of seed	Cost of seed	Planting			Distance apart (inches)
				Time	Method	Depth (inches)	
Beans, green snap.	24	1 pt.	\$0.20	May 1-15	Drills	1	1 to 2
Beans, wax snap.	22	1 pt.	.20	May 1-15	Drills	1	1 to 2
Beans, shell.	26	1 pt.	.15	May 1-15	Drills	1	1 to 2
Beets, early.	1/2 of 19	1 pkg.	.05	Apr. 15	Drills	1/2 to 3/4	1/4 to 1/2
Beets, late.	1/2 of 19	1 pkg.	.05	May 15	Drills	1/2 to 3/4	1/4 to 1/2
Brussels sprouts.	1/2 of 12	1 pkg.	.10	Mar. 15	Hotbed	1/2	12
Cabbage, early.	3/4 of 9	1 pkg.	.10	Mar. 15	Hotbed	.....	18
Cabbage, late.	32, 33	1 pkg.	.05	May 15	Hotbed	.....	24
Cabbage, red.	1/4 of 9	1 pkg.	.05	Apr. 15	Hotbed	.....	24
Carrots, 1/2 long.	1/2 of 1	1 pkg.	.05	Apr. 15-30	Drills	1/2	24
Carrots, long.	1/2 of 1	1 pkg.	.05	Apr. 15-30	Drills	1/2	1/4 to 1/2
Cauliflower.	1/2 of 12	1 pkg.	.20	Apr. 15	Hotbed	.....	1/4 to 1/2
Celery, early.	34	1 pkg.	.10	May 1	Hotbed	.....	18
Celery, late.	27, 28, 29, 30, 31	1 pkg.	.10	Mar. 15	Hotbed	.....	4
Chard, Swiss.	3	1 pkg.	.05	Apr. 15	Drills	1/2 to 3/4	5
Corn, early.	7	1/2 pt.	.10	Apr. 15	Drills	1	1/4 to 1/2
Corn, mid-season.	4	1/2 pt.	.10	May 15	Hills	1	3
Corn, late.	2	1/2 pt.	.10	June 1	Hills	1	3
Cucumbers.	35	1 pkg.	.05	May 15	Drills	1/2 to 3/4	3
Endive.	8	1 pkg.	.05	May 1	Drills	1/2	1
Kohlrabi.	1/2 of 18	1 pkg.	.05	May 1	Hotbed	.....	3/2
Leek.	16, 17	2 pkgs.	.10	Mar. 15	Hotbed	.....	6
Lettuce.	Part of 36	2 pkgs.	.20	Apr. 1	Hotbed	.....	3
Onions.	10, 11, 13, 14	3 pkgs.	.30	Apr. 1 on	Hotbed	.....	10
Parsnips.	1/2 of 20	1 pkg.	.05	Apr. 7	Hotbed	.....	3
Peas, early.	27, 28	1 qt.	.65	Apr. 15	Drills	1/4 to 1/2	1/4 to 1/2
Peas, mid-season.	29, 30, 31	1 1/2 qts.	1.00	Apr. 1-15	Drills	1 1/4 to 2	Close
Peas, late.	32, 33	1 qt.	.45	Apr. 15-30	Drills	1 1/4 to 2	Close
Radishes, early.	Part of 12	2 pkgs.	.10	May 1-15	Drills	1 1/2 to 2	Close
Radishes, winter.	36	2 pkgs.	.10	Apr. 1 on	Drills	1/2	1/2
Salsify.	1/2 of 20	1 pkg.	.10	June 1	Drills	1/2	1/2
Spinach.	5, 6, 21, 23, 25	1/4 lb.	.25	Apr. 15-30	Drills	1/2	1/2
Squash, early.	1/4 of 4	1 pkg.	.05	Apr. 1-30	Drills	1/2	1/2
Squash, late.	3/4 of 4	1 pkg.	.10	May 1	Corn hills	.....	1/2
Tomatoes.	15	1 pkg.	.05	May 15	Corn hills	.....	Corn hills
Turnips, early.	1/2 of 18	1 pkg.	.05	Apr. 1	Hotbed	.....	36
Turnips, late.	34	2 pkgs.	.10	Apr. 1-15	Drills	1/2	1/2
			\$5.60	May 15	Drills	1/2	1/2

GARDEN 25 BY 35 FEET—Continued

Vegetable	Thinning			Harvesting		Remarks
	Time	Space between plants (inches)	Method of disposal	First	Final	
Beans, green snap.	June 15	3 to 4	Destroy	July 1-15	Sept. 1	
Beans, wax snap.	June 15	3 to 4	Destroy	July 1-15	Sept. 1	
Beans, shell.	June 15	3 to 4	Destroy	Aug. 1	Sept. 30	
Beets, early.	June 15-30	3	Greens	June 15-30	Aug. 1	Winter
Beets, late.	July 1-15	4	Greens	July 15-30	Oct. 15	
Brussels sprouts.	.....	.....	.....	Aug. 1	Oct. 1-15	
Cabbage, early	.....	.....	.....	July 15-30	Sept. 1-15	
Cabbage, late.	.....	.....	.....	Aug. 1-15	Nov. 1	Winter
Cabbage, red.	.....	.....	.....	July 30	Oct. 30	
Carrots, ½ long.	June 1-15	2	Destroy	July 1-15	Aug. 15	
Carrots, long.	June 1-15	3	Destroy	July 15-30	Oct. 1-30	Winter
Cauliflower	.....	.....	.....	July 1-15	Oct. 15	
Celery, early.	.....	.....	.....	June 1-15	July 15	
Celery, late.	.....	.....	.....	Sept. 15	Nov. 15	Winter
Chard, Swiss.	June 15	12	.....	Sept. 15	Nov. 15	
Corn, early.	July 1	Hills 18	Greens	June 15-30	July 15	
Corn, mid-season.	July 15	Hills 18	Destroy	July 30	Sept. 1	
Corn, late.	July 30	Hills 18	Destroy	Aug. 15	Sept. 15	
Cucumbers	July 1-15	6	Destroy	Sept. 1-15	Sept. 30	
Endive	June 15	12	Greens	Aug. 15-30	Sept. 15-30	
Kohl-rabi	.....	.....	.....	July 15	July 30	
Leek	.....	.....	.....	May 30	June 15-30	
Lettuce	.....	.....	.....	June 1-15	July 1-15	Plant wherever space allows
Onions	.....	.....	.....	May 20-30	All seasons	Plant wherever space allows
Parsnips	June 1-15	4	Destroy	June 1-15	Aug. 15-30	Winter
Peas, early.	.....	.....	.....	Sept. 1-15	Oct. 30	
Peas, mid-season.	.....	.....	.....	June 15-20	July 1-10	
Peas, late	.....	.....	.....	July 30	July 15-20	
Radishes, early.	1 week after planting	1 to 1½	Destroy	July 15	Aug. 1-10	
Radishes, winter.	June 15-20	6	Destroy	May 1	All seasons	Plant wherever space allows
Salsify	June 1-15	4	Destroy	Sept. 1	Oct. 15-30	Winter
Spinach	May 30	3	Greens	Sept. 1-15	Oct. 30	Plant wherever space allows
Squash, early	.....	.....	.....	May 15-30	June 30	
Squash, late.	.....	.....	.....	June 15-30	July 15	Winter
Squash, late.	.....	.....	.....	Sept. 1-15	Oct. 15	
Tomatoes	.....	.....	.....	June 15-30	Sept. 15-30	Winter
Turnips, early.	May 15-30	6	Destroy	June 1-15	Aug. 1	
Turnips, late.	June 15-30	10	Destroy	Aug. 15	Oct. 1-15	Winter

DISTANCE BETWEEN ROWS
NUMBER OF ROW

NORTH

6"	1	EARLY CARROTS $\frac{1}{2}$	LATE CARROTS $\frac{1}{2}$
6"	2	LATE SWEET CORN	
9"	3	SWISS CHARD	
9"	4	MID-SEASON SWEET CORN	LATE SQUASH $\frac{1}{2}$ EARLY SQUASH $\frac{1}{2}$
6"	5	SPINACH	
6"	6	SPINACH	
9"	7	EARLY SWEET CORN	
9"	8	ENDIVE	
6"	9	$\frac{1}{2}$ EARLY CABBAGE	LETTUCE BETWEEN PLANTS $\frac{1}{2}$ RED CABBAGE
6"	10	ONION SEEDLINGS OR SETS	
6"	11	ONION SEEDLINGS	
6"	12	$\frac{1}{2}$ CAULIFLOWER	$\frac{1}{2}$ BRUSSELS SPROUTS RADISH BETWEEN PLANTS
6"	13	ONION SEEDLINGS	
6"	14	ONION SEEDLINGS	
6"	15	TOMATOES	LETTUCE BETWEEN PLANTS
6"	16	ONION SEEDLINGS	
6"	17	ONION SEEDLINGS	
6"	18	$\frac{1}{2}$ EARLY TURNIPS	$\frac{1}{2}$ KOHLRABI
12"	19	$\frac{1}{2}$ EARLY BEETS	LATE $\frac{1}{2}$
12"	20	SALSIFY $\frac{1}{2}$	PARSNIPS $\frac{1}{2}$
9"	21	SPINACH	
9"	22	WAX BEANS	
9"	23	SPINACH	
9"	24	GREEN BEANS	
9"	25	SPINACH	
9"	26	BEANS TO SHELL	
20"	27	EARLY PEAS FOLLOWED BY LATE CELERY	
20"	28	EARLY PEAS FOLLOWED BY LATE CELERY	
20"	29	MID-SEASON PEAS FOLLOWED BY LATE CELERY	
20"	30	MID-SEASON PEAS FOLLOWED BY LATE CELERY	
20"	31	MID-SEASON PEAS FOLLOWED BY LATE CELERY	
20"	32	LATE PEAS FOLLOWED BY LATE CABBAGE	
20"	33	LATE PEAS FOLLOWED BY LATE CABBAGE	
18"	34	EARLY CELERY FOLLOWED BY LATE TURNIPS	
34"	35	CUCUMBERS	
18"	36	LETTUCE FOLLOWED BY WINTER RADISH	
12"			
		25 FEET	SOUTH

35 FEET

PLANNING THE HOME GARDEN

DATES FOR SOWING OR SETTING KITCHEN-GARDEN VEGETABLES IN DIFFERENT LATITUDES

Lansing, Michigan

Average of 4 and 5 years

Bean, bush	May	16
Bean, pole	May	30
Beet	April	20
Broccoli	May	10
Brussels sprouts	May	10
Cabbage, early, under glass.....	March	15
Cabbage, late	May	20
Carrot	May	7
Cauliflower, under glass.....	March	15
Celery, under glass.....	March	18
Celery, in open ground.....	May	20
Corn	May	19
Cucumber	May	23
Eggplant, under glass.....	March	15
Kale	May	9
Kohl-rabi	May	9
Lettuce	May	5
Melon	May	30
Okra	May	15
Onion	April	17
Parsnips	May	7
Peas	April	15
Pepper, under glass	March	16
Potato	May	3
Pumpkin	May	31
Radish	April	26

PRACTICAL GARDENING

Salsify	May 7
Spinach	April 10
Squash	May 28
Tomato, under glass.....	March 13
Turnip	April 15

Boston (Rawson)

Asparagus	About the end of April.
Bean, bush.....	About the first week in May.
Bean, pole.....	From about the middle of May to the first of June.
Bean, Lima	About the first of June.
Beet	About the middle of April.
Borecole, or kale.....	About the middle of April; plant out in June.
Brussels sprouts.....	In March or April in hotbed.
Cabbage	Transplant the last week in April or the first in May.
Carrots	Last of May or first of June.
Cauliflower	From the first of May until the first of July.
Celery	The first week in April to the second in July.
Corn, sweet	About the first of May.
Cucumber	For the first crop, about the mid- dle of March.
Eggplant	About March 15 in hotbed.
Endive	June or July.
Kohl-rabi	May or June.
Okra	About the tenth of May.
Peas	During the last of April up to the first of May.

PLANNING THE HOME GARDEN

- PepperPut out of doors about the first of April.
- RadishFrom the first of April to the middle of June.
- SpinachAbout the first of September.
- TomatoAbout the 25th of May set plants outdoors.
- Turnips, for fall use..Any time from July 1 to August 20.
- WatermelonAbout the middle of May.

New York (Henderson)

Plants to sow from the middle of March to the end of April. Thermometer in shade averaging 45 degrees.

Beet	Cauliflower	Parsley
Carrot	Endive	Peas
Cress	Kale	Radish
Celery	Lettuce	Spinach
Cabbage	Onions	Turnip
	Parsnip	

From the middle of May to the middle of June. Thermometer in the shade averaging 60 degrees.

Bean, bush	Bean, runner	Nasturtium
Bean, cranberry	Corn, Sweet	Okra
Bean, Lima	Cucumber	Pumpkin
Bean, pole	Melon, musk-	Squash
Bean, scarlet	Melon, water-	Tomato

PRACTICAL GARDENING

Norfolk, Virginia

Months in which different crops are planted or sown,
or set out in the open air.

Kale and spinach Sown during August, September,
and October.

Cabbage The seeds are sown in August and
September, and the plants are
transplanted in the open air in
November and December.

Onions Sown in August, September, Jan-
uary and February.

Leeks The same as onions.

Lettuce Sown in September and January.

Radish Sown in every month in the year.

Peas December, January, February,
March, April, August, and Sep-
tember.

Beans March and April.

Eggplant April and May.

Tomatoes April and May.

Squash April.

Cauliflower March and April.

Potatoes February, March and July.

Sweet potatoes May.

Beets February and March.

Corn April, May, June, and July.

Oats September, October, November,
December, February and
March.

Millet June and July; after potatoes.

PLANNING THE HOME GARDEN

- Grass seedSeptember, October, November,
February, and March.
CarrotsFebruary and March.
CeleryApril and May.
CucumbersApril.
WatermelonsApril.
CanteloupesApril.
PeanutsMay.

Georgia (Oemler)

- AsparagusFrom December 1 to the middle of
March.
Bean, bushFrom the first to the middle of
March.
BeetThrough November and Decem-
ber.
CabbageFrom the first of October to the
15th. Transplant about No-
vember 1 and later.
CauliflowerFrom May to September.
CucumberAbout March 1 to the 15th.
EggplantTo prick out, about the middle of
January, otherwise ten or fif-
teen days later.
LettuceAbout the middle of September.
OnionAbout January 1.
PeaAbout December 1.
PotatoThe first of February.
RadishFrom Christmas to the last of
February.

PRACTICAL GARDENING

- Spinach From September 10 until October 15.
- Squash About the last of February up to the middle of March.
- Sweet potato..... In cold frames, about the first of January.
- Tomato About January 1.
- Watermelon..... About the 15th of March.

TENDER AND HARDY VEGETABLES

Vegetables injured by a slight frost, which should therefore be planted only after the weather has settled.

All kidney, Lima, and common Beans	Eggplant All melons Okra	Squash Sweet potato Tomato
Corn	Pepper	
Cucumber	Pumpkin	

Vegetables which, when properly handled, will endure a frost.

Asparagus	Cauliflower	All onions
Bean, Windsor, Broad or Horse	Celery Corn salad Cress	Parsley Parsnip Pea
Beet	Endive	Radish
Borecole	Horse-radish	Rhubarb
Broccoli	Kohl-rabi	Salsify
Brussels sprouts	Kale	Sea kale
Cabbage	Leek	Spinach
Carrot	Lettuce	Turnip

GARDEN 50 BY 60 FEET

Vegetable	Number of row	Amount of seed	Cost of seed	Planting			Distance apart of seed (inches)
				Time	Method	Depth (inches)	
Artichokes	Bed	4 roots	\$0.50	.....	.....	.....	.....
Asparagus	Bed	50 roots	.50	.....	.....	.....	.....
Beans, green	1/2 of 24, 1/2 of 27	1 qt.	.35	May 1-15	Drills.....	1	1 to 2
Beans, wax	1/2 of 24, 1/2 of 27	1 qt.	.35	May 1-15	Drills.....	1	1 to 2
Beans, shell	29	1 qt.	.35	May 1-15	Drills.....	1/2 to 3/4	1/4 to 1/2
Beets, early	12	1 oz.	.15	Apr. 15	Drills.....	1/2	1/2
Beets, late	17	1 oz.	.15	May 15	Drills.....	1/2	1/2
Brussels sprouts	1/2 of 13	1 pkg.	.10	Mar. 15	Hotbed.....	1/2	1/2
Cabbage, early	8	1 pkg.	.10	Mar. 15	Hotbed.....	1/2	1/2
Cabbage, late	25	1 pkg.	.05	May 15	Hobbed.....	1/2	1/2
Cabbage, red or Savoy	25	1 pkg.	.05	Apr. 15	Hotbed.....	1/2	1/2
Carrots, 1/2 long	1/4 of 31	1 pkg.	.20	Apr. 15-30	Drills.....	1/4 to 1/2	1/4 to 1/2
Carrots, long	3/4 of 31	1 oz.	.20	Apr. 30	Drills.....	1/4 to 1/2	1/4 to 1/2
Cauliflower	1/2 of 13	1 pkg.	.20	Apr. 15	Hotbed.....	1/4	1/4 to 1/2
Celery	1/2 of 33	1 pkg.	.05	May 1	Hotbed.....	1/4 or less	Thick
Celery, early	26, 28	1 pkg.	.10	Mar. 15	Hotbed.....	1/4 or less	Thick
Celery, late	21, 23	1 pkg.	.10	May 1	Hotbed.....	1/4 or less	Thick
Chard, Swiss	1/2 of 36	1 pkg.	.10	Apr. 15	Drills.....	1/2	1/2
Corn, early	1	1 pt.	.20	May 15	Hills.....	1	3
Corn, mid-season	3	1 pt.	.15	June 1	Hills.....	1	3
Corn, late	5	1 pt.	.15	June 15	Hills.....	1	3

Cucumbers	15	1 pkg.	.10	Drills	1/2 to 3/4	1
Eggplant	1/2 of 11	1 pkg.	.10	Hobbed	1/2	1/2
Endive	2, 1/2 of 36	1 pkg.	.05	Drills	1/2	1/2
Horse-radish	1/2 of 33	12 roots	.90		1/2	1/2
Kohlrabi	Between plants	1 pkg.	.05	Hobbed	1/2	1/2 to 1/2
Leek	Between plants	2 pkgs.	.10	Hobbed and field	1/2 to 1/2	1/2 to 1/2
Muskmelons	Bed	4 pkgs.	.40	Drills	1/2 to 3/4	1
Onions	6, 10, 39	6 pkgs.	.60	Hobbed	1/2	1/2 to 1/2
Parsnips	1/2 of 30	2 pkgs.	.10	Drills	1/2 to 1/2	1/2 to 1/2
Peas, early	20, 22	2 qts.	1.30	Drills	1 1/2 to 2	Thick
Peas, late	19	1 qt.	.65	Drills	1 1/2 to 2	1/2
Peppers	1/2 of 11	1 pkg.	.05	Hobbed	1/2	10
Potatoes, early	14, 16	1 pk.	.75	Drills	4	10
Potatoes, late	34, 35, 38	1 pk.	.70	Drills	4	10
Pumpkins	3, in corn	2 pkgs.	.10	Corn hills	3/4 to 1	2 or 3 in hill
Radishes, early	Between cucumber plants	1 oz.	.15	Drills	1/2	1/2 to 1/2
Radishes, winter	Bed	1 pkg.	.05	Drills	1/2	1/2
Rhubarb	Bed	4 roots	.40	Drills	1/2	1/2 to 1/2
Salsify	1/2 of 30	2 pkgs.	.10	Drills	1/2	1/2 to 1/2
Spinach	18 late, 4, and between plants	1/4 lb.	.25	Drills	1/2	1/2 to 1/2
Squash, early	3, in hills	2 pkgs.	.10	Corn hills	3/4	3 or 4 in hill
Squash, late	3, in hills	3 pkgs.	.15	Corn hills	3/4	3 or 4 in hill
Tomatoes	7, 9	3 pkgs.	.15	Hobbed	1/4 to 1/2	1/4 to 1/2
Turnips, early	1/2 of 32	1 pkg.	.05	Drills	1/2	1/4 to 1/2
Turnips, late	1/2 of 32	2 pkgs.	.10	Drills	1/2	1/4 to 1/2
			\$10.80			

GARDEN 50 BY 60 FEET—Continued

Vegetable	Transplanting		Thinning			Harvesting		Remarks
	Time	Distance apart of plants (inches)	Time	Space between plants (inches)	Method of disposal	First	Final	
Artichokes	Apr. 15	36	.....	.....	.....	Sept. 30	Oct. 15-30	Or later
Asparagus	Apr. 15	12	.....	.....	.....	2 years after planting	July 1-4	
Beans, green	.....	.....	June 15	3 to 4	Destroy	July 1-15	Sept. 1-15	
Beans, wax	.....	.....	June 15	3 to 4	Destroy	July 1-15	Sept. 1-15	
Beans, shell	.....	.....	June 15	3 to 4	Destroy	Aug. 1-15	Sept. 30	
Beets	.....	.....	June 15	3	Greens	June 15-30	Aug. 1	
Beets, late	.....	.....	July 1-15	4	Greens	July 15-30	Oct. 15	Winter
Brussels sprouts	Apr. 15-30	18	.....	.....	.....	Aug. 1-15	Oct. 15	
Cabbage, early	Apr. 15-30	18	.....	.....	.....	July 1-15	Sept. 1	Winter
Cabbage, late	June 15-30	24	.....	.....	.....	Aug. 15-30	Nov. 1	
Cabbage, red or Savoy	May 20-30	24	.....	.....	.....	.....	.....	Winter
Carrots, 1/2 long	.....	.....	June 1-15	.....	.....	July 30	Oct. 30	
Carrots, long	.....	.....	June 1-15	2	Destroy	July 1-15	Aug. 1-15	Winter
Cauliflower	May 20-30	18	.....	3	Destroy	July 15-30	Oct. 1-15	
Celeriac	June 10-20	10 to 12	.....	.....	.....	Sept. 15	Oct. 15	Winter
Celery, early	May 1-10	4	.....	.....	.....	June 15	Nov. 1	
Celery, late	June 10-20	5 to 6	.....	.....	.....	Sept. 15	Nov. 14	Winter
Chard, Swiss	.....	.....	June 15	12	Salads, greens	June 15-30	July 15	
Corn, early	.....	.....	July 1	Hills 18	Destroy	July 30	Sept. 1	

Corn, mid-season..	.....	.....	July 15	Hills 18	Destroy	Aug. 15-30	Sept. 15	Winter
Corn, late.....	.....	.....	July 30	Hills 18	Destroy	Sept. 1-15	Sept. 30	
Cucumbers.....	.....	.....	July 1-15	6	Destroy	Aug. 15-30	Sept. 15-30	
Eggplant.....	.....	.....	June 15	12	Greens	Sept. 1	Sept. 15	
Endive.....	.....	.....	.....	.....	.....	Nov. and next spring	July 30-Aug. 15	
Horse-radish.....	.....	.....	.....	.....	.....	May 30	.....
Kohl-rabi.....	.....	.....	.....	.....	.....	June 1	June 15-30	
Leek.....	.....	.....	.....	.....	.....	May 20-30	July 15	
Lettuce.....	.....	.....	.....	.....	.....	.....	All seasons	
Muskmelons.....	.....	.....	June 15	6	Destroy	Aug. 15-30	Oct. 15	
Onions.....	.....	.....	June 1-15	4	Destroy	Sept. 1	Aug. 15-30	
Parsnips.....	.....	.....	.....	.....	.....	June 15-20	Oct. 30	
Peas, early.....	.....	.....	.....	.....	.....	June 30	July 1	
Peas, late.....	.....	.....	.....	.....	.....	Aug. 15	July 15-30	
Peppers.....	.....	.....	.....	.....	.....	.....	Oct. 1-15	
Potatoes, early.....	.....	.....	.....	.....	.....	.....	Aug. 1	
Potatoes, late.....	.....	.....	.....	.....	.....	.....	Oct. 15	
Pumpkins.....	.....	.....	June 15	2 in hill	Destroy	Oct. 1	Oct. 15	
Radishes, early.....	.....	.....	10 days after pl'tg	.....	Destroy	May 1	Oct. 15	
Radishes, winter.....	.....	.....	June 15	6	Destroy	Sept. 1	Oct. 15	
Rhubarb.....	.....	.....	.....	.....	.....	May 15	July 15	
Salsify.....	.....	.....	June 1-15	4	Destroy	Sept. 1	Oct. 30	
Spinach.....	.....	.....	May 30	3	Greens	May 15-30	June 30	
Squash, early.....	.....	.....	June 1	2 in hill	Destroy	June 15	July 15	
Squash, late.....	.....	.....	June 15	2 in hill	Destroy	Sept. 1	Oct. 15	
Tomatoes.....	.....	.....	.....	.....	.....	June 15-30	Sept. 15-30	
Turnips, early.....	.....	.....	May 15	6	Destroy	June 1-15	Aug. 1	
Turnips, late.....	.....	.....	June 15	10 to 12 in hill	Destroy	Aug. 15	Oct. 1-15	

Name of vegetable	Seed for 100 ft.	Time to plant seeds			Depth to plant seed (inches)	Time to transplant
		Hot-beds	Cold-frames	Open ground		
Artichokes, globe	1 oz.	March	April	May	½	May
Asparagus	60 to 80 plants	March	April	April or May	.....	April or May
Beans, dwarf	1 pt.	March	April	May to July	1	June
Beans, pole	½ pt.	March	April	May or June	1 to 1	June
Beets	2 oz.	March	April	May to Aug.	½	May
Brussels sprouts	¼ oz.	March	April	June	½	June
Cabbage, early	¼ oz.	March	April	April, May	½	April, May
Cabbage, mid-season	¼ oz.	.....	.....	May	½	May, June
Cabbage, late	¼ oz.	.....	.....	June	½ to ½	June, July
Carrots	1 oz.	March	April	May, June	¾	.....
Cauliflower	¼ oz.	April	May	May, June	¾	.....
Celery early	¼ oz.	March	.....	May, June	¾	May, June
Celery, late	¼ oz.	.....	.....	May	¾ or less	April
Corn, early	¼ pt.	April	April	May	¾ or less	May, June
Corn, late	¼ pt.	.....	.....	May, June	1 to 1 ½	May
Cucumbers	½ oz.	March	.....	May, June	1 to 1 ½	.....
Dandelion	¼ oz.	March	April	May, June	1 to 1 ½	.....
Endive	1 oz.	March	April to Aug.	May, June	¾ to 1	May
Kale	¼ oz.	.....	.....	June to Aug.	¾	.....
Kohl-rabi	¼ oz.	.....	.....	June to Aug.	¾	April
Leek	½ oz.	April	April	May to July	¾	May
Lettuce	½ oz.	March	April	May, June	¾	May
Muskmelons	½ oz.	April	April on	June to Aug.	¾	May, June
Onions	1 oz.	March	April	April to Aug.	¾	May on
Parsley	¼ oz.	March	April	May, June	¾ to 1	May
Parsnips	½ oz.	.....	March	April, May	¾ to ½	April, May
Peas, early	1 qt.	.....	April	April, May	¾ to ½	.....
Peas, late	1 qt.	.....	April	April, May	1 to 2	.....
Peppers	¾ oz.	March	April	May, June	1 to 2	.....
Potatoes, early	5 to 8 lbs.	.....	April	June	¾	May, June
Potatoes, late	5 to 8 lbs.	.....	April	April	3 to 5	.....
Pumpkins	½ oz.	.....	.....	May, June	3 to 5	.....
Radishes	1 oz.	March	April	May, June	1 to 1 ½	.....
Salsify	1 oz.	March	April	April to Sept.	¾	.....
Spinach	1 oz.	March	April	May	¾ to 1	.....
Squash	½ oz.	April	April	April, May, Aug.	¾	.....
Tomatoes	¼ oz.	March	April	May, June	1 to 1 ½	May, June
Turnips	¼ oz.	March	April	June	¾ to ¾	June, July
Watermelons	1 oz.	March	April	April to Aug.	1 to 1 ½	April, May
				May, June		May

Name of vegetable	Distance apart of rows		Ready for use after planting
	Horse culture	Hand culture	
Artichokes, globe	3 to 4 ft.	2 to 3 ft.	15 months
Asparagus	3 to 5 ft.	12 to 24 in.	2 to 3 years
Beans, dwarf	30 to 36 in.	18 to 24 in.	45 to 65 days
Beans, pole	3 to 4 ft.	2 to 3 ft.	50 to 80 days
Beets	24 to 36 in.	12 to 18 in.	60 to 85 days
Brussels sprouts	30 to 36 in.	18 to 24 in.	95 to 120 days
Cabbage, early	30 to 36 in.	18 to 24 in.	90 to 100 days
Cabbage, mid season	30 to 36 in.	24 to 30 in.	100 to 120 days
Cabbage, late	36 to 42 in.	30 to 36 in.	100 to 130 days
Carrots	24 to 30 in.	12 in.	75 to 110 days
Cauliflower	30 to 36 in.	18 to 24 in.	100 to 130 days
Celery, early	3 to 6 ft.	18 to 24 in.	120 to 130 days
Celery, late	4 to 6 ft.	24 to 42 in.	130 to 150 days
Corn, early	30 to 36 in.	18 to 24 in.	75 to 100 days
Corn, late	36 to 42 in.	30 to 36 in.	60 to 80 days
Cucumbers	24 to 30 in.	4 ft.	6 to 12 months
Dandelion	4 to 6 ft.	12 to 18 in.	90 to 130 days
Endive	24 to 30 in.	12 to 18 in.	90 to 120 days
Kale	24 to 30 in.	18 in.	60 to 80 days
Kohl-rabi	30 to 36 in.	12 in.	60 to 90 days
Leek	24 to 30 in.	6 to 12 in.	120 to 150 days
Lettuce	24 to 30 in.	10 to 12 in.	130 to 150 days
Muskmelons	6 to 8 ft.	6 ft.	90 to 120 days
Onions	24 to 30 in.	1 ft.	120 to 150 days
Parsley	24 to 30 in.	12 to 18 in.	130 to 150 days
Parsnips	30 to 36 in.	12 to 18 in.	90 to 120 days
Peas, early	3 to 4 ft.	3 to 4 in.	125 to 160 days
Peas, late	4 to 5 ft.	Close	40 to 80 days
Peppers	30 to 36 in.	Close	65 to 90 days
Potatoes, early	30 to 36 in.	15 to 18 in.	100 to 140 days
Potatoes, late	36 to 42 in.	12 to 14 in.	80 to 100 days
Pumpkins	8 to 12 ft.	12 to 18 in.	100 to 140 days
Radishes	24 to 30 in.	Hills 8 ft.	20 to 40 days
Salsify	30 to 36 in.	1 in.	120 to 180 days
Spinach	30 to 36 in.	4 to 6 in.	30 to 60 days
Squash	3 to 10 ft.	Hills 3 to 8 ft.	Bush 60 to 80 days, run- ning 120 to 160 days
Tomatoes	3 to 5 ft.	1 1/4 to 3 ft.	100 to 140 days
Turnips	30 to 36 in.	6 to 10 in.	60 to 80 days
Watermelons	8 to 12 ft.	Hills 8 ft.	100 to 120 days

GARDEN 110 BY 200 FEET

Planting

Vegetable	Number of row	Amount of seed	Cost of seed	Time	Method	Depth (inches)	Distance apart of seed (inches)
Artichokes, bur.....	¼ to 32	18 roots	\$2.25	.....	.....	.....	.....
Artichokes, Jerusalem	¼ to 32	48 roots or 1 qt.	.25	.....	.....	.....	.....
Asparagus	33	200 two-yr. roots	2.00	.....	.....	.....	.....
Beans, green	½ of 7	1 qt.	.35	May 1-15	Drills	1	1 to 2
Beans, wax	½ of 7	1 qt.	.40	May 1-15	Drills	1	1 to 2
Beans, pole	31	1 qt.	.35	May 1-15	Hills, 6 to 8 seeds	1	1 to 2
Beets, early	8	¼ lb.	.50	Apr. 15	Drills	½ to ¾	¼ to ½
Beets, late	4, 5	½ lb.	.75	July 15-30	Drills	½ to ¾	¼ to ½
Brussels sprouts.....	13	1 pkg.	.10	Mar. 15	Hotbed	½	½
Cabbage, early	19	1 pkg.	.10	Mar. 15	Hotbed	½	½
Cabbage, late.....	½ of 27	1 pkg.	.05	May 15	Cold-frames	½	½
Cabbage, red	¼ of 27	1 pkg.	.05	Apr. 15	Hotbed	½	½
Cabbage, Savoy.....	¼ of 27	1 pkg.	.05	Apr. 15	Hotbed	½	½
Carrots, ½ long.....	¼ of 10	1 oz.	.25	Apr. 15-30	Drills	¼ to ½	¼ to ½
Carrots, long	¾ of 10	2 oz.	.40	Apr. 30	Drills	¾ to 1	¼ to ½
Cauliflower	¾ of 8	1 pkg.	.20	Apr. 15 and later	Hotbed	½	¼ to ½
Celeriac	½ of 9	1 pkg.	.05	May 1	Hotbed	¼ or less	Thick
Celery, early	20	1 pkg.	.10	Mar. 15	Hotbed	¼ or less	Thick
Celery, late	18, 19	1 pkg.	.10	May 1	Hotbed	¼ or less	Thick
Chard, Swiss	Herb bed	1 pkg.	.10	Apr. 15	Drills	½ to ¾	¼ to ½
Corn, early	27	1 pt.	.20	May 15 or earlier	Hills	1	3
Corn, mid-season.....	28, 29	1 qt.	.30	June 1	Hills 18 in. apart	1	3
Corn, late	30	1 pt.	.15	June 15	Hills 24 in. apart	1	3
Cucumbers	¼ of 22	1 pkg.	.10	May 15	Drills	½ to ¾	1
Eggplant	½ of 16	1 pkg.	.10	Apr. 15	Hotbed	½	½
Endive	½ of 9	1 pkg.	.05	July 1	Drills	½	½
Horse-radish	¼ of 32	50 roots	.50	.....	.....	.....	.....
Kohi-rabi	¼ of 8	1 pkg.	.05	Apr. 15	Hotbed	½	½
Leek	Between toma- toes	2 pkgs.	.10	Apr. 1	Hotbed	½	¼ to ½
Lettuce	In melons and elsewhere	6 pkgs.	.50	Apr.-Sept.	Hotbed and field.	¾ to 1	¼ to ½

GARDEN 110 BY 200 FEET—Continued

Muskmelons	Bed	3 pkgs.	.40	Hills, plow	1/2 to 3/4	1
Okra	1/4 of 16	1 pkg.	.05	Hotbed	1/2 to 3/4	1/4 to 1/2
Onions	13, 14, 15, and between	3 oz.	.45	Hotbed and out- side	1/2	1/4 to 1/2
Parsnips	11	2 oz.	.25	Drills	1/4 to 1/2	Thick
Peas, early	1	2 qts.	1.30	Drills	1 1/2 to 2	Thick
Peas, mid-season	2, 3, 4, 5	1 pk.	4.00	Drills	1 1/2 to 2	Thick
Peas, late	6	2 qts.	1.00	Drills	1 1/2 to 2	10
Peppers	1/4 of 16	1 pkg.	.05	Hotbed	4	2 or 3 in every third corn hill
Potatoes, early	21, 23	4 pkgs.	2.00	Drills	4	1/2
Potatoes, late	24, 25, 26	1 1/2 bu.	3.00	Drills	4	10
Pumpkins	In sweet corn	2 oz.	.20	Corn hills	3/4 to 1	3 to 6 3 to 4
Radishes, early	In melons and vacant places	3 oz. in pkgs.	.30	Drills and hotbed	1/2	1/4 to 1/2
Radishes, winter	Herb bed	2 pkgs.	.10	Drills	1/2	1/2
Rhubarb	1/4 of 32	16 roots	2.50	Drills	1/2	1/2
Salsify	12	1/4 lb.	.50	Drills	1/2	1/2
Spinach	Early 6, 18, late anywhere	1/2 lb.	.25	Drills	1/2	1/2
Squash, early	1/4 of 22	2 pkgs.	.10	Hills, 6 to 8 seeds	3/4	3 to 6
Squash, late	2, 1/8 of 22	1/4 lb.	.40	Hills	3/4	3 to 4
Tomatoes	17	3 pkgs.	.25	Hotbed	1/4 to 1/2	1/4 to 1/2
Turnips, early	9	2 oz.	.20	Drills	1/2	1/4 to 1/2
Turnips, late	20	2 oz.	0.20	Drills	1/2	1/4 to 1/2
Balm .....			.05	Hotbed	1/4 to 1/2	1/4 to 1/2
Basil, sweet .....			.05			
Caraway .....			.05			
Catnip .....			.10			
Dill .....			.05			
Horhound .....			.05			
Mint .....			.25			
Sage .....			.05			
Savory, summer .....			.05			
Thyme .....			.05			
Total			\$28.70			

GARDEN 110 BY 200 FEET—Continued

Vegetable	Transplanting		Thinning			Harvesting		Remarks
	Time	Distance apart of plants (inches)	Time	Space between plants (inches)	Method of disposal	First	Final	
Artichokes, bur....	Apr. 15	36	.....	.....	.....	Sept. 30	Oct. 30 Nov. 30	
Artichokes, Jerusalem	Apr. 15	12	.....	.....	.....	Sept. 30	Nov. and next spring	
Asparagus	Apr. 15	12	.....	.....	.....	2 years after planting	May to June 1 after	On to July 4
Beans, green .....	.....	.....	June 15	3 to 4	Destroy	July 1-15	Sept. 1-15	three yrs.
Beans, wax .....	.....	.....	June 15	3 to 4	Destroy	July 1-15	Sept. 1-15	
Beans, pole .....	.....	.....	.....	.....	.....	Aug. 1-15	Sept. 30 on	
Beets, early .....	.....	.....	June 15	3	Greens	June 15-30	Aug. 1	
Beets, late .....	.....	.....	July 1-15	4	Greens	Sept. 15-30	Oct. 15 on	
Brussels sprouts	Apr. 15-30	18	.....	.....	.....	Aug. 1-15	Sept. 1 on	
Cabbage, early	Apr. 15-30	18	.....	.....	.....	Sept. 1-15	Nov. 1 on	
Cabbage, late	June 15-30	24	.....	.....	.....	Aug. 15-30	Nov. 1 on	
Cabbage, red	May 20-30	24	.....	.....	.....	July 30	Oct. 30 on	All winter
Cabbage, Savoy	May 20-30	24	.....	.....	.....	July 30	Oct. 30 on	All winter
Carrots, ½ long .....	.....	.....	June 1-15	2	Destroy	July 1-15	Aug. 15	All winter
Carrots, long .....	.....	.....	June 1-15	3	Destroy	July 15-30	Oct. 1-15	
Cauliflower	June 20-30	18	.....	.....	.....	Aug. 1-15	Oct. 15	To store for winter
Celeriac	June 10-20	10 to 12	.....	.....	.....	Sept. 15	Nov. 1 on	Winter
Celery, early	May 1-10	4	.....	.....	.....	June 1-15	July 15	Winter
Celery, late	June 10-20	5 to 6	.....	.....	.....	Sept. 15	Nov. 1 on	Winter
Chard, Swiss .....	.....	.....	June 15	12	Greens	June 15-30	July 15	
Corn, early .....	.....	.....	July 1-4, plants	Hills 18	Destroy	July 20-30	Aug. 5	
Corn, mid-season...	.....	.....	July 15	To 4 plants in hill	Destroy	Aug. 1-15	Sept. 1	
Corn, late .....	.....	.....	July 30	To 3 plants in hill	Destroy	Sept. 1-15	Sept. 30	
Cucumbers .....	.....	.....	July 1-15	in 6	Destroy	Aug. 15-30	Sept. 15-30	
Eggplant	May 20-30	15	.....	.....	.....	Sept. 1	Sept. 15	
Endive .....	.....	.....	June 15	12	Greens	Sept. 15	Oct. 30	

GARDEN 110 BY 200 FEET—Continued

	Apr. 15	12			Nov. 1 on	Fall and next spring	Winter
Horse-radish	Apr. 15	12			.....	
Kohlrabi	June 15-30	9			July 30	Aug. 15-30	
Leek	May 1-10	8			June 1	July 15	
Letuce	Apr.-Aug.	7 x 7 in. hotbed			May 20-30	All seasons	
		10 outside					
Muskmelons	.....					
Okra	May 15-30	12	6	Destroy	Aug. 15-30	Oct. 15	
Onions	Apr. 1-30	3	4	Destroy	June 1-15	Sept. 30	
Parsnips	.....				Sept. 1	Aug. 15-30	Again in spring
Peas, early	.....				June 15-20	July 1	
Peas, mid-season	.....				July 1-15	July 30	
Peas, late	.....				July 30	Aug. 15-30	
Peppers	May 20-30	12			Aug. 15	Oct. 1-15	
Potatoes, early	.....				June 15	Aug. 1	
Potatoes, late	.....				Aug. 15-30	Oct. 15	
Pumpkins	.....		2 in hill	Destroy	Oct. 1	Oct. 15	For winter
Radishes, early	.....				May 1	All seasons	For winter
Radishes, winter	.....		2 to 6	Destroy	Sept. 1	Oct. 15	Winter
Rhubarb	Apr. 15	36	4	Destroy	May 15	July 15	
Salsify	.....		3	Destroy	Sept. 1	Oct. 30 on	Winter
Spinach	.....			or greens	May 15-30	June 30 on	
Squash, early	.....		3 or 4 in hill	Destroy	June 15	July 15	
Squash, late	.....		3 ft.				
	.....		2 or 3 in hill	Destroy	Sept. 1	Oct. 15	Winter
Tomatoes	.....	36	6 ft.				
Turnips, early	May 20-30		6	Destroy	June 15-30	Sept. 15-30	
Turnips, late	.....				June 1-15	Aug. 1-	
Balm	.....			Destroy	Sept. 15	Oct. 15	
Basil, sweet	.....					
Caraway	.....					
Catnip	.....					
Dill	.....					
Horhound	.....					
Mint	.....					
Sage	.....					
Savory, summer	.....					
Thyme	.....		10 to 12	Destroy	Sept. 15	Oct. 15	
Total							

36"	7 roots of rhubarb. Harvested after 3rd year, yield 35 bunches per year. Rhubarb 4 feet apart in the row. 12 feet of horseradish. Harvested 2nd year, yield 5 lbs.
36"	35 one year old asparagus roots. Harvested after 2nd year in garden, yield 150 lbs.
36"	48 plants early lettuce, Apr. 15. Harvested June 20. Followed by late cabbage. 20 plants.
24"	Early dwarf peas, Apr. 20. Harvested July 1. Yield 25 qts. Followed by late cabbage 20 plants.
24"	Early dwarf peas, May 10. Harvested July 25. Yield 25 qts. Followed by late carrots, yield 1 bu.
24"	Swiss Chard. 25 ft. May 1. Harvested July. Yield 25 lbs., 5 ft. parsley. 20 plants of leek. Seed sown under glass in Apr. Transplanted June 10.
24"	Onion (seed) Apr. 15. Harvested Sept. Yield 1 bu.
18"	Early beet plants, May 1. Harvested June 15. Yield 1 bu. Followed by parsnips. Yield 1 bu.
18"	Early beets (seed) Apr. 15. Harvested June. Yield 1 bu. Followed by parsnips. Yield 1 bu.
18"	Early carrots, Apr. 15. Harvested June 15. Yield 15 bunches. Followed by mid-season dwarf peas, yield 20 qts.
18"	Salsify, Apr. 15. Harvested Sept., yield 16 bunches.
16"	Early cabbage 27 plants, Apr. 15. Harvested July 15. Followed by late peas, yield 20 qts.
20"	Turnips, Apr. 15. Harvested June 15. Yield 1 bu. Followed by beans (kidney) yield 20 qts.
24"	Kidney beans, June 1. Harvested July 25, yield 20 qts. Followed by late turnips, yield 1 bu.

Garden plan 40 x 60 feet. Vegetables for
 All the vegetables suggested may
 those discarded
 Dates arranged for New York City and

24"	Bush limas, June 1. Harvested Aug. 15, yield 25 qts. Followed by late beets, yield 1½ bu.
24"	10 pepper plants, June 1, yield 150 pods, 10 eggplants, June 1, yield 30 fruit.
36"	20 cauliflower plants, May 1. Harvested Aug. and Sept.
36"	20 brussels sprouts, May 1. Harvested Sept. and October. Yield 12 qts.
24"	40 mid-season lettuce plants, June 1. Harvested Aug. Followed by 40 endive plants.
18"	Spinach, Apr. 15. Harvested June 20. Yield ½ bu. Followed by 120 celery plants.
18"	Spinach, May 1. Harvested July. Yield ½ bu. Followed by 120 celery plants.
24"	Early corn, May 20. Harvested July 31, yield 5 doz. Between the hills of corn plant cucumbers.
36"	Mid-season corn, June 15. Harvested Aug., yield 5 doz. Followed by late spinach, yield ½ bu.
36"	Late corn, July 1. Harvested Sept., yield 6 doz. June 1 plant Hubbard squash between the hills where the corn is to be planted. Yield 100 squash.
36"	Early potatoes, Apr. 1. Harvested July 4, yield 1 bu.
24"	14 tomato plants, June 1, yield 5 bu. Between tomato plants late lettuce, Aug. 20, 24 plants.
24"	Early potatoes, 40 hills, Apr. 1. Harvested July and Aug., yield 1½ bu. Followed in July by rutabagas. Harvested Oct., yield 1 bu.
24"	Early potatoes, 40 hills, Apr. 1. Harvested July and Aug., yield 1½ bu.
24"	Late potatoes, 40 hills. June 1. Harvested Sept., yield 1½ bu.

both summer and winter for a family of 5. not be desired and in the place of plant late potatoes. vicinity. The rows apart are in inches.

DEPENDABLE RADISHES FOR SPRING, SUMMER AND WINTER

One packet sows 30 feet of row. An ounce each of an extra early round and long white, plus a packet each of a summer and winter variety will provide for the whole year.

Varieties	First roots ready in,	50% ready days later,	Size of tops when of eatable size	Keeping qualities *
Extra Early Scarlet				
Turnip	30	7	8-10 small leaves	good
White Box	32	10	large	excellent
Sparkler	27	6	6-8 medium leaves	good
Hailstone	24	5	6 small leaves	fair
Snowball	25	5	6 small leaves	fair
Rapid Red	22	4	4-6 small leaves	excellent
Crimson Giant Globe..	26	7	8-10 large leaves	fair
Vick's Scarlet Globe..	31	10	8-10 large leaves	good
White Olive Shaped..	25	7	6-8 small leaves	fair
Scarlet Olive Shaped..	25	9	6-8 medium leaves	good
French Breakfast	25	7	6 small leaves	good
Icicle	35	8	8-10 large leaves	excellent
Long Scarlet Short				
Top	40	5	8-10 large leaves	good
Cincinnati Market ...	40	10	8-10 large leaves	excellent
Lady Finger } Sum-	42	10	big tops	excellent
Chartiers } mer ..	40	10	big tops	excellent
White Chinese	67	72	large leaves and	
or Celestial			tops	excellent
Round Black	75	90	med. leaves, large	excellent
Spanish			top	

* Note: "Fair" sorts deteriorate at end of first week. "Good" sorts stand 10 days-2 weeks. "Excellent" sorts are good as long as they last.

CABBAGES FOR GENERAL USE

A packet of cabbage seed contains more than enough to raise all the plants you and your neighbor can use. For the average home garden, a dozen plants of an early and of a midseason sort and two dozen each of a late and a Savoy cabbage fill all requirements.

Variety Name	Number days from seed to heads	Typical shape	Most Suitable Soil
Early Jersey Wakefield	100-110	Conical	Medium light for early planting
Eureka First Early...	100-110	Round	Medium light for early planting
Allhead Early.....	120-125	Flatround	Medium light for early planting
Copenhagen Market ..	100-110	Round	Strong, medium heavy
All Seasons	130-135	Round	Grows well in any good soil.
Succession	135-140	Flatround	Medium light to fairly heavy. Not too wet
Premium Flat Dutch..	150-160	Flat	Medium light to fairly heavy. Not too wet
Danish Ballhead	150-160	Round	Strong soil, free from stem rot bacteria
Impr. American Savoy	150-160	Round	Average good
Danish Round Red....	150-160	Round	Strong, rather heavy

TOMATOES AS ONLY AMERICA CAN GROW THEM

The average packet of standard sorts (*not novelties*) contains 500 seeds of which, as a rule, 300 plants can be raised. One dozen plants each of an early pink and purple sort and two dozen plants of two main crop varieties supply all the tomatoes a family of six can eat, with a surplus of 5 bushels for canning—under favorable soil and season conditions.

Names of Sorts	First fruit ripened after, days	Diameter (inches)		Weight of average fruit in ounces	Season of bearing	Average number of fruits per plant
		Cross section	Stalk to blossom			
<i>Red or Scarlet</i>						
Spark's Earliana	100	2 ½	2	6	Short, 2 pickings	15
Chalk's early jewel	108	3 ¼	2 ¼	7	Long, 4 pickings	19
Stone	116	3 ¾	2 ½	9 ¾	Late, 3 pickings	20
Coreless	120	3 ¼	3	9 ½	Late, 3 pickings	15
Dwarf Stone.	114	2 ¾	2 ¼	6 ½	Late, 3 pickings	12
<i>Pink or Purple</i>						
June Pink...	98	2 ½	2 ¼	6	Short, 2 pickings	15
Beauty	108	3	2 ¼	7	Early, 3 pickings	16
Globe	114	3	2 ¾	7 ¼	Early, 4 pickings	18
Magnus	116	3 ½	2 ½	7	3 pickings	20
Trucker's Favorite	116	3	2 ¼	6 ½	Late, 3 pickings	16

BEETS THAT ARE FIT TO BE EATEN

The regulation packet will sow 20 feet of row. For a constant supply sow a fifteen foot row every week from the middle of April until August first. One ounce each of an early midseason and late sort provides enough beets throughout summer, fall and winter.

Variety Name	Ready for use days	In "fit" condition days	Notes
Eclipse	60	10	Tough when overgrown
Crosby's Improved Egyptian	62	15	Uniformly sweet while young
Detroit Dark Red ..	65	20	The ideal early beet for home gardens
Electric	65	28	Rapid grower of steady quality
Fireball	68	30	Always sweet, flavor hard to beat
Crimson Globe.....	70	20	Develops over a long season
Early Model	70	10	Stringy when overgrown
Columbia	75	30	Ideal late beet for poor soil
Edward's Early	78	30	The ideal main crop sort
Black Red Ball	80	30	Good even after overgrown

THE FITTEST AMONG LETTUCES

One packet each of an early, midseason and late variety generally contains enough seeds for a season's sowings in the small home garden. One ounce will sow a row, 150 feet long. All heading varieties *must* be transplanted or "thinned" out, to form heads.

Varieties	First ready for use	Habit of growth	Color of Plant
Early Loose-Leaf:			
Black Seeded Simpson..	50	Spreading	Light yellowish green
Grand Rapids	48	Upright	Light green
Prizehead	56	Upright	Brownish, green and bronze
Early Butterhead:			
Black Seeded Tennisball.	56	Spreading	Deep yellowish green
Black Seeded Big Boston	56	Upright	Light green, brown edge
Wayahead	52	Upright	Dark yellow green
Naumburger	57	Upright	Dark green, brown spots
Midseason Butterhead:			
California Cream Butter	66	Upright	Dark green with large brown spots
All Seasons	61	Spreading	Dark green
Speckled Dutch Butter..	68	Upright	Light green, red tinge on edge of leaves
Late Butter and Crisp-head:			
Brown Dutch	70	Spreading	Dark green, with brown tints
Iceberg	56	Upright	Light green, pink edges
New York	60	Upright	Dark green
Crisp as Ice	65	Upright	Dark green with bronze shades
Cos Lettuce:			
Paris white	67	Upright	Dark green

Remark: "First ready for use" stands for typical plants perfectly developed.

THE REIGNING DOZEN BUSH BEANS

The average packet will sow 30 feet of row. For a constant supply sow a fifteen foot row every week from May 15th until July 15th. One quart of seeds will grow all the beans that will be needed for a family of five.

Variety Name	Ready for table in	Length of pod (inches)	Season of bearing
Bountiful	60 days	6½	6 weeks
Hodson Green Pod	80 days	7	Until frost
Full Measure	65 days	6	4 weeks
Fordhook Favorite	70 days	5½	5 weeks
Keeney's Stringless Refugee.....	80 days	5	Until frost
Stringless White Wax	70 days	5	5 weeks
Burpee's New Kidney Wax.....	60 days	6½	6 weeks
Sure Crop Wax	65 days	6½	Until frost
Hodson Wax	75 days	6½	Until frost
Pencil Pod Black Wax	70 days	5	Short
Brittle Wax	65 days	5½	6 weeks
Keeney's Stringless Refugee Wax..	75 days	5	Until frost

ONIONS OF SPECIAL MERIT

One packet each of an early white, large early yellow and late red generally supplies all the onions for moderate use in an average family. A packet sows 25 feet of row which, *on good soil, yields* $\frac{1}{2}$ bu. of ripe onions. An ounce of seed will sow 200 feet of row.

Variety Name	Bulbs develop fully in	Shape of class	Average weight per bulb (ounces)	Average yield in pounds per 15 ft. row
White Portugal	110 days	Semi-round	4	12 $\frac{1}{2}$
Southport White Globe.	120 days	Globe	5 $\frac{1}{2}$	17
Flat Yellow Danvers..	108 days	Semi-round	4 $\frac{1}{2}$	14
Yellow Globe	116 days	Globe	6	18 $\frac{1}{2}$
Southport Yellow Globe	126 days	Globe	7 $\frac{1}{2}$	23 $\frac{1}{2}$
Prizetaker	135 days	Globe	7	21
Red Wethersfield	135 days	Semi-round	7 $\frac{1}{2}$	23
Southport Red Globe..	135 days	Globe	7 $\frac{1}{2}$	24
Australian Brown.....	125 days	Semi-round	5 $\frac{1}{2}$	18
White Queen	95 days	Flat	3	9
Mam. Silver King.....	110 days	Flat	5	17
Gigantic Gibraltar.....	125 days	Globe	7 $\frac{1}{2}$	23

AN EXPERIMENT GARDEN!

Assuming that you are to spend only \$2.50 on your vegetable garden, by way of an experiment, here would be my selection of quantities and varieties that may be depended on to yield the largest return for time and money invested:—

- | | |
|---|--|
| <ul style="list-style-type: none"> 1 Pint Beans, Bountiful Green Pod. 1 Pint Beans, Sure Crop Stringless Wax. 1 Oz. Beets, Detroit Dark Red. 1 Doz. plants Cabbage, Copenhagen Market. 2 Doz. plants Cabbage, Danish Ballhead. 1 Pint S. Corn, Golden Bantam. 1 Pkt. Lettuce, Black Seeded Tennisball. | <ul style="list-style-type: none"> 1 Pkt. Lettuce, All Seasons. 1 Pkt. Onion, Yellow Globe Danvers. $\frac{1}{2}$ Pint Peas, Thos. Laxton. $\frac{1}{2}$ Pint Peas, Alderman. 1 Oz. Radish, White Icicle. 1 Oz. Radish, Chartiers. 2 Doz. plants Tomato, Globe. 1 Doz. plants Tomato, Chalk's Early Jewel. 1 Doz. plants Tomato, Stone. |
|---|--|

SEED ORDER FOR 30 x 60 Ft.

Here is my personal choice in "requisites" in seeds and plants needed to intensively cultivate a plot 30 x 60 ft.

Beans, Green Podded

- 1 Pt. each Bountiful and Fordhook Favorite.
- ½ Pt. Stringless Refugee for late green podded.
- 1 Pt. each Burpee's Kidney Wax and Brittle Wax.
- ½ Pt. Sure Crop Wax for late.
- ½ Pt. Bush Lima Beans.

Beets

- ½ Oz. each Eclipse and Edmand's Blood.
- 1 Oz. each Crosby's Egyptian and Detroit Dark Red.

Cabbage

- 1 Doz. plants each Early Jersey Wakefield and All Seasons for extra early and midseason.
- 2 Doz. plants each Copenhagen Market, Allhead Early and Premium Flat Dutch for a succession and winter keeping.

Corn, Sweet

- 1 Packet Early Dawn, for extra early.
- 1 Pint Golden Bantam for repeated sowings.

Lettuce

- 1 Packet each Black Seeded Simpson for early and California Cream Butter for between seasons.
- ½ Oz. each May King, All Seasons and Iceberg for repeated sowings and succession.

Onions

- 1 Packet each White Portugal, Southport White Globe, Yellow Globe Danvers, Red Wethersfield and Prizetaker.

Peas

- ½ Pint each Prolific Extra Early, Thomas Laxton, Alderman and Potlatch for successive crops.
- 1 Pint Little Marvel for repeated sowings.

Radishes

- ½ Oz. each Rapid Red, French Breakfast and Charters for extra early and midseason.
- 1 Oz. each White Icicle and Cincinnati Market for repeated sowings.
- 1 Packet each White Chinese and Black Spanish for late fall and winter use.

Tomatoes

- 1 Doz. plants each Sparks' Earliana and June Pink for extra early.
- 2 Doz. plants each Chalk's Jewel, Livingston's Globe and Stone for successive and main crops.

Allowing the highest price for the cabbage and tomato plants, the bill for these items would amount to approximately \$6.50.

WHAT THE LEADING VEGETABLES WILL DO FOR YOU

THE ARISTOCRATS AMONG PEAS

A packet will sow ten feet of row. One pint sows 30 feet. One pint each of an early, midseason and late sorts provide peas during the season from average home garden.

Variety Name	50% ready after, days	Last picking days later	Height of plant, feet	Pods		Aver. yield for 15 ft. row
				Av. per vine	Length inches	
Prolific Extra Early	64	5	2 ½	Five	3	8 qts.
Little Marvel	60	7	1 ½	Eight	3	8 qts.
Sutton's Excelsior	62	4	1 ¾	Six	4	10 qts.
Thomas Laxton	72	6	3	Seven	4	9 qts.
Blue Bantam	78	6	1 ½	Six	4	8 qts.
Alderman	80	8	5	Eight	4 ½	8 qts.
Quite Content	84	6	5	Eight	5 ½	10 qts.
Buttercup	87	6	2	Six	4 ½	8 qts.
British Wonder	85	5	2	Ten	3 ½	9 qts.
Potlach	86	8	2 ½	Ten	4 ½	12 qts.
Dwarf Champion	88	7	3	Seven	3 ½	10 qts.
Royal Salute	90	5	4	Ten	4	9 qts.

WHO'S WHO IN SWEET CORN

The average packet will sow 30 feet of row. A packet of an *extra* early sort and a pint each of an early and midseason variety, plus a packet of a late kind contain enough seeds for repeated sowings in the home garden of a quarter acre.

Variety Name	Ready for use days	Color	Length of ear inches	Number of rows
Early Dawn	75	White	6	10 rows
Earliest Catawba	80	White	6	10-12 rows
Golden Bantam	80	Yellow	6	8 rows
Howling Mob	85	White	8	12-14 rows
Crosby's Twelve Rowed	90	White	6	12-14 rows
White Evergreen	93	White	8	16-18 rows
Seymour's Sweet Orange	93	Yellow	8	10-12 rows
Country Gentleman	95	White	10	Irregular
Golden Rod	95	Yellow	8	8 rows
Golden Cream	96	Yellow	6	Irregular

DISTANCE BETWEEN ROWS
NUMBER OF ROW

NORTH

30'	45'	25'	100'
9	HOT BED	COLD-FRAMES	HERBS
			MELONS
			Interplanted with lettuce and radish
3 1/2'	1	PEAS EXTRA EARLY	
3 1/2'	2	PEAS MID-SEASON	Followed by winter squash
3 1/2'	3	PEAS MID-SEASON	
3 1/2'	4	PEAS MID-SEASON	Followed by late beets
3 1/2'	5	PEAS MID-SEASON	Followed by late beets
3 1/2'	6	SPINACH EARLY	Followed by late peas
3 1/2'	7	1/2 ROW BEANS WAX	1/2 ROW BEANS GREEN
3 1/2'	8	BLEETS EARLY	Followed by kohlrabi & rom. cauliflower
3 1/2'	9	TURNIPS MILAN 1/2 ROW	Followed by celery
3 1/2'	10	CARROTS 1/2 ROW EARLY	1/2 ROW LATE
3 1/2'	11	PARSNIPS	TURNIPS EGG followed by endive
3 1/2'	12	SALAD	
3 1/2'	13	ONION SEEDLINGS	Followed by brussels sprouts
3 1/2'	14	ONIONS 2 ROWS	
3 1/2'	15	PEPPER 1/2 ROW	EGGPLANT 1/2 ROW
4'	16	1/2 ROW	OKRA 1/2 ROW All interplanted with lettuce
4'	17	TOMATOES 4 x 4'	Interplanted with onion sets and seedlings
4'	18	EARLY SPINACH	Followed by medium to late celery
3'	19	EARLY CABBAGE	Followed by late celery
3'	20	EARLY CELERY	Followed by late turnips, rutabaga
3'	21	EARLY POTATOES	
3'	22	CUCUMBERS 1/2 ROW	SQUASH 1/2 ROW BOTH SUMMER and WINTER
3'	23	EARLY POTATOES	
3'	24	LATE POTATOES	
3'	25	LATE POTATOES	
3'	26	LATE POTATOES	
3'	27	EARLY SWEET CORN	Followed by late cabbage
3'	28	MID-SEASON SWEET CORN	
3'	29	MID-SEASON SWEET CORN	
3'	30	LATE SWEET CORN	pumpkins in hills
4'	31	POLE BEANS	
4'	32	RHUBARB 1/2 ROW	HORSE-RADISH 1/2 ROW BUR
4'	33	ASPARAGUS	ARTICHOKE 1/2 ROW JERUSALEM ARTICHOKE

200'

SOUTH

CHAPTER VI

THE HOTBED AND COLD FRAME

MUCH time may be gained in the outdoor culture of vegetables if a hotbed and cold frame are available. It is necessary to start certain vegetables early in order to get a crop by the end of the season, and it is also necessary to sow the seed of certain crops, transplant the seedlings to the cold frames and finally to the open, after the spring frosts have passed, in order to get more than one crop from the same soil in one season. The advantages of the hotbed and cold frame are: (1) time may be gained in spring by starting the plants before the frosts have passed; (2) certain plants which require a long season in order to mature may be started; (3) it is made possible for certain plants like the tomato to produce a large crop before frost (especially true

HOTBED AND COLD FRAME

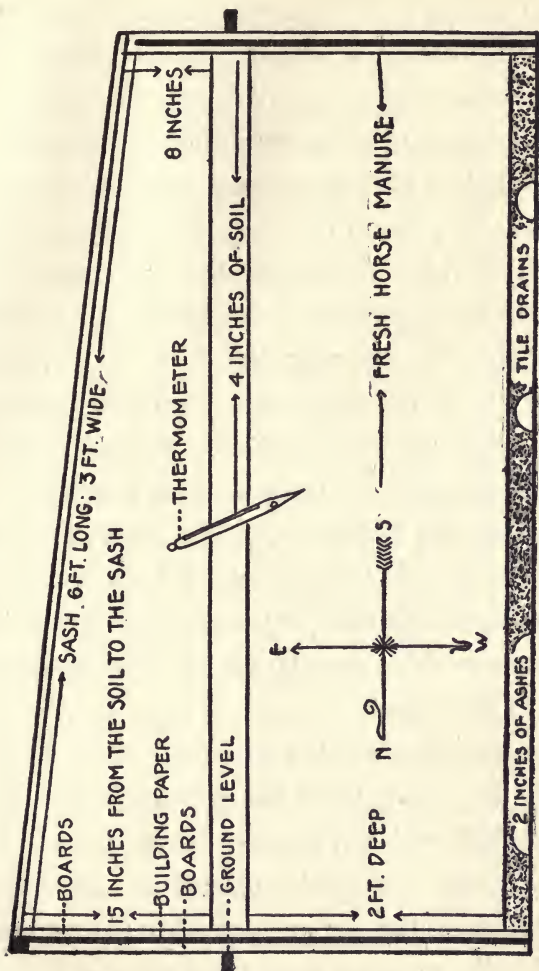


FIG. 15.—Diagram of a hotbed.

PRACTICAL GARDENING

in the north); (4) some crops like lettuce and celery do better if started in the hotbed and transplanted after pruning the root system; (5) the elements, moisture, heat and light are controlled so that the germination of the seed is sure; (6) the first crop of weeds may be destroyed by cultivation, the soil made fine and the arrangement of the garden made more attractive by starting the first crops under glass; (7) if the plants are properly cared for they are strong and resist disease more readily; (8) a means of avoiding insect enemies is provided; (9) tender crops like cucumbers and summer squash may be started early among the other seedlings; (10) a crop of lettuce and other vegetables may be raised after frost sets in, late in the fall.

Construction of the Hotbed. The hotbed should be constructed the standard size three by six feet, which is the size of one sash. The hotbed may be made larger by increasing the width of the pit and by adding more sash but for the average back yard garden fifty by

HOTBED AND COLD FRAME

one hundred feet, a one sash hotbed is sufficient. The pit should be dug in the fall and the hotbed made complete so that it may be filled before the frosts have passed. The sash should be bought in the fall and stored where there is no danger of accident to the glass, and the hotbed covered with boards to keep out the snow. The pit should be six feet four inches long and three feet four inches wide and two feet six inches deep. The site for the hotbed should always be well drained, so that there is no danger of the melting snow filling the excavated space and preventing the fermentation of the manure. In the South where the winters are mild the pits are only twelve inches in depth, but in the North the depth mentioned above is necessary.

The frame may be made of wood, concrete, brick, or stone, the most common material used being wood, and it may be constructed on the south side of the house or shed. The building protects the hotbed from winds. It should always be constructed so as to get the greatest

PRACTICAL GARDENING

amount of sun for a long period of the day.

After the excavation is complete, drive a two by four strip in each corner of the pit and place the boards so that the four supports are on the inside of the frame. The inside measurements should be three by six feet. Have one end fifteen inches above the surface and the opposite end eight inches above the surface. The sash should slant toward the south. Place one inch boards from the floor of the pit to the top of the supports and nail. Place a thick lining of tar paper or building paper on the outside from the base up and nail on another covering of one inch boards. This may all be done before the sides are put in position and finally joined to the two by four strips by nailing the sides above the surface soil. By placing boards up from the bottom of the pit there is less danger of water getting in, heat getting out, and the earthworm is kept out of the manure. The sash bars should be fastened so that there are no openings to allow any draft and so that the sash may fit snugly.

HOTBED AND COLD FRAME

It is often advisable to pile a little soil about the outside of the frame to act as a water shed.

Now that the frame is constructed place three rows of half tile on the bottom and fill in between these with rough ashes to a depth of two inches. Ashes may be used without the tile. This will insure proper bottom drainage and will encourage fermentation in the manure. The hotbed should then be covered with boards and left until February or March when it should be filled.

Manure. The best manure is produced from grain fed horses or mules, where their bedding has been made of straw—three parts excrement and one part straw. This should be moist and in a fermenting condition before placed in the hotbed. It may be secured from any stable. One small load will be sufficient for a hotbed three by six feet. Never use partly decayed or burned (slate colored) manure but always the fresh. Be sure that the manure and straw are well mixed and place

PRACTICAL GARDENING

a foot of it in the bottom of the pit. Tramp it down as tightly as possible by walking on it. Moisten with hot water and immediately fill in the rest of the manure, packing it tightly until a depth of two feet is reached. If it is a few inches over two feet it will be better, because the manure will settle at least 2 inches.

Soil. This should be available to cover the surface of the manure to a depth of four inches. In the spring make a heap of fine garden loam and sod. Chop the sod up fine in the fall and place this soil in some protected place. It should never be mixed with manure or allowed to dry out. The young seedlings are very tender and do not need much plant food. Manure always encourages decay. Do not remove the pieces of sod when filling in the soil since they are very valuable in retaining the moisture.

Thermometer. A standard hotbed thermometer should be placed in the center of the hotbed and partly imbedded in the manure. The sash should then be placed and the manure

HOTBED AND COLD FRAME

allowed to heat. Do not plant the seed until you know the temperature of the manure. It sometimes reaches a height of 110° F. and higher. If seeds are planted then they seldom germinate. After the temperature begins to drop and it reaches 80° F., sow the seed. It is a good practice to keep the surface of the soil smooth and sift a little sand and fine soil over the surface before dividing it into sections and sowing the seed. Be sure to label the seed after sowing. The surface should then be watered by applying the moisture like a fine rain. Cover the seed bed with paper until the seed starts to germinate, remove the paper and carefully ventilate. The soil should be kept moist but never wet, and watered in the morning so that the seedlings are dry by night.

Ventilation. No management of the hotbed is more difficult than ventilation. Early in the spring the sash should not be pulled down but lifted up and gauged by a board having a series of notches one inch apart. This method of ventilating keeps the glass

PRACTICAL GARDENING

over the entire surface of the seed bed and prevents draft. If a cloud covers the sun and there is a chill in the air lower the sash and sometimes close it. In February, March, and April close the hotbed about three in the afternoon so that the heat from the last rays of sun may be retained. As the season advances increase the ventilation and decrease the watering. Always give a little ventilation on bright days and especially early in the morning to allow any bad air to escape.

Protection. It will be necessary to have straw mats, or some other protection to keep the frost out during the night. While the manure retains its heat for three months it is not warm enough to keep out the frosts of February or March. Cover the hotbed about five in the afternoon and remove it about eight or nine in the morning. This same practice may be followed in the fall with lettuce or beets that are to mature after the frosts set in. If the weather is severe the sides may be backed with manure and extra covering placed on the

HOTBED AND COLD FRAME

top. Even in the most severe weather if the protection has been on for twenty-four hours the sash should be lifted a crack to let out the steam and bad air and in this way prevent the plants from growing spindly and white.

Catch Crops. Cucumbers and summer squash and crops that require heat, such as we get by June 1, in the North, must necessarily be protected during April and May. This may be done easily while the seedlings are growing in the hotbed by placing a few seeds of these vines about one foot apart at least four weeks before the seedlings are removed to the cold frames. They germinate, grow to about eight inches or more in length before the sash is removed for the summer and, with the rich manure beneath and the four inches of fine soil on the surface, the vines grow rapidly and bear a large and early crop.

The Cold Frame is a much cheaper construction, requires no excavation, no heating material or even glass covering. It may be constructed by nailing four twelve inch boards to-

PRACTICAL GARDENING

gether, usually six feet long and four feet wide. Place this frame on the surface of the soil and dig up the soil within it. A little finely pulverized and well decayed manure is not objectionable if properly incorporated into the first two inches of soil. A little soil piled around the outside of the frame will make it firm and keep out the cold air. The covering varies from glass to canvas and burlap.

The purpose of the cold frame is to have a place in April or May to which to transplant seedlings from the hotbed so that they may develop a more healthy and stocky set of plants. It is also a change from the heat to the temperature out of doors. The cold frame may be covered with any material that will keep out the light frosts. After the frost has passed and the garden soil is properly prepared, these plants may be transferred to the open.

Hardening the plants is a practice necessary if the best results are looked for. In the hotbed and cold frames the plants are supplied with moisture when necessary and protected

HOTBED AND COLD FRAME

from winds and cold. In order that these young plants may not feel a shock when placed in the open, you should increase the ventilation until the sash or other protective covering is entirely removed and the plants exposed, and decrease the watering so that the plant becomes accustomed to nature's periods of supplying moisture.

Before transplanting to the field, soak the soil with water so that the soil may adhere to the roots of the young plants, and water the plants again as soon as they are set in the soil.

The cold frame may be taken apart after its usefulness has passed and the space used for various garden crops.

Table of Spring Crops planted in the hotbed in the vicinity of New York City. For every hundred miles north or south of New York subtract or add from five to eight days to the dates given.

Early crops which may be sown in the hotbed and transplanted.

Date sown	Vegetables	Trans- planted to Cold Frames	Trans- planted to the open	Ready to eat
Feb. 15	Lettuce	March 10	April 15	April 30
	Onions	March 15	May 10	May-Fall
	Beets	March 15	April 25	June 30

PRACTICAL GARDENING

Date sown	Vegetables	Trans- planted to Cold Frames	Trans- planted to the open	Ready to eat
	Cabbage	March 15	April 20	May 30
	Cauliflower	March 25	May 1	June 1
	Kohl-rabi	March 15	April 20	June 5
	Celery	April 1	May 1	June 15

Crops to be started and matured in the hotbed.
Planted in the spring.

Date	Vegetables	Date of Maturity	Remarks
April 1	Cucumbers	June 10	Plant rows of beets 12 inches apart. Also rows of Radish 10 inches apart and here and there about 12 to 18 inches apart; plant one of the vine seeds about 2 inches in depth
	Summer squash	June 10	
Feb. 15	Beets	June 1	
Feb. 15	Radish	March 25	

Plants four weeks' old transplanted from the open to the hotbed before frost in the fall. Also seed sown in the fall.

Date	Vegetables	Date of Maturity	Remarks
Oct. 1.	Lettuce (Loose leaf)	Nov. 15	Radish seed may be sown between the rows of growing plants and they mature in about 35 days.
Sept. 15	Radish	Oct. 20	
Sept. 15	Beets (Plants)	Nov. 15-	
		Dec.	

It is not always the best plan to try to raise plants from seed that are to be transplanted. This is especially true where only a few plants are needed and there is no glass to force the best development of such plants.

Early cabbage and cauliflower plants may be

HOTBED AND COLD FRAME

purchased in the market from the middle of April until June 1. These hardy plants may be planted in the open as soon as the frosts have passed and the soil is in a workable condition. Tomato plants should never be bought until the air and soil are both warm, which is about the first of June.

Plants that may be bought in the open market:

<i>Early</i>	<i>Late</i>
April-June	June-August
Cabbage	Celery
Cauliflower	Tomatoes
Brussels Sprouts	Egg Plant
Onions	Lettuce
Lettuce	Pepper
Artichoke Plants	Kale
Celery	
Kale	
Chives	

CHAPTER VII

GAINING TIME IN EARLY SPRING

IT is not always possible to have a hotbed in connection with the small back-yard garden but it is possible and quite necessary that some means of starting crops early may be arranged. There are certain vegetables like the tomato which require a long period to mature the fruit, and these must be started several weeks before the frosts have passed. There are other crops like lettuce and beets which require a short period to mature but which, if started in the house or under glass, may be harvested early and supplanted by other crops.

Flats. One of the simplest and best methods of gaining time in the early spring is by the use of a flat, which is a box any convenient size and three to four inches deep. Holes should be drilled in the bottom of this shallow box to insure proper drainage. Pieces of

GAINING TIME IN EARLY SPRING

broken pots may then be placed over the holes and about one inch of pulverized, decayed manure on top of these. Place one and one-half inches of soil (garden loam) over the manure and make it smooth. If the surface space is more than is required for a certain variety, divide it into sections as shown in (Fig. 19). Scatter the seed (Fig. 17), and cover it by sifting a little soil and sand mixed over it. Seed should be sown about its own depth. The soil is then pressed down (Fig. 19) and should be watered. Care should be exercised not to flood the surface and cause the seed to wash together. Sprinkle the surface with a very fine spray.

Place a glass on the top of the box in order to aid in holding the moisture in the soil and in hastening germination. A paper is then placed on top of the glass to keep out the light until the seed germinates, after which the paper should be removed, and as soon as the seedlings break through the soil remove the glass. (Fig. 20.)

KEY TO PLATE II

- FIG. 16.—Broken bits of pots placed on the bottom of the flat will insure the proper drainage.
- FIG. 17.—Sowing seed in a flat. That divided in two sections for two kinds of seed.
- FIG. 18.—Sifting soil over the seed. Sand and loam should be used and the seed planted about its own depth.
- FIG. 19.—Pressing the soil about the seed hastens germination.

PLATE II



FIG. 17.

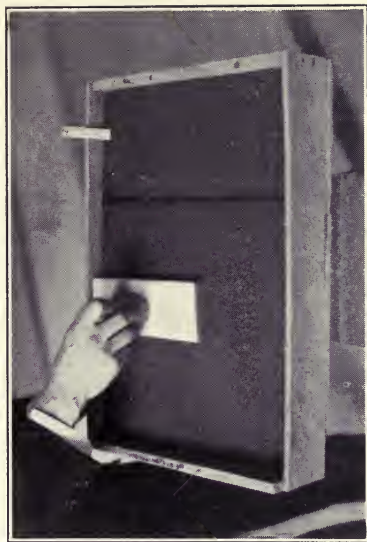


FIG. 19.



FIG. 16.



FIG. 18.

GAINING TIME IN EARLY SPRING

Never allow the flat to dry out after sowing the seed but remember that very frequent watering of germinating seed has a tendency to weaken its vitality. The flat is set in a warm place until the seedlings appear, after which they should be placed where they may get plenty of sun. After the seedlings have developed from two to four true leaves they should be transplanted to another flat, giving each plant more room in order that it may grow stocky and strong before it is planted in the garden.

Tomatoes are often taken from the flat and placed in rich soil in strawberry baskets and allowed to develop to quite a size before transferring to the open.

Strawberry Baskets. There are certain vegetables, such as summer squash and cucumbers, which will not survive transplanting if their roots are disturbed. If a strawberry basket is filled with one-half soil and one-half decayed manure well mixed, the seed of these two vines may be planted in it, four or five

KEY TO PLATE III

- FIG. 20.**—A flat covered with glass and paper to aid germination by preventing evaporation of the moisture.
- FIG. 21.**—Early summer squash started before the early seedlings were transplanted from the hotbed to the open. Cucumbers may be grown in the same way. These plants usually escape the squash borer.
- FIG. 22.**—Panes of glass placed over the hills of cucumbers to hasten germination.
- FIG. 23.**—Home made plant protectors.

PLATE III

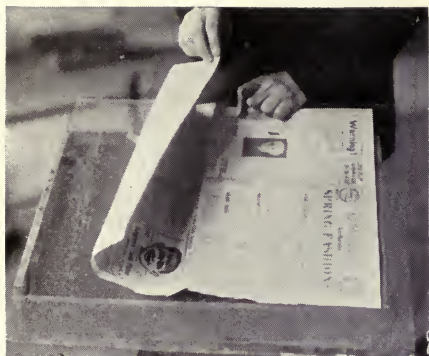


FIG. 20.



FIG. 21.



FIG. 22.



FIG. 23.

24

25

GAINING TIME IN EARLY SPRING

seed in a basket and about one inch in depth. Place a pane of glass over the basket until the seedling appears after which the glass should be removed and the plant given sunlight. The glass is not necessary unless there is a desire to hasten germination. After all danger of frost is passed, the baskets and plants may be taken to the garden, the bottoms of the baskets cut out, the sides carefully lifted off, and the square of soil and roots placed in the prepared hole without disturbing the root system. The plants should be watered after transplanting and for several days until they become established. Corn and beans may be treated in the same way, and they will mature from two to three weeks earlier than the seed grown out of doors.

A combination forcing box is commonly used to force and protect the vine crops. It is from six to eight inches in depth and eight by twelve or twelve by fourteen inches square. The box is placed over the planted hill and a pane of glass put on top or slid into the boards,

KEY TO PLATE IV

- FIG. 24.—Inter-cropping with cabbage. Strawberry boxes placed over the young plants to prevent wilting. As soon as the plants are established remove the boxes.
- FIG. 25.—Transplanting lettuce. Making the hole with the first two fingers.
- FIG. 26.—Note the position of the fingers in pressing the soil about the roots of the plant. It is important to have the soil firm.

PLATE IV



FIG. 24.



FIG. 25.



FIG. 26.

GAINING TIME IN EARLY SPRING

as shown in (Fig. 23). Not only are the plants protected from light frosts but they are screened from insects. Tomatoes, eggplants, and peppers are commonly treated in this way.

Hardening the Plants. In order to get the best crop of any vegetable in both quality and quantity, it is necessary to keep it growing from the time the seed germinates until it matures. Therefore it should not receive a shock on being transplanted to the open from a warm window. A week or more before transplanting, increase the ventilation by opening the windows, a little at first and then wide, or place the flat out of doors in the middle of the day for a few hours, adding one hour or more of exposure each day until the plants are accustomed to the atmospheric conditions out of doors. Decrease the watering so that the plant gets accustomed to the rainfalls and periods of drought. In other words gradually accustom the plant to the conditions under which it is to mature.

Transplanting. Just before removing the

PRACTICAL GARDENING

seedlings from the flat, soak the soil with water so that it will adhere to the roots. Transplant after sundown or on a damp day and water the plants as soon as they are transferred to their permanent home. In some cases the plants should be shaded to prevent any possible wilting, but this depends on the intensity of the sun and the amount of soil that was retained by the roots. Such crops as early cabbage and cauliflower develop a set of fine roots over night if watered freely after transplanting.

Watering Plants. The object of watering a plant is not to wet the foliage or moisten the surface of the soil, but to get the water to the roots. Apply the water slowly so as to prevent puddling the soil or washing it. It is the best practice to apply the water close to the stem so that it may reach the roots. Wetting the foliage on bright days causes the leaves to scald, and leaving such plants as head lettuce moist over night when the air is warm often causes decay.

CHAPTER VIII

THE POTATO

WE often wonder how people lived and what they ate before the discovery of the potato, for to-day it constitutes a great part of man's food and is used by all classes. It should therefore be grown wherever there is sufficient space; a few hills of early potatoes may be started early, transplanted and harvested before some of the later crops need the space. It is not practical to try to raise potatoes in some of the city lots, where the soil might be put to a more intensive culture of the root crops that may be planted close together. Potatoes usually sell at a reasonable price in the fall, and it is generally advised that the city gardener buy his potatoes, while the suburban and farm gardeners may raise them, providing they follow the fundamental principles

PRACTICAL GARDENING

of culture that result in success. Plant only good seed, treated before planting to prevent disease, in a cool, well-drained, deeply pulverized soil. The soil should be rich in potash incorporated with humus, and should be in a physical condition to retain moisture. There should be frequent level cultivation to keep down weeds and form a dust mulch to conserve moisture, and the foliage should be protected from disease and insects by spraying.

Seed. A good beginning if kept up will result in a profitable ending, so good seed should be the first consideration of every grower. (Fig. 27.) If you are selecting your own seed for the first time be sure to select the tubers from the hills that are the most thrifty and the heaviest producers. The productiveness of such a hill will have a definite influence, other things being equal, on the production of the following year's crop.

The seed should be free from scab, and while not necessarily large should never be small. To pick out the medium-sized potatoes for

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table use and keep the marbles for seed is a great mistake. In most cases they are not fully matured, and there is not enough vitality in the little potatoes to produce a set of healthy, vigorously growing shoots. It is also good practice to buy the seed from a reliable party because the change of location, soil, etc., influence the crop. In some cases where the grower selects his seed year after year from his own garden, the potatoes have a tendency to rot.

Treating Seed. The seed should always be treated before cutting the tuber by placing the potatoes in a sack and submerging it in a solution of one ounce of powdered corrosive sublimate (poison) to eight gallons of water. Dissolve the corrosive sublimate in one quart of hot water before adding it to the cold water. Soak the tubers in this solution for one and one-half hours, after which the tubers should be dried and cut.

Putting the seed potatoes in the sun for three weeks before planting will aid in destroying the scab bacterium. Care should be exercised

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in applying fresh horse manure, wood ashes, lime or any alkaline-producing fertilizer where it comes in contact with the maturing tuber, thus preventing the danger of scab.

After you have selected the medium-sized potatoes, cut them in such a way as to have from one to three eyes to each piece. It is to the advantage of the crop to allow the seed to be exposed to the air but not to the sun, for a few days after cutting the tuber. The wounded surface dries and the root system is immediately encouraged when the seed comes in contact with the moist soil.

The selection of varieties is important and should be done with the utmost care with reference to time of maturity, resistance to disease and productivity.

The Varieties are arranged according to the time of ripening. Extra early; Beats Them All (Mitchell's), Beauty of Hebron, Bliss Triumph, Early Ohio, Early Rose, and Irish Cobbler. The first five varieties are especially adapted to the North, while the Irish Cobbler

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does well both North and South. In the northern part of the United States such varieties as Green Mountain, Sir Walter Raleigh, Rural New Yorker, Carman and State of Maine are grown, while in the South, White Star, and McCormick are prolific producers.

There is a distinct flavor and texture to certain potatoes, and each individual must satisfy his or her taste in selecting the desired variety for seed. It is nevertheless advisable to plant two early varieties and one late variety.

Soil, Planting and Cultivation. Potatoes are grown in various kinds of soil, but in general this crop thrives best on a rich sandy loam containing plant food, moisture, and humus. If the soil is very sandy apply a heavy application of manure to the surface of the soil and plow it under in the fall. In the spring stir the surface of the soil and make furrows from twenty-four to thirty-six inches apart and from three to five inches in depth, and drop the tubers nine to fifteen inches apart. Cover the seed and one week after planting cultivate

KEY TO PLATE V

FIG. 27.—One seed potato was used for the production of each plate. Seed (A) was selected from a poor hill and yielded only 1.1 lbs. or 56 bushels per acre. Seed (B) was from a highly producing hill and gave 11.1 or 560 bushels per acre. Save the seed from the best producing hill.

FIG. 28.—Cutting the potato. Leave from one to three eyes on each piece (seed).

FIG. 29.—Flat divided into sections with paste-board. Note pieces of broken pots in the bottom of the flat to cover drainage holes and insure proper drainage.

FIG. 30.—Seed potatoes placed in each section partly filled with soil and manure mixed. Cover the seed with at least two inches of soil.

PLATE V



FIG. 28.



FIG. 30.



FIG. 27.



FIG. 29.

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the surface with a norcross weeder, wheel cultivator or spike tooth harrow. This stirring of the soil will destroy the first crop of early weeds. If a heavy rain should pack the soil and it should begin to crack a little before the tops appear, stir the surface again, but very lightly so as not to disturb the growing shoots. A large part of the success in growing potatoes depends on the amount of moisture available throughout the season, therefore cultivate with the view of keeping the surface covered with a thick coating of dust mulch. The potato should be cultivated from six to eight times during the season. "Hilling up" should be practiced only where the soil is stiff and the tubers are planted near the surface.

The Early Crop may be started in a warm, light cellar by cutting the seed (Fig. 28) and spreading it out on the floor. A temperature of about 60 degrees should be maintained and sufficient light to prevent the shoots from becoming spindly and weak. This may also be done in the hotbed, but usually the hotbed may

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be put to a little better purpose early in the spring. Plant the sprouted seed carefully in a well prepared and rich soil as soon as all danger of frost has passed. If the seed is given from four to five weeks to sprout and cultivated frequently after planting, a crop of fairly good-sized tubers may be harvested in from seven to eight weeks.

Still a better way to gain time in the spring is to section off a shallow box with pasteboard, making each compartment about three inches square. Have the bottom of the box well drained (Fig. 29) and put into it about one and one-half inches of rich soil. Place the tuber in the center of the compartment (Fig. 30) and cover it with soil. Place the box where it has heat and water when necessary. The soil should be kept moist but not wet. The sprouts appear in about nine days. They may be kept growing until they reach a height of four inches. Remove the pasteboard carefully, lift out the block of soil and plant it so that about one inch of the garden soil is added

THE POTATO

to the surface of the square on planting it in the garden. Start to cultivate the first week after planting and keep the shoots growing vigorously. Small, new potatoes may be harvested from five to six weeks after planting in the garden.

Planting the seed two inches in depth very early and mulching the surface of the soil with two inches of straw as soon as the tops appear, is a method used more in Europe than in this country to hasten the production of an early crop.

The Late Varieties may be planted in June or as late as July 5, in the vicinity of New York. They should be planted a little deeper than the early varieties, from four to five inches, providing the soil is a light loam.

Soil and Fertilizers. The ideal soil is a light, sandy loam previously grown to clover, but this is not common in the small garden. If the soil is light apply a liberal amount of well-decayed manure and plow it under two or three weeks before planting. Fresh manure

KEY TO PLATE VI

FIG. 31.—Potatoes started in a flat. Three weeks gained.

FIG. 32.—Cucumbers started early in a strawberry basket.

FIG. 33.—Kohl Rabi the size of a baseball, ready for use.

PLATE VI



FIG. 31.



FIG. 32.



FIG. 33.

THE POTATO

should never be used just before planting but it may be applied to a stiff soil which should be plowed in the fall, and left in the rough. In the spring, stir the soil to a depth of five to six inches and plant the seed. If stable manure is used it should always be well decayed and well incorporated into the soil before planting the seed.

Stable manure in the decayed form is not always available to the small gardener, so that it is necessary to resort to specially prepared commercial fertilizers.

A commercial fertilizer having from three to five per cent of nitrogen, from six to eight per cent of phosphoric acid, and from eight to ten per cent of potash should be combined in such a way as to supply the necessary plant food. This fertilizer may be applied at the rate of about one-half when the soil is cultivated, and the remaining half in the furrows three or four days before planting.

It is difficult to advise as to the amount of any one fertilizer to a given space because of

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the variation in the fertility of soils. In general the following tables may aid the gardener who cannot secure sufficient decayed manure.

It should always be understood that commercial fertilizers alone will not raise potatoes. The physical condition of the soil must be right, having considerable humus in it so as to retain the moisture and make the fertilizer available.

Plot 30 to 80 ft. 1½ bushels of potatoes planted.
Possible harvest of 10 to 12 bushels.

Mixture No. 1. Clay Soil.

Dried Blood	30 lbs.
Acid Phosphate	50 lbs.
Sulphate of Potash	20 lbs.

Mixture No. 2. Light Garden Loam.

Sulphate of Ammonia	10 lbs.
Dried Fish Scrap	30 lbs.
Acid Phosphate	45 lbs.
Sulphate of Potash	25 lbs.

Mixture No. 3. Sandy Loam.

Nitrate of Soda	15 lbs.
Cotton Seed Meal	30 lbs.
Acid Phosphate	40 lbs.
Sulphate of Potash	18 lbs.

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Insects and Diseases. The Colorado potato beetle or the potato bug, as it is incorrectly called, is a common enemy of the potato patch. It may be destroyed by spraying the foliage with one-fourth pound of Paris green to seven gallons of water. This will cover your plot of thirty by eighty feet. As the potatoes reach maturity it might require a little more, but usually if the first beetles are destroyed there is seldom a second attack. Keep the solution continually agitated because the Paris green does not dissolve in water. London purple, or powdered arsenate of lead dusted on the vines as soon as the beetles appear will easily destroy them.

The flea beetle is common wherever the potato is grown. It riddles the foliage full of tiny holes and is checked only by the spray of Bordeaux mixture which is applied for the blight. A broad shallow pan with a little kerosene in the bottom of it is sometimes used by holding the pan close to the vines and striking the opposite side of the vines with a whisk

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broom so as to knock the beetles into the kerosene.

Blight. The early blight appears when the vines are young, causing them to turn yellow and die. If Bordeaux mixture is applied by spraying at the time and in combination with the poison to control the potato beetle, the blight will be prevented.

The late blight appears from two to four weeks after the first potato beetles appear and especially during a rainy period. Spray several times during the season with Bordeaux. The disease attacks the leaf causing dark, water-soaked areas which are covered with white mildew in a few days after the disease first puts in its appearance. The leaves close to the soil where there is considerable moisture are usually the first to show signs of the disease. The affected tissue soon decays and spreads to adjoining plants and to the tuber, causing irregular discolored areas on the potato, which later become sunken and form a dry rot.

THE POTATO

Spray thoroughly before the disease appears, for, after all, the disease cannot be cured but only prevented.

Harvesting. The early varieties may be dug whenever they are large enough to use, but the late varieties should be matured before they are removed from the soil. The plant should be kept growing until the leaves begin to fall, the stems will then naturally turn yellow and ripen and this is the right time to harvest the crop. Use a broad-tined fork or a grub rake and do not dig too close to the vines. If any of the potatoes are injured in digging use them first, do not store these bruised tubers with the perfect ones.

Do not expose the potato to the sun and air for long. The tubers should be dry before packing, but if they are left out for several days, or exposed to the sun for any length of time, they shrink, are subject to disease and may manufacture a poison in the tissue.

The Sweet Potato. The sweet potato cannot be grown successfully where the season is

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short and cool. The soil should be sandy but well mixed with humus.

The potatoes are usually planted early in the spring in a sandy loam in hotbeds and covered with about one inch of soil. The sprouts soon appear and after they have made a growth of from three to five inches, they should be pulled from the potato and set out two feet apart in the rows. The rows should be at least three and one-half to four feet apart. Never set out the plants until the soil is warm and all danger of frost has passed. Transplant on moist days, cultivate frequently until the vines start to run and hoe loose the joints of the vines whenever they make roots.

The potatoes should be harvested with the first touch of light frost. The Early Carolina is one of the best varieties for the North.

CHAPTER IX

PEAS, THEIR CARE AND CULTURE

THE garden pea is one of the first vegetable seeds to be planted in the spring. There are two general types, the wrinkled and smooth-seeded. For the very early planting, spring or late fall, such varieties as Alaska, Eureka, Electric, and Dandy Extra Early all smooth-seeded are good. Practically all of the smooth-seeded sorts are very hardy and may stand considerable frost.

The ideal soil is a sandy loam, well drained and heavily incorporated with decayed manure. The practice of sowing seed in a furrow two and one-half inches in depth the later part of September or the first two weeks in October is growing in some sections. The frost will not injure the seed so long as there is no standing water in the furrow. Seed sown in the

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fall germinates before the soil is warm or fit to cultivate in the spring, so that the crop is from one to two weeks earlier than seed sown in April or May.

For the best results from the spring sowing, make a furrow six inches deep and cover the seed not more than two inches. As the plants grow, work in the soil about them with the cultivator until the trench is filled. With this practice, the roots are deep enough to get the required moisture and the soil is loose enough to allow sufficient air to reach the roots.

For the second early crop planted about May 25, there are no better varieties than Bliss Abundance or Pride of the Market. For the late crops sown in July and August and harvested in the fall, the two best dwarf varieties are Everbearing and Dwarf Champion.

The tall varieties produce more peas but they require supports and considerable care. The Telephone and Champion of England are two of the best tall varieties and reach a height of four feet. Wire trellises may be secured at

PEAS

any reliable seed house. Poultry wire four feet high stretched between two supports makes a fine trellis. Also branches of trees three to four feet tall (brush) stuck in the soil close to the growing vines make a very satisfactory support.

The wrinkled varieties are by far the best but require a warmer soil than the smooth sorts. American Wonder (Fig. 35) Early Morn, Little Marvel, and Nott's Excelsior produce heavy crops of sweet, tender peas if planted after all danger of sharp frosts have passed.

After the plants break through the soil both in spring and summer, start to cultivate and continue to stir the soil from two to four times each week until the vines lop over. The pods are usually formed by this time and cultivation may be discontinued.

Plant seed every two or three weeks so that there will be a continual supply of fresh peas for the table.

Peas thrive best in spring and fall. They are therefore a cool season crop but may be

KEY TO PLATE VII

FIG. 34.—Swiss chard, one of the easiest greens to grow.

FIG. 35.—The American Wonder Pea, one of the best wrinkled varieties.

FIG. 36.—Dwarf Curled Scotch Kale. One of the finest nutritious greens.

FIG. 37.—Rust Proof Wax Beans. One of the best varieties for the home garden.

PLATE VII



FIG. 34.



FIG. 36.



FIG. 35.



FIG. 37.

PEAS

grown throughout the summer months by continual cultivation and an occasional watering in the evening. Artificial watering and dry hot days have a tendency to cause the growth of mildew. This may be checked by dusting the plants with Flowers of Sulphur as soon as the white, downy growth appears on the leaves. If during the hot weather the pea vines turn yellow before the crop is matured, it is a sign that the plant is not only suffering from a lack of water but also a lack of air at the roots.

If the tender pea plants begin to disappear very early in the spring, the English sparrow may be the thief. Scatter a little fine tobacco dust on the vines while the foliage is moist with dew and the sparrows will not trouble you again. If the vines are eaten close to the surface of the soil so that they lop over and die the slugs are at work. Dust the stems with tobacco dust and sprinkle a *very little* salt over the surface of the soil close to the pea vines.

If the lower leaves and the tender shoots are pulled partly into a hole the earthworm is

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the thief. Sprinkle over the vines and along the row three-fourths part tobacco dust and one-fourth part powdered arsenate of lead. The tobacco dust not only checks this enemy of the pea but is also an excellent fertilizer.

CHAPTER X

ROOT CROPS—EARLY AND LATE

RADISH. In order to eliminate the pungent flavor of radishes, grow them in a rich, warm soil so that they mature quickly. The seed may be sown between rows of slowly maturing crops. Scatter the seed in a furrow about one inch in depth and cover with a fine garden loam. Cultivate frequently after the seedlings appear. Such varieties as Brightest Scarlet, Cardinal, and Early French Breakfast mature in from three to four weeks after planting.

While the radish is naturally a cool season crop, there are a few varieties that stand the summer heat, such as Strasburg, Icicle, and Large White Turnip radish; these are known as summer radishes.

Winter radishes are sown in June, and left

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in the ground until the approach of frost when they are lifted and stored.

One ounce of seed will sow a row seventy-five feet long.

The secret in raising tender spring and fall radishes is to have them mature quickly, to supply plenty of moisture and food, and to harvest them before they are very large.

Beets. The earliest beets may be started in flats about March 1, and hardened off in the cold frames in April, then transplanted the last of April into a very rich soil. These will be ready to harvest in June. On transplanting the beet be careful to have the tap root straight in the soil. If the root is curled the beet only develops a tough, small, fibery growth. Prune the leaves back a little.

Seed may be sown out of doors after the danger of frost has passed. The soil should be rich in humus and plant food. Sow the seed in drills twelve to eighteen inches apart and about one inch in depth. Thin the plants to from three to four inches apart in the row.

ROOT CROPS

Start to cultivate as soon as the second or third leaf is formed but do not scrape the bulbous growth with the teeth of the cultivator. If this is done the beet often splits open or decays. Never use lime in beet soil as it has a tendency to blacken the upper surface of the beet and cause it to be tough.

Winter beets should be sown late in the summer (August) so that they are not too large at the appearance of the first frost when they should be harvested and stored.

About two ounces of seed will plant a row one hundred feet long.

Carrots. The best requisite for the culture of the carrot is a deep, rich, light soil, clean cultivation, and a liberal supply of moisture from the time of planting the seed until harvest. The rows may be twelve inches apart, the seed sown one inch in depth. If the seed is sown sparingly, thinning will not be necessary.

Carrot seed may be sown from the time the soil is ready to work in the spring until July,

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when the winter varieties should be sown. One ounce of seed is sufficient for one hundred feet of drill. It is best to dig the winter varieties rather than pull them, and in this way, there is little danger of breaking the roots.

Keep a dust mulch over the surface of the soil by frequent cultivation.

Parsnips. There is practically no difference between the culture of parsnips and carrots except that the rows of parsnips should be eighteen inches apart and the plants thinned to four inches apart in the row. The roots may be dug in the fall and stored or allowed to remain in the soil over winter and dug in the spring. They should always be removed the second season; otherwise they form seed and become a weedy pest in the garden.

One ounce of seed will sow a row one hundred and fifty feet long.

Salsify, or Vegetable Oyster. Salsify requires a rich, deep soil. The seed is sown in the spring in rows twelve inches apart and about one to one and one-half inches in depth.

ROOT CROPS

If one ounce of seed is scattered in a furrow one hundred feet long, thinning will not be necessary. In the North the seed should be sown not later than June 15, if the roots are to be dug and stored. The roots, like those of the parsnips, stand the winter and may be left in the row and harvested early in the spring. Seed may be sown in July if the roots are to be left out over winter.

A frequent use of the Norcross weeder or wheel hoe will avoid the necessity of hand weeding.

Turnip. For an early crop, sow the seed early in the spring in rows fifteen inches apart. The furrow should be about one-half inch in depth and the seed covered with a finely pulverized soil. Thin the seedlings to three inches apart in the rows. If given a rich soil, the early turnips will be ready for use before July 1. For winter turnips sow the seed among the corn in July or August. Cultivate and rake the soil fine, scatter the seed and again rake lightly in order to rake in the seed. If

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the soil is moist the young plants appear in a few days and are ready to harvest late in the fall. A few light frosts are a benefit in hardening the turnip for storing in winter but a severe frost usually causes decay.

Rutabaga. The rutabaga requires practically the same culture as turnips, except that they require a longer period to mature and more room. The rutabaga is very hardy and will stand considerable frost.

One ounce of seed to one hundred feet drill.

Horse-radish. It is not easy to secure the seed for horse-radish so that it is usually propagated by pieces of root taken from the side of the main root.

The soil should be made very rich by the use of decayed horse or cow manure, or pulverized sheep manure. The soil must necessarily contain considerable humus, otherwise it cannot hold the moisture which is very essential.

The root sets are planted about three inches below the surface and usually in a corner of

ROOT CROPS

the garden or near the outer edge. They may also be planted between early maturing crops. The plant is slow to appear above the ground and the surface of the soil may be cultivated two or three times without injuring the tops. The plants make their best growth in the fall and should be left in the soil as long as possible.

There is no better variety on the market today than Maliner Kren. The roots may be dug and stored in the fall or allowed to remain out of doors until the following spring.

CHAPTER XI

SALADS AND GREENS ALL THE YEAR ROUND

LETTUCE is the most important salad crop grown and is popular everywhere because it matures quickly and will grow in all kinds of soil. The ideal soil, especially for the head lettuce, is a sandy loam full of organic matter in the form of decayed horse, cow, or sheep manure.

There is no better variety for the small garden than Grand Rapids (loose-leaf) (Fig. 40). The seed may be sown in flats in March or April and placed in a warm kitchen, greenhouse or hotbed. After the second or third leaf appears, transplant two by two inches apart in a rich garden loam. The first shift from the seed bed prevents the plants from becoming spindly. Before the final transplant-

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ing into the open, eight inches apart each way, get the plants accustomed to the out of doors by decreasing the watering and increasing the ventilation. Also, water the plants heavily so that the soil may adhere to the roots before transplanting (Fig. 38). Water the young plants so that they will have no check in growth and thus prevent the leaves from becoming tough and bitter.

There are several varieties of head lettuce such as Big Boston, Mammoth Salamander, All Head, and Boston Market. In order to get the best results, sow the seed the early part of March under glass, thin the seedlings by transplanting about April 1, and finally transplant into the garden about April 20. The head varieties require more space than the loose leaf varieties. One foot apart each way is ample room for the average head lettuce to mature. If every other head is cut out as these begin to mature, the plants that are left will grow larger.

The Hanson lettuce is one of the head varie-

KEY TO PLATE VIII

FIG. 38.—A flat full of thrifty lettuce plants. 2 by 2 inches apart each way.

FIG. 39.—A, Thrifty lettuce plant before pruning the leaves. B, Leaves pruned, the plant is ready to be transplanted to the open.

FIG. 40.—A mature plant of loose leaf lettuce.

FIG. 41.—Both of these heads of lettuce were planted at the same time. A, Boston Head lettuce going to seed. B, Head of Hanson Improved will thrive in hot weather.

PLATE VIII



FIG. 38.



A FIG. 39. B



FIG. 40.



A FIG. 41. B



SALADS AND GREENS

ties that does well in warm weather. Cos lettuce, sometimes called summer lettuce, is worth raising because it withstands the heat better than any other variety and grows best in a light clay loam and muck. The leaves grow erect and may be tied together at the top when they are from six to eight inches in length. This causes the heart and inner leaves to blanch and become tender.

Lettuce is sometimes shaded in mid-summer with a sash made by nailing laths about one inch apart. Shaded lettuce is always tender and there is little danger of tip burn on the leaves caused by the direct rays of the sun in mid-season.

The secrets, then, in raising tender lettuce are to finally transplant into a rich soil, shade in mid-summer, keep the plant growing rapidly, cultivate frequently, and use before the plants are too old.

Spinach. Spinach is distinctively a cool season crop and there is no variety that will thrive for a long period in hot weather. Spin-

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ach not only requires cool weather but an abundance of moisture so that the seed should be sown early in the spring when the rainfall is frequent. Such varieties as the Norfolk, Savoy, Victoria, and Long Season may be planted in April or May in rows ten to twelve inches apart. The furrow should be about one inch in depth and if the seed is sown sparingly it will not be necessary to thin the plants. Cultivate frequently until the crop is ready to harvest. The soil should be rich in nitrogen which may be furnished by applying decayed horse manure, pulverized sheep manure, or nitrate of soda.

The New Zealand spinach is very hardy and in the South it is sown in September and harvested throughout the winter. In the North, the seed may be sown the middle of August and the plants kept moist and well cultivated until October 15 or about the time when the frosts set in. The plants by this time are a fairly good size and may be protected by placing three to five inches of straw over the bed.

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Keep this litter in position by the use of branches. Early in the spring remove the straw, cut the spinach and thaw it out by placing the plants in cold water for an hour, and you have this delicious early green ready for use.

Dandelions. Sow the seed of dandelions as early as the soil may be worked.

The drills should be fifteen to eighteen inches apart, one-half inch deep, and the plants thinned to ten to twelve inches apart in the row. If the plants are protected by covering them with any litter, straw, manure, or salt hay, they will winter over and be more tender in the spring than exposed plants. This practice is only followed far north. If two boards are placed in the form of an inverted letter V over the rows, the plants turn a creamy yellow, become tender and lose much of their bitterness. Dandelions do well in any well fertilized soil having clean cultivation. In many sections of the country the plant grows wild.

Mustard thrives in any soil and is sometimes

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preferred to spinach. Seed is sown in drills five to ten inches apart or scattered broadcast. It germinates quickly, providing the soil is moist. Cool weather is essential in order to develop large leaves. The plant grows quickly and should be harvested before the flowers appear. The leaves of mustard may be used for salad as well as greens. There is never any trouble in getting this crop to grow, the danger is that it may grow to seed and then it becomes one of the worst weeds in the garden.

Swiss Chard. (Fig. 34.) The seed of chard is sown in the garden about the time peas are planted. The rows should be eighteen to twenty inches apart and one inch deep. Thin the plants to five to eight inches in the row. Chard may be successfully transplanted. Sow the seed in February in flats and set in the open ground after the danger of frosts has passed.

The soil should be rich in nitrogen, moist and frequently cultivated. After removing the leaves for use, apply a sprinkling of nitrate

SALADS AND GREENS

of soda beside each plant, especially on rainy days, and new leaves will quickly take the place of the removed ones.

In some parts of the North, the plants are heavily mulched and the leaves used as greens early in the spring but it is generally advisable to start new plants each spring in order to have the foliage tender.

Upland Cress. This green is used as a substitute for water cress as it has a similar appearance and flavor.

If the seed is sown early in the spring in drills fourteen inches apart and one-half inch deep, the plants thinned to ten inches apart in the rows, it will be ready in eight to twelve weeks. The leaves may be gathered and the plant will continue to produce new foliage. A second planting is sometimes made the last of August, and the plants are slightly protected with some litter over winter. Upland cress withstands heat, as well as considerable frost.

Endive. This is one of the hardier of the salads and is grown in almost every garden

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for a fall, winter, and early spring crop. The two best varieties are Giant Fringed and Green Curled Winter. The soil should be made as rich as that prepared for lettuce. If the leaves are to be tender and succulent, the plant must have sufficient nitrate of soda. This may be applied in September by scattering about one-half teaspoonful of commercial nitrate of soda about each plant just before a rain.

Seed may be sown in a corner of the garden the first of July to the first of August, and the plants set in their permanent places after the early summer crops have been removed. In this way you may take two crops a season from the same soil. If the rows are twelve inches apart and the plants eight inches apart in the rows, they have a chance to mature fully by October 15.

If endive is to be used as a salad the leaves may be tied together at the top, banked or boarded as you would celery, or, orange boxes or flower pots may be inverted over the plants,

SALADS AND GREENS

covering up any opening in order to keep out the light. It takes from fifteen to twenty days to blanch endive and it should be used at the end of this period; so blanch only what is necessary. If it is shaded too long the leaves first turn white and then a rusty color. The plants may be kept for three or four months in the winter by covering the plants with straw, and storing them in a cool cellar or cold frame. They should be lifted with the soil adhering to the root and placed close together in rows.

Corn Salad is a plant very sensitive to summer heat and thriving only where the weather is cool. For an early spring crop sow the seed in drills one-half inch in depth and ten to twelve inches apart. The plants should be thinned six to eight inches apart in the row.

As soon as the plants have developed three to five leaves, sprinkle a very little commercial nitrate of soda along the row, just preceding a rain. If this is done two or three times during the development of the plant the foliage will be

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very tender and the plants will mature earlier. Frequent cultivation is also necessary.

For winter use, sow the seed in late summer. By the middle of October the plants will have reached a height of from one and one-half to two feet. They may then be lifted with the root, placed in the cold frame and covered, or from three to five inches of straw may be placed over the plants in the garden. In the South, protection is not practiced and is necessary only where the weather is severe.

Parsley, though used for flavoring salads and soups, is more commonly used for garnishing. While a very few plants are sufficient yet there is hardly a garden without its short row of parsley. Sow the seed in a flat or flower pot early in March. The seed is slow to germinate but the plants grow quickly when once established. After the danger of severe frosts has passed, set out the plants, six inches apart each way, in a very rich soil. From two to three months after sowing the seed, the leaves are ready to use. Take only a few leaves each

SALADS AND GREENS

time and the plant will continue to develop new foliage. Plants may be potted in the fall, providing the foliage is cut back and considerable soil sticks to the roots. Keep the plant in a shaded place for a few days until it is established, then place it in a sunny window where it is not too warm. One-half teaspoonful of nitrate of soda dissolved in a glass of water applied about every three or four weeks will show beneficial effects. Plants may also be grown in the greenhouse, hotbed, or cold frame during the winter.

For other information on salads and greens see table No. 1.

CHAPTER XII

THE ONION AND KINDRED PLANTS

ONIONS. The onion is relatively a cool season crop in that the seed should be sown very early in the spring so that the young onions may have not only the best temperature to grow in but may have an abundance of moisture which is very necessary.

Onions will grow in clay and alluvial loam, sandy garden loam, and muck soil. The essential requirements of any soil are a good mechanical condition (full of humus and easy to work), a high state of fertility, natural or artificial drainage, and finely pulverized, being free from stones and weeds.

If ideal conditions are desired, manure the land heavily and plant it to some root crop the first year. In the fall scatter a little manure over the surface of the soil (horse, cow, or pul-

THE ONION

verized sheep manure) and incorporate this into the first two inches of soil before planting.

The rows may be twelve to eighteen inches apart and the seed covered one-fourth inch. Sow the seed thickly and thin the young onions out for table use until eventually the plants are three to four inches apart in the row.

Never allow the weeds to get a hold in the onion bed. Cultivate as soon as the seedlings appear and continue to stir the surface of the soil one or two times each week until August. One ounce of seed will sow one-hundred feet of drill and the crop matures in from one hundred and thirty to one hundred and fifty days after planting the seed.

If animal fertilizers are not available and you wish to plant a space twenty by twenty feet, apply along the rows before a rain, two pounds sulphate of ammonia, four pounds dried blood, two pounds cotton seed meal, seven pounds acid phosphate and three pounds muriate of potash. Make three or four applications, using very little each time.

KEY TO PLATE IX

- FIG. 42.—A, Multiplier onions. B, The same variety of onions cleaned and ready for the table.
- FIG. 43.—Onions grown from transplanted seedlings in clay soil. The tops are thrown down in order to ripen the bulb. Many of the bulbs measured two inches in diameter.
- FIG. 44.—Loosening the head of cabbage in the soil to prevent it from cracking.
- FIG. 45.—A head of the Early Snowball cauliflower ready for the kitchen. Back is a cauliflower plant with the leaves tied at the top in order to blanch the head.

PLATE IX



A

FIG. 42.

B



FIG. 43.



FIG. 44.



FIG. 45.

THE ONION

Onion seed may be started in the hotbed in February or March and transplanted the last of April. The roots and tops of the seedlings should be cut back a little before transplanting.

Early onions are often started from sets. Press the set slightly in the soil, rows twelve to fifteen inches apart and the sets three inches apart in the row. If the young onions are to be used as bunch onions place the sets close together and thin out when the soil is moist.

Onions from seed may be harvested in September while onions from sets should be harvested thirty days earlier. If the tops are still standing fifteen to twenty days before harvesting, throw them down with a rake handle, or by rolling a light barrel over the bed. This will hasten the ripening. Before placing the onions in crates or some receptacle that will allow the air to circulate freely through the bulbs, rake them to the surface, allow them to be exposed to the weather for two or three days, then clean off the dry tops and store in a cool cellar or shed.

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The most advisable varieties for the home garden are Prize Taker, White Globe, and Yellow Danvers.

The Potato or Multiplier onions are separated and planted as sets, each set producing a large onion.

The Top or Tree onion (sets) may be planted in September. The plants grow rapidly, withstand the winter and are used as scallions in the early spring. Never raise the tree onion for winter storage since the bulb is very small.

Leeks. This "thick-necked onion" demands practically the same treatment and culture as the true or other onions. It is different from the onion in that it stands the heat and cold equally well. If the stem is to be tender sow the seed in a furrow three to six inches in depth, cover the seed one-half inch, thin the plants five to seven inches apart in the row. As the plants develop, keep working the soil in around the plants until level cultivation is reached. Plants may also be hilled like celery

THE ONION

or they may be grown on the surface like onions, but if blanched they are of a higher quality and flavor. If plants are to be used during the winter, lift them with roots and pack them in sand in a cool cellar or root house.

Garlic. These bulbs are made up of a number of small bulbs encased in a skin somewhat like that of the onion. Garlic thrives best on a rich garden loam. In April, break up the large bulb, separating the small bulbs or cloves, and plant the cloves four inches apart in rows from twelve to fifteen inches apart. Cover them with one to one and one-half inches of fine soil. Cultivate frequently and keep a dust mulch between the rows during dry weather. In the fall when the tops start to dry gather the crop, braid the tops, and suspend the bulbs in a dry airy place where the temperature seldom goes below 32 degrees F.

Shallots. These should be planted early in the spring and require the same soil and culture as the onion. Each bulb or clove is exposed and the cluster not covered with a common skin

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like the garlic. They are sometimes planted during the early part of September in rows twelve to fifteen inches apart and four inches apart in the row; they are protected during the severe weather by covering the plants with straw or some other litter, and harvested like green onions early in the spring. In the South they take the place of the early bunch onions.

Chives. Chives are propagated by dividing the cluster or tufts of plants and resetting. These perennial onion-like plants may be set along the edge of a bed in the garden. One to three masses or clumps set twelve inches apart in rich soil will be sufficient for the average family. The clumps of roots may be potted in the fall and kept in a light window, and they will produce new foliage throughout the winter. When the tops reach six to eight inches in height, they may be cut off about two inches above the soil and new leaves will appear in a short time.

THE ONION

Enemies. The most troublesome disease of the onion is the Downy Mildew. It appears in mid-season when the weather is warm and muggy. If a downy velvet covering appears on the foliage, spray with Bordeaux Mixture, which will check and prevent the spread of the disease. If the tops drop and the bed is badly infected, burn the tops and plant other crops on the soil used for onions.

The worst insect in the North is the Onion Maggot. The maggot works on the roots and while one cupful of kerosene to a pail of sand sprinkled in a furrow made close to the growing plants may partly check the maggot, it is best to stir the soil late in the fall, leave it in the rough exposed to the weather, and plant other crops on the soil for three or four years.

In the South, Thrips are quite common. Spraying with kerosene emulsion or a standard solution of Bordeaux Mixture will repel them. This insect usually appears on a sickly crop.

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The principles to follow in the raising of the onion and kindred plants are: comparatively cool weather to start growth, a rich soil, to thrive in, moist but not wet, frequent and thorough cultivation.

CHAPTER XIII

WARM SEASON CROPS

TOMATO. The first essential in the production of an early crop and a heavy yield of solid tomatoes, is to secure strong stocky plants. Sow the seed early in March in flats, hotbed, or greenhouse. After the seedlings have developed one or two leaves thin them out two by two inches in a rich sandy loam. When they have reached a height of three to four inches transplant them into five-inch pots, a flat sectioned off into four to five inch squares, strawberry baskets or paper pots. The growing plants should have plenty of room and sunshine. The soil should be kept moist but not wet. The last of May or the first of June set the plants in the garden. Nothing is gained by putting the plants out when the soil and air are both cold, even though there is no frost.

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While the tomato will grow in all types of soil the ideal kind is a sandy loam containing sufficient humus to hold the water.

Holes should be dug three feet apart in the rows and the rows should be four feet apart. Mix into the soil one-half shovelful of well-decayed horse or cow manure, or pulverized sheep manure.

If the stem is rather long make the furrow long enough so that the stem may be laid down and the top bent upward after the leaves have been cut from the stem, which should be covered with two inches of soil. Before setting the plants, especially if pot bound, loosen the roots a little so they may spread out and come in contact with the food. Cultivate at least once each week.

One-fourth of an ounce of seed will produce about eight hundred and seventy-five plants. Sell or give away the surplus plants.

In the small gardens, especially in the North, it is always advisable to train the plants to stakes or to make frames by nailing hoops to

WARM SEASON CROPS

four stakes and keeping the plants in the center of these frames.

In this way the fruit is kept from touching the ground, it gets more light and air and ripens earlier than when allowed to grow without supports. After three or four clusters of fruit have set and the first fruit of the cluster is about the size of a silver dollar, the leaves at the base may be pruned back to half. All side shoots from the axils of the leaves should be cut off so that the plant forms a single stem. By removing the suckers, the strength that would naturally go into this young growth will go into the fruit. By pruning the leaves, the ripening process is hastened.

In some sections of the country, from two to four inches of hay or straw are placed about the plants and between the rows in order to form a mulch and help hold the moisture, but this is not as good a practice as clean, vigorous cultivation.

Never plant tomatoes in too rich soil or they

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will run to foliage, but if no animal manure has been used and the plants are not as thrifty as you would like, apply the following mixed commercial fertilizers to every ten plants: one-half pound nitrate of soda, one and one-half pounds phosphate and one-half pound muriate of potash. This same application, used after the fruit is formed, will show marked results in the size of the tomatoes.

If the leaf-spot or leaf-mold (two similar diseases recognized by small spots on the leaves before they curl and finally die), appears on the foliage, spray with Bordeaux Mixture.

The fruit rot, which appears usually on the first tomatoes formed, discoloring and causing the flower end of the tomato to become decayed, may be combated by pruning the foliage back, admitting more air and sunlight, and destroying all diseased fruit.

There are many different varieties of tomatoes on the market but the following list may aid the gardener in his selection.

List of tomatoes in their order of ripening:

WARM SEASON CROPS

Early	{ Bonny Best Earliana (Sparks) Early Jewel (Chalks)
Mid-season	{ Dwarf Champion Dwarf Giant Golden Queen (yellow)
Late	{ Ponderosa Matchless Stone

Corn. Sweet or sugar corn should be planted after the soil is warm. In the central latitude seed may be sown from May 10 to July 15.

In general it is advisable to plant the seed in hills two to three feet apart for the tall or late varieties. Make the hole four to six inches deep, put in a little decayed manure or a handful of pulverized sheep manure, cover with a little soil and drop six to eight grains to each hill and cover to a depth of from one to two inches.

Press the soil down with the back of the hoe. Thin out the plants just after a rain, leaving four stocky shoots to each hill. If

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young suckers attached to the base of the larger plants appear, break them off, otherwise the vitality of the producing plant is lessened. Cultivate this crop very frequently and especially after a rain so as to conserve the moisture. After the ear begins to form do not cultivate close to the plant; the feeding roots are very close to the surface. All weeds should be kept out.

To have corn ripen in succession, plantings should be made of the early, mid-season, and late varieties once every two weeks.

To have corn unusually early, sow the seed in five inch pots or strawberry baskets about April first. Keep the soil moist and warm. Transplant without disturbing the roots, after all danger of frost has passed, and you will have corn four weeks earlier than the crop planted in the open.

If the hills are slightly banked with soil after the ears have formed there will be less danger of the stocks being thrown down by storms.

WARM SEASON CROPS

One quart of seed will plant two hundred hills. The following varieties are in their order of planting:

Extra early—Golden Bantam, Pey-O-Day. (Both suited for late planting as well as early.)

Medium—Black Mexican.

Late—Country Gentleman, Stowell's Evergreen.

Popcorn may be grown in the same manner as sweet corn only that the hills may be closer together, one and one-half feet apart, and the rows two to three feet apart, with four or five stalks to a hill.

Popcorn is usually ready to husk about three weeks earlier than the common field corn or after the husks have partly dried. Cure the corn on the cob by placing it where it is cool and dry. Place the ears so that the air may circulate freely among them. The two best varieties are Golden Queen and the White Rice.

The only serious enemy of corn, particularly sweet corn, is the smut. (Fig. 50.) It appears on any part of the plant, causing swell-

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ings covered with a bluish black membrane when young. When ripe it turns black, bursts, and the spores or reproductive organs of the fungus are scattered. Gather and burn before the smut boils turn black.

Beans. The weather and soil must be relatively warm before sowing the seed of "string" or "snap," broad, and shell beans.

String or Snap Beans may be planted from the last of May until the middle of August. To secure a succession, plant every four weeks either in drills or hills. If planted in drills set the line, rake the surface of the soil fine following the line (Fig. 46), make a furrow one and one-half to two inches deep and cover with fine soil, pressing it down with the back of the rake. (Fig. 47.) The rows should be from twenty-four to thirty-six inches apart.

When planted in hills, three to five seeds are placed in a hole two inches deep, one and one-half feet apart in the row, and the rows two to three feet apart.

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FIG. 46.—Raking the surface of the soil following the line before making the furrow in which to sow beans and other seed.

The soil should be rich and well pulverized before planting the seed. Clean, frequent and

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FIG. 47.—Pressing the soil down with the back of the rake will aid germination.

thorough cultivation will be evidenced in a heavy yield of larger brittle pods. Do not cultivate when the dew is on the vines. If the vines are moist and the rake, hoe or other implements brush against them the plant may then be affected by bean canker (Anthracnose).

The Dwarf Golden Wax Rust Proof is one of the best.

WARM SEASON CROPS

Stringless White Wax is hardy and especially fine for early planting.

The Valentine Wax is stringless, producing flat pods.

The following green podded varieties are highly recommended: Extra Early Refugee, Longfellow and Giant Valentine.

Broad or Lima Beans. There are two general types of Lima beans, the dwarf and pole. Both require a higher temperature and richer soil than any other bean.

The seed may be planted from three to four weeks before setting in the open in six inch flower pots, strawberry baskets or paper bands in soil made of one-half decayed sod and soil chopped fine and one-half thoroughly decayed manure. On transplanting, the greatest care must be exercised not to disturb the roots.

In planting the bean press it into the soil, eye down, to a depth of one and one-half to two inches.

The dwarf varieties do not produce as large

KEY TO PLATE X

FIG. 48.—A tent of pole beans under which was grown lettuce throughout the heat of summer.

FIG. 49.—One of the best methods of curing beans for winter is by drying them on a pole.

PLATE X

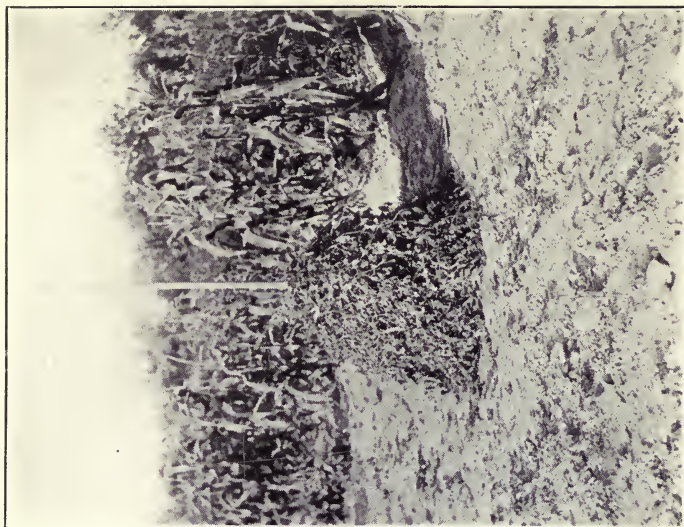


FIG. 49.



FIG. 48.

WARM SEASON CROPS

beans in the pod but they take up less room and mature earlier than the pole Limas.

The two best dwarf varieties for the home garden are Fordhook and Burpee's Improved Bush Lima.

The distance between the rows should be three feet, the seed planted two inches deep at intervals of five inches in the row.

The Pole Limas are planted in hills four feet apart each way and three to five beans in a hill. The pole should be set before the seed is planted so that the growth of the plant may not be disturbed after the germination of the seed. Four poles may be set in the form of a wigwam, tied at the top. This method of setting the poles prevents any possibility of their falling but the crop is lighter than when an individual pole supports each vine. This is on account of the density of the foliage and because part of the plants are shaded during the day.

Dry Shell Beans. Dry beans are usually considered a field crop, but there are many small gardens that produce from five to

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twenty-five pounds of dry beans each year. They are planted and treated the same as the string bean except that they are not picked until the bean in the pod is ripe. The beans should be thoroughly dried (Fig. 49), shelled and placed in paper bags, cans with a few holes in the lid, or any receptacle that will keep them from moisture. Keep in a cold place for winter use.

The Boston Navy or Pea bean and the Dwarf Horticultural are the two best for small gardens. In some sections of the country the White Marrowfat is the favorite.

All of the types of beans need a rich soil, retentive of moisture but well drained, frequent and shallow cultivation, and must be kept growing continually without a check until the crop is harvested.

Eggplant. The season for eggplant is very limited, therefore the plants must be started under glass and transplanted to the garden after settled warm weather starts.

After sowing the seed in flats and covering

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them their own depth with a fine sandy loam, have the temperature 75 degrees to 85 degrees F. during the day and 65 degrees to 70 degrees F. at night. From three to five weeks after the seed is sown, transplant into two and one-half to three inch pots. The soil used for potting should be three-fourths soil and decayed sod and one-fourth decayed manure. If especially thrifty and stocky plants are desired re-pot the plants after four weeks into four to five inch pots. Never allow the plant to become root bound.

After the weather is settled and the soil warm, transplant these potted plants to the open. The soil should be a light rich loam capable of retaining the moisture. The rows should be three to four feet apart and the plants set from two to three feet apart in the rows. Just before setting the plants, apply one-half shovelful of manure to each hole, mixing it with the soil, and water the plant freely until it is well established.

It is most practical to buy plants in May or

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June if there is no greenhouse or hotbed available.

The eggplant is subject to the attacks of the black flea beetle, which eats small holes in the leaves, and also to the Colorado potato beetle. Spray with Bordeaux Mixture and Paris green or arsenate of lead as often as these insects appear.

Peppers. The seed may be planted at the same time as tomatoes, and later transplanted into flats three by three inches apart in very rich soil. Plant in the open in rows two to three feet apart and fifteen to eighteen inches apart in the row. The soil should be rich, warm, and free from weeds. Cultivate freely throughout the season.

There are three varieties of special interest to the home gardener; Chinese Giant, which produces a very large pepper, the Ruby King, which is a large pepper very commonly grown, and the Cayenne, a large red sort. One-fourth of an ounce of seed will produce about two hundred and fifty plants.

CHAPTER XIV

VINE CROPS

CUCUMBERS. The cucumber thrives only in warm weather and cannot stand the slightest frost. If the seed is planted in the open while the soil is cold and wet, it invariably rots. Three to four seeds may be planted in a very rich soil in strawberry baskets, four to five weeks before the soil is warm out of doors. When transplanting, cut the bottom out of the box and carefully remove the sides. The roots must not be disturbed. The garden soil should be a deep, rich loam, retentive of moisture, responding quickly to temperature and fertilizers. If decayed horse or cow manure is available, dig a hole six inches deep, two feet in diameter. Scatter in a shovelful of manure and cover it with fine soil. These hills should be about three feet apart. Press in each hill

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six to eight seeds to the depth of one inch. After the plants have developed two or three leaves, thin out the vines leaving four thrifty vines to each hill.

Cultivate freely, and keep down the weeds. Spread out the vines but be careful not to injure them by twisting.

Box shields (Fig. 23), are sometimes placed over the hills to hasten growth and keep out the striped beetle. Another method of hastening growth is to plant the seed in a hollow hill, one to two inches below the surface and place a pane of glass on each hill. (Fig. 22.)

One of the best ways to realize an early crop is to plant seed of the cucumber at intervals of two feet each way throughout the hotbed about four weeks before removing the other plants. The small seedlings do not take up much room and the warmth of the manure and heat under the glass cause a rapid growth. After all danger of frost has passed, the sash may be removed and the vines trained to climb over the sides of the hotbed. These cucumbers will be

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ready for use from four to five weeks earlier than those from seed planted in the open.

DISEASES AND INSECTS

The striped cucumber beetle is a serious menace and difficult to keep in check. Dust the vines, upper and lower sides of the leaves, and also the stem with tobacco dust, wood ashes, and land plaster. If one and one-half teaspoonfuls of carbolic acid are added to two quarts of the dust it will insure the safety of the vines. Wire frames covered with mosquito netting, cheesecloth and other materials are used to protect the vines until they get a good start, when they are seldom attacked by the beetle.

The best garden variety for general use is the White Spine. One-fourth of an ounce of seed will plant fifteen hills.

Do not plant the crop more than two years in the same place. This will help to prevent the rust disease for which there is no satisfac-

KEY TO PLATE XI

FIG. 50.—Corn smut. Note the black mass of spores under the infested ear. The smut should be cut out and burned before the spores fly.

FIG. 51.—Squash bores at work in the stem of a squash vine.

FIG. 52.—An okra seed pod ready to harvest.

FIG. 53.—A, Summer asparagus. B, Halves of the fruit showing the smooth white flesh which is very delicious.

PLATE XI



FIG. 50.



FIG. 51.



FIG. 52.



A

B

FIG. 53.

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tory remedy, and also to control the attack of insects. The plants should have frequent and shallow cultivation until the vines begin to run, after which the broad leaves will keep the weeds down and aid in shading the soil, thus preventing the sun from drying it out.

Pumpkin and Squash. Pumpkins and squash require the same general culture. Both vines do their best in a warm quick soil. The seed may be planted in hills and the vines allowed to run on the ground. It is economy to plant the seed of especially pie pumpkins and winter squash between hills of early corn. As soon as the corn is ripe, cut the stalks off close to the surface and give the vines more light.

The hills should be from four to six feet apart each way. One ounce of pumpkin seed will plant about twenty-five hills, placing four to five seed in a hill. The seed should not be planted deeper than two inches.

The varieties of pumpkins that are generally

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recommended for the home garden are Winter Luxury, known as the New England Pie pumpkin, and the Tennessee Sweet Potato.

It takes one ounce of squash seed to plant from twenty to forty hills. The weight of seed varies according to the variety.

There are two principal kinds of squash; the summer varieties which are used before they are fully ripe, and the winter squash which is protected by a hard shell, only the inside meat being used.

Early summer squash may be started by the various methods recommended for the cucumbers. The soil should be rich in humus but placing manure at the bottom of the hills is not generally recommended. This practice tends to encourage the work of the stem borer.

The bush varieties of summer squash, such as Mammoth White, may be planted in hills four by four feet apart, while Yellow Summer Crook Neck should be planted eight by eight feet apart.

The winter varieties require an open clean

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cultivation, the hills eight by eight feet apart. The Delicious is a good keeper and produces fruit weighing from five to ten pounds. The Golden Hubbard is extensively grown and is used mostly for pies. The best all around squash for winter use is the Hubbard.

In harvesting both the pumpkins and squash, great care should be taken not to bruise the skins or break off the neck. The crop may be left out until the first few light frosts take down the vines, but the crop should be put under cover before the thermometer drops to 25 degrees above zero.

The worst enemy of the squash is the stem borer. If the vine wilts badly on bright days and the leaves look sickly and tinged with yellow, take a sharp knife and split the vine, running the knife the long way of the vine, and if a large white grub is found (Fig. 51), remove him. The vine will heal up and in some cases bear a fine crop.

Watermelons. This crop is not successful where the season is short and the soil is of a

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clay formation. It requires a long season to mature in, a rich, warm, sandy loam to grow in, and sufficient space in which to develop.

From eight to ten seed are planted in a hill, the hills seven by seven to ten by ten feet apart. One-half ounce of seed will plant fifteen hills.

The watermelon should never be planted near squash, pumpkin, or cucumbers. They frequently cross-pollinate and are useless. Cultivate until the vines begin to run, after which the interlacing vines and foliage give the weeds but little chance.

Watermelons are usually judged to be ripe when the stem which connects the melon and the vine begins to turn yellow and dry about one or two inches away from the melon. After picking, keep in a cool place for two or three days. The flavor is usually sweeter.

The two best varieties are Fordhook Early and Sugar Stick.

Muskmelons. Wherever cucumbers thrive, the muskmelon will grow. They require a

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warm soil and if the season is moist, the best crops come from a sandy soil.

The seed (three or four) are planted in rich loam in strawberry baskets or sod, started under glass four or five weeks before transplanting to the open. The soil should have plenty of well-decayed manure. The hills should be from eight to ten feet apart each way. Five to ten seed to a hill and planted from one and one-half to two inches in depth. One-fourth ounce of seed will plant fifteen hills.

It is quite a common practice to plant muskmelon seed in the hotbed just before the seedlings of cabbage, cauliflower, etc., are taken out. The growth of the plant is hastened by adjusting the sash in order to keep the soil always warm, and water may be applied when necessary.

Start to cultivate as soon as the plants appear, and stop when the vines begin to run. If the melon pulls away easily from the stem without breaking and the flower and stem ends are a little soft, the melon is ripe.

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The varieties generally recommended for the home gardens are Emerald Gem (salmon-flesh), Miller's Cream (orange flesh), and Rocky Ford (orange silver flesh).

Citron. The citron is grown by the same methods as the watermelon. It requires the same culture, season, and temperature. The only marked difference is that it will grow in more varied soils than the watermelon and does not take quite so long to mature. It is used only for making preserves, sweet pickles, and jelly. It is not a common plant in small gardens.

CHAPTER XV

CELERY AND CELERIAC

CELERY. The plants of both the early and late varieties of celery are started from seed sown in flats or in the hotbed three months before setting out. Before sowing the seed, sift a little fine soil and sand over the surface, scatter the seed and again sift enough of the same kind of soil to cover the celery seed about its own depth. Press down the soil (Fig. 19) and cover the celery seed bed with glass. The seed germinates slowly. As soon as the seedlings appear, remove the covering and give the plants light. The soil should be kept moist. After the plants reach a height of from one to one and one-half inches, transplant two by two inches each way in a rich soil. Select the thrifty seedlings. Nothing is gained

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by nursing the weaklings. They never make strong plants.

Celery will grow in almost any fertile, well-drained soil, but a loose, sandy garden loam is preferable. Muck soil is also used commercially to grow celery but the flavor of the celery grown on peat bogs or muck is not as good as that of celery grown on a loam soil. Celery land should have an application of manure in the fall, and then the soil should be turned over and left in the rough. Early in the spring, smooth and pulverize the soil. If a plot twenty by twenty feet is to be planted, apply ten pounds of ground quicklime as a top dressing and also about five pounds of coarse salt. Both the lime and salt should be applied in the fall after spading or plowing the soil.

The usual distance of planting is twenty-four inches between the rows with the plants set six inches apart in the rows providing boards or building paper are used for blanching. If the plants are banked, the rows should

CELERY AND CELERIAC

be three feet apart. Where there is danger of drought, plant the celery in trenches six inches deep. Loosen the soil in the trench and apply a little decayed barn yard manure or pulverized sheep manure.

Before transplanting to the open, wet down the seedlings and let them stand for an hour. On lifting the plants, take as much soil with each seedling as possible. If the tap root is long, nip it off about an inch below the crown of the plant. Clean off the seed leaves and pinch the other leaves back a little to check the demand for moisture by the leaves until the roots are established. Transplanting should be done on cloudy days or in the evening. Water the plants after the final transplanting. If the sun is very bright and you had to buy young plants with little or no soil on the roots, place a board on a slant on the east side or the sunny side in order to shade them. Drive in stakes every ten feet and lean six, eight, or ten-inch boards against them. After the plants are established, remove the boards.

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If stable manure is not available apply about twenty-five pounds of any high grade fertilizer over twenty by twenty feet and work it into the soil about two inches in depth one or two days before planting.

There is no vegetable which will respond more quickly to frequent and careful cultivation than celery. If the celery is planted in single rows cultivate until the plants are ready to blanch. If the plants are set in double rows, two rows ten inches apart and then a space of two to four feet and another double row, cultivate between the double rows with a wheel cultivator and between the rows with a three-pronged Norcross weeder. Maintain a dust mulch throughout the season. If the seed of the early varieties is planted in February, transplanted about March and again transplanted to the open about May first, the plants will be ready to blanch in July or August. The seed of late varieties may be sown in April or May and planted in the open in June or July. Blanch in September or October.

CELERY AND CELERIAC

After the plants have reached a full growth, they should be blanched. The board method is one of the best. Boards eight to twelve inches wide, placed end for end, the edge close to the plants and flat on the ground, may be lifted carefully against pegs driven close to the plants at intervals of five to eight feet to support the boards. Another set of pegs or stakes are driven on the outside of the board to keep it in position. This is done on both sides (A, in Fig. 56). By raising the board carefully there is little danger of breaking the leaves.

If the soil is a clay type it is a good practice to run a strip of building paper on each side of the plants and bring the soil up to it, leaving the tops of the plants sticking out. The soil may be pressed against the plants without the use of paper (Fig. 54). There are many inventions on the market for blanching celery and these may be had from any seed store (Fig. 55).

If the celery is to be left in the trench late in

KEY TO PLATE XII

- FIG. 54.—Bringing the celery leaves together with one hand to protect the heart and with the other pack the soil around the plant.
- FIG. 55.—A, Paper blanching roll partly covering the stalk of celery. B, Blanching roll properly placed.
- FIG. 56.—A, Celery blanched by boarding. B, Celery blanched by packing soil around the plants.

PLATE XII

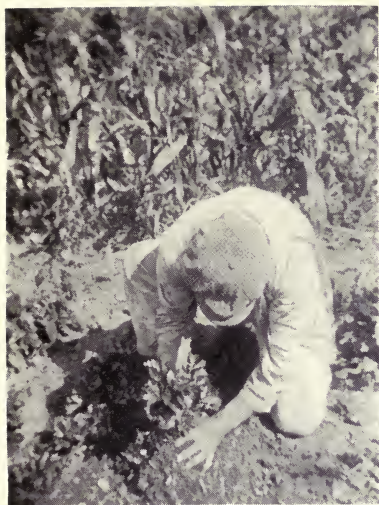


FIG. 54.



A

B

FIG. 55.



A FIG. 56. B

CELERY AND CELERIAC

the season the tops must be covered so that the hard frost is kept out. Celery blanches in from two to five weeks, depending on the variety.

If the crop is to be kept late in the winter lift and store the plants, root and stem them in rows and set them upright in a cool cellar with a little soil or sand packed about the roots. It may also be packed in boxes (Fig. 63) and stored in a root cellar. There is no better place to pit celery than in the cold frame, providing frost is kept out and the proper ventilation is given.

The best varieties for home use are White Plume, or Golden Self-Blanching for the early crop, Pink Plume for early fall use and Giant Pascal for a late keeper.

DISEASE AND INSECT ENEMIES

Damping off is a fungus that attacks the young plants when the soil is too moist and the plants too close together. Thin out the plants, give them more air and less water.

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Dispose of the infected soil where it may not be used again for the seed bed.

Black-rot or heart rot is caused by warm storage conditions. Increase the ventilation and make the air circulate about the plants. Destroy infected plants.

Grasshoppers, especially in rural gardens, are sometimes very troublesome. Mix a little wheat bran, with molasses to make it sweet, and enough Paris green to give the mixture a greenish color and place it between the rows.

The celery caterpillar sometimes does damage. Inspect your garden often and destroy the insect.

Celeriac, "German celery," or Root Celery as it is sometimes called, is grown exactly the same as true celery except that it does not require blanching. The thickened root is used for soups and salads. It requires considerable moisture but not as rich soil as celery. It may be stored like celery in winter.

The ideal climatic conditions for both celery

CELERY AND CELERIAC

and celeriac are bright sunshine during the day, cool nights, and from five to eight inches of rainfall during the growing period.

CHAPTER XVI

CABBAGE AND KINDRED PLANTS

CABBAGE. Since cabbage is a comparatively cool weather vegetable the seed should be started early and the plants set out while there is still a little frost in the air. Seed may be sown in February in the hotbed or flats, transplanted two by two inches each way in a rich soil, and finally transplanted into the garden in April. The plant establishes itself quickly in a rich warm soil. Cultivate very frequently between the rows and also between the plants. Before setting the plants out, harden them to the atmospheric conditions, so that if there should be a slight frost they will not feel it.

If plants are set from four to six weeks after sowing the seed they should be strong and

CABBAGE AND KINDRED PLANTS

stocky; but should they have comparatively long stems, plant in such a way that the soil will come to the first leaf. If the stem is left above ground it sometimes splits with the action of the slightest frost. With such an early variety as Early Jersey Wakefield (conical shaped head) the rows should be two feet apart and the plants eighteen inches apart in the rows. The earliest crop matures from June first to July first.

Where the weather is fairly mild during the winter months, sow seed the middle of September, transplant into the cold frames the last of October or the first of November. Protect the plants from frost and set them out in March or April.

For the second early crop, sow the seed of Early Drumhead or Succession about April first in the hotbed and plant out in May. This second crop should be ready to harvest the last of July or the first of August.

For winter cabbage, sow the seed of Danish Bullhead, or Late Flat Dutch in May or June

PRACTICAL GARDENING

in the open. The plants should be set out in July in rows three feet apart and the plants two feet apart in the row. Water the plants after setting and begin cultivation after the first week. This crop should mature in October or November.

The Savoy Cabbage, a wrinkled leaf, is preferred by some as a late variety.

The Red Dutch Drumhead is used extensively for pickling and is grown in the same manner as late cabbage.

The best soil for late cabbage is a light clay loam, retentive of moisture and not so rich as is needed for the early crop. If the soil is so rich that the plants grow too rapidly there is danger of the heads cracking or bursting. If the slightest indication of this appears place both hands under the head and loosen the plant a little in the soil. (Fig. 44.) The head may also be pushed over on its side. In this way some of the feeding roots are broken off and the supply of food and moisture is checked.

Pests. The common green cabbage worm is

CABBAGE AND KINDRED PLANTS

the worst pest. Sprinkle the heads with one and one-half ounces of white hellebore to five gallons of water or dust the head with Paris green and landplaster. If the heads are partly formed, sprinkle a little fine salt among the leaves; this will sometimes check the worm. Destroy the small yellow butterflies that hover about the plants for they are the parents of the worm.

In some sections the cutworm is common. This insect, living in the soil, cuts the young cabbage plants off at the surface of the ground. Fall plowing or spading will expose some of these pests to the frost and destroy them. The seedling is protected by wrapping a little paper about the stem, extending it down to the roots and about one-half to one inch above the surface.

Slugs also cut off the cabbage near the surface. The paper does not protect the plants so they must be protected by scattering a little salt about it. Also place sweetened bran mash mixed with Paris green where the

PRACTICAL GARDENING

slugs may find it. A board sprinkled with corn meal may be placed in the garden close to the soil. After sunrise lift the board and it is usually covered with slugs on the under side; sprinkle a little salt on the slugs or destroy them with boiling water.

If during the warm days the cabbage plant wilts and the head does not form as it should, the plant may have clubroot. Large swellings appear on the root, finally rot and go into the soil. The soil is then infected, and cabbage and all kindred plants such as cauliflower, turnips, mustard, Brussels sprouts, and kale should not be grown on the soil. Apply a little lime to the soil each fall for at least seven years. One-fourth ounce of seed will produce seven hundred and fifty plants.

Cauliflower. The seed of cauliflower should be planted about the same time as cabbage and given the same treatment.

The soil should be rich and capable of holding moisture. Cauliflower cannot mature in dry soil. During a drought, providing the

CABBAGE AND KINDRED PLANTS

soil is a sandy loam, water the plants twice each week. As soon as the heads begin to form, two or three applications of liquid manure will show good results, but this is not necessary if the soil is rich and the plant gets sufficient moisture.

After the head is well formed, tie the top part of the leaves together (Fig. 45). This excludes light and rain and blanches the head. Heads that are properly blanched have a finer flavor than those exposed to the elements.

The most desirable early varieties are Early Snowball and Erfurt; for the summer, the Danish Giant, and for fall, Netches Autumn Giant.

Cauliflower is subject to the same pests as cabbage and these may be controlled in the same way as the cabbage pests.

Brussels Sprouts. The seed of this cabbage-like plant may be sown about May 15, in rows fifteen inches apart and one-fourth inch deep. After the first true leaves appear and before the plant grows spindly, set the

PRACTICAL GARDENING

plants in rows three feet apart and two feet apart in the row. Small cabbage heads are formed in the axils of the leaves and just as soon as these heads begin to crowd, the leaves should be broken off close to the stem. The leaves at the top should not be disturbed.

The flavor of Brussels sprouts improves with a light touch of frost. The plants are hardier than cabbage but require the same treatment and care.

Black flies are common on this plant and may be controlled by dusting the plant with tobacco dust.

One-fourth of an ounce of seed will produce seven hundred and fifty plants. The best variety for the home garden is Long Island Improved.

Kale. This is one of the hardiest of the cabbage-like plants. (Fig. 36.) It will withstand the hot, dry weather and hard freezing.

The seed is sown in the cold frame in May, the plants set out in June in rows 3 feet apart.

CABBAGE AND KINDRED PLANTS

The plants should be from one and one-half to two feet apart in the rows.

Kale responds quickly to frequent cultivation. A dust mulch should be maintained throughout the summer. It is comparatively a cool season crop and will thrive best after the heat of summer has passed.

The flavor is always improved by a frost. One-fourth of an ounce of seed will produce six hundred plants. A five-cent package of seed of the Dwarf Green Scotch will produce sufficient plants for the average family.

CHAPTER XVII

RHUBARB AND ASPARAGUS

RHUBARB. This perennial vegetable, known sometimes as "pie plant," is commonly propagated by the division of the old roots. Whenever roots are bought or divided in the garden they should contain a portion of the crown bearing one or more buds. Rhubarb may be started from seed but this practice is seldom followed unless in a commercial way. One- or two-year-old roots may be bought from any good seed house.

Rhubarb will grow in various types of soil but it thrives best in a rich deep loam. It should be set early in the spring at one end of the garden where it will not interfere with the culture of the annuals. Plants may be grown four to five feet apart each way. From four

RHUBARB AND ASPARAGUS

to six plants are usually sufficient for a family of five.

Rhubarb is a gross feeder and usually remains in one place from five to ten years before shifting, therefore a thorough preparation of the soil is necessary. Dig the holes whenever possible in the fall about one and one-half to two feet in depth and fill them with cow or horse manure. In the spring, lift out most of the manure and dig the rest into the soil. After mixing the soil and manure, place one root in the center of each hole and cover the crown with fine soil two to three inches. Place the remaining manure about the hole and dig it into the soil. This practice supplies sufficient humus and aids in retaining the much needed moisture. If stable manure is not available pulverized sheep manure or bone meal may be substituted. The texture of the soil should be such that it warms quickly in the spring and the roots should never be set where there is any standing water. Drainage is very important.

KEY TO PLATE XIII

FIG. 57.—A few heads of lettuce planted among the plants of asparagus will not injure the asparagus, the lettuce plants are shaded from the hot sun and are very tender.

FIG. 58.—A, Asparagus in the right condition for cutting. B, Stalks too old for cutting.

FIG. 59.—A thrifty row of rhubarb. The thin stalk shows that the plant lacks nitrogen. Age also produces spindly stalks. The thick stalk was taken from a plant well supplied with moisture and all the food necessary.

PLATE XIII



FIG. 57.



FIG. 58.

A

B



FIG. 59.



RHUBARB AND ASPARAGUS

If one-year-old roots are set, the stalks should be ready to pull in three years. Let the plant have time to establish itself before harvesting the crop.

Whenever the seed stalks appear, cut them off. Pulling the seed stalk endangers the crown bud. In harvesting rhubarb do not cut off the leaf stalks. Hold the stalk firmly with both hands and give a sidewise twist while pulling it toward you. In this way the stalk is freed from the crown without injuring the buds. Stop harvesting about July 1, and give the plant a chance to store food in the roots for next year's crop.

During the summer cultivate frequently. Apply, in two applications to each plant just before a rain, one-half cupful of nitrate of soda and one-half cupful of bone meal. Scatter this fertilizer around the crown and work it into the soil. Nitrate of soda alone applied at intervals throughout the growing season is of the greatest value.

If the stalks become spindly after five years

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or longer and the plant shows signs of weakness, dig up the roots in the fall. Take a sharp knife and divide the roots, pack them in sand or soil and place in a cool cellar or out of doors, covering the box with litter. Reset in the spring. It is advisable to buy new stocky roots rather than resetting weak ones.

In the fall cover the plants after the leaves have died down, with two inches of horse manure or some litter. This protects the crown from frost.

Placing glass, barrels, or boxes about the plant to hasten its growth in early spring is not recommended. These practices have a tendency to weaken the root.

Rhubarb may be forced by exposing the roots to frost for three or four weeks in the fall, shifting them under the greenhouse bench or to the hotbed about two or three months before the crop is expected. The stalks are poorly flavored and usually spindly. The roots are useless after this forcing.

RHUBARB AND ASPARAGUS

The best variety for the home garden is Victoria.

Asparagus. Every garden should have its asparagus bed because it is one of the hardiest of the vegetables and because, after it is once established, it is not necessary to replant.

Thrifty roots of either the Palmetto or Conover's Colossal may be bought from any reliable seed house.

The soil should be prepared the fall before planting. Spade or plow into the soil one to three inches of fresh manure. Where this is not available substitute a free application of coarse bone meal, spade or plow the soil and leave it in the rough over winter. The soil should be rich in nitrogen and well incorporated with humus.

Before planting again dig or plow to a depth of eight to ten inches. Furrows should be made four feet apart and eight inches deep. The roots are set two feet apart in the bottom of the furrow. It is to the advantage of the plant to scatter a little bone meal in the bottom

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of the furrow before planting. Mix this into the soil with the hand on setting the root. Spread out the roots, having the crown bud in the center of the furrow. The new roots should be planted early in the spring. The manure is well decayed and the roots establish themselves readily. It is good practice to place in the bottom of the trench some very fine soil mixed with rotten wood that has become pulverized. The decayed wood not only supplies some fertilizer but it also holds moisture which is very essential to the growth of asparagus. Decayed sod will take the place of the rotten wood, providing the sod is chopped up fine. Cover to a depth of two inches. As the plants grow, cultivate so that the soil is gradually fitted into the furrow. The crown should be six to eight inches below the surface of the soil by fall.

Begin cultivation as soon as the young spikes appear and keep the rows free from weeds. Never set a bed where there is witch grass. In the fall dress the rows with partly decayed

RHUBARB AND ASPARAGUS

manure. The frosts and rains will work much of the available food into the soil; early in the spring dig in the partly decayed straw to a depth of three inches.

A light crop may be harvested the spring of the third year after setting. Asparagus should have two full years to become established. Care should be exercised in cutting the stalks not to injure the crown or stalks which are below the surface. If the plants are thrifty and grown on rich soil the spikes are very tender, and may be broken off at the surface of the soil. (Fig. 58.) This method of harvesting is always safe. Stop cutting July 1. Cultivate two or three times after July 1.

Do not cut the tops off until after the berries are red in the fall, and if the plants have been troubled with disease or insects, burn the tops.

The worst insect enemy is the common asparagus beetle. Both the adults and larvæ gnaw the tender shoots. This beetle appears

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about the season for cutting the asparagus. Dust the plants while the dew is on them with air-slaked lime. Powdered arsenate dusted on the stalks is also a most effective remedy. Stalks which are covered with poison should not be used.

Asparagus rust is common where considerable commercial fertilizers are used in sandy soil. The stalks have a rusty appearance after a long continued drought in July or August. If the plant is well supplied with moisture the disease seldom appears. The Palmetto variety is less susceptible than any other. There is no effective remedy. Dig up the bed, burn the plants and make a new bed in another part of the garden one year later.

CHAPTER XVIII

VEGETABLES NOT COMMONLY GROWN

K OHL-RABI. This odd vegetable is sometimes called the Turnip-Rooted cabbage. It is superior to the turnip in flavor and texture if harvested when young.

Kohl-rabi will grow in any soil that is rich in nitrogen. The seed may be sown at the same time as early cabbage, the seedlings transplanted one to two inches apart in a flat. When the plants have formed from three to five leaves, transplant to the garden. The rows should be fifteen inches apart and the plants set six inches apart in the row. The soil should be well manured and retentive of moisture. Cultivate frequently and keep a dust mulch between the plants.

When the swollen part of the stem is about one and one-half to two inches in diameter, this

PRACTICAL GARDENING

vegetable is at its highest quality. If allowed to grow large it becomes woody.

Kohl-rabi is easily grown, takes up little room and is always a sure crop. It has only one enemy, the cabbage worm, which is easily controlled by dusting the plant with powdered arsenate.

Callard is used for greens. The leaves when young are very tender and delicious. The culture of callard is the same as kale. The plants should be set three feet apart each way.

Sea Kale is not commonly known in this country but it is quickly finding its place in some of the best gardens. The leaf stalk is the part used and is ready for use before asparagus or rhubarb.

Seed may be sown in the open, early in the spring in furrows one foot apart and one-half inch deep. Thin out the seedlings to six inches apart in the row. Protect the crowns of these plants with manure after the hard frosts have set in. After the first year trans-

NOT COMMONLY GROWN

plant into their permanent location, in rows three feet apart, and the plants two feet apart in the rows. Root cuttings are set the same distance. Cover the crown with from one to two inches of soil.

Sea kale is a perennial crop and should have a top dressing of partly decayed manure each fall. In the spring dig this fertilizer into the soil about the crown and cultivate frequently throughout the season.

The leaf stalks are always blanched in order to lessen the bitter flavor and to make the stalk more tender.

The plant may be hilled up with sand or loose soil or the leaves covered with litter to shut out the sunlight. A deep flower pot or a box inverted, is sometimes used. The stalks grow to about eight inches in length, when they are best for the table.

Okra or Gumbo. This is a warm season crop and is more commonly grown in the South. It will grow wherever corn will mature. Seed should be sown after the soil is

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warm about the same time as beans are planted. The plant grows to a height of from four to six feet, therefore the rows should be three feet apart and the plants thinned to about one foot apart in the rows. The seed should be planted about one inch in depth in a rich loose soil. Cultivate the same as corn. When the seed pods reach a size of one inch in diameter and from three to four inches in length they are ready for use. (Fig. 52.) The seed pods are cut in slices and used for soup.

Artichokes. There are two distinct varieties of artichokes.

The French artichoke or "Green Globe" may be successfully grown from seed sown in early spring or in August.

The spring sowing may be started under glass from January to March. When the plants have formed three or four leaves and the soil in the garden is warm, transplant into rows three feet apart and two feet apart in the rows. Plants may be bought from any

NOT COMMONLY GROWN

reliable seed house and if the garden space is limited this method of starting a bed of artichokes is most desirable.

The plants should be protected during the winter by a heavy mulch of manure or some other litter. Early in the spring, rake off the manure to each side of the plants and dig it into the soil.

Plants that are well established may be sufficiently protected during the winter by hilling the soil over the plants to a depth of six inches, after the old plants have died down and have been removed.

Seed sown in August will produce plants sufficiently large by September 15, to transplant into four-inch pots which should be plunged in a well protected hotbed by October 1. Cover the hotbed with straw or leaves to keep out the frost. Remove the pots and plant the artichokes in the garden about May 10 to 20. Plants started in August and wintered over, will invariably produce flowers the following season.

PRACTICAL GARDENING

The bur or bud must be gathered before the true flower parts appear.

One fourth of an ounce of seed will produce one hundred plants.

The Jerusalem Artichoke, known also as the American Artichoke, is grown for its tubers. These tubers which resemble the potato, are used like the potato, also for salads and pickles.

Cut the tuber to single eyes and plant them in rows three feet apart and two feet apart in the row. If the soil is loose set the seed artichokes two to three inches in depth. Plant at the same time as sweet corn. Cultivate throughout the season.

One pint of tubers cut to single eyes will plant from twenty-five to thirty hills. The tubers are ready to harvest with the late potatoes in October. The tubers are very hardy and may be left in the ground and dug as they are desired during the winter.

Gherkins. This vegetable produces an oval, *prickly* fruit about an inch long, and the habits of the plant resemble the cucumber. It

NOT COMMONLY GROWN

is always a sure crop for it will resist drought during the hot weather. It is the easiest of all the vine crops to grow and will thrive in any rich light soil. The fruit is used for pickles. Four to five hills, planted similarly to the cucumber and receiving the same culture, will produce sufficient fruit for the average family.

Summer Asparagus. The soil for summer asparagus should be a very rich sandy loam. The seed should be sown from one to two inches in depth in hills five feet apart both ways. The culture of this vine is similar to that of the squash. The asparagus is a green gourd-shaped vegetable (Fig. 53) which should be harvested when it reaches a length of from six to twelve inches. It is cut in strips, boiled with the skin on until tender, and seasoned with butter, salt and pepper.

CHAPTER XIX

KEEPING VEGETABLES AND FRUITS OVER WINTER

STORING. There are three essential principles which must be considered if we are to keep both vegetables and fruits fresh during the winter months; the regulation of temperature, of moisture, and of ventilation.

Vegetables. If vegetables are stored in a storage building, root cellar or outdoor pit, the temperature should be about 32 to 34 degrees F. Some vegetables, like cabbage, can stand 25 degrees F. above zero and even lower, but for general purposes the temperature should be a little above freezing. If the air is too dry, the vegetables shrink and become useless, but if kept moist they retain their plumpness. When root crops, such as turnips, or carrots, get wet and the temperature goes

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up, decay is sure to set in and it spreads quickly.

The air must be kept fresh, cool and clean. Ventilation is not always an easy practice, but it should never be neglected. There is considerable heat in vegetables and steam may be seen escaping from a storehouse window on opening it on a cold, clear morning, this is usually a good indication of the proper circulation of air.

Roots should be fully grown, all badly bruised roots should be thrown out. The tops should be cut off about an inch above the root. Do not expose the roots to the air too long before storing them. Never wash the soil from the root crops, or cut the roots off cabbage and celery.

Outdoor Storage Pits. (Fig. 64.) There is no better way to store vegetables than in the soil, out of doors, and this method of storing may be practiced successfully where the winter temperature does not go too low. Where the temperature frequently drops to 20 degrees

KEY TO PLATE XIV

- FIG. 60.—The proper way to place a ventilator before storing the cabbage about it. The same type of ventilator may be used for the root crops pitted out of doors.
- FIG. 61.—A tomato vine pruned ready to hang up in the cellar or store in straw in the attic.
- FIG. 62.—A, The top of the beet cut too close. B, Too small to store for winter. C, Beets the right size, tops cut properly for storing.
- FIG. 63.—A, Celery plant as taken out of the ground ready for packing. B, Box in which celery may be kept in the cellar during winter.

PLATE XIV



FIG. 60.



FIG. 61.



A B C

FIG. 62.



A B

FIG. 63.

KEEPING VEGETABLES

below zero the pitting of vegetables should not be attempted. Such crops as turnips, parsnips, beets, carrots, cabbage and potatoes may be kept until late spring if stored on a well drained strip of soil. Where the soil is more

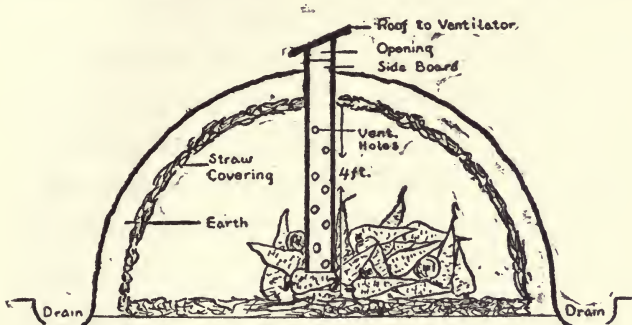


FIG. 64.—Diagram of a vegetable pit. It should run east and west and the mouth of the ventilator should slant north. Have eight inches of straw at the base of the pit. As the weather grows colder add more earth, as indicated, to keep out the frost.

or less level, dig two trenches eight inches deep on each side of the mound base, which should be about six feet wide and the required length, so that the vegetables may be piled four feet deep. Place on the surface of the ridge about six inches of clean straw.

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If the pit is only five feet long, place a ventilator in the center. Pile the vegetables around the ventilator to a height of four feet and cover the mound-shaped pile with six to eight inches of straw. As the weather grows colder, cover the mound with sufficient soil to keep out the frost. It is not a bad idea to throw a strip of canvas over the mound early in the fall to keep out the rain until sufficient soil is added to shed the water. Open the pit at one end and stuff the hole with sufficient straw to keep the frost out after desired vegetables have been removed. Cabbage may be buried three tiers high by standing the cabbage head down on the straw. Cabbage should be the last crop to store, for it quickly decays in warm weather. Remove only the partly decayed leaves and do not disturb the roots. (See Fig. 60.)

The Vegetable Cellar. The great difficulty with most of the cellars is that there has been no forethought regarding a vegetable store room and the furnace and pipes are so placed

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that it is a problem to construct the proper type of storage room. Select a part of the cellar under a window and construct your store room with boards on the outside (a non-conductor of heat and cold). While the shape or contrivance may not be ideal, yet it may answer the purpose. Bins may be constructed to divide the potatoes from the roots. The floor, if concrete, should be covered with boards raised from three to six inches from the concrete. Vegetables placed on the concrete have a tendency to keep the floor moist which in time will cause decay. Pure air should circulate freely under the vegetables as well as above. The dirt floor is exceptional but is most satisfactory. If the soil is dry there is no danger in placing the vegetables on it. Onions may be stored with other vegetables if placed in crates. Shelves may be constructed on the walls for winter squash, pumpkins and fruit. Roots and potatoes keep better if covered with burlap and if the room is kept dark and cool. Such a vegetable cellar

PRACTICAL GARDENING

must be ventilated carefully, for one night's neglect in closing the window may mean an entire loss of the winter supply. A pail of water placed in the center of the room will supply sufficient moisture. Keep a standard thermometer hanging from the ceiling in the center of the room. Keep water in the furnace and a pail of water near to absorb the gas. Never allow the furnace gases to get into the root cellar. If you only have room for a few large boxes in the root cellar, cover the outside of each with beaver board, place a ventilator in the center of each, fill in the roots and cover them with five inches of soil. Place the box as far from the furnace as possible. Also place two strips of boards for the box to rest on, so that the air may circulate under it.

Attic Storage. For general purposes the attic is too cold and dry in the winter to store vegetables, but it is just the place to store dried corn, beans, peas and other dried stuffs.

The dried produce should be put in strong paper bags, tied tightly about the top and hung

KEEPING VEGETABLES

from the ceiling by a wire to prevent mice from reaching it. Tomatoes may be successfully kept for most of the winter if the fruit and vine are taken before frost (Fig. 61), part of the leaves cut off, and the vine and fruit carefully placed on six inches of straw and covered with sufficient straw to keep out the frost. The tomatoes ripen evenly and at various times throughout the winter. If covered they retain their plumpness. They should never be picked from the vine. Tomatoes hung, root and stem, on the walls of the root cellar will also ripen successfully.

Storing Celery. After the celery has been partly blanched dig the plant up in October. Shake off a little of the soil from the roots and pack the plants in a box, Fig. 63, made in such a way that air may circulate through the stems. Close packing has a tendency to encourage decay. This box should be placed in a cool cellar where the air is pure. If the celery plants are to be stored on the floor of a cellar or out-building, place one or two inches

PRACTICAL GARDENING

of sand as a bottom, set the celery plants close together in double rows and pack a little sand about the roots. A space of four inches should be left between each double row to allow the proper circulation of air.

In mild climates celery plants may be banked with soil and the tops covered with boards or straw after the frost sets in. Plants stored in this way will last through December.

Apples. In considering the method of harvesting any fruit, much depends on the length of time it may keep in storage. Fruit should be handled as carefully as eggs if it is to be kept for a long period.

If apples are picked carefully a little before they are thoroughly ripe they will keep better. Shelves may be made in the root cellar, four feet wide and four inches deep. Place two inches of clean straw on the bottom and place on this two tiers of apples. Keep the varieties separate. Pick the apples over once each month and use the ripest of them, carefully removing all spotted fruit.

KEEPING VEGETABLES

The fruit cellar should be ventilated on clear days, the air kept fresh and pure. Fruit kept in the dark ripens evenly and there is less danger of shrinkage.

Apples in small quantities may be stored in crates. Barreled apples keep best if the temperature is kept at freezing or one to two degrees below, providing the air is very dry. Apples in larger quantities should be kept in a storage plant.

The skin of Greening apples discolors quickly if taken from an almost freezing temperature into a warm room, but this does not injure the fruit if it is used before decay sets in.

It is a common practice to store potatoes on the floor of the fruit cellar since there is no odor from potatoes and they keep at the same temperature as fruit, just above freezing.

Pears ripen more rapidly and more unevenly than apples. The fruit should be picked over every week after they start to ripen. Keep them in a cool dark place.

PRACTICAL GARDENING

All fruits and vegetables should be watched carefully for the appearance of decay, especially with the approach of spring.

CHAPTER XX

THE STRAWBERRY.

THERE is no small fruit that will bring more delight to the grower than the strawberry. It requires little space and if properly raised will pay well for the soil occupied.

This favorite of all small fruits will thrive in various kinds of soil. It may be found, bearing finely flavored berries, in a sandy loam, clay loam, and even in muck soil. The success or failure in the culture of the strawberry depends not so much upon the soil as upon the plant food available, the moisture, and the method of culture.

All soil, no matter whether it is sandy, clay, or muck formation must have a large amount of decaying vegetable matter in it. This will

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aid in retaining the necessary moisture to mature the crop as well as in giving the root system a free feeding surface. While the decaying vegetable matter does increase the activity of ferments and puts plant food in a condition in which the growing plant may use it, care should be exercised not to add too much nitrogen in the form of nitrate of soda, which will cause the plant to develop foliage and not fruit.

If the soil is a sandy loam that has been used for other crops for one or more years, add two or three inches of straw manure (horse or cow) and plow or spade this under in the spring. The manure should be well decayed and incorporated into the soil so as to prevent the leaking out of both water and liquid manure. The strawberry plants should be set as early as possible in order to get the benefit of the early spring rains.

If the soil is a clay loam, and in sod, add a heavy application of manure and turn the sod under in the fall. Leave the furrows in the

THE STRAWBERRY

rough over winter so that the frost and air may not only hasten the decay of the vegetable matter and loosen the soil, but destroy grubs and other enemies that are exposed. It is not a good practice to plant strawberries on freshly plowed sod land. Add a sprinkling of manure over the surface of the soil in the spring and work it into the first three inches. A sprinkling of bone meal along the row where the plants are to be set will add one of the most valuable of plant foods to the strawberry. If the soil has a tendency to be sour, shown by the growth of the bitter weed of sorrel, a little lime may be added to the soil in the fall. Both lime and land plaster are very objectionable in the strawberry bed after the plants are set.

Muck soil does not require additional humus or vegetable matter for it is made up of decaying plants, but it almost always requires drainage and now and then a little commercial fertilizer, which should consist of potash and phosphoric acid. Sufficient nitrogen is usu-

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ally supplied by the ferments in the decaying vegetables.

All land must be naturally or artificially drained from one and one-half to two feet in depth. The strawberry will not survive a year in wet soil. After this first and one of the most important conditions necessary, drainage, is looked after, prepare the soil so that it is made as fine as a seed bed for six inches in depth. Level-culture is preferable to ridging the rows. The soil is more easily worked and there is less danger of the plants wilting during a dry season.

In order to make a good start at the very beginning, secure the best plants possible from a reliable firm.

The best time to plant is early in the spring after the frosts are out of the ground. There is always sufficient rain to sustain the plant until it becomes established. On the other hand, if berries are desired the year after planting and you have failed to complete your plans in the spring, set the plants in August, supply

THE STRAWBERRY

the much needed moisture at that season and protect the plants during winter and you will have berries the following June. In the South where the winters are mild and the soil is a sandy loam, fall planting is very satisfactory.

On receiving the plants from the nursery, remove the damp moss, cut the band that holds the bunch of twenty-five or fifty plants together, make a furrow and spread the plants out in it. Cover the roots with soil up to the crown. The air circulating soon dries the foliage which prevents disease and the plants retain their freshness until their permanent home is ready.

The distance of planting depends to a large extent on the method of cultivation used. If the solid or hedge row method is practiced and a horse cultivator is used between the rows they should be from three to three and one-half feet apart. If the hand cultivator is used the rows may be two feet apart. For especially fine, large berries, the single plant in a place or hill, all runners kept cut off, will be the best

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method of planting. The rows should be two feet apart, with the plants fifteen inches apart in the row. The berries grown in this way are usually more perfect, easier to pick, and the plants are healthier on account of having more air and sunshine. The strength of the plant is not allowed to go to runners and in this way there is a more vigorous growth.

The double hedge row is formed by placing the rows three and one-half to four feet apart and the plants two feet apart in the rows. One or two runners are layered in direct line with the parent plant in the row, and two sets of runners are layered on each side of the parent plant. With this method the row soon becomes matted. All extra runners should be cut off and the space between the rows kept cultivated.

Before setting the plants, remove all poorly colored or broken leaves from the outer and lower edge of the crown, and prune off some of the roots if they are very long. Set the root system so it is free and not wadded in a

THE STRAWBERRY

ball. All the roots and the lower part of the crown should be in the soil and care should be exercised to keep the heart and upper part of the crown above the soil.

The first season, if the plants are set in the spring, remove all bloom and start cultivating shortly after the plants are set. Cultivate after a rain but not when the soil sticks to the implement. No practice is so valuable to the growth and production of the strawberry as frequent and thorough cultivation.

The bisexual (B) varieties have both the male and female organs in the flower, and are therefore self pollinated, while the female flower having only the female organs, if not pollinated, will not bear fruit.

The following list of standard varieties is recommended. From 175 to 200 plants will supply a family of six with berries through the season.

Extra Early		No. of plants.
Early Ozark	(B)	25
	245	

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Early

Dr. Barrell (B) 25

Clyde (B) 25

Medium

Wm. Belt (B) 25

Bubach 25

Late

Brandywine (B) 50

Gandy (B) 25

Everbearers

Superb (B) 25

Peerless (B) 25

Americans (B) 25

It should be remembered that varieties adaptable to one section of the country might be a complete failure in another. Consult the growers in your near vicinity.

Water is necessary to mature a crop; it is definitely known that it takes six hundred barrels per acre to mature a crop after the fruit is set. Seventy-five per cent. of the weight of the green plant is water, therefore never let the strawberry plant suffer from the lack of sufficient moisture. Evening is the best time to water the plants and get the moisture to the roots. Sprinkling the surface of the soil

THE STRAWBERRY

means nothing. All during the night the moisture will work into the soil and the following morning the cultivator should be kept busy forming a dust mulch to hold the water in the soil.

As the berries are forming, stop cultivating, because any dust is liable to deform the fruit. Place clean straw, hay, leaves or other litter under the fruit to keep it clean also to act as a mulch. After the berries have been picked, remove the mulch and continue to cultivate. Do not let the strawberry bed become weedy just because the bearing season is over.

Mother nature covers her children with blankets made by themselves, so that the leaves, grass, flowers, etc., that cover the surface of the ground in the fall, protect the roots from the frost. So the strawberry must be protected. Nothing is better than a thin layer of clean straw held close to the plants and kept from blowing away by branches. There is no objection to light manure if the weeds de-

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veloping from it the next spring are removed from the bed. This winter mulch should not be added until the plant is fully ripened and after the first two or three light frosts. Early in the spring after the severe frosts have passed remove the mulch and start in cultivating. If the single hill system is used, scatter a spoonful of nitrate of soda about each plant just before a rain, but be careful not to have this fertilizer come in contact with the foliage. It is generally advisable to start a new bed every three years but an old bed may be kept bearing if properly fed and protected.

The first year such crops as dwarf sweet corn, radish, or spinach may be grown between the rows.

The ever bearing varieties are planted and treated in the same way as the spring bearing sorts with one exception, that the bloom is kept picked off until about July 1. These ever bearing sorts seem to be very handy, can stand some drought and excessive heat, as well as wet weather and severe frosts.

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The three essentials that should never be overlooked before going into the culture of strawberries are, first, the best variety suited to the soil, strong, vigorous, pure bred plants; second, a well drained and prepared soil; and third, thorough and frequent cultivation.

CHAPTER XXI

SMALL FRUITS AND HOW TO GROW THEM

THE Currant. One of the oldest of the small fruits recorded in the history of our country is the currant. It has always been grown because of its adaptability to climate and soil, hardiness, free growth, and productiveness. Therefore, it is one of the fruits that should certainly be found in every small garden.

While the currant will thrive in various types of soil yet it reaches its highest quantity in productiveness and its finest quality in flavor on a light clay soil. The soil should be cool and moist but always well drained to prevent the frost from heaving it in winter. Be sure this clay soil is mellow to a depth of from ten to twelve inches, free from large stones, stub-

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ble, and weeds, and that there is a fairly loose subsoil.

Dig the holes six feet apart, two feet in diameter, and one and one-half feet deep. Place in the bottom of this hole a mixture of one-half decayed sod chopped up fine, and one-half decayed cow or horse manure and a cup full of coarse bone meal. Mix these up thoroughly and fill the hole to within twelve inches of the top. Place about six inches of the fine top soil on the top of the compost, set the bush and fit the best soil firmly about the roots. The bottom soil should be on top and the crown level with the surface. All bruised roots should be cut off and the root system placed freely in the soil. Do not bend the roots round or up. Better cut them off than do this.

Two-year-old plants set out in the spring will establish themselves before winter. The currant bears the berries on wood which is two or more years old so care should be exercised in pruning. A succession of strong young

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shoots should be developed each year, so prune only enough to keep the bush in shape, and to allow sunshine and air to circulate freely through the plant. Pruning is best done early in the spring before the buds start. After the bush has reached an age of from four to six years, begin to cut out a few of the old shoots and give the new and more vigorous ones a chance. There should be from five to eight bearing canes to each bush.

After the berries have set, apply a mulch of cow manure under the branches but not close up to the stems of the plant. The rain will free the plant food and the litter that is left will serve as a mulch to help retain the moisture during the dry or ripening season. Cultivation should stop from flowering time until the berries are set, after which all weeds should be kept down. If barnyard manure is not available, apply to each bush, after the fruit has formed, one-half pound of nitrate of soda, one pound of phosphoric acid, and two pounds of potash. Mix these and work them

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into the soil, preferably before a rain. Another fertilizer that will make the plant thrive and the berries large is free application of pulverized sheep manure and bone meal mixed.

Pests. The one enemy which attacks currants everywhere and under all conditions is the currant worm (*Nematus Ventricosus*). It appears shortly after the foliage is formed and destroys the leaves. Spray the foliage with a solution of one tablespoonful of arsenate of lead to an ordinary pail of water. White Hellebore dusted on the plant both the upper and lower surfaces of the leaves will easily destroy the insect.

The currant or gooseberry borer (*Sesia tipuliformis*) is common in some sections. The first indication that the white grub is at work in the cane is that the foliage turns yellow and the cane loses its vigor. Cut off the cane close to the surface of the soil, early in the spring or late in the fall and burn.

If the leaves suddenly start to wither and turn brown in mid-summer and the branch

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shrivels and dies, the plant is affected with wilt or cane-blight. The only thing to do is to cut out the diseased parts an inch or more below the affected parts and burn. Spraying does very little good. Start a new garden of berries some distance from the diseased plants. Some years the disease is worse than others and often by giving the plant special care in feeding and cultivation it recovers.

Propagation. Healthy currant bushes will produce freely for twenty years and more, but should you anticipate a new setting of bushes, take cutting of the new wood in the fall. Make a clean, slanting cut at one of the buds (node) with a sharp knife, leaving the cutting with from six to eight buds and about nine inches in length. (Fig. 66.) Bunch these cuttings so that all of the nodes out of which the root system is to be formed are even. (Fig. 65.) Tie these bunches of twenty-five cuttings and place them wrong side, that is node end up, in a box and entirely cover the cuttings with sand. Store the box in a cool

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place. In the spring when the wounded part will have calloused, plant these cuttings six inches apart in the soil and make your rows two feet apart.

The first year prune the tip bud back when the bushes are first set out so that there will develop from five to eight shoots close to the surface of the soil. The second year these young currant bushes will be ready to be shifted to a permanent place.

The best varieties for the home garden are:

The Cherry, a very large, finely flavored berry. This variety is vigorous and a good bearer.

The Fay, one of the old standards, a vigorously growing bush, very productive and an especially fine variety for mid-season.

The North Star is very hardy and adapts itself to the severe winters of the North. It bears early and has a medium size mild flavored berry.

The Red Dutch which is always a favorite. A prolific bearer of long clusters of red ber-

KEY TO PLATE XV.

FIG. 65.—A, Bunch of currant cuttings taken from the sand. B, The base of the cuttings showing the cal-
lus which formed during the winter.

FIG. 66.—Two cuttings of the currant.

FIG. 67.—Cuttings of the blackberry. A A, Two sucker
cuttings with root ready to transplant. B, Root
cutting.

PLATE XV



B A B
FIG. 65.



FIG. 66.



A A B

FIG. 67.

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ries. Very hardy and satisfactory in all parts of the country except far south.

The Champion is the best black currant. It ripens in mid-season and is recommended for preserving in conserves and jams.

The Gooseberry. The Gooseberry is propagated, pruned, and cultivated in exactly the same way as the currant. The only difficult problem to solve with reference to this fruit is the control of the mildew (*Sphaerotheca morsuvæ*). The large, sweet English gooseberry seems to be more susceptible to this disease than the American sorts. Keep the soil free from weeds and mulch the plants with coal ashes. Spray the foliage as soon as the grayish spots appear with one-half ounce of potassium sulphide to one gallon of water. Spray every two weeks until the flower appears.

The Columbus is a European variety but practically free from mildew. It requires very little pruning, is hardy, vigorous, and produces a large, oval, greenish-yellow fruit.

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Industry is large, dark red and hairy. This is one of the most successful of the European groups grown in this country.

The three best American varieties are:

Downing; the berry is a pale green, good quality and medium in size.

Chautauqua; berry large, bright yellow, thick skinned, but free from hairs and spines. The berry is fairly sweet.

Houghton; one of the varieties that is very resistant to mildew. Produces a smooth, thin-skinned, pale dull reddish brown, juicy, sweet berry. It is a profuse bearer and highly recommended.

The Raspberry. While the many varieties of raspberries adapt themselves to various soils and conditions it must be remembered that each variety is individualized and one may do well in a clay loam in the North while another may produce the most perfect berries in a sandy loam in the South. When in doubt regarding the advisability of planting certain varieties, consult the Department of Hor-

SMALL FRUITS

ticulture in your State College of Agriculture.

In general a light clay loam enriched with decayed stable manure and bone meal may be recommended. Also a loose garden loam which will produce a good crop of corn and potatoes is always sure to produce a fine crop of raspberries. It is very desirable to have a large amount of humus at least one and one-half feet in depth. The soil should be well drained and free from any standing water.

Spring is the best time to plant both the red and black varieties. The red raspberry may be set in rows five feet apart and the plants set three feet apart in the rows. The red sorts should be planted deeply, six inches, while the black caps are planted from three to five inches in depth. When the plants come from the nursery prune off all injured roots and cut the existing canes back to within three inches of the surface of the soil.

Berries are produced on the second-year canes which may be cut off close to the soil after bearing. After the first few years there

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will appear many suckers between the rows. These may be lifted and transplanted (A. Fig. 67) in the late fall, early spring, or destroyed. The space between the rows should be kept free and clean in order to cultivate frequently. From four to five canes are enough to a stool. If the plants are kept thrifty they will produce from five to ten years. All pruning should be done early in the spring. Cut out all the old canes and prune the new ones back to from four to five feet in height. The method of planting may alter the manner of pruning. Some varieties, like the old Standard or Cuthbert, do well in matted rows, while other varieties, like the Hornet or Turner, do best in individual hills with four to seven canes to a hill.

Cultivate vigorously during the early spring but stop all cultivation during the fruiting season.

Some of the tender varieties like the Belle de Palnau, which may do well South, require winter protection in the North. This is done

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by bending the canes over and pegging them close to the surface covering both the canes and stool with from three to five inches of soil.

There is no better mulch to be placed over the surface of the soil between the rows than leaves. A little stable manure and bone meal may be plowed in or spaded in with the first work of spring. Do not use much manure close to the canes after the plants are set for it has a tendency to encourage large growths on the roots known as Root Gall. There is no remedy. Dig out both the root and plant, and burn.

One of the best varieties for the home garden is the Cuthbert which is strong, vigorous and very hardy. It produces a medium to large firm, juicy berry in mid-season.

The Brandywine is early, the berry large, and the plant dwarf in habit; very fine for Rhode Island, Delaware, New Jersey and the South.

Loudon, a fine variety for West and North

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but seldom South. The berry is a bright red.

Reliance is a very hardy sort producing a red, soft berry with a fine flavor.

The three best varieties of black caps are Cumberland, Eureka and Mammoth Cluster. Any one of the three may be safely recommended.

The Blackberry. The Blackberry requires practically the same culture as the raspberry except that it should have more room. The rows should be eight feet apart and the plants three feet apart in the row.

During the growth of the canes, pinch them back after they have reached a height of from three to five feet. The laterals will develop on which the crop will be produced. As soon as the fruit is removed cut back the fruit bearing canes and give the new shoots a better chance to develop.

In a very cold region where the thermometer drops to 40 degrees below zero and there are sudden extremes, the blackberry should be bent over and covered with soil. Remove the soil

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early in the spring before the buds start.

Both the blackberry and raspberry may be staked as individual plants or a row of stakes may be placed every ten feet on each side of the row, and from three to five wires stretched on these stakes holding the plants in rows two feet wide. All straggling canes should be cut off close to the surface of the soil.

The Agawam is not only productive but very hardy.

Kittatinny produces a large and fairly sweet berry. It is one of the best for the home garden.

Snyder is extremely hardy, an old standard, mid-season variety. The berry is juicy and sweet. It is one of the best.

CHAPTER XXII

THE GRAPE

GRAPES are frequently grown in the back yard garden and usually close to the house. This may not be an ideal site and the soil may not be a perfect type, but the vines produce. While certain special varieties are partial to certain soils in which to thrive and produce, the five standard varieties mentioned in this chapter quickly adapt themselves to almost any type of soil, providing it is warm, well drained, and fertile. More depends on the interest and practice of the grower than on the type of soil. If the soil is of clay formation, it should be underdrained by placing three-inch tiles in parallel lines thirty feet apart and about three feet from the surface. Waterlogged soil is always objectionable. Cultivate the clay soil in the fall, leaving the clods

THE GRAPE

in the rough and exposed to the elements. Apply a little lime and again stir the soil to a depth of twelve inches, adding manure in the spring. Heavy soil is slow to warm and usually produces only a medium crop of grapes which are not highly flavored. If the soil is a sandy loam, add horse manure in order to give it a body, and incorporate the humus before planting the vine. Do not be over zealous in applying stable manure. It usually gives off considerable available nitrogen which in most cases causes the vines to run to foliage and cane.

If only a few vines are to be planted, dig holes four feet square and four feet deep. Loosen up the subsoil. Whenever possible, secure old plaster from a house that is being torn down, mix one-fourth part plaster with one-half part of garden loam and decayed sod, and one-fourth part of bone and decayed manure. Mix these and fill the hole to within one and one-half feet of the surface. Fill the remaining space with garden loam and decayed

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sod. Plant the vine in the middle of the prepared hole early in the spring.

Prune off all bruised roots before planting. Do not crowd the roots; spread them out so that they may come in contact with the greatest amount of soil. Also prune back the cane to three buds.

If old wall plaster and bones are not available, fill the hole with one-fourth decayed cow or horse manure and three-fourths garden loam and decayed sod. Mix into this a little bone meal and about two quarts of hard wood ashes to each hole. The soil should always be made firm about the newly planted vine.

One-year-old vines are the best to plant and if the holes are properly filled, little fertilizer will be needed for the first five years.

The method of training the vine depends much upon the desired effect and the vigor of the variety. The renewal system (Fig. 69), is usually used for thrifty growing vines such as the Concord or Worden. The vines should be planted nine feet apart. The horizontal

THE GRAPE

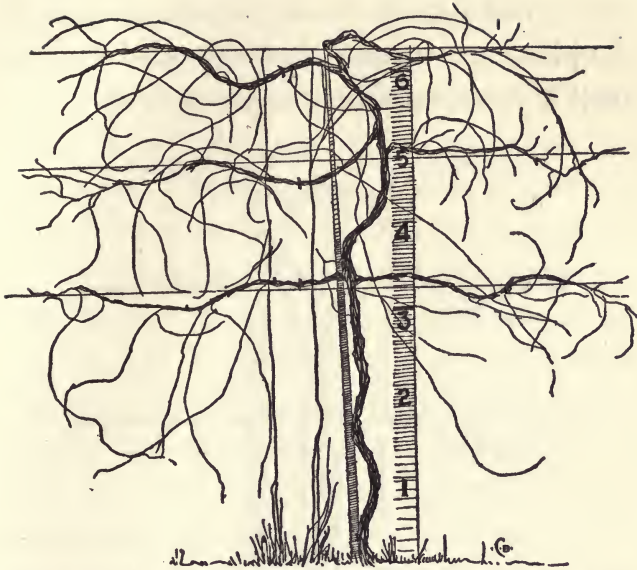


FIG. 68.—Unpruned grapevine trained by the 6-arm renewal system.

trellis is commonly used for such varieties as the Delaware, plants set seven feet apart, and the vines spread out. Whenever possible, have the arbors or trellis run north and south.

Pruning should always be done early in the spring before the sap flows. Cut back the previous year's growth (Fig. 68), leaving two or three buds for new canes. (Fig. 69.)

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These will furnish as much bearing wood as the plant can support, but remember that the fruit is borne on shoots of the present season.

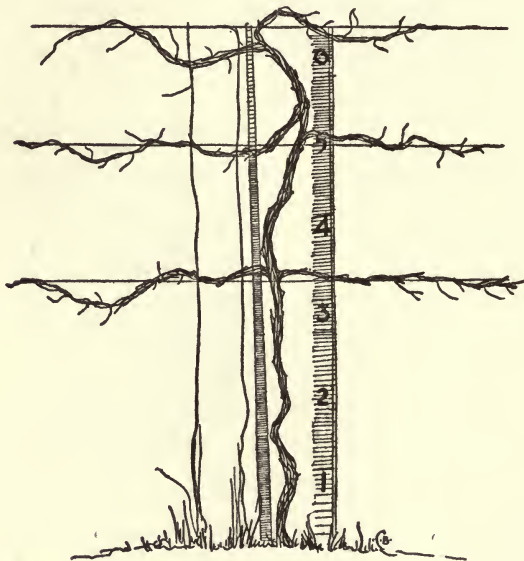


FIG. 69.—Pruned grapevine trained by the 6-arm renewal system.

The object of spring pruning is to limit the number of buds and to keep the plant in manageable shape.

After the bunches of grapes are formed, two

THE GRAPE

or three bunches on a cane, pinch the tip of the cane off, leaving three to five leaves beyond the last bunch. Pinch off all side shoots and allow the full strength of the vine to go into the berries. This method of summer pruning also allows more sunshine and air to reach all parts of the vine and thus prevents disease.

Grapes require a shallow tillage during the summer and a mulch of manure in the fall. The roots are near the surface and require protection from frost. Keep the manure at least six inches away from the vine so as to prevent the softening of the wood and also to keep out vermin. Grass, straw, or leaves may also be used as a mulch. No application of fertilizer is better after the grapes are formed than liquid cow manure, but this is seldom available. Bone meal, worked into the first two inches of surface soil, may be substituted.

It is not an easy matter to advise a grower as to varieties. Every one has his individual tastes. The Worden (black) is the hardiest variety and will thrive in various climates and

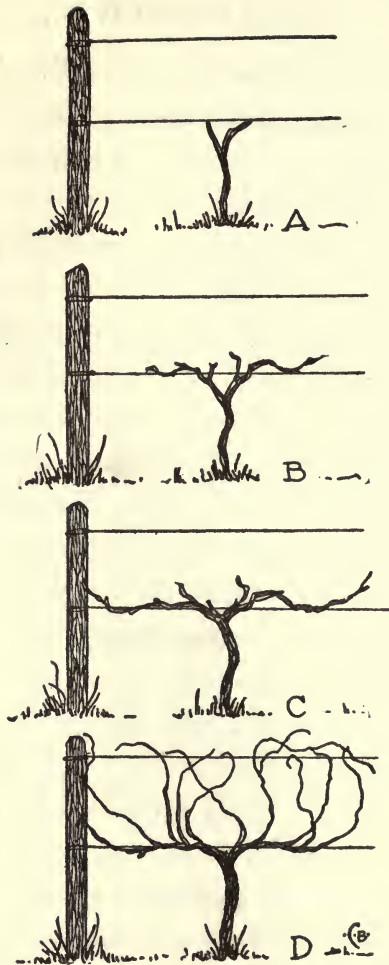


FIG. 70.—A pruned and unpruned vine of different ages, showing the method of pruning by the renewal system. A, second year; B, third year; C, fourth year; D, an unpruned vine in its fourth year.

THE GRAPE

soils. The Concord (black) is a close second and has a fine flavor. The Diamond and Niagara are the two best white grapes. Every garden should have one vine of the Delaware (red). It is thrifty and produces a small sweet berry.

Wild grapes may be planted about a summer house, arbor or artistic trellis. The vines grow rapidly and not only give the desired shade but also produce a small cluster of berries which are used for jelly.

Downy mildew is quite common on grapes grown in the home garden. This fungous disease makes brownish-white patches on the under side of the foliage. Spray with Bordeaux Mixture.

Grapes grown in sandy soil are sometimes attacked by the rose beetle. It feeds on all parts of the plant. Spray with kerosene emulsion.

The borer is controlled by digging him out of the vine with a sharp knife.

To prevent insects and diseases from at-

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tacking the bunches of fruit, cover them with paper bags. This method of protection is followed shortly after the berries have formed. The cost and effort are very slight compared with the value of the crop. The grapes ripen perfectly in the bags and have a fine flavor.

CHAPTER XXIII

THE APPLE TREE

THERE is a growing interest in this most prized of all fruits, the apple, and it is a hopeful sign to find people experiencing a keen enjoyment in showing their fruit gardens, as well as their collection of ornamental plants, to friends. It is because of this interest that much attention has been given in our garden magazines to the grower of a few trees, but most of our latest books have dealt only with the commercial gardens.

The first principle to consider before ordering the trees is the matter of location. No variety of apples will grow well or mature a satisfactory crop in a shady place or on poorly drained soil. Gases, dust, and smudge are also objectionable for it is just as important to have a free circulation of clean, fresh air as

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it is to have sunshine and an adequate supply of moisture.

The best flavor and color of any variety is always found where the fruit is grown at the northern extreme and in the soil adapted to the variety. The study of the adaptability of the variety to the soil is by far more important than the slope of the land or even the exposure of the orchard, though the exposure to destructive winds should be avoided. A study of the rainy season, if there is one in your locality, may add materially to your crop. Do not select varieties that will come into bloom during the rainy period. Also avoid planting in low lying places on account of excessive moisture and frosts. Cold air flows down hill and lodges in these earth pockets just like water.

It is impossible in this very limited chapter to go into details regarding the soils suited for certain varieties. There are many kinds of soils found in each state and advice can be given only in a general way. All soils should

THE APPLE TREE

be deep, rich in plant food, well incorporated with humus to aid in holding the moisture, and well drained. Apple trees should never be planted where the water stands on the soil even though it may be only for a few hours.

Such standard varieties as the Northern Spy, McIntosh, King, Fall Pippin and Wagener do best in a rich clay loam, deep and mellow. A stiff subsoil is very objectionable but the moisture content must be constant in order to produce a highly colored, juicy, well flavored fruit.

The Rhode Island Greening and Grimes' Golden mature best in a loam with a slightly heavier subsoil. If the soil is light, deep, sandy loam well supplied with water, it will grow a very good grade of Greening apple.

If the soil is a deep garden loam, rich in plant food and humus with a light clay subsoil, such varieties as the Baldwin, Hubbardson, Newton Pippin, and Rome Beauty will thrive well.

In selecting trees, always buy them from

KEY TO PLATE XVI

FIG. 71.—Note the straw mulch over the surface of the soil. The wire screen around the trunk protects the tree from rabbits and other animals that eat the bark during the months of snow. The ropes are holding the limbs in the proper position so that the tree will form an open head. The shingle holding the limbs apart is another method of separating them. Pieces of rubber are placed about the limbs to prevent the rope or shingle from scraping the bark.

FIG. 72.—A very bad crotch. The limbs should alternate so that no two would be opposite. Note the tag attached with a wire. If it is not removed it will girdle the limb.

FIG. 73.—When this tree was planted the roots were jammed into the hole which was too small. The tip of the root came to the surface and then took a downward course. The photograph was taken when the tree was seven years old.

FIG. 74.—A fine root system. Note the bend in the trunk. This is where the graft was inserted. Plant so that the surface of the ground covers about two inches above where the bend starts.

PLATE XVI



FIG. 71.



FIG. 72.



FIG. 73.



FIG. 74.

THE APPLE TREE

a reliable firm. It is a long time investment and you should plant only the best. Buy the trees direct from a nursery in your State. Trees raised in the southern nurseries, if planted in the North often die the first winter. Never buy a "Family Tree," so called by graft firms who have not reasoned that the proper spraying of any tree bearing three varieties, Early, Medium, and Late, will mean the destruction of one or more of the varieties. For instance, the early varieties should be sprayed to destroy the codling moth just as the petals are falling, and at this time both the medium and late varieties have exposed the male and female organs, which are destroyed by the early spray so that pollination is impossible. If a crop is to be realized pollination is necessary.

For the small gardens one early variety, two medium season varieties, and four late varieties will supply fruit throughout the year for the average family.

The following varieties are recommended

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for the family fruit garden in their order of ripening and according to the States in which they reach their highest quality. There are many other varieties suitable to the soil, climate, latitude, elevation, etc., in these different states, and much depends on the individual taste in the selection of varieties.

The following list of varieties is suitable to the States listed and is given approximately in their order of ripening:

For New England States, New York, Pennsylvania, New Jersey, northern Ohio, Indiana, and Michigan:

Yellow Transparent, Red Astrachan, Maiden Blush, Fameuse, Talman Sweet, Wealthy, Tompkins, King, Northern Spy, Baldwin, Rhode Island Greening, and English Russet.

For Delaware, Maryland, Virginia, West Virginia, southern Ohio, southern Indiana, Kentucky, Tennessee, and North Carolina:

Early Harvest, Early Strawberry, Fall Pippin, Wealthy, Northern Spy, Rome Beauty, Winesap, and Yellow Newton.

For South Carolina, northern Florida, Georgia, Alabama, Mississippi, Louisiana, and Texas:

Red Astrachan, Red June, Dutchess of Oldenburg, Fall Pippin, Winesap, and Hoover.

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For northern Illinois, Wisconsin, Minnesota, Iowa, and Nebraska:

Yellow Transparent, Early Harvest, Pinate, Maiden Blush, Wealthy, Fameuse, Delicious, Hubbardson, Nonesuch, Talman Sweet, English Russet, York Imperial.

For Southern Illinois, Missouri, Kansas, Arkansas, Oklahoma and Indian Territory:

Red Astrachan, Early Strawberry, Dutchess of Oldenburg, Wealthy, Jonathan, Rome Beauty, Golden Russet, Delicious.

For North and South Dakota and the colder parts of Wyoming and Montana:

Dutchess of Oldenburg, Wealthy, English Russet, Fameuse, Northwestern Greening.

For Colorado, Utah, Nevada and New Mexico:

Early Harvest, Red Astrachan, Maiden Blush, Wealthy, Grimes Golden, Jonathan, Northern Spy, Fallwater, Delicious, Tompkins, King. Golden Russet, Roxbury Russet, Swaar, Yellow Newtown.

For Idaho, Oregon, Washington, and the warmer parts of Wyoming and Montana:

Red Astrachan, Red June, Wealthy, Fall Pippin, Fameuse, Jonathan, Rome Beauty, Golden Russet, Yellow Bellflower, Baldwin, Wagener, Esapus Spitzenburg, Delicious.

For California and Arizona:

Early Harvest, Red Astrachan, Early Strawberry, Dutchess of Oldenburg, Esapus Spitzenburg, Rhode Island Greening, Northern Spy, Rome Beauty and York Imperial.

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The question now arises, after having selected our favorite varieties, "What is the best season and method of planting?"

If you are living in a mild climate where the temperature seldom drops to zero, plant the trees in the fall. The root system will begin to form before the soil is ready to cultivate early in the spring. Even in the North, fall planting is considered by many growers as the best. The tree is in the soil when the root action of established trees begins and readily forms hundreds of feeding roots before there is any sign of the bud starting.

Spring planting should be done as soon as the soil is fit to work and before the buds start. One of the most satisfactory methods of planting is first to stake out for the standard trees like the Northern Spy, thirty-five by forty feet apart, and the small headed trees like the Wagner, twenty-five to thirty feet apart. Dig a large hole placing the sod in one pile, the surface soil in another, and the subsoil in a third. If the holes are dug in

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the fall, fill them with manure and let them stand over winter. In the spring remove the manure and place it in the fourth pile, loosen the soil in the bottom of the hole, put in a few shovels full of fine top soil, and place the tree so that the graft will be 2 inches below the surface. Do not crowd the roots. (Fig. 73.) Work the fine top soil in about the roots, then the partly decayed sod, broken up as it is fitted about the roots. Shake the tree up and down a little to make sure that all of the roots are imbedded in the soil. Then stamp the soil down firmly about the roots. The subsoil is placed next, making the soil surface level, and finally the manure is scattered about under the tree but not close to the trunk. This forms a mulch which not only supplies food as it is decaying but also acts like a sponge in holding the moisture.

All bruised and broken roots should be pruned off before planting. The limbs should be cut back leaving from three to five buds. After pruning, the position of the limbs should

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resemble the five points of a star. To prevent a bad crotch these scaffold-limbs should never be opposite each other. (Fig. 72.)

After planting, make a chart of your little orchard and properly place and name the trees. Remove all the tags. They are usually fastened by wire which if left on will soon girdle the limb or trunk cutting off the flow of sap.

If the tree has a tendency to grow upright, educate the limbs as shown in Fig. 71.

Place a wire shield about the trunk to prevent the destructive work of rabbits, mice, or woodchucks. (Fig. 71.)

Any crop that will not interfere with the root growth or shade the top of the tree may be grown between the trees until they mature. If the soil is cultivated about the trees a cover crop of rye and clover, vetch and buckwheat, or turnips should be planted during the month of July. If such companion crops as beans, squash, cabbage, turnips and other root crops are grown and cannot be removed until later in the season, mulch the trees down with

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manure. Place the mulch under the limbs where the water drips from the foliage. In this way the feeding roots of the tree are protected from frosts. It is not advisable to intercrop with corn, or blackberries, and other cane fruits because of the shade, difficulty in cultivation, and the impossibility of removing the intercrop so as to give the tree the necessary space and care at the right time.

If the tree is grown on sod land, the grass should be cut at least twice during the season and scattered about under the outer tips of the limbs. Trees grown on sod land mature quickly and bear early. The fruit has a bright color, but some growers feel that the tree does not live long. If the soil has a tendency to be dry the clean culture method may be best; on hillsides, where there is a free supply of moisture, the sod method is satisfactory. The method of culture in many instances is a matter of choice.

As the tree grows older and the clean culture method is followed, as it is generally in the

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small gardens, add about a cupful of wood ashes and a cupful of bone meal to each tree, mixing both with the manure, which covers the surface of the soil as a mulch.

The second year after planting, add to each tree one pound dried blood, one pound bone meal, and one-half pound nitrate of soda. Scatter this fertilizer in a radius of two feet during the month of April. Increase this a little each year. If a liberal supply of decayed horse or cow manure is worked into the soil each spring the commercial fertilizer is not necessary.

Select trees with the main branches near the base of the tree two feet from the surface of the ground, and in this way a low head is formed. The fruit is picked more easily, spraying and pruning are done with less effort and with greater efficiency. Never allow limbs to cross and rub. In cutting off a larger limb cut it at the collar with a sharp saw having small teeth. Paint all wounds over one inch in diameter with white lead. The best time to

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prune is early in the spring before the sap flows. The wounds heal over quickly and do not dry out in the dry winds of the winter.

Most of our varieties produce from three to five apples to each fruit spur. When the apples reach the size of a five cent piece, thin them and leave only one apple to a spur. There is less danger of insect and disease injury, a larger, better flavored and more highly colored fruit is produced, and most important of all, the "off year" is eliminated. The strength of the apple tree goes into the production of seed; therefore on removing all but one apple to a spur, the seed has been removed and this strength that naturally would go into the seed is stored up in the fruit bud for next year's crop. Thinning in the North begins about July 1.

The insect and disease enemies of the apple tree are many and only a few of the more important ones are considered here.

The three scale insects, San José, Oyster Shell, and Scurvy Scales may be held in check

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and destroyed if sprayed with a strong solution of lime and sulphur when the tree is dormant. This solution is at the strength of one to eight which means that one quart of lime sulphur should be mixed with eight quarts of water. If this strong solution is applied after growth has begun the buds are destroyed.

If the flat or round head borers are found working in the bark, which is evidenced by a hole in the bark and a little sawdust under it, follow the borer in his furrow by cutting into the wound with a sharp knife, and destroy the insect. Plugging the hole with soap or lime is not satisfactory.

As soon as the foliage appears, the tent caterpillar starts his destructive work by eating the leaves. At the same time the apple scab, a fungous disease puts in its appearance. Both may be destroyed at one time. Spraying with lime sulphur one to forty, will check the scab; but adding to this solution, three pounds of arsenate of lead to every fifty gallons of solution will also destroy the caterpillar.

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Next to the dreaded San José scale comes the codling moth. The female first lays her eggs on the foliage, sometimes on the tiny apple, later after the bloom is full she places the egg in the calyx or flower end. Spray with lime sulphur one to forty, combined with 3 pounds of arsenate of lead to 50 gallons of solution just as the buds show pink; spray again, after three-fourths of the petals have fallen, driving the spray into the calyx; and a third time two weeks after the petals have fallen.

There are many other insects and diseases which attack the apple and should you have difficulty in knowing what to do consult The Farm Bureau manager, or write the Experiment Station in your state. The Department of Agriculture, Washington, D. C., is always ready to answer inquiries without charge or delay.

Keep your apple foliage a dark green; the tree vigorous and healthy, free from insects and disease; the soil well drained and supplied

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with food and moisture. Make the tree comfortable in its new home, get acquainted and make friends with each individual tree. Know its needs and never turn a deaf ear to its call for food and moisture, or help in the time of sickness.

CHAPTER XXIV

PEARS, CHERRIES, PLUMS, PEACHES, AND QUINCES

PEARS. The pear is the most luscious of any of the fruits but it is much the most difficult to grow. It may be grown to some degree of success in various types of soils which are well drained. Whenever possible, plant the trees on a northeast exposure in order to keep the buds back in spring and thus prevent the possible injury from late frosts.

In preparing the soil it should be well incorporated with humus, green manure such as clover preferred, but stable manure should also be added. If the young trees are to be planted in a clay loam make sure that it is well drained in the fall previous to planting. Cultivate the soil leaving it in the rough over winter. In the spring dig the holes ten feet

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apart each way. Place a little decayed sod and fine top soil in the bottom of the hole before setting the trees. Prune off all bruised or broken roots before planting. Remove all long whiplike roots to within six inches of the trunk. The tree should be set in the middle of the hole with the fine rich top soil worked in around the roots and tramped down firmly. Set the trees about three inches deeper than they were planted in the nursery. The depth of planting in the nursery is shown by the soil line on the bark.

Dwarf two-year-old trees are considered the best for the home fruit garden but there is no objection to planting the tall varieties providing there is room. Such varieties as Anjou and Angoulême (dwarf budded on quince stock) are considered good. Whenever Clapp's Favorite, Bartlett, Flemish Beauty, Winter Nelis, or Seckel are planted they should be so arranged that the pollen of the different varieties may intermix and fertilize the fruit. Such varieties as Bartlett and Win-

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ter Nelis are less self-fertile than some of the other varieties.

While the pear thrives best in a fairly rich loam, yet it may be injured by a loam too rich. Cultivate the surface of the soil until July 1, then sow a cover crop under the trees for winter protection of the roots. In the home garden where there are but few trees, a mulch of straw or manure will do.

All pruning should be done early in the spring before the sap flows. Cut out all limbs that cross and form the head as symmetrically as possible, allowing the sunlight and air to reach all parts of the tree and thus prevent the deadly action of blight. The branches on the other hand should not be exposed to the direct rays of the sun. Maintain sufficient foliage to protect the bark. On starting the top, cut back the leaders to about twelve to fourteen inches from the ground. Each year cut back the young growth to about half and always keep the head of the tree low. Pears are sometimes planted close to a wall and tied

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to a trellis. The branches are trained fan shape and this method of culture is not only artistic but productive.

It is always advisable to thin the fruit leaving the pears from three to six inches apart on the limb. This may be done from the 15th of June to the middle of July.

As soon as the seed turns brown it is time to gather the fruit for storing.

One of the worst insect enemies is the San José scale which attacks the bark and sucks the sap from the growing cells. Spray before the buds open with a strong solution of lime and sulphur, one part of sulphur to eight of water.

The codling moth does some damage but is easily controlled with the same preparation and method as that used on the apple tree.

Pear scab may be controlled by spraying with Bordeaux Mixture or lime sulphur, summer mixture.

Pear blight or fire blight is the worst disease. It attacks various parts of the tree causing the tips of limbs to wither and die and the

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bark on the trunk and limbs to shrink, tighten close to the wood, and become sunken black blotches. This disease is prevalent where the soil is very rich and the tree has grown soft and rapidly. No remedy has yet been discovered. Cutting out the diseased areas and spraying with lime and sulphur may check the disease. Buy varieties that are less subject to its attack such as the Seckel, Angoulême, and Kieffer.

Cherries. All low-lying land should be avoided for both the sweet and sour cherries. The sweet cherry if grown with any degree of success requires a deep sandy loam, so exposed (northeast) that the blossoms will be held back until all danger of frost has passed. A southern exposure not only causes the buds to break early but often causes sunscald. The sour cherries are hardier than the sweet varieties and do well in a light clay soil.

The sweet cherry should be planted twenty-four feet each way while the sour cherry has ample room at eighteen feet each way. Both

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should be planted early in the spring, set firmly in the soil and the surface of the soil cultivated until July 15 when a cover crop should be planted, clover, rye or vetch. If crops are grown between the trees continue cultivation until September and then mulch with straw or manure. After the trees come into bearing (five years) apply each spring one-half wheelbarrow load of manure, two pounds of bone meal, and one pound of muriate of potash to each tree working this fertilizer into the first three inches of soil.

Both the sour and sweet cherries require very little pruning after they come into bearing. Keep the head low, remove all limbs that cross, also all dead branches or twigs, cut out and keep the limbs open enough to allow a free circulation of air through the tree. The best growers head their trees about eighteen inches from the surface of the ground at planting time. Prune early in the spring before the buds start and again in the summer about picking time if the foliage is very dense. The

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best rich acid-flavored cherries highly recommended for extremely cold latitudes are Early Richmond, Montmorency and English Morello; the three best varieties of sweet cherries are, Black Tartarian, Napoleon and Lambert.

The three insect enemies that the average grower has to encounter are Cherry Fruit fly, Plum Curculio, and Pear Slug. The cherry fly is about two-thirds the size of the house-fly. It appears in June. The female stings the fruit and lays her eggs under the skin. The maggot is full grown about the time the cherry ripens. Spray with one-half pound arsenate of lead to seven gallons of water. Before spraying add one pint of cheap molasses. The molasses attracts the fly and the poison kills it. Spray when the Early Richmonds show signs of red.

The plum curculio is a grayish-black beetle which lays her eggs in the green cherry. Clean away brush piles and weeds and cultivate. Spray with arsenate of lead the same strength as used for the Cherry Fruit fly.

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The pear slug in the larvæ stage is a small, blackish slug which feeds on the upper part of the foliage. Spray with arsenate of lead.

The chief disease of the cherry is the Brown Rot, causing the cherries to decay. Allow sunshine and a free circulation of air through the branches. Destroy all diseased fruit after harvesting and spray with Bordeaux Mixture.

Birds are sometimes a common enemy of the cherry tree. Cover it with mosquito netting. One dollar will buy enough to protect a six-year-old tree.

Plums. For a limited planting about the home, the trees are most generally planted on the lawn, and in sod. The soil should be moderately fertile and well drained. While the plum thrives best in a clay loam yet it will succeed in almost any kind of soil.

Make the holes large so as not to crowd the roots. Place the sod in one pile, the fine mellow surface soil in another, and the subsoil in a third pile. Place some of the mellow soil mixed with two pounds of bone meal to each

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hole, in the bottom. After packing the mellow soil around the roots, fill in the sod and finally the sub-soil. Cut off all broken or mutilated roots and prune back the top or branches so as to form a symmetrically headed tree.

The plum tree requires considerable moisture to complete the development of a crop. After planting in the early spring, fifteen to twenty feet each way, mulch the surface of the sod with straw or coarse manure. If the trees are planted on cultivated soil, form a dust mulch about them and continue to cultivate. Of course where there is sufficient rainfall to keep the soil moist, mulching is not altogether necessary. If the cultivation is discontinued about July 1, sow oats and Canada field peas mixed, or rye and vetch as a cover crop to protect the roots in winter. Dig this green manure under in the spring.

If the "framework" of the tree has been properly constructed (low, loose head), little pruning will be necessary after the fifth year's growth.

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Thin the fruit so that the tree may produce each year and the remaining fruit will be larger, a finer texture, and better flavor.

The plum curculio is controlled with the same solution as suggested for the same insect on the cherry.

To control the Brown Rot, pick off all the "mummies" or rotten plums after the foliage has fallen. Spray with Bordeaux Mixture.

It is not an easy matter to advise any one in the selection of varieties. Like the apple there are many fine varieties but the following list may aid in selection. The Lombard produces a purplish red or violet colored fruit. The tree is thrifty and hardy. It blossoms about the middle of May, the fruit is ripe in September.

The Burbank is a Japanese plum. Its fruit is a large reddish plum with yellow flesh. The tree is very vigorous but the quality of the fruit is only fair. It blooms in May and ripens in August.

The Golden Drop, yellow fruit, is one of

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the best. It blooms in May and ripens the last of September.

The Abundance, thrifty, hardy and beautiful, blooms in May and ripens in September.

German Prune, one of the best for canning, blooms in May and ripens in September.

Imperial Gage. Large fruit which is a greenish yellow when ripe. Very productive and ripe about the middle of August.

Green Gage. Small, but good and ripe in September.

Yellow Gage. Large, yellow, oval fruit. Tree remarkably vigorous and productive. The fruit is ripe about the middle of August.

October purple. Fruit large and a fine flavor. It is colored a dark, rich maroon. The tree is a fine grower. Ripens middle of September. Should be in every collection.

Peaches. In past years it was thought that the peach was partial to a sandy type of soil, but it has been demonstrated beyond doubt that the peach will grow on any type of soil that will grow corn or potatoes. A sandy

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loam with a light clay subsoil is especially desirable because of the adequate supply of moisture, warmth of the soil, drainage, and general physical condition.

The peach should never be planted in low places but always where there is good air and water drainage.

One-year-old trees should be bought from a reliable firm, planted early in the spring from fifteen to twenty feet apart both ways. All broken or bruised roots should be trimmed back and the top cut back to form a low head.

If stable manure is available it should be used in large amounts but should be well mixed with the soil before planting the tree. If stable manure is not available mix one-half pound of dissolved bone, one-quarter pound muriate of potash and one-quarter pound of nitrate of soda per tree. Double the amount after the first year and apply it in May after the buds have started.

Prune the tree a little each year to form a stocky tree, force new growth on which the

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fruit is borne, keep the head low, thin out surplus branches and indirectly thin the fruit. Never over prune or "dehorn" the tree. This practice causes a rapid, weak growth, subject to disease and the attack of insects. Prune early in the spring before the sap flows.

Mulch the surface of the cultivated soil, each fall about October 15. The peach tree requires surface cultivation from early spring until late in the fall. Peaches will not grow on a sod-bound soil.

Just as soon as the "June drop" is over, gather up the peaches from the ground and destroy them. Thin out the remaining fruit from three to five inches apart.

If the leaves curl early in the season you may have the leaf curl disease among your trees and they should be sprayed with Bordeaux Mixture or lime sulphur.

If the leaves turn yellow early in the summer dig out the tree or cut off any affected branch and burn it. There is no remedy for the peach yellows.

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The five varieties recommended for the home orchard are Greensboro (white flesh), Eureka (white), Early Crawford (yellow), Elberta (yellow) and Late Crawford (yellow).

Quince. The quince is seldom grown because it is slow to bear and very irregular in growth. It requires a well drained, clean cultivated clay soil. Secure one- or two-year-old trees, prune off all side shoots and form a standard on which a low head may be formed. Prune out all superfluous shoots each spring before the sap flows and allow the air to circulate freely among the branches. Sucker growth is common and should be cut out. The same treatment of the soil in fertilizers and cultivation which is suited to the culture of the peach is demanded by the quince.

In the North, the Champion and Reas' Mammoth require a light garden loam, in the South the Chinese and Portugal do well.

CHAPTER XXV.

INTENSIVE GARDENING

INTENSIVE gardening means two distinct systems of cropping, companion and succession. Both are practiced to a greater or less degree in any well managed garden but might be improved upon if during the winter months plans were drawn up on paper and the crops arranged for planting before it is time to put these plans into execution.

Companion Cropping. When two or more crops are grown together, this system is known as companion cropping. The vegetables are started at the same time. For example, early lettuce and radish are planted early in the spring, the radish maturing in thirty-five to forty days is removed, the lettuce then occupies the room and matures later.

The advantages of companion cropping are:
(1) economy in fertilizers, the plant food

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or fertilizer scattered broadcast is utilized by both the growing crops before it is lost; (2) economy in space, all of the soil surface is at work all the time; (3) the possibility of more intensive tillage, serving the two crops with one or more cultivations; (4) concentration of labor and interest which always savors of success; (5) an increased production from a limited area.

Of course, companion cropping means that the rows are close together which requires hand weeding and cultivation also a demand for manure which is sometimes scarce, especially in the city. Companion cropping means also that the soil must contain humus in order to supply the great demand for moisture taken off by the rapidly growing crops covering all of the surface of the soil.

In planning this system of planting consider (a) the time for each crop to be planted and the required space; (b) the time of maturity of each; (c) the required plant food and moisture necessary for each crop.

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Plans for Companion Cropping. There are many combinations of companion cropping and the gardener, after a few experiences, will combine many vegetables that are not mentioned in the following suggestions. Never crowd the plants; always keep in mind that these children of the soil reach maturity and produce their kind in a short period and that they require sunshine, air, food and moisture.

Succession. When one crop follows another in the same season the process is known as succession cropping. For example early peas may be followed by late cabbage. In some instances three crops may be taken from the same soil in one season; early lettuce, started in the hotbeds and transplanted, matures in four or five weeks, followed by radish which matures in thirty days in late spring, and this second crop is followed by a late planting of string beans, late cabbage or cauliflower.

As a rule, succession cropping is of more

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importance to the market gardener than the home gardener. Wherever there is plenty of room for gardening, for example in the average farm garden, succession cropping is recommended.

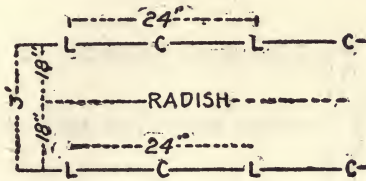
PLANS FOR SUCCESSION CROPPING

1. Following an early crop of lettuce planted in the hotbed, transplanted to the garden about May 1, maturing June 7, plant mid season radish which should mature by July 15. Following the radishes there may be the late cabbage.

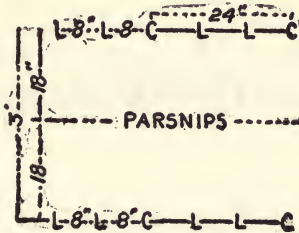
2. Another successful plan that has been carried out is the following: remove multiplier onions, planted the previous spring, by May 1. Transplant lettuce which should mature by July 10. Follow the lettuce by celery. Before planting the lettuce apply decayed horse manure to the soil.

3. Early peas may be sown in March; they mature in June, and may be followed by late potatoes.

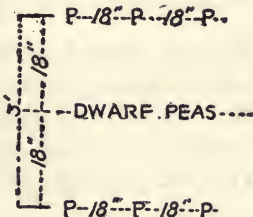
SUGGESTIONS FOR THE INTENSIVE GARDENER



1. Early heat lettuce (L) started in the hotbed three weeks previous to planting. Radish seed sown at the time of transplanting lettuce. Early cabbage (C) started 4-5 weeks before planting, having had one shift from the seed bed to the flat.

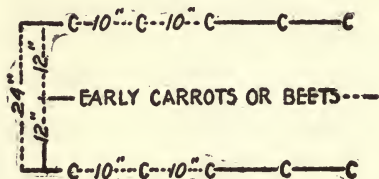


2. Early cabbage (C) started in the hotbed. Parsnips sown at the time of transplanting cabbage. Two loose leaf lettuce (L) plants set between each cabbage plant.

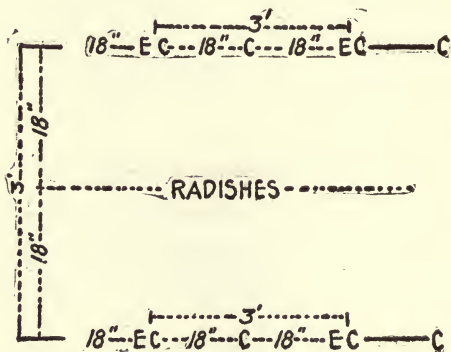


3. Early potatoes (P) planted as soon as the soil is ready to work. Wrinkled peas sown between the rows. (Dwarf.)

SUGGESTIONS FOR THE INTENSIVE GARDENER
(Continued)



4. Early celery (C) transplanted from the hotbed, early carrots or transplanted beets planted between the rows.



5. Early corn (E. C.) planted in June. Cucumbers (C) started in strawberry boxes transplanted between the hills. Squash and pumpkins are planted in a similar manner but from seed planted at the same time as corn. A row of radishes may be planted between the rows.

SUGGESTIONS FOR THE INTENSIVE GARDENER
(Continued)



- 6. Tomatoes transplanted and staked. Lettuce plants set between the tomato plants in the rows. Onion sets for bunch onions, planted between the rows.

CHAPTER XXVI

COMMUNITY GARDENS

ONE of the most useful of gardening or civic improvements may be carried on by groups of citizens in community gardens. In a few cities this effort has been stimulated by civic pride and public spirited organizations, and the gardens, having been supervised by a practical gardener, have reached the highest degree of success. The gardener in charge should be paid a good salary so that he may be expected to devote all of his time and interest to this work. The hit or miss, unschooled and unskilled directing of garden work has been and will always be a failure.

There are in every city, town and village, vacant lots which grow up to weeds each summer and are only breeding places for insects and disease. These lots if used for gardens in

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which both flowers and vegetables may be grown, will not only improve the appearance of the property and be of later utility to the real estate man, but will become a real source of income for the home gardener.

Make your home yard tell the most in thrift, personal interest, beauty and attractiveness not only to your neighbors but to visitors. This one touch of neatness and productiveness may have a lasting influence on generations to come and be far-reaching in communal effort. In order to do this there must be thrifty perseverance and the carrying out of certain principles.

These community gardens may be organized and operated through the Farm Bureau, Grange, Men's Clubs, Women's Clubs, civic improvement organizations, schools, and even through the local Y. M. C. A. and Y. W. C. A. In all instances the best results are realized when the garden project is backed by coöperating organizations rather than by some public spirited individual. A practical, working

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chairman should be in charge of all the work and of the various committees on securing the land, distributing the lots, buying seed, preparing the land, and publicity. If the garden work is extensive it should be put in charge of a practical gardener worthy of his hire, who should be consulted in reference to the advisability of using certain soils and treatment of the preparation for the soil. His advice must be sought as to how, when, and what to plant, the general culture of crops, the control of insects and diseases, if they appear, the best method of harvesting and storing vegetables. Much depends on the gardener and his ability to stimulate, coöperate and work with and for the people.

The gardens should be inspected and demonstrations arranged for each week and a daily report kept and handed to the chairman at the end of each month.

Securing Land. Have one or more representative people visit the owner of a certain tract of land and present the garden project.

COMMUNITY GARDENS

State the possible income to worthy citizens. If the land is for sale, a beautiful garden will attract more attention than a plot of weeds. The land is improved by cultivation. It is a practical and inexpensive way to advertise. One year of gardening may encourage the building of homes and hence the possible sale of the land.

It is not always necessary to use these arguments to a public spirited land owner. He sees the true value of having the land used and so there is seldom any difficulty in securing the land free.

After the public realizes that lots may be had there is more often a lack of lots than of applicants.

Distribution of Lots. Here again the gardener is wise in coöperating with the head of church, or school, or neighborhood group receiving these little farms of, say fifty by one hundred feet. The applicant signs the record blank (Fig. 75), under the statement, "I hereby agree to plant and properly care for

GARDEN RECORD

No. _____

Contributor _____

Address _____

Date Entered	Garden No.
Date Occupied	Paid
Size	Soil

Gardener _____

Street _____

City _____

County _____

State _____

314

CROPS GROWN

Good
Fair
Poor

Inspected by _____

Value of Crops _____

Potatoes — Number of Bushels _____

Roots — Number of Bushels _____

General Crops _____

Total _____

I hereby agree to plant and properly care for Garden No. _____

Signed _____

Remarks:

Fig. 75.—A suggestion of a garden record to be kept on file at the garden headquarters.

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garden No. —.” He then deposits \$1.00 to pay in part for plowing, etc. Having deposited one dollar he seldom backs out of his contract. The remaining expense of about \$1.50 he agrees to pay within four months.

Buying Seeds. The gardener in charge may draw up a series of garden plans, giving the amount of seed and best varieties adaptable to climate and soil. These plans should always be on the intensive method of planting. If the gardeners wish, they may band together, order their seed early from a reliable firm, and by buying it in large quantities the seed is obtained much more reasonably. The price of the seed should be listed and the buyer sign a contract to take the seed at the stated price when it arrives. Deal with the seed firm in your home town and have the firm deal direct with a reliable seed house. This is a home project. Patronize home industries.

Preparing the Land. The success or failure of community gardening depends much on the type and preparation of the soil. If

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the land is in weeds or grass, plow it early in the fall or spring. Get the public works department and livery stables to donate manure for this worthy, local effort. If necessary, get some firm or wealthy individual to donate a car load of manure secured from some near-by city. Scatter this over the surface of the soil and disk it into the first 3 inches of soil. Here the gardener should have full charge and authority to exercise his best judgment. After the land is prepared, stake it out and place a label on each plot with the applicant's name and address so that, should he or she fail to keep the weeds down or follow the proper planting, the gardener loses no time in getting in touch with the owner. This label is also an aid in showing the owner's efforts to advantage. Each applicant should be allowed to exercise his own individuality in his method of planting and culture but where utter neglect occurs it should be remedied at once so as not to disorganize the entire scheme and cause complaints. Paths two feet wide should be ar-

COMMUNITY GARDENS

ranged for between each two gardens. Use as little land for paths as possible.

Publicity. The local newspapers may run a series of timely articles written by practical gardeners. A column of questions and answers also might prove an aid. Avoid extreme methods and freak attempts at gardening. Get the noted men in your community back of this effort and have their names appear at times, as well as the names of those less prominent but successful. Start a garden contest through one of the papers, prizes being offered by local firms or individuals. A well organized contest stimulates wholesome rivalry between different community gardens and gardeners.

Have a bulletin board at every community garden where the gardener may post the various important notices and garden suggestions.

Care of Tools. In some of the large gardens where there are from twenty-five to one hundred and fifty small plots, a tool house is located near the center of each group. Each



FIG. 76.—The sign that kept the tempted from stealing the vegetables grown in the community gardens. It also stimulated a desire for greater production.

COMMUNITY GARDENS

gardener storing tools in this house should have a key, so that he may get his garden equipment at any time. Each gardener should own a set of tools and be instructed how to care for them and keep them in shape in order to get the greatest efficiency with the least amount of effort. For example; the hoe should be kept sharp and polished, especially if it is to be used in destroying weeds.

Flag Pole. Near the bulletin board or on some prominent mound, a flag pole should be raised and on bright days the flag should be spread to the breeze.

The American Home is the noblest institution we possess and the flag should float over this garden which bears witness to the coöperation of individuals of all nationalities working side by side with one common interest—a coöperation from which we may rightly expect unselfishness, a greater sense of community responsibilities and stronger national and civic pride.

CHAPTER XXVII

WHAT TO DO MONTH BY MONTH

THE following suggestions are for the latitude of New York City. For every hundred miles north or south subtract or add from five to eight days.

JANUARY

THE VEGETABLES

Catalogue. Send to all the reliable seed houses for their catalogues. Select varieties suitable to your soil and climate. Inspect the tools and order new tools to replace broken ones or parts to repair old ones.

Garden Plans. Take a careful measurement of your garden and draw a planting plan to scale. In ordering your seed make allowance for companion and succession cropping. Plan for a new strawberry bed every two or

WHAT TO DO MONTH BY MONTH

three years. Make plans for intensive gardening. It is better to concentrate your efforts on a small space than to make a partial failure of a large area.

Fertilizers. Order stable manure now. There is no objection to spreading it over the snow if it is partly decayed. Well rotted manure will give better results if held over and applied a few days before planting. Buy your fertilizer now so you may have it on hand early in the spring.

Hotbeds. Save straw horse manure. Do not let it dry or expose it to the elements. It should be covered. Repair sash by replacing cracked or broken glass and painting the wood.

Early Cabbage and Cauliflower. Cabbage and cauliflower plants in frames should be kept just above freezing. Remove the snow from the hotbeds and ventilate on sunny days. The sash should be opened for a few minutes each day unless on stormy days. Plants grow spindly and sickly if left in the dark and warmth too long.

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Flats. Make new flats in order to have a supply on hand. The size may vary but 15" x 18" x 3" is convenient. Flats are easy to carry to the garden at the time of transplanting. The plants are removed and immediately placed in their permanent location without exposing the roots to the air or sun.

Wood Ashes. Save all wood ashes. Place them in a dry place and use them on the potato land several days before planting in the spring.

FRUITS AND BERRIES

Visit your orchard frequently and especially after a heavy fall of wet snow. Take a stout stick with you and lift up the limbs with it to shake off the snow. Never pull down the limb. It is usually weighted down to the breaking point and any additional weight or movement will break it off close to the trunk.

Pruning. Prune peach trees on warm days. Cut out all cross limbs and thin out the head. Plums and cherries may also be pruned. If large limbs must be removed paint the

WHAT TO DO MONTH BY MONTH

wound with white lead. Never leave stubs sticking out, cut the limbs off close to the trunk and twigs close to the branch.

This is a good month to thin out the currants and gooseberries. Take out old wood and especially dead branches. Cut these off close to the soil.

Planting. If you are planning to set out a few trees in the spring order them now.

Buy the trees from a reliable nursery near you. Trees shipped from the south to the north are cheaper but they seldom thrive in the northern climate and often die the first winter. Never deal with agents or buy a cheap tree.

Insect Eggs. In going among your trees keep a watch for insect eggs. In destroying one cluster of twenty-five to one hundred eggs you have removed a possible danger which, if allowed to develop, might strip the tree of foliage in the early spring. On bright days the rough bark on the apple tree might be scraped off. This practice does not necessarily benefit the tree but in removing the scaly bark

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the insects are exposed and are destroyed by the first dormant spray.

Inspection. Make the second inspection of the fruit cellar and root cellar. Pick over the fruit carefully and remove all apples or pears that are fully ripe.

FEBRUARY

THE VEGETABLES

Onions. Sow the seed in flats the latter part of the month. These may be placed in the hot-bed or greenhouse. The seed is slow to germinate and if kept in a cool place the plants will grow slowly. These onion seedlings may be planted in the open in April, in rows one foot apart and two or three inches apart in the row. Transplanted seedlings usually produce very large winter onions.

Celery. Sow the seed of White Plume or Golden Self-blanching celery. Keep in a moderately warm place. Shade the seed bed and keep it moist. After the seed germinates give the plants sunlight. After the seedlings have produced two or three leaves transplant

WHAT TO DO MONTH BY MONTH

two inches apart each way, in a rich loam. These plants will be stocky for very early spring planting. Never rush the plants by keeping them in a warm place. After they have been transplanted keep them cool.

Early Vegetables. The last week of this month sow the seed of early cabbage, cauliflower, leeks and kohlrabi. Transplant the seedlings and keep them in the cold frames until the last of March and during April. Give the seedlings fresh air and sun. Keep the soil moist but never wet. Water all seed beds and seedlings early in the morning so that the foliage and excess moisture may be dried before night.

Start a few extra early tomatoes. Keep the plants in a sunny place where the night temperature does not drop below forty degrees Fahrenheit.

Seed. If your garden seed arrives this month keep it in a dry cool place out of the reach of mice. A tin box or can with a few holes punched in the lid is ideal.

PRACTICAL GARDENING

Stakes. Paint the garden stakes used for tomatoes, etc.

FRUITS AND BERRIES

Sharpen and clean the pruning saw and shears.

Inspect the plum and cherry trees and remove all black knot and "mummy" plums. The black knot destroys the branches of the tree and should be cut out about 1 or 2 inches below the infected part. The "mummy" plums spread the fruit rot and should be burned.

Spray Material. Buy a stock of lime sulphur, Bordeaux Mixture, arsenate of lead and flowers of sulphur. Tobacco dust may also be bought at this time providing it is kept in a tin can or box. Lock away all poisons.

MARCH

THE VEGETABLES

Seedage. Sow the seed of lettuce, tomatoes, eggplant and peppers under glass.

WHAT TO DO MONTH BY MONTH

The last of the month if the soil is fit to work, sow wrinkled peas, spinach, and onion seed in the garden.

Early Potatoes. Keep them in a temperature just above freezing to prevent sprouting. A few seed potatoes may be started now if placed in small compartments in a flat. The soil should be rich. Transplant in April.

Asparagus and Rhubarb. Dig in the winter mulch about the crown of the rhubarb plants. Also fork up the asparagus bed to a depth of two or three inches, digging in what remains of the winter mulch after applying a free amount of bone meal.

Early Roots. The seed of parsnips, turnips, and carrots may be sown the last of the month. The light frosts of April will not injure these seedlings.

Hotbed. March with its changeable weather causes the gardener to keep a watch on the hotbed. A few hours of bright sunshine beating down on the unventilated hotbed

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may cause a weakening of the plant. Also over ventilation and a few hours of cold wind with a dark sky may chill the plants. Keep the hotbed plants stocky and healthy.

FRUITS AND BERRIES

Pruning. With the first warm days, start to prune the apple trees. Do not over prune by cutting out the center of the tree and forming a nest-shaped head. Thin out the branches so that air and sunshine may reach all parts of the tree. Use only sharp tools and paint all wounds over, one and one-half inches in diameter.

Grafting. If your apple tree is not a desired variety, cliff graft the head. Cut off a limb one to two inches in diameter, split it so as to allow the wedge-shaped scion to fit tightly in the opening. The scion should be the previous year's growth from the desired variety. Cut the scion wedge shape at one end, starting the cut on each side of a bud. Leave three buds to a scion. Place the lower

WHAT TO DO MONTH BY MONTH

bud out, in fitting the scion into the split branch. Have the growing tissue of both scion and stock fit closely together. Cover all wounded parts with grafting wax. Graft one-third of the tree each year until it is completed.

Planting. The last of March is an ideal time to plant fruit trees providing the soil is in good condition. The earlier the tree is planted before the buds start the better chance the tree has of establishing itself.

Cultivation. Dig a plow under the mulch around blackberries, raspberries, currants and gooseberries. Keep the soil well cultivated from March 30 until blossoming time.

Strawberries. Remove the protection mulch from the plants and spread it on the space between the rows and dig it in. Remove surplus runners. Cultivate freely until June.

Spray. Spray the apple, pear and plum with a strong solution of lime sulphur while the trees are dormant. A solution with one

PRACTICAL GARDENING

part lime sulphur to eight parts of water is effective in controlling the San José scale.

APRIL

THE VEGETABLES

Greens and Rhubarb. Remove the straw from the spinach or dandelion beds. If a severe frost threatens, cover the plants over night. Rhubarb roots may be planted two to three feet apart in rows five feet wide. The soil should be very rich and the roots planted five inches deep. Dig in cow manure and bone meal around the old plants.

Asparagus. This is the month to set out asparagus plants. The roots should be placed a foot apart, the rows three and a half feet apart; plant four inches deep in rich soil. Do not cut asparagus from the new bed for three years. The old bed should have a liberal application of decayed horse manure and coarse bone meal dug in early in the month. Cultivate between the rows and apply coarse salt to the rows.

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Preparedness. Have on hand arsenate of lead (poison) for chewing insects, hellebore as a dust poison, flowers of sulphur to dust on roses and sweet peas infected with mildew, whale-oil soap to spray roses. Keep a watchful eye on the hotbeds, especially where the flower annuals are located. Have a bag of bone meal and sheep manure available for later use. (For sale by seed stores.)

Frames and Equipment. Prepare the cold frames so that they may be used the last of the month to harden plants before shifting them to the field. Look over your tools. Repair and test the seeder and repair berry crates and baskets. Labels, stakes and the general garden equipment should be placed in order now.

Vegetable Seeds. After all danger of hard frosts has passed, plant onions, carrots, beets, endive, kohl-rabi, leek, peas (smooth seed), radish and turnips. Protect early cabbage from the cutworm by placing wood ashes around the stem or by wrapping a small piece of paper about it. Celery, eggplant, peppers,

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tomatoes and lettuce seed should be sown in the hotbed.

The Hotbed. A close observation must be kept of weather conditions. With the alternation of clouds and sunshine, the sash of the hotbed must be closed or opened. Never allow the cold rain to beat in on the young plants. Ventilate early in the morning by lifting the sash one to five inches at the highest elevation of the hotbed. Later in the day the sash may be drawn down at the bottom of the hotbed. Close the sash about three or four o'clock in the afternoon on bright days, so that the soil may be warmed before the night sets in as the hotbed retains much of this heat. Observe carefully the frost records of previous years. Keep mats near and use them on threatening cold nights.

The Soil. Don't be too ambitious to dig or plow your garden before the soil is in condition. It should never be wet or cake as the clod is turned over but should fall apart.

If you have a clay soil add a little lime to

WHAT TO DO MONTH BY MONTH

sweeten it; do not use ashes. Apply from two to three inches of well rotted cow manure or horse manure to your garden before digging. Food and humus are both necessary for success. Chicken manure should be used sparingly. Coarse or fine bone meal is a fine addition to stable manure. The plant food is liberated slowly from decaying bones. If you observe standing water in various places in your garden, have it drained. Nothing is of more importance. Plants will not grow with wet feet, and the soil in such moist places is usually sour.

Pests. Watch for the tent caterpillar on apples, cherries and plums. This insect, in the larva stage, builds tents in the crotches of limbs and appears as soon as the buds start to open, devouring the foliage and sometimes the tender stem. Spray the foliage with a poison, arsenate of lead—three parts to fifty parts of water—and place it where the insect eats. The poison should be applied after the foliage is dry and with a spray machine—hand or

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power. Do not burn out the nests. This practice always injures the limbs. Remove the tent in the evening with a swab dipped in kerosene. Do not leave the insects on the ground or they will crawl back into the tree; burn them.

Keep a diary. Start with April to keep a garden diary. Keep a record of the temperature morning, noon and night. It will be valuable to you next year. Make notes on the germination of seeds in the hotbed, date of transplanting, date of harvesting and general remarks. There is nothing more essential in gardening than to be business-like, to know the when, where and how of every plant grown.

Spend your spare moments in your garden library. Intelligence is the only sure road to success in garden-making.

Clean up all rubbish and on rainy days paint stakes, labels and other garden accessories.

FRUITS AND BERRIES

Burning and Spraying. Burn all brush or

WHAT TO DO MONTH BY MONTH

prunings. The brush pile harbors codling moth, flathead borers and other insects. If the buds have not already started, spray every part of the tree with a reliable brand of lime sulphur—one gallon of the stock solution to eight gallons of water if it has not been done before. A late spray of this strength is the best control for San José scale and oyster-shell scale, many of which are out from beneath their protective covering. This dormant spray will also control the scab.

Planting. If you have not already planted your fruit trees, heel them in as soon as they arrive. Plant them into their permanent place as soon as possible by digging a large hole and placing the top soil where it may be easily secured to fit firmly about the roots. Do not cramp the roots. Be careful not to mix the varieties on unpacking the bundles. Standard varieties, such as Baldwins, Kings and Northern Spies, should be planted forty feet by forty feet, with smaller varieties, such as the Wagner, between as fillers. Mix the varieties in

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such a way that they bloom about the same time, which simplifies the practice of spraying. Also study the flowers to see whether they are self-fertile or self-sterile. Pollination is important in crop production.

Pruning. The apple should be pruned before the buds start. Remove all water sprouts (young, straight shoots growing from the branches). Remove all suckers (shoots growing from below the surface of the ground). Prune so as to prevent the crossing of limbs. Remove dead wood and sufficient branches to allow a free circulation of air. Do not over-prune. If the trees have been neglected in the past, take three or four years to shape them. Smooth the wounded edge of large limbs with a sharp knife so as to aid the healing over by the growing tissue (cambium layer). Do not cut the edges on an angle. Have all pruning tools sharp. The peach and cherry do not require much pruning after they come into bearing. Remove all dead branches. If a peach tree is inclined to have a bad attack of the yel-

WHAT TO DO MONTH BY MONTH

lows (the leaves turning yellow and dropping), remove the tree without touching others, to prevent infection, and burn leaf, branch and root. Don't take any chances!

Berries. Cut back all dead wood and head back the blackberry and raspberry to a height of three and one-half feet. If the canes are thick, thin them out before tying. Start to cultivate as soon as the frost is out of the ground and the soil is not too sticky. This is the rainy month, therefore do not be too ambitious to cultivate the strawberry patch. Run the cultivator between the rows before fitting the straw under the edge of the plants to prevent the rain from splashing soil on the fruit later in the season.

MAY:

THE VEGETABLES

Don't Hurry. Don't be too anxious to plant out tender varieties of vegetables until all danger of frost has passed. Start your liquid manure barrel to working. Don't cul-

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tivate when the soil is wet, but never fail to cultivate when the soil is friable after a rain.

Hardy Vegetables. For a small garden, buy plants free from disease, thrifty, stocky and true to name. Plant out cabbage (Early Jersey Wakefield), cauliflower (Early Snowball), lettuce (Big Boston or Early May King), celery (Golden Self-Blanching), Brussels sprouts (Long Island Improved). Keep a succession of plantings of peas every two weeks. As the season advances, plant the pea seed deeper, from one to four inches.

Various Crops. Feed the parsley liquid manure and cultivate regularly. Don't pick off all the leaves and expect a good growth. Sow carrots and parsnips in a deep soil; beets, turnips and radish as catch crops between rows of celery or late cabbage. Transplant onions from the coldframes into muck soil enriched with horse manure. Plant on cloudy days. Cut, but never pull, the seed-stalks from rhubarb later in the season. In pulling out the seed stalk, the heart is injured. Feed rhubarb

WHAT TO DO MONTH BY MONTH

liquid cow manure. The last of the month, north of New York City, risk a few hills of sweet Corn (Golden Bantam).

Hotbeds and Cold Nights. Harden off all plants to be transplanted to the open by increasing the ventilation and decreasing the moisture. Before transplanting, preferably on dull days, soak the soil with water, so as to have it adhere to the roots. On still, clear nights, protect the plants outside that might be injured by frost with paper, boxes, glass protectors or flower-pots. Remove these early in the morning, to prevent scalding.

Potatoes. Plant your late potatoes the last of the month. Cultivate the early varieties which show growth above the ground. Start to spray with Bordeaux Mixture, to prevent the early blight. Especially spray the leaves that are close to the soil.

FRUITS AND BERRIES

In the Orchard. Go among your apple trees at least three times a week. The success

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or failure of your crop depends to a large extent on your treatment of the trees during this month. Spray the apple tree if you have not already done so as directed in April. Separate the branches of young trees by the use of shingles, wedging them into the crotches, or by strong twine tied in such a way as to pull the branches apart. Use a piece of rubber to prevent bruising the bark. Clean cultivation should be practiced in many orchards. Be careful not to bark the trees with the implement used. A beehive is of the greatest benefit in an apple, peach, cherry or plum orchard during the flowering season.

Blackberries, Raspberries. Cut all canes striped with an orange rusty growth (rust). Spray with lime sulphur, 1-40. Keep the plants free from weeds. If the plants are badly infested with rust, secure new stock and plant a new bed in another part of the garden after all of the old stock has been burned.

Currants and Gooseberries. Spray with $\frac{1}{4}$ lb. arsenate of lead to 5 gallons of water

WHAT TO DO MONTH BY MONTH

for the currant worm, which devours the young, tender leaves. Do not neglect spraying even though the plant is in full bloom. Defoliating the plant means a loss of the crop. If the worm appears after the fruit is formed, dust with hellebore or London purple.

Strawberries. Cultivate until the flower opens, then stop and spread straw or grass under the leaves and flowers. The dust from cultivation often destroys the fertilization of the flower and causes a poor crop. Mulching early will aid in retaining moisture, and keeps the soil from splashing on the berries during a rain. It requires about 600 barrels of water to develop an acre of strawberries.

JUNE

THE VEGETABLES

Fresh Every Hour. Sow every two weeks so as to keep the table supplied with beans, peas, radishes, beets and corn. As the season advances, such seeds as peas should be sown deeper, but the furrow should never be

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more than four inches deep. Telephone, British Wonder and Champion of England are desirable late varieties. The soil should be rich and at least twelve inches deep for carrots and parsnips, and the seed should be sown one-fourth inch deep. After the young plants appear, thin them to four inches apart in the row. Late varieties, like the Long Orange Improved and Chantenay carrot, and the Improved Hollow Crown parsnip are fine keepers. These varieties may be thinned to five inches apart in the rows. For early and late fall use plant out late cabbage, cauliflower, Brussels sprouts, kale and celery. For late crops sow celery and cabbage seed out of doors. After June 25, sow rutabagas and winter radishes for fall and winter use.

Mid-season and Late Corn. The best medium-early corn is Stowell's Evergreen; it should be planted in a rich, deep soil. The most satisfactory late varieties are Black Mexican, Late Mammoth and Country Gentleman. Even though the Golden Bantam is

WHAT TO DO MONTH BY MONTH

an early variety, it may be sown later than any other variety and will ripen late in the fall. The ears are short but what is lost in size is made up in sweetness.

Potatoes. Every small garden should raise a few potatoes. Such crops as lettuce, radish, early peas, and the like, may be planted between the rows, which should be three feet apart. Carman No. 9, Rural New Yorker and Green Mountain are satisfactory medium and late varieties. Do not apply fresh stable manure to the soil before planting; both have a tendency to encourage potato scab (scabby skin). The seed (piece of potato with one or more eyes) should be planted fifteen to eighteen inches apart in the row and six to eight inches deep. As soon as the potato appears above ground, watch for the beetle. Spray early with Bordeaux mixture and arsenate of lead. (Preparation may be bought at seed store.)

Squash and Pumpkins. Winter and summer squash do best if planted after the soil is

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warm. One ounce will plant fifty hills. If you get the seed in by June 1, you will have a fair crop by September 30. The soil should be rich and the seed may be sown between the hills of early corn. Pumpkins may be grown in the same way and need about the same soil.

Cucumbers and Tomatoes. Give the cucumbers, started a month ago in your hotbed, free ventilation, plenty of room and a liberal supply of moisture. Dust occasionally with tobacco dust. Stake and tie up tomato plants. The fruit forms better and ripens sooner. After the fruit is well formed, pinch back the foliage so as to expose the tomato to the sun. All side shoots should be kept cut off.

Asparagus and Lettuce. Stop cutting asparagus about June 30 and allow the plants to grow so that food may be stored in the roots for the next year. If the asparagus beetle appears, dust the plants with hellebore while the dew is on them. Scatter salt in the rows and cultivate between the rows. If you wish tender lettuce, especially the loose-leaf variety,

WHAT TO DO MONTH BY MONTH

shade the plants with cheesecloth. This practice also tends to keep the plant from running to seed. Keep the roots moist but the tops dry.

Onions. If the root maggot appears, remove the infected plants and destroy them. Dig a little lime and tobacco dust into the soil. Shift the onion-bed next year. There is no successful remedy for this pest.

Pests. Protect cabbage, cauliflower and other plants from the greatest of garden enemies, the cut-worm. Mix bran mash and Paris green and place a little close to each plant. Destroy the currant worm with arsenate of lead (one-half pound to six gallons of water) and spray when the foliage is dry. Protect the cucumber plants from the striped beetle by dusting the plants with air-slaked lime, tobacco dust and arsenicals in flour form; it will be safer to cover each hill with a box covered with muslin or screened with mosquito netting.

Cultivate. Keep the garden well culti-

PRACTICAL GARDENING

vated. A dust mulch means no weeds, more moisture, healthier plants and finer bloom. Thin out all plants so they may have room to develop. Crowding shows poor judgment on the part of the grower and develops only weak, sickly plants. Keep the scuffle hoe busy while the weeds are small. Then the soil is not robbed of moisture or plant food.

FRUITS AND BERRIES

Spray with lime and sulphur (1-40) to which is added three pounds of arsenate of lead. This spray should be applied three times during the month to keep in check the tent caterpillar, codling moth and apple scab. If the red bug is found on the Pound Sweets, spray with "Black Leaf 40." Do not get the spray on painted buildings.

Better Fruit. Thin pears and plums so that they have room to develop perfectly. When fruit is thinned, the strength that would naturally go into the seed of the fruit that is removed, goes into the fruit buds for next

WHAT TO DO MONTH BY MONTH

year instead. The practice eliminates "off years."

Mulch. If the orchard is in sod, keep the grass cut close and scatter it under the outer tips of the limbs where the water drips from the foliage. That is where the feeding roots are, and decaying grass mulch makes a fine food. If the orchard is under cultivation, keep the harrows working and form a fine dust mulch.

Disease. If the tips of the branches turn black and the leaves dark brown, cut these off one inch or more below the diseased twig and burn. If fire blight (dark, dried blotches) appears on the pear trees, cut out the diseased bark and swab the wound out with corrosive sublimate (1-1000). If there are any trees or hedgerows of hawthorn or an old blighted pear tree in the community, have them cut down and burned. After removing the disease, sterilize the knife with the above solution each time to prevent infection.

Berries. Mulch the strawberry plants with

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dried grass from the lawns, or straw, so that the soil is kept moist and the berries clean. Water freely so that the moisture reaches the roots. Apply a little nitrate of soda on rainy days. Never cultivate when the plant is in bloom. Mulch the cane fruit plants with well decayed horse manure and cultivate freely.

JULY

THE VEGETABLES

Asparagus. Stop cutting the asparagus and apply on each row a liberal application of bone meal. Cultivate between the rows. If weeds appear in the row, scatter on a little salt.

Squash and Melon. If the fruit is set, pinch back all side growths. Be careful not to injure the foliage or bruise the fruit. In lifting or shifting the position of the squash or melon, the fruit-stem is often injured, which seriously impairs the development of the fruit. Apply a little wood ashes or some other form

WHAT TO DO MONTH BY MONTH

of potash to the soil, work it in and water the plants freely.

Transplanting. Plants developed from seed sown in the open in June should be shifted to their permanent places—such plants as cabbage, cauliflower, Brussels sprouts, endive and late tomatoes. Whenever possible plant on rainy or cloudy days. If the day is bright plant after sundown and water each plant freely.

Corn. Golden Bantam corn planted not later than July 10, on a rich soil that retains sufficient moisture will mature in time to give you sweet corn in the fall.

Succession and Companion Cropping. A maximum yield should be the chief aim of every garden. As the early crops are being removed, the question arises, "What may I do with the land now?" Intercropping may be followed successfully by using a little care in arranging the winter crops, even though all of the early vegetables have not been harvested. Care should be exercised in cultivating and

PRACTICAL GARDENING

harvesting the first crops so as not to check the growth of the later crop, for every day of this later growth is at a premium.

These five principles are necessary in following the practice of intensive gardening: (1) Know the best time and method to plant each crop. (2) Know the length of time it takes for each crop to mature. (3) Understand the spacing of the plants so they may develop perfectly. (4) Know the control methods in battling with insects and disease that appear on many of these late crops. (5) Have a general knowledge of the amount of moisture and the best food suited for each crop.

The early cabbage is ripening now; intercrop with lettuce or winter radish. It takes early cabbage about twelve weeks, lettuce five weeks, and winter radish about eight weeks to mature from seed. For winter use, intercrop early peas or cabbage with beets, carrots or parsnips.

Remove early beets and plant late cabbage.

WHAT TO DO MONTH BY MONTH

Sow a crop of dwarf early peas between the rows of late turnips. Follow early lettuce, radish, peas and beets with late celery. At a space of every eighteen inches remove a plant of early wax beans and place a late cabbage plant. After the beans are past bearing remove the plants and give special attention to the late cabbage. Between the hills of sweet corn plant Hubbard squash (winter). After harvesting the corn, cut off the stalks close to the surface of the ground and spread out the squash vines. Give the rows a vigorous cultivation in order to loosen the soil and kill all weeds before spreading the vines. After digging the early potatoes, work into the soil a free application of bone dust, and plant late celery, cabbage or Brussels sprouts. After trimming the tomato plants by removing part of the leaves and all side growths, plant late cabbage or lettuce between each pair of stakes. Add a little well decayed manure, bone meal or sheep manure to each hole. Work the fertilizer into the soil before

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planting. After the first frost in October remove the tomato plants and give special attention to the late cabbage. Cabbage often starts to head after the first light frost.

Cultivation. One hour early in the morning may save you five hours' work five days later. Stir up the soil in the cool of the morning, and the weeds are well baked before noon. Do not wait for weeds to appear before cultivating. A rake or Norcross weeder are the best weapons for destroying the weeds as soon as the weed seeds germinate; by persistent work a dust mulch is formed which aids in holding the moisture. The air, sunshine and dew also act on the soil and liberate plant food. Cultivation is even more necessary to the growth of plants during this month than during the earlier months.

Watering. July is the month when the plants call with their green tongues for water. If you refuse to listen and act, the plant suffers and wilts. Any check given especially to vegetables and flowers means a certain per

WHAT TO DO MONTH BY MONTH

cent of loss in fruit or bloom. In watering get the water to the roots. Do not dash the water against the soil; this not only helps to harden it but often exposes part of the plant's roots. Water in the evening and the moisture works its way into the soil aided by the dew. Watering in the morning has a tendency to bake the soil, and the sun evaporates much of the moisture. If the foliage is wet and the sun high it is often burned.

Garden Efficiency. July demands your time, energy and watchful eye. Stick to your trenches and keep the weeds out. Don't even let them have a start. Kill them at birth. Check all insects before they do damage. Chewing insects are controlled by poisoning, sucking insects by dusting their bodies. If you have only a few hills of potatoes and the potato beetles appear, pick them off and destroy them. Control disease by using some form of a preventive like Bordeaux mixture. Always burn the diseased parts or the entire plant. Answer the call for water, but water

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the garden only when it is absolutely necessary. Too much watering in July will tend to develop weak plants and invite infection. Supply a well balanced and wholesome diet for them. Our success or failure in this war depends to a large extent on the efficiency of the war gardens. A vacant lot means national waste. July 1, is not too late for a crop of late potatoes to be planted. The United States expects every gardener to do his duty.

FRUITS AND BERRIES

Cherries. Don't allow cherries to spoil on the trees. The decayed fruit only spreads the molds that cause decay on later crops. Never pick the fruit when it is wet with rain or dew.

Apples. Stop cultivation and sow a cover crop of clover, turnips, winter wheat, etc., so that the roots may be protected during the winter. This should be done before July 15. If you have a sod mulch under your trees, cut the grass and spread it over the soil where the water drips from the foliage. This is

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where the feeding roots are located. In order to produce all standard size apples, leave only one apple to develop on a spur.

Peaches and Pears. Watch for the little pile of sawdust at the base of the peach tree. Follow the hole made by the peach borer until you discover the grub. Then destroy it. The wound will soon heal over and is of less damage than the work done by the borer. Thin the pears and remove all twigs or branches infected with fire blight (wilted brown twigs). Burn all infected prunings.

Pruning. Prune out all suckers and water sprouts. If a diseased limb is to be removed be careful not to have it come in contact with healthy limbs. All diseased wood should be burned.

Strawberries. The old strawberry bed should be well manured and plowed under. Plants that have borne for more than two years are not worth keeping. Shift the potted runners to their permanent bed before the last

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of the month. Exercise the greatest care not to cover the heart or crown bud.

AUGUST

THE VEGETABLES

Late Peas. After removing summer beets, turnips or other early crops, cultivate thoroughly and work in a little well decayed manure. A little bone meal added to the manure is a lasting plant food. Rake the soil very fine where the furrow is to be drawn and plant the seed in a trench 3 to 4 inches deep. Pack the soil firmly over the seed with the back of the rake. Do not soak the seed in water before planting. The most satisfactory varieties for late planting are Early Morn, Prosperity and Little Marvel (dwarf).

Beans. Sow string beans twice during the month but not later than the 15th. The kidney, wax and even bush lima beans will mature before frost if the plants are kept growing vigorously. The soil should be rich not only in plant food but in humus so that it may

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retain moisture. After the beans are dropped in the furrow, a liberal supply of water may be added and the seeds then covered. This is best done in the evening. The best two varieties for late planting are, Early Valentine (green podded), and Refugee (yellow podded).

Lettuce. Start a new seed bed in some shady place. Allow the plants to develop three or four leaves and then wet the bed thoroughly before transplanting to the open, where the soil should be very rich in plant food, especially nitrogen. This is best supplied in the form of well decayed horse manure. The faster lettuce matures the more tender the foliage will be. One of the best varieties for fall is the Grand Rapids (loose leaf). Many of the smaller plants may be transferred to the hotbed later in the season.

Onions. If you find that the onions are not developing a bulbous growth at the base of the leaves, add a little nitrate of soda and water the onions freely in the evening. If the tops

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are turning brown and the bulbous growth is well developed, pull or rake out the onions; let the leaves dry. Clean off all dried material before crating the onions for winter.

Early Celery. Early celery should be matured sufficiently by August 10. The best method of blanching at this season is by the use of boards. Lay the boards flat on the ground and place one edge near the plant. Lift the board into position and stake it so that it can not shift. Celery banked with soil during the hot weather has a tendency to decay at the heart. Keep the late celery growing and well watered.

Cantaloupes and Watermelons. Place a shingle, piece of broken flower pot, or flat stone under the fruit so that it may ripen evenly throughout. A little weak liquid cow manure, best applied just before a rain, will help greatly in the final development. If the muskmelon breaks away from the stem and the stem end is a little soft, the fruit is ripe. If there is a crunching sound when you give a

WHAT TO DO MONTH BY MONTH

quick downward pressure on the side of the watermelon with both hands the melon is ripe. Do not break the skin. Keep the melon in a cool place for two or three days and the flavor is improved.

Pests. If the aphid (green fly) puts in its appearance on any of the tender growths, such as lettuce, dust the foliage with tobacco dust. The cabbage worm may start in early on the winter crop. Sprinkle a little white hellebore, one ounce to a gallon of water, or a little powdered arsenate of lead on the cabbage plants. If the foliage of the asparagus is disappearing and you find short furrows eaten out of the tender growths, dust the plants, when the dew is heavy, with powdered arsenate of lead. The asparagus beetle is not hard to control if checked in time. Cabbage aphides are controlled by tobacco dust or a tobacco solution. These insects are usually found on the leaves close to the ground and on the under side.

Cultivation. Keep the hand cultivator busy this month. Some of the best crops are pro-

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duced during a dry season, all on account of diligent cultivation. It may seem useless to stir the soil that appears loose but there is nothing more valuable to the garden in August than a dust mulch. Gardens that are cultivated every day during the dry period show a marked increase in production and many times weeds are destroyed by this means before they reach the surface.

FRUITS AND BERRIES

Strawberries. Potted runners if shifted to a permanent bed this month will yield a crop next year. The soil should be a sandy loam with a liberal amount of humus incorporated. On removing the plants from the pots loosen the tips of the roots so that they may spread and come in contact with food and moisture. Be careful not to bury the crown of the plant in transplanting.

Apples. Pick the harvest apples before they are dead ripe. They have a better flavor and keep longer. If by chance you have failed

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to destroy all the codling moths you will find many small apples on the ground. Rake these together and destroy them. This is the month when the fall web worm is at work. If you find bunches of leaves, brown and loosely webbed, remove and burn the leaves which contain nests. Spray the tree with one half pound of arsenate of lead to ten gallons of water.

Currants and Gooseberries. Cultivate thoroughly and add to the soil a liberal amount of bone meal. The lack of moisture through neglecting to make a dust mulch may materially decrease the crop for next year. If the currant aphides are found on the underside of the leaves, spray with Black Leaf 40. The first indication of this pest is when the leaves begin to turn yellow.

SEPTEMBER

THE VEGETABLES

Keep Up the Fight. You have battled through the trying month of August, you have

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held the trenches and made some advances but your success in this campaign for production hinges on your action during September. Keep the cultivator busy; strike down the advance of the fall weeds; keep in check the fall insects and be prepared for the first attack of frost.

Celery. Keep celery growing vigorously. Apply weak liquid manure water at least once each week. Water the plants freely after each application. One tablespoonful of nitrate of soda dissolved in one gallon of water applied in the evening will also stimulate growth. Boards are by far the best means of blanching celery but soil is often used. As the plant is reaching full growth, begin to bank it.

Winter Squash. Squash should be harvested before the frost discolors the skin. Squash vines and other vegetable growths not used should be dried and burned so as to destroy insect eggs and disease.

Asparagus. Asparagus should be given

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special attention the latter part of the month. Clean out all fall weeds and apply a free application of coarse salt. If the beetle is destroying the foliage, spray with arsenate of lead, one tablespoonful to a pail of water. Do not cut the tops until after the berries are red and never apply the winter protection of manure until after the frost has come to stay.

Cabbage. If the head has started to form and the green worm is destroying it, sprinkle in a little fine salt. Poisons are not recommended after the cabbage starts to head. Keep the soil well cultivated. If the head begins to crack, push it over on its side or raise it a little by placing both hands on the under side close to the stem and lift it loose on the soil. By doing this a number of the feeding roots are destroyed and the head stops cracking.

Peas. Make at least one sowing of early dwarf peas the first week of this month. If the weather is favorable there will be two late crops of fine quality peas.

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For the Hotbed. Parsley plants should be potted in a rich soil for winter use. A few plants in the corner of the hotbed or greenhouse bench will supply flavoring and garnish during the winter. Seed of both head and loose leaf lettuce, if sown early in September, will make sturdy plants for the hotbed the last of the month. Get the hotbed ready at least four or five days before transplanting lettuce or other crops.

FRUITS AND BERRIES

Blackberries and Raspberries. Keep the berries free from weeds; cultivate well between the rows and cut old canes off close to the ground. Do not mulch the soil with manure until it is well frozen. This late mulching will not cause disease to infect the cones.

Gooseberries and Currants. Work a little wood ashes into the soil to help ripen the wood and buds. Cut out old branches if the plant is too compact. Take cuttings of these fruits

WHAT TO DO MONTH BY MONTH

the last of this month, pack them in moist sand in a cool place, and they will be in good condition for transplanting early in the spring.

Apples. Cut the grass and rake it under the tips of the limbs. It not only makes a fine mulch but it also prevents, to a large extent, the bruising of windfall apples. If the orchard is cultivated it is not too late to sow a cover crop of peas and rye or corn and rye. Clean out hedge rows near the orchard which are only breeding places for rabbits and insects.

Storing. See that the fruit cellar is well aired, and thoroughly cleaned. Place a little clean dry straw on the shelves before storing the apples. Potatoes may be stored on the floor and apples on benches in the same cellar. Pad the basket with burlap or some material like it before picking apples. Do not break or pull out the stem or break off the fruit spur while picking. Never store a bruised apple.

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OCTOBER

THE VEGETABLES

Potato. Dig the potatoes before the ground is frozen. Sort out the bruised ones and use them first. Small potatoes may be boiled and fed to the chickens. Do not store the small, immature tubers with the ones selected for table use. Throw out all potatoes that are diseased except those that may have a little scab on the skin. Expose the tubers to the air and sun long enough to have them dry before storing. If piled while wet there is danger of soft rot. Do not allow the potatoes to be exposed to the sun for several days. It has a tendency to spoil the flavor and in some cases the tuber becomes poisonous.

Late Celery. Before digging the celery, prepare the cold frame in which it may be stored by digging out the center so that after the plants are set close together, there will be a space of six inches above the plants to the top of the frame. Pack a little sand about the roots as the plants are set and protect the tops

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by placing boards, hotbed sash, or a storm window on the top. Ventilate each clear morning, but make sure that the plants are protected from severe frosts. On very cold nights cover the boards or frames with leaves or straw and place a few branches on this litter to keep it from blowing away.

Celery that is hilled and left in the row should also be covered with leaves and straw. If the air is not allowed to circulate through the plants on bright days, the plants soon rot.

Lettuce. The Grand Rapids variety may be transplanted to the hotbed the first week of this month. Keep the temperature between 45° and 55° F. The soil should be one-half decayed manure and kept moist. Care should be exercised not to get water on the foliage while watering the plants. As the plants advance lift up the lower leaves and scatter a few tobacco stems under them to check the green aphides. Thrifty plants should mature in about four weeks.

Rhubarb and Asparagus. Both of these

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crops should have a heavy mulch of manure before the last of the month. Fall grass and other weeds should be removed from the asparagus bed before covering the plants for winter.

Storage Pit. This is the month to pit or store beets, carrots, parsnips, salsify, rutabaga and turnips. All root crops to be used during the winter should be removed from the garden before the soil freezes.

A Fall Drive. If your garden has been overrun with quack grass this is the month to spade or plow it. Leave the clods in the rough so that the winter weather may have a chance to destroy the roots of this much hated weed. This practice also destroys many insects that have hibernated in the soil.

FRUITS AND BERRIES

Fruit Harvest. Pick Baldwins, Northern Spies, and Rhode Island Greenings before the hard frosts set in. A light frost does not injure these varieties. Never pick them on wet

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days or when the dew is on the fruit. Apples should be dry before storing. Use the wind-falls first, make jelly out of the defective apples, and store only the best. Handle the fruit as you would eggs.

The late varieties of pears should be picked before they are fully ripe and stored in a cool, dark cellar. Pick out the ripe ones two or three times each week.

Ventilate the fruit cellar on clear, warm days. Pure air is very essential in keeping fruit.

The Apple Tree. If you have not already placed wire guards about the trunks of your young trees this is the month to do it. Just as soon as the clover and other green food dries, the rabbits and woodchucks begin to skin the young apple trees.

Strawberries. This is the last call for mulching the strawberry bed. Allow the foliage to ripen thoroughly before mulching with manure, but do not allow the soil to be frozen more than a half inch in depth.

PRACTICAL GARDENING

Blackberries and Raspberries. All of the old wood should be cut out and burned. A thorough cleaning of the berry patch this month will be appreciated next spring when other things demand attention.

NOVEMBER

THE VEGETABLES

Seeds and Seedlings. Sow the seed of New Zealand spinach in furrows 12 to 15 inches apart and one inch in depth. Protect the seed by covering it with some form of litter. Remove this in early spring and the seedlings will appear above the ground before the soil is ready to work for other crops.

Risk a sowing of wrinkled peas (Sutton's Excelsior or Thomas Laxton). Have the soil rich and mellow. Sow the seed three inches in depth.

It is not too late to set out multiplier onions. They will make an early start in the spring and follow the sets planted in September.

Plants for Next Spring. Cauliflower and

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cabbage plants should be put in the cold frame or hotbed, protected from the frost, kept alive but not growing. Keep the temperature low, the air pure and the soil moist. Plants held over in this way will reach maturity very easily in the spring if set out in a rich, warm garden loam.

Storage. Celery may be lifted and stored the last of this month. It may be packed in boxes providing holes have been made about two inches from the bottom and all around the box in order to admit air. It may also be stored in a cool cellar on the floor.

Cabbage should be pitted out of doors before the hard frosts set in.

Tie the leaves of the cauliflower together near the top, lift the plant root and all, and stand them, root down, in a little soil in the root cellar.

Asparagus and Rhubarb. This is the month to set out new beds of these perennials in the South. They are both gross feeders. The soil should be made rich. The asparagus

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should be set in rows three feet apart and the roots planted twelve inches apart in the row. The crown should be 6 to 8 inches below the surface. The crown of the rhubarb should be four inches deep and the plants set three feet apart. Cover these plants with a mulch of manure.

Clean up. This is the month to clean out the weeds before the seed drops. Pile these partly dried weeds in your garden and burn them. Do as much this fall as possible. The spring work will demand your attention and time. Be sure that the tools are clean. Rub a little linseed oil on the metal parts to prevent rusting.

Lime. Apply a little lime to the soil especially if it is a clay type. Fall spading or plowing is highly recommended.

FRUITS AND BERRIES

Timely Warnings. If the limbs of your low-headed apple trees are heavy and in a possible line of snow drifts, nail two strips of

WHAT TO DO MONTH BY MONTH

wood with a single large spike two feet from the top. Open these strips scissor fashion and brace up these limbs. Guard against the splitting of bad crotches in the same way.

Tent Caterpillars. Look especially on the young branches of your three- to five-year-old trees for clusters of tent caterpillar eggs. Pick them off and burn.

Spring Planting. This is the month to dig the holes for next spring's planting of apple trees. Place the sod in one pile, the fine top loam in another, and the subsoil in the third. Fill the hole with manure and allow it to remain one winter. In the spring, lift out the manure and place it in a fourth pile, loosen up the soil in the hole, place a little of the fine soil in the bottom and set the tree. The fine soil is then fitted about the roots followed by the partly decayed sod, then the bottom soil, and finally what remains of the manure is scattered on the surface of the soil around the tree.

Cane Fruits. Mulch all cane fruits. They

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have a shallow root system and need winter protection.

Stored Fruit. Pick over the fall varieties of apples the last of the month and remove all specked fruit. The late varieties will not have to be handled until January.

DECEMBER

VEGETABLE GARDEN

December's tasks in the vegetable garden may seem less urgent but they are nevertheless just as important as the work done in April or May.

South. In some sections of the country, this month is truly an open month and the soil easy to work. Low wrinkled peas, New Zealand spinach, endive, early Jersey Wakefield cabbage, and white potatoes are sometimes planted the last of the month and mulched. They get an early start and are shipped north five or six weeks before the northern crop is ready.

Asparagus and Rhubarb. This is the month

WHAT TO DO MONTH BY MONTH

to force both of these perennials. Thaw the roots out gradually and finally pack them in flats or under the greenhouse bench covering the crowns of both with from one to two inches of soil. They should be grown in a temperature of from forty-five to fifty-five degrees Fahrenheit. Keep the soil moist but not wet.

Lettuce. Set out the last planting of lettuce '(Grand Rapid), the early part of this month. Cover the hotbeds with mats and shutters to keep out the cold. Ventilate on bright days.

Storage Vegetables. Keep a close watch on the vegetable cellar. Remove all vegetables that have started to decay. Add a little more soil to the out of door pits in order to keep the frost out. Pick over the potatoes for the first time and cover them with a little soil or burlap bags. Ventilate the storage house very often. On very severe nights place a lamp in the cellar. Always ventilate a little the following morning.

PRACTICAL GARDENING

FRUITS AND BERRIES

Hedge Rows. There is no better month to clean out the hedge rows of wild cherry and plums. In doing this, the breeding places of the tent caterpillar are destroyed. Also the dreaded disease, black knot, should be cut out and burned.

Orchard. Clean up the wood, branches, etc. from the orchard and burn. The old wood pile of apple logs is an ideal place for insects detrimental to the orchard to hibernate in. Keep a close watch on your young trees. If you have neglected to protect the trunk from rabbits, wrap a strip of tar paper or wire two feet wide around the base of the tree and tie it firmly.

Snow Injury. Brace up the lower limbs of the low-headed trees to prevent their breaking down with the weight of snow.

Grapes. This is a good month to prune the grape vines. Leave two to four buds on each cane which is to become a leader. There

WHAT TO DO MONTH BY MONTH

should not be more than six leaders to a single vine.

It is not necessary or advisable to remove the old bark. If new vines are to be planted make the cuttings now. Leave three buds to each cutting, pack these in sand, two buds below the surface. Early in the spring, transplant to the garden.

Tree Surgery. Tree dentistry should be done early in the fall or late in the spring, so that the concrete may properly set. Concrete work that is done when there is frost will usually be brittle and scale off. Brace the branches that form bad crotches, so as to prevent splitting.

STUDY

Plan to take a short winter course in Horticulture in the State Agricultural College or by correspondence at home. It is not so much the value of the certificate which is received at the end of twelve weeks' study but the value of systematic study, answering questions and

PRACTICAL GARDENING

the habit of working out garden and orchard problems. Keep the best garden magazines on your study table.

Make your Christmas gifts practical by giving your friends a garden or orchard book, or products resulting from your garden.

There is no limit to the production of crops on the mental soil.

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