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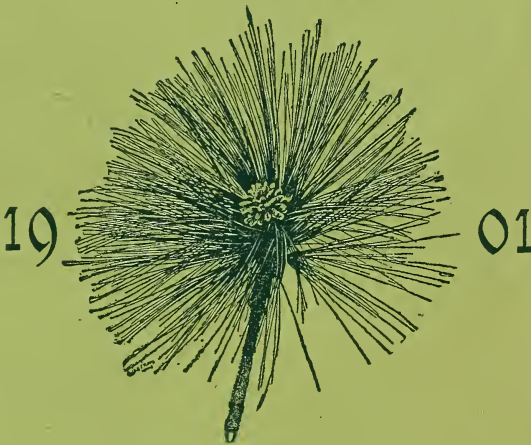
**DESCRIPTIVE CATALOGUE  
OF  
AMERICAN SEEDS**

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**CONIFERS, TREES, SHRUBS,  
PALMS, CACTI,  
HERBACEOUS PLANTS.**

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**WHOLESALE.**



**PINEHURST NURSERIES,  
OTTO KATZENSTEIN, MANAGER,  
PINEHURST, N. C., U. S. A.**

**CABLE ADDRESS--NURSERIES.**

## PLEASE NOTE:

**TERMS:** Cash with orders or satisfactory references from unknown correspondents. We shall allow a discount of 5 per cent. for cash with order, or for remittances within ten days (thirty days for our foreign patrons) from date of invoice. All accounts will become due (and subject to draft) ninety days from date of invoice, where no special agreements have been made.

**FOREIGN REMITTANCES** should be sent by International Money Orders payable at Aberdeen, N. C., or by draft on a New York bank. We request that payments not be made in foreign postage stamps or individual foreign checks.

**EARLY ORDERS:** As we do not sell any old seeds and do not keep in stock much more than we can be reasonably sure to sell during the present season, it is imperative that orders, especially for larger quantities, should reach us as early as possible. All orders will be accepted subject to crop accidents and limits of crops.

**SHIPPING INSTRUCTIONS:** Precise instructions as to kind of conveyance (mail, express or freight) are desired, or we shall ship at our own discretion. All goods travel at risk of consignee. Express companies allow 20 per cent. reduction from regular rates on shipments of seeds and plants.

**POSTAGE PREPAID:** We prepay postage on seeds in packages to all parts of the world, but charge postage for seeds in bulk. Domestic and foreign postage is 1 cent for 2 ounces. Limit of weight in domestic mails is 4 pounds, in foreign mails 12½ ounces.

**PARCELS POST** packages are admissible now to Germany and several other countries. The rates are 12 cents per pound or fraction thereof, and limit of weight is 11 pounds.

**FOREIGN SHIPMENTS:** If not otherwise instructed we shall ship through our forwarding agents, Messrs. C. B. Richard & Co., 61 Broadway, New York, who will effect insurance if desired.

**RESPONSIBILITY:** While we exercise greatest care to have all our seeds, bulbs, etc., pure and reliable, they are sold without warranty and without any responsibility, expressed or implied, in respect to the crop. If our goods are not accepted on these terms, they must be returned at once, and money which has been paid for them will be refunded.

**HOW TO MAKE TREE SEEDS GROW:** We have prepared some short directions which we shall be pleased to send free upon application, and we are glad at any time to give any further information.

An exchange of catalogues, seed lists, botanical lists, etc., is desired.

**THIS CATALOGUE CANCELS OUR SEED LIST FOR 1900.**

JAMES W. TUFTS,  
Boston, Mass.

OTTO KATZENSTEIN,  
MANAGER.

Pinehurst, N. C., U. S. A., Aug. 29th, 1901.

## ABIES ARIZONICA, Merr.

We have just been informed by our collector, Dr. C. A. Purpus, that there is a fair prospect for a crop of seed of the

### SILVER CORK FIR

this year. We take great pleasure, therefore, to offer the seed of this beautiful new species for the very first time and shall book orders subject to the ultimate outcome of crop and to be filled in strict rotation, at

\$ 1.00 per trade packet,  
2.50 per ounce,  
25.00 per pound,

including delivery to any part of the world.

As this Fir is positively hardy, we cannot recommend it too highly, and every one who once has seen it will remain its staunch admirer.

We send with the greatest pleasure samples of the bark to any address and give also any further information.

## ABIES BRACTEATA, Nutt.

While generally this Fir produces quite faulty seed, the crop of 1901 will be a remarkably good one, in fact the best for the last 20 years. This, therefore, is the chance of a life-time to make a successful sowing, and we solicit your orders at

\$ .55 per ounce,  
8.00 per pound,  
75.00 per 10 pounds net.

Awaiting the pleasure of your commands for seed of these and other kinds you may need, we remain,

Very truly yours,

PINEHURST NURSERIES.



# CONIFERS.

Half-ounce at ounce rates; quarter-pound at pound rates; two and one-half pounds at ten pound rates.  
 † Generally hardy.  
 Quotations on large lots by correspondence.

	Oz.	Lb.	10 Lbs.
ABIES. See also under Picea and Tsuga.			
‡ “ AMABILIS, Forb. -----	.40	3.50	
Very ornamental. True amabilis, not A. magnifica.			
‡ “ BALSAMEA, Mill. <i>Balsam Fir</i> -----	.20	1.25	10.00
“ BRACTEATA, Nutt. <i>Santa Lucia Fir</i> -----	.55	8.00	
Handsome stiffly-pyramidal tree.			
‡ “ CONCOLOR, Lindl. and Gord. <i>California Silver Fir</i> -----	.25	2.00	17.50
Noted ornamental tree with grayish bark and light green foliage.			
“ DOUGLASI. See Pseudotsuga.			
‡ “ FRASERI, L. <i>She Balsam</i> -----	.35	3.00	
‡ “ GRANDIS, Lindl. <i>Great Oregon Silver Fir</i> -----	.30	2.25	
Slender pyramidal tree, long dark-green glossy needles, very ornamental.			
‡ “ MAGNIFICA, Murr. <i>Red Fir</i> -----	.45	4.00	35.00
One of the handsomest conifers.			
‡ “ MAGNIFICA SHASTENSIS, Lemm. -----	.50	5.00	
Very rare form, bracts are very prominent.			
“ MENZIESI. See Picea sitchensis.			
“ MERTENSIANA. See Tsuga mertensiana.			
‡ “ NOBILIS. <i>Noble Fir, Tuck-Tuck</i> -----	.25	2.50	
With dark blue-green needles, very fine.			
‡ “ SUBALPINA, Eng. -----	.75	6.00	
Very rare and attractive, needles remarkably large and bluish green.			
“ WILLIAMSONI. See Tsuga pattoniana.			
‡ CHAMAECYPARIS LAWSONIANA, Parl. <i>Lawson's Cypress</i> -----	.35	2.50	
‡ “ NUTKAENSIS, Spach. <i>Sitka Cypress</i> -----	1.00	12.50	
Crop will be very short this year.			
‡ “ SPHAEROIDEA, Spach. <i>White Cedar</i> -----	.15	1.35	
CUPRESSUS GOVENIANA, Gord. -----	.30	2.50	
“ GUADALUPENSIS, Wats. -----	.30	2.75	
“ LAWSONIANA. See Chamaecyparis l.---			
“ MACNABIANA, Murr. -----	.25	2.00	
“ MACROCARPA, Hartw. -----	.10	.90	
“ THUYOIDES. See Chamaecyparis sphaeroidea.			
<i>None of the true Cupressus are quite hardy.</i>			

	Oz.	Lb.	10 Lbs.
‡ JUNIPERUS PACHYPHLOEA, Torr. -----	.25	2.00	
Collected at 7000' elevation, hardy and well adapted to stiff soils and exposed sites, very ornamentally covered with blue blooms. Rare.			
‡ " VIRGINIANA, L. <i>Red Cedar</i> -----	.10	.50	4.00
<i>Seeds of Juniperus generally lay over one year.</i>			
‡ LIBOCEDRUS DECURRENS, Torr. <i>California White Cedar</i> -----	.25	3.00	
Very beautiful, quick-growing tree.			
PICEA. See also under Abies.			
‡ " ALBA, Lk. <i>White Spruce</i> -----	.45	4.50	
‡ " ENGELMANNI, Eng. <i>Engelmann's Spruce</i>	.60	4.50	40.00
‡ " PUNGENS, Eng. <i>Colorado Blue Spruce</i> --	.40	4.00	35.00
Superb silvery foliage.			
‡ " SITCHENSIS, Tr. & Mey. <i>Tideland Spruce</i>	.30	3.50	30.00
PINUS AUSTRALIS, Mx. <i>Long-leaved Pine</i> -----	.30	2.00	18.00
Most valuable forest tree of the South. Needles 1-2' long. Young plants are especially handsome and are much used now for Christmas decorations. Should prove very valuable as potted plants for decorative purposes.			
‡ " BANKSIANA, Lamb. <i>Gray Pine</i> -----	.75	8.00	70.00
" BENTHAMIANA. See P. ponderosa.			
‡ " CONTORTA, Dougl. <i>Scrub Pine</i> -----	.80	7.00	
Adapted to coast plantings.			
" COULTERI, Don. -----	.25	2.50	
" EDULIS, Eng. -----	.25	1.75	
‡ " FLEXILIS, James. <i>Western White Pine</i>	.50	4.00	
" FREMONTIANA. See P. monophylla.			
" INSIGNIS, Dougl. <i>Monterey Pine</i> -----	.30	2.00	
Very handsome tree, bright green needles.			
‡ " JEFFREYI, Murr. <i>Bull Pine</i> -----	.40	3.00	
" LAMBERTIANA, Dougl. <i>Sugar Pine</i> ----	.25	1.75	
Largest pine known, but not quite hardy.			
" MITIS, Mx. <i>Southern Short-leaved Pine</i> -	.30	2.25	20.00
Very valuable timber pine.			
" MONOPHYLLA, Torr. & Frem. <i>Nut Pine</i>	.30	2.50	
‡ " MONTICOLA, Dougl. <i>Western White Pine</i>	.60	5.00	
Resembles Pinus strobus, but timber is inferior.			
‡ " MURICATA, Don. <i>Obispo Pine</i> -----	.50	3.50	
‡ " MURRAYANA, Balf. <i>Tamarack Pine</i> ----	.75	6.50	60.00
Prefers low ground and damp soil.			
" PALUSTRIS. See P. australis.			
‡ " PARRYANA, Eng. (LLAVEANA, Torr.) <i>Nut Pine</i> -----	.50	4.00	
‡ " PONDEROSA, Dougl. <i>Bull Pine</i> -----	.40	3.00	
Luxuriant grower of great ornamental value. Prefers dry sites.			



	Oz.	Lb.	10 Lbs.
† PINUS RIGIDA, Mill. <i>Pitch Pine</i> -----	.30	2.50	22.50
Well known timber tree of great value.			
“ SABINIANA, Dougl. <i>Digger Pine</i> -----	.25	1.25	
Hardy in sheltered positions.			
† “ STROBUS, L. <i>White Pine</i> -----	.25	1.50	13.50
The crop will be very short this year. Early orders are imperative, especially for larger lots.			
“ TAEDA, L. <i>Old Field Pine, Rosemary Pine</i>	.30	2.00	18.00
Handsome, very symmetrically growing Southern conifer.			
“ TORREYANA, Parry. <i>Torrey's Pine</i> ----	.25	2.25	20.00
† “ TUBERCULATA, Gord. (CALIFORNICA.)			
<i>Knob Cone Pine</i> -----	.50	3.50	
Rare and interesting. Not absolutely hardy.			
† PSEUDOTSUGA DOUGLASI, Carr. <i>Douglas Fir</i> ---	.25	2.25	20.00
Crop quite minimal this year.			
† SEQUOIA GIGANTEA, Torr. <i>Big Tree</i> -----	.75	5.00	
Stands hard pruning caused by frost without lasting damage. A very beautiful conifer of greatest value. Largest American tree.			
“ SEMPERVIRENS, Endl. (TAXODIUM.)			
<i>Red Wood</i> -----	.50	3.00	
† TAXODIUM DISTICHUM, Rich. <i>Swamp Cypress</i> --	.25	1.75	
In shell	.10	.50	
Deciduous conifer yielding excellent timber. c.			
TAXUS BREVIFOLIA, Nutt. <i>Western Yew</i> -----	.75	7.00	
Rare. Seed lays over one year.			
THUYA CRAIGIANA. See Libocedrus decurrens.			
† “ GIGANTEA, Nutt. (MENZIESI.) <i>Red Cedar</i> -----	.45	3.50	
† “ OCCIDENTALIS, L. <i>American Arbor Vitae</i>	.25	1.50	12.00
TORREYA CALIFORNICA, Torr. <i>Californian Nutmeg</i> -----	.20	1.25	
Seeds lay over one year.			
† TSUGA CANADENSIS, Carr. <i>Hemlock Spruce</i> ----	.40	5.00	
† “ CAROLINIANA, Eng. <i>Carolina Hemlock</i> --	.65	6.50	
“ MERTENSIANA, Carr. <i>Hemlock Spruce</i> --	.75	6.00	
† “ PATTONIANA, Eng.-----	.60	5.00	

## CONES

Of quite a number of conifers can be supplied for botanical collections at reasonable rates which will gladly be given upon applications.

# TREES AND SHRUBS.

Half-ounce at ounce rates; quarter-pound at pound rates; two and one-half pounds at ten pound rates. e, evergreen; d, deciduous; t, tree; s, shrub; v, vine.

Note: et, for instance, means evergreen tree; dv, deciduous vine; c, clean seed; d. b., dried berries or seed in natural shell.

Quotations on large lots by correspondence.

		Oz.	Lb.	10 Lbs.
dt	ACER CIRCINATUM, Pursh. <i>Vine Maple</i> -----	.15	1.75	
ds	“ DASYCARPUM, Ehr. <i>Silver or Soft Maple</i>	.15	1.25	
ds	“ GLABRUM, Torr. <i>Western Dwarf Maple</i>	.40	1.50	
dt	“ MACROPHYLLUM, Pursh. <i>Broad leaved Maple</i> -----	.10	.75	
	Enormous leaves. Not entirely hardy.			
dt	“ NEGUNDO, L. (NEGUNDO ACEROIDES.) <i>Box Elder</i> -----	100 lbs.,	\$16.00	
dt	“ PENNSYLVANICUM, L. <i>Moosewood</i> -----	.15	1.50	
dt	“ RUBRUM. <i>Red Maple</i> -----	.15	1.25	
	One of the earliest blooming maples and very ornamental.			
dt	“ SACCHARINUM, Wang. <i>Sugar Maple</i> ---	.15	.75	7.00
	Yields but about 20-50 per cent. of growing seed. Ripens in September.			
ds	“ SPICATUM, Lam. <i>Mountain Maple</i> -----	.25	1.50	
	<i>Seeds of all maples are very perishable, and must be sown at once upon receipt.</i>			
dt	AILANTUS GLANDULOSA, Desf. <i>Tree of Heaven</i>	.10	.35	3.00
	Young plants not entirely hardy. Very rapid grower. Male plants exhale disagreeable odor during inflorescence.			
dt	AESCULUS FLAVA, Ait. (OCTANDRA, Marsh.)	.10	.40	3.50
dt	“ GLABRA, Willd. <i>American Horse Chestnut</i>	.10	.35	3.00
	Splendid tree for street planting.			
dt	ALBIZZIA JULIBRISSIN, Durraz. <i>Mimosa</i> ----	.10	.65	
dt	ALNUS OREGANA, Nutt. (RUBRA, Bong.)---	.75	7.50	
ds	ALTHAEA. <i>Rose of Sharon</i> -----	.10	.65	
	Mixed colors.			
ds	AMELANCHIER ALNIFOLIA, Nutt.-----	.35	2.50	
ds	“ CANADENSIS, Med. <i>Common Shad Bush</i>	.20	1.25	
ds	“ UTAHENSIS, Koehne -----	.25	3.00	
	Rare. Adapted to dry, rocky soil.			
ds	AMORPHA FRUTICOSA, L. <i>Bastard Indigo</i> ----	.35		
ds	“ MICROPHYLLA, Pursh. (A. NANA, Nutt.) <i>Lead Plant</i> -----	.80	7.00	
	Rare shrub of great beauty.			
dv	AMPELOPSIS QUINQUEFOLIA, Mx. <i>Virginia Creeper</i> -----	.15	.75	6.00

		Oz.	Lb.	10 Lbs.
dv	AMPELOPSIS VEITCHII, Hort. <i>Japan Creeper</i> , <i>Boston Ivy</i> -----d. b.	.20	1.50	
dv	“ VITACEA, Knerr -----	.35	3.00	
	ANDROMEDA ARBOREA. See Oxydendrum.			
	“ CATESBAEL. See Leucothoe. c.			
ds	“ MARIANA, L. (PIERIS.) <i>Staggerbush</i> d. b.	.10	.45	4.00
	Very early and handsome bloomer. c.	.20	.85	7.50
es	“ NITIDA, L. <i>Fetterbush</i> -----d. b.	.10	.45	4.00
	A most beautiful medium-sized shrub with handsome flowers. <i>Introduced by us.</i> c.	.20	.85	7.50
dt	ARBUTUS MENZIESI, Pursh. <i>Madrone Tree</i> --	.25	1.50	
	Handsome, fairly hardy tree from California.			
es	ARCTOSTAPHYLOS GLAUCA, Lindl. <i>Great-ber-</i> <i>ried Manzanita</i> -----	.15	1.25	
es	“ PUNGENS, H. B. & K. <i>Erect Manzanita</i>	.15	1.25	
es	“ TOMENTOSA, Dougl. <i>Hardest Manzanita</i>	.20	2.00	
es	“ UVA-URSI, Spreng. <i>Trailing Bearberry</i>	.35	3.00	
ds	ARDISIA PICKERINGIA, T. & G. <i>Southern Papaw</i>	.30	2.00	
	Not hardy.			
dt	ASIMINA TRILOBA, Dunal. <i>Papaw</i> -----	.10	.45	4.00
	Handsome small tree. Fruit edible.			
ds	ATRIPLEX CANESCENS, James -----	.45	3.50	
ds	AZALEA VASEYI, Rehder -----d. b.	.45	4.50	
	Rare and beautifully blooming shrub.			
ds	“ VISCOSA, L. -----d. b.	.25	2.00	
	AZALEA. See also Rhododendron.			
ds	BERBERIS REPENS, Lindl. <i>Oregon Grape</i> -d. b.	.40	3.00	
	Nearly evergreen and very useful trailer.			
ds	“ THUNBERGI, D. C. <i>Thunberg's Bar-</i> <i>berry</i> -----d. b.	.10	.70	6.00
ds	“ VULGARIS, L. <i>Common Barberry</i> --d. b.	.10	1.00	
dt	BETULA LENTA, L. <i>Black or Sweet Birch</i> ----	.20	1.50	
dt	“ LUTEA, Mx. <i>Yellow Birch</i> -----	.15	1.50	
dt	“ NIGRA, L. <i>Red Birch</i> -----	.20	2.00	
dt	“ PAPYRIFERA, Marsh. <i>Canoe Birch</i> ----	.15	1.50	
dt	“ POPULIFOLIA, Ait. -----	.15	1.50	
ds	BIGELOVIA GRAVEOLENS, Gray. <i>Golden Feather</i>	6.00		
ds	“ GRAVEOLENS ALBICAULIS -----	6.00		
ev	BIGNONIA CAPREOLATA, L. <i>Cross Vine</i> ----c.	.25	1.50	
ds	CALLICARPA AMERICANA, L. <i>French Mul-</i> <i>berry</i> -----d. b.	.10	.50	4.00
ds	CALYCANTHUS LAEVIGATUS, Willd. (C. GLAUCUS.) <i>Sweet Shrub</i> -----	.10	.65	6.00
	Generally offered as <i>C. floridus</i> . Crop is <i>very</i> short this season.			

		Oz.	Lb.	10 Lbs.
ds	CALYCANTHUS OCCIDENTALIS, Hook. & Arnh. <i>Western Sweet Shrub</i> -----d. b.	.20	2.25	
dt	CARPINUS CAROLINIANA, Walt. (AMERICANA.) <i>Waterbeech or American Hornbeam</i> -c.	.10	.50	4.00
dt	CARYA (HICORIA) ALBA, Nutt. <i>Shellbark Hickory</i> -----100 lbs., \$11.00		.25	2.00
dt	“ AMARA, Nutt. <i>Swamp Hickory</i> ----- 100 lbs., \$8.00		.20	1.75
dt	CASTANEA PUMILA, Mill. <i>Chinquapin</i> -----c. Fruits are very perishable and cannot be kept long.	.10	.40	3.50
dt	CASTANOPSIS CHRYSOPHYLLA, DC. <i>Oregon Chinquapin</i> -----	.25	2.50	
	Rare, magnificent, hardy tree. Extent of crop somewhat doubtful as yet. Fruits are perishable.			
dt	CATALPA BIGNONIODES, Walt. <i>Catalpa</i> -----	.10	.75	6.00
dt	“ HYBRIDA, Spaeth. <i>Teas Japan Hybrids</i>	.10	.75	6.00
dt	“ KAEMPFERI, S. & Z. <i>Japanese Catalpa</i>	.10	.70	6.50
ds	“ SPECIOSA, Warder. <i>Western Catalpa</i> --- Very hardy. Much recommended at present as very profitable forest tree. Rapid grower.	.10	.50	4.50
ds	CEANOTHUS AMERICANUS, L. <i>New Jer-</i> d. b. .10 .45 4.00 <i>sey Tea, Red Shank</i> -----c. .15 1.00 8.00 Low shrub with dense panicles of fine white flowers.			
ds	“ DIVARICATUS, Nutt.-----	.50	5.00	
ds	“ FENDLERI, Gr.-----	.35	2.00	
	Half-evergreen and perfectly hardy. Well adapted for covering dry sandy banks. Very graceful habit. Rare.			
ds	“ INTEGERRIMUS, H. & A.-----	.50	5.00	
ds	“ PROSTRATUS, Bent.-----	1.50		
ds	“ THYRSIFOLIUS, Eschsch. <i>Blue Myrtle</i> ---	.50	5.00	
ds	“ VELUTINUS, Dougl.-----	.65	6.50	
	Nearly evergreen.			
dv	CELASTRUS SCANDENS, L. <i>Bitter Sweet</i> --d. b. .10 1.00			
dt	CELTIS OCCIDENTALIS, L. <i>Sugar Berry</i> -----	.10	.70	
	Seed often lays over one or two years.			
dt	“ OCCIDENTALIS, VAR. PUMILA, Gray----	.20	1.50	
ds	CEPHALANTHUS OCCIDENTALIS, L. <i>Button Bush</i> -----	.10	.75	6.00
dt	CERCIS CANADENSIS, L. <i>Judas Tree, Red Bud</i> -----c.	.20	1.00	
dt	“ OCCIDENTALIS, Torr.-----	.35	3.50	



CORNUS FLORIDA.  
*White flowering Dogwood.*

*PINEHURST NURSERY, 1900.*

See page 7.



	Oz.	Lb.	10 Lbs.
ds CERCOCARPUS PARVIFOLIUS, Nutt. <i>Mountain Mahogany</i> -----	.80	7.50	
Hardy, nearly evergreen. White flowers have appearance of ostrich feathers. Seed often lays over one year.			
ds CHAMAEBATARIA MILLIFOLIUM, Max. -----	.80		
From the eastern Sierra Nevada. A truly grand shrub with graceful foliage and numerous spikes of white flowers, which are yellow or brownish at base. Collected at 8000' elevation. Very rare.			
ds CHIONANTHUS VIRGINICA, L. <i>Old Man's Beard, White Fringe</i> -----	.10	.40	3.50
	.15	.80	7.00
dv CLEMATIS LIGUSTICIFOLIA, Nutt. -----	.75	7.50	
dv " VERTICILLARIS, DC. -----	1.50	12.00	
dv " VIRGINIANA, L. <i>Virgin's Bower</i> -----	.35	3.00	
" See also under herbaceous seeds.			
ds CLETHRA ALNIFOLIA, L. <i>Sweet Pepper-bush</i> -----	d. b.	.10	.75 7.00
dt CLIFTONIA LIGUSTRINA, Banks. <i>Ironwood</i> -----	d. b.	.10	.60 5.00
Rare. Fairly evergreen. Fine drooping flowers and handsomely colored autumn foliage. Not entirely hardy.			
	c.	.20	1.00 8.50
ds CORNUS ALTERNIFOLIA, L. f. -----	d. b.	.15	.85
ds " AMOMUM, Mill. -----	d. b.	.15	1.00
ds " CANDIDISSIMA, Mill. (PANICULATA.) -----	d. b.	.15	.85
ds " CIRCINATA, L'Her. <i>Round-leaved Dogwood</i> -----	d. b.	.25	1.25
ds " FLORIDA, L. <i>White Flowering Dogwood</i> -----	d. b.	.10	.25 2.00
dt " NUTTALLI, Audub. <i>California Flowering Dogwood</i> -----	d. b.	.10	1.00
" PANICULATA. See candidissima.			
ds " STOLONIFERA, Mx. <i>Osier Dogwood</i> -----		.10	.40 3.00
<i>Seeds of Cornus generally lay over one year.</i>			
ds CORYLUS AMERICANA, Walt. <i>Hazel Nut</i> -----		.10	.35 3.00
ds COWANIA MEXICANA, Don. <i>Cliff Rose</i> -----		.50	4.00
dt CRATAEGUS COCCINEA, L. <i>Scarlet-fruited Thorn</i> -----	d. b.	.10	.40 3.50
ds " CORDATA, Ait. <i>Washington Thorn</i> -----	d. b.	.15	1.00
ds " CRUS-GALLI, L. -----	d. b.	.10	.40 3.50
dt " FLAVA, Ait. <i>Summer Haw</i> -----	d. b.	.45	
ds " TOMENTOSA, L. -----	d. b.	.10	.40
<i>Seeds of Crataegus often lay over one year.</i>			
dt DIOSPYROS AMERICANA, L. <i>American Persimmon</i> -----	c.	.10	.25 2.00
ds DIRCA PALUSTRIS, L. <i>Leatherwood</i> -----	c.	.15	1.50

	Oz.	Lb.	10 Lbs.
et DRACAENA AUSTRALIS, Forst. ( <i>Cordyline</i> )-- Tender.	.45	4.50	
es " INDIVISA, Forst.----- Tender.	.25	2.50	
ds EPHEDRA VIRIDIS, Greene----- Rare shrub from Arizona.	.25	3.00	
ds EUONYMUS AMERICANUS, L. <i>Strawberry Bush</i> c.	.15	1.00	
ds " ATROPURPUREUS, Jacq.-----	.25	1.25	
es " JAPONICUS, Thunb. <i>Japanese Spindle</i> <i>Tree</i> -----	.15	1.00	
ds EXOCHORDA GRANDIFLORA, Lindl.-----c. Extremely beautiful shrub. Grows well from seed.	.25	2.25	20.00
dt FAGUS FERRUGINEA, Ait. (AMERICANA.) c.	.10	.30	2.50
ds FALLUGIA PARADOXA, Endl.----- Rare. Fine under-shrub from Arizona with splendid white flowers.	.40	3.50	
ds FOTHERGILLA ALNIFOLIA, L. (F. GARDENI.) <i>Dwarf Alder</i> -----c. Very rare shrub with very handsome flowers in early Spring, before the leaves appear.	.50	4.00	
dt FRAXINUS AMERICANA, L. <i>White Ash</i> ----c.	.15	.30	2.50
dt " CAROLINIANA, Mill. <i>Water Ash</i> ----c.	.20	1.50	
dt " NIGRA, Marsh. <i>Black Ash</i> -----c.	.20	1.35	
dt " OREGANA, Nutt. <i>Oregon Ash</i> -----c.	.20	1.35	
dt " PENNSYLVANICA, Marsh. <i>Green Ash</i> _c.	.15	.50	3.50
" PLATYCARPA. See caroliniana.			
dt " QUADRANGULATA, Mx. <i>Blue Ash</i> ---c.	.20	1.50	
" SAMBUCIFOLIA. See F. nigra.			
" VIRIDIS. See F. pennsylvanica. <i>Seed of Fraxinus sometimes remain dormant a</i> <i>whole year.</i>			
ds FREMONTIA CALIFORNICA, Torr. <i>Californian</i> <i>Slippery Elm</i> -----d. b.	.75	8.50	
es GARRYA ELLIPTICA, Gray-----	.80		
dt GLEDITSCHIA TRIACANTHOS, L. <i>Black or</i> <i>Honey Locust</i> -----c.	.10	.35	2.50
et GORDONIA LASIANTHUS, Ellis. <i>Loblolly</i> d. b.	.10	.75	6.00
<i>Bay</i> -----c.	.40	4.00	
Very rare evergreen with splendid white frag- rant flowers.			
dt GYMNOCLADUS CANADENSIS, Lam. <i>Kentucky</i> <i>Coffee Tree</i> -----c.	.10	.40	3.50
ds HALESIA DIPTERA, L. <i>Silver Bell</i> -----	.20	1.00	8.00
ds " TETRAPTERA, L. <i>Snowdrop</i> -----	.20	.80	7.50
ds HAMAMELIS VIRGINICA, L. <i>Witch Hazel</i> ---c.	.15	.85	7.50



		Oz.	Lb.	10 Lbs.
et	HETEROMELES ARBUTIFOLIA, Roem. <i>Californian Holly</i> -----d. b.	.20	1.50	
es	ILEX CORIACEA, Ell. <i>Tall Gallberry</i> ---d. b. Tall, evergreen shrub with thick glossy foliage and abundance of glossy black berries throughout the Winter. <i>Introduced by us.</i>	.20	1.00	9.00
ds	" DECIDUA, Walt. <i>Deciduous Holly</i> -----	.10	.50	4.50
es	" GLABRA, Gray. <i>Gallberry, Ink-berry</i> -----d. b.	.10	.50	4.50
et	" OPACA, Ait. <i>American Holly</i> -----	.10	.30	2.50
es	" VERTICILLATA, Gray. <i>Deciduous Holly</i> -----d. b. <i>Seed of Ilex generally lays over two to three years.</i>	.10	.35	3.00
dt	JUGLANS CINEREA, L. <i>Butter Nut</i> ----- \$2.00 per bus.		.20	1.50
dt	" NIGRA, L. <i>Black Walnut</i> -\$1.00 per bus.		.15	1.25
dt	" RUPESTRIS, Eng.----- Very rare and perfectly hardy small tree with graceful foliage. From Arizona.	.25	2.00	
es	KALMIA LATIFOLIA, L. <i>Mountain Laurel</i> -d. b. Shrub of greatest ornamental value.	.10	.45	4.00
		c.	.25	1.75
dt	KOELREUTERIA PANICULATA, Laxm. <i>Chinese Bladdernut</i> -----	.15	1.20	9.00
	LAURUS BENZOIN. See <i>Lindera benzoin</i> .			
es	LEUCOTHOE CATESBAEI, Gr. <i>Dog Laurel</i> -d. b. Beautiful shrub.	.10	.75	7.00
		c.	.25	1.50
es	LIGUSTRUM CHINENSE NANUM, Hort. (STAUNTONI, Rehder)-----d. b.	.15	1.00	
ds	LINDERA BENZOIN, Meis. <i>Spice Wood</i> ---d. b.	.15	.80	
dt	LIQUIDAMBAR STYRACIFLUA, L. <i>Sweet Gum</i> -c.	.35	1.80	15.00
dt	LIRIODENDRON TULIPIFERA, L. <i>Tulip Tree</i> -- Will produce but a small percentage of growing seed and must be sown very thickly therefore. The seed will often lay over two years.	.10	.35	3.00
ev	LONICERA BRACHYPODA, DC. <i>Japanese Honeysuckle</i> -----d. b.	.15	1.00	
ds	" INVOLUCRATA, Banks. <i>Western Bush Honeysuckle</i> -----d. b. Very rare. Of distinct merits.	1.60		
ds	LYCIUM PALLIDUM, Miers.-----	1.25		
	Very rare, interesting and perfectly hardy kind.			
dt	MAGNOLIA ACUMINATA, L. <i>Cucumber Tree</i> -d. b.	.10	.75	7.00
dt	" GLAUCA, L. <i>Sweet Bay</i> -----d. b.	.10	.65	6.00
et	" GRANDIFLORA, L. <i>Great Southern Magnolia</i> -----d. b. Not entirely hardy. Finely adapted to pot culture, resembling the rubber tree.	.10	.70	6.50

		Oz.	Lb.	10 Lbs.
dt	MAGNOLIA MACROPHYLLA, Mx. <i>Large-leaved Umbrella</i> -----	.15	1.00	8.50
dt	“ TRIPETALA, L. <i>Umbrella</i> ----- d. b. <i>The seed of Magnolias has to be macerated before planting and it ought to be sown at once after ripening. Early orders are imperative for this reason. Most Magnolias ripen in August and September.</i>	.15	.80	7.50
dt	MELIA AZEDERACH, L. <i>China Tree</i> ---- d. b.	.10	.40	3.50
dt	“ AZEDERACH UMBRACULIFORMIS. <i>Texas Umbrella</i> ----- d. b.	.10	.50	4.50
dv	MENISPERMUM CANADENSE, L. <i>Moonseed</i> --- c.	.25	3.00	
dt	MORUS ALBA, L. VAR. (TATARICA, L.) <i>Russian Mulberry</i> -----	.25	2.00	
et	MYRICA CALIFORNICA, Cham. <i>Californian Wax Myrtle</i> -----	.25	2.00	
es	“ CERIFERA, L. <i>Wax Myrtle</i> -----	.10	1.00	9.00
	NEGUNDO ACEROIDES. See <i>Acer negundo</i> .			
dt	NYSSA SYLVATICA, Marsh. <i>Tupelo, Black Gum</i>	.10	.40	3.50
	OPUNTIA. See under Cacti.			
	OREODAPHNE. See <i>Umbellularia</i> .			
dt	OSTRYA VIRGINICA, Willd. <i>Hop Hornbeam</i> --	.15	1.50	
ds	OXYDENDRUM ARBOREUM, DC. <i>Sour-wood</i> ----- d. b.	.10	.45	4.00
	Produces a wealth of white flowers in loose racemes. Foliage colors finely in Autumn. Entirely hardy.	.15	.75	6.50
dt	PAULOWNIA IMPERIALIS, S. & Z. <i>Empress Tree</i> ----- c.	.15	.75	
	Fairly hardy tree from the Orient, with enormous foliage and large panicles of blue sweet-scented flowers, which form their buds during the foregoing year. Phenomenal grower.			
et	PERSEA CAROLINENSIS, Nees. <i>Red Bay</i> - d. b.	.40	4.00	
	Very interesting, handsome, rare plant, which is not hardy.			
	PHOTINIA ARBUTIFOLIA. See <i>Heteromeles</i> .			
dt	PLATANUS OCCIDENTALIS, L. <i>Sycamore</i> ---- c.	.10	.30	2.50
ds	PRUNUS AMERICANA, Marsh. <i>Red Plum</i> ----	.10	.80	
et	“ CAROLINIANA, Ait. <i>Carolina Mock Cherry</i> ----- d. b.	.10	.45	4.00
	One of the most beautiful small evergreen trees of the South. Attractive all year round. Although not hardy North, it is well adapted to cultivation in pots and tubs same as bays. Stands pruning of any kind well.			
ds	“ DEMISSA, Walp. ----- d. b.	.45	3.50	
	Very rare. From California mountains.			
ds	“ EMARGINATA, Wats. VAR. MOLLIS - d. b.	.45	3.00	



*Pinehurst Nursery, 1900.*

**SOURWOOD.  
OXYDENDRUM ARBOREUM.**

See page 10.



		Oz.	Lb.	10 Lbs.
dt	PRUNUS SEROTINA, Ehrh. <i>Wild Black Cherry</i> -----d. b.	.10	.50	4.50
ds	" SUBCORDATA, Benth. -----d. b.	.50		
ds	" VIRGINIANA, L. <i>Choke Cherry</i> ----d. b.	.10	.70	
dt	PTELEA TRIFOLIATA, L. <i>Hop Tree</i> -----	.15	1.50	
ds	PURSHIA TRIDENTATA, DC. -----	1.50		
	Rare, graceful shrub from the West. Hardy. Best in sandy or clayey-sandy soil and in rockeries.			
dt	PYRUS AMERICANA, DC. <i>Mountain Ash</i> _d. b.	.15	1.50	
ds	" ARBUTIFOLIA, L. fil. <i>Chokeberry</i> --d. b.	.15	.80	7.50
	Hardy, admirable shrub, which shows to best advantage in Winter when covered with bright red berries, resembling holly. Much used now for Christmas decorations.			
dt	QUERCUS ALBA, L. <i>White Oak</i> _\$8.00-100 lbs.		.25	1.75
dt	" AQUATICA, Walt. <i>Water Oak</i> -----		.25	1.75
	Almost evergreen with us. \$8.00-100 lbs.			
dt	" BICOLOR, Willd. <i>Swamp White Oak</i> ---		.25	1.75
	\$8.00-100 lbs.			
dt	" CATESBAEI, Mx. <i>Scrub Oak</i> -----		.25	1.50
	\$7.00-100 lbs.			
dt	" COCCINEA, Muench. <i>Scarlet Oak</i> -----		.35	2.50
	\$15.00-100 lbs.			
dt	" GARRYANA, Dougl. <i>Western White Oak</i>	.15	.75	
et	" LAURIFOLIA, Mx. <i>Laurel Oak</i> -----		.25	1.75
	Grand evergreen oak, which has proved hardy in Arnold Arboretum, Boston. \$10.00-100 lbs.			
dt	" LYRATA, Walt. <i>Over-cup Oak</i> -----		.35	3.00
dt	" MACROCARPA, Mx. <i>Mossy-cup Oak</i> ----		.30	2.00
	\$12.00-100 lbs.			
dt	" NIGRA, L. <i>Blackjack Oak</i> _\$7.00-100 lbs.		.25	1.50
dt	" PALUSTRIS, Muench. <i>Pin Oak</i> -----		.25	1.75
	\$12.00-100 lbs.			
dt	" PRINOS, L. <i>Mountain Chestnut Oak</i> ----		.25	1.50
	Acorns are very perishable. \$8.00-100 lbs.			
dt	" RUBRA, L. <i>Red Oak</i> ----\$8.00-100 lbs.		.25	1.75
dt	" TINCTORIA, Mx. <i>Black Oak</i> -----		.35	2.25
	\$16.00-100 lbs.			
et	" VIRENS, Ait. <i>Live Oak</i> _\$10.00-100 lbs.		.30	2.00
	The famous evergreen oak of the South, which forms quite an enormous tree, but which unfortunately is not hardy. Grows best in vicinity of seashore.			
	100 lbs. equal about 2 bushels.			
	The outlook for good crops of acorns of most kinds is fair, and we can make special prices for larger lots by letter. As most acorns are very perishable, orders ought to reach us in advance of ripening of crops.			

		Oz.	Lb.	10 Lbs.
dt	RHAMNUS CALIFORNICA, Eschsch. -----	d. b.	.10	.75
ds	“ CAROLINIANA, Walt. -----	d. b.	.10	.35 3.00
dt	“ PURSHIANA, DC. <i>Bearberry</i> -----	d. b.	.30	2.50
	Rare small tree from Oregon.			
es	RHODODENDRON CALIFORNICUM, Hook. ....	c.	1.50	
es	“ CALIFORNICUM MAXIMUM(?) -----	c.	1.50	
es	“ MAXIMUM, L. <i>Great Laurel</i> -----	c.	.25	2.25
ds	RHUS COPALLINA, L. <i>Sumach</i> -----	d. b.	.10	.25 2.00
ds	“ GLABRA, L. <i>Smooth Sumach</i> -----	d. b.	.10	.25 2.00
ds	“ TRILOBATA, Nutt. -----		.25	2.50
	Rare Western species. Does best in dry sandy soil. Very handsome.			
ds	“ TYPHINA, L. <i>Staghorn Sumach</i> ----	d. b.	.10	.80
ds	“ VENENATA, DC. <i>Poison Sumach</i> --	d. b.	.15	.75
ds	RIBES AUREUM, Pursh. <i>Golden-flowering</i> <i>Currant</i> -----	d. b.	.40	4.50
ds	“ CEREUM, Dougl. <i>Western Currant</i> --	d. b.	.30	3.50
ds	“ PINETORUM, Gr. <i>Arizona Currant</i> --	d. b.	.40	3.50
	Very rare. Fresh fruits are edible.			
ds	“ SANGUINEUM, Pursh. -----	d. b.	.25	2.00
	Entirely hardy. Ought to be grown everywhere.			
dt	“ ROBINIA PSEUDACACIA, L. <i>Black or</i> <i>Yellow Locust</i> -----		.10	.50
ds	ROSA ARKANSANA, Porter. <i>Arkansas</i> <i>Rose</i> -----	d. b.	.35	2.50
	A handsome species, specially adapted to plantings on banks and exposed places.			
ds	“ BLANDA, Ait. -----	d. b.	.10	.75
ev	“ BRACTEATA, Wendl. <i>MacCartney</i> <i>Rose</i> -----	d. b.	.30	2.50 20.00
	Rare single rose of greatest beauty. Not hardy.			
ds	“ CALIFORNICA, C. & S. -----	d. b.	1.00	
	From California mountains.			
ds	“ CAROLINA, L. -----	d. b.	.25	2.00
ds	“ FENDLERI, Crep. <i>Winter Berry</i> <i>Rose</i> -----	d. b.	.40	3.50
	Splendid shrub for winter effect from the West. Hardy.			
ev	“ LAEVIGATA, Mx. <i>Cherokee Rose</i> --	d. b.	.20	2.50
	The typical rose of the South. Not hardy. Strong climber. Fine glossy foliage. Very early and profuse bloomer.			
ds	“ LUCIDA, Ehrh. -----	d. b.	.20	2.00
dv	“ WICHURAIANA, Crep. <i>Japanese Memorial</i> <i>Rose</i> -----	d. b.	.35	3.00



ROSA BRACTEATA.  
Mac Cartney Rose

Pinehurst Nursery 1900.

See page 12.





		Oz.	Lb.	10 Lbs.
ds	RUBUS DELICIOSUS, James. <i>Flowering Thimble Berry</i> -----c.	1.25	12.00	
	Hardy, distinctly fine shrub from the West.			
es	RUTA GRAVEOLENS, L. <i>Rue</i> -----c.	.15	1.00	
ds	SAMBUCUS CANADENSIS, L. <i>Common Elder</i> -----d. b.	.10	.50	
ds	“ GLAUCA, Nutt. -----d. b.	.25	2.50	
dt	SASSAFRAS OFFICINALE, Nees. <i>Sassafras</i> -d. b.	.10	.35	3.00
es	SCHINUS MOLLE, L. <i>Pepper Tree</i> -----	.15	1.00	
ev	SMILAX LAURIFOLIA, L. <i>Evergreen Briar</i> -----d. b.	.15	.60	5.00
	The “Southern Smilax” used freely now for decorative work. The roots yield the material for “French Briar” pipes.			
dv	“ WALTERI, Pursh. <i>Deciduous Briar</i> -d. b.	.10	.60	5.00
	Splendid hardy climber, with a wealth of bright red berries throughout the winter.			
ds	SORBUS DUMOSA, Greene. -----d. b.	.40	5.00	
	Very rare shrub from Arizona. Hardy.			
ds	STUARTIA PENTAGYNA, L’Herit. -----c.	.25	1.50	
	“American Camellia.” One of the handsomest and withal rarest hardy shrubs.			
	STYRAX AMERICANA, Lam. <i>Storax</i> -----d. b.	.20	1.50	
dt	SWIETENIA MAHOGONI, L. <i>Mahogany Tree</i> --	.40		
dv	TECOMA RADICANS, Juss. <i>Trumpet Flower</i> -c.	.25	1.20	
	Hardy climber with fine flowers.			
ds	“ STANS, Juss. -----	.75		
	Tender. Four feet high. Yellow flowers.			
dt	TILIA AMERICANA, L. <i>American Basswood</i> -----d. b.	.15	.60	5.00
dt	ULMUS AMERICANA, L. <i>White Elm</i> -----c.	.15	.80	7.50
et	UMBELLULARIA CALIFORNICA, Nutt. <i>Californian Laurel</i> -----	.15	1.20	
	Pretty, small tree, not quite hardy.			
ds	VIBURNUM ACERIFOLIUM, L. <i>Maple-leaved Haw</i> -----d. b.	.10	1.00	
ds	“ CASSINOIDES, L. <i>White Haw</i> -----d. b.	.15	1.20	
ds	“ DENTATUM, L. -----d. b.	.10	1.00	
ds	“ LANTANOIDES, Mx. -----d. b.	.15	1.25	
ds	“ LENTAGO, L. <i>Sheepberry</i> -----d. b.	.10	1.00	
ds	“ NUDUM, L. <i>Poosum Haw</i> -----d. b.	.10	.40	3.50
ds	“ OPULUS, L. <i>High Cranberry Bush</i> -d. b.	.15	1.50	
ds	“ PRUNIFOLIUM, L. <i>Black Haw</i> -----d. b.	.10	.50	4.00
dv	VITIS AESTIVALIS, Mx. <i>Summer Grape</i> -----	.25	2.00	
dv	“ CORDIFOLIA, Mx. <i>Winter Grape</i> -----	.25	2.00	
dv	“ RIPARIA, Mx. <i>Common Frost Grape</i> ---	.25	2.00	

		Oz.	Lb.	10 Lbs
	VITIS ROTUNDIFOLIA. See Vulpina.			
dv	" VULPINA, L. <i>Muscadine</i> -----	.25	1.75	
	From seedlings of this grape many of our best cultivated varieties have originated, among them the famous Southern "Scuppernong."			
dv	WISTARIA FRUTESCENS, DC. <i>Virgin's Bower</i> ----- c.	.15	1.00	9.00
ds	XANTHORRHIZA APIIFOLIA, L'Her. <i>Yellow Root</i> -----	.30	2.50	
dt	XANTHOXYLUM AMERICANUM, Mill. <i>Toothache Tree</i> -----	.15	1.50	
dt	" CAROLINIANUM, Lam. <i>Prickly Ash</i> ----	.20	2.00	
es	YUCCA ANGUSTIFOLIA, Pursh. <i>Glaucous Adam's Needle</i> ----- c.	.30	3.00	
	Very hardy ornamental species.			
et	" ALOEFOLIA, L. <i>Spanish Bayonet</i> ----- c.	.30	2.50	
et	" BACCATA, Torr. <i>Mexican Banana</i> ----- c.	.75		
et	" BREVIFOLIA, Eng. <i>Joshua Tree</i> -----	1.20		
es	" FILAMENTOSA, L. <i>Adam's Needle, Beargrass</i> ----- c.	.45	3.00	
	Our supply is very limited, and we solicit early orders for seed of this entirely hardy, eminently ornamental plant.			
es	" WHIPPLEI -----	.75		

## CACTI.

All kinds offered by us are entirely hardy, except where specially noted. As cacti grow very easily from seed, we suggest a trial order.

Half-ounce at ounce rates; quarter-pound at pound rates; two and one-half pounds at ten pound rates.

We use the nomenclature as given us by the collectors.

		Pkt.	Oz.	Lb.
CACTUS	MISSOURIENSIS -----	.25		
"	VIVIPARUS -----	.25		
ECHINOCACTUS	SIMPSONI -----	.25		
ECHINOCEREUS	VIRIDIFLORUS -----	.25		
"	VIRIDIFLORUS, (LONG) SPINED VAR. ---	.25		
OPUNTIA	ARBORESCENS -----	.10	.75	6.00
"	MESACANTHA CYMOCHILA -----	.10	.35	3.00
"	MESACANTHA -----	.10	.30	2.50
"	MESACANTHA MACRORRHIZA -----	.10	.30	2.50
"	PHAEACANTHA MAJOR -----	.10	.40	3.50
"	POLYCANTHA ----- c.	.20	.50	4.00
"	TUNA -----	.25	.45	
	Tender.			
"	VULGARIS, Mill. -----	.10	.15	.65

# PALMS.

Half-ounce at ounce rates; quarter-pound at pound rates.

	10 Seeds	100 Seeds	1000 Seeds	Oz.	Lb.
BRAHEA EDULIS. See <i>Erythea edulis</i> .					
“ FILAMENTOSA. See <i>Washingtonia filifera</i> .					
“ GLAUCA. See <i>Erythea armata</i> .					
CHAMAEROPS HUMILIS, L. -----				.20	1.20
“ HYSTRIX. See <i>Rhapidophyllum</i> .					
COCOS NUCIFERA, L. <i>Cocoanut Palm</i> -----	.75	4.00	35.00		
ERYTHEA ARMATA, S. Wats. <i>Blue Palm</i> -----	.20	1.00	6.50	.30	3.50
“ EDULIS, S. Wats.-----	.35	1.50	8.50	.45	4.50
OREODOXA OLEARACEA, Mart. <i>Cabbage Palm</i> -----	.20	1.50	7.50		
“ REGIA, H. B. & K. <i>Royal Palm</i> -----	.20	1.00	5.50		
PSEUDOPHOENIX SARGENTI, H. Wendl.				.50	4.00
RHAPIDOPHYLLUM HYSTRIX, W. & D.				.40	3.50
SABAL LONGIPEDUNCULATA ----- d. b.				.30	1.25
“ PALMETTO, R. & S. <i>Cabbage Palmetto</i> ----- d. b.				.25	1.00
SERENOA SERRULATA, Hook. f. <i>Saw Palmetto</i> ----- d. b.				.15	.75
THEINAX ARGENTEA, Lodd. <i>Brittle Thatch</i> -----				.25	1.50
“ BARBADENSIS, Lodd.-----				.40	2.50
“ EXCELSA, Griseb.-----				.40	2.00
“ PARVIFLORA, Swartz. <i>Silk Top Palmetto</i> -----				.40	2.50
WASHINGTONIA FILIFERA, Wendl. <i>Fan-leaf Palm</i> -----				.20	1.20
“ ROBUSTA, Wendl.-----				.35	3.00
“ SONORAE, S. Wats.-----				.80	9.00
ZAMIA INTEGRIFOLIA, L. <i>Coontie</i> . (Cycadeae)-----				.25	1.50

# HERBACEOUS SEEDS.

One-fourth ounce at ounce rates; one-fourth pound at pound rates.  
We will send ten-cent packages of any of the following seeds.

	Pkt.	Oz.	Lb.
ABRONIA FRAGRANS, Nutt. <i>Wild Four-o'clock</i> -- Pretty night-blooming, trailing plant.	.20	1.00	
ACONITUM COLUMBIANUM, Nutt. (A. FISCHERI.) Rare. Pale blue or purple flowers in loose terminal racemes.	.25		
ACTINELLA ODORATA ----- Rare. Fine for alpine gardens.	.25	2.00	
ALETIS FARINOSA, L. <i>Unicorn Root</i> -----	.10	.30	2.00
ANEMONE DICHOTOMA, L. -----	.15		
"    PATENS, L. <i>Wind Flower</i> -----	.25	1.00	9.00
APOCYNUM ANDROSAEMIFOLIUM, L. <i>Dogbane</i> --	.15		
AQUILEGIA CHRYSANTHA, Gray. ----- Rare. From Arizona. 3-4'. Many-flowered. Pale yellow-tinted or claret.	.15		
"    COERULEA, James. <i>Blue Columbine</i> ---- True wild. Beautiful flowers. Ought to be represented in every collection.	.30	1.75	
ARENARIA DIFFUSA, L. <i>Sandwort</i> -----	.10	1.00	
ARGEMONE PLATYCERAS, L. & O. <i>Colorado Silver Poppy</i> -----	.20	.75	6.00
"    PLATYCERAS HISPIDA, Prain. <i>Silver Poppy</i> -----	.20	.75	6.00
ARTEMISIA ARBUSCULA, Nutt. <i>True Sagebrush</i> --	.25		
"    CANADENSIS, Mx. -----	.25		
"    FILIFOLIA, Torr. -----	.25		
"    FRIGIDA, Willd. <i>True Mountain Sage</i> --	.25		
"    MEXICANA, Willd. -----	.25		
ASCLEPIAS FASCICULARIS. <i>Californian Butterfly Weed</i> -----	.30	2.50	
"    SPECIOSA, Torr. <i>Western B.</i> -----	.20	1.00	7.50
"    TUBEROSA, L. <i>Pleurisy Root</i> ----- A very handsome plant.	.15	.75	
ASCLEPIODORA DECUMBENS, Gray. ----- Very handsome decumbent plant from Arizona, with greenish yellow or reddish brown flowers.	.35		
ASPERULA AZUREA, J. & Sp. <i>Blue-flowered Forest-master</i> -----	.10	.25	1.50
A remarkably graceful annual, with showy racemes of light blue color.			
ASTER CANESCENS, Pursh. ----- 1-2'. Pale flowers.	.25		

	Pkt.	Oz.	Lb.
ASTER COMMUTATUS, Gray. -----	.25		
Low branching kind. 1'. Abundant white flowers.			
“ FENDLERI, Gray. -----	.25		
Very distinct species. Quite rare.			
“ FOLIACEUS, L. -----	.25		
Very large lavender-colored flowers.			
“ LAEVIS, L. -----	.20	1.20	
Tall graceful species.			
“ MULTIFLORUS, Ait. -----	.20	1.20	
1-2'. Rare.			
“ PORTERI, Ait. -----	.25		
1'. Quite rare. Handsome pure white flowers.			
ASTRAGALUS BIGELOWI, Gray. -----	.45		
Rare, dwarf. Magnificent purple, red and white flowers.			
“ DRUMMONDI, Dougl. -----	.20	1.50	
“ PICTUS, Gray. -----	.23		
“ PURSHII, Dougl. VAR. UNCTUS -----	.25	2.00	
“ RACEMOSUS, Pursh. -----	.20	1.50	
BAPTISIA TINCTORIA, R. Br. <i>Wild Indigo</i> -----	.10	.50	
“ VILLOSA, Ell. <i>False Indigo</i> -----	.10	.30	
BRICKELLIA GRANDIFLORA, Nutt. <i>Tassel Flower</i>	.35		
CAMASSIA ESCULENTA, Lindl. <i>Camass</i> -----	.25	1.25	
CAMPANULA PARRYI -----	.35		
CANNA FLACCIDA, Roscoe. -----	.10	.40	3.00
Handsome yellow iris-like flowers.			
CASTILLEJA INTEGRATA, Gray. <i>Painted Cup</i> -----	.20		
Rare. Remarkably fine dwarf herb with bright red flowers.			
“ PALLIDA, Kunth. -----	.25		
“ SESSILIFLORA, Pursh. -----	.25		
CHIMAPHILA MACULATA, Pursh. <i>Prince's Pine</i> -----	.10	.70	
CLEMATIS DOUGLASI, Hook. <i>Mountain Leather Flower</i> -----	.25	1.75	10.00
“ FREMONTI, Wats. -----	.30		
“ PITCHERI, T. & G. -----	.25	2.25	
“ See also under Trees and Shrubs.			
CNICUS REPANDUS, Ell. <i>Scotch Thistle</i> -----	.10		
CLITORIA MARIANA, L. <i>Butterfly Pea</i> -----	.20	.50	3.50
One of the best blooming, low, climbing perennials which deserves general cultivation.			
CROTALARIA SAGITTALIS, L. <i>Rattlebox</i> -----	.10	.50	
Annual. The glossy black seed pods form stiff walls and the ripe seeds sound in them like miniature rattles.			
CTENIUM AMERICANUM, Spreng. <i>Toothache Grass</i>	.10	.60	

	Pkt.	Oz.	Lb.
DARLINGTONIA CALIFORNICA, Torr. ----- Rare and interesting carnivorous plant from California.	.50		
DELPHINIUM CARDINALE, Hook. ( <i>True</i> ) <i>Larkspur</i> Rare. Beautiful scarlet flowers.	.30	3.00	
“ SCOPULORUM, Gray. <i>Rocky Mountains</i> <i>Larkspur</i> ----- 2-3'. Large intense blue or purple flowers.	.25	1.50	9.00
DICENTRA EXIMIA, Torr. <i>Bleeding Heart</i> -----	.15	1.50	
DIONAEA MUSCIPULA, Ellis. <i>Venus Fly Trap</i> --- Very rare and wonderfully interesting carnivorous plant which occurs in but one section of this State and has not been found growing spontaneously anywhere else.	.25	4.00	
DROSERA ROTUNDIFOLIA, L. <i>Sundew</i> ----- Another interesting carnivorous plant of rather small size, which grows best in wet moss.	.25	3.00	
ECHINO CYSTIS LOBATA, T. & G. <i>Wild Cucumber</i> Very rapidly growing, handsome, annual vine.	.15	.75	
ERIGERON GLABELLUS, Nutt. ----- 1'. Very fine violet or purple flowers.	.20		
“ MACRANTHUS, Nutt. VAR. ALPINUS --- Very good and hardy species.	.25	2.50	
“ NEO-MEXICANUS ----- New, from Arizona. Fine white flowers.	.25		
ERIOCAULON DECANGULARE, L. <i>Pipewort</i> ----- Bog plant. Flower heads button-shaped.	.25	2.00	
ERIOPHORUM VIRGINICUM, L. <i>Cotton Grass</i> --- Bog plant. Heads resemble cotton bolls very much.	.10	.50	3.00
ERYNGIUM YUCCA EFOLIUM. <i>Sea Holly</i> -----	.25		
ERYTHRINA HERBACEA, L. <i>Coral Tree</i> ----- Racemes 1-2' long. Flowers of beautiful scarlet color. Not hardy.	.10	.70	
EUPATORIUM PURPUREUM, L. <i>Queen of the</i> <i>Meadows</i> -----	.10	.65	
EUPHORBIA ROBUSTA, Sm. <i>Rocky Mountain</i> <i>Spurge</i> -----	.25	1.50	
FRASERA SPECIOSA, Dougl. <i>Monument Plant</i> ---	.25	1.50	
GALACTIA GLABELLA, Mich. <i>Milk Pea</i> ----- Handsome leguminose with graceful foliage and an abundance of reddish-purple flowers. Hardly under cultivation at present.	.10	.45	2.50
GENTIANA AFFINIS, Griseb. ----- Western mountains. Grand blue flowers.	.35		
“ ANDREWSI, Griseb. <i>Closed Gentian</i> --- Western form.	.25		
“ ALBA, Muhl. <i>White Gentian</i> ----- Flowers dull or greenish-white.	.50		

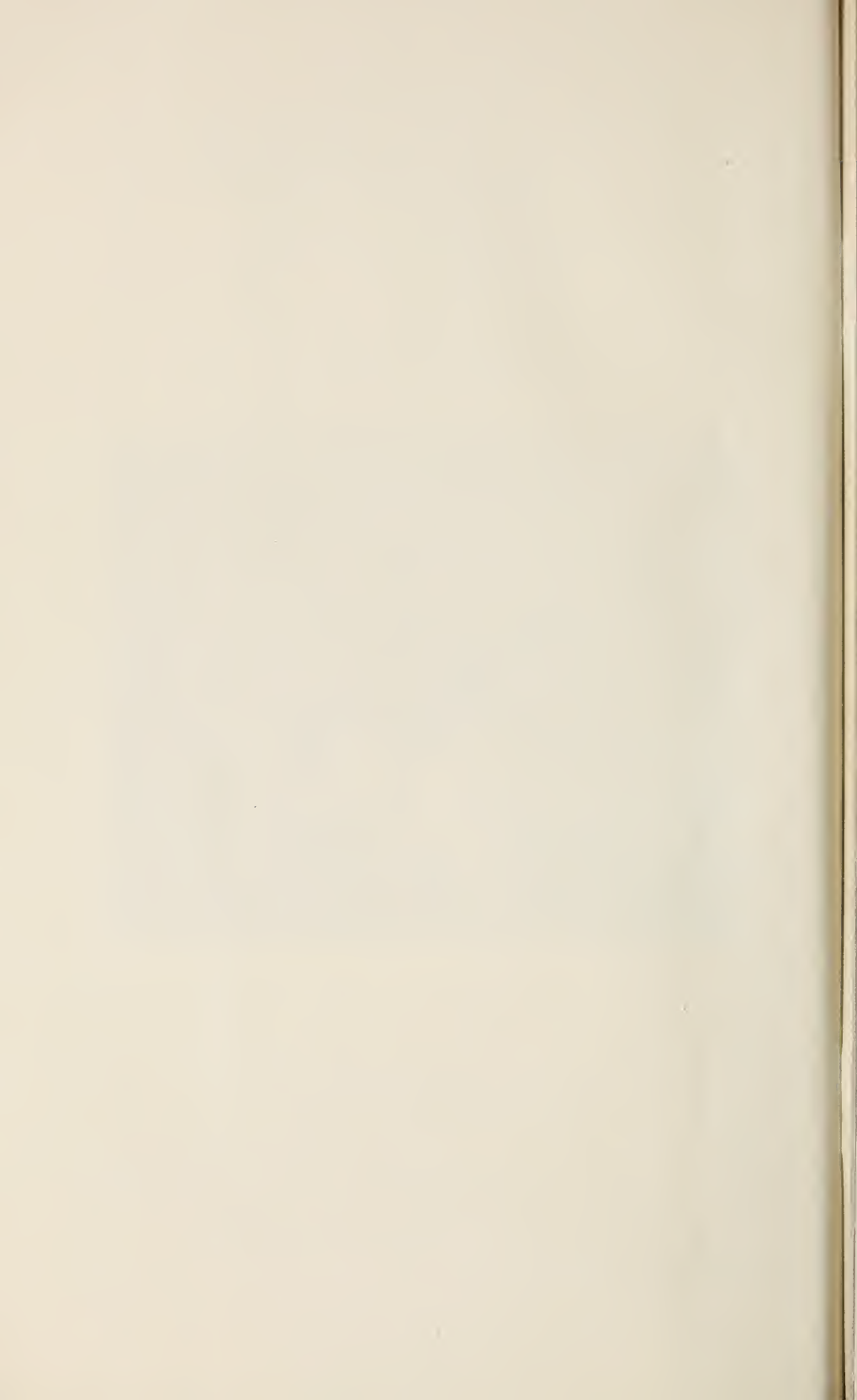
	Pkt.	Oz.	Lb.
GENTIANA ANGUSTIFOLIA, Mx. <i>Narrow-leaved</i>			
<i>Gentian</i> -----	.25		
Large bright-blue flowers.			
“ BIGELOWI, Gray. -----	.25		
Bright blue flowers, very numerous and dense.			
“ PARRYI, Eng. -----	.50		
Purple-blue flowers.			
“ SAPONARIA, L. <i>Soapwort</i> -----	.25		
Large light-blue flowers. Rare.			
“ SERRULATA, Gunn. <i>Fringed Gentian</i> ---	.50		
Annual.			
GERANIUM FREMONTI, Torr. <i>Hardy Crane's Bill</i>	.40	3.00	
GERARDIA PURPUREA, L. <i>False Foxglove</i> -----	.10	.25	
Graceful annual with abundance of purple or pinkish-red showy flowers. Late bloomer.			
GEUM TRIFLORUM, Pursh. -----	.15		
Pretty rare perennial, well adapted to border plantings. Drooping flowers are pale pink.			
GILLENIA STIPULACEA, Nutt. <i>Indian Physic</i> ---	.20	.75	2.00
GILIA AGGREGATA, Spreng. -----	.30	4.50	
“ AGGREGATA ALBA -----	.30	5.00	
“ PUNGENS -----	.25		
Pretty annuals or biennials of easy culture.			
HABENARIA ELEPHARIGLOTTIS, Poir. -----	.50	3.50	
Splendid ground orchid with pure white flowers.			
“ CILIARIS, R. Br. <i>Yellow-fringed Orchid</i> ---	.50	3.50	
Said to be the finest native orchid. Orange-fringed flowers in dense heads.			
HELIANTHUS MAXIMILIANI, Schrader. -----	.20	1.00	
“ PUMILUS, Nutt. <i>Dwarf Sunflower</i> -----	.20	1.20	
HYMENOPAPPUS MEXICANUS -----	.20		
IPOMAEA LEPTOPHYLLA, Torr. <i>Bush Morning</i>			
<i>Glory</i> -----	.25	.75	6.00
Bush-like annual with large pink to purple-colored flowers.			
IRIS HEXAGONA, Walt. -----	.15	.40	3.50
2-3'. Flowers deep blue with white, yellow and purple veins.			
“ MISSOURIENSIS, Nutt. -----	.25	1.00	
1'. Large white and pale blue flowers.			
“ VERSICOLOR, L. <i>American Flag</i> -----	.10	.50	
2'. Large pale blue and white flowers. Bog plant.			
JATROPHA STIMULOSA, Mx. <i>Stinging Nettle</i> -----	.10	.30	
Handsome foliage and very fine pure white flowers. Enormous deep-reaching root.			
KRYNITZKIA FULVOCANESCENS, Gray. -----	.30		
Rare dwarf, for alpine gardens.			

	Pkt.	Oz.	Lb.
KUHNIA ROSMARINIFOLIA ----- Rare. Fine for rockeries.	.30		
LATHYRUS SPLENDENS, Kellogg. <i>Pride of California</i> -----	.35	1.25	
LEPACHYS COLUMNARIS, T. & G. ----- Very handsome tall kind. Blooms first season from seed.	.15		
LIATRIS GRAMINIFOLIA, Willd. <i>Button Snake</i> <i>Root</i> -----	.10	.65	
3-6'. Flowers appear in late Fall on long spikes.			
" SQUARROSA, Willd. <i>Blazing Star</i> -----	.10	.65	
1-2'. Purple flowers appear in dense spikes in June and July.			
" TENUIFOLIA, Nutt. -----	.10	.65	
3-4'. Flowers appear in very dense spikes in late Fall.			
LILIUM SUPERBUM, L. <i>Turk's Cup Lily</i> -----	.20	.75	
One of the best native lilies.			
LOPHANTHUS URTICIFOLIUS, Benth. -----	.25		
Rare, tall herb with sweet aromatic foliage.			
LUPINUS ARBOREUS, Sims. -----	.30	.75	5.00
" DIFFUSUS, Nutt. <i>Deer Cabbage</i> -----	.10	.30	2.50
Lovely pale blue flowers appear in dense spikes in early spring and cover the plants in profusion. Hardly under cultivation yet. Splendidly adapted to sand binding and along embankments.			
" PARVIFLORUS, Nutt. -----	.15		
MENDOZA SCABRA -----	.25		
MENTZELIA NUDA, T. & G. -----	.20	1.50	
" ORNATA, T. & G. -----	.25	1.75	
MERTENSIA LANCEOLATA, DC. <i>Langwort</i> -----	.25		
" SIBIRICA, Don. -----	.25		
MONARDA FISTULOSA MOLLIS, Benth. <i>Wild Bergamot</i> -----	.25		
OENOTHERA ALBICAULIS, Pursh. -----	.15		
" BRACHYCARPA, Gray. -----	.25		
" CAESPITOSA, Nutt. -----	.25		
" FORMOSA -----	.35		
" FRASERI, T. & G. -----	.25		
" SERRULATA, Nutt. -----	.25		
Most Evening Primroses are very handsome and are easily grown from seed. While most of them are perennials or biennials they are frequently treated as annuals.			
OXYTROPIS LAMBERTI, Pursh. -----	.25		
Rare. Handsome purple flowers.			
" SPICATA -----	.45		
Large spikes of white flowers.			





See page 20.



	Pkt.	Oz.	Lb.
PAEONIA BROWNI, Dougl. ----- Flower crimson with yellow border.	.50		
PARRYA MENZIESI, Greene. ----- Rare. Many flowered racemes of bright purple flowers. Well adapted to alpine gardens.	.50		
PASSIFLORA INCARNATA, L. <i>Passion Flower</i> ---- Luxuriant vine. Beautiful large pinkish-white flowers, with a triple purple and flesh-colored crown of magnificent design. Fruit of hen's egg size contains a whitish juice of very agreeable taste. Called "Maypops" throughout the South.	.10	.30	2.50
PEDICULARIS PARRYI, Gray. ----- Handsome alpine with light yellow flowers. Rare.	.25		
PENTSTEMON BARBATUS, Nutt. VAR. TORREYI, Gray. ----- Remarkably fine kind.	.20	1.00	4.00
" CAERULEUS, Nutt. ----- 1'. Very showy blue flowers in compact racemes.	.15	1.00	
" GLABER, Pursh. ----- Very handsome, large, sky-blue flowers.	.20	1.50	
" GLAUCUS, VAR. STENOSEPALUS, Gray. -- 1'. Alpine, with purplish or dull white flowers.	.20		
" HUMILIS, Nutt. -----	.25		
" LAETUS, Gray. -----	.25		
" LINARIOIDES, Gray. ----- 6". Rare, small purple flowers.	.25		
" SPECTABILIS, Thurber. ----- Beautiful species, with large rose-purple flowers.	.35		
" VIRGATUS -----	.35		
PERICOME CAUDATA, Gray. ----- Rare, tall herb with golden yellow flowers. Fine for rockeries.	.25		
PETALOSTEMON CANDIDUM, Mx. <i>White Prairie Clover</i> ----- 2'. White flowers on stiff wiry stems in dense spikes.	.20	.75	
" TENUIFOLIUS, Gray. <i>Silky Prairie Clover</i> 1'. Deep purple flowers.	.20	.80	
PHLOX CAROLINA, L. (OVATA, L.) -----	.25		
" DOUGLASI, Hook. ----- Dwarf. Flowers white to purple. Western States.	.25		
" SUBULATA, L. <i>Moss Pink</i> . Mixed colors Separate colors, snow-white, light pink or deep red -----	.25	2.00	
Invaluable plant for ground cover and border- ing, as it forms compact and large clumps. The plants are covered with flowers in early Spring and again in Fall.	.25		

	Pkt.	Oz.	Lb.
<b>PHYTOLACCA DECANDRA, L. <i>Pokeweed</i></b> ----- Stout, tall growing perennial with much branching bright red stems. Handsome in bloom and fruit.	.10	.25	1.50
<b>POLEMONIUM CONFERTUM, Gray.</b> ----- .25 Deep blue honey-scented flowers.			
“ <b>HUMILE, Willd.</b> ----- .25 Bell-shaped blue or purplish flowers. It “has the odor of ripened grapes.”			
“ <b>HUMILE PULCHELLUM, Gray.</b> ----- .30 Dwarf. Violet or lavender-blue flowers.			
<b>POTENTILLA GLANDULOSA, Lindl.</b> ----- .15 2.00			
<b>PRIMULA PARRYI, Gray.</b> ----- .50 6.00 Rare alpine with very fine flowers.			
<b>RHEXIA MARIANA, L. <i>Deer Grass</i></b> ----- .10 .30 1-2'. Large showy purple flowers appear from July until September.			
“ <b>VIRGINIANA, L. <i>Meadow Beauty</i></b> ----- .10 .30 6-12". Very bright purple flowers with golden yellow stamens. Flowers nearly all Summer.			
<b>RHYNCHOSIA ERECTA, DC.</b> ----- .10 .40 12-15". Good plants for shady places.			
“ <b>RENIFORMIS, DC.</b> ----- .10 .40 3-6". Good ground cover under shade.			
<b>ROMNEYA COULTERI, Harvey. <i>Matilija Poppy</i></b> -- .25 1.20 Half woody, very ornamental Californian plant with large, pure white, fragrant flowers.			
<b>SALVIA AZUREA GRANDIFLORA</b> ----- .25 2.50 Very showy Western kind. Flowers are finely adapted to florists' purposes.			
<b>SARRACENIA FLAVA, L. <i>Trumpet Leaf</i></b> ----- .10 .50 5.00 2-3'. Tall yellow leaves have large open throat, over which stands the rounded broad hood. Showy large yellow flowers come in early Spring.			
“ <b>PURPUREA, L. <i>Pitcher Plant</i></b> ----- .10 .50 5.00 1'. Leaves form large open prostrate pitchers of deep purple color topped by the large purple- veined broad hood. Flowers are deep purple and appear in April. Hardest species.			
“ <b>VARIOLARIS, Mx. <i>Spotted Trumpet Leaf</i></b> .10 .60 6.00 6-12". The leaves are yellowish-green, some- times whitish mottled. The broad hood has purple veins and is bending over the mouth of the tube. The flowers are bright yellow. Quite a rare species.			
<b>SAXIFRAGA NIVALIS, L.</b> ----- .25			
“ <b>PUNCTATA, L.</b> ----- .25			
<b>SCHRANKIA ANGUSTATA, T. &amp; G. <i>Sensitive or</i></b> <i>Shame Briar</i> ----- .25 .60 Trailing perennial with large finely pinnate foliage, which is truly sensitive and will close at the merest touch. The pinkish mimosa flow- ers appear in July. Grows well in shade.			

	Pkt.	Oz.	Lb.
SENECIO DOUGLASI, DC.-----	.20	1.50	15.00
2'. Very late bloomer. Flowers are very numerous and golden yellow narrowly rayed.			
SILENE DOUGLASI, Hook.-----	.25		
2-3'. Flowers rose color or nearly white.			
" VIRGINICA, L. <i>Fire Pink</i> -----	.10	.75	
1-2'. The brilliantly fiery red flowers appear all Summer and make the fire pink one of our most effective plants for low ground.			
SISYRRHINCHIUM ANGSTIFOLIUM, Mill. <i>Blue-eyed Grass</i> -----	.10	.50	
1'. Delicate sky-blue flowers and grass-like foliage. Nice for edgings and borders.			
SMILACINA AMPLEXICAULIS, Nutt. <i>False Solomon's Seal</i> -----	.25	1.50	10.00
2'. Western species. Great panicles of creamy white fine flowers.			
SOLIDAGO MULTIRADIATA SCOPULORUM, Gray.--	.25		
3-18". Rare.			
" SPECTABILIS, Gray. -----	.25		
1-2'. "Does not spread from root."			
SPIRAEA CAESPITOSA, Nutt.-----	.25		
Rare. Low herb of wonderful beauty, which forms large velvety tufts and which ought to find splendid use as a ground covering plant. Seed was collected 7-9000' above sea level.			
STANLEYA PINNATIFIDA, Nutt. <i>Cleome-flowered Wallflower</i> -----	.25	2.00	
3'. Hardy perennial, with deep golden yellow flowers on long terminal spikes.			
STILLINGIA SYLVATICA, L. <i>Queen's Delight</i> -----	.10	.40	2.50
2-3'. Neat, much branched perennial. Grows in any kind of soil.			
SYNTHYRIS PLANTAGINEA, Benth.-----	.35		
Rare. Dwarf herb closely related to Wulfenia.			
TEPHROSIA VIRGINICA, L. <i>Devil's Shoestring</i> -----	.10	.60	
2-3'. Its deep and spreading roots make it a very valuable sand binder, while the very handsome flowers prove it a very desirable ornamental at the same time. Grows in any soil.			
THALICTRUM CORNUTI, Ait. <i>Tall Meadow Rue</i> ---	.15	1.00	
TRADESCANTIA ROSEA, Vent. <i>Rose Spiderwort</i> ---	.10	1.00	
Dwarf, very graceful herb with grassy foliage and bright rose flowers blooming continuously.			
VERBASCUM THAPSUS, L. <i>Common Mullein</i> -----	.10	.20	
VIOLA BECKWITHI-----	.50		
Rare. From California. Purple and white pansy flowers appear in earliest Spring.			
" COGNATA-----	.25		
Rocky Mountains. Blue flowers.			
" NUTTALLI, Pursh.-----	.35		
Rocky Mountains. Large yellow flowers.			

	Pkt.	Oz.	Lb.
VIOLA PEDATA, L. <i>Bird's Foot Violet</i> -----	.35		
XYRIS BREVIFOLIA, Mx. <i>Short-leaved Yellow-eyed</i> <i>Grass</i> -----	.10	.50	
6-12". Bog plant.			
“ CAROLINIANA, Walt. <i>Yellow-eyed Grass</i>	.10	.50	
2-3'. The flowers are small, yellow, iris-shaped and appear in light-brown globular spikes, which much resemble diminutive pine cones.			

# Our Collecting Expeditions in 1901.

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## ARIZONA.

Dr. C. A. Purpus, the well known botanist and collector, is again in the mountains of Arizona collecting seeds and plants in our interests, and we anticipate very interesting results, which we shall take pleasure to publish in a **SPECIAL LIST** to be issued as soon as the seedś, etc., are on their way to us here.

We shall gladly consider any special wishes for seeds and plants from that territory, and solicit correspondence from botanical gardens and others.

## MEXICO.

Dr. Purpus expects to be in Mexico during the coming winter months collecting seeds of the native flora and also plants of palms, cacti, etc., and we would like to enter into correspondence with parties who are interested in these classes of plants and should wish to avail themselves of this rare opportunity.

## CUBA.

We have a collector in Cuba at present and shall gladly accept orders for seeds and plants from that island and the West Indies, if they reach us in time.

## FLORIDA.

We have to offer quite a variety of rare tropical plants grown for us in South Florida, of which we will, with the greatest pleasure, send a list upon application.





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HOW TO MAKE  
TREE SEEDS GROW

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PINEHURST NURSERIES

OTTO KATZENSTEIN  
Manager

PINEHURST, ❀ ❀ N. C., U. S. A.

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**F**REQUENT inquiries as to the proper time and ways of sowing the seeds of conifers, woody plants, etc., have caused us to compile the following directions, which we hope will be found of some help in making propagation of hardy plants from seed a success.

1. **WHERE TO SOW.**—Seeds in larger quantities are sown to best advantage on properly prepared seed-beds (2), while rare seeds or seeds in small quantities are best sown in boxes (7).

2. **SOIL AND SITE FOR SEED-BEDS.**—Select a location sheltered from heavy east and northeast winds, and provide for wind-breaks in the form of hedges, fences, etc., where no natural protection is given. The best soil is a well drained, loamy sand. No fresh manure should be used, but well rotted manure or compost is beneficial. Where an improvement of the soil is needed heavy clay ought to be mixed with sand and too light sand with loam. The soil ought to be well worked to a depth of at least twelve inches, be quite free from stones, and ought to be brought to as fine a mechanical condition as possible by repeated raking or harrowing. It is of first importance to have the seed-beds quite free from weeds *before* the sowings are made, to avoid much annoyance afterwards. The length of seed-beds is indefinite; their width ought not exceed six feet. Five feet is most convenient. Seed-beds can be used permanently as such.

3. **TIME OF SOWING.**—While many seeds retain their power to germinate for several years, most satisfactory results will always be obtained with fresh seeds. Some seeds are very perishable and must be sown at once after ripening (A). For most seeds a spring sowing (C, D) is advisable, though for others again a fall sowing has its advantages (B).

4. **METHOD OF SOWING.**—Seeds can be sown either broadcast or in drills. When sown broadcast, a larger number of seeds can be sown on a given space, but for sturdier plants, easier cultivation and weeding we prefer to sow in drills. The depth of sowing depends upon the size of the seeds, but it may be stated that it is better to cover not enough rather than to bury the seeds too deep. Generally speaking, seeds ought not be covered more than double their diameter at the utmost. There are exceptions, of course. Coniferous seeds need

be covered very thinly only with soil, while *Gleditschia*, for instance, will germinate best from a depth of at least two inches or even a little more. After sowing, press the soil firmly down by rolling or with the back of the spade. The distance between the drills for seeds of quick-growing deciduous plants is about nine to twelve inches, and for slow growers and for evergreens four inches will be found sufficient for hand cultivation. Where horse cultivators are worked the rows must be three and one-half feet apart. A mulch of pine needles, moss or a light cover of well rotten manure will keep the soil in even moisture and protect it from the direct rays of the sun. The mulch must be removed, however, as soon as the plants appear. The best shade can be obtained from the use of lath-screens, which can be made in any desired length from the common building laths. These can be fastened on posts about six inches above ground and can be raised as the plants grow on until they can be removed entirely.

**5. WATERING.**—If the sowing has been performed when the soil was in proper condition and when the beds are shaded, very little watering ought to be needed. If it has to be done, water early in the morning or late in the afternoon, and use a fine spray, as the seedlings are very apt to “damp off.”

**6. AFTER CARE** is very important after the seedlings come up, and consists in shading, weeding and in light cultivation of the soil.

**7. SOWING IN BOXES.**—For sowing of small quantities or of rare seeds, use shallow boxes about three inches deep, of as uniform a size as possible. Give good drainage by boring holes or by leaving cracks between the boards in the bottom, and fill the boxes with loamy sand. After sowing, press soil down firmly and mulch with sphagnum. If they can be had handily, grocery boxes—those used for soap or crackers or canned goods—are very well adapted to this purpose, by splitting each box in three. The filled boxes can be stowed away during winter in a cellar or cold frame—piled to about six high—and when spring comes they can be brought out and cultivated.

**8. SOAKING** (G) of seeds with very hard shell will hasten germination. The best plan is to drop them in quite hot—almost boiling—water and leave them in there



until the seeds show signs of swelling up, when they must be sown at once. Some seeds will lay over for one, two or even three years, even after they may have been soaked.

9. **WASHING.**—Some seeds are covered with a thick pulp, which has to be removed before sowing (H) by macerating them in warm water and then washing them.

10. **STRATIFICATION** (D, F) is needed for seeds which would dry up if left uncovered during winter, and for such seeds which generally “lay over.” For this purpose take boxes or flower pots and fill them in fall with alternate layers of sand and seed. Then bury the vessels until spring in sheltered places where mice cannot reach them, and in spring sow them out as usual.

11. **SOWING UNDER GLASS** (I) is advisable for the very fine seeds of the plants belonging to the heath family and others. Use pans filled with finely sifted peaty loam; give especially good drainage and water well before sowing. Cover seeds very thinly with soil, and mulch with light cover of chopped sphagnum. Do not allow the soil to get dry at any time, but avoid soaking. Keep the pans covered with glass bulbs or with panes all the time. As soon as germination begins, remove mulch and prick off as soon as first leaf is discernable. Transplant as often as possible and harden plants quickly so that they can be removed successfully to beds in the open ground in the spring of their second season.

12. **CONIFERS.**—Although seeds of many coniferous plants will retain their germinating power for several years, they ought to be sown as soon as possible after ripening to give best results.

Seeds of tender kinds or small quantities sow in boxes (7) or dishes, with good drainage and filled with sandy loam. Sow thin and press seeds lightly, and cover seeds very thinly with sand, or better with chopped sphagnum. A heavy cover will surely smother them. Be very careful with watering, and prick as soon as possible.

Seeds of hardy conifers and large quantities sow on seed-beds prepared as described above (12). Cover seeds very lightly, and give a light mulch of sphagnum. Protect from the sun by lath screens or brush (4).

To protect the seeds from birds dip them in lead paint before sowing. Transplant conifers as soon and as often as possible to obtain stocky plants.

13. **HERBACEOUS PLANTS.**—If not sown in large quantities it will be found best to sow in boxes or pans, as described above (7). With many perennials a fall sowing will produce best results. Prick out the seedlings in other boxes, or plant them at once to their definite places. Some seeds of plants belonging to the pulse family and others will germinate much quicker and more evenly if they are soaked well before sowing (8), though some, like *Lupinus diffusus*, will even then lay over quite often for a whole year.

14. **TENDER PLANTS.**—These will be treated same as described above under 11, only the little plants must be potted instead of planted outdoors.

15. **FERNS** are to be sown under glass in well drained pans filled with coarse peat, or on pieces of peat placed in pans of water. The spores have to be sown very thinly and evenly and need not be covered, but they must be watched very closely to prevent any damping off. Keep even shade and moisture; for that purpose it is advisable to put the seed-pans or the pieces of peat in pans with water. Prick seedlings as soon as first leaf appears in coarse peat, and repeat transplanting as often as needed.

#### LIST SHOWING TIME OF SOWING.

- A. Seeds to be sown at once after ripening.
- B. Seeds to be sown in fall.
- C. Seeds to be sown in earliest spring.
- D. Seeds to be sown in fall or to be stratified.
- E. Seeds to be sown after ground is well warmed in spring.
- F. Seeds which must be stratified but which may "lay over."
- G. Seeds to be soaked in hot water before sowing.
- H. Seeds, pulp of which has to be washed before sowing.
- I. Seeds of hardy plants to be sown under glass.
- J. Seeds of tender plants to be sown under glass.

Acacia .....	H J	Arctostaphylos .....	I
Acer .....	A	Ardisia .....	J
Aesculus .....	J	Asimina .....	E
Ailantus .....	C	Azalea .....	I
Albizzia .....	E G	Berberis .....	D
Alnus .....	C	Betula .....	A
Althaea .....	E	Bursera .....	J
Amelanchier .....	E F	Caesalpinia .....	G J
Amorpha .....	E	Callicarpa .....	E
Ampelopsis .....	E H	Calycanthus .....	E
Andromeda .....	I	Carica .....	J
Anona .....	J	Carpinus .....	A
Antigonon .....	J		
Arbutus .....	I		

Carya ----- D  
 Castanea ----- D  
 Castanopsis ----- B  
 Catalpa ----- C  
 Ceanothus ----- E  
 Celastrus ----- D  
 Celtis ----- D  
 Cercis ----- E G  
 Cerocarpus ----- C  
 Cestrum ----- J  
 Chiogenes ----- I  
 Chionanthus ----- D  
 Chrysobalanus ----- J  
 Chrysophyllum ----- J  
 Clematis ----- D  
 Clerodendron ----- J  
 Clethra ----- I  
 Cliftonia ----- I  
 Cocoloba ----- J  
 Cordia ----- J  
 Cornus ----- E F  
 Crataegus ----- E F  
 Crescentia ----- J  
  
 Diospyros ----- D  
 Dirca ----- E  
 Dracaena ----- J  
  
 Echites ----- J  
 Eugenia ----- J  
 Evonymus ----- H  
 Exochorda ----- D  
  
 Fagus ----- D  
 Ficus ----- J  
 Fothergilla ----- B  
 Fraxinus ----- A  
 Fremontia ----- E F  
  
 Genipa ----- J  
 Gleditschia ----- B G  
 Gordonia ----- E  
 Gymnocladus ----- B G  
  
 Halesia ----- E F  
 Hamamelis ----- E F  
 Hamelia ----- J  
 Hedera ----- H  
 Heteromeles ----- E F  
 Hibiscus ----- { E (hardy)  
                               { J (tender)  
  
 Ilex ----- F H  
  
 Juglaus ----- D  
  
 Kalmia ----- I  
 Koelreuteria ----- E  
  
 Leucothoe ----- I  
 Ligustrum ----- H  
 Lindera ----- E H  
 Liquidambar ----- E  
 Liriodendron ----- E F  
 Lonicera ----- E

Magnolia ----- E F H  
 Mangifera ----- J  
 Melia ----- E  
 Myrica ----- E  
  
 Negundo ----- B  
 Nyssa ----- E J  
  
 Olea ----- E F  
 Opuntia ----- I  
 Ostrya ----- D  
 Oxydendrum ----- I  
  
 Paulownia ----- E  
 Persea ----- { E F (hardy)  
                               { J (tropical)  
 Photinia ----- E F  
 Piscidia ----- J  
 Platanus ----- C  
 Prunus ----- E H  
 Ptelea ----- B  
 Psidium ----- J  
 Pyrus ----- E H  
  
 Quercus ----- D  
  
 Rhamnus ----- D  
 Rhododendron ----- I  
 Rhus ----- E F  
 Ribes ----- D  
 Robinia ----- B G  
 Romneya ----- E  
 Rosa ----- D G  
 Rubus ----- B F  
 Ruta ----- E  
  
 Sambucus ----- D  
 Santolina ----- J  
 Sassafras ----- E H  
 Schinus ----- E  
 Smilax ----- D H  
 Solanum ----- J  
 Spiraea ----- D  
 Swietenia ----- J  
  
 Tamarindus ----- J  
 Tecoma ----- E  
 Terminalia ----- J  
 Thevetia ----- J  
 Tilia ----- C F  
  
 Ulmus ----- A  
 Umbellularia ----- E F  
  
 Viburnum ----- E H  
 Vitis ----- D  
  
 Wistaria ----- E  
  
 Yucca ----- E  
  
 Zanthorrhiza ----- B  
 Zanthoxylum ----- E

