

THE IMPORTANCE OF GEOGRAPHIC ORIGIN OF SEED

Seed origin is just as vital in a forest as it is in a field or garden. The only difference is that if a mistake is made it takes a forest owner longer to find it out -- as perhaps a 100 years or so. All sorts of ills can beset trees grown from seed of the right species but of the wrong geographic origin -- ills such as abnormal susceptibility to disease or insects or cold weather, abnormally slow growth, poor form, and perhaps zero survival in the first place.

For large-scale reforestation work it is unwise to buy seed of unknown parentage. The prudent investor in a planting job inquires as to the origin of the seed which produced: the nursery stock before he inquires as to its price. The results from seed of the wrong location may' be around for all to see long after its price has been forgotten.

There is no Federal legislation and few State laws to enforce the use of forest tree and shrub seed of known origin. In 1939 the U.S. Department of Agriculture adopted the following forest seed policy:

"Recognizing that trees and shrubs, in common with other food and fiber plants, vary in branch habit, rate of growth, strength and stiffness of wood, resistance to cold, drought, insect attack, and disease, and in other attributes which influence their usefulness and local adaptation for forest, shelterbelt, and erosion control use, and that such differences are largely of a genetic nature, it shall be the policy of the United States Department of Agriculture insofar as practicable to require for all forest, shelterbelt, and erosion-control plantings, stocks propagated from segregated strains or individual clones of proven superiority for the particular locality or objective concerned.

"Furthermore, since the above attributes are associated in part with the climate and to some extent with other factors of environment of the locality of origin, it shall be the policy of the United States Department of Agriculture:

- "1. To use only seed of known locality of origin and nursery stock grown from such seed.
- "2. To require from the vendor adequate evidence verifying place and year of origin for all lots of seed or nursery stock purchased, such as bills of lading, receipts for payments to collectors, or other evidence indicating that the seed or stock offered is of the source represented. When purchases are made from farmers or other collectors known to operate only locally, a statement capable of verification will be required as needed for proof of origin.

"3. To require an accurate record of the origin of all lots, of seed and nursery stock used in forest, shelterbelt, and erosion-control plantings, such records to include the following minimum standard requirements to be furnished with each shipment:

- (1) Lot number
- (2) Year of seed crop
- (3) Species
- (4) Seed origin:
  - State
  - County
  - Locality
  - Range of elevation
- (5) Proof of origin

"4. To use local seed from natural stands whenever available unless it has been demonstrated that seed from another specific source produces desirable plants for the locality and uses involved. Local seed means seed from an area subject to similar climatic influences and may usually be considered as that collected within 100 miles of the planting site and differing from it in elevation by less than 1,000 feet.

"5. When local seed is not available, to use seed from a region having as nearly as possible the same length of growing season, the same mean temperature of the growing season, the same frequencies of summer droughts, with other similar environment so far as possible, and the same latitude.

"6. To continue experimentation with indigenous and exotic species, races, and clones to determine their possible usefulness, and to delimit as early as practicable climatic zones within which seed or planting stock of species and their strains may be safely used for forest, shelterbelt, and erosion control.

"7. To urge that States, counties, cities, corporations, other organizations, and individuals producing and planting trees for forest, shelterbelt, and erosion-control purposes, the expense of which is borne wholly or in part by the Federal Government, adhere to the policy herein outlined."

Specific Information About the Dealers

The information in the tabulations which follow was supplied by the individual dealers. It is given herein as a convenience to the user of this list and its inclusion in no way attests to its reliability.

SEED DEALERS

Dealer's number :	Size of orders accepted :	Stockpiles seed : : for sale in years : : of no crop :	Will certify seeds' geographic origin* :	Will certify seeds' purity and germination* :
1	No minimum	Yes	Yes	Yes
2	" "	Yes	Yes	Yes
3	" "	Yes	Yes	Yes
4	\$5 minimum	Yes	Yes	Yes
5	No minimum	Yes	Yes	Yes
6	" "	Yes	Yes	Yes
8	\$20 minimum	Yes	Yes	Yes
11	.	Information not furnished . . . .		
13	No minimum	Yes	Yes	
15	" "		Yes	
17	\$5 minimum	Yes	Yes	Yes
20	No minimum	Yes	Yes	Yes
22	" "	Yes	Yes	Yes
27	1 lb. minimum	Yes	Yes	Yes
28	\$7.50 minimum		Yes	
29	No minimum	Yes	Yes	Yes
30	" "		Yes	
32	" "		Yes	Yes
33	\$5 minimum	Yes	Yes	Yes
34	\$5 minimum		Yes	
35	No minimum		Yes	
36	" "		Yes	
37	\$10 minimum	Yes	Yes	Yes
40	No minimum	Yes	Yes	Yes
41	\$5 minimum	Yes	Yes	Yes
42	No minimum	Yes	Yes	Yes
45	" "	Yes	Yes	Yes
50	\$5 minimum		Yes	Yes
51	No minimum	Yes	Yes	
52	1 lb. minimum	Yes	Yes	Yes
55	No minimum	Yes	Yes	
56	1 lb. minimum		Yes	
57	No minimum		Yes	Yes

PLANTING STOCK DEALERS (NURSERIES)

Dealer's number	Size of orders accepted	Will certify geographic origin of stock's seed source*
1	No minimum	Yes
3	" "	
5	" "	Yes
6	Minimum 100 trees	Yes
7	Minimum 500 trees	Yes
9	No minimum	
10	" "	
12	" "	
13	" "	Yes
14	Minimum 100 trees	Yes
16	No minimum	Yes
18	Minimum 500 trees	
19	Information not furnished	
21	\$10 minimum	Yes
23	Minimum 100 trees	Yes
24	\$10 minimum	
25	\$10 minimum	
26	Minimum 100 trees	Yes
31	Minimum 100 trees	Yes
35	No minimum	Yes
36	Minimum 1,000 trees	Yes
37	\$10 minimum	Yes
38	No minimum	
39	" "	
41	Minimum 1,000 trees	Yes
42	No minimum	Yes
43	" "	Yes
44	Minimum 100 trees	Yes
46	No minimum	
47	Minimum 100 trees	
48	\$5 minimum	
49	\$10 minimum	
53	\$10 minimum	Yes
54	\$5 minimum	Yes
55	Minimum 250 trees	Yes

\*There are no standardized certificates for this purpose currently in use in America. Samples of certificates are given on the last page of this list,, but many companies have other certificates of their own wording that are adequate for the purpose of most buyers. Only one American company expresses a willingness to furnish the International Certificate suggested by the FAO of the United Nations.

DEALERS IN EACH STATE  
AND THEIR CODE NUMBERS FOR REFERENCE TO THE FOLLOWING LIST OF SPECIES

CALIFORNIA

1. Hagen Nursery, Inc.  
385 West Colorado Boulevard  
Arcadia, California
2. Otter, Floyd L.  
15 Dayton Avenue  
Fresno, California
3. Smith, O. Kenneth  
P.O. Box 100  
Magalia, California

COLORADO

4. Barteldes Seed Company  
3770 East 40th Avenue  
Denver, Colorado
5. Swan, Robert K.  
P.O. Box 42  
Rye, Colorado
6. Western Evergreens  
14355 West 44th Avenue  
Golden, Colorado

CONNECTICUT

7. Cheshire Nursery, Inc.  
1317 South Main Street  
Cheshire, Connecticut

GEORGIA

8. Southern Seed Company  
Baldwin, Georgia

IOWA

9. Earl Ferris Nursery  
811 4th Street, N.E.  
Hampton, Iowa
10. Inter-State Nurseries, Inc.  
Hamburg, Iowa

KANSAS

11. Barteldes Seed Company  
Lawrence, Kansas

KANSAS (Continued)

12. Kansas Landscape & Nursery Co.  
1416 East Iron Avenue  
Salina, Kansas
13. Reed Seed Company  
Marietta, Kansas
14. Willis Nursery Company  
Ottawa, Kansas

LOUISIANA

15. Louisiana Forest Seed Company  
P.O. Box 293  
Eunice, Louisiana

MAINE

16. Western Maine Forest Nursery Co.  
Fryeburg, Maine

MASSACHUSETTS

17. Schumacher, F. W.  
Horticulturist  
Sandwich, Massachusetts

MICHIGAN

18. Forestry Associates, Inc.  
Oceana Co. Savings Bank Building  
P.O. Box 72  
Hart, Michigan
19. Huntree  
Box 393  
Saugatuck, Michigan
20. Iron Mountain Evergreen Company  
P.O. Box 133  
Iron Mountain, Michigan
21. Matthews Nursery  
Ann Street  
Harbor Springs, Michigan
22. Woodlot Seed Company  
Norway, Michigan

DEALERS IN EACH STATE  
AND THEIR CODE NUMBERS FOR REFERENCE TO THE FOLLOWING LIST OF SPECIES

MINNESOTA

23. J. V. Bailey Nurseries  
St. Paul 6, Minnesota
24. Cashman Nurseries, Inc.  
Box 239  
Owatonna, Minnesota
25. Jewell Nurseries, Inc.  
Lake City, Minnesota
26. Lake City Nursery, Inc.  
Lake City, Minnesota
27. S. & R. Seed Dealer's Company  
S.J. & R.J. Neises  
Cass Lake, Minnesota

MISSISSIPPI

28. Walley, D. L.  
Route 3  
Waynesboro, Mississippi

MONTANA

29. Moran, E. C.  
Stanford, Montana
30. Rose, Frank H.  
1020 Poplar Street  
Missoula, Montana

NEBRASKA

31. Plumfield Nurseries, Inc.  
2105 North Nye Avenue  
Fremont, Nebraska

NEW HAMPSHIRE

32. Braden, K. J.  
P.O. Box 187  
Milton, New Hampshire

NEW YORK

33. Herbst Brothers Seedsmen, Inc.  
678 Broadway  
New York 12, New York

NORTH CAROLINA

34. McKoy, Erle D.  
Burgaw, North Carolina

NORTH DAKOTA

35. Forestry Seed Market  
Sheldon, North Dakota
36. Northwest Nursery Company  
Valley City, North Dakota
37. Oscar H. Will & Company  
Bismarck, North Dakota

OHIO

38. Jenkins Nurseries  
Winona, Ohio

OREGON

39. Rich & Sons Nursery  
Route 1  
Hillsboro, Oregon
40. Tepper, Edward  
Shady Cove, Oregon
41. John B. Woods & Son  
Woodseed  
P.O. Box 647  
Salem, Oregon

PENNSYLVANIA

42. Bausher, Richard V.  
Allentown, Pennsylvania
43. Canales Forest Nursery  
Shelocta, Pennsylvania
44. Eccles Nurseries  
P.O. Box 65  
Rimersburg, Pennsylvania
45. Forestry Associates  
922 East Tilghman Street  
Allentown, Pennsylvania

DEALERS IN EACH STATE  
AND THEIR CODE NUMBERS FOR REFERENCE TO THE FOLLOWING LIST OF SPECIES

PENNSYLVANIA (Continued)

46. Nut Tree Nurseries  
R. D. No. 1  
Downingtown, Pennsylvania
47. Pine Hill Farms Nursery  
Route 2  
Homer City, Pennsylvania
48. Suncrest Evergreen Nurseries  
P.O. Box 305  
Homer City, Pennsylvania

TENNESSEE

49. Boyd Nursery Company, Inc.  
P.O. Box 71  
McMinnville, Tennessee

WASHINGTON

50. R. G. Avery Company  
Route 1  
Box 464  
Olympia, Washington

WASHINGTON (Continued)

51. Esses Tree Seed Company  
754 Pioneer Avenue, W.  
Montesano, Washington
52. Manning Seed Company  
540 Dexter Horton Building  
Seattle 4, Washington

WISCONSIN

53. Evergreen Nursery Company  
Route 3  
Sturgeon Bay, Wisconsin
54. Nepco Lake Nursery  
Port Edwards, Wisconsin
55. Redmond, Kenneth  
Mosinee, Wisconsin
56. Reichard, Alvin L.  
619 Delaware Street  
Sturgeon Bay, Wisconsin
57. Leslie B. Rhoades & Son  
Merrillan, Wisconsin

LIST OF SPECIES OF FOREST TREE SEED AND PLANTING STOCK  
WITH CODE NUMBERS OF SOURCES NORMALLY HAVING SEED OR PLANTING STOCK FOR SALE

Species	Seed (Code numbers refer to preceding list of dealers)	Planting Stock (Code numbers refer to preceding list of dealers)
AILANTHUS (Tree-of-Heaven) ( <u>Ailanthus altissima</u> )	1,13,17,22,29,33,42,45	49
ALASKA-CEDAR ( <u>Chamaecyparis nootkatensis</u> )	33,42,50,52	38
ALDER, RED ( <u>Alnus rubra</u> )	33,41,42,45,50,51	
ARBORVITAE, EASTERN ( <u>Thuja occidentalis</u> )		See White-cedar
ASH, BLACK ( <u>Fraxinus nigra</u> )	17,29,33,41,42,45	48
ASH, GREEN ( <u>Fraxinus pennsylvanica</u> )	13,17,22,29,33,35,36,37, 42,45	9,12,14,23,24,25,26,31, 36,37,39,49
ASH, WHITE ( <u>Fraxinus americana</u> )	13,17,22,29,33,42,45	10,23,39,49
ASPEN, BIGTOOTH ( <u>Populus grandidentata</u> )	33,45	
ASPEN, QUAKING ( <u>Populus tremuloides</u> )	5,29,33,45	5
BALDCYPRESS ( <u>Taxodium distichum</u> )	17,22,29,33,42,45	38,49
BASSWOOD, AMERICAN (American linden) ( <u>Tilia americana</u> )	13,17,22,33,35,42,45,55	9,10,26,38,39,49,53
BEECH, AMERICAN ( <u>Fagus grandifolia</u> )	15,33,42,45	39,53
BIRCH, GRAY ( <u>Betula populifolia</u> )	17,22,33,42,45	25,26,53
BIRCH, PAPER (Canoe) ( <u>Betula papyrifera</u> )	17,22,29,33,42,45	21,23,25,26,39,53,54
BIRCH, YELLOW ( <u>Betula alleghaniensis</u> )	17,22,33,45	



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BOXELDER (Ashleaved maple) ( <u>Acer negundo</u> )	5,13,17,22,29,33,35,36, 37,42,45,55	5,24,25,26,31,36,39,49
BUCKEYE, OHIO ( <u>Aesculus glabra</u> )	33,37,42,45	38
BUTTERNUT ( <u>Juglans cinerea</u> )	17,33,42,45,55	49
CARAGANA (Siberian pea-tree) ( <u>Caragana arborescens</u> )	17,22,29,33,35,36,37,42	6,23,25,26,31,36,39,42, 46,49
CASUARINA, HORSETAIL (Australian-pine) ( <u>Casuarina equisetifolia</u> )	1,22,33	1
CATALPA, NORTHERN ( <u>Catalpa speciosa</u> )	13,17,22,29,33,42,45	12,14,31,39,49
CEDAR, DEODAR ( <u>Cedrus deodara</u> )	1,5,17,22,29,33,42	1,21,39
CEDAR-OF-LEBANON ( <u>Cedrus libanensis</u> )	1,17,22,29,33,42	1,39
CEDAR, RED ( <u>Juniperus virginiana</u> )		See Redcedar
CHERRY, BLACK ( <u>Prunus serotina</u> )	5,17,22,33,35,42,45	5,31,42,53
CHESTNUT, AMERICAN ( <u>Castanea dentata</u> )	33,42,45	
CHESTNUT, CHINESE ( <u>Castanea mollissima</u> )	33,42	10,44,46,49
COFFEETREE, KENTUCKY ( <u>Gymnocladus dioicus</u> )	13,29,33,42	49
COTTONWOOD, EASTERN ( <u>Populus deltoides</u> )	29,33,42,45	12,35,36,37
CUCUMBERTREE ( <u>Magnolia acuminata</u> )	17,33,38,42	38,49

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CYPRESS, ARIZONA ( <u>Cupressus arizonica</u> )	1,5,17,22,29,33,42,45,52	1
CYPRESS, MONTEREY ( <u>Cupressus macrocarpa</u> )	1,17,22,33,42	1
DOGWOOD, FLOWERING ( <u>Cornus florida</u> )	13,17,22,33,38,42,45	10,38,39,49
DOUGLAS-FIR ( <u>Pseudotsuga menziesii</u> )	1,3,4,5,6,17,22,29,30, 32,33,40,41,42,45,50,51, 52	1,5,6,7,9,18,21,23,26,38, 41,42,43,44,47,48,53,54
ELM, AMERICAN (White) ( <u>Ulmus americana</u> )	13,17,22,29,33,35,36,37, 42,45	6,9,12,14,19,23,25,26,31, 36,37,39,49
ELM, SIBERIAN (Erroneously called Chinese elm) ( <u>Ulmus pumila</u> )	1,13,17,20,22,29,33,35, 36,37,42,45	1,6,9,10,12,14,23,25,26, 31,35,36,37,39,42,49
EUCALYPTUS, TASMANIAN BLUE (Bluegum) ( <u>Eucalyptus globulus</u> )	1,17,22,33,42	1
FIR, ALPINE ( <u>Abies lasiocarpa</u> )	5,6,17,22,29,30,33,40, 41,42,45,50,52	6
FIR, BALSAM ( <u>Abies balsamea</u> )	17,20,22,27,29,32,33,42, 45,55,56,57	9,16,18,23,26,31,42,43,44, 48,53,54
FIR, CALIFORNIA RED ( <u>Abies magnifica</u> )	1,17,22,29,33,40,42,45, 52	1
FIR, GRAND ( <u>Abies grandis</u> )	5,17,22,29,30,33,40,41, 42,45,50,51,52	41
FIR, NOBLE (Red) ( <u>Abies procera</u> )	17,22,29,33,40,41,45,50, 51,52	41
FIR, PACIFIC SILVER ( <u>Abies amabilis</u> )	17,22,29,33,40,41,45,50, 51,52	41
FIR, WHITE ( <u>Abies concolor</u> )	1,3,4,5,6,17,22,29,32, 33,40,41,45,50,51,52	1,3,5,6,7,9,16,18,21,23,26, 31,38,39,41,43,44,48,53,54

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Species	Seed (Code numbers refer to preceding list of dealers)	Planting Stock (Code numbers refer to preceding list of dealers)
GINKGO ( <u>Ginkgo biloba</u> )	1,17,22,33,45	1,38,49
HACKBERRY ( <u>Celtis occidentalis</u> )	13,17,22,29,33,35,36,45	9,12,14,23,25,26,31,36,37, 49
HEMLOCK, EASTERN ( <u>Tsuga canadensis</u> )	13,17,20,22,29,32,33,45, 55,57	7,16,38,43,44,48,49,53,54
HEMLOCK, WESTERN ( <u>Tsuga heterophylla</u> )	22,29,33,41,45,50,51,52, 57	
HICKORY, PIGNUT ( <u>Carya glabra</u> )	33,45	
HICKORY, SHAGBARK ( <u>Carya ovata</u> )	17,33,45	9,49
HICKORY, SHELLBARK (Bigleaf shagbark) ( <u>Carya laciniosa</u> )	17,33	49
HOLLY, AMERICAN ( <u>Ilex opaca</u> )	17,22,33	38,49
HONEYLOCUST ( <u>Gleditsia triacanthos</u> )	1,11,13,17,22,29,33,45	1,9,10,12,14,24,25,31,39, 46,49
HORSECHESTNUT ( <u>Aesculus hippocastanum</u> )	13,33,45	38
INCENSE-CEDAR, CALIFORNIA ( <u>Libocedrus decurrens</u> )	1,3,17,22,29,33,40,41	1,3
JUNIPER, EASTERN ( <u>Juniperus virginiana</u> )		See Redcedar
JUNIPER, ROCKY MOUNTAIN ( <u>Juniperus scopulorum</u> )	4,5,6,13,22,29,30,32,33, 37,45	5,6,9,12,25,31,37
LARCH, EASTERN ( <u>Larix laricina</u> )		See Tamarack
LARCH, EUROPEAN ( <u>Larix decidua</u> )	17,22,29,33,42,45	6,9,16,38,42,44,53,54
LARCH, WESTERN ( <u>Larix occidentalis</u> )	29,30,33,42	

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LINDEN, AMERICAN ( <u>Tilia americana</u> )		See Basswood
LOCUST, BLACK (Yellow) ( <u>Robinia pseudoacacia</u> )	1,5,13,17,22,29,33,42,45	1,12,14,31,39,42,49
MAGNOLIA, SOUTHERN ( <u>Magnolia grandiflora</u> )	1,15,17,22,33,42	1,49
MAPLE, NORWAY ( <u>Acer platanoides</u> )	13,17,22,29,33,42,45	9,10,39,42,49,53
MAPLE, RED ( <u>Acer rubrum</u> )	17,22,33,42,45	10,39,42,49,53
MAPLE, SILVER ( <u>Acer saccharinum</u> )	22,29,33,35,42,45	12,14,23,24,25,26,31,39, 49
MAPLE, SUGAR ( <u>Acer saccharum</u> )	13,17,22,33,38,42,45,55	9,10,13,26,38,39,42,49, 53
MULBERRY, RED ( <u>Morus rubra</u> )	13,22,29,33,42,45	13,42
MULBERRY, RUSSIAN ( <u>Morus alba tatarica</u> )	13,17,22,29,33,42	12,13,14,24,31,39,42,49
MULBERRY, WHITE ( <u>Morus alba</u> )	17,22,33,42	
OAK, BLACK ( <u>Quercus velutina</u> )	33,42,45	
OAK, BLACKJACK ( <u>Quercus marilandica</u> )	33,45	
OAK, CALIFORNIA LIVE ( <u>Quercus agrifolia</u> )	1,33	1
OAK, CHESTNUT ( <u>Quercus prinus</u> )	13,33,45	49
OAK, CHINQUAPIN ( <u>Quercus muehlenbergii</u> )	3,33,42	
OAK, LIVE ( <u>Quercus virginiana</u> )	15,33,42	

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OAK, NORTHERN RED ( <u>Quercus rubra</u> )	13,32,33,42,45,55	9,14,31,39,42
OAK, OREGON WHITE ( <u>Quercus garryana</u> )	33,40,42	
OAK, PIN ( <u>Quercus palustris</u> )	13,17,33,42,45	9,10,14,31,38,39,42,49
OAK, POST ( <u>Quercus stellata</u> )	33,42,45	
OAK, SCARLET ( <u>Quercus coccinea</u> )	33,42,45,55	14,39,42,49
OAK, WHITE ( <u>Quercus alba</u> )	33,42,45,55	14,31,42,49
OAK, WILLOW ( <u>Quercus phellos</u> )	33,42,45	49
OSAGE-ORANGE ( <u>Maclura pomifera</u> )	13,17,22,29,33,42,45	12,14,31,49
PECAN ( <u>Carya illinoensis</u> )	17,33,42	49
PEPPERTREE ( <u>Schinus molle</u> )	1,17,22,33	1
PERSIMMON, COMMON ( <u>Diospyros virginiana</u> )	3,17,33,42,45	46,49
PINE, AUSTRIAN ( <u>Pinus nigra</u> )	13,17,22,29,32,33,42,45, 57	6,7,9,12,16,18,19,21,23, 25,26,31,38,39,43,44,47, 48,53,54
PINE, AUSTRALIAN (Horsetail casuarina) ( <u>Casuarina equisetifolia</u> )		See Casuarina.
PINE, EASTERN WHITE ( <u>Pinus strobus</u> )	13,17,20,22,27,29,32,33, 42,45,55,56,57	9,16,18,21,26,38,42,43, 44,48,53,54,55
PINE, JACK ( <u>Pinus banksiana</u> )	13,17,20,22,27,29,33,42, 45,55,57	9,16,18,31,48,53,54
PINE, JEFFREY ( <u>Pinus jeffreyi</u> )	1,3,17,22,29,33,40,41, 42,45,52	1

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PINE, LIMBER ( <u>Pinus flexilis</u> )	5,6,17,22,29,30,33,42,45	5,6,7,31,42,53
PINE, LOBLOLLY ( <u>Pinus taeda</u> )	8,15,17,22,33,34,42,45	42
PINE, LODGEPOLE ( <u>Pinus contorta</u> )	1,3,5,6,17,22,29,30,33, 40,42,45,50,51,52	1,5,6,39
PINE, LONGLEAF ( <u>Pinus palustris</u> )	8,15,17,22,28,33,34,42, 45	
PINE, MUGHO (Mugho Swiss mountain pine) ( <u>Pinus mugo</u> var. <u>mughus</u> )	17,22,29,32,33,42,45	7,9,16,21,23,25,26,31,38, 39,43,44,48,53,54
PINE, PITCH ( <u>Pinus rigida</u> )	17,22,32,33,42,45,52	48
PINE, PONDEROSA ( <u>Pinus ponderosa</u> )	1,2,3,4,5,6,13,17,20,22, 29,30,33,37,40,41,42,45, 50,51,52	1,5,6,9,12,21,23,25,26,31, 37,39,41,42,43,48,53,54
PINE, RED (Norway) ( <u>Pinus resinosa</u> )	13,17,20,22,27,29,32,33, 42,45,55,56,57	9,16,18,21,23,26,38,42,43, 44,47,48,53,54,55
PINE, SCOTCH ( <u>Pinus sylvestris</u> )	13,17,20,22,29,32,33,42, 45,55,57	6,7,9,12,16,18,19,21,23,25, 26,31,37,38,39,42,43,44,47, 48,53,54,55
PINE, SHORTLEAF ( <u>Pinus echinata</u> )	8,15,17,22,33,42,45	42
PINE, SLASH ( <u>Pinus elliottii</u> )	8,17,22,33,42,45	
PINE, SUGAR ( <u>Pinus lambertiana</u> )	1,3,17,22,29,33,40,41,42, 52	1
PINE, VIRGINIA ( <u>Pinus virginiana</u> )	17,22,33,42,45	
PINE, WESTERN WHITE ( <u>Pinus monticola</u> )	3,13,17,22,29,30,33,40, 41,42,50,52	21,53
PINYON ( <u>Pinus edulis</u> )	1,4,5,6,13,17,29,33,42, 45	1,5,6,31

LIST OF SPECIES OF FOREST TREE SEED AND PLANTING STOCK  
WITH CODE NUMBERS OF SOURCES NORMALLY HAVING SEED OR PLANTING STOCK FOR SALE

Species	Seed (Code numbers refer to preceding list of dealers)	Planting Stock (Code numbers refer to preceding list of dealers)
POPLAR, BALSAM ( <u>Populus tacamahaca</u> )	33	
POPLAR, CAROLINA ( <u>Populus canadensis</u> )	33,42	14,39
POPLAR, LOMBARDY ( <u>Populus nigra italica</u> )		9,10,12,14,23,24,25,26,31, 39,49
POPLAR, WHITE ( <u>Populus alba</u> )	33,45	24,25
PORT-ORFORD-CEDAR ( <u>Chamaecyparis lawsoniana</u> )	17,22,33,42,52	39
REDCEDAR, EASTERN ( <u>Juniperus virginiana</u> )	13,17,22,29,32,33,42,45	9,10,12,23,25,26,31,36,38, 39,42,48,53,54
REDCEDAR, WESTERN ( <u>Thuja plicata</u> )	5,17,22,29,30,33,41,42, 45,50,51,52,57	43
REDWOOD (Coast redwood) ( <u>Sequoia sempervirens</u> )	1,3,5,17,22,33,41,42,52	1
RUSSIAN-OLIVE ( <u>Elaeagnus angustifolia</u> )	5,6,13,17,22,29,33,37,42, 45	6,9,10,12,14,23,24,25,26, 31,37,38,39,42,49
SEQUOIA GIANT (Bigtree) ( <u>Sequoia gigantea</u> )	1,2,3,5,17,22,33,41,42, 45,52	1,41,42
SPRUCE, BLACK ( <u>Picea mariana</u> )	27,29,33,42,45,57	9,21,26,43,48,53,54
SPRUCE, BLUE (Colorado blue) ( <u>Picea pungens</u> )	4,5,6,13,17,22,29,32,33, 37,41,42,45,52	5,6,7,9,16,18,19,21,23,25, 26,37,38,39,41,43,44,47, 48,53,54
SPRUCE, ENGELMANN ( <u>Picea engelmannii</u> )	4,5,6,17,22,29,30,32,33, 41,42,45,50,52	5,6,9,16,31,44,48,53,54
SPRUCE, NORWAY ( <u>Picea abies</u> )	17,20,22,29,32,33,42,45, 57	7,9,16,18,19,21,23,25,26, 31,38,39,43,44,47,48,53,54
SPRUCE, RED ( <u>Picea rubens</u> )	22,33,42,45	43,48
SPRUCE, SITKA ( <u>Picea sitchensis</u> )	17,22,29,32,33,40,41,42, 45,51,52	39,48

LIST OF SPECIES OF FOREST TREE SEED AND PLANTING STOCK  
WITH CODE NUMBERS OF SOURCES NORMALLY HAVING SEED OR PLANTING STOCK FOR SALE

Species	Seed (Code numbers refer to preceding list of dealers)	Planting Stock (Code numbers refer to preceding list of dealers)
SPRUCE, WHITE ( <u>Picea glauca</u> )	17,20,22,27,29,32,33,42, 45,52,55,56,57	7,9,16,18,19,21,23,25,26, 31,38,43,44,47,48,53,54,55
SWEETGUM ( <u>Liquidambar styraciflua</u> )	15,17,22,33,42	38,39,42,49
SYCAMORE, AMERICAN ( <u>Platanus occidentalis</u> )	13,17,22,33,42,45	38,39,42,49
TAMARACK (Eastern larch) ( <u>Larix laricina</u> )	29,33,42,45,57	
TUPELO, BLACK (Blackgum) ( <u>Nyssa sylvatica</u> )	17,22,33,42	38,49
WALNUT, BLACK ( <u>Juglans nigra</u> )	3,13,29,33,42,45	10,12,14,31,38,46,49
WALNUT, WHITE ( <u>Juglans cinerea</u> )		See Butternut
WHITE-CEDAR, ATLANTIC ( <u>Chamaecyparis thyoides</u> )	17,22,33,42,45	
WHITE-CEDAR, NORTHERN (Eastern arborvitae) ( <u>Thuja occidentalis</u> )	5,13,17,20,22,29,32,33, 42,45,55,56,57	7,9,16,23,25,26,38,43,48, 53,54
WILLOW, BLACK ( <u>Salix nigra</u> )	33,51	49
WILLOW, PEACHLEAF ( <u>Salix amygdaloides</u> )	33	25
WILLOW, WEEPING ( <u>Salix babylonica</u> )	33,45	9,10,23,25,38,39,49,53
YELLOW-POPLAR (Tuliptree) ( <u>Liriodendron tulipifera</u> )	8,17,33,42,45	38,39,49
YEW, PACIFIC ( <u>Taxus brevifolia</u> )	3,33,40,42,51	



YELLOW-POPLAR HEIGHT GROWTH AFFECTED BY SEED SOURCE

Thomas Lotti

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Southeastern Forest Experiment Station, U.S. F. S.

According to observations at the Santee Experimental Forest, near Charleston, South Carolina, seed source has a striking influence on early height growth of yellow-poplar (Liriodendron tulipifera L.). A small experimental planting in this flatwoods location showed the trees from a mountain seed source (western North Carolina) had an average height of 4.4 feet early in the third growing season. In contrast, those from Coastal Plain seed (eastern North Carolina) averaged 7.9 feet in height, or almost twice as tall (fig. 1).

Only 18 trees from mountain seed are available for measurement. They are compared with the same number of similar trees from Coastal Plain seed in adjacent rows on the same plot. No site differences are suspected, as all trees are contained in an area having the dimensions of 6 feet by 20 feet, the trees having been planted on a 2 x 2 foot spacing. Future growth of the mountain seedlings will probably be influenced by shade from the much taller Coastal Plain seedlings, which was not a serious factor earlier.

All trees were planted as 1-0 seedlings obtained from the State Nursery at Clayton, North Carolina. The yellow-poplars are part of a large experiment now in progress which compares various hardwoods and conifers on bottomland hardwood sites. The seed-source aspect of this study will be verified by more ample tests later, but the current results are striking enough to be of interest at this time.



Fig. 1. -- Yellow-poplar planted in South Carolina flatwoods shows marked difference in height growth due to seed source by early in third growing season. Trees on left are from mountain seed; those on right from Coastal Plain seed.

A NET FOR THE COLLECTION OF WINGED HARDWOOD FRUITS

A. J. Carmichael  
Ontario Dept. of Lands and Forests Tree Seed Plant

Angus, Ontario

The collection of fruits from such hardwoods as maple, elm and ash has been done normally by whipping the fruits from the tree with a bamboo pole and catching them on cotton sheets, which are spread on the ground surrounding the tree. On windy days it is difficult to catch half of the fruits released, and in the case of white elm a slight breeze can make collection almost impossible. In order to reduce the ground area which must be covered with cotton sheets, and to reduce the time wasted due to windy weather, it was necessary to find some means of stopping the fruits in flight and allowing them to fall to the ground, where they could be collected.

A practical solution to the problem was found by supporting a net on standards, on the leeward side of the tree to be picked. Four telescopic aluminum alloy standards, each with three sections, having a maximum extended height of twenty feet, are raised and supported by means of three guy ropes fastened to eyes on a collar, at the top of the middle section. The individual sections of the aluminum standard are each twelve feet in length but are only extended to about one-half their length in order to give the standard sufficient rigidity to resist the force of the wind on the net. The sheets are raised simultaneously by means of ropes passing through pulleys at the top of each standard, and their edges are fastened together with cord which is passed through grommets found at a three foot spacing along the edge of the sheet. This fastening prevents the wind from blowing fruits between the sections of sheet. It has been found useful to place the net on the windward side of the standards and in this way reduce the billowing of the sheets.

A nylon net would reduce the weight and bulk of the nets and thus the strain on the standards, of particular importance with a heavy wind.

The basal portion of the standards does not have a diameter large enough to allow for, a free telescoping of the middle section. A section having a 2.375 inch O. D. , 2.067 inch I. D. , .154 inch wall thickness, might serve the purpose better.

Metal clips could be used to join the sides of the sheets and reduce the time taken to tie the sections together.

Materials:

Cotton net, 1/8" mesh, 40" width, 300 yds. @ 77-1/2¢ yd. - - - -	\$232.50
Cotton duck binding, 6 oz. Single Fill, 120 yds. 3" width cut from 10 yds. 36" width @ .77¢ -	7.70
Manila rope, 5/16" diam., 12 ropes @ 10 yds. = 120 yds, or 10 lbs. @ \$1.00 -	10.00
Aluminum tubing, Spec. 65 S-T	
4 lengths 1-1/2" O.D. x .065" wall x 12' - 16-1/2 lbs. -	20.08
4 lengths 1-3/4" O.D. x .095" wall x 12' - 27-1/2 lbs. -	26.81
4 lengths 2" O.D. x .120" wall x 12' - 39-1/2 lbs. -	38.42
	<u>\$85.31</u> 85.31
Nuodex Preservative, 10 gals. @ \$2.45 =	\$24.50
Mineral Spirits Solvent, 5 gals. @ .84 =	4.20
	<u>\$28.70</u> 28.70
Pulleys, guy rope collars, guy rope cleats, soil shoes for standards, all made by Research Div. Lands & Forests - - - -	10.00
Total cost of materials - - - - -	<u>\$374.21</u>

Cotton Net obtained from - A. B. Fisher & Co. Ltd.  
147 Spadina Avenue  
Toronto, 2-B, Ont.

Aluminum Tubing obtained from - Drummond, McCall & Co. Ltd.  
373 Front St. East  
Toronto, 2, Ont.

Nuodex Preservative obtained from - Canadian Industries Ltd.  
Paint and Varnish Division  
Foot of Laughton Avenue  
West Toronto, 9, Ont.

POLYETHYLENE BAGS  
FOR SHIPMENT AND STORAGE OF SMALL LOTS OF SEED

Howard B. Kriebel

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Wooster, Ohio

Polyethylene bags, of the type used for storing frozen foods, are getting increasing use for shipment of small lots of seed of species which cannot stand drying out. Polyethylene is unique among plastic films in allowing oxygen penetration while also being waterproof. It is light, tough, and flexible even when cold.

During the past two years these bags have been sent to cooperators for shipment of sugar maple seed to this station from all over the range of the species. The plastic bags were taken out in the field for individual collections, and fastened with a rubber band or "Twistem". A numbered aluminum tag was enclosed in the bag to identify the lot. The bags were shipped enclosed in a clothbag or cardboard carton.

In a few cases surface mold developed on the seed inside the bag during shipment. This did not appear to affect the viability of the seed, however; providing it was stored properly after arrival.

The seed may also be stratified right in the same bags. Sugar maple seed for greenhouse planting was stored in the bags until it began to sprout, as sugar maple will do in stratification. Mixture of milled sphagnum or peat with the seed eliminated problems of heating and molding during stratification. Since the bags are transparent, the condition of the seed could be observed at any time. The bags are stored on a shelf or floor in a cold storage room or refrigerator.

Small trees, 3 to 4 feet in height, were also shipped very successfully, using polyethylene bags of the large size used for wrapping turkeys. The trees were shipped bare root, tied in small bundles. The roots were placed inside the bag, which contained moist sphagnum moss. Burlap was wrapped and tied around the polyethylene bag. The bundles of trees were kept in cold storage over the winter without any further treatment after arrival. Only 3 out of 154 trees failed to leaf out after planting in the spring.

FURTHER NOTE ON POLYEMBRYONY

Howard B. Kriebel

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Wooster, Ohio

In the August, 1954 issue of Tree Planters' Notes, Elmer Matson has a brief note on multiple embryos in ponderosa pine seed.

Polyembryony has been reported from time to time in various species of forest trees. Some reports in the Journal of Forestry are listed below. Baldwin states (1942) that polyembryony is of much more frequent occurrence in some species (e. g. sugar pine) than in others, and cites another author in stating that "unfavorable weather for seed formation may cause an abnormally high percentage of polyembryony in species where it is normally rare".

The maples apparently also produce seeds with multiple embryos. The writer found several of both Acer saccharum and Acer floridanum while weighing and sowing about 18, 000 viable seeds in greenhouse experiments. Sixteen albino seedlings were also found, and a number with three cotyledons.

Baldwin, Henry Ives, 1942. Forest tree seed. Chronica Botanica Co. ,  
Waltham, Mass., p. 2.

Jacobs, A. W., 1924. Polyembryonism in sugar pine. Journal of Forestry  
22: 573-574.

Nelson, Mary L., 1941. Polyembryony in seeds of southern pine. Journal  
of Forestry 39:959-960.

Schubert, Gilbert H. , 1950. Quintuplet seedlings in a sugar pine seed. Journal of  
Forestry 48:128-129.