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# Landscape Tree Performance

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Although Oregon is the leading state in the nursery production of shade and flowering trees, little research data have been available on the performance of these trees in a garden situation in the state. Since many people change their places of residence frequently, they are interested in landscape performance within a short period following planting. This study helps to identify some of the trees that will quickly produce the shade and beauty which make the house and yard a pleasant place to live.

To provide factual information on the growth characteristics of ornamental trees, a trial was established at Oregon State University's North Willamette Experiment Station near Aurora in April 1965. This station is located 20 miles south of Portland at an elevation of 150 feet. The average frost-free season is 202 days, considerably shorter than the 263 days listed for Portland, because of occasional late spring and early fall frosts. This difference is of greater importance to tender vegetable crops than to most trees, which are somewhat frost tolerant. Average rainfall for the station is 42.7 inches, but this occurs primarily during fall, winter, and spring. The average rainfall during July and August is 1.3 inches. The soil is a Willamette sandy loam, a well-drained and fertile type.

Measurements and observations have been made on the rate of growth, time of foliation, period of bloom, fruit characteristics, and time and duration of fall color on various types of trees. Problems with insects, disease, wind, and cold have been noted. This report is based on observations during a four-year period. In cases where the tree did not remain in the trial for four years, the age and size at the time of removal are noted. It is intended that this trial be continued so that additional information on tree performance under Willamette Valley

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conditions can be obtained. Ultimate sizes of the trees listed in this publication are those found in the literature, although it may take a very long time under favorable conditions to reach this size. At present the maximum height of many of the named selections is not known, so they have been listed in the same height category as the parent species.

This report covers 237 types of trees, planted between 1965 and 1969. Normally, four trees of each selection were planted 6 feet apart in rows 30 feet apart. In some cases four trees were not available for planting, so a wider spacing was used. As the branches started to touch in the row, alternate trees were removed to avoid growth reduction.

The trees planted were usually bare root whips four to nine feet tall, a size likely to be planted by a homeowner. Trees started from seed and other trees growing in containers were planted in smaller sizes to avoid root-crowding problems.

Cultural practices included fertilizing, pruning, irrigation, and weed control, but no insecticides nor fungicides were used. Fertilizer and water were applied at rates comparable to those used on an adequately maintained lawn, or 100 pounds of nitrogen per acre each year. The importance of nitrogen in developing canopy (shaded area) in pin oak has been shown by van de Werken (6)\*. He found that annual applications of 0, 60, and 120 pounds of nitrogen for seven years resulted in canopy areas of 38, 108, and 172 square feet. A progressive system of pruning was followed to gradually raise the branch level of the larger-growing trees so that it was possible to walk beneath them. Shorter trunks were developed on the smaller-growing trees. Herbicides were used to keep the area around the trees weed-free. Harris (3) has reported more rapid growth of some species when they were not grown in competition with turf grasses. The rates of growth in this test plant-

ing may be faster than those obtained in many plantings because of this lack of competition from grasses.

The tables record the tree's scientific name, common name if one was found, ultimate height, height and width at planting, and height and width after four growing seasons. If the plant was in the trial less than four years this is indicated by an asterisk and the reason for this short duration is given. E (early), M (midseason), and L (late) are used to indicate the relative time of foliage, bloom, fall color, and defoliation. Table 1 provides the dates on which the symbols used were based. The symbols E, M, or L are included in the "Bloom" column only if the tree bloomed within the four-year trial period. A symbol in the fall color column indicates the color is worth noting.

Table 1. DATES<sup>1</sup> OF GROWTH EVENTS IN LANDSCAPE TREES AT NORTH WILLAMETTE EXPERIMENT STATION

	Early	Mid-season	Late
Foliation <sup>2</sup> .....	2/26- 3/31	3/26- 4/28	5/15- 5/27
Flowering .....	2/26- 3/25	3/26- 5/23	5/27- 8/25
Fall color <sup>3</sup> .....	9/3 - 9/29	10/2 -11/3	10/28-12/15
Defoliation <sup>4</sup> .....	10/12-11/5	11/10-12/8	12/5 and after

<sup>1</sup> These dates represent the extremes for a 4-year period, 1967-1972 thus there is some overlap as a growth stage may vary 2 to 4 weeks from year to year.

<sup>2</sup> When first true leaf is visible.

<sup>3</sup> Start of fall coloration.

<sup>4</sup> Complete defoliation.

The size classification (Table 2) follows that of OSU Extension Bulletin 758, "Plant Materials for Landscaping" (5). Additional information about some of the plants in this study as well as a large number of plants which are outside the scope of this study can be found in that bulletin.

Table 3 to 5 list the plants affected by cold, disease or insects, and wind. Some of these plants may be satisfactory for special situations but have been listed separately to indicate they probably are not suitable for general use in this area.

\* Numbers in parentheses refer to Literature Cited, page 2.

### Literature Cited

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4. Kelly, Stan. 1969. *Eucalyptus*. Thomas Nelson Ltd., Melbourne, Australia.
5. Martel, D. J., and George N. Fredeen. 1969. Plant materials for landscaping. Oregon State Univ. Ext. Bull. 758.
6. van de Werken, Hendrik. 1970. Fertilizing shade trees. Tenn. Farm and Home Science Prog. Report 72.
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Table 2. LANDSCAPE PERFORMANCE OF SELECTED TREES IN SEVERAL HEIGHT CATEGORIES AT NORTH WILLAMETTE EXPERIMENT STATION, AURORA, OREGON

Botanical and common name	Height		Width		Time <sup>4</sup>			Remarks	
	At Ultimate height	At planting	At planting	After 4 yrs.	Foli-ation	Bloom	Fall color		Defoliation
<b>TREES 10-20 FEET</b>									
<i>Acer buergerianum</i>									
Trident Maple .....	20	1.3	8.6	1.9	7.1	E	M	M	Good red fall color. New growth also red.
<i>Acer platanoides</i> 'Globe'									
Globe Norway Maple .....	20	6.3	11.0	1.0	5.8	M	M	M	Very dense globe shape.
<i>Cercis occidentalis</i>									
California Redbud .....	20	1.6	7.9	1.4	5.5	M	M	M	Purplish pink pea flower. Dark red new growth.
<i>Laburnum alpinum pendulum</i>									
Weeping Scotch Laburnum .....		5.5	5.8	2.4	3.1	M	M	L	Weeping habit. Height determined by grafting height.
<i>Magnolia</i> x 'Ann'									
Ann Magnolia .....	15	0.6	4.0	0.4	4.2	M	M	M	Flowers orchid outside, white inside, one of 8 similar varieties from U. S. National Arboretum.
<i>Magnolia</i> x 'Betty'									
Betty Magnolia .....	15	0.7	5.2	0.5	3.8	M	M	M	Flowers orchid outside, white inside. One of most floriferous of N. S. Nat'l Arboretum varieties.
<i>Magnolia</i> x 'Jane'									
Jane Magnolia .....	15	0.7	5.3	0.5	4.3	M	M	M	Flowers magenta outside, white inside. From U. S. National Arboretum.
<i>Magnolia</i> x 'Judy'									
Judy Magnolia .....	15	1.1	3.5	0.6	3.1	M	M	M	Flowers pink outside, white inside. Least vigorous flowering and growth of U. S. National Arboretum varieties.

Botanical and common name	Height		Width		Time <sup>1</sup>					Remarks
	Ultimate height	At planting	After 4 yrs.	At planting	After 4 yrs.	Foli-ation	Bloom	Fall color	Defoliation	
<i>Magnolia</i> x 'Pinkie' Pinkie Magnolia .....	15	1.1	6.5	0.8	5.4	M	M		M	Lightest-colored flowers of U. S. National Arboretum Magnolia varieties.
<i>Magnolia</i> x 'Randy' Randy Magnolia .....	15	1.0	3.8	0.8	4.3	M	M		M	Flowers magenta outside white inside. Grows as rounded shrub. U. S. Nat'l Arboretum.
<i>Magnolia</i> x 'Ricki' Ricki Magnolia .....	15	1.1	5.9	0.6	3.1	M	M		M	Orchid blooms over long period.
<i>Magnolia</i> x 'Susan' Susan Magnolia .....	15	0.8	5.2	0.4	3.5	M	M		M	Darkest purple-flowered of U. S. Nat'l Arboretum varieties.
<i>Magnolia stellata</i> Star Magnolia .....	20	2.8	4.9	1.5	4.0	M	E		M	Flowers over a long period.
<i>Rhamnus alaternus</i> 'John Edwards' John Edwards Italian Buckthorn	12	3.0	8.1	1.0	9.7	M	E			Evergreen shrub. Flowers insignificant.
<i>Rhus typhina laciniata</i> Cutleaf Staghorn Sumac .....	15	1.3	8.0	0.3	9.8	L	L	E	E	Excellent red-orange fall color. Sends up suckers.
TREES 20-30 FEET										
<i>Acer campestre</i> Hedge Maple .....	25	9.1	16.4	3.1	9.6	M	M		M	
<i>Acer capillipes</i> .....	30	2.6	10.2	1.7	7.5	M		M	M	Green and white striped bark. Orange fall color.
<i>Acer circinatum</i> Vine Maple .....	25	4.0	9.4	2.2	3.7	M			M	Fall color only with poor watering and fertilizing.
<i>Acer ginnala</i> Amur Maple .....	20	9.6	13.0	2.6	8.4	E	M	E	E	Yellow, orange and red fall color. Heavy seed producer.
<i>Acer griseum</i> Paperbark Maple .....	25	2.5	6.8	1.6	4.3	M		M	M	Interesting peeling bark. Very good red fall color.
<i>Acer truncatum</i> Purpleblow Maple .....	24	2.7	8.7	1.5	8.9	M		M	M	Good red fall color.
<i>Cercis siliquastrum album</i> White Judas Tree .....	30	2.9	9.4	2.5	6.7	M	M	M	M	White pea flower. Pale green new leaves.
<i>Cornus kousa chinensis</i> Chinese Dogwood .....	21	5.3	9.5	2.3	5.0	M	L	E	M	White flowers in June. Good red fall color.
<i>Crataegus oxyacantha</i> 'Paul's Scarlet' Paul's Scarlet Hawthorn .....	30	7.1	14.5	3.0	9.3	E	M		M	Attractive red flowers. Very dense, twiggy habit.
<i>Eucalyptus niphophila</i> Snowland Eucalyptus .....	20	1.1	15.3	0.9	13.5	M				Evergreen. Gray foliage. Hardest eucalyptus in trial. Killed to ground by extended 5° F.
<i>Evodia danielli</i> Korean Evodia .....	25	4.4	10.1	1.6	6.2	E		M	M	Yellow fall color. Red fruit in October.
<i>Evodia henryi</i> Henry Evodia .....	24	6.6	12.4	1.9	6.8	E		M	M	Yellow fall color.
<i>Hoveia dulcis</i> Japanese Raisintree .....	30	3.7	9.9	1.1	6.9	M			M	No outstanding features as young tree.
<i>Kocleuteria paniculata</i> Panicked Goldraintree .....	30	2.2	7.5	1.7	5.3	E		L	M	Yellow flowers in summer. Interesting inflated seed pods.
<i>Laburnocytisus adami</i> Adam's Laburnocytisus .....	25	6.4	18.1	1.6	11.7	M	M		L	A graft hybrid. Pinkish-purple laburnum flowers.
<i>Laburnum vossii</i> Voss Goldenchain .....	30	9.3	13.9	1.8	8.0	M	M		L	Yellow flowers. Sparse growth.

Botanical and common name	Height			Width		Time <sup>1</sup>				Remarks
	Ultimate height	At plant-ing	After 4 yrs.	At plant-ing	After 4 yrs.	Foli-ation	Bloom	Fall color	Defo-liation	
<i>Lagerstroemia indica</i>										
Crepe Myrtle .....	21	5.8	8.4	2.5	3.8	L	L	M	M	Bloom in late summer. Good red fall color. Slight twig dieback in cold winters.
<i>Magnolia kobus</i>										
Kobus Magnolia .....	30	3.1	8.0	1.5	5.4	M	E		M	Showy white flowers.
<i>Magnolia kobus</i> 'Wada's Memory'										
Wada's Memory Kobus Magnolia	30	1.5	5.6	0.5	3.1	M	M		M	White flowers. Less vigorous than 'Dr. Merrill'
<i>Magnolia soulangeana</i>										
Saucer Magnolia .....	25	2.3	5.9	1.3	4.2	M	E		L	Large pale pink flowers early.
<i>Magnolia</i> x 'Dr. Merrill'										
Dr. Merrill Magnolia .....	20	1.7	6.7	0.3	4.7	M	E		M	Heavy-blooming white.
<i>Malus floribunda</i>										
Japanese Flowering Crabapple....	30	6.8	12.7	3.3	13.9	E	E		L	Red buds opening to white flowers. Small yellow and red fruit.
<i>Oxydendron arborcum</i>										
Sorrel-tree .....		3.5	6.9	1.3	4.2	M	L	E	M	One of best red fall color plants. Good summer bloom.
<i>Parrotiopsis jacquemontana</i>										
Parrotiopsis .....	21	1.4	5.7	1.2	5.3	M	E	M	M	Cream-colored flowers early. Yellow fall color.
<i>Phellodendron amurense</i>										
Amur Corktree .....	30	1.5	7.7	0.5	6.8	E		E	E	Yellow fall color. Wide spreading habit.
<i>Prunus serrulata amanogawa</i>										
Amanogawa Flowering Cherry	20	6.9	13.3	0.4	3.5	M	M	M	M	Columnar white-flowering tree. Good red and yellow fall color.
<i>Prunus serrulata</i> 'Kwanzan'										
Kwanzan Flowering Cherry .....	25	3.3	14.3	0.3	5.2	M	M	M	M	Round, pink-flowering tree. Good red and yellow fall color.
<i>Quercus pontica</i>										
Pontic Oak .....	30	2.3	12.1	0.8	3.3	L			M	We are growing seedlings of a columnar selection. Leaves hang on into winter.
<i>Salix babylonica</i>										
Babylon Weeping Willow .....	30	7.1	15.6	4.0	24.2	E			L	Leaves drop while green.
<i>Styrax japonica</i> 'Kusan'										
Kusan Japanese Snowbell .....	30	0.9	6.1	0.6	4.2	E	M		L	White bell flowers. Subject to spring frost damage.
<i>Syringa amurensis japonica</i>										
Japanese Tree Lilac .....	30	3.4	8.5	0.6	3.5	E	L		E	Late white flowers. Bark cherry-like.
TREES 30-50 FEET										
<i>Acer rufinerve</i>										
Redvein Maple .....	36	1.4	8.5	0.7	5.4	E		M	M	Interesting green and white striped bark.
<i>Albizzia julibrissin</i>										
Silktree .....	36	5.9	9.3	0.0	11.5	L	L		M	Wide-spreading, pink summer-flowering tree.
<i>Asimina triloba</i>										
Common Pawpaw .....	35	2.4	3.6	0.8	1.5	M		M	E	Yellow fall color. Three-petaled brown flower in fifth year.
<i>Asimina tribloba</i> 'Mary Foos Johnson'										
Mary Foos Johnson Common Pawpaw .....	35	3.5	5.2	1.7	2.0	M	M		E	Three-petaled brown flowers. May need cross pollination for fruiting.
<i>Carpinus caroliniana</i>										
American Hornbeam .....	36	7.0	14.4	3.0	11.0	M	E	E	M	Yellow, orange, and red fall color.
<i>Catalpa bignonioides</i>										
Southern Catalpa .....	45	1.7	6.0	0.4	5.1	M			M	Large triangular leaves.
<i>Cercis siliquastrum</i>										
Judas-Tree .....	30	5.3	14.6	3.8	15.0	M	M		L	Purplish-pink pea flower. Reddish-green new leaves.
<i>Cercis canadensis</i>										
Eastern Redbud .....	36	4.2	9.6	2.7	8.4	M	M		M	Pink pea flower.

Botanical and common name	Height		Width		Time <sup>1</sup>		Fall Bloom color	Defoliation	Remarks	
	Ultimate height	At planting	After 4 yrs.	At planting	After 4 yrs.	Foli-ation				
<i>Chionanthus virginicus</i> White Fringetree .....	30	3.3	3.8	1.6	4.1	L	M	M	White flowers second year.	
<i>Cladrastis lutea</i> American Yellowwood .....	50	5.6	9.7	0.6	5.4	M		E	M	Trees died back after planting. Good yellow fall color.
<i>Cornus florida</i> 'Cherokee Chief' Cherokee Chief Flowering Dogwood .....	40	3.2	6.7	1.0	3.4	M	M	E	M	Darkest red-flowered variety in trial.
<i>Cornus florida</i> 'Cherokee Princess' Cherokee Princess Flowering Dogwood .....	40	3.1	7.4	0.9	2.6	M	M	M	M	White-flowered. Red fall color.
<i>Cornus florida</i> 'Cloud 9' Cloud 9 Flowering Dogwood .....	40	2.7	6.7	1.5	4.2	M	M	M	M	Best white-flowered variety in trial. Very good red fall color.
<i>Cornus florida fastigiata</i> Upright Flowering Dogwood .....	40	2.4	6.5	0.6	2.9	M	M	E	E	White-flowered. Columnar growth. Red fall color.
<i>Cornus florida</i> 'Hillenmeyer White' Hillenmeyer White Flowering Dogwood .....	40	3.1	4.7	1.6	4.7	M	M		M	Three of 4 plants look sick or have died.
<i>Cornus florida plena</i> Double Flowering Dogwood .....	40	3.3	6.0	0.9	5.1	M	M	M	M	Double white flowers. Maroon-red fall color.
<i>Cornus florida</i> 'Rainbow' Rainbow Flowering Dogwood .....	40	4.0	5.4	1.7	3.9	M	M	E	M	Yellow and green leaves changing to orange and red in fall.
<i>Cornus florida rubra</i> (Ore.) Red Flowering Dogwood .....	40	3.9	7.5	2.0	4.7	M	M	E	M	Showy pink flowers and good red fall color.
<i>Cornus florida rubra</i> (Tenn.) Red Flowering Dogwood .....	40	2.6	6.7	1.0	5.5	L	M	E	M	Good red flowers in spring. Red fall color.
<i>Cornus florida salicifolia</i> Willowleaf Flowering Dogwood .....	40	1.8	2.3	0.9	3.0	M		M	M	Non-flowering. Very good fall color. Narrow, twisted leaves.
<i>Cornus florida</i> 'Springtime' Springtime Flowering Dogwood .....	40	2.4	5.2	0.8	5.7	M	M	E	M	White-flowered. Two of 4 plants died.
<i>Cornus florida welchi</i> Welch Flowering Dogwood .....	40	2.5	4.9	2.1	4.3	E	M	E	M	White-flowered. White and green leaves turn pink and maroon in fall.
<i>Cornus</i> 'White Wonder' White Wonder Dogwood .....	40	3.0	5.2	3.5	4.7	M	M	M	M	Hybrid between <i>C. florida</i> and <i>C. nuttali</i> . Red fall color.
<i>Diospyros kaki</i> 'Hana Fuyu' Hana Fuyu Oriental Persimmon .....	40	2.9	6.6	2.3	6.8	L			M	Large, glossy leaf.
<i>Magnolia fraseri</i> Fraser Magnolia .....	45	0.5	3.2	0.0	1.4	L			M	Leaves larger than those of most trees grown in this area.
<i>Parrotia persica</i> Persian Parrotia .....	50	1.1	4.8	0.9	3.5	E		M	L	Red new growth. Red and yellow fall color.
<i>Poncirus trifoliata</i> CES 838 Rubidoux Trifoliolate-Orange .....	35	2.5	5.6	1.3	3.7	M		M	M	Green stems with large thorns. Yellow fall color. White flowers fifth year.
<i>Poncirus trifoliata</i> CES 1717 Pomeroy Trifoliolate-Orange .....	35	3.6	5.2	1.9	4.1	M		M	M	Green stems with large thorns. Yellow fall color. White flowers fifth year.
<i>Pterostyrax corymbosa</i> Little Epaulettetree .....	45	1.3	8.2	0.0	4.1	E	M	M	L	White flowers. Yellow fall color.
<i>Pyrus calleryana</i> 'Bradford' Bradford Callery Pear .....	50	3.2	17.4	0.3	13.4	E	E		L	Upright habit; holds green leaves late. Blooms very early.
<i>Quercus douglasi</i> Blue Oak .....	20-60	3.0	6.4	0.8	4.5	M			L	Blue-green new leaves. Leaf size small for oak.

Botanical and common name	Height			Width		Time <sup>a</sup>				Remarks
	Ultimate plant- height	At plant- ing	After 4 yrs.	At plant- ing	After 4 yrs.	Foli- ation	Bloom	Fall color	Defo- liation	
<i>Robinia 'Idaho'</i> Idaho Locust .....	40	5.4	15.6	1.1	12.3	M	M		L	Pink pea flowers.
<i>Sorbus aucuparia</i> European Mountain Ash .....	45	8.6	18.0	0.0	6.9	E	M	M	M	Very good red-orange fruit in fall.
TREES 50-75 FEET										
<i>Acer negundo</i> Box Elder .....	60	11.9	16.1	3.0	9.0	E	M	E	E	Early yellow fall color.
<i>Acer negundo variegatum</i> Variegated Box Elder .....	60	8.0	13.1	2.5	8.0	M	M	E	E	Interesting green and white leaves.
<i>Acer rubrum 'Autumn Flame'</i> Autumn Flame Red Maple .....	60	6.3	14.5	1.1	10.8	M	E	E	E	Round-headed tree with excellent red fall color. First tree to color.
<i>Aesculus carnea brioti</i> Briot Red Horsechestnut .....	75	5.6	8.7	2.1	5.3	M	M		M	Interesting red flowers.
<i>Betula pendula</i> European White Birch .....	60	9.6	21.0	4.0	12.2	M	E	M	M	White bark develops in third year. Aphid and leaf miner problems.
<i>Betula pendula gracilis</i> Cutleaf Weeping Birch .....	60	8.6	16.6	2.6	6.1	M	M	E	E	White bark develops in fourth year. Aphids and a few leaf miners.
<i>Betula pendula verrucosa</i> Clump Birch .....	60	9.5	15.9	5.1	12.4	M	E	M	L	White bark develops in fourth year. Aphids and leaf miner.
<i>Carpinus betulus fastigiata</i> Upright European Hornbeam .....	60	5.0	18.3	0.5	4.8	E		M	M	Upright habit. Yellow fall color.
<i>Cedrela sinensis</i> Chinese Toona .....	70	5.2	9.1	0.0	2.2	M		E	M	Large compound leaves, reddish when emerging.
<i>Cornus nuttalli</i> Pacific Dogwood .....	75	3.2	6.9	1.6	2.9	M	M	E	M	White blooms in spring and orange-red fall color.
<i>Cornus nuttalli 'Corigo Giant'</i> Corigo Giant Pacific Dogwood .....	75	1.1	9.0	0.1	5.0	M		M	M	Very vigorous. Large-leaved and eventually large-flowered native Dogwood variety.
<i>Cornus nuttalli 'Goldspot'</i> Goldspot Pacific Dogwood .....	75	5.0	8.5	2.1	4.6	E	M&L	M	L	Blooms April and August. Yellow-spotted leaves which become red in fall.
<i>Corylus colurna</i> Turkish Hazel .....	75	7.5	14.4	2.5	7.5	E		E	E	Yellow fall color. Corky bark.
<i>Davidia involucrata</i> Dovetree .....	60	2.2	7.8	1.1	4.9	M			M	Grown for its interesting flowers. Has not flowered in 5 growing seasons.
<i>Diospyros virginiana-K</i> Common Persimmon .....	75	5.5	7.3	3.8	6.4	L		E	E	Maroon and yellow fall color. Fruit in 5th year.
<i>Evodia hupehensis</i> Hupeh Evodia .....	60	6.2	11.3	2.1	7.9	E	L		M	Fruit capsules maroon red in late September and October. Most interesting Evodia in trial.
<i>Fraxinus ornus</i> Flowering Ash .....	60	3.6	9.5	0.0	3.9	M		M	M	Yellow fall color with some purple.
<i>Liquidambar orientalis</i> Oriental Sweetgum .....	60	3.6	7.7	1.9	4.3	E		M	L	Pastel yellow-orange fall color.
<i>Lithocarpus densiflorus</i> Tanoak .....	75	1.7	5.4	0.5	4.5	L				Evergreen. Slow starting but can grow rapidly.
<i>Magnolia sprengeri</i> Sprenger Magnolia .....	60	1.4	8.0	0.2	3.0	M			M	
<i>Magnolia virginiana</i> Sweetbay Magnolia .....	60	1.7	3.2	0.5	1.9	M				Semi-evergreen.
<i>Pistacia chinensis</i> Chinese Pistache .....	75	1.6	7.2	1.5	5.5	E		L	L	Good red fall color.
<i>Quercus aliena</i> Oriental White Oak .....	60	0.8	6.3	0.5	4.5	M			L	Brown leaves persist all winter.

Botanical and common name	Height		Width			Time <sup>a</sup>		Fall color	Defoliation	Remarks
	Ultimate height	At planting	After 4 yrs.	At planting	After 4 yrs.	Foliation	Bloom			
<i>Quercus chrysolepis</i> Canyon Live Oak .....	60	3.0	7.5	1.8	7.6	L				Hardest evergreen oak in trial. Small, holly-like leaves.
<i>Quercus coccinea</i> Scarlet Oak .....	75	4.9	18.0	1.1	10.2	L	M	L		Very good red fall color. Holds leaves.
<i>Quercus ilex</i> Holly Oak .....	60	1.4	5.1	0.7	3.9	L				Evergreen; some shoot-kill at 8° F.
<i>Quercus lobata</i> California White Oak .....	40-125	3.6	9.7	0.8	7.0	M			L	
<i>Quercus palustris</i> Pin Oak .....	75	5.3	16.5	2.7	12.4	L	M	L		Good red fall color. Holds brown leaves into winter.
<i>Quercus phellos</i> Willow Oak .....	50	5.6	19.5	2.3	15.5	L	M	M		Willow-shaped leaves with yellow to red fall color.
<i>Quercus suber</i> Cork Oak .....	60	1.3	3.8	0.3	4.6	L				Evergreen. Defoliated but not killed at 5° F.
<i>Quercus wislizeni</i> Interior Live Oak .....	70	3.0	11.4	0.8	8.5	M				Evergreen. Slight dieback at 8° F. Partially defoliated by extended 5° F.
<i>Rabinia pseudoacacia</i> <sup>2</sup> Black Locust .....	75	8.6	20.7	1.7	14.5	M			M	Fast growing but produces suckers from roots. Three years' growth.
<i>Salix alba tristis</i> Niobe Weeping Willow .....	75	3.9	21.9	1.4	25.4	E	L	M		Wide-spreading and fast-growing. Yellow twigs and fall color.
<i>Saphara japonica</i> Japanese Pagoda Tree .....	75	10.5	15.0	2.6	15.2	M			E	Round-headed with yellow fall color.
<i>Stewartia pseudocamellia</i> Japanese Stewartia .....	60	3.5	8.3	1.8	4.4	E	L	E	M	White flowers June-July. Good red fall color.
<i>Zelkova serrata</i> 'Village Green' Village Green Zelkova .....	75	6.5	15.9	5.3	16.0	M			M	Interesting bronze fall color.
TREES 75-100 FEET										
<i>Acer platanoides</i> 'Cleveland' Cleveland Norway Maple .....	90	10.5	16.9	2.0	4.7	M	M	M	M	Narrow, upright habit.
<i>Acer platanoides</i> 'Crimson King' Crimson King Norway Maple ....	90	6.1	15.1	0.0	5.9	M			M	Red foliage all summer.
<i>Acer platanoides drummondii</i> Variegated Norway Maple .....	90	3.0	15.8	0.0	5.6	M		E	E	Interesting green and white leaves.
<i>Acer platanoides</i> 'Emerald Queen' Emerald Queen Norway Maple ....	90	7.3	21.8	0.0	10.0	M	M	M	M	Good yellow fall color.
<i>Acer platanoides</i> 'Fassen's Redleaf' Fassen's Redleaf Norway Maple	90	9.6	15.2	1.5	5.8	M	M	M	E	Red foliage all summer. Best fall color and earliest defoliating of redleaf types.
<i>Acer platanoides</i> 'Green Lace' Green Lace Norway Maple .....	90	7.5	12.9	2.6	10.9	M			M	Cutleaf form of Norway Maple.
<i>Acer platanoides</i> 'Royal Red' Royal Red Norway Maple .....	90	7.0	14.4	0.2	5.8	M		M	M	Red foliage all summer.
<i>Acer platanoides schwedleri</i> Schwedler Norway Maple .....	90	7.5	15.3	0.9	6.3	M	M	M	E	Leaves red in spring, dark green in summer. Yellow fall color.
<i>Acer platanoides</i> 'Summershade' Summershade Norway Maple .....	90	5.6	17.6	0.9	11.5	M	M	M	M	Wide branch angle. Young trees vary in appearance.
<i>Acer platanoides</i> 'Superform' Superform Norway Maple .....	90	7.0	19.7	0.5	9.8	M		M	M	Yellow fall color.
<i>Acer pseudoplatanus</i> (seedlings) Sycamore Maple .....	90	5.0	13.5	0.8	5.4	L	M	M	M	Variable in growth (9.1 to 15.1 feet at 4 years).
<i>Acer pseudoplatanus purpureum</i> Spaeth Sycamore Maple .....	90	10.8	22.0	1.6	9.8	M	M	M	M	Purple underside of leaves.
<i>Acer rubrum</i> 'October Glory' October Glory Red Maple .....		6.1	17.2	2.1	8.5	M	E	M	M	Very good red fall color on oval-shaped tree.

Botanical and common name	Height			Width		Time <sup>1</sup>				Remarks
	Ultimate height	At planting	After 4 yrs.	At planting	After 4 yrs.	Foli-ation	Bloom	Fall color	Defoliation	
<i>Betula maximowicziana</i> Monarch Birch .....	90	5.4	10.3	1.5	6.0	M	E	E	E	Yellow fall color. Creamy white bark in fourth year. Less leaf minor damage than European White Birch.
<i>Betula papyrifera</i> Paper Birch .....	90	6.0	15.9	1.9	7.6	M	M	E	E	Good yellow fall color. White bark fourth year. Less leaf minor than European White Birch.
<i>Celtis occidentalis</i> Common Hackberry .....	100	6.6	11.6	2.1	11.3	M		M	M	
<i>Cercidaphyllum japonicum</i> Katsuratree .....	60-100	4.0	10.9	2.6	5.1	E		E	E	Tends to have several trunks. Good yellow-orange fall color.
<i>Fagus sylvatica atropunica</i> Purple European Beech .....	90	3.5	10.5	1.4	6.6	L		M	L	Purple leaves all summer. Brown leaves persist in winter.
<i>Halesio monticola</i> Mountain Silverbell .....	90	3.5	9.7	0.3	5.4	E	M	E	M	White bell-shaped flowers. Yellow fall color.
<i>Magnolio grandiflora</i> 'Madison' Madison Southern Magnolia .....	90	3.1	7.5	1.2	6.9	L	L			Tends to defoliate more in winter than other <i>M. grandiflora</i> varieties.
<i>Magnolio grandiflora</i> 'Majestic Beauty' Majestic Beauty Southern Magnolia .....	90	2.5	6.3	0.4	6.5	L	L			Evergreen. Largest-leaved <i>M. grandiflora</i> variety in trial.
<i>Magnolio grandiflora</i> 'Pioneer' Pioneer Southern Magnolia .....	90	4.8	8.8	3.1	8.6	L	L			Evergreen. White flowers. This variety is taller and more open-growing than most.
<i>Magnolio grandiflora</i> 'Russet' Russet Southern Magnolia .....	90	2.9	7.2	1.5	5.6	L	L			Evergreen. More winter injury than most <i>M. grandiflora</i> varieties.
<i>Magnolia grandiflora</i> 'Samuel Sommer' Samuel Sommer Southern Magnolia .....	90	1.9	5.7	1.1	5.4	L	L			Evergreen. White flowers.
<i>Magnolia grandiflora</i> 'St. Mary' St. Mary Southern Magnolia .....	90	2.2	6.8	1.0	6.4	L	L			Evergreen. White flowers. Blooms soonest after planting of <i>M. grandiflora</i> varieties.
<i>Magnolio grandiflora</i> 'Victoria' Victoria Southern Magnolia .....	90	1.9	7.1	0.3	5.9	L	L			Evergreen. White flowers. Shows least winter damage of <i>M. grandiflora</i> varieties in trial.
<i>Nyssa sylvatica</i> Black Gum .....	90	2.8	5.7	0.8	5.0	L		E	E	Excellent red fall color.
<i>Platanus acerifolia</i> London Planetree .....	100	6.4	17.8	0.0	9.5	M			M	Bark starting to exfoliate at five years.
<i>Populus hybrid</i> Poplar .....	50-90	6.5	32.2	2.5	14.5	M			M	Rapid-growing but suckers from roots.
<i>Quercus rabur fastigiata</i> Pyramidal English Oak .....	75-150	5.1	16.0	1.0	6.9	L			L	Columnar tree retaining brown leaves in winter.
<i>Tilia americana</i> American Linden .....	90	6.6	15.5	0.6	8.6	M			E	Large leaves. Aphids can be a problem.
<i>Tilia cordata</i> Little-Leaved Linden .....	90	7.3	14.8	2.9	9.6	L	L		E	Aphids can be a problem. Variable habit.
<i>Tilio cardoto</i> 'Greenspire' Greenspire Littleleaf Linden .....	90	6.1	16.6	2.4	13.2	L	L		E	Uniform growth. Aphids can be a problem.
<i>Zelkova serrata</i> Zelkova .....	90	7.2	16.9	6.3	18.3	M		M	M	Interesting bronze fall color.



Botanical and common name	Height		Width		Time <sup>1</sup>			Fall color	Defoliation	Remarks
	Ultimate height	At planting	After 4 yrs.	At planting	After 4 yrs.	Foliation	Bloom			
<b>TREES OVER 100 FEET</b>										
<i>Acer rubrum</i> 'Armstrong'										
Armstrong Red Maple .....	120	4.8	20.2	1.0	5.5	M	E		M	Upright habit.
<i>Acer rubrum</i> 'Bowhall'										
Bowhall Red Maple .....	120	5.2	17.7	0.8	4.4	M	E	E	E	Red fall color. Upright habit.
<i>Acer rubrum</i> 'Red Sunset'										
Red Sunset Red Maple .....	120	5.7	19.3	2.3	10.1	M	E	E	M	Good red fall color.
<i>Acer rubrum</i> 'Scanlon'										
Scanlon Red Maple .....	120	10.8	19.8	2.6	4.9	M	E	M	E	Red fall color. Upright habit.
<i>Acer rubrum</i> 'Schlesenger'										
Schlesenger Red Maple .....	120	8.4	21.0	3.4	11.3	M	E	E	M	Yellow, orange and red fall color.
<i>Acer saccharum</i>										
Sugar Maple .....	120	9.9	16.1	2.4	5.5	M		M	M	Yellow-orange fall color.
<i>Acer saccharum</i> 'Green Mountain'										
Green Mountain Sugar Maple ....	120	8.3	15.5	1.1	6.1	L			E	
<i>Acer saccharum</i> 'Sweet Shadow'										
Sweet Shadow Sugar Maple .....	120	10.1	16.0	3.9	5.3	L		M	M	Orange-brown fall color. Cutleaf type.
<i>Ginkgo biloba</i> (seedlings)										
Ginkgo .....	120	4.9	9.9	1.1	3.8	M			M	
<i>Ginkgo biloba</i> 'Autumn Gold'										
Autumn Gold Ginkgo .....	120	2.6	6.7	0.3	3.2	M			M	
<i>Ginkgo biloba</i> 'Fairmont'										
Fairmont Ginkgo .....	120	2.4	5.7	0.0	3.2	M			M	
<i>Ginkgo biloba</i> 'Roosevelt'										
Roosevelt Ginkgo .....	120	3.5	7.6	0.8	2.6	M			M	
<i>Gleditsia triacanthos</i> 'Sunburst'										
Sunburst Honeylocust .....	135	7.8	11.8	2.0	8.7	L	L	E	M	New foliage yellow, turning green later. Yellow fall color.
<i>Liquidambar formosana</i>										
Formosa Sweetgum .....	120	2.7	8.0	1.1	5.8	M			L	Grows late in fall. Leaves and twigs often frosted.
<i>Liquidambar formosana</i> 'Afterglow'										
Afterglow Formosa Sweetgum ..	120	4.3	9.0	1.4	3.9	M			L	Does not develop fall color well in this area.
<i>Liquidambar styraciflua</i> (cuttings)										
American Sweetgum .....	125	5.4	14.5	2.2	7.3	M		M	L	Yellow to red fall color.
<i>Liquidambar styraciflua</i> (seedlings)										
American Sweetgum .....	125	7.3	14.3	3.3	7.4	L		M	L	Yellow, orange and red fall color.
<i>Liquidambar styraciflua</i> 'Burgundy'										
Burgundy American Sweetgum ....	125	4.0	10.3	0.8	4.9	M			L	Does not develop fall color well in this area.
<i>Liquidambar styraciflua</i> 'Festival'										
Festival American Sweetgum .....	125	3.7	11.2	1.0	4.5	M			L	Does not develop fall color well in this area.
<i>Liquidambar styraciflua</i> 'Palo Alto'										
Palo Alto Sweetgum .....	125	3.2	10.1	0.9	3.9	L		E	L	Red fall color.
<i>Liriodendron tulipifera</i>										
Tuliptree .....	150	11.0	16.9	2.6	7.3	E		E	M	Yellow fall color.

Table 3. TREES SUBJECT TO WIND DAMAGE

Botanical and common name	Height		Width		Time <sup>1</sup>			Fall color	Defoliation	Remarks
	Ultimate height	At planting	After 4 yrs.	At planting	After 4 yrs.	Foliation	Bloom			
* <i>Celtis sinensis</i>										
Chinese Hackberry .....	60	5.4	18.5	2.0	10.0	M			L	Three of 4 plants had limbs broken by wind. Removed third year.
* <i>Eucalyptus dalrympleana</i>										
Mountain Gum .....	120	5.2	12.0	3.7	13.6	E				Single plant broken off at base because of girdling root, second year. Hardy at 21° F.
<i>Gleditsia triacanthos inermis</i>										
Thornless Honeylocust .....	135	8.1	16.1	0.3	13.5	L	L		E	Limbs break in wind. Flowers insignificant.

Botanical and common name	Height		Width		Time <sup>1</sup>				Remarks	
	Ultimate height	At planting	After 4 yrs.	At planting	After 4 yrs.	Foliation	Bloom	Fall color		Defoliation
* <i>Prunus cerasifera</i> 'Thundercloud' Thundercloud Flowering Plum.....	24	9.5	16.3	2.2	8.4	E	E	M	L	Plants tipped over by strong wind 10-2-67 after 3 years.
* <i>Ulmus</i> 'Improved Coolshade' Improved Coolshade Elm .....	75	8.0	18.0	1.5	14.6	M			M	Subject to limb breakage during growing season. Removed after 3 years.
* <i>Ulmus parvifolia sempervirens</i> Evergreen Elm .....	50	4.0	8.5	0.5	9.6	M			L	Not evergreen. Poor growth habit. Wind damage. Removed after 3 years.
* <i>Ulmus parvifolia sempervirens</i> 'Drake' Drake Evergreen Elm .....	50	4.0	7.4	0.7	9.9	M				Partial leaf retention. Poor growth habit. Removed after 3 years.

Table 4. TREES SUBJECT TO INSECT OR DISEASE PROBLEMS

Botanical and common name	Height		Width		Time <sup>1</sup>				Remarks	
	Ultimate height	At planting	After 4 yrs.	At planting	After 4 yrs.	Foliation	Bloom	Fall color		Defoliation
<i>Alnus cordata</i> Italian Alder .....	45	2.3	20.9	1.5	13.8	M			L	Fast-growing. Leaves damaged by leaf miner. Leaves green when dropping.
* <i>Alectryon subcinereum</i> Smooth Rambutan .....		2.8		1.0						Died from root rot first summer.
<i>Crataegus oxyacantha contorta</i> Contorted Hawthorn .....	4	1.5	2.0	1.2	2.1	M	M		E	Defoliates early with leaf spot each year.
<i>Eucryphia</i> 'Nymansay' Nymansay Eucryphia .....	25	2.5	4.4	0.5	2.2	M	L			Evergreen but damaged at 8° F. Plants die from root rot. Killed at 5° F.
<i>Fraxinus velutina glabra</i> Smooth Ash .....	20-45	7.5	13.9	1.8	6.5	M			M	Foliage disfigured by disease each summer.
* <i>Nothofagus dombeyi</i> Southern Falsebeech .....	90	5.8	7.4	2.8	4.5	L				Died of root rot during second growing season.
<i>Platanus racemosa</i> California Sycamore .....	120	2.0	7.9	1.6	4.4	M			M	Dieback from disease each year.

Table 5. TREES SUBJECT TO COLD DAMAGE

Botanical and common name	Height		Width		Time <sup>1</sup>				Remarks	
	Ultimate height	At planting	After 4 yrs.	At planting	After 4 yrs.	Foliation	Bloom	Fall color		Defoliation
* <i>Brachychiton populneum</i> Bottle tree .....	60	1.7	2.0	0.9	1.5					One year's growth. Winter-killed at 23° F.
* <i>Cinnamomum glanduliferum</i> Nepal Camphortree .....	40	1.1	7.5	0.8	6.8	M				Three year's growth. Killed to ground at 8° F. Slight damage at 21° F. Evergreen.
* <i>Clethra arborea</i> Lily-of-the-Valley Clethra .....	25	1.9		0.8						Killed at 18° F before first-year growth measurements taken.
* <i>Cunonia capensis</i> African Red Alder .....	50	2.9	2.6	1.4	2.5					Killed at 8° F after one year's growth.
<i>Eriobotrya japonica</i> Loquat .....	20	1.6	3.2	1.8	3.1	M				Normally evergreen. Subject to frost injury most years.

Botanical and common name	Height		Width		Time <sup>1</sup>		Fall Defoliation	Remarks
	Ultimate height	At plant-ing	At After plant-ing	After 4 yrs.	Foli-ation	Bloom		
* <i>Eucalyptus agglomerata</i> Blueleaved Stringybark .....		4.3	10.2	3.0	5.8	E		Killed at 8° F after 2 years' growth. Hardy at 21° F.
<i>Eucalyptus aggregata</i> Black Gum .....	40	4.0	19.2	2.0	10.0	E		Willow-like evergreen leaves. Damaged by one day at 8° F. Killed by extended 5° F.
* <i>Eucalyptus andreana</i> .....		3.2	12.1	4.4	10.7	E		Killed at 8° F after 2 years' growth. Hardy at 21° F.
<i>Eucalyptus archeri</i> .....	90	1.3	23.3	1.4	16.2	M	L	Killed to ground after 4 years. Sprouted from base. Hardy at 18° F.
<i>Eucalyptus bicostata</i> Eurabbie Eucalyptus .....	125	1.5	22.0	0.9	15.0	M		Killed after 4 years by 8° F. Hardy at 21° F.
* <i>Eucalyptus caleginosa</i> .....	60	5.1	9.4	3.3	5.7	E		Killed at 8° F after 2 years' growth. Hardy at 21° F.
<i>Eucalyptus cinerea</i> Silverdollar Tree .....	45	3.0	19.8	2.0	13.2	M	M	Killed to ground after 4 years by 8° F. Hardy at 18° F.
<i>Eucalyptus coccifera</i> Ridgetop Eucalyptus .....	100	1.7	23.3	1.9	17.5	M	L	Killed at 8° F after 4 years. Hardy at 21° F.
* <i>Eucalyptus codoncarpa</i> .....		5.2	8.2	3.0	6.5	E		Killed at 8° F after 2 years' growth. Hardy at 21° F.
<i>Eucalyptus delegatensis</i> Delegate Eucalyptus .....	200	2.3	23.7	1.6	10.2	M		Killed at 8° F after 4 years' growth. Hardy at 21° F.
* <i>Eucalyptus eremophilla</i> .....	10-25	0.9	1.1	0.2	1.6			Killed at 18° F after one year's growth.
* <i>Eucalyptus fastigata</i> Brown-Barrel Eucalyptus .....	150	4.6	11.4	3.4	8.5	E		Killed at 8° F after 2 years' growth. Hardy at 21° F.
<i>Eucalyptus Gunnii</i> (Breona) Cider Eucalyptus .....	90	1.2	26.4	1.0	7.4	M		Killed by extended 5° F. Survived at 15° F.
<i>Eucalyptus gunnii</i> (Leffley) Cider Eucalyptus .....	90	1.8	24.3	1.9	16.4	E	M	Blue-green evergreen leaves. Top damaged at 8° F. Killed at 5° F.
<i>Eucalyptus gunnii</i> (Whareja) Cider Eucalyptus .....	90	1.8	27.0	1.6	17.0	E		Blue-green evergreen leaves. Top injury at 8° F. Killed at 5° F.
* <i>Eucalyptus laevopinea</i> Silvertop Stringybark .....	105	3.5	8.8	2.9	8.8	E		Killed at 8° F after 2 years' growth. Hardy at 21° F.
* <i>Eucalyptus lehmanni</i> Bushy Yate Eucalyptus .....	20-30	1.7		2.1				Top killed at 21° F. Complete kill at 8° F.
* <i>Eucalyptus maculata</i> Spotted Gum Eucalyptus .....	150	4.8	3.9	3.0	5.1			Top killed at 21° F first year. Complete kill at 8° F second year.
* <i>Eucalyptus megacornuta</i> .....	20-25	1.5	1.9	0.6	1.2			Killed at 18° F after one year's growth.
* <i>Eucalyptus neglecta</i> .....	15	0.7	19.5	1.8	18.5	M	M	Top killed at 8° F after 4 years' growth. Sprouted. Hardy at 21° F.
<i>Eucalyptus niphophila</i> (Mn) Snowland Gum Eucalyptus .....	20	1.3	12.6	0.7	8.2	M		Killed by extended 5° F. Survived one day at 8° F.
* <i>Eucalyptus nitida</i> Shinyleaf Eucalyptus .....		3.2	5.3	1.5	4.2			Killed at 8° F after one year's growth.
<i>Eucalyptus parvifolia</i> Nimitybelle Eucalyptus .....	24	0.6	21.0	0.5	12.7	M		Fine-leaved species. Killed by extended 5° F.
<i>Eucalyptus pauciflora</i> (Breona) Snow Gum Eucalyptus .....	40	1.0	16.8	1.1	10.4	M		Killed by extended 5° F. Survived at 15° F.
<i>Eucalyptus pauciflora</i> (Eddyville) Snow Gum Eucalyptus .....	40	0.3	10.3	0.4	7.3	M		Killed by extended 5° F. Survived at 15° F.

Botanical and common name	Height		Width		Time <sup>1</sup>		Fall Defoliation	Remarks
	Ultimate height	At planting	After 4 yrs.	At planting	After 4 yrs.	Foliation		
<i>Eucalyptus perriniana</i> Spinning Leaf Snow Gum .....	27	3.6	20.7	1.9	14.5	M	E	Only minor foliage burn at 8° F. Grey-green leaves. Killed by extended 5° F.
<i>Eucalyptus perriniana</i> (Hyanville) Spinning Leaf Snow Gum .....	27	2.4	19.0	1.7	17.8	M	M	Top killed at 8° F after 4 years' growth. Sprouted. Hardy at 18° F.
* <i>Eucalyptus platyptus</i> Round-Leaved Moort .....	20	1.2	0.9	1.0	1.1			Killed at 18° F after one year's growth.
<i>Eucalyptus pulverulenta</i> Dollarleaf Eucalyptus .....	27	1.7	19.2	2.5	18.5	E	E	Top killed at 8° F after 4 years' growth. Sprouted. Hardy at 18° F.
<i>Eucalyptus pulverulenta</i> (NWES) Dollarleaf Eucalyptus .....	27	0.8	14.0	0.7	10.5	M		Killed by extended 5° F. Survived at 15° F.
* <i>Eucalyptus scoparia</i> Wallangarra White Gum .....	30-40	4.4	10.8	3.7	11.2	E		Killed at 8° F after 2 years' growth. Hardy at 21° F.
<i>Eucalyptus simmondsii</i> .....	55	1.6	17.6	1.8	12.4	E	M	Top killed at 8° F after 4 years' growth. Sprouted. Hardy at 18° F.
* <i>Eucalyptus spathulata</i> Swampmallet Eucalyptus .....	15-20	0.9	1.4	0.5	0.9			Killed at 18° F after one year's growth.
<i>Eucalyptus subcrenulata</i> (Hartz Mts.) .....	180	1.5	20.0	1.3	11.3	M	L	Top killed at 8° F after 4 years' growth. Sprouted but died of disease.
<i>Eucalyptus subcrenulata</i> (Oregon)	180	1.5	25.0	1.0	12.5	E		Foliage and stem damage at 8° F. Hardy at 18° F.
<i>Eucalyptus urnigera</i> Urnpod Eucalyptus .....	45	2.4	23.4	1.5	12.3	E	E	Top killed at 8° F after 4 years' growth. Sprouted but died of disease.
<i>Firmiana simplex</i> Chinese Parasol Tree .....	40	3.0	4.7	0.0	1.8	L	L	Top dieback every winter. Interesting large leaves.
* <i>Fraxinus uhdei</i> Shamel Ash .....	30	6.5	6.2	1.8	4.2	E		Top damaged at 21° F. Killed second year at 8° F.
* <i>Fraxinus uhdei</i> 'Tomlinson' Tomlinson Ash .....	30	5.5	8.0	1.0	4.1	E		Top killed at 8° F after 2 years' growth. Sprouted. Not evergreen.
* <i>Geijera parvifolia</i> .....		1.5	3.0	1.0	2.5	L		Killed at 8° F after 2 years' growth. Top damage at 24° F.
<i>Maytenus baaria</i> Mayten .....	35	3.4	7.2	1.0	3.2	E		Evergreen but defoliates and has dieback at 20° F. Killed at 5° F.
<i>Melaleuca linarifolia</i> Melaleuca .....	20	4.3	8.9	1.6	5.1	M	L	Evergreen. Feathery cream flowers. Killed at 8° F in third year. Hardy at 22° F.
* <i>Quillaja sapania</i> Soapbark Tree .....	60	2.0	5.4	1.0	4.1	M		Evergreen. Tip damage at 21° F. Killed at 8° F in third year.
* <i>Saphora secundiflora</i> Texas Mountain Laurel .....	35	0.6	0.7	0.4	0.5			Evergreen but killed back at 21° F. Removed second year.
<i>Sophora tetraptera</i> Fourwing Sophora .....	42	1.4	5.5	0.9	4.7	M		Evergreen. Winter-killed at 5° F.
* <i>Trachycarpus fortunei</i> Fortune's Windmill Palm .....	20	1.5	2.0					Killed first winter at 8° F. Larger plants survive better.
* <i>Tristania laurina</i> Kanooka Tristania .....	20-30	5.7	6.7	0.8	3.2	L	L	Evergreen. Yellow flowers. Hardy at 21° F. Killed at 8° F after 3 years.

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