Oklahoma Agricultural Experiment Station.

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HARDY TREES, SHRUBS, AND VINES,

SUITABLE FOR PLANTING IN OKLAHOMA.

This bulletin is a brief report on variety testing of trees and shrubs desirable for planting for timber, home adornment, and ornamentation of public parks. The report is compiled from the results of the tests made by the Experiment Station, plantings on the College grounds, and observations made of other plantings in various parts of Oklahoma as the opportunity offered. This report is not complete, as it does not include all the trees and shrubs that may be grown in Oklahoma. The present progress of horticulture indicates that a complete report could hardly be made, and that any report will be out of date in a few years.

The varieties of trees that are in greatest demand are those that are desired for general planting. The first purpose of the planter is the formation of a windbreak, or shelter belt, and next, the production of shade and other comforts that may be derived from the presence of a grove of trees. The growing of posts and fuel timber is also attracting a great deal of attention and the farmers desire to plant their windbreaks and woodlots of such varieties of trees as will produce all the desirable features of a windbreak and produce timber of suitable size and character for posts and fuel. To be suitable for general planting,

the trees should make a rapid growth, be extremely hardy, and of such a character that they will require a minimum amount of care, cultivation, and attention during the formative period of the grove. This confines the list of trees for general planting to a very select number, including black locust, catalpa, elm, soft maple, Russian mulberry, hackberry, sycamore, honey locust, and osage orange. There are many other trees that are very hardy and make a rapid growth, but do not possess all of the characteristics desired. The following description of the trees named is here given in order to assist those who desire to make up a very select list of a few trees for general planting. The selection of the variety is very important, as it may mean the difference between profit and loss, or a good grove and no grove.

Black Locust—This tree grows rapidly and attains a height of 60 feet and a trunk diameter of 3 feet. The top is of good form with a main central stem when grown in close plantings but is thickly branched and forms a large round head when grown in the open. It grows fastest when set in mixed plantings but does not form as good a trunk. It usually grows more rapidly than the other trees and branches and spreads over the tops of other trees. It casts a poor shade and is slow to occupy the ground to the exclusion of other plants. It sprouts vigorously from the stump and roots broken by the plow or spade. It is the best tree given in the list for planting on any and all kinds of soil. The wood is heavy, exceedingly hard, strong, and durable when placed in contact with the ground. It is a very good fuel.

Catalpa—Catalpa speciosa is the variety of catalpa that should always be selected for general planting. It is sometimes difficult to obtain, but the other varieties are not suitable for general planting. This tree grows rapidly and often attains a height of 60 feet and a trunk diameter of 3 feet. It grows best on deep rich soil and it is not a satisfactory tree for planting on a light upland soil. It sprouts well from the stump when the trees are cut in the winter and the second growth makes a tall, straight, central trunk of much better form than the first growth. The wood is light, soft, not strong, coarse grained, and extremely durable when placed in contact with the soil. The wood makes poor fuel but is considered first class for posts and fence material. The catalpa and black locust are the best trees that can be grown in Oklahoma for the purpose of producing post timber.

White Elm.—(American Elm.) This is a large native tree and when full grown often attains a height of 100 feet and a trunk diameter of 5 or 6 feet. It forms a round, broad, spreading top. It is a rapid grower and adapts itself well to all kinds of soil. The wood is hard, heavy, strong, durable, and difficult to split. It makes good

fuel but the principal value of the tree lies in its use as a wind break and shade tree, and for that purpose, it ranks first among the trees grown in Oklahoma.

Soft Maple—(Silver Maple.) This tree grows rapidly and often attains a height of 60 feet and a trunk diameter of 4 feet. It is well adapted to planting on any good soil and responds very quickly to cultivation but suffers if neglected. It is not adapted to extremely close planting. The wood is soft, easily broken while green, light, poor fuel, and rots quickly when placed in contact with the ground. It ranks next to the elm for general shade and grove purposes and where it is not expected to produce wood of any value.

Russian Mulberry.—This tree grows very rapidly and is one of the most hardy trees that can be planted. It adapts itself to any and all kinds of soil and will make some progress under the most adverse conditions. The tree branches profusely and, unless it is constantly pruned, forms a very dense top and short trunk. It is a first-class tree for windbreak planting. The wood makes good fuel and is durable when placed in contact with the soil. It is a good tree for planting for the production of post timber, but is of second grade as a shade tree.

Hackberry.—This tree is a native of Oklahoma and often attains a height of 60 to 70 feet with a trunk diameter of 3 or 4 feet. It grows rapidly on good soil but will make some growth on the very poorest soil. It is best adapted to second bottom land and growing in groves for the purpose of windbreak and shade production. It does not form a good post timber but makes good fuel. It ranks next to the soft maple for general yard planting but resembles more closely the elm in its characteristics.

Sycamore.—This is a very large native tree. It can be grown on any kind of soil and with cultivation makes a rapid growth. It attains a height of 100 feet with a trunk diameter of 8 to 10 feet. It is best adapted to grove planting for the purpose of producing shade and windbreaks. The wood is of little value and hard to work.

Honey Locust.—This is a native tree that often attains a height of 60 feet with a trunk diameter of 3 feet. It grows rapidly when well tended but makes a slow growth under adverse conditions. It suffers badly from transplanting and should be carefully handled during that operation. It stands pruning remarkably well and is often used as a hedge plant. It casts a poor shade and is slow to occupy the ground to the exclusion of other plants. The wood is heavy, hard, strong, very durable when placed in contact with the soil and is good fuel.

Osage Orange.- (Bois d'Arc) This tree attains a height of 40 to 50 feet and a trunk diameter of 18 inches. It grows rapidly on

moist bottom land but is not adapted to light upland soil. It sprouts vigorously from the stump and broken roots. The wood is heavy, hard, strong, flexible, good fuel, and very durable when placed in contact with the soil. It ranks next to the black locust and the catalpa for post production. It is used extensively for a hedge plant.

In the following lists a plant is considered hardy if it has grown and developed normally on soil of fair quality, with reasonable care and cultivation. Entire neglect of the plants named in the list as hardy plants would cause many of them to fail. The large shrubs and trees can, under ordinary conditions and on good soil, live and grow without care and cultivation after they are well established, but cultivation is always beneficial to plants. In certain localities and under the care of careless growers, the most tender plants named in the hardy list may be classed as not hardy, and the opposite will be found to be true with some of the plants named in the tender list.

LIST OF HARDY PLANTS.

The trees named in the following list have been tested and are hardy, but make a very slow growth, or, for other reasons are not recommended for general planting. They may be used for special work very satisfactorily. Those marked with one asterisk are natives and those marked with two asterisks are evergreens. Ailanthus, Golden Arborvitae**, Chinese Arborvitae**, American Arborvitae**, Blue Ash, Green Ash*, White Ash*, Prickly Ash*, European Ash, Aspen, Bald Cypress, Paper Birch, Box Elder*, Southern Catalpa, Variegated Catalpa, Catalpa Bungei, Red Cedar*, **, Wild Black Cherry*, American or White Elm*, English Elm, Slippery Elm*, Weeping Elm, Gingko, or Maiden-Hair Tree, Bitternut Hickory*, Pignut Hickory*, Shellbark Hickory*, Irish Juniper**, Kentucky Coffee Tree*, American Linden, European Linden, Honey Locust*, Chinese Honey Locust, Japan Maple, Chinese Magnolia, Red Mulberry*, Black Jack Oak*, Bur Oak*, Pin Oak*, Red Oak*, Scarlet Oak, White Oak*, Russian Olive, Persimmon*, Scotch Pine,** Austrian Pine**, Silver Poplar, Bolle's Poplar, Lombardy Poplar, Colorado Blue Spruce, Tamerix, and Tulip Tree.

LIST OF TENDER TREES.

The trees named in the following list have been tested in various parts of the territory and are generally considered not hardy: Alder, Mountain Ash, Beach, European Birch, White Birch, Ohio Buckeye, Butternut, American Chestnut, Horse Chestnut, Spanish Chestnut, Sour Gum, Sweet Gum, Hercules Club, American Larch, European Larch, Norway Maple, Sugar Maple, Spikenard, English Walnut.

LIST OF USEFUL NATIVE PLANTS.

The following list of native trees, shrubs, and vines are of value for ornamental planting: Green Ash, White Ash, Prickly Ash, China Berry or China Tree, Button Bush, Spinney Buckthorn, Woolly Buckthorn or Chittim or Shittim Wood, Box Elder, Green Brier, Bittersweet, Trumpet Creeper, Cotton Wood, Red Cedar, Indian Currant, Dogwood, American or White Elm, Slippery Elm, Whahoo or Winged Elm, Bitternut Hickory, Pignut Hickory, Shellbark Hickory, Hazelnut, Hackberry, Black Jack Oak, Bur Oak, Red Oak, Pin Oak, White Oak, Persimmon, Pecan, Red Bud, Wild Rose, Kentucky Coffee Tree, Scarlet Sumach, Upland Sumach, Black Willow, Skunk Willow, Black Haw, Black Walnut, and three species of Wild Plum.

LIST OF HARDY SHRUBS.

The shrubs named in the following list have been tested and found hardy: Althea, Barberry, Box, California Privet, White Crape Myrtle, Red Crape Myrtle, Eleagnus, English Hawthorn, Flowering Almond, Golden Bell, Drooping Golden Bell, Upright Golden Bell, Golden Chain (Cytisus Laburnum), Hazelnut, Japanese Quince, White Japanese Rose, Red Japanese Rose, Lilac, Musk Rose, Privet, Snow Ball (Viburnum opulis), Spirea or Bridal Wreath, Sweet Brier Rose, Upright Honeysuckle.

LIST OF TENDER SHRUBS.

The shrubs named in the following list have been tested and are not considered hardy: Andromeda, Carolina Allspice, Corchus, Deutzie, Golden St. John's Wort, Scotch Broom, Shrubby Cinquefoil or Five Finger, Sweet Shrub (Calycanthus Floridus), Weigelia.

HEDGE PLANTS.

The following list of plants may be used for hedge plants about the yard. These plants will not form a hedge that will turn stock. Those marked with one asterisk are evergreen and those marked with two asterisks carry their foliage well into the winter and may be called semi evergreens. They are named in order of merit. Japan Quince**, Boxwood*, California Privet, Barberry**, American Arborvitae*, Red Cedar*.

HARDY VINES.

The vines named in the following list have been tested and are found hardy. Those marked with an asterisk are self-supporting or attach themselves to walls and do not require artificial support. Clematis, English Ivy*, Five-leafed Ivy or Virginia Creeper*, Honeysuckle, Japan Ivy*, Trumpet Vine*, Wisteria, Green Brier, Bitter Sweet.

HARDY ROSES.

The roses named in the following list have been tested and are found to be hardy. They are perpetual bloomers and have given satisfaction in every way: Red—Admiral Schley, Crimson Bedder, Gruss an Teplitz, Helen Gould, Meteor, Princess Sagan, Souvenir of Wootton, Baby Rambler. Pink—American Beauty, Bridesmaid, Jules Fingre, La France, Maman Crochet, Hermosa. White—Ivory, Kaiserin Augusta Victoria, Marie Guillot, Queen, White Maman Crochet. Yellow—Cecil Berthod, Etoil de Lyon, Franco-Russian, Franz Dugen, Mary Cory, Pearl of the Garden, Ruby Gold. Odd colors—Franciska Kruger, Roger Lambellin, Rainbow, Sunrise, Sunset, Vick's Caprice.

There are probably many other varieties that are as hardy as those named in the foregoing list. The following varieties are the most popular and should be named as the cream of the list: Helen Gould, Meteor, American Beauty, Bridesmaid, La France, Hermosa, Kaiserin Augusta Victoria, White Maman Crochet, Etoil de Lyon, Pearl of the Garden, and Crimson Rambler.

Credit is due Prof. J. W. Means for help in making up the rose list.

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