

Minnesota Nurserymen's newsletter

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TREE SELECTION FOR SPECIAL PURPOSES*

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Public awareness of the need for better trees is comparatively recent. Barney Slavin of Rochester, New York, wrote an article on selected tree types in "Trees" magazine in 1941. Only three people wrote in response to this article. A similar article appeared in the American Nurseryman in 1956. Over two hundred enthusiastic gardeners responded to this article. No doubt the Dutch elm disease has focused attention on the need for new tree varieties.

Natural variations in tree species are great. One needs only to observe the many different shapes in the American elms in our area. Some are narrow and tight, others are spreading and even weeping. Some have wide-angled branches; while others have narrow weak crotches. Only a few selected forms have been propagated vegetatively. These include the Lake City and Moline varieties. Similar variations occur in the maples. Selected upright forms of both sugar and red maples are known. A number of selections of Norway maple have been made based on leaf color and tree form.

In addition to these natural variations that occur within a species, many new varieties are being produced through hybridization. The Idaho locust, the hybrid elms and the many varieties of flowering crabapples are examples.

In selecting varieties for special purposes, we must consider some of the common uses for trees in landscaping. These uses include street trees, lawn trees for shade and for framing purposes, trees used for screening purposes and trees used for wind protection. In selecting trees we are also concerned with their hardiness, form and seasonal aspects. A tree that combines attractive flowers with bright fruits and brilliant fall coloration is certainly more attractive than one possessing only one of these features. The nature of the soil must also be considered. Some trees demand a rich, moist soil while others will grow well in a sandy or even gravelly soil. Some do best where the pH is on the acid side, others require neutral soil. All of these factors must be considered in selecting trees for a given purpose.

* Presented at 1957 Shade Tree Short Course,
St. Paul Campus,
University of Minnesota

The following list of trees selected for special purposes may prove useful:

1. Street trees
 - a. Small trees
 - Acer tataricum (Tatarian Maple)
 - Carpinus caroliniana (Blue Beech)
 - Chionanthus virginicus (Whitefringetree)
 - Malus sp. (Flowering Crabapples)
 - b. Medium trees
 - Acer platanoides and varieties (Norway Maple)
 - Ostrya virginiana (Ironwood)
 - Tilia cordata (Littleleaf Linden)
 - c. Large trees
 - Acer saccharum (Sugar Maple)
 - Celtis occidentale (Hackberry)
 - Fraxinus pennsylvanica lanceolata (Green Ash)
 - Gleditsia triacanthos inermis (Thornless Honeylocust)
 - Phellodendron amurense (Amur Corktree)
 - Tilia americana (American Linden)
 - Ulmus americana (American Elm)
2. Trees with Different Habits
 - a. Columnar Trees
 - Acer platanoides columnare (Columnar Norway Maple)
 - Acer rubrum columnare (Columnar Red Maple)
 - Acer saccharum monumentale (Sentry Maple)
 - Betula pendula fastigiata (Pyramidal White Birch)
 - Ginkgo biloba fastigiata (Sentry Ginkgo)
 - Pinus cembra
 - Populus alba pyramidalis (Bolleana Poplar)
 - Tilia platyphyllos fastigiata (Columnar Bigleaf Linden)
 - b. Weeping Trees
 - Betula pendula youngi (Youngs Weeping Birch)
 - Malus "Exzellenz Thiel"
 - Malus "Pink Weeper"
 - Morus alba pendula (Weeping Mulberry)
 - Salix blanda (Niobe Weeping Willow)
 - Sorbus aucuparia pendula (Weeping European Mountain Ash)

c. Globe Shaped Trees

- Acer platanoides globosum (Globe Norway Maple)
- Malus arnoldiana (Arnold Crabapple)
- Robinia pseudoacacia umbraculifera (Umbrella Black Locust)

3. Trees Selected for Seasonal Beauty

a. Trees with Ornamental Flowers

- Acer rubrum (Red Maple)
- Aesculus glabra (Ohio Buckeye)
- Aesculus hippocastanum (Horse Chestnut)
- Catalpa speciosa (Northern Catalpa)
- Cercis canadensis (Eastern Redbud)
- Chionanthus virginicus (White Fringetree)
- Crataegus species (Hawthorns)
- Malus species (Flowering Crabapples)
- Prunus padus commutata (Mayday Tree)
- Pyrus ussuriensis (Usurian Pear)
- Syringa amurensis japonica (Japanese Tree Lilac)

b. Trees with Ornamental Fruits

- Acer rubrum (Red Maple)
- Acer tataricum (Tartarian Maple)
- Crataegus species (Hawthorns)
- Malus species (Flowering Crabapples)
- Prunus pennsylvanica (Pincherry)
- Ptelea trifoliata (Hoptree)
- Sorbus aucuparia (European Mountain Ash)
- Sorbus decora (Showy Mountain Ash)

c. Trees with Interesting Bark

- Acer pennsylvanicum (Striped Maple)
- Betula papyrifera (Canoe Birch)
- Betula pendula (European Birch)
- Phellodendron amurense (Amur Corktree)
- Populus alba pyramidalis (Bolleana Poplar)
- Populus tremuloides (Quaking Aspen)
- Prunus maacki (Amur Cherry)
- Salix alba chermesina (Redstem Willow)
- Salix alba vitellina (Yellowstem Willow)
- Syringa amurensis japonica (Japanese Tree Lilac)

d. Trees with Colored Summer Foliage

- Acer platanoides schwedler (Schwedler Maple)
- Acer platanoides schwedler nigra (Crimson King Maple)
- Elaeagnus angustifolia (Russian Olive)
- Gleditsia triacanthos inermis "Sunburst" (Sunburst Honey Locust)

e. Trees with Attractive Fall Color

- Acer ginnala (Amur Maple)
- Acer rubrum (Red Maple)
- Acer saccharum (Sugar Maple)
- Chionanthus virginicus (Whitefringe Tree)
- Gornus alternifolia (Pagoda Dogwood)
- Ginkgo biloba (Ginkgo)
- Larix decidua (European Larch)
- Populus species (cottonwood, Aspens, etc.)
- Prunus pennsylvanica (Pincherry)
- Sorbus Aucuparia (European Mountain Ash)

4. Trees for Particular Site

a. Trees withstanding Dry or Sandy Soils

- Acer negundo (Boxelder)
- Celtis occidentalis (Hackberry)
- Fraxinus pennsylvanica lanceolata (Green Ash)
- Gleditsia triacanthos inermis (Thornless Honeylocust)

b. Trees for Moist Sites

- Acer rubrum (Red Maple)
- Betula nigra (Swamp Birch)
- Larix laricina (Tamarack)
- Quercus bicolor (Swamp Oak)



SOIL PROBLEMS IN WESTERN MINNESOTA

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A distinctive chlorosis has appeared on nursery stock in the Red River Valley and other areas of western Minnesota for many years past. This condition was not general, but existed in certain areas. It has always appeared most noticeable in an area centering near Ada, Minnesota. It is commonly found in scattered sections such as Willmar, Thief River Falls, Sherburn, and Moorhead. This year the condition has appeared to be more severe than ever before in the writer's experience. In many gardens in Ada for instance, it is very difficult to grow gladioli, phlox, peonies, evergreens, strawberries, and other susceptible plants. Unless these conditions are actually observed, it is difficult to understand the problem which an individual might have in beautifying his homesite with ornamental plants. Many of the most desirable stock cannot tolerate soil conditions existing in these locations. A considerable amount of criticism is often directed at nurserymen who sell plants which do not subsequently thrive on such soils.

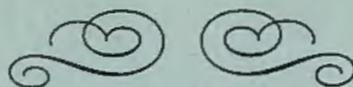
In recent years, soils experts have established the fact that this chlorosis was due to a deficiency of iron in the plant. Although a supply of the element is always present in the soil, for some reason not fully understood, the plant cannot take it up.

Early in 1956, a financial grant was given to several departments of the University of Minnesota by four power companies. These were the Central Power Electric Cooperative, Mankato Power Corporation, Northern States Power Company, and Ottertail Power Company. The Department of Soils was given a portion of this grant. These funds made it possible to begin work on this phase of soils improvement. J. M. MacGregor, R. G. Burau, and J. R. Brownell of the Department of Soils have been working on the problem. The Department of Plant Pathology is studying the plant phases of this problem under leadership of Dr. A. Lincke. Most of the work has been done on field crops. They also made some preliminary trials with ornamentals. The addition of soluble iron to the soil had no effect on the plants.

However, when iron was added in the form of an iron chelate, it was found that the chlorosis eventually disappeared. Iron chelates applied during the 1956 growing season appeared to have eliminated the chlorotic condition as the leaves appeared in the spring 1957. Not all of these materials are commercially available. However, Chelate - FE 330, which is currently available, was tried and found to be effective. Costs are rather high at the present time to allow wide use on field crops. However, the costs would be

acceptable for use on shrubbery and in the home garden.

This situation indicates the importance of a strong soils program in Minnesota. Such a program would be especially important to the nursery industry. The University has provided new facilities for the Department of Soils. It would appear to be a matter of good economy to provide the Department with additional and continuing support in order that the industry and agriculture in general might have all the assistance necessary to maintain the productivity of the soils in Minnesota.



SOME CHEMICALS FOR SOIL FUMIGATION*

Here is part of a chart prepared by Professor Edward Williamson of Long Island Agricultural and Technical Institute, Farmingdale, L. I., N. Y. This information was presented at the New York State Flower Growers Short Course held at Cornell University, Ithaca, N. Y.

<u>Fumigant</u>	<u>Mylone</u>	<u>Methyl Bromide</u> (gas)	<u>Methyl Bromide</u> (solvent)	<u>Chloropicrin</u>	<u>Vapam</u>
Trade name	Carbide and Carbon Co.	MC-2, Pestmaster 1, etc.	Bromix, Edco MBX, etc.	Larvacide Picfume, Etc.	Sold by: Stauffer DuPont
Rate	Approximately 300 lbs./A	1 lb./100 sq. ft. 4 lbs./100 sq. ft.	130 gal/acre 400-800 gal/A	425 lbs./A 750 lbs./A	1 qt./1000 sq. ft.
Cost	About \$1.25 per pound	\$7.50 per 1000 sq. ft.	\$12.50 per 1000 sq. ft.	\$8.30	\$14.00/per 1000 sq. ft.
Method of Application	Can be applied dry and roto-tilled into soil	"Jiffy" applicator or Maclean dispenser	Inject	Inject	Drench
Type of seal	Water	Gas-proof tent of plastic or asphalt laminated paper	Water seal recommended	Same as for M.B. (solvent)	No cover necessary
Temperature at 6" depth	50°F.	50°F.	50°F.	60°F.	50°F.
Time for fumigation		1 day	1-3 days	1-3 days	Keep soil surface moist for three days
Delay before use	14-21 days	3 days	3-7 days	10-21 days	10-20 days
Toxicity of fumes	Unknown	none generally	none generally	Severe	Slight to moderate
Controls at indicated rates	Nematodes, weed seeds, fungi, insects	Weeds, nematodes, insects, fungi, bacteria	Insects, nematodes, weeds, fungi and bacteria	Nematodes, weeds, bacteria	Weed seeds, nematodes and many fungi.

EDITORS NOTE: Only those chemicals which were effective in controlling insects, disease organisms and weeds have been reprinted here. Mylone, Methyl Bromide MC-2, and Vapom have proved to be excellent in weed control in experiments we have tried. These chemicals are most effective on the germinating weed seeds.

* Taken from Florists Exchange -----: page 13, July 27, 1957.

Editors Comments

R. J. Stadtherr

Seventh Plant Propagators' Meeting

The seventh annual meeting of the Plant Propagators Society will be held at the Wade Park Manor, Cleveland, November 21 to 23.

Some of the featured topics under discussion will include:

1. New concepts in Propagating Structures.
2. Propagation of Spruce.
3. Mulch Bed Method of Seedling Production.
4. Dwarfing and Hybridization. Techniques.
5. Hormones and Other Chemicals in Plant Propagation.

The Proceedings of the Sixth Plant Propagators Society Annual Meeting came just recently. Mr. Donald Wedge, Wedge Nursery, Albert Lea, discussed their method of propagating French lilacs.

Don's topic will appear in a future issue of this newsletter.

Dates for Minnesota Nurserymen's Convention

Encircle the dates of December 2 and 3 and attend the 32nd annual meeting of the Minnesota Nurserymen's Association. The convention will be held at the Curtis Hotel, Minneapolis.

Russ Zakariasen, program chairman, promises an interesting varied program. Watch your next newsletter for the program!

Educational Television

"Town and Country" is presented each Thursday from 9:30 to 10:00 p. m. on KTCA, Channel 2 by Mr. Ray Wolf, MC, Information Service, Ext. Dept., Institute of Agriculture, University of Minnesota.

A portion of each program is devoted to current horticultural topics. Some topics of interest to nurserymen will be the film "Fruits of the North," Winter protection, rodent control, the selection of trees and shrubs for winter beauty, chrysanthemums and many others. We invite you to listen!

New Handbook on Propagation

"Handbook on Propagation" is the title of the 1957 summer edition of Plants and Gardens the quarterly publication of the Brooklyn Botanic Garden. This is a concise up-to-date publication on all phases of propagation including such related topics as plant hormones, plastics, and the use of mist.

Copies can be obtained for \$1.00 by writing to the Brooklyn Botanic Garden, 1000 Washington Avenue, Brooklyn 25, New York.

Prevention of Iron Chlorosis

Dr. C.G. Hard, Extension Horticulturist, Mr. Bruce Beresford, Horticulturist at the N. W. School and Experiment Station and your editor began an experiment last May to prevent iron chlorosis in *Cornus-easter apiculata* and snapdragons at the Crookston Experiment Station. Five different chemicals were included in the tests. The data has not been analyzed, however some treatments did give good results. More experimentation is needed before a report can be made.

New Fruit Breeding Bulletin

A publication which tells the story of the development of fruit varieties for Minnesota was released by the University of Minnesota Experiment Station. It is Station Bulletin 441, FRUIT VARIETIES DEVELOPED AT THE UNIVERSITY OF MINNESOTA FRUIT BREEDING FARM. Authors are W.H. Alderman, former head of the department of horticulture and superintendent of the Fruit Breeding Farm until his retirement in 1953; A.N. Wilcox, professor of horticulture in charge of the fruit breeding program; and T.S. Weir, associate professor and assistant superintendent of the Fruit Breeding Farm.

Since work in fruit breeding was started at the University's Fruit Breeding Farm near Excelsior 50 years ago, University horticulturists have developed and introduced 64 varieties of tree fruits and small fruits adapted to the severe climate of the upper Midwest. These varieties now constitute about 60 percent of all the fruit acreage in the state.

The original area of the Fruit Breeding Farm at Excelsior, 77.89 acres, has grown to approximately 230. On these 230 acres and in the greenhouses at the Fruit Breeding Farm, horticulturists have under observation 40,000 first-test seedlings and more than 2,000 fruit selections in advanced tests--indications of the continuing search for new and better fruit varieties for this region.

Spread of Oak Wilt

University of Wisconsin forest disease specialists indicate that oak trees, which have been pruned in late May and June, are most susceptible to attack by oak wilt fungus. Sap-feeding insects carry the disease fungus from infected trees to healthy oaks. Trimmed and damaged trees attract these insects. A new antibiotic, oligomycin, shows considerable promise in controlling this disease.

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