Minnesota Nurserymen's newsletter

Prepared by
UNIVERSITY OF MINNESOTA
Institute of Agriculture
- Agricultural Extension Service
- Horticulture Department

In Cooperation with
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- Minnesota State Horticultural Society

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CRABGRASS CONTROL IN BLUEGRASS TURF

R. E. Nylund and R. J. Stadtherr (1)

In 1955, thirteen herbicides were applied to bluegrass turf at U. Farm to quadruplicated plots each 100 sq. ft. in area. The following acre rates of seven pre-emergence treatments were applied on June 10: 10 lb. dichloral urea; 4 lb. dichlorophenyl methyl butyl urea; 6 lb. chloro diethyl acetamide (CDEA); 8 lb. SES, (Crag Herbicide #1), 784 lb. alanap-1F; 4 lb. 2,4 dichlorophenoxy ethyl phosphite (3Y9); and 8 lb. 2,4 dichlorophenoxy ethyl benzoate (sesin). The latter four herbicides were applied again to the same plots on July 1 and July 22. The following four herbicides were applied three times (June 24, July 1, and July 8) as post-emergence treatments: 653 lb. Milcyanate (4% KOCN + 96% Milorganite); 8 lb. potassium cyanate (plus 1 lb. wetting agent); 8 lb. disodium methyl arsenate; (Sodar), and 4.5 gal. of 2½ per cent PMAS (phenyl mercuric acetate). Two herbicides were applied when crabgrass was in the boot stage (July 22 and again August 5): 108 gal. Standard Crabgrass Killer, and 108 gal. Standard Spray C. Both of these are refined petroleum oils, the latter containing chlordane. All liquid herbicides, except the oils, were applied in 100 gal. water per acre at 30 psi pressure.

Ratings if injury to crabgrass and bluegrass (scale: O = no injury; 5 = complete kill) were made on July 8, July 22, and August 23. Approximately one month after the first pre-emergence application alanap 1F, 3Y9, sesin, and the dichlorophenyl urea all showed fairly good crabgrass control (3.0-3.8) without serious injury to the bluegrass (0.2-1.2). SES and dichloral urea were somewhat less effective in crabgrass control (2.2 + 2.5) and CDEA gave no control. By August 23, one month after the third application, only sesin of the pre-emergence treatments showed much crabgrass control (2.5), but bluegrass injury with this treatment was moderately severe (2.2).

Two weeks after the last application of the post-emergence herbicides, PMAS had given complete control of crabgrass (5.0) and disodium methyl arsonate about complete control (4.8), but both severely injured the bluegrass (3.0 and 3.5). Potassium cyanate and Standard Spray C. gave fairly good control (3.5 and 3.8), but the latter caused somewhat more temporary discoloration of the bluegrass.

Bluegrass in plots treated with alanap 1F, PMAS, Sodard Crabgrass Killer, and Standard Spray C was considerably more vigorous on September 23 than that in other plots. The poor fall development of bluegrass in other plots was due either to excessive competition by crabgrass (e.g. untreated and CDEA) or residual injury by the herbicide (e.g. disodium methyl arsonate) or both. (Paper No. 3432 of the Scientific Journal Series of the Minnesota Agricultural Experiment Station).

(1) Associate Professor and Research Fellow respectively. Department of Horticulture, University of Minnesota.

* Editors Comment:
Remember, early to mid June is the time that crabgrass seed germinates. Warm weather and moist conditions will bring earlier germination. The pre-emergent chemicals should be put on in early June, whereas post-emergent ones are usually applied around June 10 to 15 in the Twin City area.

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CHINKOTA ELM

Paul E. Collins

So. Dak. Farm and Home Res. 7(1): 14-16, 27 Fall 1955.

Chinkota, a hardier strain of Siberian elm, is recommended for windbreaks and shelterbelts because it tends to harden its tissues earlier in fall than the Siberian elm. In several experimental plantings, much less damage was observed in Chinkota than on similar Siberian elms.

This selection from the Harbin strain matures early enough to escape severe damage from early, sudden, sub-freezing temperatures. Seed of Chinkota was released by the Seed Stock Division of South Dakota State College in 1952 and production has continued under certification standards.

Severe damage occurred to Siberian elms in experimental plantings in the fall of 1952 after several early October freezes in South Dakota. More than 50% of the trees suffered 75% or more killing and 80% were 50% or more dead. Chinkota had about 90% injured but damage was rated less than 25%. Only 2 trees were injured seriously.

At the Cottonwood, South Dakota substation 7% of the Chinkotas were replaced in 1953; whereas 96% of the common Siberian elm had to be replaced.

R. J. Stadtherr

* Editors note:
Chinkota was selected from seed which came from Dr. Frank L. Skinner, Dropmore, Manitoba, Canada. Other selections of Siberian elm having originated from the Dropmore strain should be equally hardy. The advantage of using Chinkota is that the seed is produced under certification standards and should be more uniform than other seed.

ROSES

Walter P. Trampe, Supervisor
Section of Nursery Inspection

PROGRESS OF DEALERS INSPECTION

At the time of this writing, the first round of nursery dealer inspections in the southern part of the State have been completed. A considerable increase in the number of stores stocking rose bushes has been noted. Undoubtedly, this is due to the strong appeal of gardening to the modern public. There have been dealers who have entered the nursery field with little experience in buying or handling nursery stock. Stock which we have felt was diseased or not in good growing condition has been offered for sale in some of these cases.

CONDEMNATIONS

Rose bushes at eighteen establishments have been condemned. In four instances the entire stock of the dealer was removed from sale. A total of approximately 500 bushes have been taken off sale. However, in the case of one of the largest chains of variety stores, which in previous years averaged approximately 10% of the rose bushes being condemned, this year has improved its position by reducing the loss to approximately 2%.

REASON FOR CONDEMNATIONS

The bushes were condemned because they were dried out, diseased, or a combination of both. Most condemnations occurred this season because of disease. In former years, dried out plants were mainly responsible for the condemnations.

DISEASES

Rose diseases apparent in dormant stock are those which affect the stems or roots.

Root diseases are caused mainly by the crown gall organism or nematodes. We have not encountered much trouble with root diseases to date. Consequently, we will not discuss those problems at this time.

Fungus diseases affecting the stems or canes of the bushes have been our primary concern. Various pathogens may be responsible for the condition.

1. Brand canker or stem canker, Coniothryium wernsdorffiae.
2. Brown canker, Cryptosporella umbrina, and
3. Grey mold, Botrytis cinerea, are believed to be responsible for the condition in most instances.

Brown canker (2) is probably the most prevalent this spring. Cankers are raw umber colored, usually with purple borders. The stem is often girdled with the cankers, and the parts above the canker then die. The organism may also infect the leaves when they are present. The disease overwinters in the lesions on the stem. Water, coming in rain or other forms, will spread the disease to new areas. Infection can take place through wounds or through uninjured surfaces of the plant.

CONTROL

It has been our opinion that any infected plant having lesions which can be trimmed out should be passed for sale. Cankers high on the stems or stems that can be pruned have been considered acceptable. The disease is so common that tolerance must be allowed.

The customer may apply a number of helpful measures to limit the spread of the disease, the most important of these are listed below as follows:

1. Selection of a well-drained site for planting.
2. Consistent use of good fungicide.
3. Proper watering
   (a) The roots should be well supplied with moisture. The aerial parts of the plant should be kept as dry as possible.
4. Careful feeding
   (a) Application of any high nitrogen fertilizer in the latter part of the growing season should be avoided. Soft, new wood is susceptible to infection.

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A GUIDE TO HOME LANDSCAPING

Donald J. Bushey
McGraw-Hill Book Co. Inc., New York. 1956
293 pages Illustrated $4.95

This is unquestionably the most informative, lucid book of home landscaping available today. The author anticipates the questions and problems every home owner encounters and proceeds to discuss and illustrate the answers in a clear practical manner understandable to every gardener. Simple illustrations supplement the text. Distances and measurements are given, providing a guide for the home owner to use in making his plan.

Convenience, utility and beauty are stressed in making inexpensive plans for city, urban, and rural homes. Both new and old homes are completely covered from consideration of site to constructing garden structures, hobby gardens or recreational courts.

Here is a book designed for the "do-it-yourself" gardener, but filled with valuable information for the professional too.

R. J. Stadtherr

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LANDSCAPING YOUR OWN HOME

Alice Dustan
Macmillan Company N. Y., 1955, 248 pp. $3.95

Complete instructions for building, planning and maintaining the home grounds are included in this excellent discussion by a person who has had much experience in the field. The new plan or redesigning of the old picture is discussed thoroughly. Special plant lists for specific purposes are given to help the homeowner in having year-around beauty from trees and shrubs. Here is another book especially recommended for the do-it-yourself gardener.

R. J. Stadtherr

INSECTICIDE USE ON TREES AND SHRUBS

L. K. Cutkomp
Associate Professor, Entomology
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(Continuation of Article in Vol. 3 No. 3 & 4 March-April 1956)

Effective spraying equipment is also an important item in the application of insecticides and miticides on trees and shrubs. The use of the more rapid mist blowers has been increasing in recent years, but the more familiar hydraulic sprayer still serves well for certain insect problems. The advantages of mist blowers is brought out in the following table:

Table 1. Selected comparative figures on spraying of trees with mist blowers and hydraulic sprayers in two widely separated areas. These values were reported at the National Shade Tree Conference for 1953 and 1954.

	Syracuse, New York	
	Hydraulic (1946)	Mist Blower (1948)
No. of trees sprayed	40,000	40,000
Time to complete spray	55 da.	18 da.
Man-days used		
Labor cost per tree	$0.66	$0.15
Total cost per tree		
Material used per tree*	5 gal.	3/4 pt.
Water used	200,000 gal.	none

	Palo Alto, California	
	Hydraulic (1953)	Mist Blower (1954)
No. of trees sprayed	3,500	7,800
Time to complete spray		
Man-days used	360	16
Labor cost per tree		
Total cost per tree	$2.10	$0.73
Material used per tree*		
Water used		

* - The volumes of liquid used per tree are not to be taken as a guide; they are unusually low. Fifteen or 20 gallons per tree are not unusual for a 40 to 50 foot tree (hydraulic), or 1 pint is often used (mist blower).

Additional advantages of the mist blower include the fact that the unit is lighter and generally easier to handle; there are no long hoses. Disadvantages of the mist blower include the fact that the driving force of the spray is low, and the deposit of spray material not heavy. The unit may not be used at all in certain areas because of space or weight limitations, including many lawns. In some urban areas there may not be alleys. In such cases the hoses from a hydraulic sprayer prove to be very convenient. Mist blowers are not as useful for dormant spraying because of lightness of deposit of the spray. The lighter the deposit of oil the less control one can expect. This makes it almost imperative to use the hydraulic sprayer for such a purpose. Experiments have been carried out using much higher concentrations of dormant oils in mist blowers but at the present time control by this means is much less reliable. Scale insect control, even on the crawler stage of the insect, is not easily accomplished with mist blower equipment. Where these pests occur, comparatively heavy deposits of the insecticides must be made. The mist blowing equipment, then, shows up to greatest advantage on our leaf feeding pests commonly called defoliators. Our most common insects in this group are the cankerworms and larvae of the tussock moths and forest tent caterpillers. Some aphid problems can also be handled with this type of equipment.

In summary, let us be alert to some of the consequences of extensive use of some insecticides. Follow recommended procedures which include the proper concentration of the proper insecticide. Apply the chemical at a time which will be effective on the pest and will produce the least hazard to beneficial forms. The wise use of the chemicals will also involve a careful selection of equipment which will not only be rapid and economical, but will apply the chemical in an efficient, safe manner.

* Presented at Tree Protection Short Course, March 6-7, 1956, University of Minnesota, St. Paul Campus.

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DAYLENGTH AND PROPAGATION*

By manipulating light and darkness, nurserymen can control growth of the popular shrub, Weigela, say U. S. Department of Agriculture scientists. Practical use of this latest result of USDA's plant-photoperiod research should make Weigela cuttings more readily available for spring planting.

Tests show that growth of this landscaping shrub in the greenhouse can be increased by using lights to extend daylength, or can be curtailed by restricting the daily duration of light reaching the plants each 24-hour period.

Applying these findings, a nurseryman could almost tailor-make his Weigela stocks for the spring market during fall and winter--a period when this plant normally grows very little. By using ordinary electric light bulbs to increase daylength to 16 hours, he could, rather quickly, produce growth for an ample supply of softwood cuttings. He could regulate daylength in growing these cuttings to have them at the most saleable stage when spring arrives. In effect, the nurseryman can use this new knowledge to overcome the normal, seasonal growth habits of the plant.

From a scientific standpoint, this work with Weigela illustrates an important means of controlling the growth of woody plants. Considerable promising research on the daylength requirements of other shrubs and trees is currently under way. Previously, USDA research had proved the practicality of regulating daylength to get commercially-grown chrysanthemums to flower at exactly the right time; to prevent flowering by sugarcane plants; and as a plant breeder's tool to force varieties of cereals, sugar beets, and many other crops into bloom at any time of year desired. In the case of cereals, it also enables breeders to produce several generations a year.

The Weigela research was conducted at Plant Industry Station, Beltsville, Md., by R. J. Downs and H. A. Borthwick, plant physiologists of USDA's Agricultural Research Service. They found that when these plants were kept on a daylength of 12 hours--or less--all evidence of growth stopped within 60 days. Growth

made during these 60 days by the plants on a 12-hour photoperiod was about 2½ inches; similar plants receiving 16 hours of light grew nearly 19 inches in the same length of time.

The plants on 12-hour days each had a large terminal bud, and conspicuous buds in the leaf axils--all covered with hard bud scales. Since the 16-hour plants were still growing there was no terminal bud and the axillary buds were soft and inconspicuous. However, Downs and Borthwick found that when the 12-hour-daylength Weigelas were shifted to a 16-hour daylength, buds began to swell within a week, and new growth was apparent at the end of 12 days.

The scientists were also able to get the 12-hour Weigelas to resume growth by removing the uppermost pairs of leaves from the plants. These leaves on the upper node apparently control plant growth, because when all leaves but these were removed, no growth occurred. However, new growth that commenced when these upper leaves were removed, quickly stopped unless the plants were shifted to a longer daylength.

* Editors Comment:
Nurserymen will be interested to know that Cornell University and Michigan State University are conducting research on effect of daylength for specific plants. Some of these plants are those which you commonly propagate.

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ADAPTATION OF TREES TO THEIR ENVIROMENT*

L. C. Snyder
Professor and Head
Department of Horticulture

Every tree species grows within a limited natural range. This range may be quite limited, as in the case of Pacific Coast Dogwood, or extensive like the American Elm.

Within its natural range, each species has certain preferences as to site. The Red and Jack Pines are found largely on sandy soils. Tamarack and Black Ash grow in swamps. Blueberries are confined to acid soils. Sugar maple demands a moist, rich soil, while Buffaloberry grows well on soils that are alkaline.

If given the proper site, all trees should grow well within their natural range. Outside of its natural range, the performance of any tree is subject to many factors such as hardiness of the tree itself and such climatic factors as temperature, moisture and soil. The source of seed becomes very important. Seedlings of Douglas fir grown from seed collected on the west coast will fail in Miunesota, while seedlings from seed collected in the northern Rocky Mountains will prove very hardy. Siberian elm, from the Harbin area of Siberia, matures fully two weeks earlier than strains from farther south and survive our Minnesota winters without injury.

The hardiness of a species can only be increased through selection and breeding. The London Planetree, a cross between Platanus occidentalis and P. orientalis is hardier than either parent. The same is true of certain apricot hybrids.

The testing of trees for landscape purposes is just getting started. The Morden Experiment Station at Morden, Manitoba has had an extensive testing program underway for some time. The same is true of the Federal Field Station at Mandan, North Dakota. In Minnesota, testing has been limited to a few shelterbelt studies and casual observations on shade trees planted by commercial nurserymen. A few years ago a regional testing program was started under the N[illegible] project. Plantings have been made at the Fruit Breeding Farm and at the Branch Experiment Station at Waseca, Morris, Crookston, Grand Rapids and Duluth. Nearly 800 species and varieties of woody plants are now included in these tests.

Varieties included in these tests that show promise include: Flowering Crabapples, Toba Hawthorn, Red Maple, Moraine Honeylocust, Showy Mt. Ash, Littleleaf Linden, Manchurian Ash, Amur Corktree and Idaho Locust.

* Presented at the Tree Protection Short Course, March 6-7, 1956, University of Minnesota, St. Paul Campus.

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TRIBUTES

In recent months we have lost two prominent retired University of Minnesot botanists with whom many nurserymen are familiar.

Dr. Alvin H. Larson, agricultural botanist, former director of the state seed laboratory, consulting botauist and taxonomist for the Minnesota Department of Agriculture and beloved teacher passed away November 22, 1955. He had been a staff member of the University for 37 years. Probably no other individual knew the native herbaceous plants as well as Dr. Larson.

Dr. Carl O. Rosendahl, world famous botanist, passed away on March 4, 1956. He joined the University in 1901 and was retired in 1944. As Dr. Larson knew the herbaceous materials, Dr. Rosendahl was equally familiar with shrubs and trees of this area. With the late Professor F. K. Butters, he published a book, "Trees and Shrubs for Minnesota". Last May the revised edition, "Trees and Shrubs of the Upper Midwest", was published. Many nurserymen are familiar with these excellent books.

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REVISED BULLETIN AVAILABLE

Extension Bulletin 258 "Evergreens" by R. J. Stadtherr, Marvin E. Smith, A. C. Hodson and David W. French has just been released.

A free copy of the bulletin may be obtained by writing to: Bulletin Room, Institute of Agriculture, University of Minnesota, St. Paul 1, Minnesota.

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