

# Minnesota Nurserymen's

## newsletter

Prepared by  
UNIVERSITY OF MINNESOTA  
Institute of Agriculture

- Agricultural Extension Service
- Horticulture Department

In Cooperation with

- Minnesota Nurserymen's Association
- Minnesota State Horticultural Society



Vol. 4 No. 1 & 2

CONVENTION ISSUE

Jan - Feb. 1957

### WEED CONTROL IN NURSERIES

J. H. Stoeckeler  
Soil Scientist

U. S. D. A. Forest Service, Lakes State Forest Experimental Service.

Mineral spirits, a petroleum product, has proved successful as a selective herbicide on pine and spruce seedlings and transplants. It is applied at about 30 to 50 gallons per acre without dilution when the weeds are a half-inch or less tall. Follow the recommendations listed in the literature on the use of mineral spirits.

The use of mineral spirits has saved the Wisconsin Conservation Department about \$30,000 annually in weeding costs.

Allyl alcohol is applied at 10 to 20 gallons per acre heavily diluted with water. It has been successful when applied 7 to 10 days before seedling. Some fungicidal action occurs with this chemical. The fumes from allyl alcohol are toxic, thus the manufacturer's directions should be followed closely.

Hydrin, in one year's tests, was applied as a soil drench just after seeding. Ten gallons were used per acre with water as a carrier. Hydrin, although in the experimental stages now, looked very promising in controlling weeds in pines, spruces and several broadleaf species such as black locust, silver maple, paper birch and yellow birch.

Gases such as methyl bromide, which are applied under a gas-tight cover, have proved very effective in controlling weeds as well as insects and also having some fungicidal action. They involve considerable expense for materials and application. The gases are quite toxic, thus the manufacturer's recommendations must be followed.

CMU has given variable results as far as safe dosages are concerned. This is a potent soil sterilant and weed killer. Based on several years' trial, toxicity to trees was so high that it is not considered to be safe for general usage. More experimentation is needed before this weedicide can be recommended.

\*\*\*\*\*

I have told you of the man who always put on his spectacles when about to eat cherries, in order that the fruit might look larger and more tempting. In like manner I always make the most of my enjoyments, and, though I do not cast my eyes away from troubles, I pack them into as small a compass as I can for myself, and never let them annoy others.

----Robert Southey

### CHEMICAL CONTROL OF WEEDS AT THE KNIFE RIVER NURSERY

K. G. Torgerson, Supervisor, Knife River Nursery  
Duluth, Minnesota

Hand weeding has always been an important part of the total cost of raising tree seedlings in these days of high labor cost. For the past two years at the Knife River Nursery, we have been experimenting with the use of herbicides for control of weeds in a conifer nursery.

The Knife River Nursery is operated by Kimberly-Clark of Minnesota, Inc., for the purpose of growing conifer seedlings for forest plantings. Our operation is done in two phases. We broadcast our seed on prepared seed beds where they grow from one to two seasons; then we lift our seedbeds and transplant the seedlings into transplant fields for another two years. All of our trees are shipped to the field for planting as 1-2 or 2-2 transplant stock. Our main species are white, black and Norway spruce and Norway pine.

Since the cost of weeding is a large part of the total cost of growing nursery stock, ways to reduce it were investigated. Two main herbicides Standard Weed Killer and Crag Herbicide No. 1 were selected. Standard Weed Killer, a mineral spirit, kills on contact with weed foliage. Crag Herbicide No. 1 kills weed seed as they sprout.

However, some work has been started the past season on using soil fumigants, such as MC2 (a gas) and Vapam (a liquid) on prepared seed beds prior to fall seeding. Results of this experiment will not be available until next year.

During the summer of 1955, a pilot experiment was started on 2-1 transplants using Standard Weed Killer and Crag Herbicide No. 1. The description and results are as follows: Three plots, one each of white spruce, Norway spruce and Norway pine were selected and sprayed with two applications of Standard Weed Killer at the rate of 70 gallons per acre. Date of applications were July 29 and August 10, 1955. Weather was warm and clear during both applications although considerable rain fell during the nights after treatments. Method of application was by a compressed air garden sprayer and the transplant beds were full of weeds at the time of spraying. Results of the spraying showed that weeds like purslane, and barnyard grass were killed outright, while others like clover and rough pigweed showed dieback of tops and outer edges, but plants recovered and continued to grow. The trees showed no ill-effects after having been sprayed.

Crag Herbicide No. 1 was applied at two rates, 4 and 8 lbs. per acre, and was compared with the control. Species sprayed were 2-1 white, black and Norway spruce and Norway pine. The dates of application were July 27 and August 10, 1955. The method of application was by a compressed air garden sprayer. All beds were completely cleaned of weeds prior to treatment. Results showed that the eight pounds per acre rate was completely free of weeds and the four pounds per acre rate was essentially free of weeds with just occasional sprouts coming in. The control plots were infested with weeds. The trees showed no ill effects after periodic observations.

In conclusion, this initial experiment showed that Crag Herbicide No. 1 was more effective than Standard Weed Killer as a weed control, although more tests were necessary. It was felt that Standard Weed Killer was not given a good test because of the advance condition of the weeds, and that Crag Herbicide No. 1 was applied so late in the season that it did not show an accurate test of toxicity to the trees.

During the past season, a much more extensive experiment was conducted with Standard Weed Killer being applied to two acres and Crag Herbicide No. 1 to one acre of 2-1 transplants. Species covered were white, black and Norway spruce and Norway pine. There were also some 1-1 Norway spruce, Norway and Austrian pine sprayed with Standard Weed Killer. Description and results are as follows:

Two applications of Crag Herbicide No. 1 were applied on June 27, and July 18, 1956, at the rate of five pounds per acre. Method of application was with a Root-Lowell power sprayer. The area was also cleaned of weeds prior to application. Results showed very little sprouting of weeds with the exception of some clover. After the second treatment, tree injury began to show up in the form of yellowing of the trees, particularly in the Norway pine. The Norway pine needles began to droop and twist, giving a rather wilted appearance. Upon this observation it was decided to cancel further application of the chemical on this area. After about four weeks the less severely injured trees began to recover and to regain their original color, but the more severely injured trees, with the twisted needles, died. Fortunately, there were not too many of them.

This experience seemed to show that application of Crag Herbicide No. 1 too early in the season on freshly transplanted stock may have some adverse effect on the trees.

Standard Weed Killer was applied at the rate of 60 gallons per acre on July 9, August 1, and August 15, 1956. Method of application was with a Root-Lowell power sprayer under 100 pounds pressure. The entire area was full of weeds, particularly purslane, barnyard grass and clover, but of much smaller size than the previous year's experiment. Weather during the applications was hot, and dry with relatively little wind.

Results of the experiment showed that Standard Weed Killer did a fairly good job in keeping the weed population down. It was most effective in controlling the small, young, more succulent weeds. Fortunately purslane and barnyard grass, our two most abundant weeds, were killed immediately, regardless of size,

while others like clover, pigweed, and smartweed were not killed unless in the very young stage. Unlike the Crag Herbicide No. 1, this chemical showed no ill effects on the trees when used with the above application rates.

This experiment showed that Standard Weed Killer, under proper weather conditions, is very effective as a weed control in a conifer nursery, if applied before the weeds get too big.

The total cost of applying a single application of Crag Herbicide No. 1 including labor is about \$12.00 per acre. The total cost of applying an application of Standard Weed Killer is about \$18.00 per acre. Even with more than one application with either of the above chemicals, it still is considerably cheaper than hand weeding.

In conclusion, our experiments have shown that both Crag Herbicides No. 1 and Standard Weed Killer have a great deal of merit for controlling weeds in conifer nurseries. During the coming season we plan on trying a combination of the two chemicals to see if we can get better results without injury. Such an experiment would perhaps be one application of Crag Herbicide No. 1 to kill weed seeds as they sprout, followed by the necessary number of applications of Standard Weed Killer to destroy any weeds that sprout later.

My opinion is that Standard Weed Killer is a little safer to use on conifer transplants because if injury occurs, it is immediate and further treatments can be stopped. With Crag Herbicide No. 1 there is none of a delaying action, thus the amount of injury can be compounded. For example, a third treatment might be applied before the residual effects of the second treatment have appeared. The applications rates used for both chemicals are neither maximum nor minimum rates, but rather rates below what we thought to be maximum, yet enough above minimum to insure complete effectiveness.

\*\*\*\*\*

#### OBSERVATIONS FROM THE SECTION OF NURSERY INSPECTION

Walter P. Trampe  
Supervisor, Nursery Inspection  
Minnesota Department of Agriculture

#### Dealer Inspections

A gradual increase in the number of dealers in nursery stock has occurred in recent years. We experienced a very sharp increase in the numbers of these dealers in 1956. It is believed that there will be a leveling off of this trend in 1957. This estimate is based on conversations and correspondence which we have had with the dealers.

We have a group of dealers which is interested primarily in the sale of rose bushes. These are over the counter in super markets and in variety stores. It has been our experience that these bushes have, in many cases, been purchased by dealers who have little knowledge of nursery stock. Such dealer is primarily a vendor of groceries or merchandise generally offered in a variety store. He sometimes

buys only on a price basis because he has not learned what is required in quality stock. We feel that it is our duty to help correct this situation.

During the course of our 1956 inspections we found it necessary to condemn a considerable number of rose bushes. Many of the new dealers were subsequently discouraged and will discontinue operations in 1957. Others will attempt to correct their buying and storage methods and thereby increase their nursery business. In our capacity, we shall do all that we can to see that the nursery stock being sold in Minnesota is viable and free of plant pests. Actually our duty appears to be two fold; we must act in the best interests of the industry; we must also protect the ultimate purchaser of the stock.

#### Field Inspections

Pest situations confronting the nurserymen of the state should be brought to the attention of nurserymen at times like these in order to prepare them for conditions which may arise in the future. Several pest problems present themselves and are of immediate interest to the nurserymen of Minnesota.

#### Dutch Elm Disease

This disease threatens us more seriously today than at anytime since its introduction into America. It was detected in Wisconsin during the 1956 season. A total of 62 trees were found to be infected. The principal vector, the European elm bark beetle (*Scolytus multistriatus*) is found over much of Wisconsin and within a short distance of the Minnesota border.

It would be unwise to allow our judgment to become influenced to the point where we would cut our elm plantings too low. However, there will undoubtedly be considerable publicity in regard to this problem. Such publicity will very likely have an adverse effect on the sale of elm stock. A tree susceptible to this disease, certainly loses a portion of its value as a potential shade tree. This fact should be considered when it is offered for sale as planting stock.

Plans are being considered by the State Entomologist's Office for scouting and survey activities in Minnesota next year. Our initial operations will very likely be directed toward the detection of the vector rather than the diseased trees.

#### Scale Insects

Brown elm scale, *Lecanium corni*, has been prevalent in various widely separated areas in the state during the past several years. Infestation was quite general in the Duluth area during 1955. Egg parasites of the scale insect appeared during the spring of 1956. A routine check of the infestation was made by the Section of Nursery Inspection. It would appear that this infestation is now under control.

Pine needle scale, *Phenacaspis pinifoliae*, is distributed quite generally over the entire state. It is readily controlled by using a dinitro spray, such as DN-289, at the rate of 2 quarts per 100 gallons of water as a dormant spray. An alternate treatment of 2 pints of 50% emulsifiable concentrate of malathion in 100 gallons of water may also be used. This should be applied at approximately the time that the lilacs are

in full bloom. A second treatment, with the same material, may be applied ten days later.

#### General Problems

Soil deficiencies are becoming increasingly apparent in many nurseries. The necessary fertilizer corrections must be made or the nurseryman will sacrifice the growth his stock could otherwise attain.

Nematodes are present on various types of nursery stock. Some preliminary survey work has been done by the Section of Nursery Inspection in cooperation with the Department of Plant Pathology. This work will be pursued next year.

It is acknowledged that many other phases of nursery inspection should be pursued with greater vigor. However, funds and availability of personnel limit the scope of our activities. We must direct our efforts in such a manner that we may do the best job possible under the existing conditions.

\*\*\*\*\*

#### MINNESOTA GARDEN CHRYSANTHEMUMS

R. E. Widmer and R. A. Phillip  
Assistant Professors of Horticulture  
University of Minnesota

The Department of Horticulture garden chrysanthemum breeding project has produced some very promising seedlings during the last few years. Three of these seedlings were chosen for introduction in 1957. They are Minnpink, Minnbronze and Golden Fantasy.

The prefix Minn is being used to designate garden chrysanthemums of low growth habit introduced by the University of Minnesota. It is anticipated that additional colors will be developed in the cushion series and that the future introductions will also be given a name beginning with the prefix Minn.

Fantasy is a term the University of Minnesota has assigned to a new type of garden chrysanthemum flower. The fantasy type has tubular flowers which are flared and forked at the tips giving it a unique fringed effect.

A description of these new varieties follows:

Minnpink is a low, wide spreading, cushion type garden chrysanthemum. The vigorous plant reaches a width of 2 feet or more and a height of 12 inches when grown in full sun. The clean fine-textured foliage on sturdy stems combine to make an attractive plant throughout the growing season. Foliage is completely hidden by the mass of double rose pink blooms which average 1½ to 2 inches in diameter. Blossoming begins about mid-August, reaches a peak in September and continues until hard frost.

Minnbronze is a very low compact cushion type plant having vivid bronze blooms. Plant height is approximately 9-12 inches and spread is 12-16 inches. The abundant, double flowers are 1½ inches in diameter. Blossoming period starts about mid-September and continues until killing frost. Foliage is fine textured; stems sturdy.

Golden Fantasy is a very sturdy upright plant approximately 18 inches high and 15 to 18 inches wide. The clean rich green foliage is topped by 2 inch, double, golden yellow flowers. It has tubular petals which are both flared and forked at the tips giving a unique fringed effect. Blossoming starts in early September and continues until killing frost.

Previous University of Minnesota introductions which have survived the test of time and which are worthy of your consideration include the following:

- Butterball - dark lemon-chrome, low growing, upright, starts blooming mid-August.
- Chippewa - aster-purple, tall, mid-September.
- Dr. Longley - lavender pink, medium, late August.
- Glacier - white, medium, late August - early September.
- Harvest Bronze - bronze to gold, large flowers, medium low, mid-August.
- Redgold - Brazil-red to orange-red, medium, late August-early September.
- Violet - Purple, spreading medium low, mid-September.
- Vulcan - dark red, medium, mid-August.
- Wenonah - Light lavender, medium, early August.

#### 1956 Introductions

- Mesabi - bright rust bronze, medium tall, late August.
- Vulcan - dark red, medium tall, mid-August.

An outstanding feature of the U of M varieties is their early blooming habit. It should be pointed out, however, that there are also other good early blooming varieties available.

\*\*\*\*\*

## Editors Comments

### R. J. Stadtherr

#### 31st Annual Convention

Many discussions and talks presented at the annual meeting which was held from December 3 through December 5, 1956, are included in this issue. It was impossible to get all articles in this issue. More will appear in subsequent issues of your newsletter. Some will be condensed and will appear in your editor's comments.

There were 100 registrants at the convention. Mr. Ed. Reid reported the addition of 4 new memberships, thus increasing total membership to 77. There are also 30 associate members.

This year the entire first day of the convention was devoted to educational discussions. From the very favorable reports heard, we believe that such a program should be repeated next year. The questionnaires which were sent out showed unanimously that those are your wishes. Ornamental varieties, weed control and insect control were rated as the subjects which you would like emphasized next year.

Your new president is Kimball Andrews, Andrews Nursery Company, Faribault. Lawrence Backman, Bachman's, Inc., Minneapolis was chosen vice presi-

dent. Edward Reid continues as your secretary and treasurer. Donald Wedge, Wedge Nursery Inc., Albert Lea, and Keith Law, Law's Valley View Nurseries Inc., Hastings were elected directors.

#### Correction

The article on "The Red Maple--A Neglected Tree" on the last page of the Minnesota Nurserymen's Newsletter 3(11 and 12), Nov.-Dec. 1956, has an error. The last paragraph should be: "The author suggests selecting plants which have red-colored fruits and those which also color well every fall".

#### Dutch Elm Disease in Wisconsin

Mr. George Hafstad, Wisconsin State Department of Entomology, reported at the short course of the Wisconsin Nurserymen's Association Meeting at Milwaukee December 5 to 7, 1956, that the office of the state entomologist had received 820 specimens of elms and that 63 were infected. These came from southeastern Wisconsin.

In all fairness to Mr. E. H. Wollerman, whose article appeared in the last issue of your newsletter, we wish to inform you that his talk was presented at the Tree Protection Short Course, March 6 and 7, 1956, at the University of Minnesota. At that time there were no reports of the disease in Wisconsin.

#### Short Courses

Be sure to hold open the dates of March 5 and 6, 1957, which have tentatively been set aside for the second Shade Tree Short Course at the University of Minnesota, St. Paul Campus.

The annual Horticulture Short Course will be held March 28 and 29. We will have more information on the programs in your next newsletter.

#### Plant Propagator's Meeting

Sincere thanks to the Nurserymen's Association for making the trip to the Sixth Annual Meeting of the Plant Propagators' Society possible for your editor. Some of the highlights of the meetings will appear in subsequent newsletters.

\*\*\*\*\*

BEST WISHES FOR A HAPPY, PROSPEROUS, 1957!

\*\*\*\*\*

#### IN THIS ISSUE

- WEED CONTROL IN NURSERIES
- CHEMICAL CONTROL OF WEEDS AT THE KNIFE RIVER NURSERY
- OBSERVATIONS FROM THE SECTION OF NURSERY INSPECTION
- MINNESOTA GARDEN CHRYSANTHEMUMS
- EDITOR'S COMMENTS