

Minnesota Nurserymen's newsletter

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5TH ANNUAL PLANT PROPAGATORS' MEETING

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First permit me to say thank you for the substantial assistance given me by the Minnesota Nurserymen's Association for attending these excellent meetings.

One of the high spots was the first speaker, Dr. Frank Skinner of Dropmore, Manitoba, Canada. Dr. Skinner is no stranger to many Minnesota Nurserymen. Immigrating to Canada in his youth, he sorely missed many flowers with which he was so familiar back home in Scotland, so he set about to produce hardy varieties by crossing introduced plants with hardy natives. Years of painstaking effort went into his work but the many beautiful slides which he showed indicated that the work met with success. From his breeding efforts came hardy roses, lilacs, lilies, chrysanthemums, fruits and others. For a hybrid lily he received the Corey Cup as an award of merit. Many of Dr. Skinner's productions are used widely in Canada and in the colder parts of this country.

Robert Coggeshall of the Arnold Arboretum discussed propagation of the Asiatic maples. These medium sized trees are being considered to replace the present type of big street trees which did much damage by falling on power lines etc., as the result of recent hurricanes. Previously for these maples, most reproduction was by seeds, however, seed germination varies greatly thus asexual reproduction was stressed.

One method used was to stratify seed at 40°F. The medium used was a good rooting medium such as moist sand and peat. Seeds were mixed with the medium in a polyethylene bag and stratified in the bag for three months. Softwood cuttings gave generally good results on most species. Some success resulted from hardwood cuttings. Wounding the base of the cuttings was important. To subdue any buildup of fungus diseases, cuttings were sprayed every week or ten days with two tablespoons of Captan to a gallon of water. *Acer tartaricum*, a species hardy in Minnesota, was readily rooted by softwood cuttings when one per cent indolebutyric acid was used and cuttings were wounded.

Charles E. Hess, Jr. discussed the propagation and overwintering of dogwood. The big problem today is to carry them over the first winter. Mr. Hess cited

experiences with 1500 softwood cuttings in a mixture of sand and peat. His results were thus: Open bench 60% rooted; Under glass 67% rooted; Under mist 90% rooted. Overwintering in a cold frame was fairly successful in preventing injury to the roots. To break dormancy in these dogwoods required a thousand hours between 32°F., and 40°F., however, pink dogwood needed less.

Dr. J. P. Nitsch gave a report for Sidney Waxman of Cornell University on some interesting responses of different plants to daylength. Pink dogwood and weigela cuttings under less than twelve hours of day, became dormant; while cuttings with fifteen to eighteen hours of day, continued to grow. With less than fifteen hours of light, growth stopped. The possibility was suggested that with added light it might be possible to produce in one year plants equal to normal three year old field-grown plants. Not all species respond alike so it will be necessary to determine the light requirement for each.

Constant De Groot of Sheridan, Ontario told about his experiences with rooting Korean boxwood. In sand, cuttings took two years to root. By adding peat to the sand, 1 part to 3 parts, 70% rooting took place but it still took two years. Using Chloromone 100% solution produced roots on Korean boxwood in as short a time as thirty days. Rooting was 100%. The best time to take cuttings of boxwood was after the wood became firm. Soft cuttings often shrivelled. *Taxus* and *Junipers* gave good rooting results when Chloromone was used. For summer work 30% Chloromone was adequate; 100% burned *Junipers*. Unfortunately, another prominent propagator tried Chloromone a couple of times and got nothing.

Leslie Hancock, of Woodland, Ontario told of his unique method of propagating softwood cuttings. His soil is unusual because he sets his cutting directly into the soil in frames and covers the frames or beds with burlap. This burlap is kept moist through the day until rooting has taken place. The beds are aired each evening for an hour. To prevent invasion by fungus the ends of the cuttings are first dipped in Tersan. No hormone is used. The use of a mist-control system over his soil beds, necessitated added drainage.

Thomas Kyle, of Bohlander Nurseries, gave his experiences of grafting *Junipers* without potting the rootstock. He covers bare rootstock with peat and then wraps them with paper. This gives him more grafts per case and better root systems are developed.

The duration of darkness is very important in the response of the growing plant, Dr. H. A. Borthwick,

U. S. D. A. , stated. The effect of the various colors of the light spectrum on growth were shown.

One of the very interesting papers was given by Dr. D. S. Blair of Ottawa, Canada. Dr. Blair is one of the best authorities on rootstocks for apples. The use of vegetatively produced rootstocks has been increasing because of the interest in dwarf trees, especially clones of the East Malling series. Since Malling stock is not completely hardy in Canada, Dr. Blair has done considerable work in the past twenty years to produce hardier understocks. *Malus robusta* No. 5 is one of the newer introductions. The earlier growers looked for vigorous seedlings, which unfortunately often required more time to fruit. Vigor is probably an objection. Some of the newer ones come into bearing earlier. *Malus sikkimensis* gives a dwarfing effect with earlier fruiting; so also *M. toringoides*. Virus disease in clonally propagated material can be very serious. In Europe it is said that 50% of all Malling stocks carry one or another form of virus. Double working, using an interstock, can produce essentially the same results as by using the Malling rootstock. There is one important difference. The exposed interstock, the material of marginal hardiness, would be very vulnerable to injury in a cold climate. When incompatibility is a problem, the Nickolin method of budding was recommended to obtain good unions.

Following Dr. Blair, Dr. G. S. Nelson, also from Ottawa, drew attention to the expense and labor involved with stooling beds. These beds are not sufficiently flexible so that new materials can be added easily. Thus, other means of propagation were tried. Hardwood cuttings gave little success; but root cuttings were successful but expensive. The best method was soft tip cuttings from juvenile wood. Soft tip cuttings from mature adult trees lost their leaves and rooted poorly. Using Hormodin #2 and wounding the base of the cuttings gave best results. Intermittent outdoor misting was more effective than the plastic tent method.

Unfortunately, O-524, which some of the Minnesota Nurserymen are growing, roots very poorly. Dr. Nelson stated that experiments had shown that some Malling selections could not tolerate high soil temperatures. Since their roots are also not tolerant of low temperatures it would seem that thorough mulching would be important.

Container grown stock was discussed the final morning session by Dr. D. A. Makin, Orange, California. Environmental factors can be controlled partly by this method. Soil sterilization is very important. High fertility levels were stressed. A mixture of one-half yard of peat moss, one-half yard fine sand, 10 pounds dolomitic lime, 5 pounds of gypsum, 1 pound treble phosphate, 1 pound potassium nitrate and 3 pounds organic nitrogen, was recommended. Three to 4 dollars per cubic yard was paid for this mixed soil. A 3-1-2 ratio fertilizer was recommended based on the rate of loss of nutrients from the soil of canned stock.

Mr. Phillip Barker, Ohio State University, showed three sizes of containers commonly used. They were the 1, 3 and 5 gallon cans. Efforts were made to provide adequate fertility but to reduce the weight of the canned stock. The soil mixture used

was equal parts of sand, peat moss and silt loam. A number of materials on which potted stock were placed included: soil, sand, gravel and wood shavings. The gravel was best. Hand watering was compared with sprinkler watering. Both ways could be bad if watering was excessive. Leaching would be greater with excessive watering. For overwintering canned stock, firethorn protected with a corncob or sawdust mulch to above the can, bloomed better than nonprotected plants.

John B. Roller, Verhalen Nursery Co., Scottsville, Texas stressed the importance of good drainage and aeration in soil mixtures. Fertilizing was done every two weeks, using either a liquid or dry type.

In discussing container grown evergreens, Jack Hill, Hill Nurseries, Dundee, Illinois recommended direct planting from the propagating benches. Cuttings should be producing their second set of roots when they are potted. He used the soil mixture recommended by Dr. Matkin. The importance of thoroughly mixing the soil was stressed. Container grown stock permitted the use of more uniform production methods in developing the finished product, he stated. The most damage to canned conifers was due to temperature fluctuations during the winter. When asked if it was necessary to remove the can when transplanting his, reply was, "Yes, the same as with sardines".

Clifford Corliss, Corliss Brothers, Inc., Gloucester, Mass. stated that they use Larvacide to sterilize the soil. They use a fertilizer ratio of 1-1-1 when the soil is shredded. Three-fourths of an inch of crushed rock was placed in the bottom of the cans to give good drainage. Fertilizing was done using a tablespoonful of a 7-7-7 dry fertilizer per can or a 20-20-20 liquid fertilizer was used.

The entire convention was up to its usual "high standards". It was a pleasure to attend these fine educational sessions.

DETERMINING THE VALUE OF SHADE TREES

Trees 15(4):10-14

May-June 1955

Important factors to be considered in estimating the value of a shade tree include: its size, kind, condition and shape. No formula can be rigid, it must be flexible.

To measure size, calculate the cross section area by squaring the radius and multiplying it by 3.1416. Thus if the diameter were 20 inches, the radius would be 10 inches. Squaring this figure and multiplying it by 3.1416 will give the cross section area 314.16 sq. in.

Values of trees will fluctuate with the value of our dollar. A conservative value for a perfect specimen shade tree at the present time was considered to be \$5.00 per square inch of cross section area of the trunk. Thus a perfect specimen of the best shade tree of sugar maple in perfect condition and well-shaped would be worth \$1570.80 if it had a diameter of 20 inches.

States are classified into regions and for each region 5 classes are designated to which trees, common to the area, are rated. In class 1, sugar, Norway and red maple; white, red, bur and pin oak; Moraine locust;

and the Eastern hophornbeam are included and given a value of 100%. For class 5 the value is 20% and such trees as box elder, catalpa, black locust, the willows and Siberian elm are included. Thus a similar 20" specimen would be worth only about \$315.

Such factors as the area and location of the tree, and value and the judgment of the individual will all have a bearing on the final price that is established on a tree.

R. J. Stadtherr

SPRING DEALER INSPECTION

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

The inspection of business establishments, which buy and resell nursery stock, is done largely in the spring of the year. This work begins approximately at planting time. It is in this phase of nursery sales that consumers encounter considerable quantities of inferior stock.

Dealers and store managers in this group often have little interest in horticulture. Their interest is primarily in merchandising. In their attempt to lure traffic into their stores, they use nursery stock as a good, seasonal feature. The result is that they buy on price. Their facilities for storage and sales are poor. Consequently, the stock, coming from all over the United States, is often of low grade. If suffers additionally from poor storage in the store before the consumer plants it. The customer is often an impulse buyer. Unscrupulous dealers thrive upon this sort of consumer reasoning.

Reputable nurserymen recognize good plant material when they see it. They refuse to handle inferior merchandise. There has been an indication, from some of these people, that they would like to see the present nursery law strengthened in regard to facilities that a dealer must have before he is authorized to sell stock. The Section of Nursery Inspection does all it can to prevent the sale of inferior nursery stock. Perhaps the most difficult obstacle in carrying on this program is the lack of sufficient inspection personnel. At least one call is made to each dealer in the state each selling season. However, it often happens that stock is sold which the inspector fails to see.

Horticulturists, in general, have an intrinsic love of plants. They recognize and appreciate plant quality. Conversely, they are aware of inferior, diseased or dried out stock when they see it. They are often attracted to sales locations where this material is offered for sale. It would be well to politely inform the operator of any establishment, selling such merchandise, of the situation. Very often such a man is not aware of what is occurring. To help him with a word of advice would be a service to horticulture. Occasionally you may not be sure of the conditions encountered, or the operator may not be willing to cooperate. It is suggested that in such instances, you immediately inform the Section of Nursery Inspection. The situation will then be investigated.

AGENT'S REGISTRATION CARDS

Nurserymen are requested to make sure that each of their salesmen carries an agent's registration card with him when he solicits orders for nursery stock. The purpose of the card is to place the responsibility of the agent's representations on the company which he represents. This is an effective aid in curbing irresponsible nurseries and agents. Compliance with the law by reputable nurseries will lend strength to it.

Parent nurseries can send requests for these cards to: Section of Nursery Inspection, Room 312, Goffey Hall, St. Paul Campus, University of Minnesota, St. Paul 1, Minnesota.

INSECTICIDE USE ON TREES AND SHRUBS

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The use of insecticides on trees and ornamental shrubs appears to be increasing each year. Those who are actively engaged in spraying and controlling insects and mites realize the importance of using the right insecticide at the right time and at recommended rates of application. There are some points about insecticides and their uses which may not always have a direct bearing on these recommendations, but they do deserve emphasis. Let us consider these aspects: (1) factors other than efficiency of the pesticide which may influence chemical pest control, (2) the importance of timing, with especial emphasis on a comparison between dormant and summertime treatments, and (3) insecticidal use with respect to the chief types of ground sprayers, the mist blowers and conventional hydraulic sprayers.

Some knowledge of the chemical groups of the insecticides is desirable to appreciate certain differences and generalities that can be made about them. We can use four convenient categories for the chemicals. (1) The chlorinated hydrocarbons include DDT and related materials; these are methoxychlor, TDE or DDD, toxaphene, benzene hexachloride, lindane, chlordane, aldrin, dieldrin and heptachlor. (2) More recently the organic phosphates have come into prominence. Included in this category are malathion, the older and more hazardous parathion, EPN, TEPP, a new material, Diazinon, and some systemically active materials (capable of translocation in the plant) with demeton (Systox) being the best known at the present. As a group, the organic phosphates are particularly good aphid killers and generally quite effective against the majority of mites. (3) Another group of chemicals can be termed the non-phosphatic miticides. They are very useful against the group of pests known as red spider mites, and ineffective against almost all insects. Nearly a dozen compounds could be included in this list but the ones more readily available include Aramite, Dimite, ovex (Ovotran), and a newer promising one, Chlorobenzilate. (4) The chemical category would include the petroleum spray oils, with dormant oils being particularly important; summer petroleum oils are used to a very limited extent. One other dormant spray does not fall into any of the above categories. It is the dinitro spray.

Let us, then, consider these groups of insecticides and miticides with respect to the factors affecting their uses. Some of these influences may not be directly related to their immediate efficiency. For example, there are several rather disturbing features connected with the use of some materials. One such feature involves the resurgence (or increase) of certain pests following the use of some insecticides. Resurgences of insects or mites often come about because the beneficial parasites and predators are killed. DDT has been implicated in some of these cases. It is of interest to know that the deleterious effects involved are usually much more serious among pests of perennial plants than those associated with annuals. Pest increases may also occur because of an actual increase in egg production among non-susceptible species, because of a physiological effect on the host plant, because of removal of competitive species, and also because of the development of resistant strains. As you might surmise, DDT, because of its residual property and extensive use has been implicated in several of the above categories. The very potent phosphate, parathion, is known to be very toxic to many parasites and predators. This undesirable feature is well substantiated in certain instances. However, the shorter effective period of most of the phosphates makes it possible to use them under many conditions without endangering beneficial insects over a very long period of time. The non-phosphate containing miticides do not harm beneficial insects; likewise dormant oils have rarely been implicated with respect to causing any resurgence of pests.

We should be aware of hazards of the insecticides, not only to the operator, but to birds or other animals. Where comparatively high concentrations of DDT are used for bark beetle control, in connection with Dutch elm disease, there have been cases of some kill of song birds. This can be avoided with careful timing of spring spray operations to avoid bird migrations. Fortunately, much of the spraying in this area does not involve such high concentrations. However, a serious hazard can occur through careless application. The high toxicity of parathion to man, birds, and other organisms has been instrumental in limiting its use and recommendations for use. Malathion, though actually somewhat less toxic to most injurious insects and mites, has come into prominence because of its comparatively low hazard in use. One additional hazard may be to the ornamental flowers and sensitive vegetation below the trees. This needs to be kept in mind because most trees are more tolerant of sprays than the plant below them. The harmful effects, in this case, may be due to excessive amounts of oils or solvents which may burn sensitive foliage.

The timing of insecticide applications is very important for efficient control of certain pests. During the growing season, for example, most scale insects cannot be effectively controlled unless treated at the time the young (crawlers) are hatching and attempting to establish themselves on the foliage. In addition, when possible, some alterations in spray timing may be made for convenience of the spray operator. For example, some scale insects can be controlled during the dormant period or during the hatching period. Sometimes the timing is altered to avoid creating hazards, as discussed in the preceding paragraph. Perhaps a listing of some of the advantages of dormant petroleum oil sprays might be helpful.

The use of a dormant oil of proper specifications can (1) extend the labor season, (2) give more complete coverage because there is no foliage to interfere (more possible with a hydraulic sprayer), (3) prevent any injury from the pest at the start of the growing season, (4) be accomplished without interference from tourists, (5) be accomplished without any unsightly residue, and (6) give efficient control with less interference with natural control (parasites and predators). The fifth advantage would not apply to another type of dormant spray, the dinitros (DN-289 or Elgetol), since they will give an intense yellow stain.

(To be continued in next issue)

Editors Comments R. J. Stadtherr

NEWSLETTER

From the many letters and cards received in answer to my request on whether you wished to continue receiving the newsletter, your editor is convinced that you are reading it. The newsletter will be continued. Many thanks to you who gave criticisms and suggestions, for they will help us prepare a better newsletter in the future.

If, at any time, we can help you with your problems don't hesitate to call on us.

Sometimes our newsletter isn't big enough and some articles get cut out. Here are several interesting articles that were squeezed out of your last issue.

There are 99 members in the Minnesota Nurserymen's Association. Over 100 registrants were had at the 30th Annual Nurserymen's Convention. All Minnesota Nurserymen should join their state association.

Harold Reid was honored at the annual convention for an excellent landscaping job at the research center of the Minnesota Mining and Manufacturing Company. He received a plaque by the A. A. N. Congratulations, Harold!

TREE PROTECTION SHORT COURSE

Approximately 150 registrants attended the first short course in tree protection. In the next issue we hope to have summaries of some of the talks.

We have heard many good reports on the short course. From present indications it appears that this might be an annual event. Nice to see many of our nurseries represented!

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