

# Minnesota Nurserymen's newsletter

Prepared by  
UNIVERSITY OF MINNESOTA  
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- Agricultural Extension Service
- Horticulture Department

In Cooperation with

- Minnesota Nurserymen's Association
- Minnesota State Horticultural Society



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Humidity

## CONTROLLED HUMIDITY IN GREENHOUSES \*

Vincent K. Bailey

J. V. Bailey Nurseries, Newport, Minnesota

For the past seven years, we have used mist propagation to prevent excessive moisture loss from softwood cuttings. We feel that it has many advantages in providing us with lining-out stock for our field plantings.

Two groups of cutting are produced annually. Softwoods are stuck in mid-June and removed in October or November. Early in December, coniferous cuttings are stuck. Many juniper and arborvitae varieties are used. The evergreen cuttings are removed in late May. Rooting percentages have averaged about 85%. Most of these rooted cuttings are planted directly into the fields.

### Medium

Under our conditions, we have received best results with sharp sand. Clean sterile sand is placed in the benches annually in June. The benches are sterilized. No sterilization is given prior to sticking the winter cuttings.

### Temperature

During the summer, temperatures are controlled by shading the glass and ventilation. More light, we believe, gives better rooting both in percentages and amount. This affects the ultimate size of the plant and its ability to withstand transplanting. With high humidity, more light can be given the cuttings.

Winter temperatures are kept at a 65°F. minimum. Sand temperatures are kept a few degrees above air temperature by the use of an apron of paper.

### Hormones

We use root-promoting substances mostly on evergreens. The only deciduous materials on which we use it are several prunus varieties. For Pfizers, we used indolebutyric acid at the rate of 120 milligrams per quart of water. The base of the cuttings remains in approximately a half inch of this solution for 16 hours.

On Siberian arborvitae, Andorra and Savin Junipers we use the same procedure but use only 80 milligrams of acid per quart of water. Pyramidal and globe arborvitae will develop better root systems using 60 milligrams with a five-ten-hour soaking.

To control this difficult factor, we installed a Bink system in 1947. Under this system water is atomized when the stream of compressed air blows across a tube filled with water. The air compressor is the biggest item of cost and the only major piece of machinery in this system. Since this is a standard unit, it can be repaired easily. The system has proved to be very reliable and trouble free. We have added the Minneapolis Honeywell Electronic Humidistat H 7000 A which is more accurate and superior to the hair humidistat previously used.

### Method and Results

Excellent results have been obtained using 80% relative humidity the first two to three weeks with coniferous cuttings and then reducing the humidity to 70% until cuttings are rooted. Deciduous softwood cuttings should have 90% humidity the first few weeks, thereafter 70% until rooted.

Records indicated that with deciduous materials we averaged 89% for 1953. We attribute high rooting percentages to controlled humidity and proper time of selecting material. This can be learned only through experience. We do feel that with high humidity that period is lengthened.

Larger cuttings will give salable plants more quickly; thus, as materials permit, we take large cuttings. Using a 10-inch cutting we can get 30 to 40% finished shrubs of two-to three-foot size after two years in the field. Using large cuttings, we obtain a good quality low-cost plant.

Evergreen cuttings are planted directly into the field either in one-or two-foot rows. Reduction of labor costs plus better quality liner is the result.

Rooted cuttings are planted out after all frost dangers are past. Actual counts show 80 to 90% finished plants with conifers; 90%, with deciduous materials.

The plant propagator must be alert to improved methods and new techniques to obtain better stands with higher quality in the most economical way. We believe controlled humidity has been a big factor towards success.

\* Presented at the Fourth Annual Meeting of the Plant Propagators Society, December 2-4, 1954, Cleveland, Ohio.

## A SPRAY PROGRAM FOR THE NURSERY

Walter P. Trampe  
Nursery Inspector, State Dept. of Agriculture

The first step in planning a spray program for the nursery should be taken long before a need for sprayers is actually found in the nursery.

Three major points must be considered before a nurseryman is faced with the necessity of applying a chemical for the protection of his stock. They are listed below:

1. The host plant which is to be sprayed as well as the pest which may require control.
2. The type of equipment for the job.
3. The planting arrangement and spacing of the stock in the nursery.

In order to consider the second and third points properly, it is especially important that we have a general impression of what we may be called upon to spray for and when we may need to do this. It will be necessary for us to confine ourselves to a discussion of that part of a spray program at this time.

<u>HOST</u>	<u>PEST</u>	<u>TIME OF APPLICATION</u>
Spruce	Red spider	Once or twice annually in June and in August if required.
	Spruce needle miner	When symptoms are present. Apply chemical in early spring or in the fall.
	Scale	When scales are present. Dormant application or crawler stage application.
Arborvitae	Red spider	Same as for spruce
	Scale	When scales are present. Dormant application or crawler stage application.
Juniper	Red spider	Same as for spruce
	Juniper blight	Repeated application of a fungicide during warm weather and humid weather. This applies only to susceptible varieties of junipers.
Ash	Ash plant bug	Two applications annually.
Elm	Leafhoppers	Probably two applications annually.
Apple	Leafhoppers	Same as for elm
	Scab	As need arises
All deciduous stock	Leaf defoliators	As symptoms appear
	Scale	Dormant spray as scale appears.

<u>HOST</u>	<u>PEST</u>	<u>TIME OF APPLICATION</u>
Gladiolus	Thrips	Three or four applications annually
	Diseases	Fungicidal applications usually combined with a control for thrips.
Peony	Botrytis	Several fungicidal applications before blossom time.
Iris	Leaf spot	Several fungicidal applications before blossom time.
Chrysanthemum	Leafhoppers, thrips, plant bugs, fungus diseases.	Three or four applications of a fungicide-insecticide combination
Raspberry	Fungus disease, Red spider, Leaf defoliators	Dormant spray plus one or two summer treatments of an insecticide-fungicide combination application.

The table above will provide a general outline of the problems which might develop in the nursery. Planting arrangements of various blocks of stock should be so arranged that the equipment which is to be used may be operated in the proper manner. These points will be discussed in a subsequent issue. We would like to suggest that this article be retained for use at that time, in order that the entire picture may be brought out more clearly.

### PROMINENT HORTICULTURIST DIES

Dr. Liberty Hyde Bailey, 96, leading horticulturist died December 25 at Ithaca, New York. One might call him "Father of Horticulture". He developed the first college horticulture department at Michigan Agricultural College in 1884.

He was a prolific writer and an active participant in all agricultural fields. Among his noteworthy books are: Standard Cyclopaedia of American Horticulture, Manual of Cultivated Plants, The Nursery Manual, The Pruning Manual and with his daughter Ethel Zoe Bailey, Hortus Second.

### ALDERMAN RECEIVES MEDAL

W. H. Alderman, who retired in June, 1953, as head of the department of horticulture at the University of Minnesota, has been awarded the Wilder medal by the American Pomological society.

The society cited Alderman for his work as "horticulturist, scientist, plant breeder and administrator -- through whose leadership and skill in plant breeding American horticulture has been enriched by the development and introduction of meritorious new varieties of fruit."

Under Alderman's direction as head of the department of horticulture and superintendent of the University Fruit Breeding Farm, 124 fruits, vegetables and flowers were developed.

EDITOR'S COMMENTS  
RICHARD STADTHERR

Minnesota Convention Highlights

New Officers

The twenty-ninth annual meeting of the Minnesota Nurserymen's Convention was held December 6 and 7 at the Lowry Hotel. R. N. Ruedlinger reported that there were nine new members, thus increasing total membership to over 100 members.

Your new president is Gordon Bailey. Kim Andrews was elected vice-president and R. N. Ruedlinger continues as secretary-treasurer. W. H. Eddy, Leo B. Snyder and Lawrence Bachman are new board members.

Rose Growing

An excellent film, "Rosarama," produced by Mount Arbor Nurseries, Shenandoah, Iowa, was shown. All cultural practices were thoroughly covered in this film.

Mr. Carl Holst, Minneapolis Park Board, caretaker of the Lake Harriet Rose Gardens, invited nurserymen to visit the gardens around July 4 when the roses are at their best. The All-American rose trials are conducted here, so you'll have an opportunity of seeing new introductions as well as all the best varieties.

Paul Mathes, Park Nurseries, described the handling of hybrid tea roses as pot plants for spring and summer sales. Stock is received frozen in winter and is allowed to thaw out. The best grade of stock available is obtained. Plants are heeled into damp moss until they are potted in large clay pots from January to March. The newly potted plants are placed in storage cellars and kept moist, but not wet for the first month or two. They are set into cold-frames as early as possible after buds start growth.

Canned Nursery Stock

James S. Wells, Hill Nursery Company, Dundee, Illinois, presented an informative discussion on canned nursery stock and propagation. He listed control of growth factors and extension of the selling season as major advantages of canned nursery stock. Only about 30% of the total cost of a canned plant is directly related to the plant itself. At Hills only 14% are brought through to sale. Major disadvantages are difficulties encountered in establishing standards of cultural practices and potting media, caring for materials over-winter and learning peculiarities of various plant materials.

It is necessary to protect canned stock against sudden temperature changes. Mr. Wells suggested mulching or plunging pots in moss. More experimentation is needed before definite recommendations can be made. He warned against late feeding which would tend to keep stock vegetative longer.

Direct planting from cutting bench to cans was exhibited. He remarked that it was essential to begin training these plants early and to have a slowly available source of nitrogen for these plants during the growing season. The John Innes soil mixture was recommended, but a styrafoam-peat medium proved lighter and might be more desirable for shipping. Plants could remain two seasons in gallon cans, but root balls should be broken when transplanting these materials.

Cooperation

President Bill Coupanger emphasized the necessity of having nurserymen help customers grow better plants. Through the use of bulletins and other printed materials they can inform customers how to water, feed and prune plants.

A suggestion was made for cooperation with the state highway department for better roadside development. Mr. Charles Hawkins, Rose Hill Nursery, was chosen chairman of the committee.

National Convention

Ken Law, chairman of the National Convention which was held here last summer, reported that the convention was a financial success. Iowa and Minnesota Nurserymen's Associations which cooperated in handling the convention were refunded \$250.00 each. A contribution was turned over to the emergency fund of the National Association.

Your editor has heard many complimentary reports on the convention. The only complaint was crowded meeting rooms.

White Gives National Picture

Dr. Richard P. White discussed strengthening of fair trade rules, establishing standards for bulbs, corms and tubers, increasing the plant America program and keeping out foreign plants which require packing around their roots. A film to promote better living through improved landscape planting is being prepared by the AAN. Honest nurserymen need protection from transient nurseries which do not follow fair trade practices and which use unfair and misleading advertising. White said, and the National Association is doing everything in its power to help curb these companies.

State Entomologist Speaks

Al Buzicky read an address prepared by Professor T. L. Aamodt, Minnesota state entomologist, who was unable to attend the convention. He warned against weakening of international quarantines. The gypsy moth, a serious pest which devours plants, is now in Michigan. Mr. Aamodt told of cooperative action to stop spread of insects and diseases into the state.

University Closes Program

Dr. Leon C. Snyder and several other members of the horticultural staff spoke briefly on new varieties. Dr. A. N. Wilcox discussed excellent straw-

berry selections with improved quality which require further testing. Many of these selections are excellent for freezing. Dr. Wilcox and Ted Weir had a display of outstanding apple selections which resulted from the University's fruit breeding program. After the program, tasting tests proclaimed unanimously that improved types were present.

Professor R. A. Phillips spoke on the University's rose and chrysanthemum breeding programs. Two new chrysanthemums will be introduced next year. Wenonah and Vulcan have been selected as names for an early pink - lavender and dusty red selection. Minnesota nurserymen desiring stock were told to place orders early.

Dr. Snyder showed many slides of interesting fruits and ornamentals of value to nurserymen. It was agreed among nurserymen that gooseberry #206, flowering crabapple #6C and apple-crab #1472 should be introduced as soon as stock can be built up. University announcement of the release of new materials would be timed when nurserymen have stock available for sale.

Your editor invited nurserymen to bring their problems to the University and expressed the desire to work closely with them in solving problems of cultural practices, iron chlorosis, container grown stock, chemical weed control, propagation, storage of nursery stock, lawn maintenance and others.

#### Helping Research

A committee was appointed to study means of obtaining financial support for the University's research program in horticulture. Mr. Les Sjulín, Inter-State Nursery, Hamburg, Iowa, told of the Iowa plan in which a royalty of a few cents for each plant was collected and turned over to the Association by propagators for the first year after introduction of a new plant. This money was given to the college by the Association for research in improvement of varieties.

A research committee was chosen to obtain better cooperation between the association and the University. Cooperation is a "must" in obtaining the best possible program.

#### FOURTH ANNUAL PLANT PROPAGATORS' MEETING HELD

Dr. Leon C. Snyder, Ted Weir, Richard Widmer and your editor attended the annual meeting of the Plant Propagators' society which was held in Cleveland December 2-4. We greatly appreciate the financial assistance provided by the association in making this trip a reality.

This was the first session your editor attended and the free exchange of information amazed him. This was an education in itself. Every progressive nurseryman who is a propagator would find it to his advantage to join this group and attend the educational annual meetings.

Dick Andrews, Vincent Bailey, Harry Brostrom, Don Nordine and Clarence Seefert attended. Vinc Bailey presented an outstanding paper on the use of

mist humidification in their nursery. A summary of his paper appears in this issue of your Newsletter. Congratulations, Vinc, on being chosen to be a panel member on propagation at the Ohio State Short Course on January 19.

The program opened with an interesting presentation by R. A. Fillmore, Fillmore's Valley Nurseries, Centerville, N. S. Canada, on propagation in his small nursery. Fillmore is a true plantsman, intent upon increasing the list of plants recommended for his area. We were most interested in his experiences in growing many plants of questionable hardiness where temperatures below -25°F. occur and summers are frequently dry. We could draw some parallels with Minnesota conditions.

Successful propagation of *Rosa hugonis* from hardwood cuttings was the subject covered by George P. Blythe, McConnell Nursery, Port Burwell, Ontario, Canada. Cuttings are taken early in the winter of current year's growth from stool blocks. Tips are removed and stems about pencil-thickness are cut into six-inch lengths. They are stored upside down in moist hardwood sawdust at temperatures between 28 and 32 degrees F. The cuttings remain in storage until early April when the well-calloused cuttings are lined out in the fields.

Dr. William E. Snyder and Charles Hess, Jr., reported on their experiments at Cornell University with mist propagation. They concluded that interrupted mist was the best method, for cuttings under this system received more light, had temperatures nearer to the optimum, would not tend to leach as badly and obtained more oxygen at the basal end. This system required less water and thus would be more economical. It would be easier to harden-off rooted cuttings.

The Saturday afternoon session was devoted to difficult-to-propagate shade trees. Dr. John L. Creech, U. S. Plant Introduction Garden, Glenn Dale, Maryland, suggested air layering using damp sphagnum moss and a polyethylene wrap to learn if it were possible to root a certain plant before attempting propagation by cuttings.

#### NEW EXTENSION HORTICULTURIST

Dr. C. Gustav Hard of Wyandot, Illinois has accepted the position as extension horticulturist at the University of Minnesota. Recently he completed requirements for the doctor of philosophy degree in general horticulture at Michigan State College. His thesis was on the use of television as a medium of instruction in gardening.

He assisted Dr. Donald P. Watson at Michigan State and worked with gardeners, florists and nurserymen. His work here will be in the field of ornamental horticulture. He will conduct meetings and demonstrations with county extension agents and gardeners. He will work primarily in the rural areas so if you nurserymen would like his services you can contact him through your local county extension office. Use your university.