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

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SHADE TREE MAINTENANCE SHORT COURSE

Monday, September 16
North Star Ballroom, Student Center, St. Paul
Robert Mullin, presiding

Fee: $4.00

A. M.

8:00 Registration

9:00 Why we are here. . . . . Greg Lucking

9:15 Biological aspects of the Dutch elm disease. . . . . Staff (Departments of Entomology and Plant Pathology)

9:55 Distribution and present situation. . . . . Donald Coe

10:15 Coffee

10:30 Symptomolgy and collection of samples for diagnosis. . . Herbert Johnson*

10:50 Control and prevention. . John Lofgren*

11:10 Questions and answers. . . . . Panel of speakers

11:45 Lunch. . . . . Dining Center

P. M.

1:00 Success, failure, and new approaches with Dutch elm disease. Sandy McNab

2:15 Tree culture. . . . . Donald White*

2:40 Coffee

2:55 Replacements for the elm. . . . . L. C. Snyder*

3:15 Questions and answers. . . . . Panel of speakers

Tuesday, September 17

Assemble at picnic pavilion, Minnesota Landscape Arboretum. Located on Hwy. #5, 3 miles east of Chanhassen. Watch for sign on the left.

A. M.

9:00 Orientation and division into groups

9:30 Group I. . . . . L. C. Snyder*
Tour Arboretum

Group II. . . . . L. B. Powers
Pruning demonstration
Stump removal
Tree fertilization
Prepared exhibits

11:30 Lunch. . . . . Pavilion

P. M.

1:00 Group I
Demonstrations and exhibits

Group II
Tour Arboretum

3:00 Question and answer period. . Pavilion

* University of Minnesota

ROOTING OF PYRAMIDAL ARBORVITAE WITH INDOLEBUTYRIC ACID

C. L. Coultas and C. J. Weiser[1]

Indolebutyric acid (IBA) is considered to be the best synthetic plant hormone for treating cuttings since it promotes rooting of a large number of species and is safe over a wide range of concentrations. This rooting hormone can be used to treat cuttings in three basic ways. When it is applied as a dilute soak, concentrations of from 20-200 parts per million (ppm) are used. When it is applied as a quick-dip the concentrations fall in the range from 500-10,000 ppm. In the powder form (talc carrier) it is commonly available in the range of 0.1% to 1.0%. Certain species root best with one of these three methods of treatment, while in other cases all methods work equally well.

1-Graduate student in Horticultural Science and Soil Science; and associate professor of Horticultural Science.

IBA used as a dilute soak (24 hrs.) at concentrations ranging from 20 to 80 ppm has been reported to be optimum for rooting cuttings of species of Buxus, Chamoecyparis, Ilex, Junipers, Taxus, and Thuja. With Thuja pyramidalis 92 to 100% rooting was obtained using IBA; with water only 8% rooted. Using Junipers sabina cuttings 84 to 92% rooted with IBA treatment and only 27% rooted without IBA.

The rooting of hardwood cuttings of Marianna plum, peach, and quince has been compared after IBA treatment by either the quick-dip or dilute soak method. It was found that plum cuttings treated with IBA at 1,000 ppm for 5 seconds rooted as well as when a 24-hour soak of 45 ppm was used. The quick-dip method requires less time and effort than the dilute soak method.

Pyramidal arborvitae are considered to be an easy-to-root evergreen. An overnight soak procedure at a concentration of 50 ppm is most often used to apply IBA, but this method is time consuming and good results are not always obtained. This study was designed to compare the rooting of arborvitae cuttings treated with IBA either as a quick-dip or as an overnight soak.

Procedure:

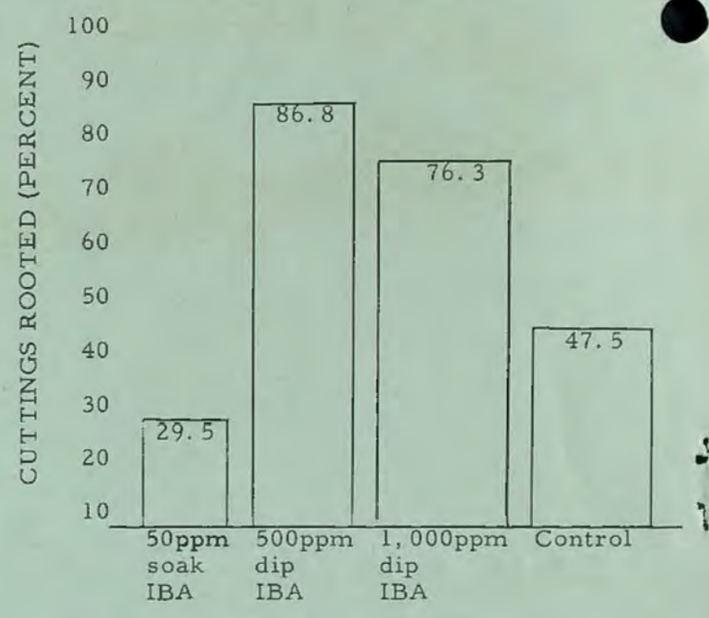
Pyramidal American Arborvitae cuttings 4 to 6 inches long were taken in the late fall of 1962 and stored at below-freezing temperatures. The rooting treatments were applied on January 22 and 23, 1963 and the cuttings were stuck in sand with heat which held the basal temperature at 67-73° F. Air temperatures were approximately 75° F. in the day and 65° F. at night. Cuttings were watered in after sticking and were held under intermittent mist (1 second of mist each minute) throughout the course of the experiment.

Treatments included three rates of IBA and an untreated control. The IBA treatments were: (1) overnight soak at 50 ppm IBA, quick-dip (2 seconds) in 500 ppm IBA and quick-dip (2 seconds) in 1,000 ppm IBA. The treatments were replicated four times with a total of 40 cuttings in each treatment.

Results:

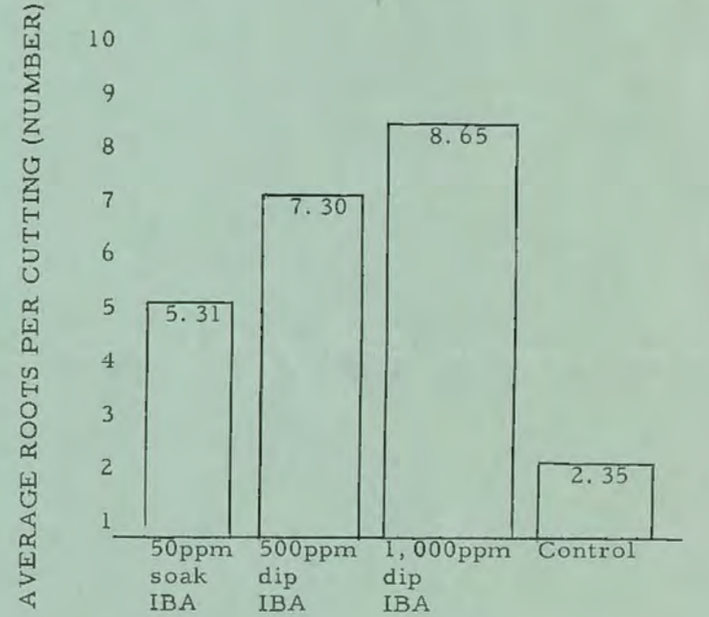
Cuttings were lifted on February 28, 1963 after 36 days in the bench. Data for the percent rooting and number of roots are shown in Figures 1 and 2. The quick dip method using IBA at 500 and 1,000 ppm resulted in 86.8% and 76.3% rooting respectively. The control had 47.5% rooting while the 50 ppm overnight soak had only 29.5%.

Fig. 1. Percent rooting of pyramidal arborvitae



(Note: All treatments significantly different at 5% level.)

Fig. 2



(Note: The only treatments which were significantly different at the 5% level were the control and the 1,000 ppm dip.)

Conclusion:

It can be concluded that in this experiment the quick-dip method using indolebutyric acid at 500 or 1,000 ppm was superior to no treatment or to the overnight soak at 50 ppm IBA for inducing roots on pyramidal American Arborvitae cuttings. A larger number of better quality rooted cuttings was produced from the use of the quick-dip than with either of the other treatments. Although this study was not particularly extensive, it strongly suggests that the quick-dip method might have merit over the overnight soak for propagating arborvitae, both from the standpoint of ease of treatment and better rooting.

References

(1) Hartmann, H. T. and Hansen, C. J. Effect of season of collecting, indolebutyric acid, and preplanting storage treatments on rooting of Marianna plum, peach and quince hardwood cuttings. 1958. Proc. Amer. Soc. for Hort. Sci. 71:57.

(2) Hartmann, H. T. and Kester, S. E. Plant propagation principles and practices. Prentice-Hall Inc. 1961.

(3) Myren, A. S. and Schwantze, C. C. Rooting evergreen cuttings with hormones. 1948. Proc. Amer. Soc. for Hort. Sci. 51: 639-650.

ARBORETUM NOTES

With the coming of fall, there is always a special seasonal interest at the Arboretum. Scarcely anywhere in the state is there an assemblage of such diverse autumn color. Why not invite your customers to visit the Minnesota Landscape Arboretum during the fall season?

The Arboretum is accessible from all parts of the state. It is located between Chanhassen and Victoria, on Minnesota Highway No. 5. It is also close to the Minnesota Fruit Breeding Farm.

EDITOR'S COMMENTS

C. Gustav Hard
Extension Horticulturist

Dutch elm disease has established itself in Minnesota. The impact of this threat has been felt throughout the industry. Minnesota nurserymen now have the opportunity of taking the leadership in bringing about a reasonable and effective program in controlling this disease. To do so you must be conversant with the problems and the disease itself. You must know how to take samples and make preliminary diagnosis. You should know how to organize your community for action.

Dutch elm disease is the important topic to be discussed during the two-day shade tree maintenance program this year.

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