Skyworker was used to apply growth regulator on trees during May in Roanoke, Virginia.

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Chemical Tree Pruning

A promising new control with plant growth inhibitors

Plant growth inhibitors are now being investigated as chemical pruners. The results contained in this article are from one year's experiments with this promising new application, Dr. Evrard points out, from his work with MH-30T and B-995-W50.

PLANT GROWTH inhibitors have been used with beneficial effects by growers of tobacco, potatoes, onions and ornamentals. Now it appears that the custom applicator must become familiar with these chemicals, not only as grass growth retardants, but also more recently as retardants for shade trees.

The cost of annually trimming trees that are growing under power lines in cities is a large factor in electric utility maintenance. Also, in certain areas, opposition to tree trimming has sprung up from homeowners, garden clubs, and municipalities. Studies to find a way to reduce the amount of trimming required were initiated in the spring of 1964. The objectives of these studies were:

1. To maintain shade and ornamental trees in a more uniform, natural, characteristic shape over a longer period of time with a minimum of manual trimming.

2. To reduce the number of cuts and open wounds caused by today's tree trimming practices. (These cuts are frequently left unpainted and may result in disease and insect invasion, a basis for much public resentment.)

3. To reduce cost of utility maintenance.

In the fall of 1963 a meeting was held at which representatives of the Appalachian Power Co., the Bartlett Tree Expert Co., the U. S. Rubber Co., and Virginia Polytechnic Institute were present. It was agreed in this conference that a cooperative project would be set up to test the effects of certain growth inhibitors on large city shade trees which were trimmed for utility line clearance.

Officials of the city of Roanoke were contacted, the program explained, and permission obtained to initiate the experiment.

Two Chemicals Chosen

Two chemicals, MH-30T and B995, were selected for this study because of their previous history and usage on other plants. Areas were selected that contained problem tree species. The major species in the area were American and Chinese elms, sycamore, linden, tulip poplar, and silver and Norway maples. Certain trees were trimmed in the fall and winter and sprayed May 11; other trees were trimmed May

26 and treated June 18. All chemicals were applied to foliage run-off using a hand boom attached to a pressurized spray tank (40 psi) which was mounted on a Skyworker.

The length of new growth was measured and recorded on November 12 and is reported in Table 1. From the table it can be seen that new growth on American and Chinese elms, Norway and silver maples, and linden trees was markedly reduced. Other workers report similar retardation on sycamore trees, but in these trials sycamore showed only moderate indication of chemical inhibition. The spraying of these trees was suspended because of rain, however, and it is believed that some of the chemical was washed off the foliage, which reduced its effectiveness.

The growth of tulip poplars did not appear to be inhibited by the chemicals at the rates used. No rain fell on these trees for at least 24 hours after treatment. The "tulips" were in full bloom at the time of application, and no phytotoxic effects were noted.

Other growth retardants in addition to the two mentioned are being studied in a limited area on a wide variety of species to test for phytotoxicity.

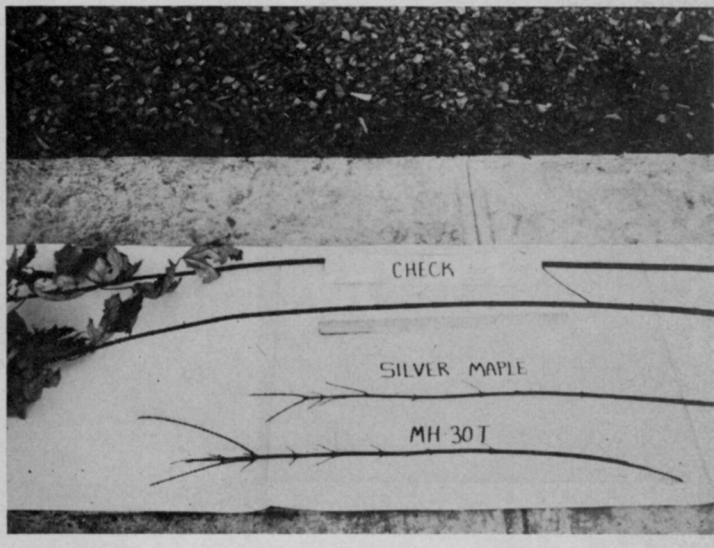
Conclusions drawn from the first year's work are:

1. MH-30T at rates used did retard growth of certain trees under test. B-995-W50 was not generally effective in controlling tree growth and added little to the effectiveness of MH-30T when applied in combination with it.

2. Rainfall within a few hours after chemical application reduced the inhibiting effects of the chemicals used.

More important, however, was the fact that a problem existed, and through cooperative research among consumer (utility), supplier (chemical manufacturer), applicator (CA), regulator (city), and university investigator, solutions were sought.

In the city of Roanoke 150 large shade trees were treated with no adverse public sentiment expressed at the time of application or during the growing season. In fact, most people who inquired about the operation wished the program success. Plans for the second year include re-treatment of trees sprayed during the first year, general expansion of the program and comparison of application techniques. The last phase will include another cooperator, the equipment manufacturer.



Results with MH-30T on Chinese Elm (above), and Silver Maple (right).

Table 1. Average length in inches of new growth. Ten measurements per tree; at least three trees per treatment; trees treated in spring; measurements taken November 12, 1964.

Treatment		Species						
Chemical	Concentration	Tulip Poplar	Amer. Elm	Chin. Elm	N'way Maple	Sycamore	Linden	Silver Maple
1. MH-30T	10,000 ppm*	39	22	11	15	61	25	25
2. MH-30T+ B-995-W50	10,000 ppm+ 5,000 ppm*	35	22	14	13	60	21	27
3. MH-30T+ B-995-W50	5,000 ppm+ 4,000 ppm*	43	15	18	18	72	65	23
4. B-995-W50	5,000 ppm*	39	44	46	20	48	52	37
5. Check		34	72	50	29	84	45	47

* Sprayed to foliage run-off