

GROWTH RETARDANT USE BY UTILITY COMPANIES¹

by Howard Bowles

Due to the age-old problem of trimming trees away from power lines, considerable amount of time and research has been spent in regulating tree growth in the past few years. This has resulted in growth regulators being widely publicized. Slowly, but surely, more utility companies are getting involved and are experimenting with these growth regulators.

There are three basic methods of applying growth regulators to trees: 1) overhead foliar spray, 2) trunk injection, and 3) basal spray (bark banding). We at Davey have a well rounded program, including all three. Due to the many unique factors involved in regulating tree growth, no one method will fit every need. Consider each as a tool and efficient only when used appropriately.

Overhead foliar spraying. We have been using this method on a commercial basis since 1971. It is the oldest and least expensive method. Although cost effective, it is fast becoming obsolete due to the inability to get all of the spray on target, and concern from environmentalists over polluting the atmosphere. We use it mostly in rural areas. The chemicals we use are Royal Slow Grow and Maintain CF125.

Injection. We have been using this method on a commercial basis since 1981. The method developed by USDA through EPRI funding led to the current label on Atrinal and Royal Slow Grow. Eight species are labeled for this use. Atrinal is the only one we are using on a commercial basis in California.

We used four injector crews on one of our larger client's property this year. The method, although cost effective, is limited in commercial use due to the small number of species on the label.

There is some question about damage to the trunk area at the injection site. We have made annual treatments on ash, eucalyptus, sycamore, with no apparent harmful effects. We have taken samples of these injected trees and had them examined by the Department of Plant Pathology at

the University of California, Berkeley. The findings on two different species and two times of injection were "no decay fungi found."

The major advantages of this method are that it works on species that we are not able to control with other methods, i.e. eucalyptus, and you get 100 percent of the solution on target.

Other than the limited amount of species on the label, another drawback to this method is the high volume of solution required by the existing label to be injected into each tree. We incorporated Bob Nosse's method of calculating the dosage by crown size into an experiment on sycamore in Pleasanton, California, with favorable results. There needs to be more work done in this area to get the label changed.

It takes a considerable amount of time on certain species for the solution to get into the tree. Add to this the fact that some trees require more than the injector unit can supply at one time, you spend a lot of time waiting. Time is money, and the longer the treatment takes, the less cost effective it will be.

The injection method has a place in an overall growth regulating program, but more work needs to be done on improving the present labels.

Bark banding. We have been using this method commercially since 1974. The normal procedure is to mix the chemical (Maintain CF125) with a mixture of diesel oil and toluene. A band equal to the diameter of the tree is applied to the trunk area, starting at ground level. This method of growth regulating is very cost effective on certain species (conifers).

In 1983 we started experimenting with an oil surfactant and water mixture as a carrier. To date, the experiments have been positive. We are currently working with Dr. Henry Hield (who is assisting Uniroyal with this experiment) using an oil surfactant made by Uniroyal. It appears that the oil surfactants are not as effective as the diesel and toluene mix, but do get the chemical into the

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tree. We are using a 2% solution with the soil surfactants, hoping that we can get the same results that the 1% solution of diesel-toluene gives.

You might wonder, why look for some other carrier when you have one as effective as the diesel-toluene mixture. There are many reasons. The diesel-toluene mixture is very unstable, flammable, offensive. We have had some trouble with our labor force because of the reasons listed above. On certain species the diesel-toluene mixture causes bark aging and splitting and, in some instances, death to the tree. Using the oil surfactant-water mixture, there is less odor, no persistent dark ring, no flammable mixture to handle, therefore, no labor problems. The benefits of the oil surfactant mixture far outweigh the efficiency factor between the two mixtures.

We are doing some work bark banding the tree near the top of the tree. It is believed that the oil surfactants will work better on more tender areas of the trunk. Our results have shown that the procedure does work. I think if we could get the bark banding mixture in an aerosol can, so that every crew could use it, it would be an ideal method.

New Methods

Soil injection. We are currently experimenting with E1500 in our soil injection experiments. We are working with Dr. Floyd Colbert of Elanco Chemical Company, experimenting on eucalyptus and elm in Richmond, California. On our first evaluation of the treatment we found shortening of

internodes, darker green coloring, and no phytotoxicity. The dosage we used was from 25-100 grams of active ingredients per tree. Even in the upper ranges of the dosage, we had no phytotoxicity.

As in other methods, there are some drawbacks to soil injection. We don't know how much of the chemical is actually getting into the tree. We don't know what other roots are picking up the chemical. It takes moisture to get the chemical into the tree.

Surface soil treatment. We applied E1500 in 50 WP form to eucalyptus. It is too early for results, but one interesting side effect to this treatment was weed control.

Summary

A lot of work has been done, but it is nowhere near finished. There is still much room for improvement in our present methods and also the newer ones of growth regulating. It is important in evaluating the test plots that a record be kept on how much time it takes to re-trim the treated tree versus the re-trimming of the control tree. We have found that you not only lengthen your trim cycle, but you also reduce your re-trimming time.

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