

## THE QUICK DIP, ALCHOLIC SOLUTION AS AN AID TO ROOTING CUTTINGS

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My short discussion on the quick-dip alcoholic solution as an aid to rooting cuttings is based on the work that we have done with this method of application at the State Institute at Farmingdale. I must hasten to add that the bulk of our work is based on the report of Drs. Hitchcock and Zimmerman which appeared in the Contributions of the Boyce Thompson Institute, back in 1939. This material will be found in Volume 10 of this publication.

Our quick-dip liquid treatments make use of a two per cent stock solution made by taking two grams of indolebutyric acid and dissolving this in 100 cubic centimeters or milliliters of 95 per cent ethyl alcohol.

The indolebutyric acid is made available to us at approximately one dollar a gram from the Eastman Organic Chemicals Co., Rochester, New York.

A simple way of making up a stock solution of two per cent is to order a five gram quantity of the material and place it in a dark glass, stoppered bottle. To this would be added 250 c.c. of the ethyl alcohol. The stock solution bottle is then placed in our refrigerator running at 41 degrees Fahrenheit.

If we use the stock solution as is, we will be working with a 20,000 parts per million concentration. This is, of course, a very strong concentration for practically anything that you would attempt to root. About the only thing that we find this concentration has value for is such things as the rhododendron. For treating cuttings of other plants where lesser concentrations are advisable, we dilute this stock solution.

In diluting this material, we might estimate that we need 60 cubic centimeters of a 10,000 parts per million solution to treat a certain batch of cuttings. We would then take 30 c.c. of the stock solution and an equal amount of water to bring it to 10,000 p.p.m. If we were desirous of having, let's say 5,000 parts per million, which in a sense would be somewhat comparable to Hormodin No. 2 in the powder form, we would take, let's say, 30 c.c. of the stock solution and then we would take 30 times three, or 90 c.c. of tap water to make up our working solution.

Now, no more stock solution is taken from the stock solution bottle than is required for the treatment of a certain batch of cuttings. The treatment is made by submerging the basal ends of the cuttings in our working solution for just a moment, say three to five seconds. Then we remove the cuttings and tap the excess back into the working solution container.

Now when we have reached the end of this batch of cuttings and we do not foresee any more use for this solution for the balance of that day or if we have finished the job, this material is thrown away. There is no serious dilution during the course of treatment, since the stock solution is tightly stoppered in our stock solution bottle and we make up no more material than what we figure is needed to do the job.

We use the alcoholic quick-dip treatment on genera considered to be difficult to root. However, we are not always assured of success, for we have obtained both positive and negative results. Specific concentrations do not produce uniform results from year to year nor from season to season. Negative results often show up as follows:

1. Excessive rooting. This oftentimes is followed by a retardation of root development.

2. The buds are affected by what I choose to call deep sleep or a state of extra dormancy. This is particularly true in the case of cuttings from those plants that are in the dormant condition.

3. An actual killing of the treated area at the base of the cutting.

Now although we have had good results with the quick-dip alcoholic solution treatments with a variety of plant materials we still prefer the powder treatment of cuttings. Our use of alcoholic solutions is pretty much limited to instructional and demonstrational tests rather than a recommended practice. Thank you.

MODERATOR LANCASTER: Thank you Harvey.

Our next speaker on the panel will be Thomas S. Pinney, Jr. from the Evergreen Nursery Company, Sturgeon Bay, Wisconsin. (Applause)

Mr. Pinney then presented his paper on the procedures he uses to treat cuttings by the quick-dip method.

## **THE METHOD OF QUICK DIP HORMONE TREATMENT OF CUTTING WOOD AT THE EVERGREEN NURSERY CO.**

THOMAS S. PINNEY  
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Since this discussion is limited to five or six minutes, my remarks will be brief and concerned with the generalities of our quick dip hormone program. If anyone is interested in further detail, I would be glad to discuss it with them at their convenience.

Through trial and error we have found that indolebutyric acid has been the most satisfactory chemical for our purpose. We have used alpha naphthaleneacetic acid and naphthaleneacetamide in test work only. They have proved to have a very narrow effective range while IBA has a much wider spectrum. A wider range means less chance of injury due to inadvertent errors. The results obtained from the three chemicals were quite similar.

We use 95 per cent ethanol as the solvent but are endeavoring to find another carrier not subject to the beverage tax which will act as a solvent for IBA and still be miscible with water.

The general formula for making up the concentrate is one gram of IBA per 100 C.C. of 95 per cent ethanol. This results in a 10,000 ppm IBA concentrate. It is of prime importance to add the ethanol to the IBA, not the reverse. The concentrate can be stored up to three months in a dark place in a sealed brown bottle at 40 degrees Fahrenheit. It may be possible to store it for a longer period, but at the pre-