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242. Current recommendations for use of *Rhizopon* rooting hormones. Eigenraam, K. International Plant Propagators' Society, combined proceedings 2011, 61:187-191. 2012.

Current Recommendations for Use of Rhizopon® Rooting Hormones®

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INTRODUCTION

Production of Rhizopon rooting hormones began in 1939 following research by the ACF Chemiefarma Company, originally the Amsterdam Quinine Factory, into propagation of quinine plants. The first Rhizopon rooting hormone products were introduced to nursery stock growers in the Boskoop area in 1940. Following a reorganization of ACF, Rhizopon was established as an independent company in 1987.

For the U.K. professional market Rhizopon offers several rooting hormone products based on the active ingredient, indole-3-butyric acid.

The formulated products are available as ready-for-use powders and water-soluble tablets in various packing sizes:

- **Powders:** Chryzopon® rose 0.1%, Chryzotop® green 0.25%, Chryzotek® beige 0.4%, Chryzosan® white 0.6%, Chryzoplus® grey 0.8%; Rhizopon® AA 0.5%, Rhizopon AA 1.0%, Rhizopon AA 2%
- **Water-soluble Tablets:** Rhizopon® AA 50 mg

This range of products ensures that there is a hormone product for almost any rooting situation. In addition they are extremely flexible in their method of application.

APPLICATION METHODS

Powder Quick Dip. This is the most common method of application and involves dipping the base of the cuttings to a depth of 1 to 2 cm into the powder and then shaking off surplus (Fig. 1).

Chrysanthemum cuttings are usually treated in bundles of 50 at a time. It is important to make sure that all cuttings are properly treated. Care should be taken that no leaves or other parts of the cuttings come into contact with the powder.

Water-soluble Tablets. Tablet formulations are unique to Rhizopon and offer a very convenient method of application by diluting in water. The tablets are placed in the required volume of water and are ideally mixed with a kitchen blender for 1 min. The active ingredient in the tablets will easily dissolve in water. A small part of the tablet will remain undissolved but this will have no adverse effects on the product's effectiveness. The insoluble sediment is simply part of the formulation which binds the active ingredients into a tablet.

The tablets are water soluble at concentrations of up to 30 tablets per litre water. If higher concentrations are required advice is available from the supplier.

The main application methods for the diluted products are:

Liquid Quick Dip. The most convenient method is a quick dip of the base of the cuttings for 5 sec in the solution. Take care that the solution does not come into contact with the leaves. Several cuttings can be treated at the same time (Fig. 2).



Figure 1. Bundle of cuttings treated in a powder quick dip. Make sure all the cuttings are well treated and that no leaves are in contact with the powder.

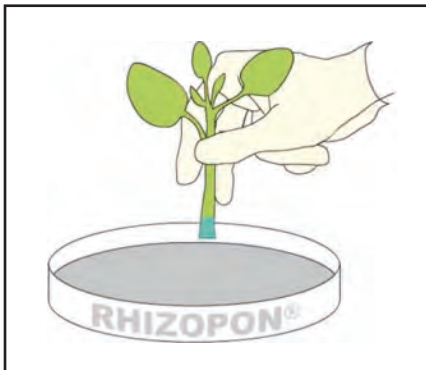


Figure 2. Liquid quick dip for 5 sec in the solution. Take care that the solution does not come into contact with the leaves.

Basal Long Soak. This is an old proven method that is currently making a comeback. The cuttings are placed in a perforated plastic box with the base of the cutting downwards. Then the box is placed in a plastic container of hormone solution, so that the bottom 10–20 mm of the cuttings are in the solution (Fig. 3). For conifers and shrubs the absorption time is 12 h. For leafless winter cuttings it is 24 h. This technique uses very low concentrations of hormone, but because of the long absorption time the cutting will absorb enough active ingredient to be effective. As with all the diluted methods do not re-use the solution after a treatment.

Another advantage of this method is that the active substance is incorporated with water that provides optimal turgor.

Total Immersion. This method is very suitable for soft cuttings and, again, low hormone concentrations are used. Place the cuttings in a plastic perforated box then completely immerse in the hormone solution for 5 sec (Fig. 4). After removal from the dip, let the excess liquid flow back into the container. Rhizopon advises that the solution should be used for no longer than 4 h in this method. The entire cutting will be in contact with the active ingredient and it can be absorbed through

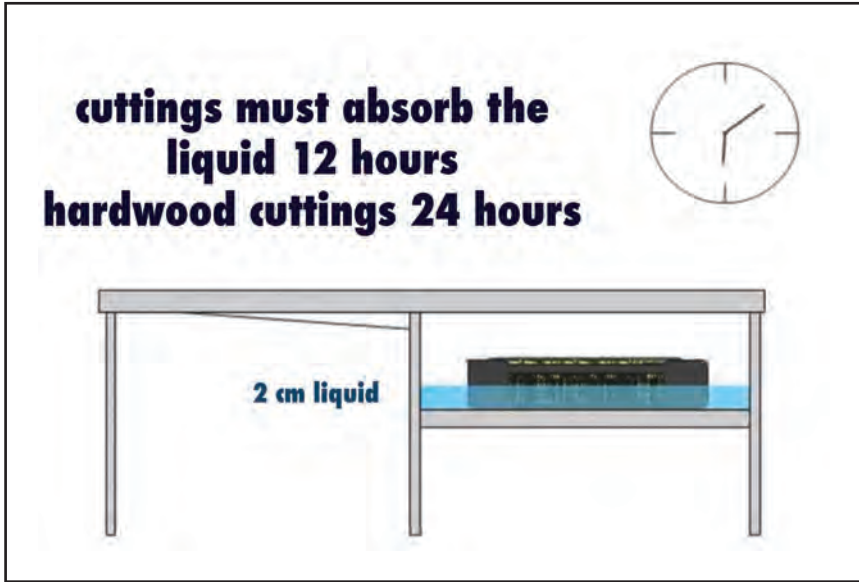


Figure 3. Basal soak. Dip the base of the cuttings 1 to 2 cm into the solution. For conifers and shrubs the absorption time is 12 h. For leafless winter cuttings it is 24 h.

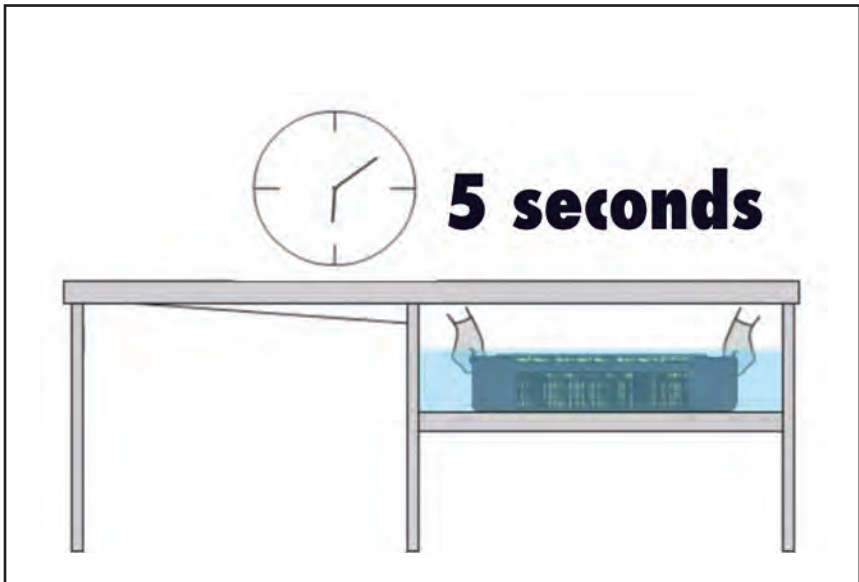


Figure 4. Total immersion. Place the cuttings in a plastic perforated box then completely immerse the cuttings in the solution for 5 sec.

stomata and pores. Because of the low concentrations, the total immersion method will not be harmful to the plant tissue.

Recent in-house research has shown that the total immersion method is suitable for rooting plants from tissue culture and micro-cuttings.

Spray and Drip Down. This is another very convenient method of using water-diluted hormone, often used by Dutch growers. After the cuttings are stuck, they are sprayed with hormone solution to runoff (Fig. 5). This method is suitable for soft shrubs, cut flower crops, pot plants, and perennials. Spray at a rate of 1 L of solution per 8 to 10 m² of stuck cuttings. Ensure even and consistent coverage by the spray.

This method can save labour, as one trained employee is able to treat a large number of cuttings at a time.

Inducing Additional Rooting. Where circumstances have resulted in poor rooting of cuttings it is possible to use hormone products to stimulate the cuttings to produce additional roots. Spray a solution of two Rhizopon AA tablets per litre of water, treating 8 to 10 m² of stuck cuttings per litre. This treatment can be repeated weekly or every 14 days. Ensure even and consistent coverage by the spray.

DISCUSSION

Vegetative propagation of ornamental crops is just like any industrial manufacturing process. It is important to properly identify and control all production resources and influences. In this case these can be considered under two headings, the crop and the cultural or environmental conditions.

Management of the Cuttings. Most growers understand that it is most important that the mother plants should be healthy and growing well. Cuttings taken from juvenile mother-plant growth will root faster and better. More mature mother plants can be pruned or even cut right back to just above the ground to stimulate the production of biological and physiologically active shoots from which to obtain cuttings.

In order to produce healthy well-rooted cuttings, feed the mother plants with organic fertilisers containing a moderate (4% to 5%) nitrogen content.

Rooting Conditions. The conditions to consider are climate, substrate, and production methods. In addition to careful management of temperature and humidity it is important to use a substrate that allows good gas exchange to ensure the base of the cutting has an adequate supply of oxygen and that CO₂ is not allowed to build up in the rooting zone.

The hormone product and treatment method should be carefully chosen with consideration given to:

- Shape, size, and sensitivity of the cutting.
- The number of cuttings to be treated.
- Speed and volume of roots produced.
- Expertise of the staff.
- Season.
- Ability to control the rooting environment.

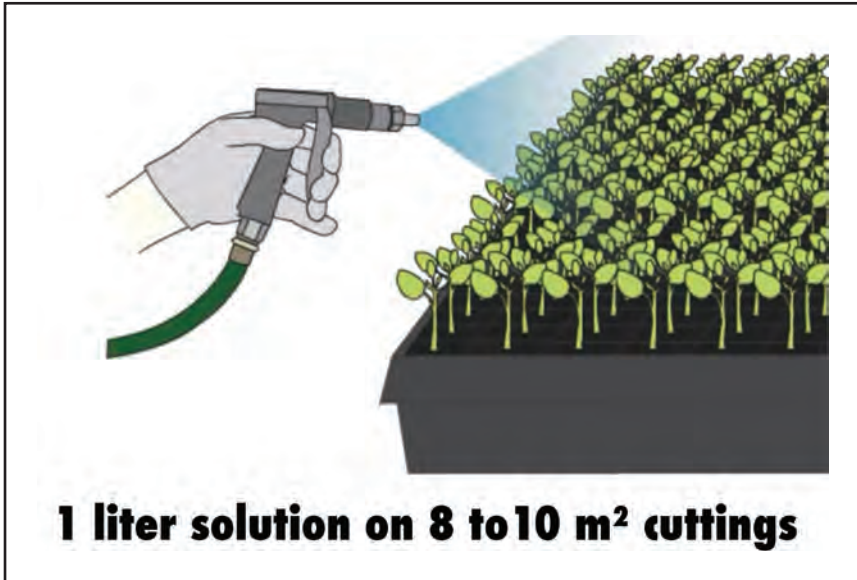


Figure 5. Spray application. After the cuttings are stuck, they can be sprayed with a Rhizopon® solution to runoff.

Further information on rooting hormones can be obtained from the following websites:

- <www.rhizopon.com>
- <www.fargro.co.uk>
- <www.rooting-hormones.com>