

DIBBLING — A USEFUL FERTILIZER APPLICATION METHOD

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Fertilizer placement studies to test the safety and efficiency of the "dibble" method of applying a resin-coated, controlled-release fertilizer to container or pot-grown plants have been conducted in New Zealand and the United States. Research trials were placed during 1981, 1982 and 1983 at the New Zealand Nursery Research Centre, Massey University, Palmerston North, New Zealand (3,4,5). Similar trials were also placed during 1982 (1) at the University of Arizona and in 1983 at Louisiana State University (2). All trials indicate the "dibble" method of applying a resin-coated, controlled-release fertilizer to new plantings of container-grown woody ornamentals is a safe and efficient cultural practice.

Also, there have been many successful grower trials conducted throughout the country during the past three years. These trials have provided substantial evidence that dibble application offers certain advantages over conventional top-dressing and incorporation methods.

Before we go much further, what is the dibble method of applying fertilizer? Webster defines dibble as "a pointed instrument used to make holes for planting seeds, bulbs, or young plants." Growers refer to the application method of placing a prescribed amount of controlled-release fertilizer into the bottom of a planting hole as the dibble method (Figure 1). The planting hole can be in a container, pot, or in the ground. After the fertilizer is placed in the dibble hole, a well-rooted liner or larger-sized plant is set on top of the fertilizer. The safety of the controlled-release fertilizer helps to insure the success of the dibble application. However, using a soluble fertilizer or a slow-release fertilizer with a large early release, is courting a crop disaster.

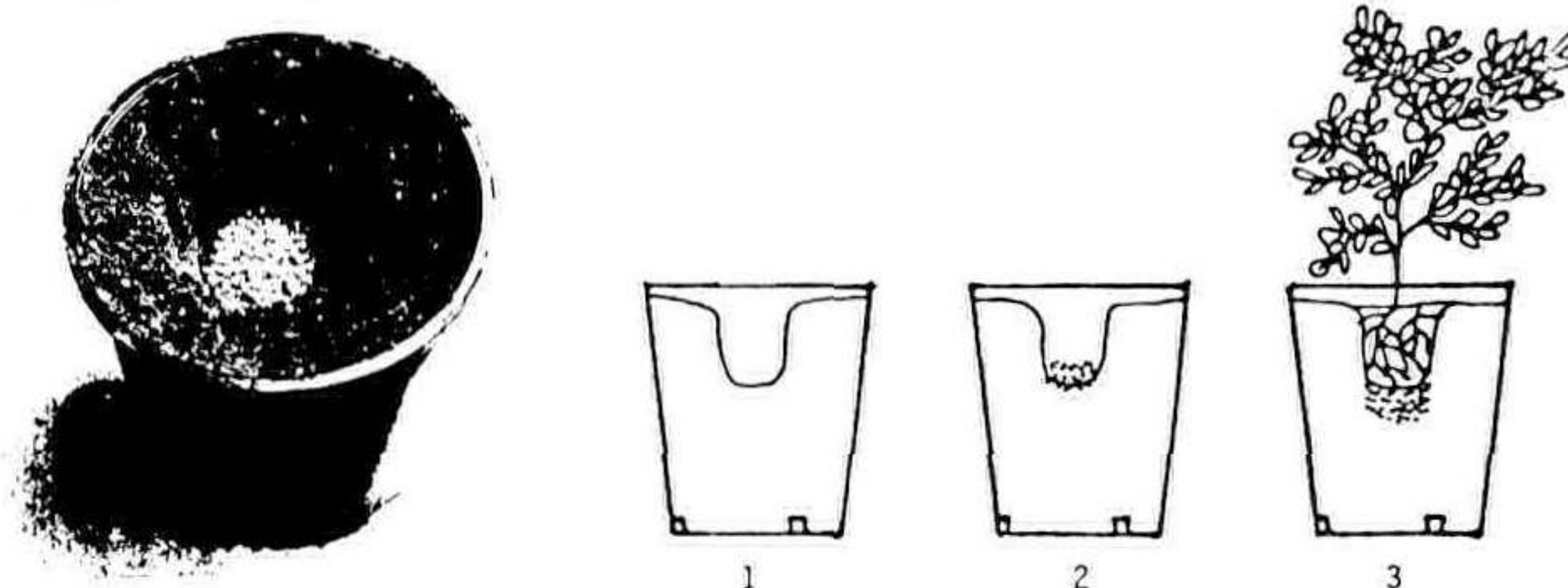


Figure 1. Placement of fertilizer and plant using dibble method of application in container production of plants.

The dibble method is employed mainly at the time a crop is rooted and shifted from the well-rooted liner stage to a 1-gal container or similar size pot. It is also possible to shift a 1-gal size plant to a 3- or 5-gal container. To date, most dibble application is used when shifting woody ornamentals or foliage plants.

At this time there is no recommendation for the dibble application on any shifting larger than a 1-gal plant to a 3- or 5-gal container. More research trials will be required to evaluate benefits derived from large plant shifting up.

Technicians with Sierra Chemical Europe have taken the dibble application method to the field where successful grower trials have been placed with strawberries, leek, Brussels sprouts, and fruit trees. In a sense, using a controlled release fertilizer in a dibble application is quite similar to banding a fertilizer into a planting slot for an agricultural crop. This is a common practice in California strawberry culture.

Sierra Chemical recommends that growers use 8- to 9-mo or longer term products such as Osmocote controlled release fertilizer (18-6-12) when utilizing the dibble application method. Eight- to 9-mo products are ideal because the resin coating is such that release of the product is gentle and gradual, which is a good safety factor in dibble application. No fertilizer with a portion of the prills uncoated is recommended for dibble application for safety reasons.

A critical management practice that will spell success or failure for the dibble system is watering. It is recommended that watering be thorough to the point of leaching immediately after planting and during the establishment period of the plant.

What are the advantages of the dibble application system?

1. Growth of the crop is uniform. The same amount of nutrition is applied to each container, pot, or under each plant in the field.

2. Application can be mechanized. Soil-handling equipment manufacturers have applicators that can be added to potting machines that will automatically apply controlled-release fertilizers in the dibble hole.

3. Fertilizer is not lost if the container or pot is overturned, flooded, weeded, or moved.

4. The availability and utilization of nutrients is optimum. Root growth around the controlled-release fertilizer insures efficient uptake.

5. Field tests indicate an extension of product life. Since the temperature is more uniform in the center of the container or pot, average temperature will be lower and nutrient release will be less.

6. Grower trials indicate success with lower rates of application than with incorporated or topdressed application rates.

7. This type of application does not feed surface weeds.

As one can see, the dibble method of application does offer the grower benefits not available with either the incorporation of fertilizer into a potting medium, or a surface application.

Progressive growers of container, pot, and field-grown crops are always seeking ways for a more effective method of growing plants in order to improve their economic benefits. Growers seeking ways to improve plant growth have been interested and have adopted the dibble application method. It might be said that applying fertilizer in the bottom of the planting hole is a spin-off of the saying, "necessity is the mother of invention."

There have been some failures. Perhaps 5% of the growers testing this practice have stunted or killed plants. Investigations of the problems indicate the use of the wrong product, too high a rate, weak planting stock, poor watering practices, or incorrect application.

We do know that several hundred container nursery stock growers in the U.S., England, and New Zealand have trialed the method. More growers become interested continually and set trials to see for themselves what benefits can be obtained.

Approximately 35% of those having tested the method are using it as a regular practice with a portion of their crop. The portion of the crop may range from 10 to 100%, with a good percentage being in the 30 to 50% range.

The list of plant species produced by the dibble method of application is long and growing daily. It is interesting to note that azaleas are popular plants to fertilize by the dibble method. As we know, azaleas range from salt sensitive to salt tolerant. I believe this plant is a good indicator of the safety of the dibble system.

Current controlled-release fertilizer longevity studies being conducted at four university research stations: University of Florida, Apopka; Louisiana State University, Baton Rouge; Auburn University, Mobile; and the University of Hawaii, Hilo, have demonstrated the safety of the dibble application method. Trials are in progress using 2, 3, and 4 lbs N/yd³ of

soilless medium. Methods of application are surface, dibble, and incorporation.

The question is asked, "Is the dibble application method for me?" Our suggestion to growers is to set dibble trials with their crops to determine safety, cultural, and economic benefits. A dibbling decision can then be made.

LITERATURE CITED

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USE OF DRIP IRRIGATION IN SEEDLING PRODUCTION AND IN TRANSPLANTING ROOTED CUTTINGS

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I speak with only two full years of experience in using drip irrigation in the field. Even with this short experience I am sold on it to the extent that we are expanding its use as fast as our finances and water supplies will permit.

Before we could undertake drip irrigation we had to develop a water supply which we did by digging wells. In the mountains of Tennessee you're lucky to hit any water in a well, much less enough for irrigation, but we were fortunate to end up with a total of approximately a 200 gpm supply from 5 wells. These wells pump into a common underground system of 4-inch lines totaling about 25,000 ft in length, making water available to a 200 acre area. With this limited amount of water the use of drip irrigation made good sense because of this method's efficient water use.