

## Propagation of Eucalyptus Nursery Seedlings

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*The very small size of eucalyptus seed, along with accompanying contaminants, makes them difficult to handle and stratify. A simple method of stratifying and propagating eucalyptus from seed is described and illustrated. Tree Planters' Notes 37(2):3-7; 1986.*

Most eucalyptus nursery stock in the United States is produced as container seedlings. Although Hunt (2) has reported some comparative trials between bareroot and container outplanted seedlings, most commercial and public agency nurseries use some form of container.

The seeds of all species of eucalyptus are very small and generally mixed with the chaff from the inside of the seed capsule (figure 1). It is difficult to separate the seed from chaff because of their similar sizes and weights. This creates problems in using any kind of seeding equipment to discharge 1, 2, or 3 seeds per container opening or at a predetermined spacing in a nursery bed. Thus, common practice is to broadcast seed in trays, then pick out the small germinates and transplant them into containers. These are then grown for one season before being planted out in the field.

Another problem involves the need for moist stratification of some seeds, not only for some species but also for some provenances of a single species. Doran and



**Figure 1**—The small *Eucalyptus umigera* seed mixed with the trash of the seed capsule.

Gunn (1) reported that seed of *Euc. glaucescens* Maid. & Blakeley. (Tingiringi gum) from the Mt. Tingiringi provenance requires no stratification.

Germination rate and number of seedlings for the Tinderry Range provenance are significantly increased by a 14-day cold moist stratification. Seed from the Guthega, Mt. Erica, and Mt. St. Gwinear provenances of this species need a pretreatment cold moist stratification of 42 days. This influ-

ence of cold on germination is of particular interest to those attempting to grow eucalyptus in areas of considerable winter frosts. Doran and Gunn report that *E. glaucescens* is one of the most cold tolerant of the eucalyptus.

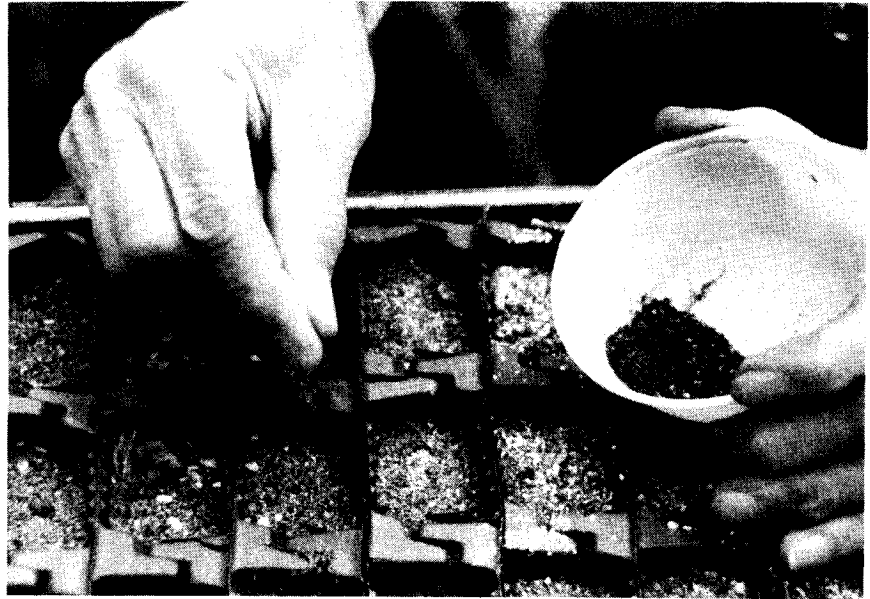
Attempts to give eucalyptus seed the usual stratification by soaking them in water, then refrigerating them, results in a gooey mess that is almost impossible to handle. It was due to this situation that an alternate procedure was developed.

### Methods of Stratification and Seeding

Because of the very rapid growth of both roots and tops of seedlings, we use Tinus Roottrainer book-type containers. We use a commercial potting medium (W. F. Grace Company forestry mix).

The Tinus containers are arranged in boxes and filled with the forestry mix. A small pinch of eucalyptus seed is placed in each book cell opening (figure 2), then dusted with 5 percent captan and covered lightly with the potting mix and quartz ("chicken grit," No. 2) rock (figure 3). These boxes of seeded containers are then set outside in the open midwinter (December through January) and allowed to stratify naturally (figure 4). The mean minimum temperature during these 2 months in our southwest Oregon region averages 34 °F or slightly below. Seed begin to germinate by mid-April to May first (figure 5). Seedlings can be grown for 1 year before being planted out in the field (figures 6 and 7).

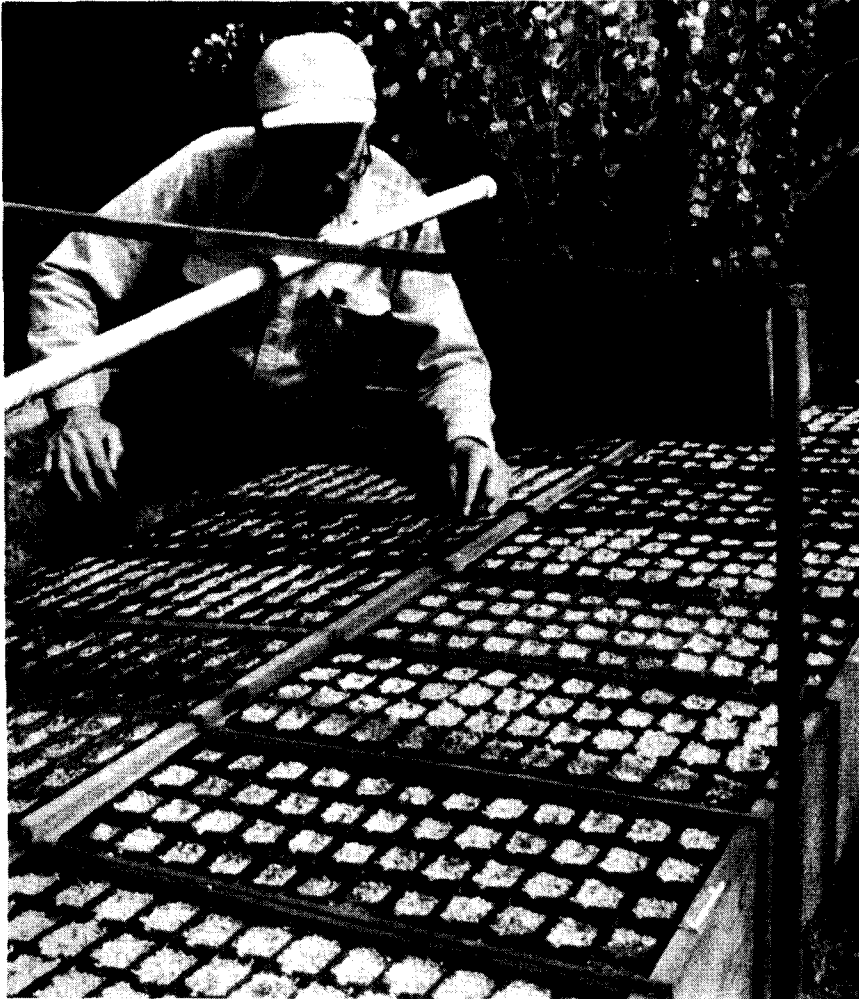
There are numerous species of eucalyptus that require no stratification. However, there is a dearth of information on specific requirements for seed from various provenances. Thus, all species that have been used in our screening program for cold tolerance have been treated in the above manner. No definitive data are given on germination because there is no simple,



**Figure 2**—Placing a small pinch of seed into the opening of Tinus Roottrainer plastic containers.



**Figure 3**—Dusting seed with 5 percent captan prior to covering with potting mix and "chicken grit." Containers on the left show the "chicken grit"—No. 2 quartz rock—used to protect the seed.



**Figure 4**—Boxes of seeded containers set outside for natural stratification and germination.

economic way to count the number of seeds placed in each container opening. The seed and chaff particles in some species are so similar as to be largely indistinguishable. Excess seedlings in container openings are plucked out. Transplanting some of them into vacant openings has been only partially successful.

Areas with subtropical or at least more moderate winter temperatures could use the same procedure. Seed can be watered and stored in the containers in boxes or trays and placed in a cold storage room at 32 to 38 °F for the required stratification period.

Advantages of this simple procedure include 1) only dry materials are handled, 2) no second handling of the seed in the stratification process is needed, and 3) the germinates do not need to be transplanted from trays to containers. Some two dozen species of eucalyptus have been grown successfully with the procedure during the past decade of our screening trials for cold tolerance.



**Figure 5**—*Emerging seedling in late April.*



**Figure 6**—*Opened-up book of Tinus container showing rooting ball of 1-year-old seedlings.*



#### Literature Cited

1. Doran, J.C.; Gunn, B.V. Effect of stratification on the germination of six different provenances of *eucalyptus glaucescens* seed. Canberra: CSIRO Division of Forest Research; 1978.
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3. Hunt, R.; Zopel, B. Hardy eucalyptus grow well in the Southeast. *Southern Journal of Applied Forestry* 2(i):6-10; 1978.
4. Hunt, L.O. Adaptability of some eucalyptus species in southwest Oregon. In: *Proceedings, workshop on eucalyptus*; 1983 June; Sacramento, CA. Gen. Tech. Rep. PSW-69. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station; 1983.

**Figure 7**—One-year-old seedlings of *Urnigera gum* (*Eucalyptus urnigera*) in specially made nursery boxes.