

6. Cuttings are placed in a wire bottom box after treated and drained.
7. Cuttings are treated with Hormodin powder 1, 2, 3, or the quick dip method using I.B.A. crystal with 50% alcohol.
8. Sterilized rooting medium is used for sticking cuttings.
9. Types of rooting media:
 - a. Perlite 100%
 - b. Perlite 75%
Peat Moss 25%
 - c. Propagation grade sand 100%
10. All tools are disinfected *twice* daily with 1 quart of 37% commercial formaldehyde diluted with 5 gallons of water.
11. Cutting benches and floors are also washed with the formaldehyde solution.
12. Rubber gloves are worn whenever any chemical is handled.

Liner Planting Procedure

1. The rooted cuttings or seedlings must be well hardened off before planting in pots.
2. Rooted cuttings are washed with Morton's Soil Drench C solution after they are lifted from the flats.
3. Soil must be sterilized before using.
4. Soil moisture content must be checked before rooted cuttings or seedlings are planted in the pots.
5. Irrigation interval is determined greatly by temperature and humidity.
6. All tools are sterilized with formaldehyde solution — 1 quart to 5 gallons of water.
7. Benches where liners are placed must be washed and sprayed with one part 8% copper naphthenate with five parts of paint thinner solution after each crop.

SOILS AND STERILIZATION: Mixing, Sterilization Methods

JAMES TAKEHARA

Oki Nursery, Inc.

Sacramento, California

1. Initially Oki Nursery was predominantly a bare root and B & B grower with a few acres of container grown stock. The requirements, at that time, for soil of container grown stock was met under the following conditions:
 - A. Equipment: Stationary five yard cement mixer and scoop loader tractor.
 - B. Sterilization: Methyl Bromide.
 - C. Type of soil: U.C. Mix.
2. When Oki Nursery underwent the transition to complete container growing, 50 acres of containers necessitated a greater volume of soil under the U.C. Mix specifications.

- A. The U.C. Soil specifications are the following:
 1. Soil must be uniform.
 2. Soil must be free of weeds and disease.
 3. Soil must be light and pliable.
 4. Soil's basic ingredients must be economically and readily obtainable.
 5. Soil must be free from salinity.
 6. Soil must be usable soon after mixing.
 - B. Sterilizing methods used by the Oki Nursery to fulfill the above specifications are as follows:
 1. Weed control — methyl bromide for rice hull.
 2. Composting — natural heating within the soil mass.
 3. Steam — liner mix and propagation media.
3. Factors of the mixing method utilized by Oki Nursery are as follows:
- A. *Ingredients*: 50 cubic yards of redwood sawdust treated with nitrogen, 43 cubic yards of rice hull, and 48 cubic yards of washed sand with recommended amount of fertilizers.
 - B. *Machinery*: Scoop loading tractors, rotary mixer and screener, and 180° side-to-side swinging conveyer.
 - C. *Personnel*: One reliable operator.
4. The preparation of the Liner Mix using U.C. System:
- A. *Ingredients*: $\frac{1}{3}$ cubic yard fine sand, $\frac{1}{3}$ cubic yard fine fir bark, $\frac{1}{3}$ cubic yard ground sphagnum peat moss and recommended amounts of fertilizers.
 - B. *Sterilization*: Steam under canvas cover at 140° F. for 30 minutes. Steam is fast, retains beneficial bacteria, and is a by-product of steam energy.

**SPECIALIZED EQUIPMENT: CANNING,
MATERIAL HANDLING SYSTEMS**

DICK OKI
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Most of us build or purchase machinery for easier and quicker handling, and for labor saving. We all make mistakes in purchasing special equipment because of the expense involved. A less expensive model will usually be made with cheaper parts.

We here at our nursery, in evaluating equipment, consider life time, labor saved, and taxes. It's a shame our industry isn't large enough for machine manufacturers to build specialized equipment. Most all of our equipment is built here in our shops. All parts we use are new and are readily available at any dealer.

First, I'd like everyone to observe the two-row Pneumatic Canning Machine. At this rate of speed, this crew will plant over 17,000 cans in an eight hour day. Except for the hoppers and pot dies, the parts for this whole machine may be obtained