BAREROOT CANNING & CARE

The following is an outline for canning and care we would recommend. It seems to be working well for all of our customers.

1. **HOLDING BAREROOT TREES**: Storing in coarse sand is preferred. Use cement (river) sand or coarser. Do not use fine plaster sand or toxic barks, redwood, or shingletow as the cut roots will take up the tannic acids. Prefer not to store in straight organic matter (1) unless for only a few days. They could be stored in good canning media. Be sure the storage area drains well and the trees are not in standing water.

2. **CANNING MEDIA**: 60% coarse pine or fir wood. Prefer 5/8" – ¾" chunks for 5 gallon up to box canning. Use 20% coarse cement (river) sand, not plaster sand. Use 20% other: coarse #4 perlite, or coarse good pumice, or rice hulls. We prefer rice hulls. The cellulose is slow to decompose leaving air space for new white feeder roots. The hulls contain phosphate, phosphorus and potassium which feed the roots for a long time. Kellogg's Amend or bales of rice hulls are available at equestrian supply businesses. Many nurseries use 75% wood and 25% coarse sand. I prefer using the other to reduce weight and for aeration. Do not use redwood, cedar wood, bark, or green waste. All are toxic.

3. Wet the roots when canning to have media stick to the roots. Nurseries often have a tub of water with B-1 or *Superthrive* to dunk the roots as canning. Not a must. <u>Do not leave in water over 10 minutes</u>.

4. **WATERING**: When canning, water in well within 2 hours of canning. Be sure to eliminate air pockets and all the organic is wet. DO NOT WATER again until in leaf. No need to water the 2 months after canning unless in good leaf.

Employees do not always understand watering.
1. Keep a deciduous tree or shrub away from conifers and evergreens. No water from fall to spring.
2. New canning you water in well so no air pockets. Media should be damp or wet when canned, not dry.
3. We deliver support roots only, no white feeder roots which will re-grow once planted.
4. The white feeder roots develop in late January, February, and March in California. The trees store quantities of sugar in the roots and sapwood in the late summer and fall from the photosynthesis. It is used for spring growth of new foliage. Food storage in the roots begins in summer when top growth stops.
5. The new white feeder roots are about 85% sugar. So imagine it is like a sugar cube that dissolves each time soaked in water. Chlorinated water is even harsher. Rain with high oxygen is not a problem and usually wets only the top few inches of a container.
6. The new trees and roots can not take in any water until the foliage develops and draws up the water. If no foliage, no water can enter the tree. This is the reason deciduous orchards – walnut, peach, apricot, etc are not watered from October/November and re-start in March/April.
7. The new foliage through photosynthesis produces starch which travels to the new sugar roots and strengthens them so they do not dissolve. Wait for the new foliage.

It does not matter if the top 2"-3" gets dry or 1" or so on the sun side of the container. 85% of the middle where the roots are remains moist.

Think of it as a bear hibernating – leave it alone all winter. In spring it wakes up and needs to feed. All winter feeding and watering is a waste. The tree will use the stored sugar for foliage, flowers, new limbs, fruit, etc. Feed and water after it leafs out. High organic media retains water. Do not over water or they will die.

If you follow the above, you should have 100% viability. We have wholesalers with $200,000 to $400,000 orders. They have good media. We seldom see one dead tree. They do not put in the emitters until they see foliage. If three in a row leafed, hook up only these. If the same variety, the balance usually are out in a week. Check once a week at the most. The majority are in leaf by late March in California if not watered. Persimmons and Hackberries can be much later.

(OVER)

SOME ROOTS WILL TELL YOU WHEN THE MEDIUM IS TOO WET

1. **ROOTS GROWING UPWARD FOR OXYGEN:** Normally, early roots grow upward when over watered with the new roots reaching up for oxygen. Trees often have dead tops, but later put on large suckers as roots develop in container surface.

2. **WATER ROOTS:** Can be found in container or storage area. Trees or plants develop roots but some are very fat, fleshy roots that shrivel up soon after tree is pulled from medium.

3. **ADVENTITIOUS ROOTS:** Description - Primary growth at nodes and usually whorl-ring and callus-like. Often caused by lack of oxygen in wet areas. This is an area where hair roots would normally grow. When any of the above is found, it normally tells you the root was healthy, but too wet (without oxygen) to grow properly. The plant or tree will start dying from the top because the roots are not taking in minerals and water to supply the top. Some will come out low and/or sucker if surface roots develop. Some trees and plants will leaf out but not grow because of the lack of oxygen to develop good feeder roots. Varieties on plum root often do that. It is common for Birch to have small leaves and set lots of seed when roots lack oxygen to grow properly. Water sensitive trees and those with soft roots, like most legume varieties, will die.