



## Planting Seeds

# Care and Sweating of Bareroot Nursery Stock

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**CORRECTION:** In my article, “Woody Plants with Winter Interest” (*The Wisconsin Arborist*, Vol. 26 No. 2, page 7), the two vines, *Celastrus scandens* (American bittersweet) and *Hydrangea petiolaris* (climbing hydrangea), should have been listed BEFORE the heading “Woody Plants that Flower in Late Winter” since they do NOT flower in winter. They are *showy* in winter due to their fruit (American bittersweet) or their showy bark (climbing hydrangea).

Bareroot nursery stock is a perishable product that needs to be handled and maintained properly in order to ensure survival and reach budbreak. Dehydration is one of the greatest limiting factors influencing successful handling of bareroot nursery stock. It is very important that you do not allow the plant to dry out at any time. Keep the material out of direct sun, wind, and freezing or high temperatures. If cold storage facilities are available, store the bareroot material at temperatures between 34–38°F with relative humidity levels of 85% or more. If cold storage facilities are not available, moisten the material and store the plants in a cool, moist, protected area out of direct sun and wind, but above freezing temperatures. Pack the roots with moistened straw, shingle tow, or bark mulch (not wood chips) and cover them with poly or a canvas tarp. Keep the plants moist and avoid temperature fluctuations. Most trees and shrubs can be stored bareroot all winter under refrigeration and develop normally once transplanted. However, there are a few genera which become deeply dormant and will need to be forced out of dormancy and rehydrated before they are planted, or they will remain dormant after planting and eventually die.

### Sweating:

Have you planted bareroot oaks in spring only to witness them just “sit” with no budbreak, even into late May? When they do eventually break bud and produce leaves, the amount of leaves is reduced with significant dieback of branches? Besides lack of sufficient water and significant root damage, one of the problems may be that the trees were not properly sweated before planting. Many trees and shrubs planted as bareroot nursery stock show no adverse side effects after bareroot storage and will readily break bud and develop under most conditions. However, there are a few species, such as oaks, for which it is difficult to get them to break bud and leaf out. Trees and shrubs dug bareroot in fall are stored in cold storage and remain dormant under cool, moist conditions. Before planting out in spring, the roots will need rehydration with water. It is critical to hose down the roots thoroughly with water prior to planting. Unfortunately, buds on some tree and shrub species become quite hard, dormant and dry during winter storage and also need rehydration to induce them to break dormancy. This is achieved during the sweating process.

### Process:

To allow for sufficient budbreak, you will need to provide warmer temperatures and high humidity. There are two ways to accomplish this task. The

first method uses polyhouses. The bareroot material is potted up into containers and placed inside a polyhouse. The warm, humid environment inside a polyhouse encourages imbibing of water into the roots, which is then transported to the developing buds. For nurseries, landscapers, and arborists who do not have the luxury of a polyhouse, bareroot material can be sweated by another means.

The second method is “sweating” the bareroot nursery stock, a reasonably easy process which does not take much time. Sweating should occur inside a building, barn, garage, or if done outside, should be done in a shady area. Soak the roots in water for at least 4–6 hours or overnight to ensure proper hydration. Shake off the excess water and lay the dormant plants flat on top of a sheet of poly, plastic, or canvas tarp and place one or two layers of moistened packing material such as burlap, shingle tow, or straw on the poly or canvas. Avoid excess, standing water as mold can easily grow within a few days. Completely cover the plants with several layers of the damp packing material. Cover the entire pile with another sheet of poly, plastic, or canvas tarp and seal around the edges. The plant material should stay moist and temperatures should be kept between 50–70°F. Once the buds begin to swell (usually within 3–7 days), the plants are ready to be lined out in a nursery or planted in the landscape, therefore start the sweating process approximately one week prior to planting outdoors. The sweating process is not recommended for conifers.

### Key to Success:

The key to successful sweating is the treatment the plants receive after the sweating process. Once the buds begin to swell, the natural progression of budbreak must not be interrupted. Remaining in the sweating environment for longer than a week will cause what has started to stop. If the ideal conditions are not present after completing the sweating process, all the benefits of sweating are lost. If outdoor temperatures are too high or too low or relative humidity levels are too low or it is windy, the sweated nursery stock will dry out again and revert back into dormancy and may even suffer some dieback. The buds may become hard and dehydrated again. If shoot growth has occurred, it is susceptible to frost injury and desiccation. It is essential therefore to have warm, humid outdoor conditions at planting time. This may mean delaying planting of some species until conditions are suitable. Depending on where you are in the state, this will usually occur sometime between the beginning and end of May. Local conditions can vary, so use your experience and judgment to decide. If you can delay planting of your sweated bareroot nursery stock until the proper time, your chances for success should be greatly increased for those species requiring sweating. If these conditions do not exist, sweated plants can be potted up and grown in a polyhouse until weather conditions are suitable for transplanting outside. Dormant, bareroot plants requiring sweating should not be planted outside early in spring as temperatures and humidity levels are unsuitable for continued development of the buds and shoots. Most other plant genera that do not

require sweating can be planted earlier in spring.

Regardless of when you plant bareroot stock, make sure to keep the roots moist at all times during transportation to the planting site and keep the entire plants covered, out of direct sun and wind. Make sure to prune any broken branches or roots before planting. Spread out the roots in the hole to prevent future circling or girdling roots. Make sure to place the first-order lateral roots near the soil surface. Finally, after planting, water the plant in thoroughly and continue watering as the plant is leafing out. Make sure to keep the roots well watered until it is established to encourage new root growth that will support new shoot growth. Trees and shrubs during the establishment stage require more regular watering than those that are already established in the landscape. Avoid use of nitrogen fertilizers the first couple of years. Excess fertility will cause excess shoot growth at the expense of root growth.

The benefits of planting dormant bareroot material far outweigh the slight inconvenience of sweating nursery stock. Bareroot plants may have more root mass than traditional balled and burlapped (B&B) material. Costs are lower for bareroot stock. Bareroot trees are easier to plant than B&B or container grown stock, saving you time and your back! The root flare can be easily seen in bareroot material allowing you to set the plant at the appropriate height in the hole. This will mean future girdling and circling roots can be avoided! Bareroot material will require less watering than B&B and container grown material as there are no soil interfaces between the root ball/container mix and the surrounding hole. The roots are in direct contact with the soil. Finally, no wire baskets, twine, or burlap to remove!

Species requiring sweating of bareroot material:

**Trees:** ashes, baldcypress, birches, especially river birch, black gum, hackberry, hawthorns, hickories, honeylocust, ironwood, Kentucky coffeetree, lindens, mulberry, musclewood, oaks, pagoda dogwood, pears, redbud, serviceberry, sweet gum, weeping willow

**Shrubs:** barberry, burningbush, spreading cotoneasters, variegated dogwood, fothergilla, potentilla, roses, tamarisk, witchhazels

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