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4-1-1993

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### Recommended Citation

Ball, John and Graper, David, "Planting a Bare-root Tree" (1993). *Extension Extra*. Paper 220.  
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# Extension Extra

ExEx 6018  
April 1993  
Horticulture

SOUTH DAKOTA STATE UNIVERSITY / U.S. DEPARTMENT OF AGRICULTURE

## Planting a Bare-root Tree

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Bare-root trees provide an economical way of developing a home landscape or farm shelterbelt. Bare-root plants often cost a tenth of what container or balled and burlapped plants do since the tree is sold without soil around the roots. Some bare-root trees are called packaged trees because they have their roots packed in moist peat and are enclosed in a bag. The planting procedure and care are the same for both. While bare-root plants require a little more care in planting, the survival and recovery can be similar, if not better, than other methods of transplanting.

### When to Plant . . .

Bare-root trees must be planted in early spring while they are still dormant. Once the buds begin to expand and form new leaves or needles, the plant's water demands can increase a hundred-fold or more. If the plant's roots are not already established in the soil, the plant may soon dehydrate and die.

Bare-root trees can be planted in the fall after they have dropped their leaves and become dormant. This is a common practice in parts of the United States that have mild winters. In South Dakota, the winter winds and open soil condition may cause the new, unestablished plant to dehydrate. Unless adequate protection from the winter winds and a mulch is used to protect the roots, fall planting of bare-root plants is not recommended, particularly for evergreens.

### Before Bringing the Tree Home . . .

Carefully select the tree planting site. Too often people buy plants, then decide where to place them. When this happens, trees often are placed in locations they soon outgrow.

Find out how large the tree will become at maturity and leave adequate space. Stand over the spot you have selected for planting and look up to check for power lines. Do not plant tall tree species beneath power lines. Once the tree begins to grow into the wires, the trees will become a nuisance to the utilities, requiring frequent pruning or perhaps removal.

Utilities also may exist beneath the spot you want to plant. Contact local utilities before planting to be sure the location you select is not directly over cable, phone or other utilities. Generally, if you do not clear the location with the utilities before digging, you are responsible for all damages.

### After the Tree Is Home . . .

The first thing to do is check your tree or shrub for tags. Wire or plastic tags can girdle branches or the trunk if left

on too long. Remove the tags, but keep them in a safe place for future reference. You also may want to note, on the back of the tag, where and when the tree was planted.

Before digging the hole, spend a few minutes preparing the bare-root tree for planting. Since bare-root trees are moved without soil around their roots, it is very important to keep the roots moist and covered until the trees are planted. If the roots dry out, the tree can quickly die. Try not to store the tree too long before planting. Bare-root trees should have the roots covered with moist leaf compost or soil. Packaged trees should not have the package removed.

On the day of planting, get a pail large enough to hold the entire root system. Fill the pail with water and then mix in soil until a thick slurry forms. Remove any packing material from around the roots and inspect them carefully. Cut off any broken, crushed or dead roots with a hand pruner. Be sure to make straight clean cuts. Next, dip the roots in the slurry a few times until they are coated, then keep the tree in the pail until planting. This thick coating will protect the roots while you are planting the tree.

## **Preparing the Site . . .**

One of the most common planting mistakes is digging the hole too deep and not wide enough. The planting hole should be no deeper than the distance from the soil line on the trunk to the bottom of the lowest root. The hole should be at least twice the diameter of the root system. The sides of the hole do not have to be straight, but can be sloped.

If the soil is heavy clay, the sides of the planting hole may become glazed during the digging. Break up the sides of the hole with a rake or shovel. If this is not done, the new roots may not be able to penetrate the sides of the hole and may instead circle.

Sometimes post-hole diggers are used to dig the holes for bare-root trees. Although this method may be feasible for one to two year old seedling stock, it is not suitable for larger trees, especially when planting into a heavy or clay-type soil. If you use a post-hole digger, do not dig the hole too deep. Remember that the planted tree's roots should be at about the same depth as they grew before.

Be careful to avoid glazing the sides of the hole, which will inhibit root penetration. Most post-hole diggers do not make a hole large enough in diameter to accommodate the root system of even small trees. Consequently, trees planted using a post-hole digger often decline from poor root growth and girdling of roots.

## **Planting the Tree . . .**

Have someone hold the tree over the center of the hole. Gently separate any tangled roots. Be sure not to bend any of the roots to fit the hole. If a lateral root is too long, cut it cleanly with pruning shears at the edge of the hole rather than bending it. Your partner should hold the tree so that the original soil line on the trunk is slightly higher than the surrounding ground surface. If you look closely, the original soil line should still be visible on the root collar. Planting the tree an inch or two higher will ensure that the ground will slope away from the tree. Planting too deep is a major cause of death for trees in South Dakota.

Begin refilling the hole using the same soil you took out. Do not add soil amendments like sand or gravel to the planting hole. These can disrupt water movement between the surrounding soil and the planting hole, leaving the new plant too dry or too wet. If you feel you must add amendments, only mix in leaf or garden compost. They should make up no more than 20% of the backfill (by volume). Be sure to thoroughly mix the compost and backfill soil before re-adding it to the hole.

Fill the hole about one third full and then add water to let the backfill soil settle around the roots. Continue adding the backfill until the hole is two thirds filled, then add water again. After the soil has settled, continue adding backfill until it reaches the root collar (old soil-line). Add water again and a little more backfill if the soil settles. When the soil has settled it should be at the root collar and the soil should slope slightly away from the tree.

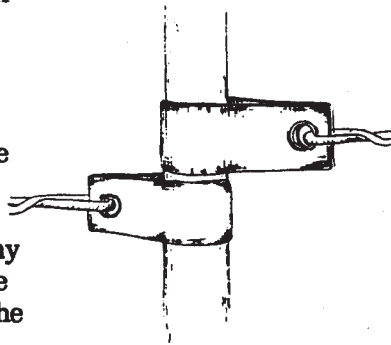
Do not build a soil saucer around the trunk. While it is important to keep the present root area moist, it is equally important to water the soil extending out from the planting hole. New tree roots can grow from the planting hole into the surrounding soil within the first growing season if this soil is kept moist. The sooner the tree moves into the surrounding soil, the sooner the tree recovers from the transplant stress.

A mulch circle around the tree can double its growth and speed reestablishment. Mulch lightly with about three to four inches of a composted material. Incorporate this material into the upper one inch of the backfill and extend out as far as the edge of the planting hole. Do not apply the mulch too deeply as this may interfere with the exchange of air between the soil and the atmosphere. Leave a 12-inch circle free of mulch around the trunk to discourage rodents. If weeds are a concern, place a porous weed barrier fabric beneath the mulch to reduce weed growth rather than incorporating the mulch into the soil.

Do not wrap the trunk. The trunks of young trees often serve a similar function as the leaves, manufacturing food. Wrapping the trunk may slow the rate of recovery for the tree. If you feel you must wrap the trunk, be sure to remove the wrap before the second growing season begins. Wrap left on more than one growing season can girdle the trunk.

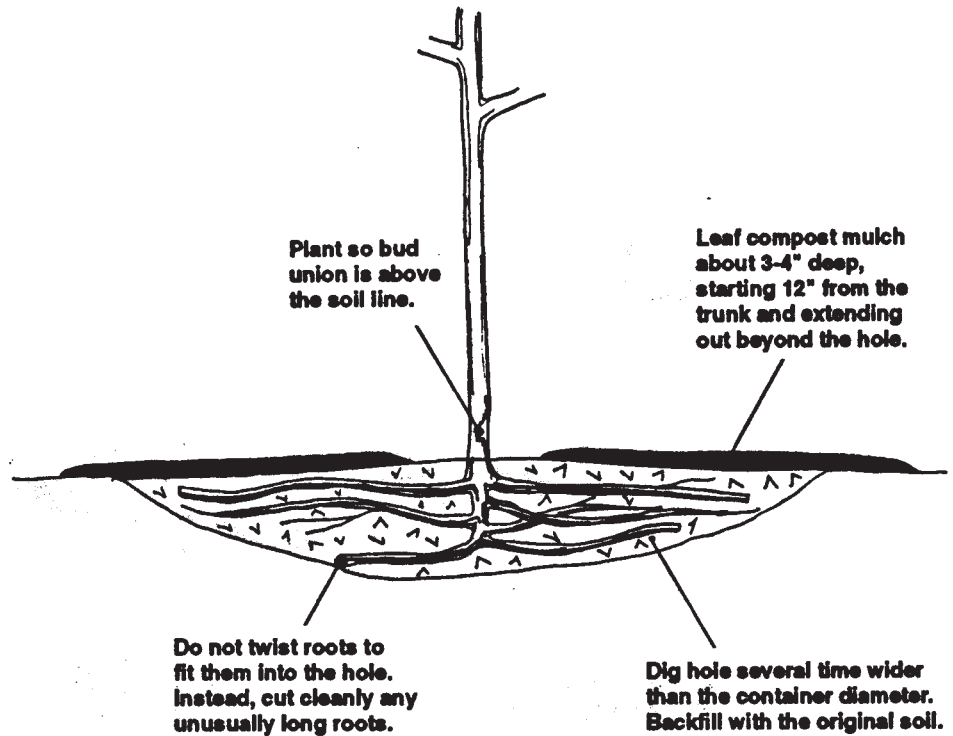
Instead of wrapping the trunk, consider one of the following methods to protect from rodents, rabbits, weedwhips, and mower damage. Slit a one foot length of plastic tile, and place it around the base of the trunk. Be sure the tile is at least several inches larger than the trunk. Or, use a ring of quarter-inch hardware cloth one to two feet high and several inches larger than the trunk. Whatever the method you choose, remove in a few years before it contacts the trunk.

If the tree was planted in a windy location you may want to stake and brace the tree for the first growing season. Do not stake the trunk too high (never higher than one-half its height) or too tightly. Over-staking may prevent the tree from developing a strong trunk and support roots. Use a wide, belt-like strap, attached by wire to two stakes. Position the stakes at least two feet away from the trunk. Do not use the wire itself to support the trunk.



## After-planting Care . . .

Avoid pruning the tree heavily at planting. Confine pruning to removal of dead, broken, and misshaped branches. The more leaves the tree has, the more food it can produce and the faster new roots will develop. Do not prune back the



branches; doing so will slow the root's recovery. After the tree becomes established, usually in a year or two, you can begin pruning to shape the tree.

Fertilizing is generally not necessary until the tree has recovered from transplanting. This usually takes a year for bare root trees. If you want to add fertilizer at planting, use a slow release granular fertilizer mixed in with the backfill or use fertilizer briquettes.

Watering is the most important form of after-care. Newly transplanted trees often die from too little or *too much* water. Check the soil around the tree once a week during the growing season. The top two to three inches of soil should stay moist enough to form a ball when gripped in your hand. If the soil is dry, add more water to saturate the top six to eight inches, then do not water again until the soil dries.

## For Additional Information . . .

- ExEx 6019 -- Planting a Container Tree
- ExEx 6020 -- Planting a Balled and Burlapped Tree
- ExEx 6021 -- Planting a Tree With a Tree-Moving Machine



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150 copies printed by CES at a cost of 10 cents each. April 1993.