

# Tree/Shrub Establishment — Balled/Burlapped/Container

## WV Conservation Practice Job Sheet **Code 612**



### Definition

Establishing woody plants by planting seedlings or cuttings, direct seeding or natural regeneration.

### Purpose

To establish woody plants for forest products, wildlife habitat, erosion control and improvement of water quality, treating waste, reduction of air pollution, sequestration of carbon, energy conservation, enhancing aesthetics and/or improving or restoring natural diversity.

### Criteria

Select tree and shrub species adapted to local soil, site, and space conditions that will accomplish the landowner's objectives.

### Planting Time

Trees/shrubs can be planted in the fall from the time growth stops until the soil is frozen; or in the spring after the soil has thawed until bud break which usually occurs by April 15<sup>th</sup> in most of West Virginia.

Balled and Burlapped/Containerized items usually have better survival. Containerized specimens can be stored for extended periods if they are protected. Store the plants in partial to full shade and water frequently.

### Planting Methods

Hand or machine planting may be used. The techniques used should ensure the proper depth and placement of planting stock roots

Dig a large planting hole. CAUTION: Be sure you have had all underground utilities located prior to digging. The planting hole should be dug as deep as the root ball and at least twice as wide. A large-sized hole is important because as the tree begins to take hold in the ground, its roots must push through the surrounding soil. Roots have difficult time if the soil is rocky or compact; however, if the soil has been loosened by digging and backfilling, the roots will have room to establish well.

Prune sparingly. Examine the specimen closely for injury to roots or branches. If any roots are crushed, cut them at a point just in front of the break. On the top, prune only broken branches, making sure to leave the branch collar (swollen part where one branch meets another) intact. Begin corrective pruning after a full season of growth in the new location. See Tree/Shrub Pruning – 660.

Prepare the hole and soil. While some newly transplanted trees may benefit from an application of plant food, it is best not to use fertilizer until the plant is well-established. Good, rich native soil is usually adequate. Never apply high nitrogen fertilizer at planting as it may burn tender roots. The diameter of the hole should be at least 24 inches wider

than the diameter of the root ball. To reduce the possibility of planting the specimen too deep, the excavated hole is recommended to be no deeper than the depth of the root ball. Use the material excavated from the hole as backfill if at all possible. In cases where soil conditions are fair to poor, peat moss is recommended as an additive, not to exceed 1/4 by volume.

Place tree at the proper height. To avoid damage, when setting the plant in the hole, always lift the tree by the root ball, never by the trunk. Add a sufficient amount of soil to the hole to bring the plant to its original growing level. This level is indicated by a dark stain on the trunk which marks the difference between root and trunk bark. Keep in mind that on balled and burlap plants, the point at which the burlap is tied can be much higher than the original soil line. Planting at the proper height is important because if a plant is set too deep, its roots may suffocate; on the other hand, if the plant is set too shallow, the roots may dry out in the air and sun.



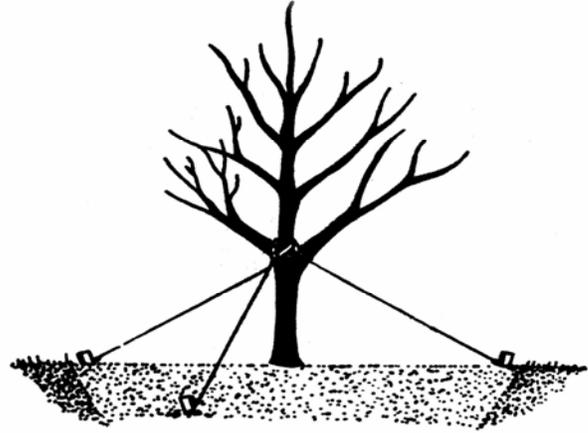
Correct planting of balled and burlap specimen.

Source: New Tree Planting - International Society of Arboriculture

Stake the plant, if necessary. Staking a plant can cause bark damage and hinder root and plant stability, so it should be avoided where possible. However, if a specimen is too tall to stand alone, is planted in a windy area, or has a weak root system (such as a dwarf fruit tree), it should be staked to avoid shifting during heavy rains or high winds, as such movement can easily damage tender roots. Staking must be done carefully with soft strapping material such as woven belt fabric or padded wire. Drive two or three stakes in the ground just outside the perimeter of the planting hole, spacing them an equal distance apart. For each stake, attach one end of the strapping material to the plant at the lowest practical level to maintain it upright and fasten the other end to the stake. Remove the stakes as soon as the plant has firmly rooted itself in the soil. As a rule, the stakes should not be left in place for more than a year.

Mulch the base of the plant. Mulch should be applied to the area at the base of the plant. Some good choices of

material are leaf litter, pine straw, shredded bark and twigs, peat moss, and composted wood chips. A two to four-inch layer is adequate. Mulch should not be placed directly against the root collar and a saucer along the outside edge of mulch is not recommended. Mulch helps conserve moisture, minimize grass and weed competition and protects the tree from lawnmowers and weed cutters.



Correct staking of balled and burlap specimen.

Source: New Tree Planting - International Society of Arboriculture

### Maintenance and Cultural Practices

Since many roots were removed when the plant was dug in the nursery, regular watering is important to aid the development of a strong new root system at the new site. Keep the soil moist but not soaked, as overwatering will cause leaves to turn yellow or fall off. Water plants at least once a week, barring rain, and more frequently in hot weather. When the soil is dry four inches below the surface, it is time to water. Continue until mid-fall then taper off, as this is the time for the plant to stop growing and harden off.

Inspect specimens at least once a year. During the inspection, be sure to evaluate: tree vigor, new leaves or buds, leaf size, twig growth, and crown die-back, if any. Also look for insect, disease, and / or animal damage.

A reduction in the extension of shoots or in the size of leaves is a fairly reliable cue that the plant's health has recently changed.

The use of fertilizer in the backfill at the time of planting is not recommended.

Apply fertilizer, in the according to soil test results. Fertilizer is best applied in the fall or early spring, although it is not harmful to apply fertilizer at any time during the year.

In the absence of soil test results, apply a slow release fertilizer containing 5% nitrogen, 10% phosphorous, 5% potash, and trace elements.

Fertilizer should be applied within the dripline of the plant at the rate of one cup per caliper-inch for trees and 1/2 cup per foot of height for shrubs.

Fertilizer application once every two to three years will usually suffice.

Replace mulch as needed.

See the WV conservation practice standard Tree/Shrub Pruning, 660.

Each site will be evaluated to determine if mulching, supplemental water or other cultural treatments will be needed to assure adequate survival and growth.

Comply with applicable federal, state, local laws and regulations during the installation, operation and maintenance of this practice.



## Considerations

The following should be considered for tree and shrub establishment

Priority should be given to plant materials that have been selected and tested in tree/shrub improvement programs. All plant materials should comply with minimum standards such as those as established by the American Nursery and Landscape Association, Forest Service, or state-approved nursery.

Plans for landscape and beautification plantings should consider foliage color, season and color of flowering, and mature plant height.

Where multiple species are available to accomplish the planned objective, consideration should be given to selecting species which best meet wildlife needs. Consider associated insect, pest, and disease problems when selecting tree and shrub species (i.e. cedar-apple rust, etc.)

Consider drainage class and soil type when making plant species selection.

Job Sheet prepared by Barbara McWhorter, NRCS Forester  
West Virginia Registered Professional Forester #335

Native plant materials should be used whenever possible. Species considered locally invasive or noxious should not be used.

Planting dates, and care in handling and planting of the seed, cuttings or seedlings will ensure that planted materials have an acceptable rate of survival.

Site preparation should be sufficient for establishment and growth of selected species. Site preparation is needed if competition from grass, weeds, and/or woody materials will interfere with plant establishment and growth. See WV Conservation Practice Standard Tree/Shrub Site Preparation, code 490, and Brush Management, code 314, and associated job sheets.

Each site will be evaluated to determine if mulching, supplemental water or other cultural treatments will be needed to assure adequate survival and growth.

Comply with applicable federal, state, local laws and regulations during the installation, operation and maintenance of this practice.

## Operation and Maintenance

The practice area should be inspected in the first few months and at least annually including after storm/fire events.

Replace dead and dying stock in newly established plantings. The practice area must be protected from grazing as well as, fire, insects, diseases, competing vegetation and wildlife. Noxious weeds will be controlled.

Where practical, management activities will be performed outside the primary nesting season (March 15<sup>th</sup> - July 15<sup>th</sup>). An exception may be for mowing or cultivation to control vegetative competition.

Supplemental water as well as periodic applications of nutrients may be needed to maintain plant health and vigor.

Trees and/or shrubs can eventually become crowded slowing their growth, survival and composition of understory species. As the plants mature, periodic harvesting of some of the overstory trees and shrubs becomes an important activity for maintaining plant health and productivity.

Pruning, thinning, and/or removal of dead or diseased plants should be performed and timed as to not interfere with the lifecycle of the plants or the intended purpose of the planting.

## Specifications

Site-specific requirements are listed on the following pages of this job sheet. Specifications are prepared in accordance with the WV NRCS Field Office Technical Guide. See the WV conservation practice standard for Tree/Shrub Establishment, code 612, for specific requirements. Clients should work closely with NRCS personnel and WV Division of Forestry personnel when utilizing this practice.

**Tree/Shrub Establishment – WV Job Sheet – Balled/Burlapped/Container**

<b>Client:</b>	<b>Farm #:</b>
<b>Field(s):</b>	<b>Tract #:</b>
<b>Designed By:</b>	<b>Location:</b>
<b>Date:</b>	<b>Total Acres:</b>

**Purpose of Tree/Shrub Establishment:**

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**Site Conditions Prior to Planting:**

**NOTE:** A precondition for tree/shrub establishment is appropriately prepared sites. Site preparation is needed if competition from grass, weeds, and/or woody materials will interfere with plant establishment and growth. Refer to practice standard Tree/Shrub Site Preparation, 490 and/or Brush Management, 314, as applicable.

Is Tree/Shrub Site Preparation needed? Yes  No

If yes, see WV conservation practice standard Tree/Shrub Site Preparation, code 490.

Tree/Shrub Establishment Method (Refer to WV Practice Standard (612) Tree/Shrub Establishment for specific requirements)									
Field	Acres	Species <sup>1</sup>	Kind of Stock <sup>2</sup>	Method <sup>3</sup>	Planting Date	Plants / Acre	Average Spacing	Protection Method <sup>4</sup>	Total Plants

<sup>1</sup> **Species:** If available, attach USDA Plants Database (<http://plants.usda.gov>) Fact Sheet or Plant Guide for each species planned

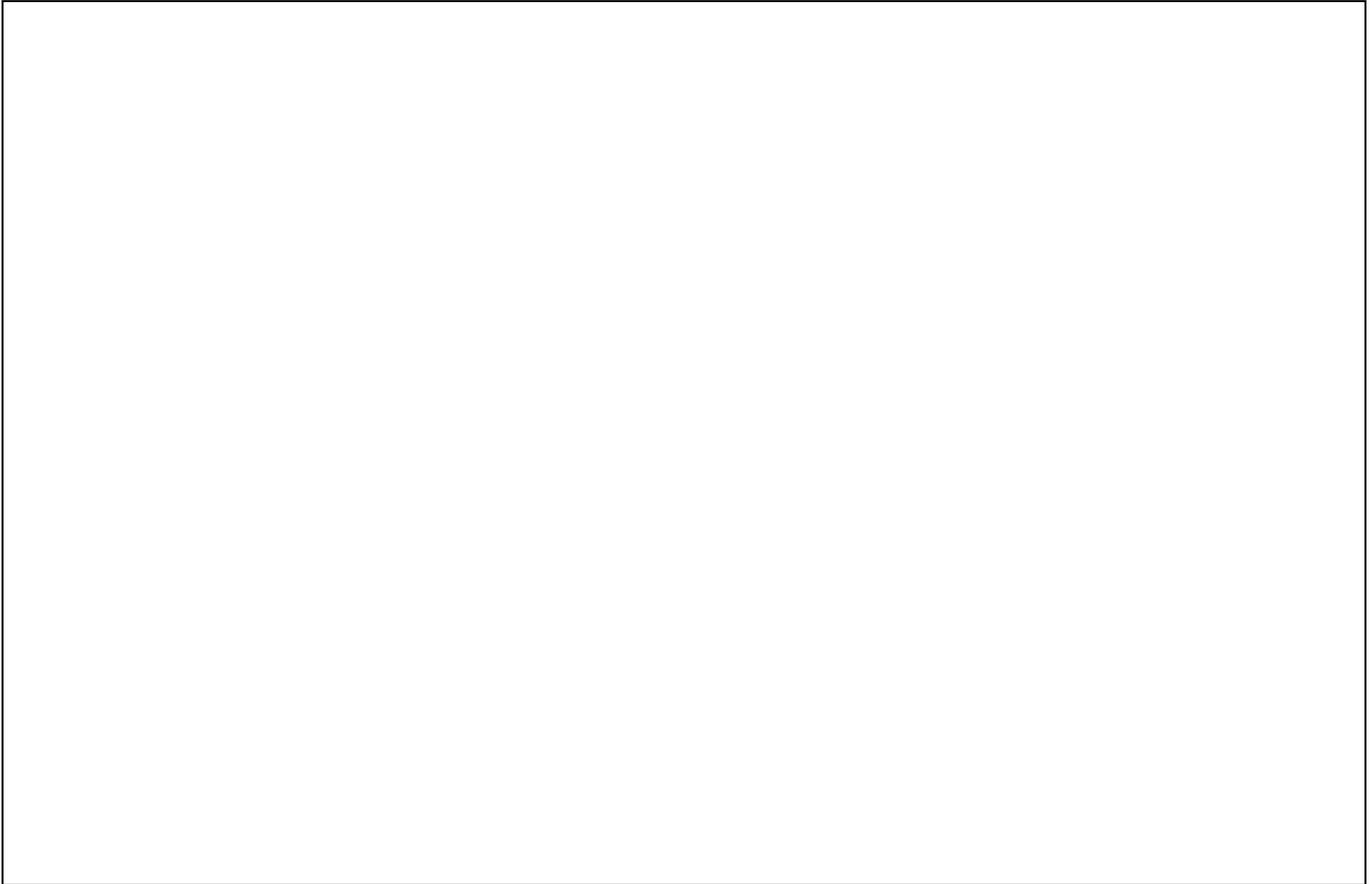
<sup>2</sup> **Kind of Stock:** Balled/Burlapped, Container (include size, caliper, height, and age as applicable)

<sup>3</sup> **Method:** Hand, Tractor/Auger, Tree Planting Machine or Other

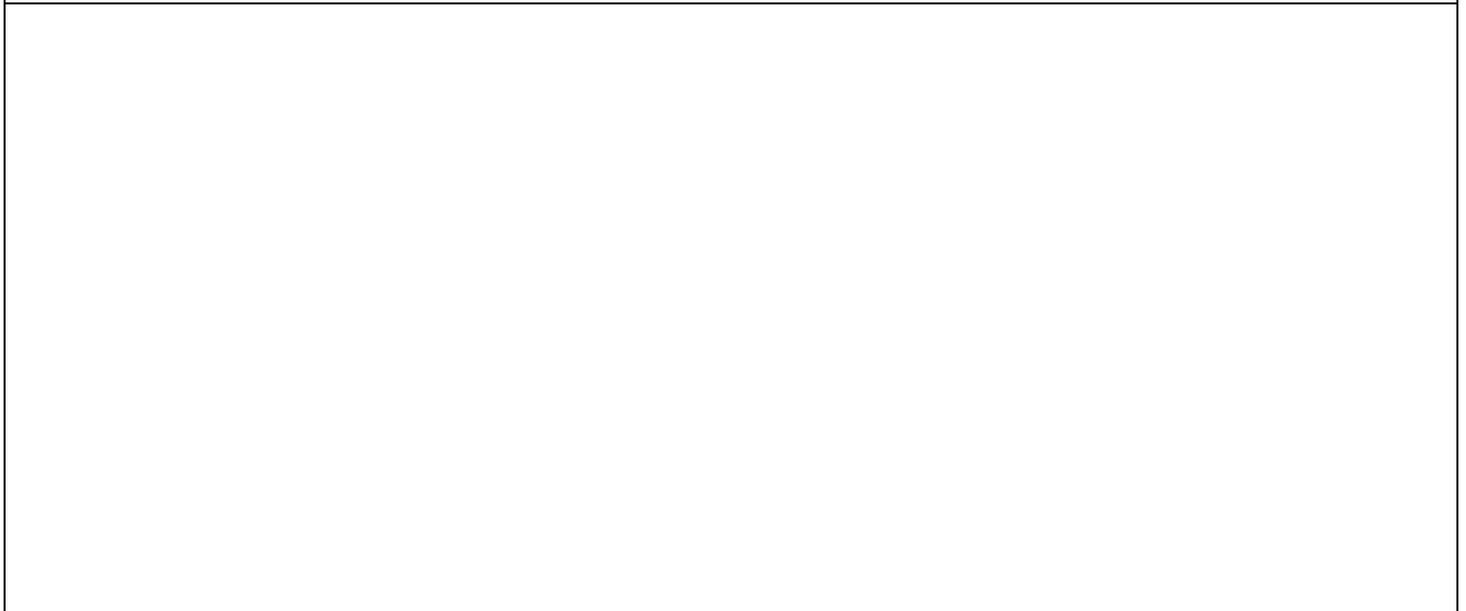
<sup>4</sup> **Protection Method:** Tree Shelters, Repellants, Tree Mats, Other

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If needed, an aerial view or a side view of the practice can be shown below. Other relevant information, complementary practices and measures, and additional specifications may be included.



**Additional Specifications and Notes:**



<p><b>Planting Times</b></p> <p>Trees/shrubs can be planted in the fall from the time growth stops until the soil is frozen; or in the spring after the soil has thawed until bud break which usually occurs by April 15<sup>th</sup>.</p> <p><b>Additional requirements:</b></p>
<p><b>Site Preparation</b> See WV Job Sheet Tree/Shrub Site Preparation (Code 490)</p> <p>A precondition for tree/shrub establishment is appropriately prepared sites. Site preparation is needed if competition from grass, weeds, and/or woody materials will interfere with plant establishment and growth. Refer to practice standard Tree/Shrub Site Preparation, 490 and/or Brush Management, 314, as applicable.</p> <p><b>Additional requirements:</b></p>
<p><b>Care, Handling , Size Requirements for Planting Stock</b></p> <p>Stock should be kept in a shady area and kept moist until planting. Containerized specimens can be stored for extended periods if they are protected. Store the plants in partial to full shade and water frequently.</p> <p><b>Additional requirements:</b></p>
<p><b>Planting Methods</b></p> <p><b>Additional requirements:</b></p>
<p><b>Operation and Maintenance</b></p> <p>The practice area must be inspected periodically and protected from damage to maintain proper function. Replace dead and dying stock in newly established plantings. Protect from livestock, fire and other damage. See the WV conservation practice standards, Use Exclusion, code 472 and Firebreak, code 394, as appropriate.</p> <p><b>Additional requirements:</b></p>
<p><b>Protection Methods</b></p> <p>Protect from livestock, fire and other damage. See the WV conservation practice standards, Use Exclusion, code 472 and Firebreak, code 394, as appropriate.</p> <p><b>Additional requirements:</b></p>

**Questions regarding the planting or maintenance of the Tree/Shrub Establishment should be directed to:**

\_\_\_\_\_ at \_\_\_\_\_

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