

# SEEDLING TREE PROGRAM GUIDE

## SHERIDAN COUNTY CONSERVATION DISTRICT

The purpose of this guide is to assist the landowner in obtaining the highest possible percentage survival of planted materials. Over 90% survival can be achieved in the right conditions. Without proper planting and care, you may observe less than 20% survival. For best results, follow the instructions provided in this planting guide.

### Common Causes of Plant Mortality

- Improper storage
- Roots exposed to hot, dry air
- Roots tangled and not spread out
- Planted too deep or too shallow
- Lack of water
- Use of low quality, high salt water
- Plants mowed off
- Grasshoppers, rodents, deer, elk grazing
- Livestock trampling
- Sprayed with weed killer
- Poor control of weeds, grasses, and other vegetation

## A. PRIOR TO PURCHASE AND/OR PLANTING

### Planning

Objectives for your planting should be determined prior to purchasing, or at the very least, before planting occurs. Create a diagram to plan spacing between individual plants and between plant rows.

### Recommended Spacing

Spacing varies depending on the type of tree/shrub and your goals (i.e. windbreaks will need a tighter spacing than wildlife plantings). Generally, shrubs and small evergreens can be planted closer together than larger trees:

- Shrubs such as dogwood, chokecherry, buffaloberry and plum: 3-6 feet apart,
- Smaller evergreens such as Rocky Mountain Juniper: 6-12 feet apart,
- Large evergreens such as Colorado Blue Spruce: 10-12 feet apart, and
- Deciduous trees such as cottonwood, hackberry, or bur oak: 10-14 feet apart.

### Site Preparation

Site preparation is necessary to store moisture, reduce competition from grasses and weeds, and prepare the soil.

- Medium to heavy (clay) soils may be compacted and difficult to plant in. Harrowing, tilling, aerating, and growing plants with deep tap roots are options to reduce compaction. Tilling should be used sparingly, if at all, as it destroys soil aggregates, pore space, and microorganisms.
- Light, sandy soils are subject to wind erosion. It is recommended to plant cover crops such as sorghum, grain, or sudan grass the summer before planting trees. Crops can be mowed down the spring before planting and left as a layer of mulch.

Weeds and grasses should be eradicated before trees are planted. Herbicides may be used, but other chemical-free methods exist that provide additional soil health benefits.

- Mulch (wood chips, straw, leaves, etc.) may be used to cover the planting area and eliminate existing vegetation if done early enough. Mulch should be at least 8 inches thick and should remain in place for at least 3 months to decompose the vegetation underneath. Plant into the soil, not the mulch.
- Sheet mulching is similar to the above method but with the addition of sheets of cardboard, burlap bags, newspaper, or other similar materials (no magazines, colored cardboard, or materials with plastic). Sheets are placed on the ground and should overlap several inches. The sheets are then covered with a 3-6-inch-deep layer of organic material (leaves, wood chips, compost, etc.)

## B. RECEIVING YOUR PLANT MATERIALS

### Pickup

The Sheridan County Conservation District does not have the facilities to store plant materials. Plants must be picked up within 24-48 hours of arrival at our office. ***Timely pickup of plant materials is crucial to their survival.*** Please look for email correspondence towards the end of April with *tentative* pickup dates, followed by another email with *final* pickup dates after the nursery has confirmed shipment.

## **Transportation**

Plant materials should be transported in an air-conditioned vehicle and out of direct sun. Boxed plant materials may be transported in the back of an open pickup or car trunk if temperatures are below 45°F. Temperatures below 60°F may be acceptable for short periods. Plant materials with exposed tops should only be transported under cover.

## **Storage**

Do not store any plant materials in heated buildings, or expose to warm air, sun, or wind, or allow to freeze. Ensure spacing between packages for air circulation.

Plant materials should be stored in a cool place if not planted right away. Ideal storage conditions are in a controlled environment with air temperatures between 34°-38° F and 85% humidity or greater. Short term storage options include a household refrigerator, a cool garage, root cellar, or basement, or the shaded, north side of building if temperatures are cool. If seedlings are in a box and are not in refrigerated storage, boxes may be opened, and trees turned upright so tops are exposed. Perennials should be kept moist and kept in part-sun while stored. Acclimate to cool nights.

Long-term storage (more than 7 days) is not recommended unless environmental control, such as a cooler or refrigerator, is available. Bareroot seedlings may be “heeled in” by placing the seedlings into a shallow trench, covering with loose soil, and keeping the soil moist to prevent roots from drying out. This is not a failproof method and may lead to additional plant stress. With planning, prolonged storage can and should be avoided.

## **C. PLANTING**

Plant in the early spring. Ideal planting conditions are cool, cloudy days with little to no wind.

Bare Root: Roots must be kept covered with a moist substrate (use moist burlap or towel, or a soil and water slurry) until they are placed in the ground. The SCCD will provide root dip which can be used to create a slurry, following package instructions. Ensure that roots are completely submerged and plant within two hours. Root death will occur if left in slurry for too long.

Dig a hole large enough for your seedling. Remove from slurry and gently spread roots out in all directions before placing in hole. Backfill hole and ensure the seedling root collar (the soil level planted in the nursery) is at the finished soil level. Apply approximately 1 gallon of water to each seedling after planting. Do not compact the soil by tamping wet soil. Watering is the best method to settle the soil, eliminate air pockets, and provide moisture to the root system.

Plugs and Large Tube: Ensure plugs and large tube seedlings are adequately watered prior to planting. Do not dip; instead pour some of the root dip mixture into the hole, before and/or after planting the seedling. Gently remove seedling from container, if applicable. Follow the same instructions as with bare root; however, do not disturb the roots and cover the root ball with a ½ inch of soil. Make sure the root ball does not become exposed after final watering.

Perennials: Water cones thoroughly prior to planting. Move foliage to one side, tap the edge of the cone on a solid surface, and gently pull the plug out of the cone. If difficult, water the plug again, squeeze the container and repeat previous step. Create a hole twice the diameter of the plug and a little deeper. Pre-moisten the hole and plant the plug to the depth of the crown (where the roots start to become the stem or look for the soil collar). Backfill the hole and water thoroughly.

*“Plant them high, they’ll never die – plant them low, they’ll never grow!”*

## **D. CARE AND MAINTENANCE**

### **Watering**

Check soil moisture periodically using a moisture meter (can be purchased at local gardening centers and online) or by carefully checking the soil near the planting. Soil that can be formed into a ball or ribbon has adequate moisture for root growth. New seedlings should receive 5 gallons of water per week during the growing season when without precipitation. For the following two years, apply 10 gallons of water every other week. Water should be applied slowly, allowing it time to fully soak in. The best time to water is early in the morning or later at night. Drip systems are recommended for water conservation and planting success.

### **Fertilizing**

Fertilizer should not be used on new plantings. Fertilizer application on young seedlings prevents adaptation to natural conditions and can burn up roots. A granular, slow-release fertilizer may be used after the plant has established. Even then, it may not be necessary.

### **Mulch**

Mulch reduces weed and grass competition and water loss through evaporation. Mulch includes materials such as wood chips, tree bark, straw, grass clippings, leaves, and more. Mulch should be 2-4 inches deep.

### **Continued Vegetation Control**

Eliminate weeds and grasses around each seedling for at least two feet. This may be accomplished by using mulch, hand pulling, mowing, or chemically treating. Roundup® can be sprayed under low pressure on weeds and grasses near the seedling. Protect seedling by covering with bucket while spraying.

### **Wildlife Damage**

Eliminating weed and grass from the nearby area and keeping mulch less than 4 inches deep will discourage rodents from chewing seedlings. Tree cages and tube protectors can be purchased at local stores or online, or can be made using window screens, snow fence, chicken wire, stakes, and various other materials. Inspect protectors regularly to make sure they are not restricting plant growth.

Big game may need to be fenced entirely from the planting. A homemade deer repellent made from eggs may be more effective than commercial repellents. Mix whole eggs with tap water to form a 20% solution by volume, then strain and spray on seedlings. Another homemade repellent is to use a 6% hot sauce (Capsicum pepper concentrate). If deer are desperate, a combination of methods may be required.

### **Winter & Wind Care**

Continue with regular watering up until the ground freezes. Watering can continue in the winter months when there is no snow cover and extended periods of time with temperatures above 40° F. Use mulch to retain moisture and provide insulation. Wood shingles can be placed on the south and west sides of a plant for wind protection. Stakes and ties can be used to provide plant support until established.

### **Pruning**

Snow, ice, wind, and other natural elements may cause breakage; broken limbs and branches should be removed. Seedlings generally do not need pruning so take care to only remove dead, damaged, or disease branches as needed.

## **E. SOURCES**

- Colorado State Forest Service Nursery Planting Guide  
<https://csfs.colostate.edu/seedling-tree-nursery/planting-guide/>
- United States Department of Agriculture Natural Resources Conservation Service Plant Materials Tech Note No. MT-51. "Temporary Storage and Handling of Container, Bareroot, and Cutting Stock." August 2005.
- Piney Island Native Plants Perennial Pollinator Program Brochure  
<https://www.pineyislandnatives.com/>