

# Living Snow Fences

Fact Sheet Series - Fact Sheet #6

## Planting Living Snow Fences



New York State  
Department of Transportation



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### Planting Techniques for Living Snow Fences

Two general categories of plant materials, rooted and unrooted, can be used for living snow fences. The planting techniques used with rooted plant materials are different from the techniques used with unrooted plant materials. Types of rooted planting stock include balled & burlapped (B&B), potted, bareroot, and seedlings. Types of unrooted planting stock include species that can be planted as single stem cuttings without pre-formed roots such as shrub-willows. Step by step planting techniques for both rooted and unrooted stock are provided in this fact sheet in the general order they should be preformed.

### Planting Techniques for Rooted Stock

Rooted stock is used for planting evergreen trees and most shrubs. The following bullets and Figure 1 on page 2 outline a general protocol that can be followed for planting rooted stock:

- ◆ Obtain planting stock from a reputable nursery or plant supplier. Make certain that plants are healthy and vigorous. Inspect the roots, trunk, branches, and leaves of each plant for signs of damage, disease, pests, or lack of vigor. Reject any plants that appear to be damaged, diseased, or in poor health.
- ◆ Rooted evergreen trees can generally be planted at six to eight feet spacing between trees and rows. Rooted shrubs can generally be planted at three to four feet between plants and rows. Use species specific planting information as much as possible by consulting your local environmental specialist and the living snow fence species matrix available at [www.esf.edu/willow](http://www.esf.edu/willow)
- ◆ After applying biodegradable landscape fabric to the planting strip, mark the plant and row spacing pattern on the fabric with spray paint to indicate the location that each plant will be installed. Open the fabric in each marked location by making an "X" shaped cut into the fabric that is large enough to dig a hole that will properly accommodate the root ball of the plant.
- ◆ Dig planting holes to twice the width of the root ball, and to a depth that will position the highest roots on the trunk approximately 1 inch below ground level and no deeper. Make the bottom of the hole level, and the sides of the hole vertical. Remove loose soil from the bottom of the hole after digging. Uncompacted soil at the bottom of the hole can cause the plant to shift after planting and negatively impact health and survival. If digging through multiple soil horizons (layers), keep the soil from each layer separate and backfill the layers in reverse order to maintain the natural soil profile.
- ◆ Keep plants well watered, in a shaded location until planting. Remove the container from the roots just before planting. Remove the containers and plant trees one at a time, completing all the steps of planting for each tree before moving on to the next one.
- ◆ Place the tree in the center of the hole, again making sure that the highest root on the trunk will be just slightly below ground level when filled in. If necessary, correct the hole to the appropriate depth by digging more, or backfilling soil to the bottom of the hole and firmly tamping it down to create a firm and level base at the bottom of the hole.

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- ◆ Check the root ball for circling or compacted roots before planting. Loosen roots by hand, or with a cutting tool if necessary. Roots should be loose, pointing down and slightly outward, and evenly spread out in the hole as shown in example 12 of Figure 1 below. Refer to examples 1 through 11 in Figure 1 to avoid the many common planting mistakes associated with rooted stock.

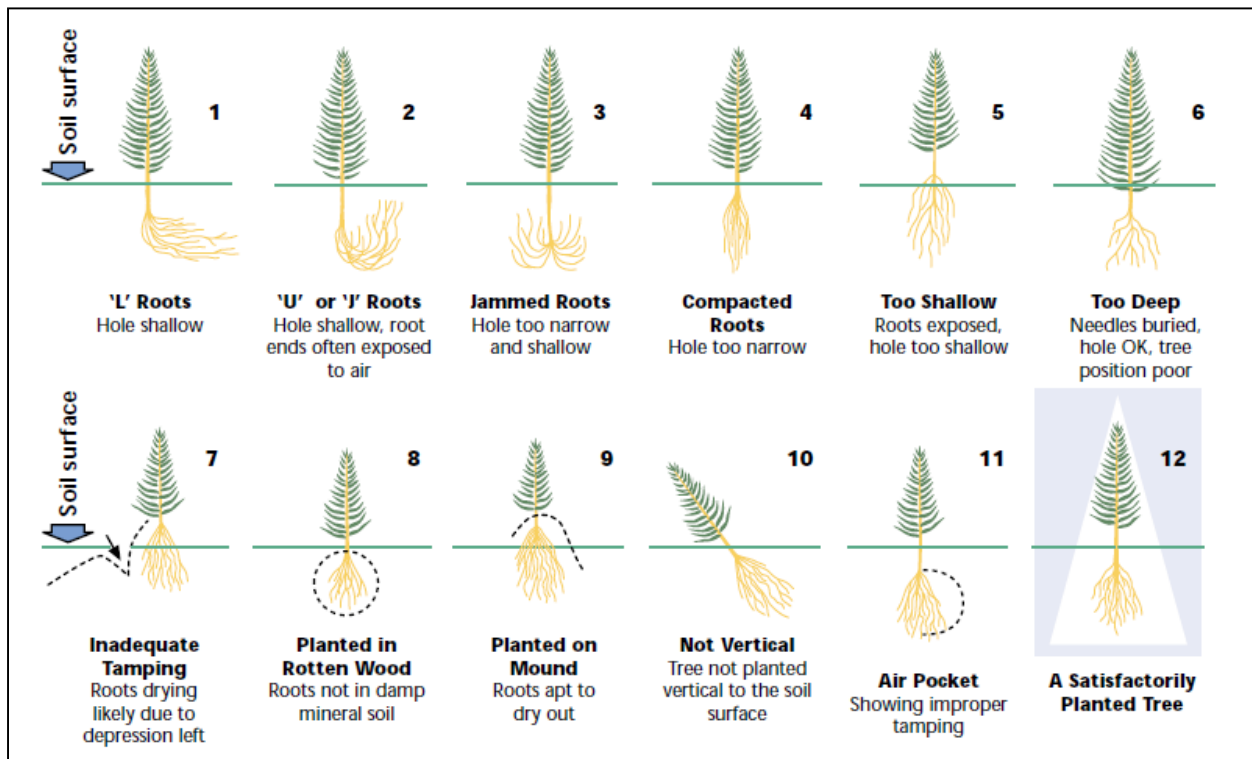


Figure 1 – Proper planting technique for rooted stock and common mistakes

Source: Pacific Northwest Extension (2005)

- ◆ Once the tree and its roots are correctly positioned in the hole, backfill soil around the roots while continuing to hold the tree in the correct position.
- ◆ Fill and firm the soil lightly by hand, until the hole is 75 percent full. Saturate the soil in the hole with water, wait for it to drain, then gently straighten or adjust the tree position if necessary. Firm the soil again, applying slightly more pressure.
- ◆ Backfill the rest of the hole with soil, again making sure that the position of the highest root is just below ground level when the tree is fully planted. Tamp the soil firmly around the hole with a tamper and water the tree again.
- ◆ Carefully apply clean wood mulch in a 3 inch layer on top of the landscape fabric around all the trees, leaving 6 inches on all sides around the trunk clear of any mulch or debris. Wood mulch should be

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fresh and clean with a coarse grind; free of soil, weeds, grass, etc. Dirty, composted, or shredded wood mulch will allow weeds to germinate in the planting strip and should be rejected. Mulch can be applied on or near the planting strip using a tractor or bucket loader, and then carefully spread around the inserted plants with shovels and hard rakes.

- ◆ Large rooted stock may require staking on very windy sites, but staking is generally not required when proper planting techniques and quality planting stock are used. Rooted stock may require periodic watering during the first growing season until plants become established, especially in the first few weeks after planting.

### Planting Techniques for Unrooted stock

Single stem cuttings of shrub-willows and select other shrub species can generate new roots and stems when planted directly in to the ground. This makes the planting process less costly and easier to manage relative to planting rooted stock. The following bullets outline a general protocol that can be followed in the order presented for successfully planting unrooted stock:

- ◆ Twenty-inch long stem cuttings are recommended for living snow fences under most planting conditions (Figure 2 and 3). Obtain 20-inch cuttings of species suitable for living snow fences in New York or the Northeast from a reputable nursery or plant supplier to ensure quality of the cutting and viability once planted. Refer to the species matrix for living snow fences available at [www.esf.edu/willow](http://www.esf.edu/willow) for a list of suitable species. Store cuttings in sealed plastic bags at temperatures just below freezing until the day of planting. After removing cuttings from cold storage, keep them sealed in bags and boxes in a shaded location until the time of planting to retain moisture and viability. Do not leave sealed bags with cuttings in the sun; this will cause them to heat up rapidly and lose viability.



Figure 2 - Bundle and close up image of unrooted 20" shrub-willow stem cuttings for planting.  
Photos by NYSDOT and SUNY ESF

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- ◆ Mark the plant and row spacing pattern on the applied landscape fabric with spray paint to show the location where each plant will be installed. The recommended spacing for shrub willow fences is 24 inches between plants and 30 inches between rows. Rows should be offset so that there is one plant per foot along the double row (Figure 3). With proper maintenance, this planting pattern will grow into a dense snow fence with no gaps. Using two or more intermixed species per fence is recommended to create diversity in the planting. Refer to Fact Sheet #5 in this series for a diagram of the planting pattern described here.
- ◆ Insert cuttings by hand or lightly tap them into place with a rubber mallet. Plant the cuttings vertically, making sure the buds are pointing up (Figure 4). Plant the cutting to a depth of 7 - 12" below the soil. Close the hole around each cutting by firming the soil at the base of the cutting with your hands or the heel of your boot. The planting window for shrub-willow in New York State is late April through early June. Plantings done after this window will be prone to failure due to high temperatures and insufficient soil moisture.



Figure 3 (left) – Willow cuttings installed through paper landscape fabric in a double row pattern

Figure 4 (right) – Willow cuttings planted to the proper depth with the buds facing upwards

Photos by SUNY ESF

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- ◆ After planting, apply clean wood mulch around to the cuttings in a three inch layer, leaving five to eight inches of the cutting exposed above ground (Figure 5). In some cases, if a paper landscape fabric and light textured wood mulch is used, cuttings can be planted through the mulch and paper fabric using parallel tape measures to set the planting spacing (Figure 6). Be certain this technique will work and that cuttings will go through both mulch and paper without bending the cutting before applying mulch to entire planting strip.



Figure 5 (left) – Applying wood mulch to a planted shrub-willow snow fence  
Figure 6 (right) – Planting cuttings directly through mulch and landscape fabric underneath  
Photos by SUNY ESF

### Sources and Additional Resources

Gullickson, D., Josiah, S.J., Flynn, P., 1999. *Catching snow with living snow fences*. University of Minnesota.

Pacific Northwest Extension, 2005. *Trees against the wind*. Pacific Northwest Extension, PNW005.

Tabler, R.D. 2003. *Controlling blowing and drifting snow with snow fences and road design*. Tabler and Associates. Niwot, CO.

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