

Panel Discussion: Container Stock and Why?

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Abstract: The Colville Confederated Tribes Nursery grows conifers, native shrubs and grasses, and root and stem cuttings in three cavity sizes of Styroblock™ containers, including 5.5, 10, and 20.5 in³ (90, 164, and 336 cm³). The choice of container size is based on client request and the requirements of the outplanting sites.

Keywords: target seedling, stocktypes, cavity size, native species

Terminology

Understanding terminology in container stock and how particular stocktypes are used is an important first step in communication between the grower and the clients. Foresters and planters tend to refer to container size in terms of cubic inches per cavity; greenhouse operators and culturists refer to container systems in terms of the number of cavities per block and/or cavities and milliliters per cavity. For example, a container system referred to as a 77/170 is the same as a 10 in³ (164 cm³) cell system.

Colville Confederated Tribes Nursery Practices

The Colville Confederated Tribes Nursery, located in Nespelem, WA, is a small nursery with a capacity of 3 million seedlings, although there are approximately 2 million seedlings currently being grown at the facility. The nursery serves the Confederated Tribes of the Colville Reservation Forestry Districts. These districts comprise approximately 1.4 million ac (567,000 ha) and are the sole clients of the nursery.

Container Types

The nursery uses three sizes of Styroblock™ containers for their container systems. The choice of container depends on the requirements of the outplanting sites. Bareroot seedlings are also outplanted on tribal lands, but these seedlings are purchased from other growers.

Seedlings are grown in 5.5, 10, and 20.5 in³ (90, 164, and 336 cm³) or 160/90, 77/170, 45/340 Styroblock™ containers, with different target specifications for each species (tables 1 and 2). Specifications have been determined based on the outplanting needs of the Forestry Districts.

Table 1—Seedling specifications by container for western larch (*Larix occidentalis*) and Engelmann spruce (*Picea engelmannii*) (root length is constrained by container length).

Container size	Caliper target	Height target	Root length
in ³	mm	----- in -----	
5.5	3.0	8.0	6
10	4.0	9.8	6
20.5	5.0	11.8	6

Table 2—Seedling specifications by container for ponderosa pine (*Pinus ponderosa*) and lodgepole pine (*Pinus contorta*) (root length is constrained by container length).

Container size	Caliper target	Height target	Root length
in ³	mm	----- in -----	
5.5	3.0	6.0	6
10	3.5	6.5	6
20.5	5.0	7.0	6

Styroblock™ containers are the system of choice at the nursery for a number of reasons: 1) they are readily available; 2) the blocks work well with automated sowing equipment; 3) blocks are easy to handle; and 4) large quantities of Styroblock™ seedlings are easy to package and transport to outplanting sites in small vehicles. The latter is a big advantage with very limited forestry staffing, because it is necessary to place as many trees in boxes and as many boxes on small trailers or in vehicles as possible.

Sowing

Styroblock™ containers are automatically filled with a flat filler (figure 1). A conveyor belt brings medium from the outside to a holding bin; the medium then drops into the blocks loaded onto the filler. Filled blocks are fed into a drum seeder that automatically drops seeds into cells at a rate of 1, 2, or 3 seeds per cell, depending on germination rates (figure 2). The drum seeder works directly off air pressure and suction and is specifically adjusted for container size, which is an additional reason for using only three container sizes. Following sowing, grit is applied mechanically and seeds receive an initial watering.

Lifting and Packing

Lifting and packing are both manual processes. Blocks are conveyed to a central packaging line where 6 to 12 people pull seedlings from containers by hand and package them into plastic bags. One person packages the bags into boxes, which are then placed in cold storage.

Seedling Production

Plug size is based on customer outplanting needs. The larger containers (20.5 in³ [336 cm³]) are recommended for drier sites where larger root masses are required. If cost is an issue, seedlings are often grown in smaller containers (5.5 in³ [90 cm³]), with the option of transplanting with another grower. Although container seedlings do not have as much root mass as bareroot seedlings, the 10 and 20.5 in³ containers yield sizeable plugs that are similar in mass (figure 3).

The nursery grows conifers, native shrubs, and native grasses from seeds, as well as cuttings from both roots and stems (figures 4 and 5), in containers. Currently, the nursery is working with the Department of Fish and Wildlife to grow bitterbrush (*Purshia tridentata*) (figure 6) and grass plugs for rangeland and fire rehabilitation.

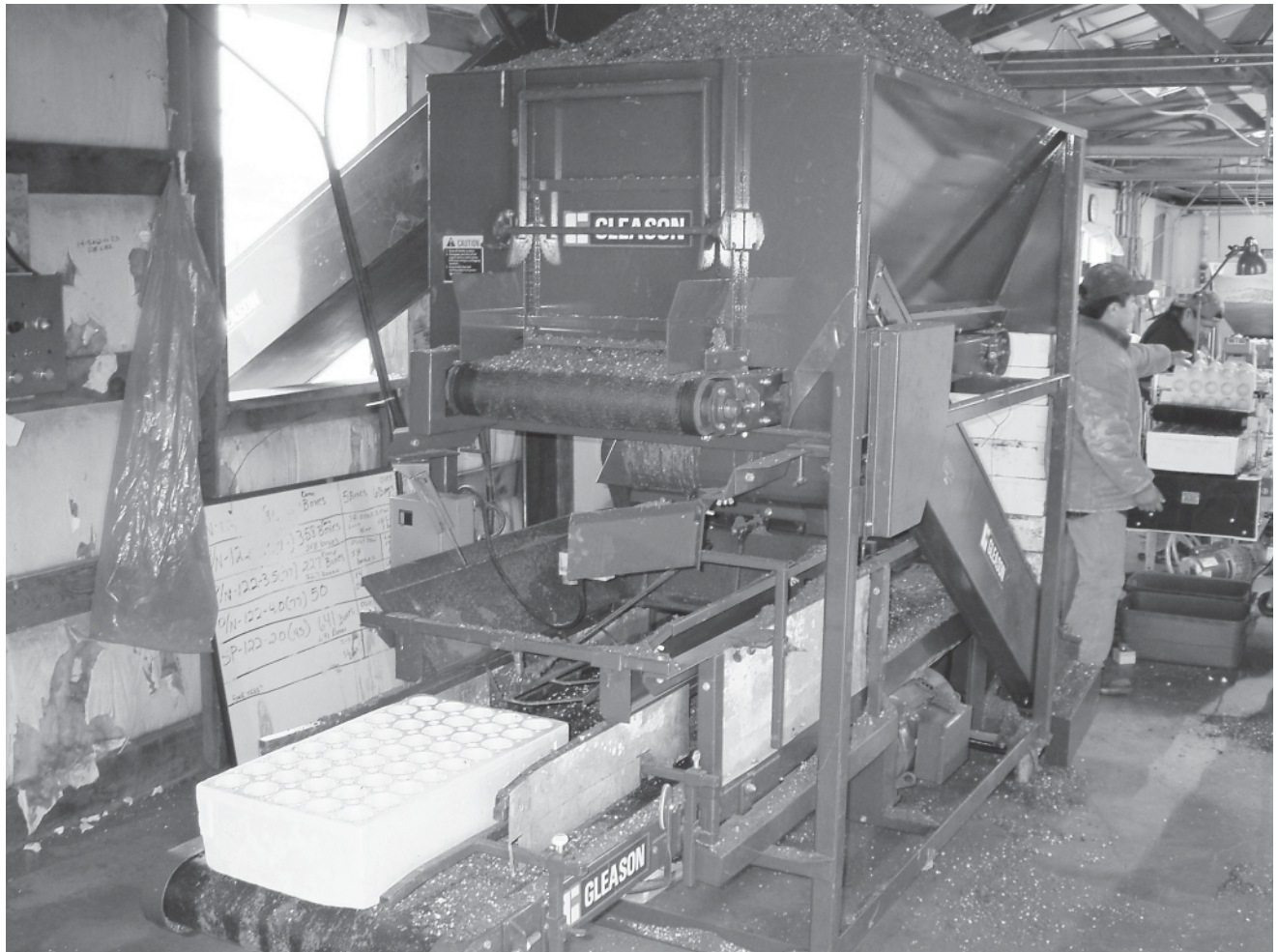


Figure 1—Flat filler automatically fills Styroblock™ containers with medium.

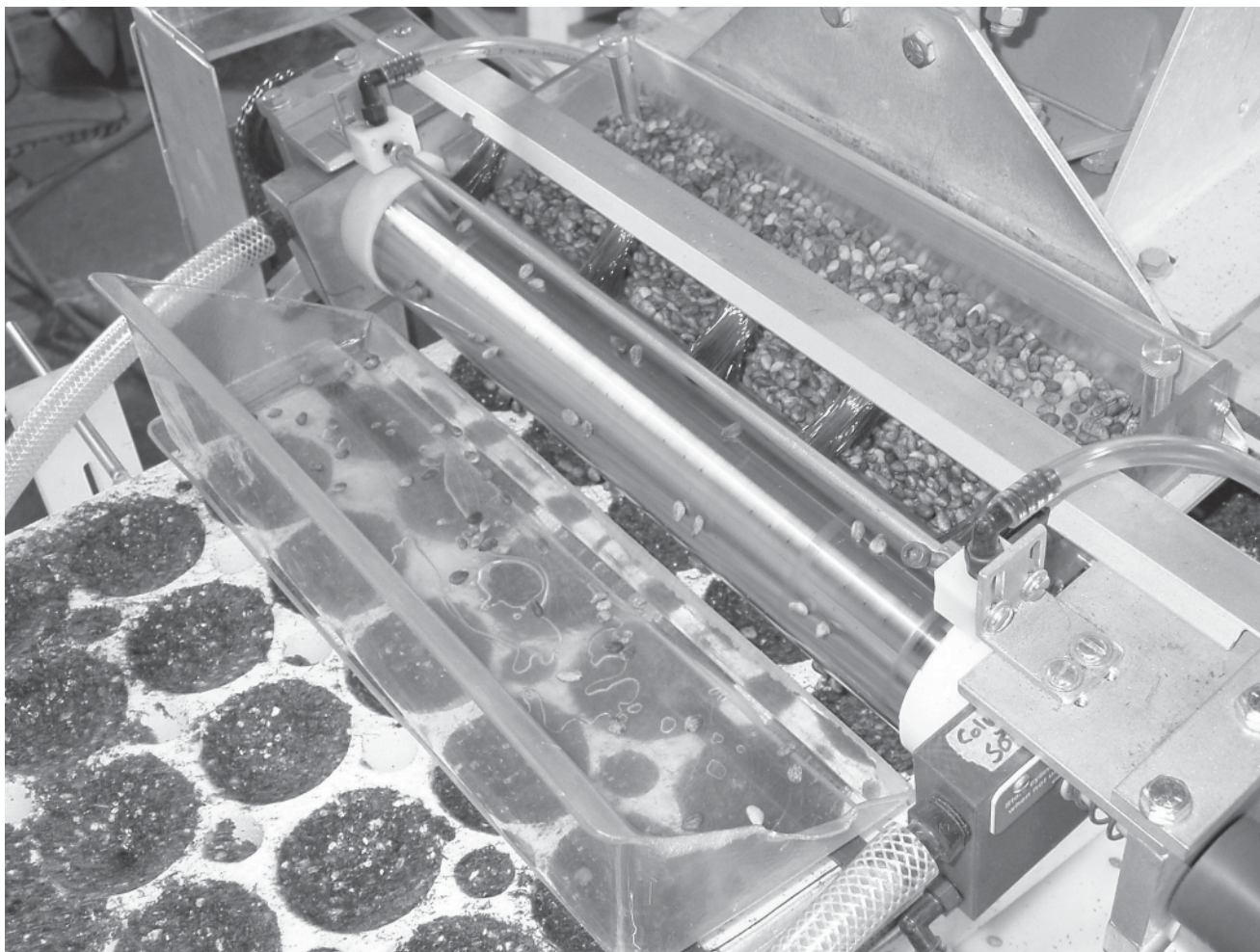


Figure 2—A drum seeder automatically drops seeds into each cell at a rate dependent on germination.

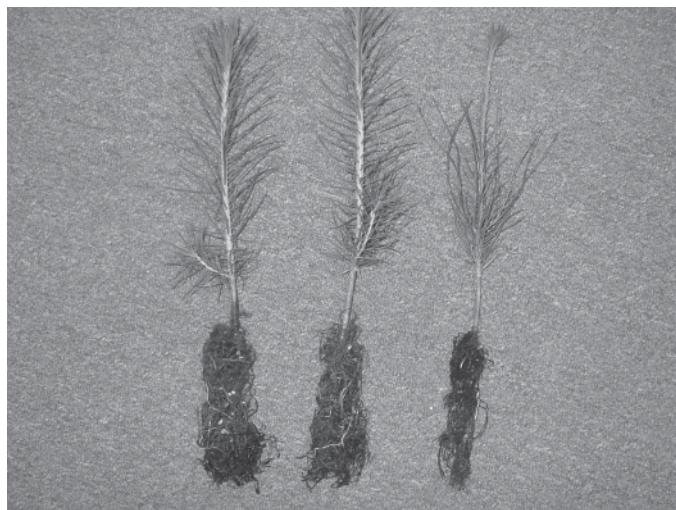


Figure 3—The 10 and 20.5 in³ (77/170, 45/340) Styroblock™ containers yield a similar root mass at the end of the growing season.



Figure 4—Chokecherry (*Prunus virginiana*) grown from root cuttings.

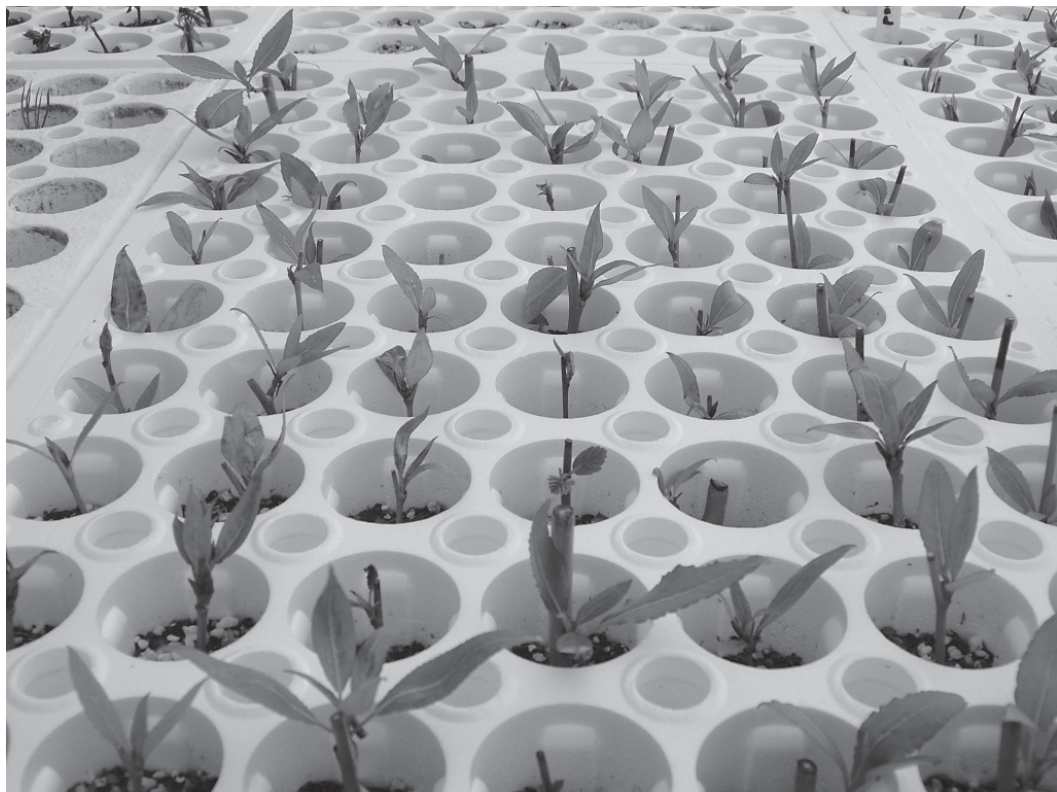


Figure 5—Black cottonwood (*Populus trichocarpa*) grown from stem cuttings.



Figure 6—Bitterbrush grown from seeds.