

What the User Needs in Tree Characteristics

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User needs begin at the tree nursery when the trees are loaded for transport. Considerable discussion can be generated about tree packaging. Last, but very possibly foremost, there is the need to discover the ideal tree shape, size, and condition for the user.

The following remarks will be relative to experiences with tree planting on the Northern Highland-American Legion State Forest and the present system used on this forest to plant trees. Other field people from different geographic locations, using other planting systems, could very likely require an entirely different combination of needs.

The planting system used on the Northern Highland-American Legion State Forest is hand planting in Leno or Bracke scarified plots. Hand planting tools consist primarily of the hoedad_wielded by professional, contracted tree planters. Some small tracts are planted by prison and Youth Conservation Corps (high school age) people.

Transportation

Trees are transported to the State Forest in stake body style or dump trucks. Therefore, it is very important that the trucks be loaded timely enough to allow for the long drive back to the headquarters plus time allowed for unloading into the forest cooler. Leaving trees overnight on the trucks does not enhance the future survival of those trees. The trees are stored in the cooler for as long as six weeks; therefore, it is imperative that trees be placed into the cooler in top condition.

The nursery always soaks the stock very well before shipment, as the trucks are usually dripping when they arrive at the headquarters. Moisture, of course, is vital to the future of the stock.

Containers

At the risk of getting booted, bombed, or rocked, I'll simply state that our operation does very well with the cardboard boxed stock. The only question about boxes is whether or not excessive heating could occur in field storage versus other packaging systems. More study along these lines is needed for a proper verdict. The cost of boxes may also be a problem.

We get by adequately with baled stock and very simply, again, I dislike bags particularly for long storage situations.

Stock Characteristics

Contract, hand tree planting is an operation involving tremendous time and motion requirements. Each planter is planting three to six thousand trees per day. When you compute the numbers planted per hour, it is obvious that stock characteristics are important to production planting.

The ideal stock size for the hand tree planter appears to consist of a six-inch-long top and a six-inch-long root system. Tree roots and tops should be as narrow as good tree vigor and growth potential will allow in order to facilitate swift, easy removal from the planter carrying bags.

Trees that are large and bushy tend to tangle when removed from bags, causing more than one tree to enter the planter's grasp. Contract specifications prohibit a planter from holding more than one tree at a time. Trees that tangle are often dropped and are lost or damaged when pulled apart.

Another problem with large, bushy trees is that the planter cannot carry very many in his bag and is forced to stop and fill. A typical result is having planters stash trees half way up a row of scalps in the hot sunshine to save time.

Stock should be of similar size and quality in the container. Planters should not have to make any more decisions than necessary. Remember that some of these trees planters barely speak English.

The hoedad planting blade is approximately ten inches long and provides a planting hole that is consistently six to nine inches deep. Tree root systems larger than the planting hole, of course, will be curled up, and survival potential once more becomes seriously reduced.

The ultra-small tree, such as 1-0 jack pine, is the opposite extreme from the large, bushy tree, such as some 2-0 larch and some of the 2-0 jack pine. Small trees have a tendency to tip over in the planting bag, causing roots to be exposed to the air for excessive time periods. Planters also tend to grasp 20 to 40 trees at a time, which will force them to stop walking and re-sort the trees. Small trees are extremely vulnerable to suffocation from micro-site erosion in scarified plots. The trees can also be washed out of the soil.

Summary

Growing planting stock to fit a tree planter's hand-carrying bag and hoedad ground opening very likely sets most nursery managers to mumbling, particularly when planting techniques are subject to change. But when we look at a possible wish list of the perfect tree, maybe a size request isn't out of line. For example:

drought resistant	storage tolerant
heat resistant	herbicide tolerant
frost resistant	perfect packaging
disease resistant	perfect size
insect resistant	fast establishment qualities
deer, rabbit, and rodent resistant	fast growth and good densities
	excellent form, etc.

This entire discussion can probably be summed up by saying we need trees that will grow bigger, better, faster, and cheaper than ever before.