

# Fall Planting Becoming a Viable Option

By ROGER FENDALL

Pick up any forestry publication on reforestation, and you will quickly see that the normally recommended interval for planting tree seedlings is from late November through late March, depending on the availability of bareroot seedlings. The question that sometimes surfaces is: Is this really the best time to plant, or would it be more advantageous to plant at some other time of the year? In other words, should the availability of properly conditioned seedlings determine planting date, or should the natural growth patterns of the seedling drive the decision to plant at a particular time?

This question drew close scrutiny at the September 24 meeting of the Yamhill County Small Woodlands Association. Todd Erickson, Meadow Lake Nursery, Yamhill County, Ore., and Mike Prueter, silviculture forester, Quantum Forest Nursery, British Columbia, caught the rapt attention of those present when they suggested it was time to re-think the traditional tree planting recommendations and consider the option of planting just as the first significant rains begin to fall in late September/early October. Both guest speakers provided convincing evidence that this option has real promise, particularly now that the private nursery industry is beginning to take on the challenge of properly conditioning and packaging tree seedlings to meet the challenges of this timing alternative.

## Watch cold storage duration

Under traditional planting schemes, bareroot seedlings often go into "planting shock" during the winter dormancy period as a result of being taken out of cold storage and exposed to the elements, which



*Note the good root growth on this fall-planted tree. The photo was taken in March.*

might include a range of temperature and moisture stresses. "If these seedlings have been in cold storage more than 12 weeks, root reserves may have been seriously depleted, resulting in reduced resources to generate new growth when conditions are favorable in the spring," Mike Prueter pointed out.

Most nurseries try to avoid excessive cold storage intervals, but sometimes the interval between lifting nursery seedlings and planting by the buyer cannot be carefully controlled because of the uncertainties of weather favorable to lifting and planting. In addition to reduced root reserves, the seedlings may have excess root materials pruned as they are sorted and graded at the nursery prior to shipping to the buyer, and planters may also trim off excess root mass in order to facilitate the planting process.

Under the fall planting schedules, seedlings must be artificially conditioned at the nursery prior to shipping to the buyer. As Mike Prueter stated, "One of the keys for successful fall planting is for the nursery manager to make sure the

terminal bud of the tree seedling is set."

Nurseries in the private sector are now beginning to realize what they can do to accomplish this conditioning, and by manipulating photoperiod, moisture and nutrient regimes, they are learning to offer a seedling that can be placed in the ground in late September through October.

## Capitalize on root growth

The primary advantage of planting at or just before the commencement of the fall rainy period is to capitalize on a period of root growth that can occur when seedlings are planted at this time of the year. That period of root growth, in addition to a second interval that will occur in the spring before budbreak, results in two intervals of root growth that will give newly planted seedlings a great advantage as they go into their first growing season in the plantation.

Explained Mike Prueter, "roots grow in the soil as long as soil temperatures average or exceed 40 degrees F. Those soil temperatures persist in most western Oregon soils almost through mid-November, and are reached again in the spring as early as April 15. Budbreak in the spring takes place around May 1, and top growth continues until the seedlings run out of moisture in late August and early September. Therefore, if that seedling is planted in the fall, there is little or no 'planting shock' and the seedling begins growing roots through mid-November and again in mid-April before budbreak in early May. That adds up to a distinct advantage for the fall-planted tree seedling.

“In our research on fall-planted versus late winter-planted tree seedlings, we measured such things as root reserves (stored carbohydrates), shoot versus root ratios (ideally 1:2 for most tree seedlings), and the ratio between root collar diameter and tree height (ideally 1:70 in Douglas-fir). To summarize our findings, fall-planted seedlings had more energy reserves in the roots for top growth that first season, they had more root mass from which to produce that critical top-growth during the first growing season, and were more likely to achieve the goal of being 70 feet tall when the tree reached a diameter of 12 inches,” Mike concluded.

### **Production increased by 25 percent**

Mike Prueter mentioned he has been working with Starker Forests in Corvallis to see if fall planting might take hold in their reforestation program. I contacted Starker Forests and talked briefly with Fred Pfund, reforestation forester, and he indicated that they have been experimenting with this technology since 1997. Currently, they plant about a third of their seedlings in the fall. They consider November 1 to be the cut-off date for fall planting, as soil temperatures quickly fall off at our elevations beyond that date. Fred indicated that two things are critical for the success of fall planting in western Oregon: 1) tree seedlings must be grown correctly in the nursery (roots actively growing, terminal bud fixed, good lignification throughout the seedling axis and good wax build-up on the needles); and 2) site preparation in terms of weed control and moisture conservation. “Our nurseries take care of the first item, but we must do our part with the second.

If we pay close attention to those two areas, we have shown that production can be increased by as much as 25 percent during the first few years of production using fall planting,” he concluded.

While initial growth rates are improved, Fred was careful to point out that they have not seen significant improvement in seedling survival of fall-planted seedlings over those planted bareroot under traditional schedules. “Our planters prefer the potted over the bareroot seedlings in terms of the planting process,” he added. “The logistics are a bit more difficult, as we need to deliver boxed seedlings that are bulkier and take up more space, but we are learning how to deal with that problem.”

The evening presentation was extremely interesting, and judging by the interest throughout the meeting and following the session, several members were convinced they wanted to give fall planting a try as soon as this fall.

# A Landowner's Successful Fall Planting Experience

By BOB KINTIGH

My sons and I have been successfully fall planting seedlings for both reforestation and Christmas tree production when fall soil moisture is adequate for over 20 years. Most of the time we use containerized seedlings grown in a container of at least 10 cubic inch capacity.

The principal reason for planting in the fall is that you are able to take advantage of the two cycles of increased root growth in conifers. One is in the early fall and a stronger one occurs about February. Other reasons are: good planting is easier because it is not so muddy; better soil preparation is possible; seedlings do not have to be tamped as tightly because winter rains will help settle the soil; each day the weather is getting more favorable for tree survival because of shortening days, lowering temperatures and high likelihood of rain (unlike in the spring). For landowners at high elevations who are unable to plant in the spring until the weather is getting very warm, fall planting offers a golden opportunity. The trees can be planted in the fall, and when the snow melts in the spring, they are ready to go.

I feel the safe window for planting at low elevations in western Oregon is from early October to early November, although we have gone much later some years. Planting too late creates a risk in those infrequent years when we get freezing and thawing weather during the winter. Late planted seedlings will not have made enough root growth to anchor them and keep them from heaving out of the ground.

My last year's experience really sold me on fall planting. We clearcut several acres during summer of 2002 and piled and burned the slash. Because of the unusually dry fall and not being able to burn the slash until late, we were not able to plant the area until early December. At that time we planted the area with one-year-old styro-10 Douglas-fir seedlings. The area was spot sprayed with Velpar and Oust. In spite of a very hot, dry summer during which many people lost up to 50 percent or more of their seedlings, my losses were around three percent. Sample measurements indicate that the height of the seedlings when planted was 9.5 inches and now the average height is 20.0 inches, even with some deer browsing. Samples dug in March already had at least two inches of new root growth out of the plug.

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