

# What About Fall Planting?

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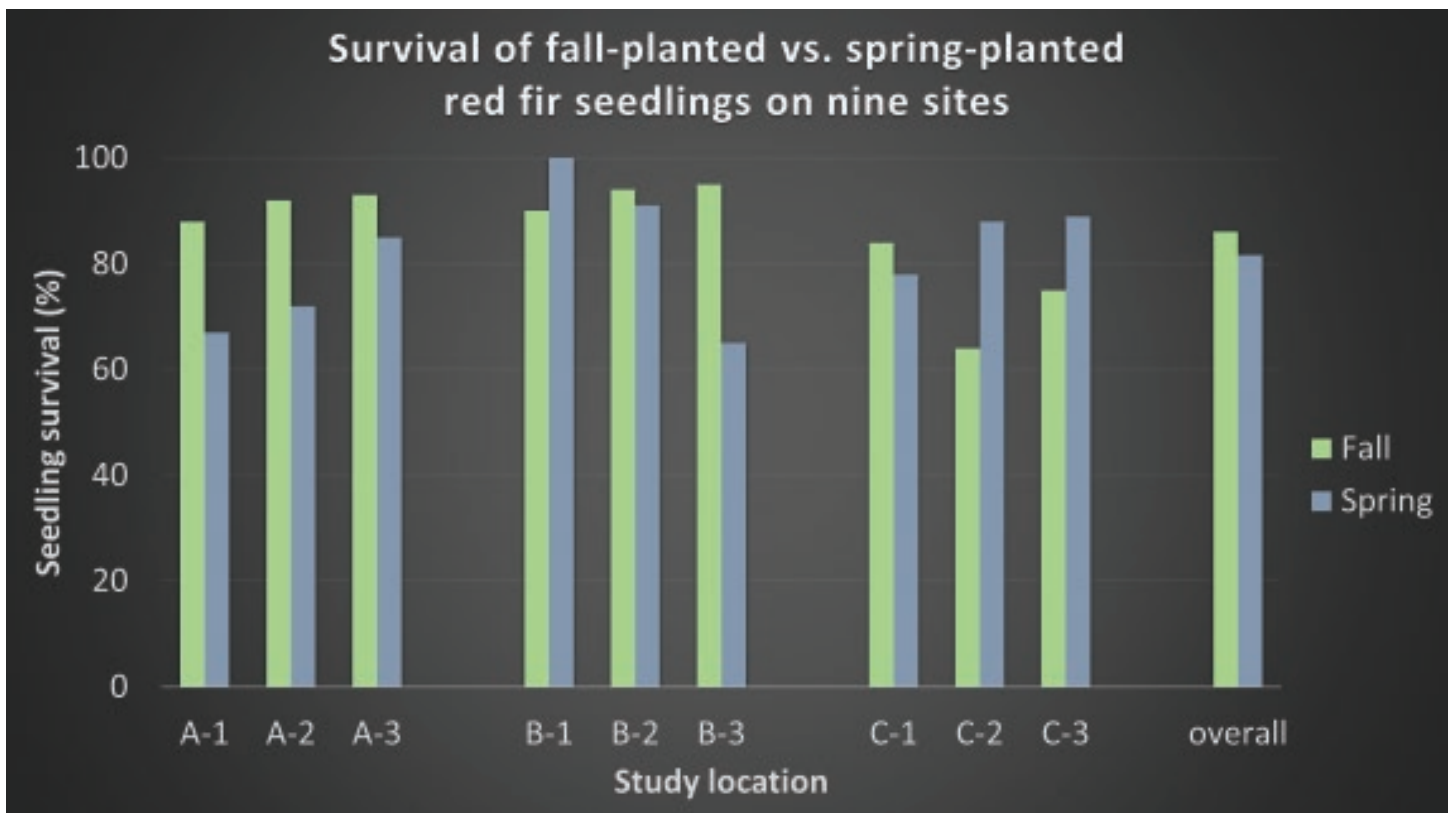
*Fall planting at Kluck Nursery.  
Photo: Kluck Nursery Facebook page.*



For most Christmas tree growers in the Great Lakes region, spring is the traditional time for planting seedlings and transplants. However, we often hear from landscapers and others in the ornamental trade that fall is a great time to plant, or even, fall is the **best time** to plant. If fall planting is great for landscape trees and shrubs, shouldn't fall be a great time to plant conifer seedlings as well? This question is particularly relevant in the wake of the extremely warm, dry spring much of the region experienced this year that had growers scrambling to irrigate and, in some cases, resulted in seedling mortality. In this article, I'll consider some of the pros and cons of spring planting in the Great Lakes region and discuss some practical considerations for growers interested in fall planting.

## The case for fall planting

Successful seedling establishment is dependent on new root growth and re-establishment of root-soil contact. New root growth, in turn, is driven by soil moisture (i.e., rainfall, irrigation) and soil temperatures. For most trees, root growth is greatest when soils are warm and there is adequate soil moisture. In general, soil temperatures above 40 deg. F. are required for significant root growth, and little root growth occurs when soil temperatures are colder. In the Great Lakes region, 'planting windows' with sufficient soil moisture and suitable soil temperatures can be found in both spring and fall. Planting time has been the subject of countless research papers in the reforestation literature, and dozens of studies have been conducted to determine the optimal time for planting. However, comparisons of spring versus



**Chart 1.** Research trials on spring vs fall planting often yield conflicting results. In this trial in northern California, fall planting increased overall survival slightly, but results for individual tests varied widely. Source: Ellington, 1984.

fall planting often show no difference or yield conflicting results. For example, in a study of spring and fall planting of red fir seedlings in northern California, overall survival was slightly higher for fall-planted seedlings, but within individual test sites, results varied widely (Chart 1). In addition to survival and biological aspects of planting season, some growers favor fall planting as a means to spread out their workload.

### Challenges for fall planting

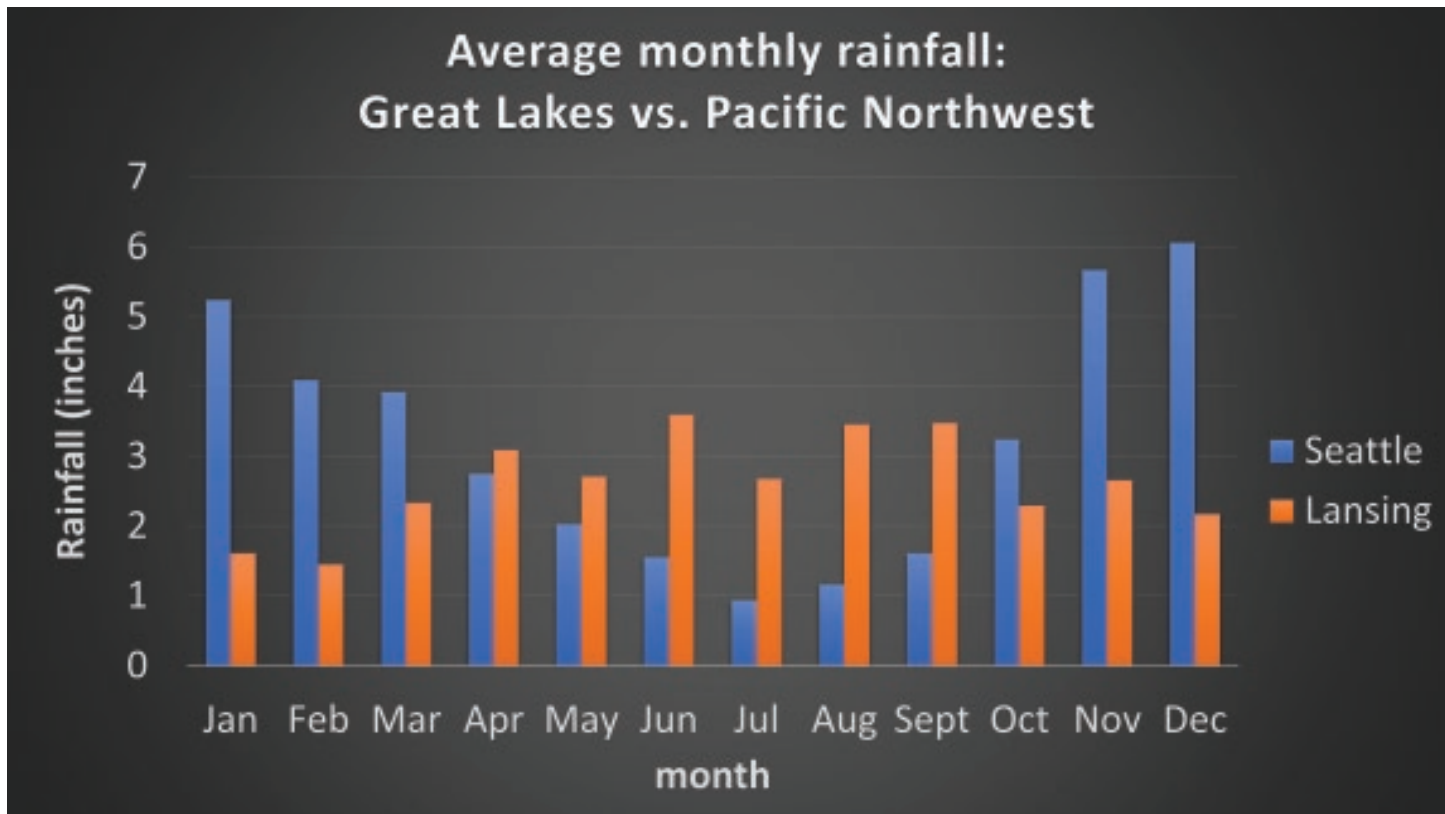
So, if research shows that fall planting often works as well as spring planting, why don't more growers do it? Several factors come into play. First, much of the evidence for fall planting is based on research from the Pacific Northwest. While many people perceive the Northwest to be extremely rainy, that region typically has dry summers compared to the Lake States, where our monthly rainfall is evenly distributed

throughout the year. For example, based on long-term averages, Lansing gets over twice as much rain than Seattle, WA in June, while Seattle is much wetter in October and November (Chart 2). This precipitation pattern favors fall planting more in the Northwest than in the Lake states. Soil temperatures can also limit the window for successful fall planting in the Great Lakes region. Recall that little root growth occurs when soil temperatures are below 40 degrees F. Based on soil temperature data from the MSU Enviroweather station near MSU campus, over the past 15 years, soils in our area reach the 40 deg. F. temperature threshold in mid- to late-November (Chart 3). This means growers need to plant by mid-October to ensure that seedlings have at least a month of conditions favorable for root growth before things start to shut down. Another factor that can limit fall-planted seedlings is frost heaving. Frost

heaving occurs when shrinking and swelling of soil during freeze-thaw cycles pushes roots upwards. It can result in exposure of roots or complete uprooting of seedlings and is more likely to occur in fall-planted seedlings that are not yet firmly anchored in the soil. Finally, from a practical standpoint, growers wishing to try fall planting may be limited by seedling availability. Spring planting is firmly entrenched in the Great Lakes region, so spring is the traditional lifting season for nurseries in the area. Growers interested in fall planting should plan ahead and contact nurseries concerning availability.

### Tips for fall planting

Fall planting can have advantages over spring planting in terms of spreading out the farm's workload as well as avoiding dry spring weather such as we experienced in 2021. Success with fall planting requires forethought and



**Chart 2.** Long-term average monthly rainfall in Lansing, MI and Seattle, WA. Dry summers and wet falls favor fall planting in the Pacific Northwest.

preparation. Dan Wahmhoff of Wahmhoff Farms Nursery has seen the good and bad of fall planting and points out, “With lighter ground, if you are fortunate to get sufficient rains, and if it’s not too hot after planting and if you plant early enough for the roots to begin to grow in the fall (lots of ifs), it can be beneficial, as the trees get a head start on the next spring.” To help minimize some of the “ifs” of fall planting, growers should consider these factors:

**Find the ‘sweet spot’ for planting date**

Successful fall planting requires planting late enough to take advantage of cooler weather and fall rains but early enough that seedlings can establish roots before soil temperatures become limiting. For southern lower Michigan, this is roughly early- to mid-October. Michigan growers interested in historical data on soil temperatures for their location can access the nearest

weather station on-line via the MSU Enviroweather network (Google: MSU Enviroweather).

**Be wary of frost heaving** Frost heaving is a major limitation to fall planting, especially on heavier clay soils. Growers should limit fall planting to lighter, sandier soils that are less prone to frost heaving. Josh Peterson of Peterson’s Riverview Nursery in Allegan, MI reports that they have had success with fall planting Fraser fir. He notes, “Luckily for us, we usually can count on some lake effect snow cover to reduce frost heaving.” For farms that do not get consistent snow cover, mulching, if practical, can also insulate the soil and help to reduce incidents of heaving.

**Plan ahead for planting stock** Seedlings or transplants for fall planting may be in limited supply as nurseries in the Great Lakes dig the bulk of their stock in the spring.

Growers considering fall planting should contact nurseries well in advance to ensure stock is available.

**REFERENCES**

Ellington, W. B. (1985). New ideas in fall planting. In Proceedings, Western Forest Nursery Council-Intermountain Nurseryman’s Association Combined Meeting, August 14-16, 1984, Coeur D’Alene, Idaho (No. 185, p. 81). US Department of Agriculture, Forest Service, Intermountain Research Station.

**ACKNOWLEDGEMENTS**

Thanks to Josh Peterson and Dan Wahmhoff for sharing their experiences with fall planting. Thanks to Riley Rouse for editing the initial draft of this article. 🌲

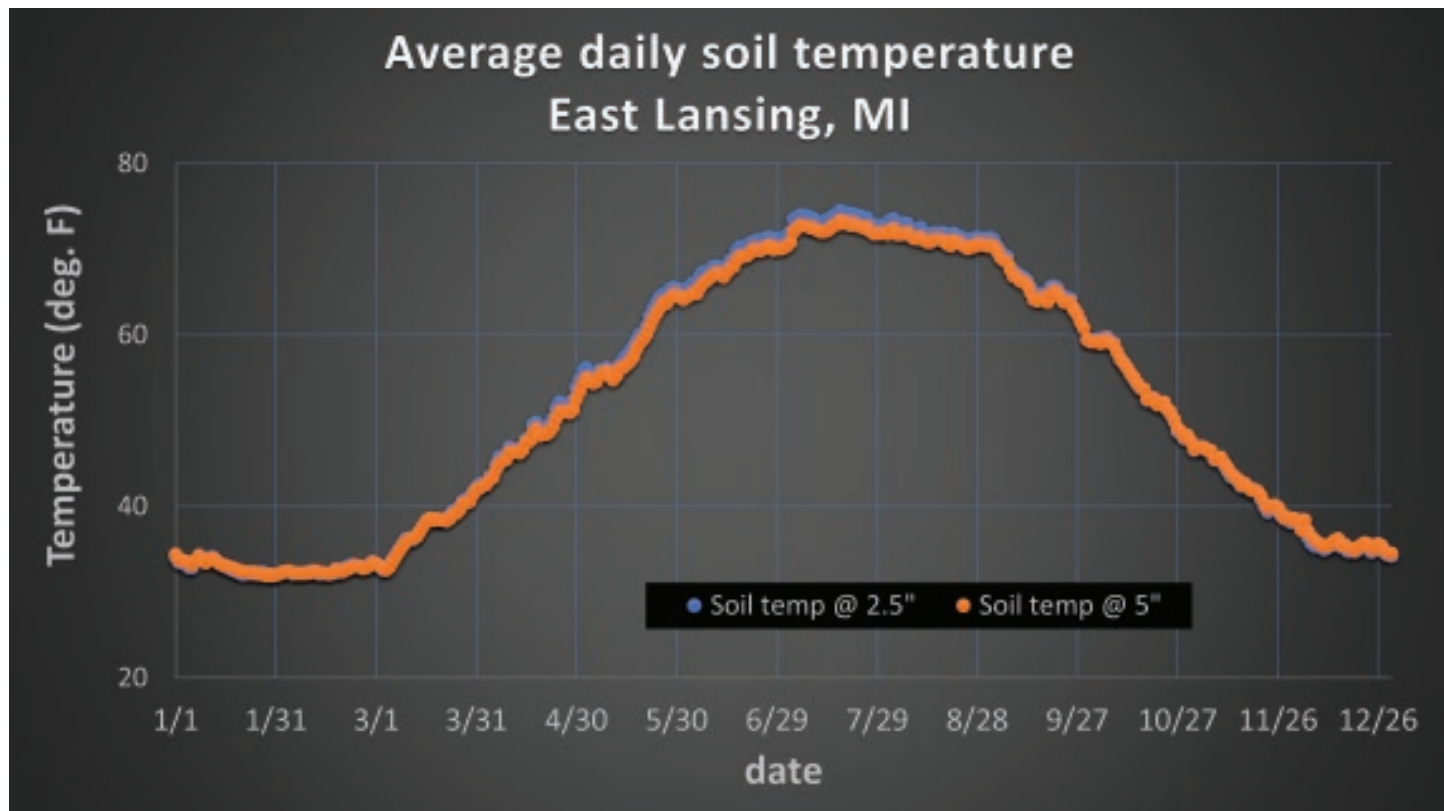


Chart 3. Average daily soil temperature based on records from the MSU Enviroweather Station at the MSU Horticulture Teaching and Research Center near East Lansing, MI. Data from 2007 to 2020.