FORESTRY EXTENSION NOTES

FALL PLANTING OF BARE ROOT SEEDLINGS

Many nurseries make available bare-root planting stock for either spring or fall planting. Spring is still the optimum time to plant bare-root material in Iowa, but several factors may encourage a fall planting. First, fall planting allows access to some sites, such as bottomlands or wet areas, which may not be suitable for spring planting. Second, fall planting occurs during a time when more labor may be available, and thus more care can be taken in planting. Third, fall planting allows you to spread your work load over two seasons during the year.

Both conifer and deciduous species can be planted in the fall. As with spring planting of bare-root seedlings, initial survival depends on the regeneration of a fine root system to replace the roots that died or were lost during the lifting process. Because of their evergreen habit, conifers may develop new root growth after fall planting if soil temperatures remain above 50° F. However, if sufficient new root growth does not occur, the seedlings may be subject to winter drying. This drying occurs because the root system cannot supply the water demands of the green needles on the occasional warm winter days when photosynthesis and transpiration are active. Most success with conifers has occurred when they are planted early (September). In general, fall planting of conifers has been significantly less successful than spring planting. Where possible, plant conifers during the spring planting season. Hardwoods are not as apt to grow new roots, but they are also not subject to the same environmental stresses during winter because they have no leaves. Based on limited experience in Iowa, fall planting success has been greater with hardwoods than conifers.

Fall-lifted seedlings may be more perishable than spring-lifted ones because they have not satisfied their winter dormancy requirements. Proper storage and handling is critical for planting success. Seedlings should be planted as soon as they are received from the nursery. If short-term storage is required, seedlings should be stored at 35-42° F. Temporary storage at warmer temperatures may result in significant mortality.

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The time period for planting may be shorter in the fall than spring. Generally the month of October is the best period for fall planting of hardwoods and September for conifers, but this can vary by individual year. Recent experiences with fall planting hardwoods in Iowa has shown that success is fairly good when planted after October 1 and continuing into the fall until soil frost formation begins. With conifers, two approaches have been tried. One is early planting, during September and into the middle of October. This early planting will provide the weather conditions needed to begin regeneration of the root system. The other approach is to plant the seedlings late in October to the middle of November when growing conditions are no longer favorable for root growth. These conditions simulate cooler storage conditions. This latter approach may work if the winter is continuously cold with no warm spells until spring. If, however, there is a week of warm weather at the end of January or in February, the late planted seedlings will be very susceptible to winter drying. Most success has been achieved with early planting of conifers. Overall, conifer planting in the spring is more successful than fall planting; this is mostly attributed to Iowa's variable winters with periods of warm conditions, resulting in moisture loss and desiccation of the new seedling.

Some other considerations for fall planting include:

- Soak the root system of seedlings in water for 4 to 6 hours prior to planting if a root gel has not been applied. Application of root gels will reduce root drying and may be applied at the nursery or by the planter. Water soaking of roots already dipped in gel will wash the gel off.

- Consider spraying or dipping the foliage with anti-transpirants. These provide a thin layer of material that reduces transpiration on occasional warm winter days. The material breaks down by the time spring growth begins and is therefore not harmful to the plant. Before applying your own anti-transpirants check to see that the nursery has not already treated the seedlings.
- Plant seedlings on sites where competing plant material has been removed on a minimum of 4-foot wide strips. Leave other plant cover between the strips to provide some protection from desiccating winds. The 4-foot wide clear rows are wide enough to discourage rodents from girdling the seedlings. If there is an especially high rodent population and/or deer population consider the application of repellants.

- If feasible, late fall watering will aid seedling establishment, reduce frost heaving on heavy clay soils, and reduce winter drying of newly planted seedlings, especially conifers. Mulching with an organic mulch will provide some of the same benefits.

Fall planting of bare-root seedlings in Iowa is a landowner's option, but it will require greater attention to detail for success. Many foresters do not recommend fall planting of bare-root conifers because of the temperature extremes during Iowa's winters.

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