



Nursery News

January 2015



REMINDER: Order Your Seedlings for Spring Now

An ample supply of high quality, native, bare-root conifers, hardwoods and wildlife shrubs for conservation plantings in Wisconsin continue to be available for purchase from the DNR's Reforestation Program. The 2015 prices remain the same as last year's. An application, stock inventories and other tree planting resources are available [on-line](#) or from your DNR forestry office.



HERBICIDE FOCUS – Transline®

By Jim Storandt, Griffith State Nursery Manager, Wisconsin Rapids

Transline® (ie. clopyralid) is a specialty herbicide that can be used to control certain broadleaf weeds and woody brush species in non-crop areas, forest sites, industrial manufacturing and storage sites, rights-of-way and wildlife openings including tree plantations. The product can be sprayed over the top of most conifer and hardwood trees without causing damage. The label does warn that over the top applications may cause needle/leaf curling if applied during active tree growth. The label goes on to state that the trees should recover by the end of the growing season or early the following growing season. I would *not recommend* using this chemical *on red pine* at any time. We have observed needle curl when used on red pine in the nursery as well as in out planted red pine. It is however very effective for controlling certain weeds in newly established tree plantings. Some of the common weeds controlled are clover, dandelion, horseweed/mare's tail,



knapweed, ragweed and thistles. It is also very effective on black locust and does a good job of controlling alfalfa. A list of additional weeds controlled can be found on the product label.

Transline® costs about \$150.00 per pint and is applied at a rate of about 4 – 8 ounces per acre. Spraying weeds under favorable growing conditions and when they are 3-6 inches tall will require less chemical and provide better control. Making band applications over the tree rows as well as proper

equipment calibration will help reduce the amount of product used and improve effectiveness. I have found that applying Transline® in late September – mid October is very effective on thistles and horseweed/mare's tail.

Remember to read and follow product labels when using pesticides. [Label and material safety data sheets](#) are available for most pesticides. Additional information regarding Transline® can be found [here](#).



SPECIES FOCUS: Eastern White Pine (*Pinus Strobus*)

Native to Wisconsin, white pine is a long-lived species, often reaching 200+ years, and grows on most soil types within its natural range, but generally competes best on well drained sandy soils of low to medium site quality. In natural stands, it is found in association with red pine, jack pine, aspen, white birch, red maple, oaks, balsam fir, white spruce and eastern hemlock. White pine was more common in northern and central Wisconsin in the pre-European settlement era, but the historical cutover period and subsequent fires resulted in a limited seed source which significantly reduced white pine occurrences for the future.



Native white pine range

As a more rapidly growing northern forest conifer, it is an excellent tree for reforestation projects. This species should be grown in full sunlight in fully stocked conditions. Early growth is slow, though its average height growth can reach 16 inches per year with diameter increasing one inch every five to six years in fully stocked stands on average sites.



Once of cone bearing age, seed crops are produced every three to five years, however, losses from cone borers, white pine cone beetle and squirrel predation can be high. White pine is considered to have intermediate shade tolerance; trees less than 30 years old with one third of their height in live

crown will respond well to release from suppression.

To promote optimum vigor of white pine, with sawlog production as the primary objective, even-aged management, with periodic thinnings should be applied. Maintain stands at 700 or more total stems per acre until crown closure and lower branch mortality occurs. Pruning is essential in the management of white pine for quality sawtimber products. Natural regeneration should be initiated at least 10 years prior to rotation of the stand. Unless competition is controlled or regeneration requirements met, conversion to hardwood species can be an expected outcome.

Major pests include [white pine blister rust](#) and [white pine tip weevil](#).

White pine wood has medium strength and is often used for furniture, patterns, matches, and Christmas trees since the foliage has a good color and responds well to shearing. The bark of white pine is used as an astringent and an expectorant. White pine has been used extensively for stabilizing strip-mine spoils in Pennsylvania and West Virginia. White pine also is used by wildlife for food and cover.



CONGRATULATIONS - Jim Storandt



Jim Storandt, Griffith State Nursery Manager in Wisconsin Rapids, retired December 1, 2014 after 29 years of leadership and devotion to reforestation in Wisconsin. Under his tutelage nearly half a billion conifers, hardwoods and shrubs were produced and distributed to his customers in Wisconsin. Congratulations and Best Wishes Jim!



MECHANICAL SITE PREP EQUIPMENT

By Colleen Matula, DNR Forest Ecologist/Silviculturist, Mellen

Site preparation facilitates the establishment, growth and survival of desirable tree species by removing or reducing vegetative competition, unwanted trees and logging debris, and prepares the soil for a successful future forest. While herbicides are often used, mechanical site preparation is another alternative available to landowners.

Factors to consider when selecting site preparation equipment include management objective, site characteristics, access to the site, along with labor and transportation costs.

Contract operators for private landowners are limited; however, some [private contractors](#) do provide specific site preparation work. Equipment and labor expenses may be defrayed by applying for cost-sharing through the Wisconsin Forest Landowner Grant Program (WFLGP); contact your local DNR forester for information and to apply.

Anchor chain – This method is most effective if performed one growing season following a timber harvest and is best suited on unfrozen, well-drained soils. Sites with steep slopes or heavy slash should be avoided. An early summer application will reduce brush and aspen sucker competition by disturbing root systems. Most chains weigh over 1000 pounds and require a skidder to pull them at 2-3 miles per hour.



Root Rake – A root rake operation is preferably done when the ground is frozen and snow depth is less than two feet, or from mid-summer to early fall if the soil is dry. It is best suited for well-drained soils as those with a clay component are susceptible to compaction, especially when wet. This equipment is used to perform light scarification for seeding and to pile



slash; the amount of topsoil pushed into the piles should be kept at a minimum so debris can breakdown. Stumps need to be low to prevent the rake from hanging up.

A crawler tractor with 160-300 hp at the flywheel will be required. Teeth should be at least 12 inches in length.

Salmon Blade – Used primarily to scarify and prepare a seedbed to provide for natural regeneration in shelterwood systems, this equipment is highly effective in mixing topsoil and duff together to create an optimal seedbed. The salmon blade can be used before a harvest or following a thinning. Hardwood or conifer stands that are level to gently rolling and soils which are dry to moderately moist are appropriate for this equipment; wet or rocky soil conditions should be avoided.

The salmon blade is designed to be pushed by a small to medium sized crawler tractor with the teeth pushed 2-5 inches deep in the soil.

The furrows created will catch seed and hold moisture to increase seed germination and seedling survival. One trip over the area with at least 50-60% of the area covered is usually adequate seedbed disturbance.



Straight blade – Straight blade scarification is used for a couple objectives such as exposing mineral soil, stemming back undesirable competition (i.e. ironwood, hazel), breaking up a grass sod layer and moving debris piles for planting. The straight blade can be used before harvest or following thinning. Successful trials have been done in jack pine where straight blade scarification was conducted



before harvest to expose mineral soil and promote seed germination. When operating post harvest, stumps need to be low to prevent bumping or hanging up on the stump. The straight blade can be mounted on various sizes of bulldozers and are widely available.



UPDATED: Tree Planting & Site Prep Vendor List

The tree planting and site preparation [vendor list](#) has been updated for more convenient use. Simply click on the county of interest and a list of names, including contact information and services offered, will appear. This information is provided as a service to customers, but inclusion on the list does not imply endorsement of any vendor by the department.

The information also can be found by searching “**tree planting contractors**” or “**site preparation contractors**” on the DNR’s home page (dnr.wi.gov).



UPDATED: On-line Tree Planting Plan

Interested in planting trees, but not sure how to get started? Our on-line [tree planting plan](#) provides fundamental information and recommendations, including contact information for your local DNR forester, suggested species to plant on your site, recommended spacing, discussion on site preparation, and other topics important to create a successful reforestation project.



UPDATE: Reforestation Monitoring Surveys

Since 2007 the nursery program has worked closely with its customers, both public and private, to survey plantings across the state to evaluate factors influencing plantation survival. Criteria for site selection, along with data to collect and follow through a seven year period, were determined at the on-set of the project.

The long term goal of the undertaking is to confirm the key factors which allow nursery stock, by the seventh year of establishment, to capture the planting site and be free to grow from competition. The intent also is to relay lessons learned to foresters and landowners alike to consistently increase reforestation successes in Wisconsin within the parameters we can influence.

In 2014, the DNR’s Bureau of Science Services analyzed the compilation of data collected from these 1-, 3- and 7- year old plantations. A few initial findings revealed:

- Most landowners are planting seedlings timely which directly correlate with the nursery’s spring distribution season in April and May.
- An accurate seedling planting depth and the tree’s orientation to the ground (ie. crooked vs. straight), remain important survival factors.
- Landowner education about and understand of proper tree planting techniques and requirements remain critical to plantation success. We hope landowners

continue to seek technical advice and input from their local DNR forester, nursery staff or consultant forester.

The findings lead to a number of protocol revisions to be implemented beginning in the 2015 survey season. For example, plot design will be switched to a fixed plot system to better control statistical validation.

Some hypotheses could not be fully vetted at this time due to lack of a statistically sound data base. For instance, 2014 was the first year to evaluate the 7-year plantings so additional data is needed before conclusions can be drawn.

Hypotheses being evaluated have been honed and better defined. The results also identified data best collected from field plantings versus those better suited to establish in controlled studies put in place on the nursery grounds. The later will be started in 2015.

Hypotheses being assessed center around themes which focus on factors impacting long term stock survival and growth rates, such as:

- A written planting plan, with forester involvement, influences plantation success.
- Deer and rodent browse.
- Planting method (hand planting vs. machine planting).
- Site preparation method (chemical or mechanical).
- Planting depth.
- Seedling orientation at planting time.
- Soil type correlated with species type.
- Pre-existing cover type or competition on the site.
- Planting stock defined as cull.
- Herbicides and application rates.
- Root pruning levels.
- Lift date vs. ship date vs. plant date

Kudos to Roger Bohringer, Wilson Assistant Nursery Manager in Boscobel, who was invited to present the department's survey protocol and findings to forestry peers at the National Society of American Foresters Convention in Salt Lake City last October.

The nursery staff thanks landowners who have willing allowed us to access their property to conduct our regeneration surveys. It is a valued long-term partnership.



FREE: Seedlings for 4th Teachers and Students

The DNR's Reforestation Program offers a free tree seedling to all fourth grade students; this year's seedling will be a 3-year old white pine. [Sign-up](#) today!

Arbor Day is a time when individuals and groups are encouraged to plant trees. The holiday, celebrated in Wisconsin the last Friday in April, is a terrific opportunity to get students interested in environmental projects.



Educational Plantings

The Baldwin DNR Service Center displays a variety of wildlife shrubs around its infrastructure as an educational exhibit for landowners to view the characteristics of numerous species produced by the state nursery, each contributing to important habitat creation.



Photo credit: Harvey Halvorsen, DNR

THE MISSION of the state nursery program is to insure a consistent supply of high quality seedlings, of desirable forest species, at an economical price, to encourage reforestation in Wisconsin.

Nursery News is published in January and July with the intent to keep individuals abreast of regeneration topics.

State Nurseries

Griffith State Nursery (Wisconsin Rapids)
715-424-3703

Wilson State Nursery (Boscobel)
608-574-4904

Hayward State Nursery (Hayward)
715-492-1204

www.dnr.wi.gov, search "tree planting"