

Overview of Potlatch's Minnesota Nursery Program
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The abundant hardwood resource in northern Minnesota presented a challenge to the Minnesota Wood Products Division of Potlatch Corporation. To meet the challenge, Potlatch developed a multiphased strategy for Minnesota that was aimed at improving its position as a leader in its segments of the wood products industry, and at utilizing the state's abundant supply of hardwoods.

The Minnesota Wood Products Division is responsible for supplying wood to its OXBOARD plants at Bemidji and Cook, to its small-log stud mill at Cloquet, and to the company's Northwest Paper Division pulp mill at Cloquet. The requirements of the facilities (OXBOARD mills use aspen; the pulp mill uses a 60-40 ration of aspen to softwoods) play an important role in the management of the Division's 249,075 acres of forestland scattered throughout 17 counties in northern Minnesota.

Wood procurement and forest management activities are carried out on five geographic management areas. The Wood Products Division has developed an integrated management program based on the resources available and the requirements of their facilities. A major goal of the management program is to accelerate the production of wood for our mills at a competitive cost.

Accelerated management of fee lands begins with timber harvesting by clearcutting. Harvested material that cannot be used by Potlatch facilities as fiber or fuel is sold to other markets when and where possible.

A variety of mechanical and chemical treatments are used to prepare planting sites following harvest. Treatments are often combined, according to site conditions, to clear slash, control competition and prepare planting spots. Methods that harm the productivity of the site are avoided.

Regeneration programs favor conifer plantations and natural aspen regeneration. Approximately 4,000 to 5,000 acres are planted annually. All of the planting stock is supplied by the Potlatch tree nursery and greenhouses, which together produce around 3 million seedlings each year. Half of the seedlings are grown as bareroot stock and half are grown as containerized stock in the greenhouses. About 90 percent of the seedlings grown are red pine. The remaining 10 percent are made up of jack pine, white spruce, black spruce, and occasional crops of larch, aspen or Scots pine.

The tree nursery in Cloquet has operated since 1959. The species mix and stock classes produced in the nursery are established by requests from the management areas as constrained by production capacity. The nursery grows four stock classes as follows: 2-0, 3-0, 1-2, and 2-2.

All seed is treated with a fungicide to prevent damping off, and aluminum powder to make seeds more visible. Seedbeds are seeded in the fall or spring, depending on species and stock class, and sprayed with a pre-emergent herbicide. A precise schedule of irrigation, fertilization, fungicide application and herbicide application is followed throughout the growing season to produce the desired seedling sizes and quality. Hand weed control is used also. Seedlings are lifted in April and May for field planting or nursery transplanting.

The Potlatch greenhouse complex, which has grown to four greenhouses since the start of construction in 1976, adds flexibility to the planting program because containerized seedlings can be held for early summer or fall planting. A two-crop growing schedule gives maximum use of the facility. The winter crop is seeded in October, removed in May, and outplanted that summer or fall. The summer crop is seeded in May and removed from the greenhouses in August. This crop of containerized seedlings is overwintered in the open holding area outside the greenhouses and outplanted during the following growing season.

The cavities of the styrofoam containers are loaded with a custom-mixed commercial peat/vermiculite growing medium. The containers are then seeded (with seed that undergoes the same treatment as the bareroot nursery seed) and covered with a light layer of crushed granite. Various lighting, temperature control, irrigation, fertilization and pest control practices are used to promote growth during different stages of seedling development. The small cavity and the alkaline water used for irrigation create a rise in soil pH. This problem is controlled by applying phosphoric acid solutions to the crop. Blocks of seedlings are rotated to different locations during the greenhouse culture period to minimize effects of uneven lighting and watering.

The nursery and greenhouses have played an integral role in implementing our genetic tree improvement program, the goal of which is to improve the productivity of plantations by genetically increasing the average growth rate of plantation trees. The Division became involved in genetic tree improvement in the 1950's by contributing to the Institute of Paper Chemistry's (IPC) genetic improvement of aspen project. The current genetic tree improvement program, as part of the Minnesota Tree Improvement Cooperative, includes seed orchards for red pine, jack pine, black spruce, and white spruce, as well as involvement in two IPC projects: production and intensive management of genetically improved aspen, and genetic improvement of larch.

A final important element in the Division's forest management program is a plantation monitoring program that begins with proper transporting of the planting stock to the site. Better management of stock handling includes the use of refrigerated vans and the supervision of contract planting crews to insure stock is handled properly. Quality planting is achieved by close supervision of crews and economic incentives that penalize poor planting and mishandling of stock. Planting quality is evaluated using the following criteria: proper planting depth, correct angle, proper packing of planting hole, proper planting location and proper root placement. Another phase of plantation monitoring involves assessing the planted areas at later stages to determine seedling density and distribution, survival rate, growth and future management requirements. This is generally done the fall after the second growing season and again after five growing seasons. These regeneration surveys help determine the success of the planting program.