

TREE IMPROVEMENT AND SILVICULTURE, TEAMWORK IN ACTION

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Forest Management has matured from a time when tree improvement targeted seed supply, and silviculture targeted survival. Currently, when combined efficiently, the combination of genetics and silviculture has the ability to increase yield per acre by a factor of two or more. Tree Improvement brings more to the table than just increased yield, however, as stem quality, disease resistance, and seed quality are all improved to the point that we often take them for granted. Past practices have given way to advanced operations combining tree improvement and silviculture. The future will bring more opportunity to target specific sites, regimes, and outcomes. Challenges are to understand the impacts, and have the ability to model the impacts of the many practices to allow more accurate quantitative predictions of the future.

In the 1980s, first generation testing was catching up with early seed orchards, and slowly, all wild collections, and collections from thinned stands were phased out. In addition, significant gains were made in resistance to fusiform rust, as orchards were rogued, and excess seed supply allowed targeted collections. In the same time frame, silviculture adopted the use of herbicides, and overall production levels were improved. It was recognized that Site Index with a base age of 25 was being increased, often by 10-20 feet with the combined use of culture and genetics.

Nursery practices were advanced with the use of precision seeders, and the culture to provide a high quality seedling that made even better use of the silviculture in the field, adding more consistency to stand growth and development.

A system that utilizes all techniques is not inexpensive, and the need to predict the future is critical to continued investment in genetics and silviculture.

New options available to us looking forward include an array of genetic, including varieties. Options for regeneration include bare root and containerized seedlings, and a wide array of herbicides to control competition.

Continuous improvements in genetics, silviculture, and seedling quality provide tools to allow real increases in overall growth, stand quality, and value. As we move ahead, matching prescriptions for future growth as well as markets will be challenging. We need the standard background, such as genetic potential, soils, disease, and some climate factors, but we will also need the ability to predict outcomes with better certainty to optimize performance.