



Project Impacts

NSRC-FUNDED RESEARCH FINAL REPORT

Evaluating Use of a Harvester and a Feller-Buncher in 40-Year-Old Forest Stands in Maine

PROJECT AWARD YEAR AND TITLE:

2013

Productivity Standards for Cut-to-Length and Whole-Tree Systems in Maine

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More than 11 million acres of small diameter forests in Maine are in need of thinning in order to maximize tree growth. NSRC researchers assessed harvest productivity in small diameter stands, both pre-commercially thinned (PCT) and non-PCT, since limited research of this type has been conducted in Maine over the last 25 years. Researchers evaluated the productivity of two pieces of logging equipment in harvesting 40-year old forest stands. They evaluated a harvester in PCT stands and a small custom-built feller-buncher in non-PCT stands. The feller-buncher was originally designed to clear residential house lots and powerlines. They also assessed stand damage caused by the logging equipment.

Researchers conducted a time and motion study with the harvester, and results validated productivity equations previously developed for similar equipment in Maine. The feller-buncher time and motion study was cancelled as it became evident after several weeks of harvesting a small clear-cut that the machine was not well-suited to the terrain and tree stem size. Stress on the machine caused frequent breakdowns, and it was determined that the use of this machine in forest settings is not applicable.

Harvester productivity equations are now validated and available to the public for use in the Northern Forest region. (Productivity guide and equations can be found at http://digitalcommons.library.umaine.edu/cgi/viewcontent.cgi?article=1030&context=aes_miscpubs.) Further, researchers have shown that a particular promising feller-buncher was not suitable for the work at hand which implies that forest industry must continue to search for equipment combinations that can profitably harvest non-PCT stands with small diameter trees.