

TREE GENETIC AND IMPROVEMENT RESEARCH AT THE UNIVERSITY OF MINNESOTA

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The School of Forestry's Tree Improvement Research Project was initiated in 1955. Studies in this area during the past fourteen years have been designed to accumulate information on genetic diversity in native and exotic tree species and isolate genetically superior lines for direct use in Minnesota forest plantings or for further selective breeding. Nursery facilities and outplanting cooperation have been provided chiefly by the University's North Central Experiment Station and the Blandin Paper Company at Grand Rapids, the Cloquet Forest Research Center at Cloquet, and the USDA Forest Service Nursery at Eveleth, Minnesota. Indispensable cooperation has also been provided by the University's Departments of Horticulture, Plant Pathology, Entomology, Fisheries, and Wildlife; the North Central Forest Experiment Station of the USDA Forest Service; The Quetico-Superior Wilderness Research Center; the Minnesota Conservation Department, and other institutions.

Most of the studies carried on under the Tree Improvement Project are conducted by graduate student assistants as part of their graduate training program. In most cases the results

obtained from these investigations are also used as the basis for their degree dissertations. Aside from purely research objectives, the Tree Improvement Project thus serves a useful graduate training and educational function. Twenty-nine graduate students have thus far participated in the Tree Improvement Project.

Major effort to this point has been directed to provenance experiments. During the past 10 years this work has been greatly facilitated by our participation in a cooperative Regional Research Project (NC-51: Forest tree improvement through selection and breeding) sponsored by the U.S. Department of Agriculture. Seed source experiments of 14 North Temperate Zone species have been established in more than 30 permanent outplantings throughout the State.

Results from the older experiments (e.g., white spruce, Scotch pine and Japanese larch) have provided information on the best adapted seed sources for direct use in various localities throughout Minnesota. Some of these species have now reached sexual maturity and our future research will be increasingly directed to selective breeding studies within and between the most promising sources.

Details regarding some of the studies are presented in the material describing the Conference Field Trip.

1 This was prepared by Professor Pauley prior to his death, April 18, 1970.