TREE BREEDING WORK OF THE NEKOOSA—EDWARDS PAPER COMPANY*

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The Nekoosa—Edwards Paper Company has been growing, planting, and cutting trees for many years. Anyone engaged in forestry on almost any scale is cognizant of and interested vitally in forest genetics. We at Nekoosa—Edwards have attempted to follow genetics principles as closely as possible in our work.

An industrial approach to genetics can perhaps be summed up by the statement, "How can we by following proper silvicultural practices bring the greatest volume of wood from our forests to our mill in the shortest possible time?"

It has always been difficult to get the proper information on seed sources. Local seed has been used whenever possible, but there has been no guarantee that this seed has come from superior stock. When a nursery is planting over 2 million seeds per year it is not always possible to obtain the seed locally, and we have been forced to purchase from the open market. One

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big step for all nursery practices would be proper selection of seed from definitely known sources that had been collected from superior or elite trees.

We at Nekoosa-Edwards have seen many of the articles from the Institute of Forest Genetics at Placerville, California, and became interested in their work on the lodgepole-jack pine cross. The cones had come from jack pine pollen and a parent lodgepole pine and showed startling vigor. We then thought, can we establish by selection or hybridization, or both, forests of exceptional vigor that will produce quality wood in a shorter time. There are definitely known differences within a given species, and there are differences between different species whose utilization is the same. Example:

	Lodgepole Pine	Jack Pine
Solid wood per cord (cu. ft.)	95 - 98	83 - 86
Bark volume per cord (cu. ft.)	12.0	14.5
Density (lbs. per cu. ft.)	25.0	24.2
Yield - pulped (percent)	44.9	43.6
Strength tests (lbs. per sq. in.)	660 - 750	600 - 640

We next looked for the correct approach to use. Was it selection or perhaps hybridization? Nepco chose first to use hybridization, testing the feasibility of using lodgepole pollen on a parent jack pine. If this cross were successful, how would the progeny test in the field? How was the hybrid vigor; will it last or carry on when compared with native stock? If the aforementioned were all favorable, the question then arose: how will we produce seed on a large scale?

We first began pollination crosses in 19415. We have had a great deal of cooperation from Dr. Righter at Placerville, California. He sent the pollen to us, and also seeds that he wanted to have tested here. In 1951, following the pollination and maturation of the seed we planted our first hybrid jack pine-lodgepole pine in the field. This was followed by a planting in 1952, and in 1953 we will have one more planting. Definite differences are noticed in the hybrid trees that are planted. At the present time, it might be stated that we are checking these progeny of jack pine and lodgepole pine and probably will carry this on for approximately another 10 years. If results are favorable, the big question then is, how can we produce these at the rate of 1 million per year?