EXPERIMENTAL TREE GROWTH STUDIES OF THE MARATHON CORPORATION

Martin Baum 2/

The Marathon Corporation is a producer of pulp, paper products, and lignin chemicals. The company originated in 1909 with the construction of a sulfite pulp mill at Rothschild, Wisconsin° Its overall operation now extends nationwide and into Canada.

One of the most significant features of Marathon is integration which begins with extensive woodlands operations. The company obtains its pulpwood from 5,000 square miles of timberland in Canada and from northern United States.

Timber from these holdings is made into pulp in company mills located at Green Bay, Wisconsin; Rothschild, Wisconsin; and Marathon, Ontario° Ten mills, five of which are located in Wisconsin, convert pulp into paper and finished products.
Research is conducted at Rothschild by the Central Research Department, whose members form part of Marathon's staff of engineers, scientists, and technicians. This department is housed in a modern, streamlined building having excellent pilot plant and laboratory facilities.

Wood is our most important raw material and represents a major portion of our pulp manufacturing costs. Experimental studies to discover ways of growing more wood per year on tree farms will be of value not only to the producer but to the potential user as well.

Marathon Corporation started tree growing studies in 1949 using a site in our mill yard at Rothschild. This space was augmented by the purchase of an 80-acre farm in 1953. This farm is located about 6 miles from Rothschild and is thus readily accessible to the Central Research laboratories.

A survey of soils and ground water was made by Dr. S A. Wilde, Professor of Soils, University of Wisconsin, in 1953. This survey showed a diversity of soils varying from sands to wet loams. The water table varies in depth from 1 to 7 feet. This variation permits a wide freedom in choice of species as adapted to different soil and water conditions,.

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The farm is occupied on a year-round basis by a tenant who not only acts as a caretaker but also supervises the planting, provides the care, and makes measurements and observations on the tests in progress.

Our object in tree growth studies is to assist in the development of trees which will produce the largest possible amount of suitable fibre per acre per year. To achieve this objective, a program has been set up to test (1) hybrids, (2) trees from selected parentage, and (3) conifer and the broadleaf trees common and native to this area.

Both willow and poplar hybrids, developed as fast-growing and resistant trees, are being tested to determine adaptability to this climate, vigor, survival, and growth rate, It is too early in the program for definite conclusions.

We are testing the Danish willow hybrids, developed by Carl Jensen. They are reported to produce pulpwood-sized trees of about 6 inches in diameter in 3 years under optimum conditions in Denmark. Our data have not been sufficient to establish growth rates; however, we note that all but 1 of the 5 clones being tested are subject to serious damage from grasshoppers. Except for the 1 clone, therefore, these hybrids appear unsuited to the Lake States area.

We are testing a fast-growing hybrid poplar produced by R. McKee. This hybrid developed a serious Cytospora canker during the fourth growing season. Over 25 percent of the trees were affected; a major number of these recovered during the sixth and seventh growing seasons. Tests are in progress to determine whether cuttings from a recovered tree are immune to Cytospora canker.

Our studies on selected parentage and seed source are limited to testing the progeny of outstanding individuals from our native trees as screened, selected, and propagated by our university specialists. These studies include aspen from Duncan of the University of Minnesota, aspen from

Riker and Shea of the University of Wisconsin, and a jack pine seed source study in cooperation with the Lake States Forest Experiment Station.

These studies, together with those that we are conducting on trees native to this area, have not progressed sufficiently far to report findings at this time.

One function of Marathon Corporation's participation in tree improvement studies is to serve as a proving ground. We therefore invite those specialists engaged in tree improvement work to submit their new and improved selections for further testing.