

GROWTH AND YIELD OF POPLAR AND WILLOW HYBRIDS IN THE CENTRAL UPPER PENINSULA OF MICHIGAN

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As demand for woody feedstocks for the production of energy, fuels, and chemicals increases, the need for vigorous and versatile planting stock becomes acute. Because plantations are more expensive to manage than natural forests, yield from planted stands must reliably exceed that of natural stands in order for this production system to be cost competitive. Breeding programs for willow (*Salix* spp.) and poplar (*Populus* var.) have produced taxa that promise superior growth and vitality, but these must be tested more thoroughly in large-plot yield trials and on many more sites before they can be confidently recommended for widespread use. A poplar and a willow yield trial were begun at Michigan State University's Upper Peninsula Tree Improvement Center in Escanaba, MI, in 1998 and 2002, respectively. The results of these trials are summarized here. Five poplar hybrids were included in a large-plot yield study. After 10 years, the best-growing taxa (NM6) had produced an average of 3.7 dry tons per acre-year. Although NM6 grew exceptionally well, it began to develop severe disease problems toward the end of the test. The taxa with the best overall growth and disease resistance (NE222) averaged 2.6 dry tons per acre-year while the standard check taxa (DN34) averaged only 1.7 dry tons per acre-year. In another test, 12 willow taxa were compared in a high-density yield trial. After 6 years, the best-growing taxa (SX61 and SX67) produced 2.5 dry tons per acre-year (averaged over the last 3 years), which was twice the yield of the poorest taxa. These willow yields were comparable to the yield of the healthiest poplar taxa (NE222) mentioned above. NM6 check plots in the willow trial produced 3.4 dry tons per acre-year, which was comparable to the 10-year results for the same taxa summarized above.

KEY WORDS: hybrid poplar, willow, yield, growth, *Populus*, *Salix*, energy plantation

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