ABSTRACT.— Intensively managed plantations of cottonwoods and hybrid poplars can contribute significantly to the fiber supply in Minnesota. Current evidence suggests that substantial productivity gains can be made through breeding and genetic selection. In Minnesota, for example, one new hybrid clone exceeds the growth of current commercial standards by 26 percent in a test near Alexandria. Such evidence, combined with forecasts of increasing demand, have resulted in the initiation of a large breeding program for the state of Minnesota through the Minnesota Hybrid Poplar Research Cooperative. Current breeding and testing issues include how to select parental breeding stock and how to efficiently test the large numbers of new hybrids that have been produced during the first years of the program. For example, our breeding program incorporates multiple strategies that will result in select native eastern cottonwood. Our program will also provide new select first generation hybrids as well as advanced-generation populations that can be used in a wide array of environments. Breeding has been so successful in the first two years of the program that we have nearly 20,000 new potential clones that require testing. The Research Cooperative is conducting studies that will help design the most efficient possible testing strategies.