

HYBRID POPLAR OPPORTUNITIES FOR TEMBEC, INC.

Forestry Research Partnership Project No. 130-006

Aim

Under intensive culture, plantations of hybrid poplar in Europe and North America have proven to have the capacity to produce high volumes over short rotations. Unfortunately, most of the best known clones are not cold-hardy in the boreal region, and many clones in other regions have shown susceptibility to *Septoria musiva* stem canker. In assessing the Kemptville Nursery and Domtar Plantations in Ontario and the nursery at Berthierville and various other sites in Quebec, this project sought to outline a program for identifying and screening promising clones, testing the feasibility of Short Rotation Intensive Culture (SRIC) in boreal regions as a prelude to developing a breeding program targeting boreal climatic conditions.

Approach

Poplars require well-aerated soil with sufficient moisture and nutrients to perform well and thrive under conditions of high light intensity and warm daytime (and night time) temperatures. The success of short rotations requires rapid uniform establishment. Consequently,



4 years old hybrid poplars near Rouyn-Noranda, QC

intensive cultural management is essential to capturing the growth potential of the hybrid poplar. Typically, site preparation is done mechanically and, in most cases, requires the use of herbicides to control competing vegetation. In areas where herbicides



cannot be used (e.g. Quebec), larger planting stock is required, but the efficacy of SRIC is more problematic. In the preparation of agricultural land, combinations of conventional and minimum tillage methods can be used. Raised beds or bedding is a relatively new concept being utilised in poplar culture that has proven successful.

Tree Tip

Managing SRIC hybrid poplar plantations on active or abandoned farmland may make good economic sense, assuming the use of the best genetic material; the targeting of good quality soils; the carrying out of good site preparation, cultivation, and effective weed control; and the use of good general management practices. Site preparation and weed control must be of the highest standard. Working toward having SRIC hybrid poplar management recognised as a legitimate agricultural enterprise will allow the use of approved herbicides; therefore, it is critical to stress the agricultural nature of the SRIC hybrid poplar operations in any certification process. As the SRIC hybrid poplar program matures, new yield plots for newly selected clones could and should be incorporated into the operational plantations so that they are managed to the same intensity as the rest of the plantations.

Forming a tree-improvement cooperative is the most cost-effective way of developing suitable faster-growing and disease-resistant genetic material for future use. The industry should form a partnership with the government to develop the capability to embark on a selection and breeding project for hybrid poplar, thus ensuring long-term access to improved material. For optimal growth performance, the best varieties on the best sites with the best crop tending are required. The full value of the hybrid vigour of the hybrid poplar cannot be realised unless it is intensively managed like an agricultural crop. When these conditions are met, the poplar can truly claim to be the fastest grower among all the species in the temperate zone.

Team

- **George Bruemmer**, Canadian Ecology Centre - Forestry Research Partnership, Tembec, project partner
- **Vic Wearn**, Canadian Ecology Centre - Forestry Research Partnership, project facilitator
- **Dennis Joyce**, Ontario Ministry of Natural Resources, project advisor
- **Randy Ford**, Ontario Ministry of Natural Resources, project advisor

For more detailed information, please visit:

[Http://forestresearch.ca/partnership_projects/fibre_production/130-006.htm](http://forestresearch.ca/partnership_projects/fibre_production/130-006.htm)