

HYBRID LARCH - SOUTHERN PINE OF THE NORTH ?

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Abstract. In Quebec, the fastest growing conifer used for reforestation is *Larix x eurolepis* Henry, a hybrid between two exotic species : european larch (*L. decidua* Mill.) and japanese larch (*L. kaempferi* [Lamb.] Carr.). Both species have restricted natural ranges in mountainous areas of central Europe and on the island of Honshu (Japan). Distinctive traits exist between the parental species ; hybrids show intermediate characters, but they are not always easy to identify. Larches are shade intolerant and require to be kept free of competition for a few years after plantation. Hybrid larch grows best on a deep (> 1 m), moist loam that is well to moderately well drained. In Quebec, suitable areas for hybrid larch cover the hardwoods and the mixed woods forest zones (most of southern Quebec).

An international experiment was started in 1973, in the Great Lakes - St.Lawrence forest region, to assess the growth rate and form of larch hybrids from the best and most highly selected material available in northern Europe at this time. In Quebec, 20 seedlots (6 seed orchards, 14 half-sib progenies) were tested at eight locations with 13 seedlots of european larch and 10 of japanese larch as controls. The seedlings were planted in 1977 and 1978, at a spacing of 2.5 m x 2.5 m. Results from the three most comprehensive tests are presented to compare the growth of five hybrid seed orchard seedlots with that of the controls (five european and eight japanese).

Fifteen years after plantation (trees aged 19 years), the average "dominant" height of the trees is 12.0 m for the hybrids, compared to 10.2 m for the controls. The best hybrid source (a Danish seed orchard : F.H. 211, SOR01) has a "dominant" height of 12.8 m. Dominant height is here defined as the average height of the trees above the median. Based on growth models developed in Quebec for european and japanese larch plantations established on unprepared forest sites with unimproved seedlings and a 60 % survival rate, at a spacing of 2 m x 2 m (Boighari and Bertrand 1984), the expected productivity of the hybrids is 245 m³/ha (total volume) at 35 years (total age), compared to 188 m³/ha for the controls. For the best hybrid source, the volume per hectare at 35 years is 270 m³. Based on mean annual increments, hybrid larch has a growth potential equivalent to that of slash pine and loblolly pine in standard plantations of average site index (Lundgren 1982).

Bolghari, H.A. and V. Bertrand, 1984. Tables préliminaires de production des principales essences résineuses plantées dans la partie centrale du sud du Québec. Min. Énergie et Ress., Serv. recherche, Mém. n° 79. 392 p.

Lundgren, A.P., 1982. Can red pine in the Lake States outproduce loblolly and slash pine in the south ? p. 337-344 in Proc., Artificial Regeneration of Conifers in the Upper Great Lakes Region. Oct. 26-28, 1982, Green Bay, Wisc.