Interior Douglas-fir breeding and seed production

Douglas-fir seed orchard at the MFR's Bailey site near Vernon; producing seed for higher elevation areas in the Nelson seed zone ***(Photo:** C Walsh)*

Breeding programs for interior Douglas-fir (Fdi) began in the early '80's under the leadership of Barry Jaquish. His effective strategy of field testing open-pollinated seed from parents selected in wild stands allowed fast progress. By the mid '90's, progeny tests had grown to an age that allowed early selection of the top-performing parent trees for seed orchards. An interesting result of the progeny testing were large differences in observed growth rate among the offspring of various parent trees, relative to that observed with most species in BC. These differences allowed the selection of very high-gain parents for seed orchards and the subsequent production of high genetic worth seedlots. This was particularly true for the "interior wet belt" parents, across all elevations in the Nelson seed zone.

Approximately 10 years ago, the top 60 or so high- and low-elevation parents from the Nelson zone Fdi breeding program were selected for each of a low- and high-elevation orchard. The low elevation orchard was established at the Armstrong site of Pacific Regeneration Technologies Ltd. in partnership with FGC-owned SelectSeed Ltd, and the high-elevation orchard was established by the MFR at the Bailey site near Vernon. In 2009, a combination of good management and good weather conditions at both sites resulted in large cone crops on what are still relatively young orchards. A total of 141 hectolitres of cones, yielding a total seed crop of 115 kg (84 for low and 31 for high elevation) capable of growing about 5.3 million seedlings was produced. Genetic worth (GWg) values on these low and high-elevation seedlots are, respectively, 27 and 33, making them among the highest-gain seed produced in BC to date.

Developing Douglas-fir cones ***(Photo:** J. Woods)*

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