

INTER- AND INTRASPECIFIC CROSSES WITH DOUGLAS-FIR

A.L. Orr-Ewing¹

ABSTRACT

In 1963 and 1964 a series of inter- and intraspecific crosses were made on thirteen Douglas-fir, Pseudotsuga menziesii (Mirb.) Franco which were growing at latitudes 48°48' and 48°05' n Vancouver Island. The interspecific crosses were made with both Bigcone Douglas-fir, Pseudotsuga macrocarpa (Vasey) Mayr., from California and Pseudotsuga wilsoniana, Hayata, from Formosa as pollen parents. These pollinations, however, were largely unsuccessful as a few viable seeds were obtained from the former cross only. The intraspecific crosses were made with pollen parents ranging from latitude 54°09' in northern British Columbia to latitude 38°45' in California. These results were much more encouraging. In general, there was no reduction in the number of viable seeds produced in comparison with the controls whilst germination was also most satisfactory. It is already evident, however, from observations made in the Lake Cowichan nursery that crosses made with the southerly pollen parents from Oregon and California show the most promise. Height measurements of both the one and two year old progenies were in general significantly better than the controls. On the other hand, progenies from crosses with pollen parents from northern and interior British Columbia went into dormancy early in the summer months with a significant reduction in height.

These early results are encouraging enough to warrant further intraspecific crossing. The progenies, however, have been growing under optimum conditions in one nursery where it is hardly possible to predict their performance under different conditions. They will, therefore, be planted at test sites distributed over Vancouver Island in order that the genic and environmental interactions can be critically studied.

¹Forester, Research Division, B.C. Forest Service, Victoria, B.C.