INTRA-TREE VARIATIONS OF CONE AND SEED CHARACTERISTICS OF DOUGLAS-FIR

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ABSTRACT

A prolific cone producing, 72 foot tall, open grown Douglas-fir tree was selected on the University of British Columbia Campus to study the intra-tree variation in cone and seed characteristics. The crown was separated into two aspects, north and south, and each aspect was further divided into three sections – top, middle and lower crown positions. One hundred cones were collected from each level before seed dispersal commenced in 1963, 1964 and 1965. The length and width of cones, seed and seed wings were measured and the total number of filled seeds were counted, germination per cent was determined, and survival in the greenhouse was assessed on the eight week old seedlings. At the same time the number of cotyledons and secondary needles were counted, and the length of hypocotyl was measured.

Results from only the 1964 collection were discussed. Significant differences were found in a few cases. Cone length and width were smaller on the northern aspects, while the number of filled seeds was larger on the southern aspect. The width of seed was also larger on the northern aspect. An increasing trend, although not significant, was detected from the top to the lower position of the crown in length and width of cone and seed in survival at eight weeks, and in the number of needles, while the total and filled number of seeds increased as the sampling proceeded from the lower towards the top part of the crown.

Further studies with cones collected in 1964 and 1965 are underway. Collection is also planned in 1966 to obtain information on year-to-year intra-tree variations.

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