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What is Forest Genetics?



"If woodland be our theme, let our woods
be worthy of a consul's ear." Virgil.

The following pages are a very brief introduction, to the relatively new field of forest genetics. The furtherance of this field should be the concern of all British Columbians, as its prime objective is to produce better seed which will, in turn, produce commercial trees of higher quality with increased growth.

It is well known that great progress has been made in recent years in logging methods in the forest, in wood processing in the lumber and plywood mills, and in pulp and paper manufacture. The basic raw material used in these industries, however, has either remained the same or has actually declined in quality but the price has greatly increased. Quality-control starts in the forest, not in the industrial plant, as the tree is a living organism which can be improved by applying those genetic principles used with such success in agriculture and horticulture.

We would do well to try to emulate the following objectives of one of the leading Tree Breeding organizations in Sweden, "To investigate ways and means of establishing the new crop as fast as possible, as cheaply as possible, and to obtain the highest wood quality."

In British Columbia, where the forest is the very cornerstone of the economy, such an objective is not only worthwhile, but truly important to the future welfare of the Province and its people.

Our forest industry occupies a permanent and vital place in the economy of this Province and, moreover, depends largely on the export market for survival. Any measures to improve the tree crop which supports this industry are a sound investment.

1. what is genetics?

It is the branch of biology concerned with the study of heredity and variation in living organisms. Genetics is one of the youngest but most rapidly expanding sciences in biology.

2. what has been accomplished in genetics?

Selection and breeding programs in agriculture and horticulture alone have had tremendous influences upon modern life. The huge wheat crops of the Prairies, for example, have only been made possible by an intensive program of genetics. Did you know that 100 to 120 million acres of corn used to be grown each year in the U.S.A. ? Today, less than 85 million acres are planted but more corn than ever is being produced by the application of genetics. Such figures could be supplemented many times from similar advances with other crops.

3. can similar results be achieved in forestry?

A tree is also a living organism and selection and breeding programs can undoubtedly increase the yield from our forests. We are still using seed collected from trees whose genetical value is a completely unknown factor, a practice abandoned long ago by the agriculturist. We should realize that the reforestation of logged-over land by seeding or planting has been common practice for many years and will continue as an accepted part of forest management. Is it not only sensible to try and produce the very best seed possible? Selection and breeding can ensure that the trees of tomorrow are of the highest possible quality.

4. have other countries in the world initiated programs in forest genetics?

The answer is very definitely "yes." Many thousands of dollars are being spent the world over in such widely separated countries as Australia, Japan, the

United States, South Africa, Sweden, and Great Britain. Some of these programs are on a very large scale indeed. More than one billion seedlings for re-forestation purposes are produced annually in the nurseries of the Southern Pine Region of the United States and eventually all these seedlings will come from genetically improved seed.

5. are there similar programs in Canada?

The only program in the whole of Canada that is on a comparative scale is in the Province of Ontario where both the Provincial and Federal governments actively support forest genetics. Two well-equipped and adequately staffed tree-breeding centres are maintained to make possible selection and breeding programs with a wide variety of commercial forest species.

6. what is being done in British Columbia?

The British Columbia Forest Service initiated a program of forest genetics in 1953. The first step, with the active co-operation of the forest industry, has been the selection of a limited number of out-standing Douglas fir trees from Vancouver Island for subsequent propagation. The results have been most encouraging. They can only serve to emphasize the immense possibilities of an expanded program in a Province of over 100 million acres of forest land.

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