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**AGRICULTURE
IN THE PEACE
PAST, PRESENT AND FUTURE.**

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The Peace River region is many things to many people. To the Geographer it is a large land mass lying essentially north of 55 N. Latitude in northeastern British Columbia and northwestern Alberta - a region drained by the Peace River which flows east and north through its centre. To the Geologist it is a region of glaciation with considerable post-glacial laking and sorting of materials. To the Meteorologist it is a region of cold winters, warm summers and moderate precipitation. To the Ecologist it is a mixture of grasslands and poplar-spruce complexes moving towards a spruce climax. To Industry it is a source of gas, oil, minerals, lumber, electrical power and water. To the Sociologist it is some 130 thousand people residing in two small cities and in numerous towns and villages which form the centres of primarily agricultural communities - these people being served moderately well by schools, hospitals, radio, television, and transportation by road, rail and air to the more densely populated areas in the south. To the Agriculturist it is a region that can produce several types of crops and animals. To many people it is indeed many things.

To many of us concerned with agriculture it is a region of exceedingly good productivity and to others a region of either too little moisture or too much, of short growing seasons and fall frost, of soils that are difficult to till and that can be eroded, and of the economic difficulties that are associated with these misfortunes. It is indeed all of these things for it is a large area that varies widely in soil and climate and the degree of personal success that is associated with the management of its agricultural resources. Because of these wide variations and also because of the numerous attitudes of its people I cannot present to you in one concise package a true impression of the agriculture of the Peace. Rather, I wish to relate to you briefly my impression of the development of agriculture in the Peace River region, the present state of the agriculture and, based on this, to predict the direction we at Beaverlodge expect agriculture to take in the future.

The initial development of the region by the white man commenced with the fur trade. In order to purchase furs from the Indians the Northwest Company established Forts at Fort Vermilion in 1800, Fort Dunvegan in 1805 and at Fort St. John in 1806. It is recorded that barley was grown at Fort Dunvegan in 1809 commencing the agricultural industry in the Peace. However, the lands laid dormant for another hundred years before there was any agricultural development.

A few of those travelling to the Klondike in 1898 remained in the Peace or, remembering the extensive areas of grassland, returned to farm. Soon after this

a few settlers commenced to move in from Edmonton by boat, wagon and sleigh. A railroad to Edson in 1910 originated the Edson Trail by which settlers could move into the region. However, the settlers were few and by 1911 the total white population of the whole region was only 2,000. Veterans returning from the First World War came in search of land but access into the region was still difficult and it remained isolated. By 1922 the total white population was only 20,000. In the 1920s a railroad was built into the region from Edmonton, the first all weather link with the "outside". During the 1930s settlers moved in from the drought stricken prairies. After the Second World War numbers of veterans came to farm. There was a great upsurge in settlement and this has continued to the present.

Wheat was the first crop grown by the settlers moving in from the prairies some 50 years ago. They soon started growing oats to feed their livestock and until the coming of the railroad in the mid-1920s continued to grow enough of these two crops to meet local needs. During the 1930s the production of these crops increased and surpluses were shipped "outside" as both feed and seed. With increased livestock production, barley began to gain in popularity during the 1940s but the spectacular increases in acreage did not occur until the 1950s when it replaced wheat as the most widely grown crop. During the 1930s and 1940s it became apparent that a number of legume and grass crops could be grown for seed with exceptional success and these enterprises became firmly established. Flax, also, gradually increased in acreage during this period and more recently the production of rapeseed as an oil crop has undergone rapid expansion. There has been associated with this agricultural development a rapidly expanding honey production industry and a firm nucleus has been established in the commercial production of horticultural crops. Unfortunately there has been a rather irregular and below average expansion in livestock populations.

Thus, in 50 years, the region has moved from an isolated, undeveloped, totally agricultural economy that was the beginning of this "Inland Empire" to a well developed, well serviced diversified region rich in timber, minerals and sources of energy and in which, most important, there is a broad-based, diversified agricultural industry.

At the present time in the Peace River region there are approximately 5 million acres alienated from the Crown for agricultural use. Some 3.5 million acres are actively cultivated and the remainder are used presumably for unimproved pasture or are left idle. Of the 3.5 million acres that are actively cultivated, approximately 1 million acres are Degraded Black soil and 2.5 are Grey Wooded. We estimate that 10% of these soils are sufficiently acid to restrict crop growth. Many are underlain by very heavy clay soil which is difficult to work. The surface of some of the Grey Wooded soil crusts severely if pulverized. Further, the soils are universally deficient in phosphorus and under continuous cropping are deficient in nitrogen. It now appears that there are certain areas with severe sulfur deficiencies. With present equipment and technology all are productive if managed correctly.

Production on these soils is undertaken under a climate that is extremely variable both with regard to location and year. Mean precipitation ranges from slightly more than 17 inches at Beaverlodge in the southern part of the region to

12 inches at Fort Vermilion in the northern part. From one-half to two-thirds of the precipitation is received during the summer, with maximum rainfall during July. This favorable distribution of moisture, combined with lower evaporation than in the south, makes efficient moisture use possible but, none-the-less, the area is still deficient in moisture for maximum production. The average killing-frost-free period at Beaverlodge is 132 days and at Fort Vermilion 105 days. The growing season is somewhat longer in the river valleys but there are numerous areas in which the growing season is much shorter than this. Also, the killing-frost-free period varies widely from year to year. Generally, however, with progression northward the reduction in the growing season is compensated for by increase in day-length.

On these soils, and subject to this climate, approximately 2 million acres are devoted annually to the production of wheat, oats, barley, flax and rapeseed. Some 800,000 acres are used for the production of forages for hay, pasture, and seed and a further 700,000 acres are summerfallowed. Part of the grain and forage is used to support something less than 100,000 cattle, 150,000 hogs and a few sheep. A considerable quantity is used within the area and moved from the area for seed. The remainder is moved from the area for feed and for processing.

At this Annual Meeting of the Canadian Seed Growers' Association it is the portion of the crop that is produced for seed that is particularly significant. For the cereal and oilseed crops the record is not particularly outstanding. In the Alberta portion of the Peace River region in 1965 the 7,000 acres inspected for registration and certification is a small part of the Alberta acreage. Of the 1700 acres of cereals and oilseeds inspected in British Columbia, 1200 acres were in the B.C. Block. However, with grass and legume seeds the situation is much different. With recent harvests of over 20 million pounds, the Peace River is producing virtually all of Canada's seed of creeping red fescue. In the grasses it is also producing approximately 35% of the brome grass seed in Canada and has a few growers of timothy, bluegrass, Russian wild-rye and crested wheatgrass. In the legumes the Peace River region is producing annually approximately 40% of Canada's alfalfa seed, 20% of the sweet clover, 50% of the red clover and 70% of the alsike clover. All grow well. More recently contract production of certain less well adapted European varieties has been undertaken.

Complimentary to the legume seed production is a rapidly expanding honey industry which in 1966 will be based on the output from approximately 50,000 colonies of bees. Finally, there is now in the region the nucleus of a small but diversified horticultural enterprise producing potatoes, carrots, turnips, cucumbers, tomatoes, cabbage, sweet corn and other staples.

This then is the agriculture of the Peace as it exists at the moment. It is an industry producing a rather broad spectrum of basic agricultural materials primarily for sale outside of the region.

And now, we must consider the future of this region. A future based not only on what will be produced from the 3.5 million acres that are now in production but from the further 10 million acres of undeveloped land that are considered to be fully arable and from another 13 million acres that are restricted for production but can be used for pasture. In considering the future we can safely

assume that these new areas will be eventually brought into production. History guarantees that as long as there is arable land and people and a means for the two to be brought together new lands will continue to be developed for agricultural use. What really must concern us is the rate of this development, the direction the development should take, and the economic forces that may exist in the future to cause this land to be developed improperly and thus be brought into a short term, unstable state of development. For those of us involved in research these are of paramount importance for if we are to serve effectively the industry we must commence today to solve problems that will not be of commercial significance for 10 or 20 years. The future of agriculture in the Peace is equally important to other segments of government and to industry that must give direction and support during its development.

During the past 10 years, agricultural lands in the Peace River region have been brought into production at from 100 to 200 thousand acres per year. In a general way, this rate has been increasing and two years ago it was our prediction that the rate of putting land into production would have reached 250 thousand acres per year by 1966. I am sure that this was the intention but, because of excessive moisture in some of the developing areas during 1964, and 1965, I rather doubt that our predictions have been met. Undoubtedly, rate of development will in the future vary from year to year but, we are quite convinced that it will generally continue to be substantial. We would suspect that within a rather short period of time the point will be reached where a further 1 million acres are being brought into production every 4 years.

Based on considerable knowledge of the soils and climate of the areas that are now developed and on rather broad estimates of the potential of the areas that will be brought into production, we at Beaverlodge are firmly convinced that a stable, permanent industry must be based on the growing of feed grains and forage crops and that a large portion of this material must be marketed through beef cattle and hogs.

Based on the performance of existing varieties we feel that approximately 25% of the fully arable acreage should be devoted to the production of barley both for malting and seed, 15% to the production of oats, only 5% to the production of wheat, 10% to the production of flax and rapeseed, 15% to pure stands of grasses and legumes for seed, and 20% managed as mixed stands of grasses and legumes primarily for hay. This places 55% in cereals and oilseeds, 35% in forage and leaves 10% for summerfallowing primarily after breaking out of forage stands.

Pasture should be provided by development of areas that are not fully arable.

Since bees are required for the pollination of legumes for seed and of rapeseed, future development must be based on a well coordinated honey production industry. And finally, we cannot visualize the future without at least moderate use of the preferred river valley locations for growing a wide range of horticultural crops including potatoes, carrots, turnips, cabbage, onions, corn, strawberries and raspberries. With intensification, a number of other vegetables and fruits could be grown. Other specialties may broaden the production base and benefit the whole industry. None-the-less, I must again emphasize that, regardless of the relative importance of any one of these at a given moment, the

agriculture of the region must be based on a feed grain-forage-livestock economy if it is to be permanent.

This then is the desirable pattern insofar as land use is concerned but we all realize full well that to produce in itself is not enough. There must be markets and we must be able to compete effectively for these markets. This then becomes the crux of the whole discussion of the future of the Peace River region and in the final analysis will determine just how rapidly the region will develop agriculturally and to what extent it will be able to conform to the rather idealistic production pattern that I have presented to you.

For this consideration of markets I cannot base my comments on research conducted at Beaverlodge or on research conducted by the Research Branch for we are not directly concerned with such studies. However, the Canada Department of Agriculture employs a number of economists who are continually concerned with present and future markets for agricultural products and we at Beaverlodge watch very closely their projections for the numerous commodities. In doing so, we cannot see any forthcoming marketing situations that will seriously hinder the region from producing what it can best produce based on proper land use assuming that there is an ever increasing concern with efficiency.

The future market for beef is extremely optimistic. With increase in population and in per capita consumption there must be large increases in beef production if Canada is to approach self-sufficiency, and markets appear to be opening up in a number of other countries. It is generally conceded that the southern areas of Canada are stocked to their carrying capacity and, with the existing markets, it does not appear feasible to divert our wheat lands to the production of beef. It is evident that much of Canada's expansion in beef cattle production must take place in the north. This fits ideally our production requirements. Further, there appears to be no good reason why the demand for malting barley will not increase. If we pay close attention to the quality of our product we can stay in a competitive position. In percent extract and oil quality our flax and rapeseed are superior to those grown farther south also placing us in a strong position. Primarily because of daylength and temperature, we are in a preferred position for the production of seed of a number of types of legumes and grasses and can compete very strongly for the markets that exist for these crops. In association with our legumes seed specialty, I am told that we can produce honey in competition with any known area in the world and that with proper merchandizing the demand is virtually unlimited. And finally, there is a moderately good local market for horticultural crops and reason to believe that with a number of these we can compete successfully on outside markets. There appears then to be an ideal matching of our production potential and future market requirements. If we pay close attention to our agricultural products primarily with regard to quality and stability of output and to efficiency there appears to be no reason why the region should not develop its full agricultural potential.

This then is my estimate of the future of the Peace River region. Despite certain deficiencies in the soil and climate it does have a large potential for the production of adapted crops and it is not conceivable that there will ever be sufficient population to consume locally more than a small portion of that which it can produce. Much of the production must continue to be for export

as a well integrated part of Canada's total agricultural output if problems in marketing are to be minimized. These inherent restrictions must be upper most in the minds of all people concerned with agriculture in the region whether they are individual farmers, agents of agriculturally based industries, employees of governments concerned with extension, regulation or research, or members of organizations such as this the Canadian Seed Growers' Association.

This is a moral as well as a practical, common sense obligation. If we do not meet this obligation many who are now established and many who in the years to come will commence farming on our new lands will fail and because of this will suffer undue hardship. If we avoid this obligation the Provinces of British Columbia and Alberta and Canada as a whole will be poorer agriculturally. And finally, if we fail to properly direct and sustain the development of these agricultural resources there are in numerous parts of the world many people who will suffer from lack of the food that the Peace River region would have produced had we not left until tomorrow that which should have been done yesterday.

