

Press Bulletin No. 157

Agricultural Experiment Station
Kansas State Agricultural College

Alberta Seed Wheat

In accordance with the order of the Board of Regents of the Kansas State Agricultural College and Experiment Station, in carrying out the provisions of the Seed-Wheat Bill passed by the State Legislature last winter, authorizing the investigation and importation of seed wheat, the writer visited the province of Alberta, Canada, and made a study of the growing of winter wheat in that province.

The territory known as Alberta is situated in western Canada, and is an immense tract seven hundred miles in length north and south, with an average width of two hundred eighty miles. The province is bounded on the south by the state of Montana, on the west by British Columbia, and on the east by the province of Assinaboia. The Rocky mountains extend along the entire western border of the province, and the best winter-wheat lands lie along the base of the mountains, usually within view of the perpetually snow capped peaks. Winter wheat is most successfully grown in the area bordering the mountains, one hundred to one hundred fifty miles wide, and extending north two hundred fifty miles from the southern boundary line. However, the Hon. Frank Oliver, Minister of Interior, Ottawa, Canada, makes the published statement that winter wheat has been tried and may be grown successfully in many districts in western Canada from the one hundred tenth meridian to the foot-hills, and from Edmondton (three hundred fifty miles north) to the international boundary line.

Spring wheat, and in fact all of the common cereal grains, may be grown successfully throughout this region. The writer saw fields of oats which he estimated would yield eighty bushels per acre. Spring wheat is as yet much more extensively grown in Alberta than winter wheat, but the growing of winter wheat is rapidly increasing; in fact, the acreage has increased from a few thousand acres in 1903 to several hundred thousand acres in 1907, while the total winter wheat production of Alberta in 1906 was in the neighborhood of six million bushels. There is no question but that certain parts of the province of Alberta are very well suited for the growing of winter wheat.

Soft winter wheat was first grown in Alberta some twenty years ago, and seed from this original sample has been successfully planted and matured every year since its introduction.

Hard winter wheat has been grown in Alberta only six years, but the acreage planted each year has increased rapidly and the hard wheat is now largely replacing the soft wheat. In fact, most of the winter wheat-growing area of Alberta is much better adapted for growing hard wheat than soft

wheat, since the soil and climate favors the development of hard wheat of excellent grade and quality. The writer has never seen hard red winter wheat superior in quality to that grown uniformly almost everywhere throughout out the winter wheat-growing area of Alberta. Also very large yields are secured. The following farmers in southern Alberta vouch for producing yields of fifty bushels of wheat per acre in 1906: Thos. H. Wolford, Frank Leavitt, Pitcher Bros., Jas. Neilson, and Johanas Anderson.

The writer examined large fields of wheat in the Cardston and Spring Coulee districts in southern Alberta which he estimated would yield forty-five bushels per acre. The present crop is not considered quite equal to the crop of last season, on account of the cold, late spring characteristics of the whole United States as well as Canada.

In 1902 Mr. E. E. Thompson, a Nebraska farmer who settled at Spring Coulee, Alberta, imported a car-load of Nebraska- or Kansas-grown Turkey wheat. This was the ordinary Turkey wheat bought in the general market and was not very pure in type, and a very poor grade of wheat according to Mr. Thompson and others who sowed it. However the grain produced the first season was superior in quality to the original seed, and the wheat has continued to improve. The grain has become larger and plumper, darker in color and harder in texture than the original sample, until "The Alberta Red," as it is called, has made a class of its own in the Canada wheat market and is recognized as one of the world's best bread wheats. The manager of the Pacific Elevator Company, Calgary, Alberta, informed the writer that his company handled over fifty cars of Alberta Red wheat in 1906, every car of which graded No. 1 hard.

There is only one variety of Alberta Red. All of the hard red winter wheat grown in Alberta to day, so far as the writer could learn, has come from the original Thompson importation. Although the Alberta Red is wheat of excellent quality, yet there are some objections to it as seed wheat for Kansas. (1) It is originally nothing more than our ordinary Kansas wheat of the Turkey type, but not so pure as some of the improved varieties which we are growing to-day, such as the Turkey No. 4, Kharkof, and Malakoff. (2) Again, the Alberta Red has become mixed with a smooth-headed, soft winter wheat called the Odessa. This mixture with soft wheat does not usually affect the commercial grade of the wheat, but it injures its value for seed. I found no fields of Alberta Red wheat which did not contain some of this mixture of Odessa, the percentage of mixture varying from one to twenty-five per cent. This mixture has occurred from volunteer wheat, by sowing the Alberta Red in fields where Odessa wheat had been previously grown.

By a careful selection of the field it is possible to secure Alberta Red seed wheat which contains only a small amount of the Odessa Wheat. Doubtless, also, if there is a demand for pure seed wheat for exportation to this State the farmers of Alberta will take greater pains to select pure samples of Alberta Red wheat for future planting. Meanwhile, W. H. Fairfield, superintendent of the experimental farm for southern Alberta, has already secured from this Station thirty bushels each of Kharkof and Turkey No. 4 for planting this fall in Alberta with the purpose of securing pure seed of our best-producing varieties of hard red winter wheat, not only for distribution in that province but for the production of a superior grade of pure seed wheat for exportation to Kansas and other states.

On account of the long distance and slow transportation it was found to

be impracticable to import any large quantity of Alberta wheat for general seeding in Kansas this fall. The writer secured a bushel sample from several of the more noted wheat-growing districts. This will be shipped by express as soon as the wheat is thrashed, and the grain will be planted in the experimental plots at Manhattan and Ft. Hays, in order to make a comparison of the Alberta wheat with our best home-grown varieties. If it seems advisable, Alberta wheat may be imported in large quantity for general distribution next fall.

The soil and climate of Alberta is admirably suited for the production of the best quality and highest grade of hard red winter wheat. The soil, a dark deep mellow loam is abundantly fertile. The climate is ideal for the production of hard wheat. The winters are colder than Kansas winters yet not severely cold, being tempered by the warm "Chinook" winds which blow over the mountains from the Pacific ocean. Again the summers though fairly long are not hot, being moderated by the perpetually snow-covered mountains to the west. The wheat grows for a long period, matures slowly and develops fully, making large, plump grains. There is no rust, the straw being perfectly clean and bright. There is considerable smut in Alberta wheat, however, which point must not be forgotten if importations are made. Great care should be taken to secure seed wheat from fields where no smut appears. Winter wheat is usually sown in August and is not ready to harvest until the next August, the seeding often preceding the harvesting. Thus it is not possible as a rule to grow two crops of winter wheat in succession on the same field. There is some danger, also, that wheat may be injured by early fall frosts, but the danger is not so great with winter wheat as with spring wheat.

Again, the climate is dry; the average annual rainfall in the winter wheat belt varies from twelve to twenty inches at the different localities where records have been kept. The rainfall gradually increases from south to north and is greatest near the mountains, gradually decreasing as the distance from the mountains increases. In parts of southern Alberta good crops of wheat or other grain can only be insured by irrigation, which is beginning to be quite extensively practiced, the water-supply being abundant.

The hardest and best quality of Alberta Red wheat is grown in the southern part of the province in the region about Cardston and Spring Coulee. This was the writer's conclusion from his observations; also, at the Alberta Provincial Fair in March, 1907, hard red winter wheat grown in the Cardston district won all the prizes offered for this variety. Excellent wheat is grown also in the districts farther north in the vicinity of Pincher Creek, Claresholm, and High river. The elevator companies admit that the northern-grown wheat, in a good wheat year, is lighter in color and not quite so hard in quality as the wheat from the southern end of the province. This result follows, no doubt, from the greater precipitation and moister climate of the northern section. It appears that the hardest wheat may be produced where the moisture supply is just sufficient to cause a full development of the grain. On the other hand, an oversupply of moisture may produce a softer wheat without materially increasing the yield. For this reason also it is not desirable to secure wheat for seeding in Kansas from the irrigated districts of Alberta.

Although the State has not been able to import Alberta wheat for general seeding this fall, private enterprise has made greater progress and two cars of Alberta Red wheat have been imported and are now being distributed to

Kansas farmers by the Ellsworth Mill and Elevator Company, Ellsworth, Kan., and the Walnut Creek Milling Company, Great Bend, Kan. This wheat was collected and shipped by the Pacific Elevator Company, Calgary, Alberta, and the writer was assured by the manager of the company that the wheat was the best he could secure, and judging from the samples of each car which have been received at the Agronomy department office, the wheat is of excellent quality. This seed wheat is being sold at \$2.00 per bushel a fair price considering the cost of transportation and the price paid in Canada (\$1.00 per bushel). There is also a duty of twelve cents per bushel on seed wheat imported from Canada. If the planting of Alberta Red wheat proves to be to the advantage of Kansas farmers, this duty on seed wheat should be removed.

The writer wishes to see a general test made of this Alberta wheat in order that data may be secured by which we may conclude whether to import largely again next fall.

A. M. TEN EYCK,
Professor of Agronomy,

Manhattan, Kan., Sept. 11, 1907.

