Western Wheat Crop of 1916 Not Equal in Quality to 1915 Wheat

By R. HARCOURT.

The reports from the Western Provinces regarding the 1916 crop of wheat have been conflicting. This was doubtless due to the fact that the crop was very uneven. In some places rust practically destroyed it, while in other sections the farmers harvested a bumper crop. It would almost seem that the poor crop harvested in some sections was due to the exceptionally large one of the year before; for, the harvesting, thrashing and marketing of this large crop delayed and in some cases prevented full ploughing. Apparently most of the rusting was on spring ploughing.

Unseasonable weather delayed harvesting and thrashing and the wheat was somewhat slow in coming forward. However, the exceptionally fine weather later in the season allowed thrashing to continue long after the usual time and has allowed the farmer to get most of the crop off the land. Reports show that the crop of Manitoba is nearly all thrashed and sold, probably not more than 2 per cent remaining in the stock. The Saskatchewan and Alberta farmers had a very patchy thrashing-time and some of the districts fared badly, but about 96 per cent of the grain has been transferred to the elevators.

The wheat in sample is not as good looking as that of last year, that is, it is a thinner berry and will not yield as high a percentage of flour, but it contains a better gluten and makes a stronger flour. The work done in our laboratory shows that the flour is stronger, that is, it will produce a larger and better textured loaf than that from last year's crop. The whole loaf has an appearance of strength. The color of the crust of the bread is good; but the color of the crumb of the loaf is not equal to that from last year's crop. Naturally the color will improve, but it is not equal in color to the bread made from the 1915 crop when it was new.

In November we secured a complete set of samples of the various grades from the Chief Grain Inspector at Winnipeg. These were milled and the flour baked to compare the quality of bread from the different grades. We made no attempt to determine the yield of flour as it is very difficult if not impossible, to obtain any reliable data from our small mill.

The baking tests with the flour were carried out in the usual way. Exactly the same weight of flour (340 grams), yeast, salt, etc., was used in making each loaf of bread and the temperature under which the work was carried out was the same throughout. The difference in the weight of the loaf is due to the difference in the weight of water the bread was able to retain.

In order that we might make a close comparison with last year's crop, wheat of corresponding grades of 1915 crop was milled along with those of this year (1916) and the baking tests carried out together. Thus the flour of both crops was freshly milled and baked as nearly as possible under like conditions. The 1915 wheat had naturally the advantage of a year's ageing. This would not effect the color and texture of the bread made from it so much as if the flour had been thoroughly aged, but it would have some effect. In every case the bread from each of the grades of the 1915 crop was taken as standard. Thus the 1916 crop of No. 1 hard is compared with the 1915 of the same grade and the No. 1 Northern of 1916 with the No. 1 Northern of 1915. There were no grades last year corresponding to the Nos. 4 and 5 specials, so these are compared with the Nos. 4 and 5 regular of last year's crop. The results of these tests are as follows:

Results of Comparative Baking Tests of the 1915 and '16 Crops.

Names:	% wet Gluten.	% water absorbed.	Weight of loaf, grams.	Volume of loaf c. c.	Color.	Texture.	Appearance.
No. 1 Hard, 1915	40.20	63.2	499	2600	100.0	100.0	100.0
No. 1 Hard, 1916	38.35	62.7	496	2630	98.0	98.0	102.0
No. 1 Northern, 1915	40.55	63.2	499	2590	100.0	100.0	100.0
No. 1 Northern, 1916	36.80	63.2	501	2590	98.0	98.0	100.0
No. 2 Northern, 1915	35.80	63.2	500	2680	100.0	100.0	100.0
No. 2 Northern, 1916	38.70	63.2	500	2730	96.0	95.0	100.0
No. 3 Northern, 1915	35.85	63.2	500	2650	100.0	100.0	100.0
No. 3 Northern, 1916	34.70	63.2	500	2580	98.0	98.0	98.0
No. 4 Com. Grade, 1915	35.10	63.2	490	2760	100.0	100.0	1000.
No. 4 Com. Grade, 1916	35.00	63.2	498	2810	98.0	101.0	101.0
Special, 1916	35.45	63.2	495	2700	95.0	99.0	98.0
No. 5 Com. Grade, 1915	32.25	67.6	521	2100	100.0	100.0	100.0
No. 5 Com. Grade, 1916	37.27	65.3	505	2300	103.0	110.0	110.0
Special, 1916	40.15	63.2	505	2550	102.0	112.0	120.0
No. 6 Com. Grade, 1915	31.90	69.4	520	2000	100.0	100.0	100.0
No. 6 Com. Grade, 1916	40.65	66.5	507	2450	110.0	115.0	120.0
Special, 1916	41.45	63.2	506	2460	108.0	120.0	125.0

In the first place it is evident that there is not so much gluten in the wheat of the higher grades of this year's crop as there was in that of last year. In the lower grades this is reversed and it reflects itself in the bread. In absorption the flours are all very uniform with the exception of some of the lower grades where inequalities are very likely to crop up. The weight of loaf increases very slightly as we pass down the grades. Nos. 5 and 6 of the 1916 crop are higher in absorption and in weight of loaf. No determinations were made of the water content of the wheat, but probably these older wheats were dryer at the time of milling.

The figures in the last four columns perhaps indicate the quality of the flour best. In volume of loaf there is little difference between No. 1 Hard of 1915 and 1916. In color and texture of the crumb of the bread, the old wheat naturally gave the best results, while in general appearance of the loaf, including color of crust and the bold, well-rounded shape of the top of the loaf, the new wheats gave the best results. The same may be said of the bread from Nos. 1, 2, 3, and 4 Northern, and these results indicate that the wheat of these grades will even now produce flour with slightly better baking properties than the corresponding grades of last year's crop. The grades Nos. 5 and 6, including the specials, are apparently much superior to the same grades of the 1915 crop. The volume of the loaf showed better expansive powers, the color and texture of the crumb was better, and the general appearance of the loaf was very much superior. These conclusions have been confirmed by the results of comparative baking tests made with flour from samples of the grades received from the elevators. These latter samples possibly more truly represent the quality of wheat that reaches the miller, as the wheat is thoroughly mixed in passing through the elevators.

The fact that the lower grades give such good results in the baking tests is important when we take into consideration the ruling made by the British Government regarding milling of flour to be used in Great Britain after the beginning of the year. According to the latest ruling the flour from the various grades must represent the following per cent extraction:

No. 1 Hard .. .. 76 per cent extraction.
No. 1 Northern.. .. .. 75 per cent extraction.
No. 2 Northern .. .. .. 73 per cent extraction.
No. 3 Northern .. .. .. 71 per cent extraction.
No. 4 Northern .. .. .. 70 per cent extraction.
No. 5 Northern .. .. .. 67 per cent extraction.
No. 6 Northern .. .. .. 62 per cent extraction.

The object of the British Government appears to be to force the extraction of the maximum amount of flour and have it marketed all as one grade of flour. This naturally does away with the higher and more expensive grades of flour and will probably bring about some changes in the milling industry. Experience in the past has shown that the wheat of one section of the country, although grading no higher than that from another section, will give better flour. The advantage will naturally be with those millers that have elevators throughout the country and who because of this can pick their wheat. They have, however, enjoyed this advantage in the past. Milling to a set standard sample would possibly have had some advantage over the plan laid down.

Some doubts have been expressed as to whether milling to the above percentage extraction will not include so much low grade material as to make a very poor flour. Samples of flour submitted to us for testing indicate that while the percentage of flour required demands very close milling, a good useful flour can be obtained. To have demanded that the percentage of extraction be 80 as was apparently first discussed would have included a great deal of bran materials with the flour. This would possibly have meant that the baker would have to modify his methods of baking in order to use such a flour and it is very possible that there would have been considerable of the flour wasted in the first attempts. The flour obtained under the percentage of extraction now demanded, will make a bread of good color and very little if any modification of the methods of baking would be required. The inclusion of more of the branny materials necessary to produce a greater yield would be largely indigestible matter and while these coarse materials may be of immense value to some people with sluggish intestines, it is doubtful if it would be of advantage to the people in general to have it included in all the flour used. Furthermore, the more of these coarse materials included the less we will have for cattle feed. It will be interesting to follow out laboratory tests on these requirements and this I hope we will be able to do in the near future.

GREAT BRITAIN REPLACES GERMANY AS WORLD'S FUR MARKET.

The furs imported into the United States during 1916 exceeded in value the imports of all previous years. The war greatly disarranged the fur trade, since Germany supplied a larger value of furs imported down to 1914 than did any other country, while for other reasons connected with the war the exports of furs from the United States show a marked decline.

Undressed furs form, during normal periods, about three-fourths of the total imports. In the fiscal years immediately preceding 1914 the value of furs, dressed and undressed, imported aggregated over $20,000,000 per year. In 1914 the total was but $12,000,000, in 1915 slightly less than $10,000,000. In the fiscal year 1916, however, a transfer of the chief source of supply from Germany to the United Kingdom brought the total for the year of undressed and dressed up to $20,000,000, and in the calendar year, which is about to end, the total will be quite equal to that of the fiscal year which ended six months ago, and that of undressed furs probably greater than that of any earlier year.

The total value of furs imported in the last decade, including both dressed and undressed, is about $200,000,000, and of this about two-thirds came in the undressed form, very largely from Germany. In the five years ending with the fiscal year 1913 the imports of undressed furs from Germany alone amounted, to $29,000,000, from Great Britain $17,000,000 from Canada $10,000,000 and from Russia $3,500,000, a part of the German shipments having presumably originated in Russia. With the cessation of supplies from Germany, following the opening of the war, the imports were drawn more largely from the United Kingdom, the total from that country increasing from $2,000,000 in 1914 and $2,500,000 in 1915 to $6,500,000 in 1916, while from Canada the imports grew from $2,000,000 in 1914 and $1,750,000 in 1915 to over $4,000,000 in 1916.

Most of the furs now imported as above indicated are now drawn from Great Britain, which is looked upon as the world's great fur market, drawing its supplies from the British colonies and from Asia, South America and Africa. Of the exports amounting to over $17,000,000 in 1913, $7,000,000 worth of undressed furs went to England, $6,000,000 to Germany and nearly $3,000,000 worth to Canada; and of the dressed furs amounting to about $1,000,000 worth, a very large proportion went to Canada.

The export trade in furs has been also upset by the war, the total exports of furs, which averaged over $10,000,000 a year in the decade prior to the war and had in some cases reached as much as $18,000,000 in a single year, dropped to less than $4,000,000 in the fiscal year 1915, but advanced to $9,000,000 in the fiscal year 1916.