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AREA AND FIRST ESTIMATES OF PRODUCTION OF FIELD CROPS

The Bureau issued on September 10, a bulletin reporting for 1941 the first estimate of the production of the principal grain crops and hay and clover, and on October 10, a bulletin giving the first estimate of the production of late crops. The estimates are based on schedules returned by crop correspondents, including farmers throughout Canada, and bank managers, rural postmasters and railway and elevator agents in the Prairie Provinces. The acreages are from the annual June survey.

SUMMARY

The first estimate of Canada's total wheat production in 1941 is placed at 306,459,000 bushels. This represents a major reduction of 244,931,000 bushels from the 1940 Canadian production of 551,390,000 bushels, which is attributable almost equally to the wheat acreage reduction program undertaken last spring and to the below-normal yields which have been realized over large areas of Saskatchewan and eastern Alberta. The 1941 fall wheat production amounted to 16,417,000 bushels and the spring wheat production for all Canada to 290,042,000 bushels. Included in the latter figure is the 1941 spring wheat production in the Prairie Provinces estimated at 286,000,000 bushels, as compared with the 1940 estimate of 525,000,000 bushels. The 1941 estimate for the Prairie Provinces is distributed as follows: Manitoba 56,000,000; Saskatchewan 136,000,000; and Alberta 94,000,000 bushels. The spring wheat estimates for Manitoba and Saskatchewan include 2,700,000 and 1,500,000 bushels respectively, of Durum wheat, making a total 1941 Durum wheat production of 4,200,000 bushels. The early inspections of wheat from the 1941 crop are showing the same heavy concentrations in the No. 1 and No. 2 Northern grades as have prevailed in the two previous crops, but it is feared that with the continued rainy harvesting weather, there will be a loss of grade in the subsequent new-crop inspections.

Feed grain supplies for the whole of Canada are only slightly below those of 1940. The total 1941 oat production in Canada is estimated at 357,955,000 bushels, representing a decrease of 22,571,000 bushels from the 380,526,000 bushel crop of 1940. This decline is partially offset by an increase in barley production. The 1941 barley crop for all Canada amounts to 121,378,000 bushels, representing an increase of 17,122,000 bushels over the 1940 production of 104,256,000 bushels. The yields per acre of both oats and barley were lower this year than in 1940, but the increased 1941 acreages helped to maintain the production of the two crops. Smaller oat crops are being harvested in all the eastern provinces except Nova Scotia. Manitoba's oat production shows a substantial increase, which is more than offset by a decrease in the Alberta crop. Saskatchewan's oat crop is slightly smaller and British Columbia's slightly

larger than in 1940. Very little change is shown in the barley crops of the Maritime Provinces, while reductions have occurred in Quebec and Ontario. Manitoba and Saskatchewan both have larger barley crops, while Alberta's barley crop is smaller as a result of the decline from last year's favourable yields. British Columbia's barley production is a trifle higher than in 1940. Fall rye is estimated at 10,644,000 bushels for all Canada, and spring rye at 3,258,000 bushels, making a total rye production of 13,902,000 bushels, which is approximately unchanged from last year's production of 13,994,000 bushels. As a result of a sharp increase in the 1941 flaxseed acreage, the 1941 flaxseed production is estimated at 7,362,000 bushels, as compared with the 1940 production of 3,049,000 bushels for oil-crushing purposes.

The production of hay and clover in 1941 at 12,080,000 tons, shows a reduction of almost 2,000,000 tons from the 1940 production of 14,070,000 tons. Marked declines in Quebec and Ontario were partially offset by an increase in the Manitoba crop, with no substantial changes in the other provinces.

Area and Production of Wheat in the Prairie Provinces

Decreases are shown for the acreages of wheat in all provinces, while acreages of oats, barley, rye and flaxseed show increases from the previous year. The 1941 area sown to wheat is estimated at 21,551,000 acres, which is 6,199,000 acres less than the area sown in 1940. Decreases occurred in all three provinces, the greatest being recorded in Saskatchewan where the reduction amounted to 3,373,000 acres. Increases in the acreage of oats occurred in each of the provinces, with the greatest increase in Saskatchewan. The total area sown to oats for 1941 is 9,308,000 acres, an increase of 1,490,000 acres from the 1940 sowings. The area of barley is increased by 1,260,000 acres, with the greatest increase occurring in Saskatchewan. The area sown to rye increased in Manitoba and Saskatchewan but declined in Alberta. The total area sown to rye amounted to 991,900 acres. Flaxseed acreage increased sharply in all provinces, the total for the Prairie Provinces in 1941 being placed at 940,000 acres as compared with 363,700 acres in 1940.

For the Prairie Provinces as a whole, the 1941 wheat crop at 286,000,000 bushels is the smallest of the past four years. A substantially reduced acreage, and a likewise substantially lower average yield per acre contributed to the smaller production in 1941, as compared with the 525,000,000 bushel crop produced in 1940. The 1941 acreage in the Prairie Provinces is 22 per cent lower than the record area sown in 1940, and the average yield per acre at 13·3 bushels is 30 per cent lower than last year's yield per acre of 18·9 bushels for the three provinces combined. Compared with the long-time average yield for the Prairies as a whole, the 1941 average yield is 2·8 bushels, or 17·4 per cent below normal. In Manitoba, the 1941 yield per acre at 20·7 bushels is 1·9 bushels higher than in 1940, and is 4·7 bushels above the provincial long-time average yield. The reduced acreage in 1941, however, brought Manitoba's total wheat crop down to 56,000,000 bushels, which is 10,000,000 bushels under the 1940 crop. In Saskatchewan, the 1941 yield per acre at 11·1 bushels is 6·4 bushels below the 1940 yield and 3·9 bushels below the provincial long-time average. Additionally influenced by the acreage reduction, this year's production of 136,000,000 bushels is exactly half the 1940 estimate of 272,000,000 bushels for Saskatchewan. Alberta's 1941 yield per acre at 14·1 bushels is 7·5 bushels under the 1940 yield, and 3·9 bushels below the provincial long-time average yield. The reduction in acreage was also substantial in Alberta, and the 1941 production at 94,000,000 bushels was approximately half the 1940 crop of 187,000,000 bushels.

Table 1.—Area and First Estimate of the Production of Wheat, Oats, Barley, Rye, Flaxseed, and Hay and Clover in Canada, 1941 as compared with 1940

Description	Area		Yield per acre		Total Production	
	1940	1941	1940	1941	1940	1941
	acres	acres	bu.	bu.	bu.	bu.
Canada—						
Fall wheat	775,400	629,000	28·5	26·1	22,099,000	16,417,000
Spring wheat	27,950,800	21,743,000	18·9	13·3	529,291,000	290,042,000
All wheat	28,726,200	22,372,000	19·2	13·7	551,390,000	306,459,000
Oats	12,297,600	13,841,000	30·9	25·9	380,526,000	357,955,000
Barley	4,341,500	5,548,900	24·0	21·9	104,256,000	121,378,000
Fall rye	785,600	800,400	13·2	13·3	10,357,000	10,644,000
Spring rye	249,300	277,300	14·6	11·7	3,637,000	3,258,000
All rye	1,034,900	1,077,700	13·5	12·9	13,994,000	13,902,000
Flaxseed	384,500	957,700	8·0	7·7	3,049,000	7,362,000
			tons	tons	tons	tons
Hay and clover	8,811,200	9,288,000	1·60	1·30	14,070,000	12,080,000
Prince Edward Island—			bu.	bu.	bu.	bu.
Spring wheat	12,500	14,400	19·0	19·0	238,000	274,000
Oats	142,800	138,000	35·0	34·0	4,998,000	4,692,000
Barley	13,000	13,100	30·5	26·4	397,000	346,000
			tons	tons	tons	tons
Hay and clover	236,900	230,000	1·45	1·55	344,000	357,000
Nova Scotia—			bu.	bu.	bu.	bu.
Spring wheat	2,900	2,600	19·0	20·0	55,000	52,000
Oats	90,700	91,000	36·0	38·0	3,265,000	3,458,000
Barley	12,100	12,600	29·0	29·0	351,000	365,000
			tons	tons	tons	tons
Hay and clover	405,600	404,000	1·60	1·62	649,000	654,000
New Brunswick—			bu.	bu.	bu.	bu.
Spring wheat	8,000	7,700	22·0	18·0	176,000	139,000
Oats	209,900	200,000	31·0	30·0	6,507,000	6,000,000
Barley	18,600	18,500	28·0	28·0	521,000	518,000
			tons	tons	tons	tons
Hay and clover	572,400	560,000	1·65	1·42	944,000	795,000
Quebec—			bu.	bu.	bu.	bu.
Spring wheat	30,100	31,500	17·4	17·0	522,000	536,000
Oats	1,664,200	1,679,000	26·6	25·5	44,290,000	42,815,000
Barley	159,500	146,000	24·4	23·3	3,888,000	3,402,000
Spring rye	6,200	9,000	16·6	17·3	103,000	156,000
			tons	tons	tons	tons
Hay and clover	3,661,300	3,555,000	1·43	1·06	5,223,000	3,768,000
Ontario—			bu.	bu.	bu.	bu.
Fall wheat	775,400	629,000	28·5	26·1	22,099,000	16,417,000
Spring wheat	69,200	68,000	18·8	17·7	1,301,000	1,204,000
All wheat	844,600	697,000	27·7	25·3	23,400,000	17,621,000
Oats	2,254,000	2,304,000	38·4	32·4	86,554,000	74,650,000
Barley	499,000	460,000	31·1	28·6	15,519,000	13,156,000
Fall rye	81,500	72,000	19·1	17·2	1,557,000	1,238,000
Flaxseed	17,500	17,000	9·7	9·0	170,000	153,000
			tons	tons	tons	tons
Hay and clover	2,699,400	2,447,000	1·86	1·25	5,021,000	3,059,000
Manitoba—			bu.	bu.	bu.	bu.
Spring wheat	3,512,000	2,700,000	18·8	20·7	66,000,000	56,000,000
Oats	1,293,000	1,600,000	25·5	33·8	33,000,000	54,000,000
Barley	1,256,000	1,650,000	21·9	27·3	27,500,000	45,000,000
Fall rye	132,600	175,000	14·3	17·0	1,900,000	2,975,000
Spring rye	26,700	26,000	13·1	15·4	350,000	400,000
All rye	159,300	201,000	14·1	16·8	2,250,000	3,375,000
Flaxseed	89,500	190,000	8·9	10·0	800,000	1,900,000
			tons	tons	tons	tons
Hay and clover	420,900	1,070,000	1·38	1·90	581,000	2,033,000

Table 1.—Area and First Estimate of the Production of Wheat, Oats, Barley, Rye, Flaxseed, and Hay and Clover in Canada, 1941 as compared with 1940—concluded

Description	Area		Yield per acre		Total Production	
	1940	1941	1940	1941	1940	1941
	acres	acres	bu.	bu.	bu.	bu.
Saskatchewan—						
Spring wheat	15,571,000	12,198,000	17·5	11·1	272,000,000	136,000,000
Oats	3,880,000	4,594,000	24·0	19·8	93,000,000	91,000,000
Barley	1,251,000	1,740,000	18·8	17·2	23,500,000	30,000,000
Fall rye	471,300	442,600	11·2	11·1	5,300,000	4,913,000
Spring rye	135,400	181,000	12·6	11·0	1,700,000	2,000,000
All rye	606,700	623,600	11·5	11·1	7,000,000	6,913,000
Flaxseed	232,200	600,000	7·1	6·8	1,650,000	4,100,000
			tons	tons	tons	tons
Hay and clover	257,300	413,000	1·31	1·20	337,000	496,000
Alberta—			bu.	bu.	bu.	bu.
Spring wheat	8,667,000	6,653,000	21·6	14·1	187,000,000	94,000,000
Oats	2,645,000	3,114,000	38·9	24·1	103,000,000	75,000,000
Barley	1,115,000	1,492,000	28·7	18·8	32,000,000	28,000,000
Fall rye	100,200	110,800	16·0	13·7	1,600,000	1,518,000
Spring rye	76,800	56,500	18·2	10·6	1,400,000	600,000
All rye	177,000	167,300	16·9	12·7	3,000,000	2,118,000
Flaxseed	42,000	150,000	10·1	8·0	425,000	1,200,000
			tons	tons	tons	tons
Hay and clover	398,700	452,000	1·60	1·30	638,000	588,000
British Columbia—			bu.	bu.	bu.	bu.
Spring wheat	78,100	67,800	25·6	27·1	1,999,000	1,837,000
Oats	118,000	121,000	50·1	52·4	5,912,000	6,340,000
Barley	17,300	16,700	33·5	35·4	580,000	591,000
Spring rye	4,200	4,800	20·0	21·2	84,000	102,000
Flaxseed	300	700	12·7	13·5	4,000	9,000
			tons	tons	tons	tons
Hay and clover	158,700	157,000	2·10	2·10	333,000	330,000

Table 2.—Area and Production of Wheat, Oats, Barley, Rye and Flaxseed in the Prairie Provinces, 1939 to 1941

Description	Area			Production		
	1939	1940	1941	1939	1940	1941
	acres	acres	acres	bu.	bu.	bu.
Prairie Provinces—						
Wheat	25,813,000	27,750,000	21,551,000	494,000,000	525,000,000	286,000,000
Oats	8,227,000	7,818,000	9,308,000	231,500,000	229,000,000	220,000,000
Barley	3,607,000	3,622,000	4,882,000	81,000,000	83,000,000	103,000,000
Rye	1,014,100	943,000	991,900	13,700,000	12,250,000	12,406,000
Flaxseed	288,500	363,700	940,000	1,950,000	2,875,000	7,200,000
Manitoba—						
Wheat	3,201,000	3,512,000	2,700,000	61,300,000	66,000,000	56,000,000
Oats	1,377,000	1,293,000	1,600,000	34,500,000	33,000,000	54,000,000
Barley	1,344,000	1,256,000	1,650,000	28,000,000	27,500,000	45,000,000
Rye	178,200	159,300	201,000	2,000,000	2,250,000	3,375,000
Flaxseed	70,300	89,500	190,000	425,000	800,000	1,900,000
Saskatchewan—						
Wheat	14,233,000	15,571,000	12,198,000	271,300,000	272,000,000	136,000,000
Oats	4,144,000	3,880,000	4,594,000	112,000,000	93,000,000	91,000,000
Barley	1,149,000	1,251,000	1,740,000	26,000,000	23,500,000	30,000,000
Rye	647,000	606,700	623,600	9,300,000	7,000,000	6,913,000
Flaxseed	187,200	232,200	600,000	1,250,000	1,650,000	4,100,000
Alberta—						
Wheat	8,379,000	8,667,000	6,653,000	161,400,000	187,000,000	94,000,000
Oats	2,706,000	2,645,000	3,114,000	85,000,000	103,000,000	75,000,000
Barley	1,114,000	1,115,000	1,492,000	27,000,000	32,000,000	28,000,000
Rye	188,900	177,000	167,300	2,400,000	3,000,000	2,118,000
Flaxseed	31,000	42,000	150,000	275,000	425,000	1,200,000

Table 3.—Area and First Estimate of the Production of Fall Wheat, Fall Rye and Alfalfa (first cutting), 1940 and 1941

Description	Area		Yield per acre		Total Production	
	1940	1941	1940	1941	1940	1941
	acres	acres	bu.	bu.	bu.	bu.
Fall Wheat—						
Ontario	775,400	629,000	28·5	26·1	22,099,000	16,417,000
Fall Rye—						
Ontario	81,500	72,000	19·1	17·2	1,557,000	1,238,000
Manitoba	132,600	175,000	14·3	17·0	1,900,000	2,975,000
Saskatchewan	471,300	442,600	11·2	11·1	5,300,000	4,913,000
Alberta	100,200	110,800	16·0	13·7	1,600,000	1,518,000
Canada	**785,600**	**800,400**	**13·2**	**13·3**	**10,357,000**	**10,641,000**
			tons	tons	tons	tons
Alfalfa—						
Quebec	22,400	22,400	1·60	1·59	36,000	36,000
Ontario	715,000	672,000	1·96	1·39	1,401,000	934,000
Manitoba	104,600	108,800	1·24	1·66	130,000	181,000
Saskatchewan	30,000	32,000	1·43	1·16	43,000	37,000
Alberta	108,700	117,400	1·71	1·37	186,000	161,000
British Columbia	51,000	52,000	2·00	2·00	102,000	104,000
Canada	**1,031,700**	**1,004,600**	**1·84**	**1·45**	**1,898,000**	**1,453,000**

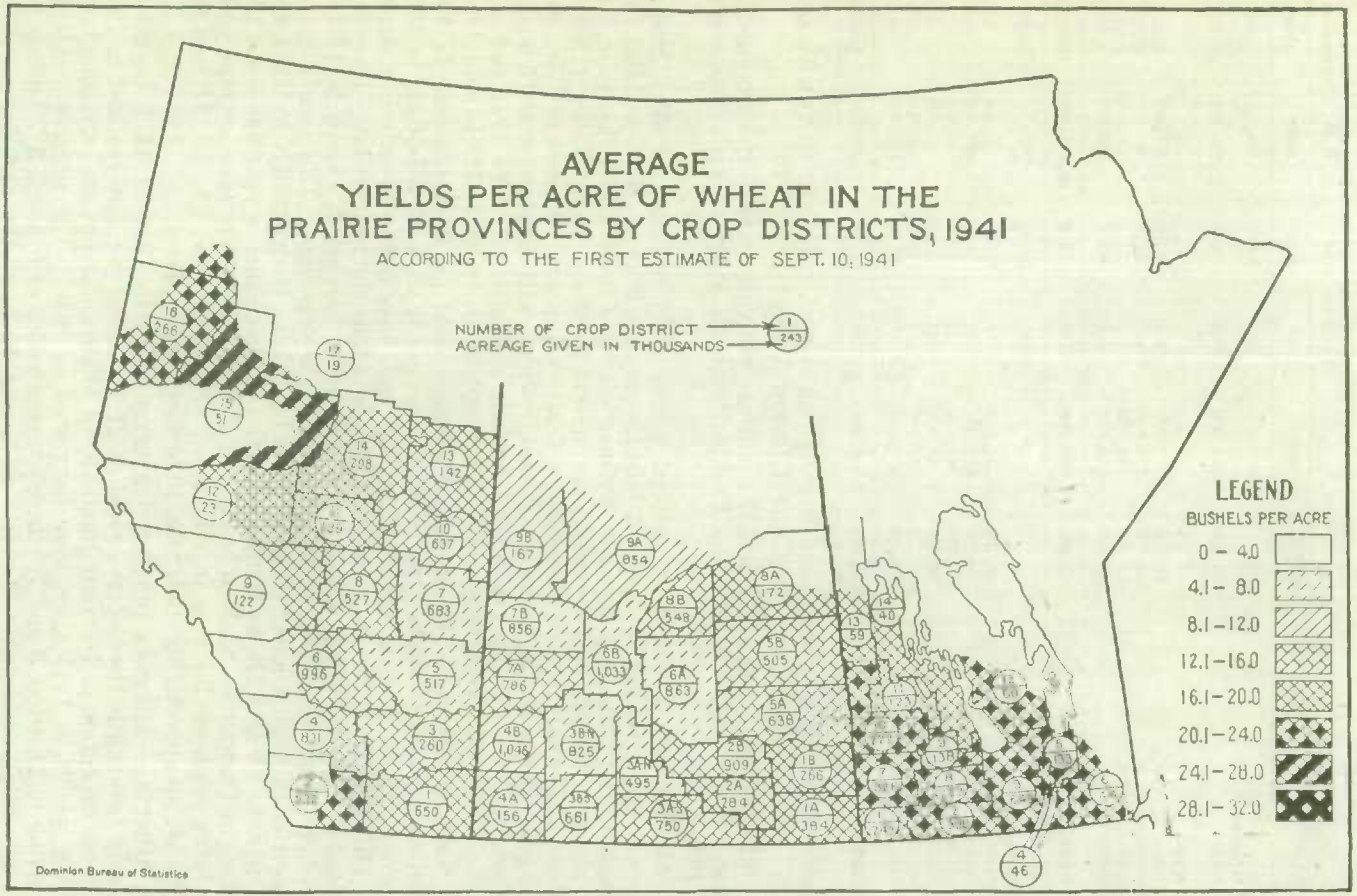
Charts Showing the Average Yields per Acre of Wheat in the Prairie Provinces by Crop Districts, 1941 and 1940

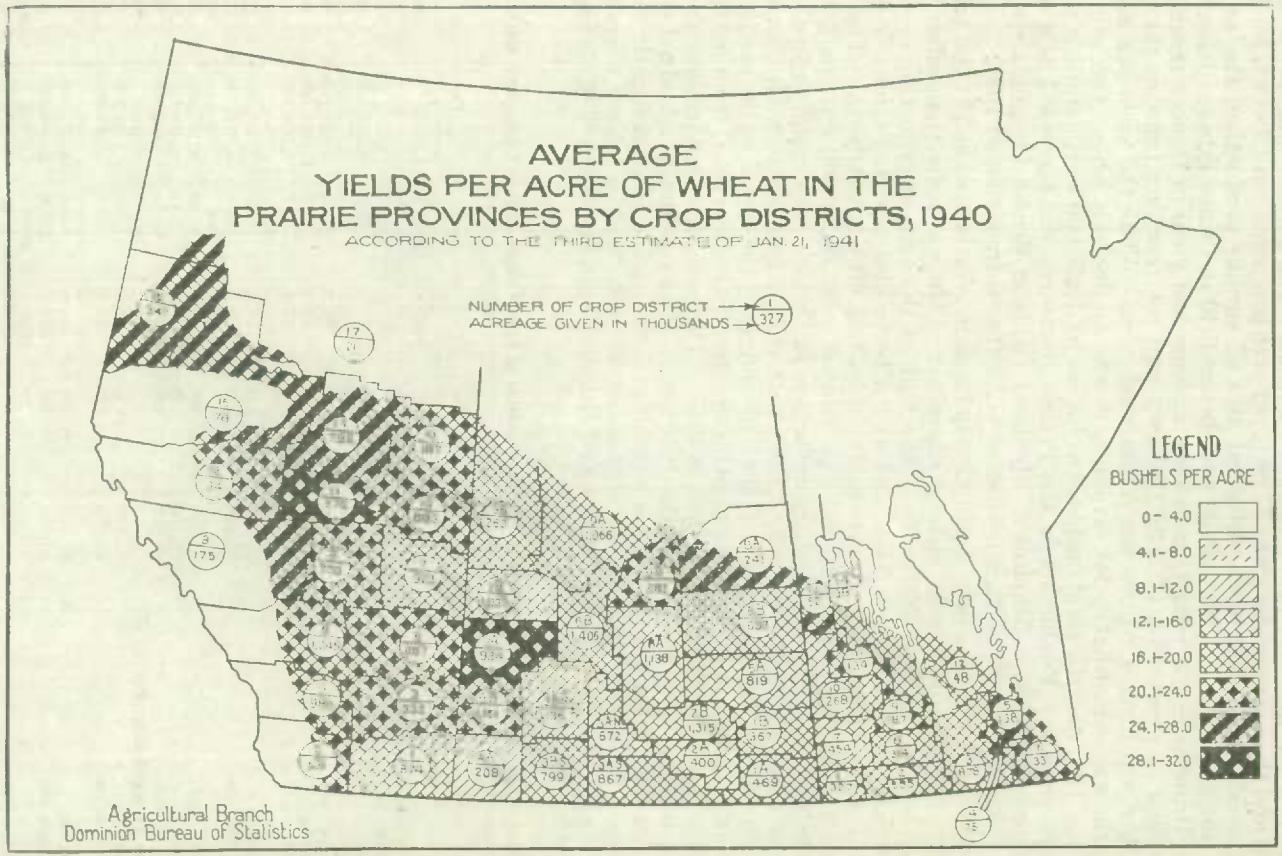
The charts on pages 150 and 151 indicate the variations in the crop-district wheat yields per acre across the Prairie Provinces in 1941, with comparisons for 1940.

Manitoba.—The 1941 provincial wheat yield per acre at 20·7 bushels shows an improvement of almost 2 bushels per acre over the 1940 yield of 18·8 bushels. The variations in yields by districts were fairly small this year, with the lowest reported at 16·6 bushels per acre in the Swan River Valley (District 13) and the highest at 24·3 bushels in District 5, north and east of Winnipeg. Last year's range in yields was considerably wider, with the lowest at 15 bushels in District 7 and the highest at 27·7 bushels in District 5. The 1941 yields by districts were all 20 bushels or better, except in Districts 1, 11, 13 and 14.

Saskatchewan.—The provincial average yield for Saskatchewan in 1941 is indicated at 11·1 bushels per acre, as compared with 17·5 bushels in 1940. Improved yields, as compared with a year ago, have occurred only in Districts 1A, 1B, 2A and 2B in the south-east and in 4A in the south-west. Elsewhere throughout the province, lower yields are being harvested, except in District 5A where this year's yield is unchanged from a year ago. This year's district yields run through a lower range, from 5 bushels in District 3BN to 20 bushels in Districts 1A and 1B, as compared with a higher range a year ago from 12·0 bushels in District 4A to 30·5 bushels in District 7A. Very poor average yields are being realized this year in Districts 3AN, 3BS, 3BN, 6A, 6B, 7B and 9B, which are all appreciably under the 10 bushel per acre level.

Alberta.—Alberta's provincial average yield in 1941 at 14·1 bushels is scarcely two-thirds the average yield of 21·6 bushels per acre realized in 1940. With the exception of Districts 1 and 15, all Alberta districts are expecting lower average yields in 1941 than were harvested in 1940. The poorest yields are occurring in Districts 5 and 7, where average yields of 6·8 and 5·7 bushels per acre are being obtained. Districts 3, 8, and 10 have the next lowest yields, ranging between 12 and 13 bushels. Elsewhere better yields are anticipated. The range of yields is wide this year, running from 5·7 bushels in District 7 to 24·8 bushels in District 15. Last year's range was from 13·5 bushels in District 1 to 28·4 bushels in District 11.


AVERAGE
YIELDS PER ACRE OF WHEAT IN THE
PRAIRIE PROVINCES BY CROP DISTRICTS, 1941
ACCORDING TO THE FIRST ESTIMATE OF SEPT. 10, 1941
NUMBER OF CROP DISTRICT
ACREAGE GIVEN IN THOUSANDS
LEGEND
BUSHELS PER ACRE
0 - 4.0
4.1 - 8.0
8.1 - 12.0
12.1 - 16.0
16.1 - 20.0
20.1 - 24.0
24.1 - 28.0
28.1 - 32.0
Dominion Bureau of Statistics


AVERAGE
YIELDS PER ACRE OF WHEAT IN THE
PRAIRIE PROVINCES BY CROP DISTRICTS, 1940
ACCORDING TO THE THIRD ESTIMATE OF JAN. 21, 1941
NUMBER OF CROP DISTRICT
ACREAGE GIVEN IN THOUSANDS
LEGEND
BUSHELS PER ACRE
0 - 4.0
4.1 - 8.0
8.1 - 12.0
12.1 - 16.0
16.1 - 20.0
20.1 - 24.0
24.1 - 28.0
28.1 - 32.0
Agricultural Branch
Dominion Bureau of Statistics

First Estimate of the Production of Late Crops

Potato production for Canada at 39,290,000 hundredweight is slightly below normal and also below the 1940 output. The acreage was down 36,900 acres and the average yield was 77 cwt. per acre compared with 78 cwt. for 1940. In the Maritime Provinces, principal area of surplus production, the acreage was down 15,800 acres and yields were below 1940 in Prince Edward Island and New Brunswick. A reduction in both acreage and yield in Quebec resulted in a decline in production of 2,493,000 cwt. and rot resulting from recent rainy weather will further reduce the commercial crop. While the yield per acre in Ontario was somewhat below average, it was appreciably above the very low yield of 1940 and the total output was higher by 1,665,000 cwt. despite a reduction in acreage. Production in the Prairie Provinces was increased as a result of improved yields in Manitoba. Reduced yields in British Columbia resulted in a crop of 2,028,000 cwt., a decline of 412,000 cwt. from that of 1940.

Commercial sugar beet production in Canada is estimated at 731,000 tons in 1941. A slight increase in yield per acre over 1940 was more than offset by a reduction in area of 11,500 acres. The bulk of the acreage reduction occurred in Ontario, although both Manitoba and Alberta also reported minor declines. Yields were better in Ontario and Manitoba but lower in Alberta. The production of turnips and other roots was reduced from 39,016,000 cwt. in 1940 to 32,628,000 cwt. in 1941. A sharp reduction in Ontario was mainly responsible for the reduced national output. The production of husking corn for Canada is estimated at 11,906,000 bushels in 1941, including for the first time the production of Manitoba at 2,660,000 bushels. Ontario production increased from 6,956,000 bushels in 1940 to 9,246,000 bushels in 1941. The tonnage of fodder corn showed an increase of 10 per cent over the 1940 crop. The production of mixed grains was lower by 2,352,000 bushels as a result of a reduced yield on a slightly higher acreage. Pasture conditions at September 30 were slightly above average in the Maritime Provinces, Manitoba and British Columbia, but below average in the other provinces.

Table 4.—Area and First Estimate of the Production of Late Crops, 1941 as Compared with 1940

Description	Area		Yield per Acre		Production	
	1940	1941	1940	1941	1940	1941
Canada—	acres	acres	bu.	bu.	bu.	bu.
Peas	81,500	97,000	16·6	16·3	1,355,000	1,583,000
Beans	96,800	102,100	15·3	16·6	1,477,000	1,697,000
Buckwheat	325,700	276,600	20·5	20·4	6,692,000	5,642,000
Mixed grains	1,219,900	1,329,200	35·4	30·7	43,133,000	40,781,000
Corn, husking	186,000	300,000	37·4	39·7	6,956,000	11,906,000
			cwt.	cwt.	cwt.	cwt.
Potatoes	545,000	508,100	78·0	77·0	42,300,000	39,290,000
Turnips, etc	186,400	179,700	209·0	182·0	39,016,000	32,628,000
			tons	tons	tons	tons
Fodder corn	496,200	519,300	8·37	8·82	4,155,000	4,578,000
Alfalfa	1,031,700	1,251,100	2·51	2·19	2,588,000	2,734,000
Sugar beets	82,200	70,700	10·04	10·34	825,100	731,000
Prince Edward Island—			bu.	bu.	bu.	bu.
Buckwheat	3,700	3,600	20·0	20·0	74,000	72,000
Mixed grains	43,000	48,700	35·0	32·0	1,505,000	1,558,000
			cwt.	cwt.	cwt.	cwt.
Potatoes	42,400	35,500	108·0	96·0	4,579,000	3,408,000
Turnips, etc	10,800	10,400	236·0	220·0	2,549,000	2,288,000
			tons	tons	tons	tons
Fodder corn	400	400	7·50	4·00	3,000	2,000
Nova Scotia—			bu.	bu.	bu.	bu.
Buckwheat	3,800	3,600	22·0	21·0	84,000	76,000
Mixed grains	6,000	5,500	34·0	37·0	204,000	204,000
			cwt.	cwt.	cwt.	cwt.
Potatoes	22,900	20,500	101·0	110·0	2,313,000	2,255,000
Turnips, etc	11,900	11,000	295·0	280·0	3,511,000	3,080,000
			tons	tons	tons	tons
Fodder corn	800	800	7·85	8·60	6,000	7,000

Table 4.—Area and First Estimate of the Production of Late Crops, 1941 as Compared with 1940
—continued

Description	Area		Yield per Acre		Production	
	1940	1941	1940	1941	1940	1941
	acres	acres	bu.	bu.	bu.	bu.
New Brunswick—						
Beans	1,100	1,000	19·0	18·0	21,000	18,000
Buckwheat	26,200	23,200	20·5	23·0	537,000	534,000
Mixed grains	4,000	6,800	32·0	33·0	128,000	224,000
			cwt.	cwt.	cwt.	cwt.
Potatoes	54,300	47,800	127·0	114·0	6,896,000	5,449,000
Turnips, etc	12,700	12,700	263·0	203·0	3,340,000	2,578,000
			tons	tons	tons	tons
Fodder corn	800	1,100	6·00	6·70	5,000	7,000
Quebec—			bu.	bu.	bu.	bu.
Peas	19,700	25,800	16·1	16·8	318,000	433,000
Beans	9,200	13,900	16·6	17·1	153,000	238,000
Buckwheat	104,500	86,900	21·0	21·4	2,144,000	1,860,000
Mixed grains	163,300	173,500	27·6	28·9	4,502,000	5,014,000
			cwt.	cwt.	cwt.	cwt.
Potatoes	149,800	139,900	87·6	76·0	13,125,000	10,632,000
Turnips, etc	36,600	37,200	163·0	166·0	5,975,000	6,175,000
			tons	tons	tons	tons
Fodder corn	61,300	62,700	9·00	8·00	552,000	502,000
Alfalfa	22,400	35,000	2·55	2·49	57,000	87,000
Ontario—			bu.	bu.	bu.	bu.
Peas	55,200	59,800	16·2	15·1	894,000	903,000
Beans	84,800	84,500	14·9	16·5	1,264,000	1,394,000
Buckwheat	182,500	155,000	20·8	19·5	3,796,000	3,023,000
Mixed grains	915,000	983,000	38·0	32·1	34,770,000	31,554,000
Corn, husking	186,000	205,000	37·4	45·1	6,956,000	9,246,000
			cwt.	cwt.	cwt.	cwt.
Potatoes	146,800	138,000	46·0	61·0	6,753,000	8,418,000
Turnips, etc	98,300	92,000	219·0	176·0	21,528,000	16,192,000
			tons	tons	tons	tons
Fodder corn	339,000	354,000	9·18	9·79	3,112,000	3,466,000
Alfalfa	715,000	751,000	2·65	2·13	1,895,000	1,600,000
Sugar beets	40,100	30,100	9·83	10·40	394,000	313,000
Manitoba—			bu.	bu.	bu.	bu.
Peas	1,700	4,100	13·8	21·0	23,000	86,000
Buckwheat	5,000	4,300	11·3	18·0	57,000	77,000
Mixed grains	25,700	33,100	19·5	26·0	501,000	861,000
Corn, husking	–	95,000	–	28·0	–	2,660,000
			cwt.	cwt.	cwt.	cwt.
Potatoes	34,300	36,400	52·0	84·0	1,784,000	3,058,000
Turnips, etc	5,600	7,000	78·0	129·0	437,000	903,000
			tons	tons	tons	tons
Fodder corn	74,200	79,400	4·82	5·80	358,000	461,000
Alfalfa	104,600	227,000	1·63	2·50	170,000	568,000
Sugar beets	18,100	16,800	5·25	6·73	95,100	113,000
Saskatchewan—			bu.	bu.	bu.	bu.
Mixed grains	29,100	37,500	18·6	15·1	540,000	566,000
			cwt.	cwt.	cwt.	cwt.
Potatoes	49,000	47,000	52·0	51·0	2,548,000	2,397,000
Turnips, etc	2,200	1,700	81·0	49·0	178,000	83,000
			tons	tons	tons	tons
Fodder corn	11,200	10,900	3·26	4·29	37,000	47,000
Alfalfa	30,000	49,100	1·61	1·80	48,000	88,000
Alberta—			bu.	bu.	bu.	bu.
Peas	1,200	1,900	19·2	13·0	23,000	25,000
Beans	600	1,400	16·7	9·0	10,000	13,000
Mixed grains	28,900	36,400	27·7	17·0	800,000	619,000
			cwt.	cwt.	cwt.	cwt.
Potatoes	25,500	23,500	73·0	70·0	1,862,000	1,645,000
Turnips, etc	2,800	2,300	95·0	106·0	266,000	244,000
			tons	tons	tons	tons
Fodder corn	2,400	3,900	4·60	4·00	11,000	16,000
Alfalfa	108,700	138,000	2·40	1·70	261,000	235,000
Sugar beets	24,000	23,800	14·00	12·82	336,000	305,000

Table 4.—Area and First Estimate of the Production of Late Crops, 1941 as Compared with 1940 —concluded

Description	Area		Yield per Acre		Production	
	1940	1941	1940	1941	1940	1941
	acres	acres	bu.	bu.	bu.	bu.
British Columbia—			bu.	bu.	bu.	bu.
Peas	3,700	5,400	26·1	25·2	97,000	136,000
Beans	1,100	1,300	26·5	26·1	29,000	34,000
Mixed grains	4,900	4,700	37·3	38·5	183,000	181,000
			cwt.	cwt.	cwt.	cwt.
Potatoes	20,000	19,500	122·0	104·0	2,440,000	2,028,000
Turnips, etc.	5,500	5,400	224·0	201·0	1,232,000	1,085,000
			tons	tons	tons	tons
Fodder corn	6,100	6,100	11·66	11·40	71,000	70,000
Alfalfa	51,000	51,000	3·07	3·06	157,000	156,000

Table 5.—Preliminary Estimate of the Areas of Late-Sown Crops and Hay as at June 30, 1941, as compared with 1940.

Description	1940	1941 as Per cent of 1940	1941	Description	1940	1941 as Per cent of 1940	1941
	acres	p.c.	acres		acres	p.c.	acres
Canada—				**Ontario—**			
Peas	81,500	99	80,900	Peas	55,200	98	54,100
Beans	96,800	97	94,300	Beans	84,800	97	82,300
Buckwheat	325,700	93	302,200	Buckwheat	182,500	90	164,300
Corn, husking	186,000	102	190,000	Corn, husking	186,000	102	190,000
Turnips, etc.	186,400	95	176,700	Turnips, etc.	98,300	92	90,400
Hay and clover[1]	8,811,200	100	8,803,600	Hay and clover[1]	2,699,400	97	2,618,400
Alfalfa	1,031,700	97	1,004,600	Alfalfa	715,000	94	672,000
Fodder corn	496,200	98	486,400	Fodder corn	339,000	97	329,000
Sugar beets	77,900	91	70,900	Sugar beets	38,200	79	30,000
Prince Edward Island—				**Manitoba—**			
Buckwheat	3,700	92	3,400	Peas	1,700	98	1,700
Turnips, etc.	10,800	99	10,700	Buckwheat	5,000	98	4,900
Hay and clover[1]	236,900	100	236,900	Turnips, etc.	5,600	97	5,400
Fodder corn	400	94	400	Hay and clover[1]	420,900	107	450,400
				Alfalfa	104,600	104	108,800
				Fodder corn	74,200	103	76,400
				Sugar beets	15,800	104	16,500
Nova Scotia—							
Buckwheat	3,800	96	3,600	**Saskatchewan—**			
Turnips, etc.	11,900	96	11,400	Turnips, etc.	2,200	98	2,200
Hay and clover[1]	405,600	98	397,500	Hay and clover[1]	257,300	105	270,200
Fodder corn	800	97	800	Alfalfa	30,000	107	32,000
				Fodder corn	11,200	100	11,200
New Brunswick—				**Alberta—**			
Beans	1,100	100	1,100	Peas	1,200	103	1,200
Buckwheat	26,200	94	24,600	Beans	600	96	600
Turnips, etc.	12,700	95	12,100	Turnips, etc.	2,800	99	2,800
Hay and clover[1]	572,400	100	572,400	Hay and clover[1]	398,700	109	434,600
Fodder corn	800	97	800	Alfalfa	108,700	108	117,400
				Fodder corn	2,400	96	2,300
				Sugar beets	23,900	102	24,400
Quebec—							
Peas	19,700	101	19,900	**British Columbia—**			
Beans	9,200	100	9,200	Peas	3,700	109	4,000
Buckwheat	104,500	97	101,400	Beans	1,100	102	1,100
Turnips, etc.	36,600	99	36,200	Turnips, etc.	5,500	100	5,500
Hay and clover[1]	3,661,300	100	3,661,300	Hay and clover[1]	158,700	102	161,900
Alfalfa	22,400	100	22,400	Alfalfa	51,000	101	52,000
Fodder corn	61,300	97	59,500	Fodder corn	6,100	98	6,000

[1] Seeded hay and clover only.

NUMERICAL CONDITION OF FIELD CROPS

The condition of field crops at June 30, July 31 and August 31, expressed numerically in percentages of the long-time average yields per acre, was reported in crop bulletins issued by the Bureau on July 8, August 8 and September 10. The figures were compiled from returns of the Bureau's corps of crop correspondents, with the exception of the wheat condition figures in the Prairie Provinces, which were based on weather factors.

June 30

Growing crops in almost all provinces suffered from dry, hot weather during June. In Saskatchewan and Alberta the condition of the spring wheat crop at June 30 showed a marked deterioration from that of a month previous and was considerably below the prospects indicated at the same date in 1940. Manitoba was more fortunate in respect to rainfall and in almost all sections of that province the prospects for the wheat crop are excellent. The fall wheat crop in Ontario showed a moderate decline in condition at June 30 and was well below the long-time average for that date. Coarse grains did not suffer to quite the same extent as wheat, but their condition at the end of June was below average in all provinces except British Columbia. Forage crops and pastures were severely burned by the dry weather of June, especially in Ontario where the condition was the poorest in many years. The potato crop generally at June 30 was in a slightly less favourable condition than at the same date a year ago, and in Prince Edward Island and Ontario the crop was sharply below normal.

Changes in the condition of field crops in the Maritime Provinces were somewhat varied during June. Crops in Nova Scotia and Prince Edward Island showed little change during the month, while in New Brunswick there were reductions in the condition of most crops. Compared with the long-time average, crops in the Maritimes were from one to five per cent below normal at June 30.

The condition of all crops in Quebec declined during June. Pasture and hay crops suffered most severely, but in all cases conditions at June 30 were below the long-time average. Lack of adequate rainfall was the chief limiting factor in the development of crops in that province.

Prolonged dry weather in Ontario combined with excessive heat resulted in a serious deterioration of all crops in that province during June. At the end of the month the condition of many crops was the lowest in years. Hay and clover, alfalfa and pastures were particularly hard hit. Coarse grain crops were also far below the long-time average. Sugar beets and husking corn were the only crops in better condition at June 30, 1941, than at the same date in the previous year.

Manitoba was the most favoured province in the Dominion during June and ample rain fell to keep all crops growing well. For almost all crops, and especially wheat, the condition at June 30 was excellent. In contrast to Ontario, conditions in this province have been favourable for hay and pasture throughout 1941. In Saskatchewan, however, conditions have been much less favourable in many areas. Serious deterioration of the wheat crop occurred in central Saskatchewan in the vicinity of Moose Jaw, Swift Current, Shaunavon and Saskatoon. Lack of adequate rainfall was largely responsible for the reduction in crop prospects. Although crops generally in Alberta have not suffered to quite the same extent as in Saskatchewan, there was a substantial decline in the condition of the wheat crop during June. The most seriously affected area was in the east-central part of the province, bordering on Saskatchewan, while excessively high temperatures resulted in deterioration in some of the south and south-central districts. The condition of all other crops was less favourable than at June 30, 1940.

Little change occurred in crop conditions in British Columbia during June and most crops were looking more favourable at the end of the month than at May 31 or at June 30 of the previous year. In almost all cases crop conditions in that province were above the long-time average for June 30.

JULY 31

Further deterioration in Saskatchewan and Alberta, with only minor changes in the other provinces, resulted in a general reduction in crop conditions for Canada as a whole. High temperatures and below-normal precipitation were mainly responsible for the reduced prospects at July 31 as compared with June 30. The spring wheat crop is estimated at 72 per cent of normal for the Dominion as a whole and the figures for Saskatchewan and Alberta are even lower. Above-average conditions are reported in Manitoba. Feed grains are below average in all provinces, and seriously so in Ontario, Saskatchewan and Alberta. In Ontario corn is the only crop showing better condition than at the same date in the previous year. The potato crop generally is 11 per cent below average, but is close to normal in the Maritime Provinces. Haying operations are now largely completed and a below-average crop was harvested in all provinces except Prince Edward Island and British Columbia. Pastures are relatively good in the Maritime Provinces, Manitoba and British Columbia, but are in need of rain in the other provinces.

The production of fall wheat in 1941 is estimated at 16,417,000 bushels compared with the 1940 crop of 22,099,000 bushels. The decrease was largely due to reduced acreage, although the yield was also below that of a year ago. Fall rye production for the whole of Canada is estimated at 10,644,000 bushels, an increase of 287,000 bushels over last year's crop. The total yield of the first cutting of alfalfa in 1941 is placed at 1,453,000 tons compared with 1,898,000 tons last year.

In the Maritime Provinces the condition of most crops was well maintained in July and was not far short of the long-time average at the end of the month. Slight improvement occurred in grain crops in New Brunswick with little change in Nova Scotia and Prince Edward Island. Hay and clover was above average in Prince Edward Island, but slightly below in the other two provinces. The potato crop improved somewhat in all three provinces. Pasture conditions are relatively good and particularly so in Prince Edward Island.

A slight improvement took place in the condition of grain crops in Quebec, although there was a sharp drop in the figure for hay and clover and a moderate reduction in pasture conditions due to lack of rainfall. Haying has been completed in most sections of the province but has been delayed by rains in the northeast. Harvesting has commenced in many localities and while the straw is short, yields are generally promising.

Very little change occurred in the condition of crops in Ontario during July except in the case of corn, where a substantial improvement took place. Conditions generally are far below normal and yields are expected to be below those of 1940. Fall wheat has been harvested with an average yield of 26·1 bushels per acre, and the quality is very good. The bulk of the early seeded spring crop is now cut and average yields are estimated at about 22 per cent below normal. The hay crop was light and pastures are again in need of further rains.

The condition of the wheat crop in Manitoba remains excellent, although some decline in the condition of other grains is recorded at the end of July. Although prospects in Manitoba are somewhat below normal, they are well above those at the same date in 1940 and are far better than in the other Prairie Provinces. In Saskatchewan further serious deterioration occurred during July as a result of high temperatures and low precipitation. The conditions continue to be fair to good in the south-eastern, Regina-Weyburn, and north-eastern districts and on the heavy soils of the west-central area. Prospects in the remainder of the province range from near failures to only light crops. Hay and

clover and pastures also suffered during July and the condition figures are far below normal. Similar conditions prevailed in Alberta where a further sharp reduction in prospects occurred during the month of July. All grain crops, fodder and pastures are much below average. In many areas harvesting operations are now under way.

Only minor changes occurred in crop conditions in British Columbia during June. Most crops were close to or above normal, although pasture conditions were six per cent below the long-time average.

August 31

Among the late-sown crops, fodder corn and corn for husking were the only ones appearing in better condition at August 31, 1941, than on the same date a year earlier. Sugar beets showed the same condition as in 1940, and beans, buckwheat, potatoes and turnips were very little reduced. The pea crop showed somewhat less promise than in 1940, and the alfalfa crop is in poorer condition than a year ago. Pasture conditions at August 31 were appreciably better than a year ago in the Maritime Provinces, Manitoba, and to a less extent in British Columbia. Poorer pasture conditions, however, in Quebec, Ontario and Alberta more than offset the improvement elsewhere, and placed the pasture condition for Canada as a whole below that of a year ago.

Condition of Field Crops at May 31, June 30, July 31, and August 31, 1940 and 1941

(100 = Long-time Average Yield per acre)

Description	1940				1941			
	May 31	June 30	July 31	August 31	May 31	June 30	July 31	August 31
	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
Canada—								
Fall wheat	98	99	–	–	91	86	–	–
Spring wheat[1]	92	96	105	–	98	80	72	–
All wheat	92	96	–	–	98	80	–	–
Oats	92	92	88	–	94	87	72	–
Barley	91	92	84	–	93	89	73	–
Fall rye	88	86	–	–	89	83	–	–
Spring rye	93	92	85	–	95	86	63	–
All rye	89	88	–	–	91	84	–	–
Peas	91	94	93	91	97	86	83	82
Beans	–	92	92	83	–	89	86	81
Buckwheat	–	93	95	92	–	85	86	91
Mixed grains	92	96	97	97	94	84	84	84
Flaxseed	–	92	85	–	–	87	80	–
Corn for husking	–	83	83	83	–	89	96	97
Potatoes	–	94	95	92	–	93	89	88
Turnips, etc.	–	93	94	93	–	87	89	89
Hay and clover	99	100	98	–	95	85	80	–
Alfalfa	100	102	–	97	90	92	–	84
Fodder corn	–	87	86	85	–	87	89	95
Sugar beets	–	95	94	95	–	98	92	95
Pasture	98	102	99	92	94	83	79	83
Prince Edward Island—								
Spring wheat	101	97	99	–	100	99	94	–
Oats	100	100	99	–	93	98	97	–
Barley	99	100	98	–	92	97	97	–
Buckwheat	–	100	92	96	–	94	94	90
Mixed grains	99	100	97	96	101	97	98	96
Potatoes	–	100	97	91	–	92	94	94
Turnips, etc.	–	100	96	93	–	95	101	99
Hay and clover	102	102	99	–	104	100	103	–
Fodder corn	–	100	96	95	–	97	93	87
Pasture	101	105	101	80	102	103	108	106
Nova Scotia—								
Spring wheat	94	97	96	–	100	98	96	–
Oats	98	97	100	–	89	95	98	–
Barley	95	96	99	–	86	96	96	–
Buckwheat	–	96	95	92	–	98	98	98
Mixed grains	96	95	98	96	77	91	98	99
Potatoes	–	97	97	90	–	95	98	97
Turnips, etc.	–	96	97	91	–	97	96	99
Hay and clover	100	104	102	–	101	96	96	–
Fodder corn	–	93	94	91	–	96	96	96
Pasture	97	103	99	83	99	98	97	102

[1] Includes condition figures for the Prairie Provinces based on weather factors.

Condition of Field Crops at May 31, June 30, July 31, and August 31, 1940 and 1941—continued
(100 = Long-time Average Yield per acre)

Description	1940				1941			
	May 31	June 30	July 31	August 31	May 31	June 30	July 31	August 31
	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
New Brunswick—								
Spring wheat	93	94	96	–	95	97	99	–
Oats	96	95	97	–	96	95	99	–
Barley	97	95	97	–	98	96	98	–
Beans	–	94	94	93	–	97	97	94
Buckwheat	–	95	97	88	–	94	94	96
Mixed grains	97	96	99	98	102	99	100	99
Potatoes	–	95	100	91	–	96	98	96
Turnips, etc	–	96	97	88	–	94	96	96
Hay and clover	101	100	98	–	101	96	99	–
Fodder corn	–	95	93	84	–	96	96	95
Pasture	98	102	99	86	100	99	99	101
Quebec—								
Spring wheat	95	95	96	–	100	94	97	–
Oats	96	93	95	–	102	96	94	–
Barley	97	93	95	–	101	94	96	–
Spring rye	97	96	97	–	99	94	97	–
Peas	96	95	96	96	104	97	97	95
Beans	–	91	94	96	–	96	94	94
Buckwheat	–	95	95	96	–	95	95	95
Mixed grains	97	94	96	98	101	96	97	97
Potatoes	–	97	99	96	–	97	95	88
Turnips, etc	–	95	97	93	–	96	95	93
Hay and clover	100	99	98	–	97	92	78	–
Alfalfa	100	99	–	99	100	95	–	92
Fodder corn	–	93	89	92	–	94	92	96
Pasture	100	101	98	93	96	87	81	82
Ontario—								
Fall wheat	98	99	–	–	91	86	–	–
Spring wheat	88	95	96	–	94	78	79	–
All wheat	98	99	–	–	91	85	78	–
Oats	89	95	98	–	94	77	78	–
Barley	89	93	94	–	91	79	78	–
Fall rye	97	97	–	–	91	85	–	–
Peas	89	93	92	90	94	81	76	76
Beans	–	92	92	81	–	88	85	79
Buckwheat	–	91	95	91	–	78	78	87
Mixed grains	91	96	98	98	92	80	81	82
Flaxseed	–	91	95	–	–	81	82	–
Corn for husking	–	83	83	83	–	89	96	99
Potatoes	–	91	93	92	–	86	84	85
Turnips, etc	–	90	94	96	–	80	83	84
Hay and clover	101	104	105	–	91	66	71	–
Alfalfa	101	105	–	101	88	77	–	84
Fodder corn	–	85	85	82	–	84	87	95
Sugar beets	–	96	98	105	–	97	93	99
Pasture	99	107	104	99	88	67	69	74
Manitoba—								
Spring wheat[1]	106	117	124	–	128	121	123	–
Oats	92	93	75	–	95	98	92	–
Barley	91	92	75	–	94	97	89	–
Fall rye	91	88	–	–	100	100	–	–
Spring rye	90	89	79	–	93	95	90	–
All rye	91	88	–	–	99	99	–	–
Peas	90	90	87	80	95	96	92	88
Buckwheat	–	81	72	70	–	95	91	93
Mixed grains	91	92	80	78	93	97	91	90
Flaxseed	–	93	86	–	–	97	92	–
Corn for husking	–	–	–	–	–	–	–	93
Potatoes	–	86	85	83	–	97	94	94
Turnips, etc	–	89	82	83	–	95	93	93
Hay and clover	79	82	67	–	103	105	101	–
Alfalfa	83	85	–	76	102	101	–	95
Fodder corn	–	87	84	91	–	96	98	98
Sugar beets	–	91	82	79	–	101	96	94
Pasture	80	88	75	80	106	108	95	93
Saskatchewan—								
Spring wheat[1]	84	92	101	–	92	71	65	–
Oats	89	87	74	–	94	82	55	–
Barley	88	87	73	–	94	81	60	–
Fall rye	84	83	–	–	84	75	–	–
Spring rye	91	89	79	–	96	82	57	–
All rye	85	84	–	–	87	77	–	–
Mixed grains	91	88	74	80	97	90	61	64
Flaxseed	–	91	81	–	–	83	77	–
Potatoes	–	92	90	87	–	89	71	78
Turnips, etc	–	91	88	82	–	87	71	84
Hay and clover	82	84	76	–	98	88	75	–
Alfalfa	89	92	–	78	99	92	–	76
Fodder corn	–	92	86	90	–	91	83	87
Pasture	82	88	82	74	99	83	66	76

[1] Condition figures based on weather factors.

Condition of Field Crops at May 31, June 30, July 31, and August 31, 1940 and 1941—concluded
(100 = Long-time Average Yield per acre)

Description	1940				1941			
	May 31	June 30	July 31	August 31	May 31	June 30	July 31	August 31
	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
Alberta—								
Spring wheat[1]	101	93	104	–	98	80	65	–
Oats	95	95	99	–	91	89	64	–
Barley	95	95	99	–	92	90	64	–
Fall rye	99	93	–	–	89	88	–	–
Spring rye	97	96	97	–	94	87	64	–
All rye	98	94	–	–	92	87	–	–
Peas	95	99	100	98	86	93	83	69
Beans	–	94	97	95	–	90	83	69
Mixed grains	94	94	99	95	88	89	65	66
Flaxseed	–	94	96	–	–	91	74	–
Potatoes	–	97	103	98	–	93	73	73
Turnips, etc.	–	97	100	94	–	89	73	75
Hay and clover	100	100	100	–	81	83	76	–
Alfalfa	102	100	–	93	85	86	–	72
Fodder corn	–	94	92	92	–	87	79	75
Sugar beets	–	96	95	89	–	98	88	91
Pasture	101	101	103	90	81	84	68	70
British Columbia—								
Spring wheat	101	96	91	–	99	101	99	–
Oats	101	96	89	–	99	102	99	–
Barley	100	95	89	–	98	99	98	–
Spring rye	100	99	90	–	102	103	100	–
Peas	100	96	92	91	102	103	102	100
Beans	–	97	100	100	–	104	102	100
Mixed grains	100	99	96	97	100	101	99	99
Flaxseed	–	100	100	–	–	102	100	–
Potatoes	–	97	92	95	–	98	96	90
Turnips, etc.	–	94	87	88	–	98	96	90
Hay and clover	104	100	90	–	101	101	101	–
Alfalfa	104	103	–	95	101	101	–	98
Fodder corn	–	100	95	98	–	96	97	96
Pasture	104	96	93	86	101	102	94	92

[1] Condition figures based on weather factors.

Charts Showing the Condition of Spring Wheat in the Prairie Provinces

The charts on pages 161 to 166 present the condition of spring wheat in the Prairie Provinces, by crop districts, at May 31, June 30 and July 31, 1940 and 1941. The condition figures are based upon an analysis of weather factors in relation to wheat yields (see pp. 167–187) and are expressed as percentages of the long-time average yields per acre, which are 16 bushels for Manitoba, 15 bushels for Saskatchewan and 18 bushels for Alberta.

June 30

High June temperatures in the three Prairie Provinces and somewhat below normal precipitation in Saskatchewan and Alberta resulted in declines in wheat condition, particularly in these two provinces. In Manitoba the average precipitation through June was four-tenths of an inch above normal, while average mean temperatures were 2·5 degrees above normal. June rainfall in Saskatchewan was 1·2 inches below normal, while mean temperatures 2·2 degrees above normal aggravated the deficiency of moisture. In Alberta, average rainfall was six-tenths of an inch below normal, and mean temperatures ran 2·6 degrees above normal for the month. Although the Manitoba condition figure declined only from 128 to 121 between May 31 and June 30, the condition figure for Saskatchewan dropped from 92 to 71, and for Alberta from 98 to 80. Prospects at June 30 in Manitoba were slightly better than at the same date a year ago, with the current condition figure 4 points above last year's June 30 figure. In Saskatchewan, however, yield prospects at June 30 were 21 points below those of a year ago, and in Alberta 13 points below those of June 30, 1940.

Manitoba.—Declines in the condition figures for all of the crop districts in Manitoba were slight during June. District 6 in the south-east was an

exception, where a major decline of 24 points from 97 to 73 occurred between May 31 and June 30. Apart from District 6, the remaining districts all had prospects at June 30 for yields above the long-time provincial average of 16 bushels per acre.

Saskatchewan.—The central districts of Saskatchewan suffered a serious setback during June. Crop Districts 3AN, 3BN and 6B in the central part of the province show condition figures of 37, 42 and 41 respectively on the basis of the weather analysis. Districts 6A and 3BS have June 30 condition figures of 53 and 56 respectively. The remaining districts show prospects below average, apart from Districts 4A, 5B, 8A and 9A, where the condition figures range from 109 to 119. The last three districts ordinarily have yields well above the long-time provincial average of 15 bushels per acre, so that the current condition figures in relation to the long-time average provincial yield are by no means better than average for those particular districts. District 4A was the only one to show any improvement during June.

Alberta.—Crop Districts 11, 12, 14 and 15, including the Edmonton and northern Alberta areas, gained in condition during the month with the receipt of badly needed rainfall. Districts 1 and 13 maintaind their condition, while the balance of the province experienced varying declines. Slight declines occurred in Districts 16 and 17 of the Peace River area, and comparatively heavy declines occurred in Districts 2, 3, 4, 5 and 6, including the Calgary area and south, where extreme temperatures during June spoiled the highly favourable prospects which the earlier heavy rainfall had promised. The districts showing the poorest condition at June 30 were 5 and 7, where insufficient moisture supplies combined with the heat to lower the prospective yields to 40 and 50 per cent of the long-time average provincial yield.

July 31

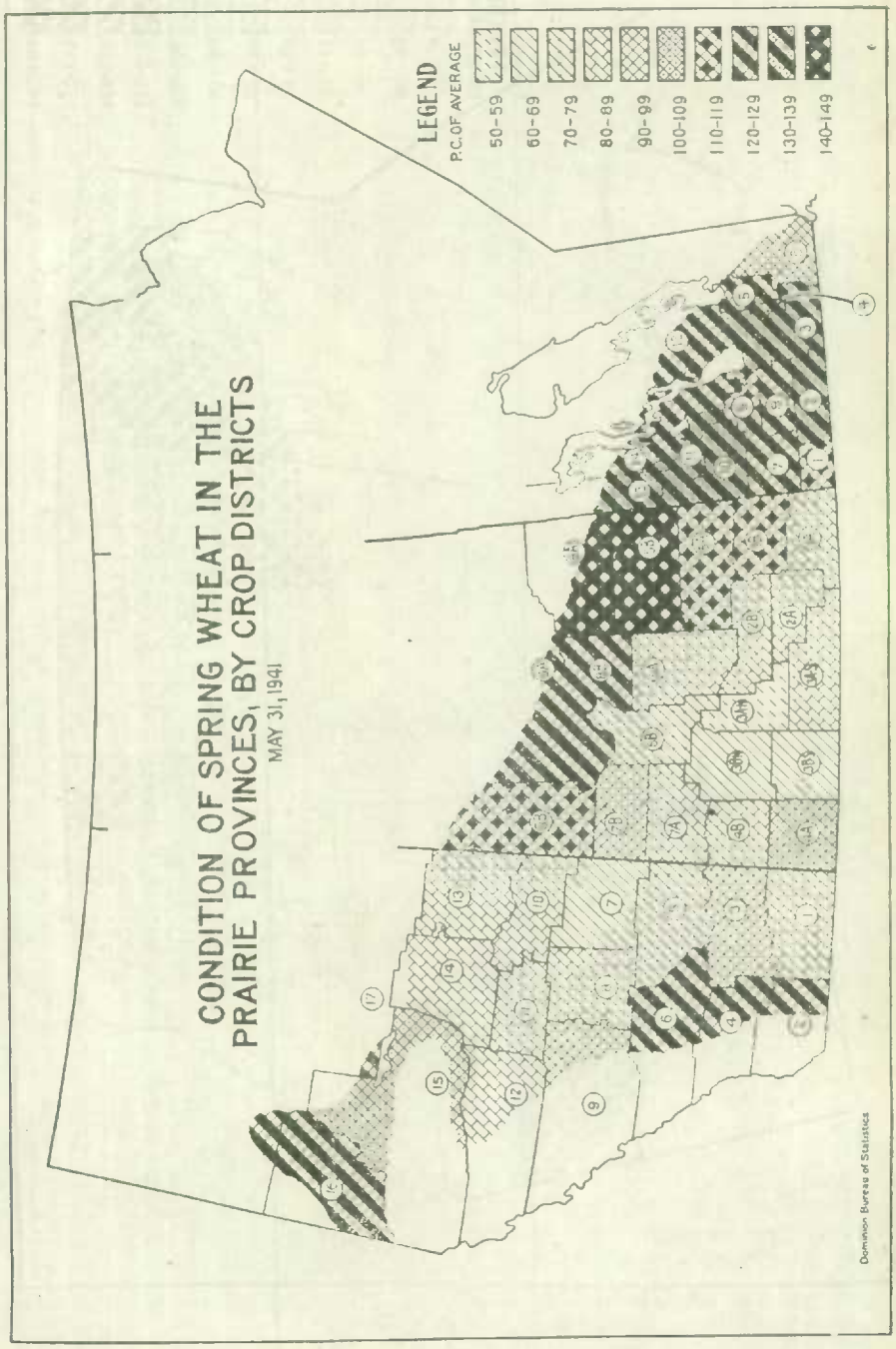
The condition of the Manitoba wheat crop at July 31 was slightly better than at June 30, with actual rainfall somewhat more favourable than normal but partially offset by above-normal temperatures during July. In Saskatchewan and Alberta, rainfall on the average during July was approximately normal, but extreme temperatures during the third week of the month reduced the prospective wheat yields in each province. For Manitoba, the provincial condition figure advanced from 121 to 123, but in Saskatchewan the condition figure declined from 71 to 65, while that for Alberta dropped from 80 to 65. Because of differences in the long-time yields per acre in the two provinces, the Alberta condition figure of 65 represents a higher prospective yield per acre than does the Saskatchewan figure of 65.

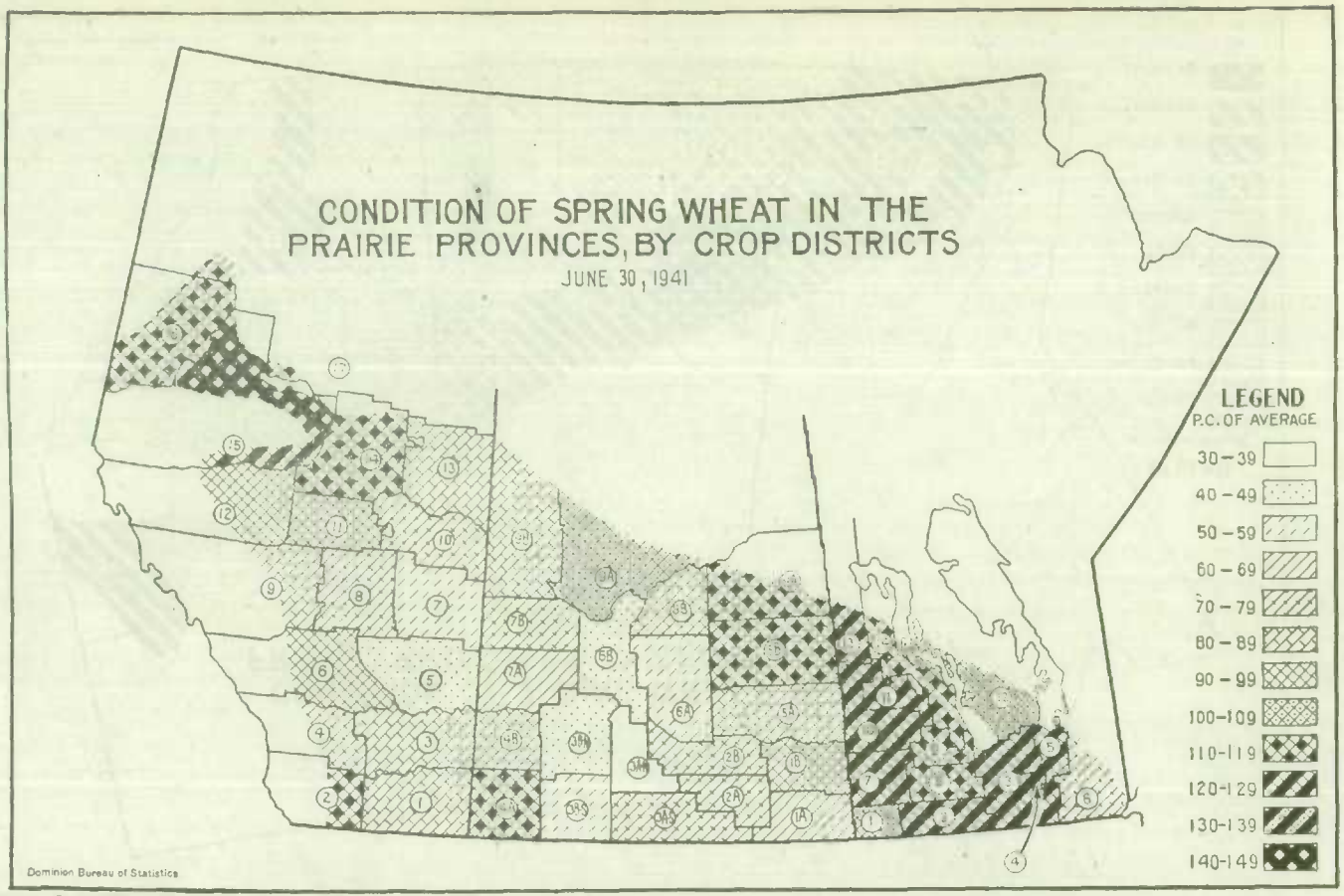
Manitoba.—During July weather conditions were slightly more favourable than normal in a majority of crop districts, although small declines in condition were experienced in Crop Districts 1, 3, 8 and 10. In District 6 in the south-east a further decline in condition was experienced during July, indicating by far the lowest condition of any part of the province. For Manitoba as a whole prospects at July 31 were almost up to those at the same date last year.

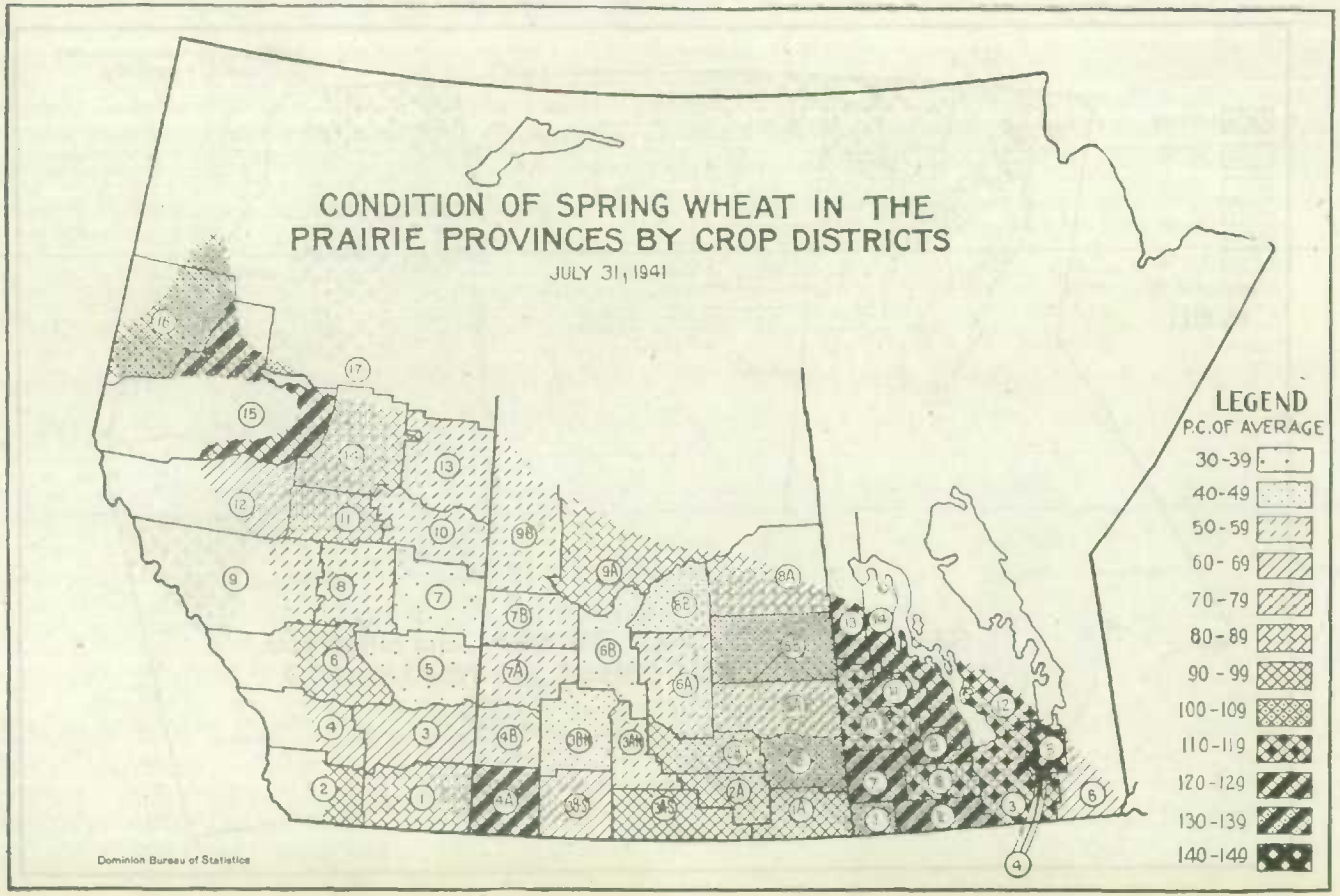
Saskatchewan.—South-eastern and south-central districts of the province enjoyed better than normal weather conditions during July, and July 31 conditions showed an appreciable improvement in Districts 1A, 1B, 2A, 2B, 3AS, 3AN, and 3BS. With the exception of Districts 4A and 6A, all the remaining districts in the province experienced further deterioration during July. Prospects for the province as a whole are sharply reduced from those of last year.

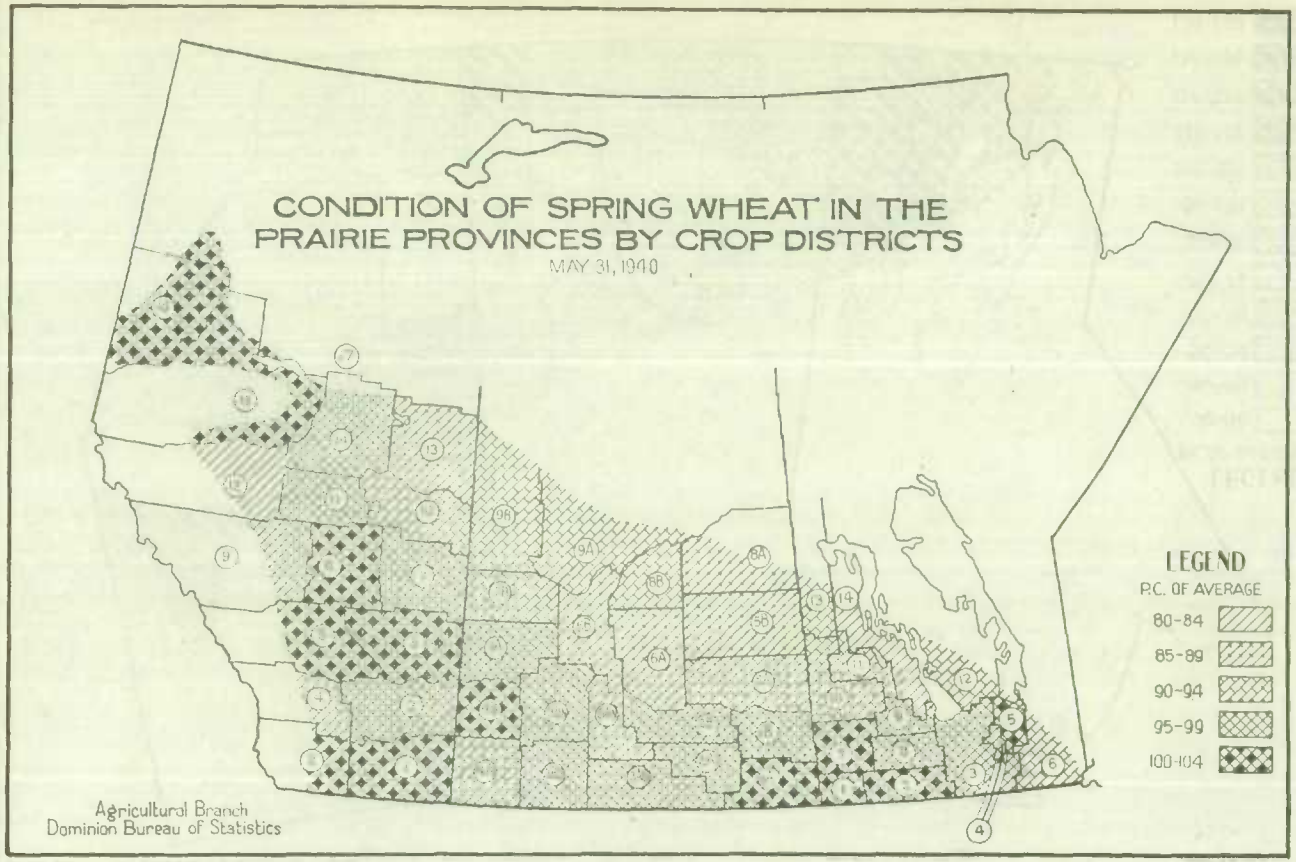
Alberta.—All seventeen districts of Alberta showed further deterioration during July as the result of extreme temperatures. The mean temperature for the month was the highest since July, 1936. The poorest districts are 5 and 7

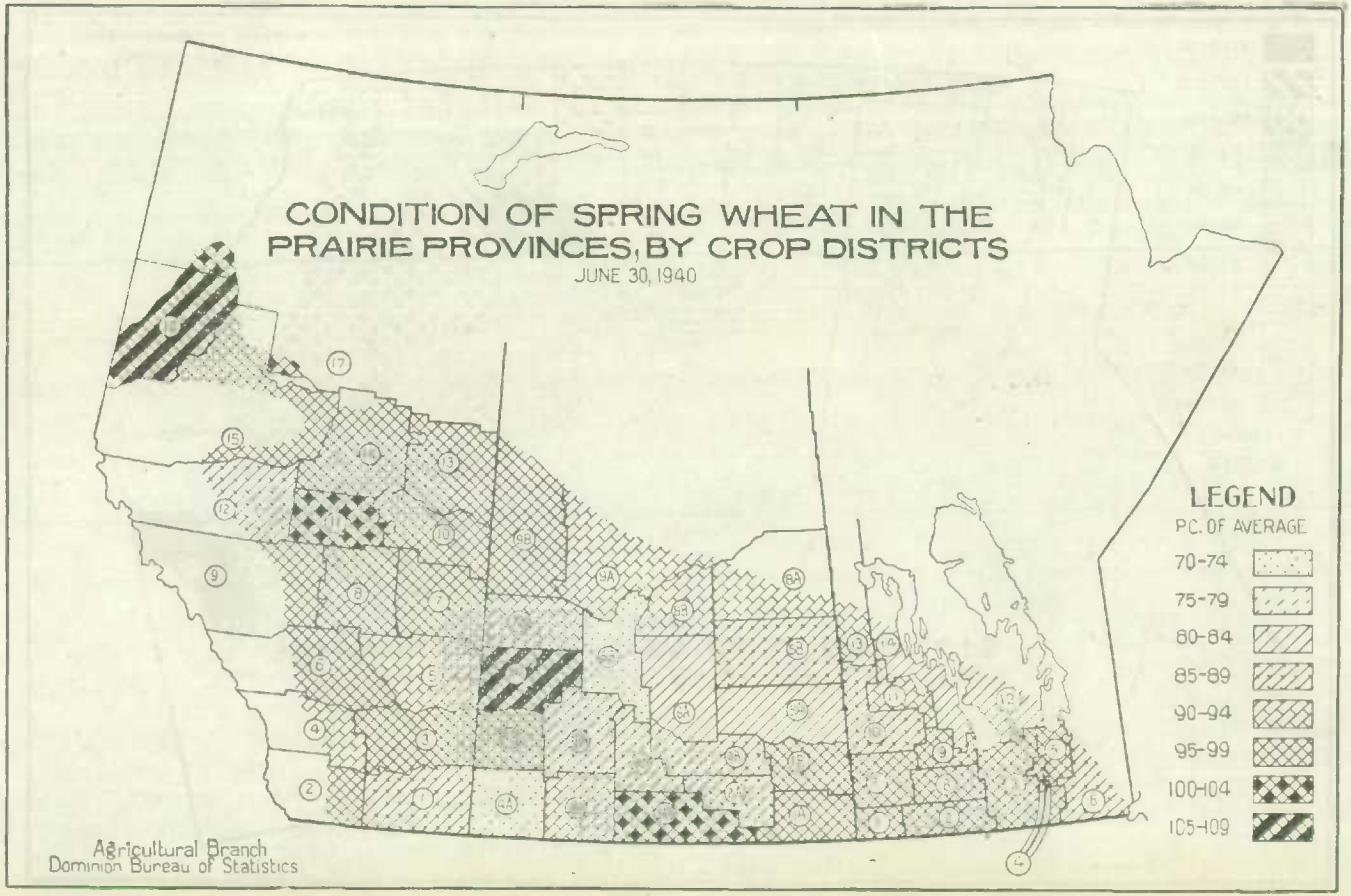
along the Saskatchewan boundary, while the dry area extends west to include Districts 8 and 9, and north to include Districts 10 and 13. Prospects in the Peace River area are the best in the province. Yields in Alberta as a whole will be much lower than those of 1940.

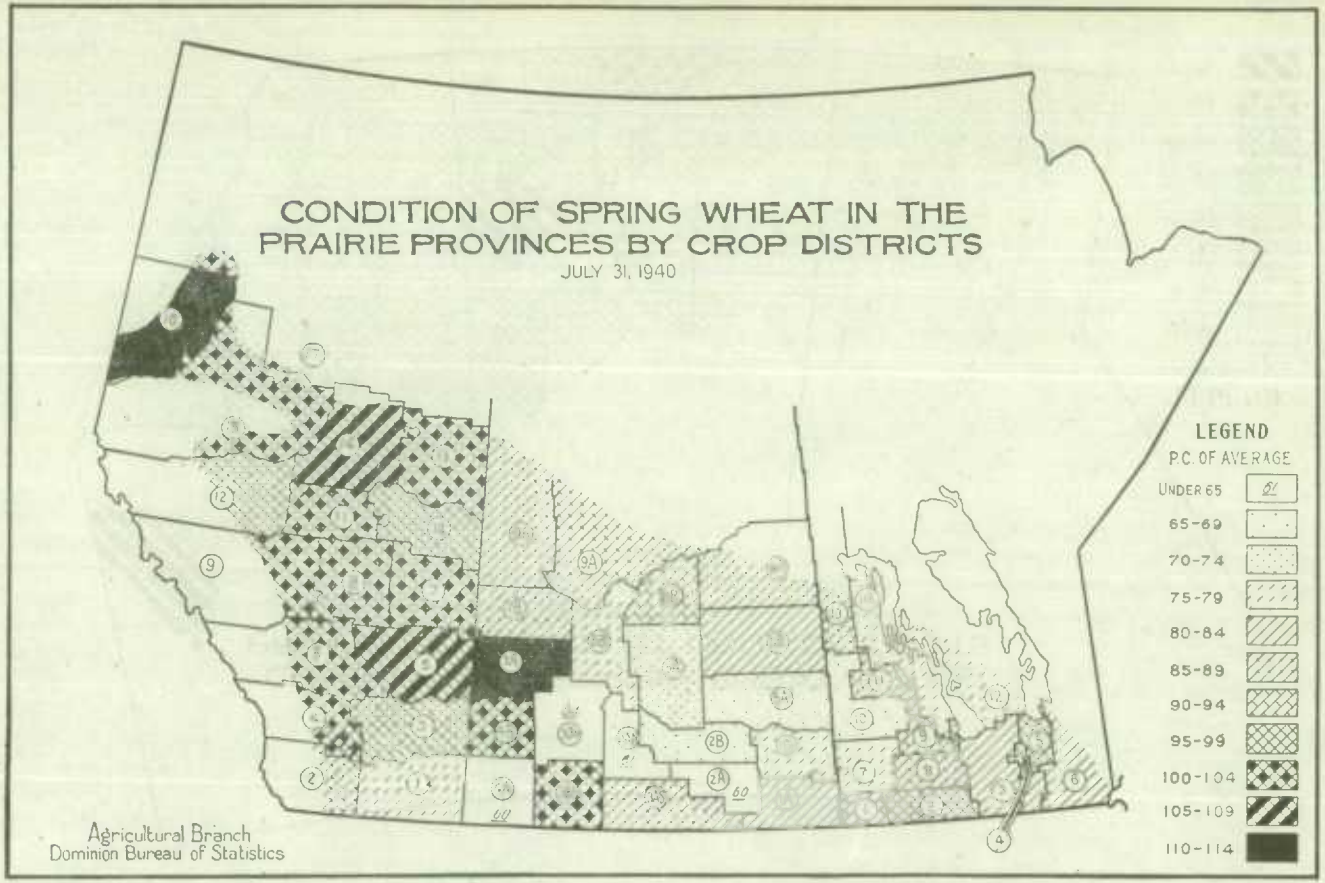



CONDITION OF SPRING WHEAT IN THE
PRAIRIE PROVINCES, BY CROP DISTRICTS
JUNE 30, 1941
LEGEND
P.C. OF AVERAGE
30 – 39
40 – 49
50 – 59
60 – 69
70 – 79
80 – 89
90 – 99
100–109
110–119
120–129
130–139
140–149
Dominion Bureau of Statistics


CONDITION OF SPRING WHEAT IN THE
PRAIRIE PROVINCES BY CROP DISTRICTS
JULY 31, 1941
LEGEND
P.C. OF AVERAGE
30-39
40-49
50-59
60-69
70-79
80-89
90-99
100-109
110-119
120-129
130-139
140-149
Dominion Bureau of Statistics


CONDITION OF SPRING WHEAT IN THE
PRAIRIE PROVINCES BY CROP DISTRICTS
MAY 31, 1940
LEGEND
P.C. OF AVERAGE
80-84
85-89
90-94
95-99
100-104
Agricultural Branch
Dominion Bureau of Statistics


CONDITION OF SPRING WHEAT IN THE
PRAIRIE PROVINCES, BY CROP DISTRICTS
JUNE 30, 1940
LEGEND
PC. OF AVERAGE
70-74
75-79
80-84
85-89
90-94
95-99
100-104
105-109
Agricultural Branch
Dominion Bureau of Statistics


CONDITION OF SPRING WHEAT IN THE
PRAIRIE PROVINCES BY CROP DISTRICTS
JULY 31, 1940
LEGEND
P.C. OF AVERAGE
UNDER 65
65-69
70-74
75-79
80-84
85-89
90-94
95-99
100-104
105-109
110-114
Agricultural Branch
Dominion Bureau of Statistics

THE INFLUENCE OF PRECIPITATION AND TEMPERATURE ON WHEAT YIELDS IN THE PRAIRIE PROVINCES, 1921-1940

Introduction

Investigation of the relations between weather data and wheat yields in the Prairie Provinces was undertaken by the Dominion Bureau of Statistics in 1937, following the recommendations embodied in a resolution passed by the Conference on Agricultural Statistics meeting in Ottawa in April of the preceding year. Cognizant of the crop-weather research already under way in England and the United States, and of the fact that the United States Bureau of Agricultural Economics had for some years been publishing estimates of the Canadian wheat crop, based on weather data, some time in advance of the Bureau's first production estimate, the Conference suggested that the Bureau give due consideration to the use of weather data in the preparation of its crop estimates. Accordingly, the purpose of the investigation begun in 1937 was to discover quantitative relations between wheat yields and weather phenomena which would permit the use of weather data in estimating or forecasting wheat yields in the Prairie Provinces. The anticipated yield estimates were to constitute supplementary data in the preparation of crop estimates.

In addition, it was hoped that the relations established would provide an objective basis for estimating the condition of the wheat crop during the growing period, thereby increasing the reliability of the Bureau's official condition figures and ultimately advancing the date of release of the first production estimates.

Two progress reports on the investigation were made, the first in December, 1937 (unpublished), the second in June, 1938*. The latter report presented in detail the results of the analysis of wheat yield-weather relations in Saskatchewan and gave a brief account of the progress achieved in the Manitoba and Alberta studies. The object of the present report is to present the results of the completed analyses for all three provinces. The scope and method of analysis common to the provincial studies are presented first. This is followed by the detailed analysis for each province. The method of securing current condition and production estimates based on the derived relations is then discussed, and the report concludes with an appraisal of the reliability of such estimates.

Scope and Method

The scope of the investigation was limited primarily by the available data. Continuous acreage and yield data have been recorded by the Bureau on a crop district basis back as far as 1921, and on a provincial basis for a much longer period. However, since analyses within crop districts guaranteed a much greater degree of homogeneity in underlying conditions the investigation was limited to the period from 1921 on. Subsequently, when the crop district analyses were combined as a single provincial study the necessity of weighting weather data by district wheat acreages prevented any extension of the period.

* Wilson, C. F. *Relations Between Weather Factors and Wheat Yields in Western Canada.* Proceedings of the Tenth Annual Meeting of the Canadian Agricultural Economics Society. June 1938. pp. 73-86.

The unit of study selected was the crop district but this unit was replaced later by the province as a result of features of yield-weather relations derived in Saskatchewan crop districts. It is well known that many factors other than weather are determinants of yields, such as soil type, topography, cultural varieties and farm practices, and the confinement of the unit of analysis to a crop district was an attempt to minimize the importance of such extraneous factors. Admittedly, this increase in homogeneity of underlying conditions was lost when the province became the unit of analysis but, as will be indicated below, the loss is partially offset by the gain in the adequacy of the weather data. In any event, the importance of weather as a limiting factor in yields in semi-arid regions such as the Canadian West so overshadows that of the remaining factors, that consideration of the latter would lead only to further possible refinements of analysis.

Precipitation and temperature during the growing season and preseasonal precipitation were selected as factors representing weather, the selection being dependent on available data. While wind velocity and evaporation are significant complementary factors counteracting the rainfall received, they were of necessity omitted for lack of adequate records. It was hoped that the use of the temperature factor might in part counteract that omission.

Of the several precipitation and temperature records maintained by meteorological stations in the Prairie Provinces, *total* precipitation and *mean* temperature appeared to be the most significant measures. These records were available for each month in the year through the Meteorological Service of Canada in their publication "The Monthly Record of Meteorological Observations".

Where possible, three or four stations were selected in each crop district, and Monthly Total Precipitation for the period April 1 to October 31 and Monthly Mean Temperature during the four months April to July, were tabulated for each station in each year of the selected period. Records at stations within each crop district were averaged and a series of crop district averages of Monthly Total Precipitation and Monthly Mean Temperature was secured for each district in the Prairie Provinces. The district averages were then weighted by wheat acreages in the corresponding districts to obtain a similar series of provincial averages for each of the three provinces.

The variable number of available stations by districts in some cases provided an unstable basis for the calculation of crop district averages of precipitation and temperature, but the inadequacy of the weather coverage by districts is partially offset in the provincial averages. In these, errors in the district figures may be expected to be compensating, and by employing wheat acreages as weights, a measure of homogeneity as between weather observations and the yields directly affected by that weather is retained.

It is generally established that the wheat plant responds differently to rainfall and temperature at various periods in its growth cycle, and consequently the division of the growing season into periods in which the reaction of the plant to weather was likely to be more homogeneous offered a convenient and considerable advantage in determining yield-weather relationships. The number of such divisions that could be made was, however, limited statistically by the small number of observations in the period since 1921. Consideration of the number of constants probably needed in describing the several yield-

weather relationships and the likely number of degrees of freedom remaining as indicative of the significance of the relationships found, confined the division of the crop season to very broad periods only. The compilation of the weather values on a monthly basis facilitated such division but limited it to combinations of months.

The intervals so selected were not entirely similar in the three provinces. Differences in the length of the growing season, in the proportion of the wheat area sown in the several types of soil and in the ranges of climate included in the cultivated area, create variation in the response of the wheat plant to weather within the same chronological period. The actual choice of the growth periods is discussed in connection with the analyses for the individual provinces. The period of pre-seasonal precipitation was originally taken as August 1 to October 31 of the preceding year, but this period was later expanded.

The present investigation of yield-weather relationships for wheat in the Prairie Provinces may, then, be summarized broadly as the determination of the relation of wheat yield per acre to total precipitation and mean temperature occurring in selected intervals of the crop season and to pre-seasonal total precipitation, within each province over the period 1921-1940.

The problem of deriving the net relationships between wheat yields per acre and the several independent factors of precipitation and temperature is essentially one of multiple curvilinear correlation. The method of multiple correlation most readily employable for this purpose was the graphic method. Lacking adequate knowledge of the nature of the net relationships, preliminary graphic study to approximate net regressions was a prerequisite in the use of any method. But in the subsequent process of adjustment of the first approximations the graphic method offered a distinct advantage through the abolition of considerable machine calculations.

The graphic method as developed by L. H. Bean is described in detail in various sources*, and a critical review of the method has been made by W. Malenbaum and J. D. Black†. Their criticism is primarily that of caution in the use of the method, a principal caution being directed against the use of independent variables which are themselves inter-correlated. Such misuse must lead to the derivation of only arbitary and indeterminate relationships. The three analyses described herein are concerned with meteorological rather than economic data, and no significant correlation exists between the selected factors. A brief description of the graphic method is given in connection with the Saskatchewan analysis.

The Saskatchewan Provincial Analysis, 1921-1940

Selection of Weather Factors.—The division of the growing period into intervals, during which the reaction of the wheat plant to weather would be more homogeneous, was a very broad one in this province, the period April 1 to July 31,

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*Bean, L. H. *A Simplified Method of Graphic Curvilinear Correlation*, Journal Amer. Stat. Assoc., Vol. XXIV, December 1929, pp. 386-397; and *Applications of a Simplified Method of Correlation to Problems in Acreage and Yield Variations*, Vol. XXV, December 1930, pp. 428-439. *See* also Mordecai Ezekiel. *Methods of Correlation Analysis*, 1930, chap. 16.

†*The Short-cut Graphic Method: An Illustration of 'Flexible' Multiple Correlation Techniques.* Quart. Journ. of Econ. Vol. LII, November, 1937, pp. 66-112.

being halved. Four series of independent variables representing seasonal weather factors were thus selected:

X_1 : June-July Total Precipitation
X_2 : June-July Mean Temperature
X_3 : April-May Total Precipitation
X_4 : April-May Mean Temperature.

Precipitation occurring during the Autumn period of the preceding year was included as a fifth variable, its effect on yields deriving from its influence on subsoil moisture reserves. It is represented by the series:

X_5 : August-October Total Precipitation (of the preceding year).

A sixth factor was introduced after preliminary analysis in the crop district studies when certain unexplained variations in yields in the drought districts appeared coincident with the drought cycle and related possibly to changes in economic conditions resulting from a combination of poor yields and low prices. The unfavourable economic conditions were thought to influence yields through their 'joint' effect on the upkeep of farm equipment and on farm practices. The series selected to represent this 'joint' effect was:

X_6 : Weighted Average Precipitation (April 1 to October 31) of the seven preceding years.

In this series greater weight is given to the immediately preceding years.

In correlating wheat yields per acre (Xo) with these six independent variables, certain years of the period beginning 1921 had to be excluded from the net regression approximations. Yields in some years were significantly reduced by damage from rust and insects and obviously the level of yields in such years could not be attributable to weather alone. While quantitative data on damage to yields by insects has been available since 1931, by which yields could be adjusted, no such information on the reduction of yields by rust could be found. Consequently, those years during which rust was a significant yield influence had to be excluded from the correlation analysis. Rust years are indicated in Figure I by open dots.

Analysis.—In the even-numbered columns of Table 1 are listed the values of the six independent variables to be correlated with the dependent variable of wheat yields per acre given in column 1. The graphic multiple correlation analysis is shown in Figure I. Yield readings from each regression are listed in columns 1 to 6 of Table 2 and estimates of yields per acre in each year as the algebraic sum of these readings appear in column 7. Comparisons of the regression estimates with the official yield estimates on a 'per acre' basis and on a 'total production' basis are indicated in columns 9 and 13, respectively.

The graphic method of correlation may be described, at this point, with reference to its application in the present analysis. In the first diagram shown in Figure I, wheat yield per acre is plotted against June-July total precipitation. A first approximation is obtained by associating those years in which the values within each of the remaining weather factors is very nearly equal. For example, in the two years 1921 and 1933, June-July temperature was about the same, April-May temperature was approximately equal, and so on in each of the remaining weather variables. Obviously the difference between yields per acre in 1921 and 1933 must be due either to June-July precipitation or to some factor not covered by the six weather variables. On the assumption that no important

factor has been omitted from consideration, a line joining the two observational points 21 and 33 in the first diagram of Figure I represents the effect of an increase in June-July precipitation from 3·2 inches to 6·0 inches. Similarly in the two years 1925 and 1926 the values within each of the remaining weather factors are very nearly equal and a line joining the two points will indicate the slope of the net regression of wheat yields per acre on June-July precipitation. A free-hand curve, with shape and slope as suggested by these guide lines, is then drawn through the scatter as a first approximation to the true net regression. The vertical distance between any observational point and the curve measures the variation in yield which has not been accounted for by June-July precipitation. These distances are termed residuals (column 1, Table 1). The residuals are now plotted against June-July temperature in the second diagram, and by associating and joining the observational points 30 and 37 a guide is obtained as to the slope of the net regression of the residuals on June-July temperature. A free-hand curve of the type indicated by the guide line is drawn through the scatter, and residuals in this diagram are calculated. This process of associating years, obtaining guide lines and drawing in first approximations to net regressions is repeated for all weather factors.

To obtain second approximations, which are expected to be more accurate, the residuals remaining in the final diagram are plotted around the first approximation in the first diagram. By inspection, proper adjustment of the shape or slope of the curve to obtain a second approximation may be made by minimizing the final residuals. The residuals about the second approximation are then measured and plotted around the first approximation in the second diagram, and a second approximation to this net regression is secured. Similarly, second approximations are obtained for all remaining regressions. Caution against undue adjustment of first approximations is needed lest second approximations lose their theoretical basis as net regressions.

Final residual values representing the amount of yield variation not accounted for by the six weather factors appear in the last column of Table 1. Of the twenty years covered by the analysis seventeen have residual values of two bushels or less, and in two of the remaining three years rust reduced yields significantly. Actually, rust damaged yields to some extent in the four years 1921, 1927, 1930 and 1935, but according to qualitative provincial and federal crop reports the extent of reduction in 1921 and 1930 was relatively small.

Further refinement of the regression estimates is possible by the subtraction of estimated damage from entomological factors. In Saskatchewan, estimates have been made of the percentage damage to grain crops by sawflies, cutworms and wireworms since 1927. Since 1931, estimates of the percentage damage by grasshoppers have also been made. These percentages were used to correct the yield estimates derived from the curves. Since presumably average damage was done by these pests in the earlier years, only the excess damage above the average was used in the corrections.

The comparison of the regression estimates with the Bureau's first yield estimate in September is indicated in Table 3. After allowance is made for entomological factors, it is evident that in nine of the twenty years the regression estimates are closer approximations to the final production estimates than are the September estimates. If account is taken of the fact that the two estimates are not comparable in 1927 and 1935 because of rust, the regression estimate is then a closer approximation in nine out of eighteen years, or in fifty per cent of the cases.

FIGURE I

WHEAT YIELD ANALYSIS IN THE PROVINCE OF SASKATCHEWAN, 1921-1940

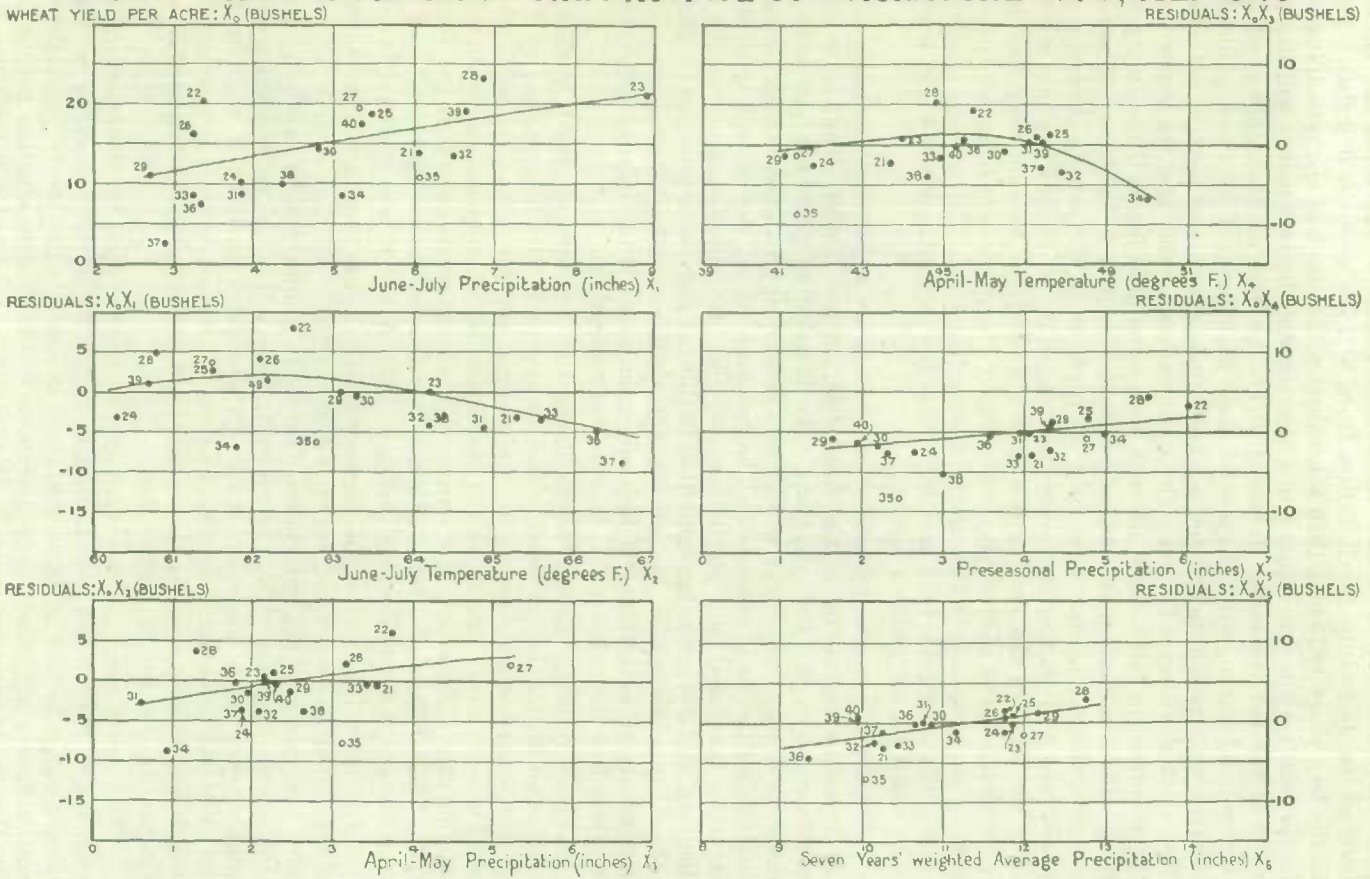


Table 1.—Wheat Yield Analysis in the Province of Saskatchewan, 1921 to 1940

Year	(1) Wheat Yield per Acre X_0	(2) June-July Precipitation X_1	(3) Residuals X_0X_1	(4) June-July Temperature X_2	(5) Residuals X_0X_2	(6) April-May Precipitation X_3	(7) Residuals X_0X_3	(8) April-May Temperature X_4	(9) Residuals X_0X_4	(10) Pre-seasonal Precipitation[1] X_5	(11) Residuals X_0X_5	(12) 7 Years' Weighted Average Precipitation X_6	(13) Residuals X_0X_6
	bushels	inches	bushels	degrees F.	bushels	inches	bushels	degrees F.	bushels	inches	bushels	inches	bushels
1921	13·9	6·05	−3·1	65·3	−0·7	3·55	−2·1	43·7	−3·0	4·10		10·3	−1·9
1922	20·3	3·36	+8·0	62·5	+6·0	3·75	+4·3	45·7	+3·1	6·01	+1·2	11·8	+0·5
1923	21·2	8·89	0·0	64·2	+0·3	2·15	+0·8	44·0	−0·2	4·07	−0·4	11·9	−1·3
1924	10·2	3·83	−3·0	60·3	−3·5	1·88	−2·6	41·8	−2·5	2·66	−1·4	11·8	−2·1
1925	18·8	5·48	+2·8	61·5	+0·9	2·28	+1·2	47·6	+1·6	4·80	+0·8	11·9	−0·1
1926	16·2	3·23	+4·1	62·1	+2·0	3·18	+1·1	47·3	+1·0	4·35	+0·6	11·8	−0·1
1927	19·5	5·31	+3·8	61·5	+1·9	5·22	−1·2	41·4	−0·9	4·79	−1·7	12·0	−2·7
1928	23·3	6·88	+4·9	60·8	+3·6	1·29	+5·4	44·8	+4·2	5·52	+2·8	12·8	+0·7
1929	11·1	2·70	0·0	63·1	−1·4	2·47	−1·4	41·1	−0·9	1·67	+1·0	12·2	−0·3
1930	14·4	4·81	−0·4	63·3	−1·6	1·94	−0·8	46·5	−1·7	2·21	−0·3	10·9	+0·1
1931	8·8	3·84	−4·4	64·9	−2·8	0·61	+0·1	47·2	−0·1	3·96	−0·1	10·8	+0·5
1932	13·6	6·48	−4·1	64·2	−3·8	2·09	−3·2	47·9	−2·3	4·32	−2·7	10·2	−1·3
1933	8·7	3·23	−3·4	65·6	−0·4	3·44	−1·7	44·9	−3·0	3·95	−3·0	10·5	−2·0
1934	8·6	5·10	−6·8	61·8	−8·9	0·93	−6·6	50·0	−0·3	5·00	−1·3	11·2	−1·3
1935	10·8	6·05	−6·2	62·8	−7·9	3·12	−8·7	41·4	−8·4	2·48	−7·1	10·1	−5·5
1936	7·5	3·32	−4·8	66·3	−0·3	1·79	+0·7	45·5	−0·6	3·60	−0·3	10·7	+0·4
1937	2·6	2·90	−8·9	66·6	−3·7	1·86	−2·8	47·4	−2·7	2·33	−1·3	10·3	0·0
1938	10·0	4·37	−4·1	64·2	−3·8	2·64	−4·0	44·6	−5·2	3·01	−4·5	9·4	−2·0
1939	19·1	6·65	+1·1	60·7	−0·1	2·16	+0·4	47·4	+0·5	4·33	+0·1	10·0	+1·8
1940	17·5	5·34	+1·7	62·2	−0·4	2·30	−0·1	45·3	−1·4	1·97	+0·3	10·0	+2·0

[1] August to October of preceding year.

Table 2.—Estimates of Yields of Wheat in Province of Saskatchewan, as Readings from Weather Regressions, 1921 to 1940

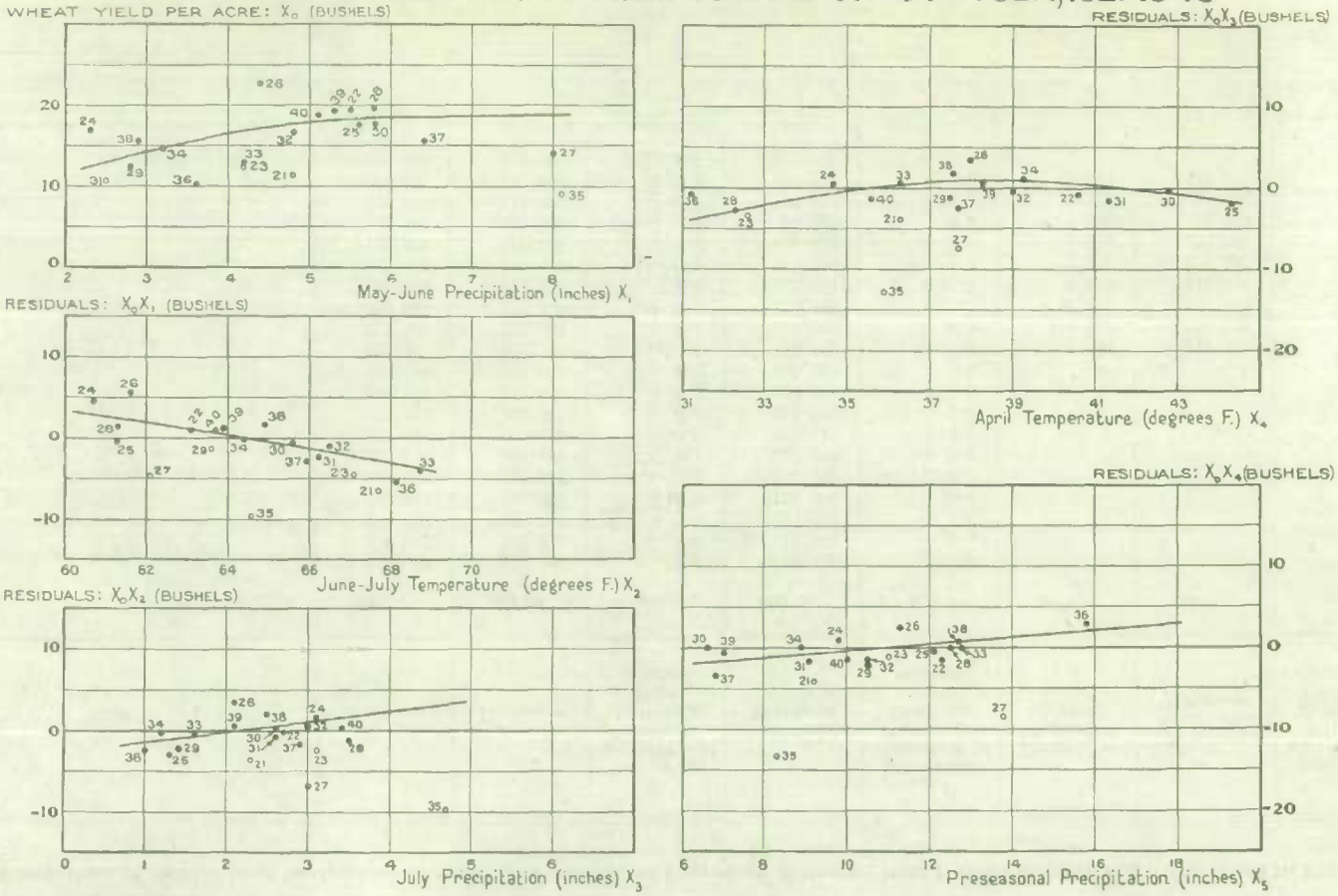
Year	(1) June-July Precipitation X_1	(2) June-July Temperature X_2	(3) April-May Precipitation X_3	(4) April-May Temperature X_4	(5) Pre-seasonal Precipitation X_5	(6) 7 Years' Weighted Average Precipitation X_6	(7) Estimated Yield per Acre	(8) Official Yield per Acre	(9) Deviation of Estimated from Official Yield per Acre	(10) Wheat Acreage	(11) Estimated Total Production	(12) Official Total Production	(13) Deviation of Estimated from Official Total Production
	bushels per acre	bushels per acre	bushels per acre	bushels per acre	bushels per acre	bushels per acre	bushels	bushels	bushels	acres	000 bushels	000 bushels	000 bushels
1921	17·0	−2·4	+1·4	+0·9	+0·2	−1·3	15·8	13·9	+1·9	13,556,708	214,196	188,000	+26,196
1922	12·3	+2·0	+1·7	+1·2	+1·9	+0·7	19·8	20·3	−0·5	12,332,297	244,179	250,167	− 5,988
1923	21·2	−0·3	−0·5	+1·0	+0·2	+0·9	22·5	21·2	+1·3	12,791,000	287,798	271,622	+16,176
1924	13·2	+0·5	−0·9	−0·1	−1·1	+0·7	12·3	10·2	+2·1	13,033,000	160,306	132,918	+27,388
1925	16·0	+1·9	−0·3	−0·4	+0·8	+0·9	18·9	18·8	+0·1	12,508,962	236,419	235,472	+ 947
1926	12·1	+2·1	+0·9	+0·1	+0·4	+0·7	16·3	16·2	+0·1	13,558,384	221,002	219,646	+ 1,356
1927	15·7	+1·9	+3·1	−0·3	+0·8	+1·0	22·2	19·5	+2·7	12,979,279	288,140	252,500	+35,640
1928	18·4	+1·3	−1·8	+1·2	+1·4	+2·1	22·6	23·3	−0·7	13,790,854	311,673	321,215	− 9,542
1929	11·1	+1·4	0·0	−0·5	−1·9	+1·3	11·4	11·1	+0·3	14,445,286	164,676	160,565	+ 4,111
1930	14·8	+1·2	−0·8	+0·9	−1·4	−0·4	14·3	14·4	−0·1	14,326,000	204,862	206,700	− 1,838
1931	13·2	−1·6	−2·9	+0·2	0·0	−0·6	8·3	8·8	−0·5	15,026,185	124,717	132,466	− 7,749
1932	17·7	−0·3	−0·6	−0·9	+0·4	−1·4	14·9	13·6	+1·3	15,543,000	231,591	211,551	+20,040
1933	12·1	−3·0	+1·3	+1·3	0·0	−1·0	10·7	8·7	+2·0	14,743,000	157,750	128,004	+29,746
1934	15·4	+2·1	−2·3	−6·3	+1·0	0·0	9·9	8·6	+1·3	13,262,000	131,294	114,200	+17,094
1935	17·0	+1·7	+0·8	−0·3	−1·3	−1·6	16·3	10·8	+5·5	13,206,000	215,258	142,198	+73,060
1936	12·3	−4·5	−1·0	+1·3	−0·3	−0·7	7·1	7·5	−0·4	14,744,000	104,682	110,000	− 5,318
1937	11·5	−5·2	−0·9	−0·1	−1·4	−1·3	2·6	2·6	0·0	13,893,000	36,122	36,000	+ 122
1938	14·1	−0·3	+0·2	+1·2	−0·7	−2·5	12·0	10·0	+2·0	13,793,000	165,516	137,800	+27,716
1939	18·0	+1·2	−0·5	−0·1	+0·4	−1·7	17·3	19·1	−1·8	14,233,000	246,231	271,300	−25,069
1940	15·8	+2·1	−0·3	+1·3	−1·7	−1·7	15·5	17·5	−2·0	15,571,000	241,351	272,000	−30,649

Table 3.—Comparison of Deviations of September, Regression, and Adjusted Regression Estimates from Official Estimates of Wheat Yield in Province of Saskatchewan, 1921 to 1940

Year	Official Estimate	September Estimate	Percentage Deviation of September Estimate from Official	Regression Estimate	Percentage Deviation of Regression Estimate from Official	Estimated Reduction of Yield by Pests	Adjusted Regression Estimate	Percentage Deviation of Adjusted Regression Estimate from Official
	000 bu.	000 bu.	p.c.	000 bu.	p.c.	000 bu.	000 bu.	p.c.
1921	188,000	173,580	−7·7	214,196	+13·9	–	–	–
1922	250,167	230,218	− 8·0	244,179	− 2·4	–	–	–
1923	271,622	259,017	− 4·6	287,798	+ 6·0	–	–	–
1924	132,918	157,699	+18·6	160,306	+20·6	–	–	–
1925	235,472	213,245	− 9·4	236,419	+ 0·4	–	–	–
1926	219,646	208,462	− 5·1	221,002	+ 0·6	–	–	–
1927	252,500	227,137	−10·0	288,140	+14·1	–	–	–
1928	321,215	300,641	− 6·4	311,673	− 3·0	–	–	–
1929	160,565	151,676	− 5·5	164,676	+ 2·6	–	–	–
1930	206,700	198,000	− 4·2	204,862	− 0·9	–	–	–
1931	132,466	101,300	−23·5	124,717	− 5·8	7,546	117,171	−11·5
1932	211,551	227,000	+ 7·3	231,591	+ 9·5	15,883	215,708	+ 2·0
1933	128,004	128,300	+ 0·2	157,750	+23·2	25,175	132,575	+ 3·6
1934	114,200	114,200	0·0	131,294	+15·0	9,606	121,688	+ 6·6
1935	142,198	138,000	− 3·0	215,258	+51·4	7,666	207,592	+46·0
1936	110,000	117,000	+ 6·4	104,682	− 4·8	4,096	100,586	− 8·6
1937	36,000	35,000	− 2·8	36,122	+ 0·3	2,854	33,268	− 7·6
1938	137,800	143,000	+ 3·8	165,516	+20·1	46,410	119,106	−13·6
1939	271,300	218,000	−19·6	246,231	− 9·2	22,378	223,853	−17·5
1940	272,000	260,000	− 4·4	241,351	−11·3	–	–	–

FIGURE II

WHEAT YIELD ANALYSIS IN THE PROVINCE OF MANITOBA, 1921-1940



The Manitoba Provincial Analysis, 1921-1940

Inadequate coverage of weather within several crop districts because of the small number of meteorological stations, and the prevalence of rust during the period 1921-1940, were major difficulties encountered in crop-district analyses in this province. Attention was consequently shifted from the individual districts to the province as a whole in an endeavour to minimize the importance of the rust factor and to circumvent the inadequacy of the weather observations.

Selection of Weather Factors.—A preliminary correlation analysis using weather factors corresponding to the first five factors employed in the Saskatchewan analysis proved less successful in this province. Total precipitation in Manitoba is less of a limiting factor than in Saskatchewan, not only because of the larger amount generally received but also because of the greater proportion of more 'efficient' soils, and the distribution of rainfall during the growing season becomes a more significant yield influence. Accordingly, a first step in selecting a set of weather factors for this province was the division of the crop season into four monthly periods. This division was most convenient because precipitation and temperature data had been tabled and averaged for the province on a monthly basis.

Monthly total precipitation and monthly mean temperature averages in the four months April to July were plotted against one another in scatter diagrams for the period 1921-39. From the scatters, it was evident that the degree of intercorrelation between the variables was very small.

The use of monthly periods during the crop season as well as preseasonal precipitation would result in nine weather factors being correlated with only twenty observations of annual yields. If the analysis was to have any statistical significance it was essential to reduce the number of factors either by combining monthly periods or discarding certain of them as being unimportant as yield influences. Both means were employed.

Inspection of the scatters in conjunction with variation in the annual yields indicated that April temperature and June temperature must be included as factors, while April precipitation and May temperature could be excluded from further consideration.

Finally, the following five factors were selected as including all pertinent yield influences attributable to weather:

X_1 : May-June Total Precipitation

X_2 : June-July Mean Temperature

X_3 : July Total Precipitation

X_4 : April Mean Temperature

X_5 : June-October Total Precipitation (of preceding year).

The period for preseasonal precipitation was expanded to include June and July, rainfall in these months being exceptionally heavy in Manitoba in some years, notably 1935, and its influence on summer-fallow yields consequently more significant than in Saskatchewan.

Rust severely damaged the wheat crop in Manitoba in the four years 1921, 1923, 1927 and 1935, necessitating the exclusion of these years in the net regression determinations. Observations in these years are indicated by open dots in Figure II. Grasshoppers were very active in 1931, but the extent of damage as indicated in various crop reports did not invalidate the use of yield data of that year in the correlation analysis. No entomological data were, however, available for adjustment of yield.

Table 4.—Wheat Yield Analysis in the Province of Manitoba, 1921 to 1940

Year	(1) Wheat Yield per Acre X_0	(2) May-June Precipitation X_1	(3) Residuals X_0X_1	(4) June-July Temperature X_2	(5) Residuals X_0X_2	(6) July Precipitation X_3	(7) Residuals X_0X_3	(8) April Temperature X_4	(9) Residuals X_0X_4	(10) Preseasonal Precipitation[1] X_5	(11) Residuals X_0X_5
	bushels	inches	bushels	degrees F.	bushels	inches	bushels	degrees F.	bushels	inches	bushels
1921	11·2	4·8	−6·5	67·7	−3·7	2·3	−3·9	36·3	−4·4	9·2	− 3·7
1922	19·2	5·5	+0·9	63·1	−0·2	2·7	− 0·9	40·6	− 1·5	12·3	− 2·1
1923	12·3	4·2	−4·5	67·1	−2·2	3·1	− 3·4	32·6	− 1·0	11·0	− 1·0
1924	16·9	2·3	+4·4	60·7	+1·6	3·1	+ 0·4	34·7	+ 1·0	9·8	+ 1·4
1925	17·7	5·6	−0·6	61·3	−3·0	1·3	− 1·9	44·3	− 0·3	12·1	− 0·8
1926	22·6	4·4	+5·5	61·6	+3·3	2·1	+ 3·3	38·0	+ 2·3	11·3	+ 2·1
1927	14·0	8·0	−4·8	62·1	−6·6	3·0	− 7·6	37·7	− 8·5	13·8	− 9·7
1928	19·7	5·8	+1·3	61·3	−1·1	3·5	− 2·8	32·3	− 0·1	12·5	− 0·8
1929	12·4	2·8	−1·4	63·6	−2·1	1·4	− 1·2	37·5	− 2·1	10·5	− 1·9
1930	17·7	5·8	−0·7	65·6	+0·2	2·6	− 0·4	42·8	+ 0·1	6·6	+ 1·8
1931	10·7	2·5	−2·3	66·2	−0·9	2·6	− 1·5	41·3	− 1·8	9·1	− 1·1
1932	16·6	4·8	−1·1	66·5	+0·6	3·0	− 0·4	39·0	− 1·4	10·5	− 1·2
1933	12·9	4·2	−4·0	68·7	−0·2	1·6	+ 0·5	36·3	0·0	12·8	− 0·8
1934	14·6	3·2	−0·2	64·4	−0·2	1·2	+ 1·0	39·3	0·0	8·9	+ 0·8
1935	9·0	8·1	−9·8	64·6	−9·7	4·7	−12·9	35·9	−13·2	8·3	−12·2
1936	10·2	3·6	−5·5	68·1	−2·3	1·0	− 0·9	31·2	+ 2·9	15·8	+ 0·8
1937	15·7	6·4	−2·8	65·9	−1·6	2·9	− 2·5	37·7	− 3·4	6·8	− 1·8
1938	15·7	2·9	+1·7	64·9	+2·0	2·5	+ 1·6	37·6	+ 0·7	12·7	− 0·1
1939	19·2	5·3	+1·0	63·9	+0·5	2·1	+ 0·5	38·3	− 0·5	7·0	+ 1·1
1940	18·8	5·1	+0·8	63·7	+0·2	3·4	− 1·4	35·6	− 1·4	10·0	− 1·0

[1] June to October of preceding year.

Table 5.—Estimates of Wheat Yields in Province of Manitoba, as Readings from Weather Regressions, 1921 to 1940

Year	(1) May-June Precipitation X_1	(2) June-July Temperature X_2	(3) July Precipitation X_3	(4) April Temperature X_4	(5) Preseasonal Precipitation X_5	(6) Estimated Yield per Acre	(7) Official Yield per Acre	(8) Deviation of Estimated from Official Yield per Acre	(9) Wheat Acreage	(10) Estimated Total Production	(11) Official Total Production	(12) Deviation of Estimated from Official Production
	bushels per acre	bushels per acre	bushels per acre	bushels per acre	bushels per acre	bushels	bushels	bushels	acres	000 bushels	000 bushels	000 bushels
1921	17·7	−2·8	+0·2	+0·5	−0·7	14·9	11·2	+3·7	3,501,217	52,168	39,054	+13,114
1922	18·3	+1·1	+0·7	+0·6	+0·6	21·3	19·2	+2·1	3,125,556	66,574	60,051	+ 6,523
1923	16·8	−2·3	+1·2	−2·4	0·0	13·3	12·3	+1·0	2,915,915	38,782	35,804	+ 2,978
1924	12·5	+2·8	+1·2	−0·6	−0·4	15·5	16·9	−1·4	2,459,408	38,121	41,464	− 3,343
1925	18·3	+2·4	−1·1	−1·6	+0·5	18·5	17·7	+0·8	1,902,714	35,200	33,624	+ 1,576
1926	17·1	+2·2	0·0	+1·0	+0·2	20·5	22·6	−2·1	2,085,547	42,754	47,133	− 4,379
1927	18·8	+1·8	+1·0	+0·9	+1·2	23·7	14·0	+9·7	2,195,377	52,030	30,773	+21,257
1928	18·4	+2·4	+1·7	−2·7	+0·7	20·5	19·7	+0·8	2,660,125	54,533	52,383	+ 2,150
1929	13·8	+0·7	−0·9	+0·9	−0·2	14·3	12·4	+1·9	2,300,615	32,899	28,565	+ 4,334
1930	18·4	−0·9	+0·6	−0·5	−1·7	15·9	17·7	−1·8	2,470,000	39,273	43,600	− 4,327
1931	13·0	−1·4	+0·6	+0·3	−0·7	11·8	10·7	+1·1	2,617,051	30,881	28,112	+ 2,769
1932	17·7	−1·7	+1·0	+1·0	−0·2	17·8	16·6	+1·2	2,651,000	47,188	44,041	+ 3,147
1933	16·9	−3·8	−0·7	+0·5	+0·8	13·7	12·9	+0·8	2,536,000	34,743	32,666	+ 2,077
1934	14·8	0·0	−1·2	+1·0	−0·8	13·8	14·6	−0·8	2,533,000	34,955	37,100	− 2,145
1935	18·8	−0·1	+3·2	+0·3	−1·0	21·2	9·0	+12·2	2,587,000	54,844	23,250	+31,594
1936	15·7	−3·2	−1·4	−3·8	+2·1	9·4	10·2	−0·8	2,556,600	24,032	26,000	− 1,968
1937	18·5	−1·2	+0·9	+0·9	−1·6	17·5	15·7	+1·8	2,872,000	50,260	45,100	+ 5,160
1938	14·0	−0·3	+0·4	+0·9	+0·8	15·8	15·7	+0·1	3,184,000	50,307	50,000	+ 307
1939	18·2	+0·5	0·0	+1·0	−1·6	18·1	19·2	−1·0	3,201,000	57,938	61,300	− 3,362
1940	18·0	+0·6	+1·6	0·0	−0·4	19·8	18·8	+1·0	3,512,000	69,538	66,000	+ 3,538

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Analysis.—Net regression approximations were obtained by the graphic correlation method as in the Saskatchewan analysis.

Precipitation and temperature data are given in Table 4, together with annual yields per acre and successive series of residual values. The multiple correlation analysis is shown graphically in Figure II, and in Table 5 estimates of yields based on regressions are tabulated and compared with official yield and production estimates.

Final residual variation, as indicated by the last column in Table 4, is less than two bushels per acre in fourteen of the sixteen years during which rust was not an important yield influence. The regression estimates do not, however, compare as favourably with the official September estimates in this province. As seen in Table 6, in only six years of the period are the regression estimates closer approximations to the final official production figures. This shortcoming is not so much due to less favourable results of the analysis as it is to the relatively high degree of precision in the September estimates for Manitoba.

Table 6.—Comparison of Deviations of September and Regression Estimates from Official Estimates of Wheat Yield in Manitoba, 1921 to 1940

Year	Official Estimate	September Estimate	Percentage Deviation of September Estimate from Official	Regression Estimate	Percentage Deviation of Regression Estimate from Official
	000 bu.	000 bu.	p.c.	000 bu.	p.c.
1921	39,054	37,212	− 4·7	52,168	+33·6
1922	60,051	65,590	+ 9·2	66,574	+10·9
1923	35,804	38,636	+ 7·9	38,782	+ 8·3
1924	41,464	43,286	+ 4·4	38,121	− 8·1
1925	33,624	39,030	+16·1	35,200	+ 4·7
1926	47,133	47,801	+ 1·4	42,754	− 9·3
1927	30,773	36,224	+17·7	52,030	+69·1
1928	52,383	56,395	+ 7·7	54,533	+ 4·1
1929	28,565	31,248	+ 9·4	32,899	+15·2
1930	43,600	44,000	+ 0·9	39,273	− 9·9
1931	28,112	26,000	− 7·5	30,881	+ 9·8
1932	44,041	47,000	+ 6·7	47,188	+ 7·1
1933	32,666	32,600	− 0·2	34,743	+ 6·4
1934	37,100	34,800	− 6·2	34,955	− 5·8
1935	23,250	18,000	−22·6	54,844	+135·9
1936	26,000	30,800	+18·5	24,032	− 7·6
1937	45,100	53,000	+17·5	50,260	+11·4
1938	50,000	50,000	0·0	50,307	+ 0·6
1939	61,300	59,000	− 3·8	57,938	− 5·5
1940	66,000	71,000	+ 7·6	69,538	+ 5·4

The Alberta Provincial Analysis, 1921-1940

As in Manitoba, analyses by crop districts in Alberta had the serious defect of incomplete coverage by the meteorological stations, only twelve of the seventeen districts having adequate weather records. In four of the twelve districts irrigation projects of varying size, for which no separate yield data are available over the period since 1921, presented an additional obstacle to successful district analysis. In only five of the remaining eight districts were valid statistical analyses completed. The five districts included only about one-third of the total wheat acreage in the province and, therefore, attention was shifted to analysis on a provincial unit basis.

Selection of Weather Factors.—It was evident from results of crop district studies that effects of weather on wheat yields were somewhat different from those in the other two provinces and also considerably different as between widely separated regions of the province. Obviously, the difficulties in the selection of weather factors having significant yield influences over the province as a whole were greatest in this province.

To minimize the difficulties, preliminary studies of yield-weather relations were made within broadly classified 'producing areas', the criterions for grouping being soil types and climatic zones. It was expected that the reaction of the wheat plant to weather would be relatively homogeneous within these areas.

Consideration of the results of the preliminary studies by areas and of the five crop district analyses led to the selection of the following six weather factors—

Representing precipitation and temperature during the growing season:

X_1 : May-June Total Precipitation

X_2 : July Total Precipitation

X_4 : July Mean Temperature

X_5 : June Mean Temperature

X_6 : April-May mean temperature,

and representing preseasonal precipitation:

X_3 : August-October Total Precipitation of the preceding year plus April Total Precipitation of the current year.

April Total Precipitation was included in preseasonal precipitation because lateness of the seeding period cast some doubt on its classification as seasonal rainfall.

No significant damage to wheat was caused by rust during the period 1921 to date, and insect damage was confined largely to the southeastern part of the province. However, in the year 1935 severe frost damage late in the season reduced yields considerably, and necessarily the year's data must be excluded in determining net regression approximations. The observations for 1935 are indicated by open dots in Figure III.

Analysis.—Net regressions of wheat yields per acre on the six weather variables were obtained by using the graphic correlation method.

Table 7 presents the basic data on annual yields per acre, and precipitation and temperature factors together with the respective residual series remaining after the influences of successive weather factors have been extracted. The results of the analysis are graphically shown in Figure III. Estimates of yields based on the regressions and comparative values of official yields per acre and production are given in Table 8.

FIGURE III

WHEAT YIELD ANALYSIS IN THE PROVINCE OF ALBERTA, 1921-1940

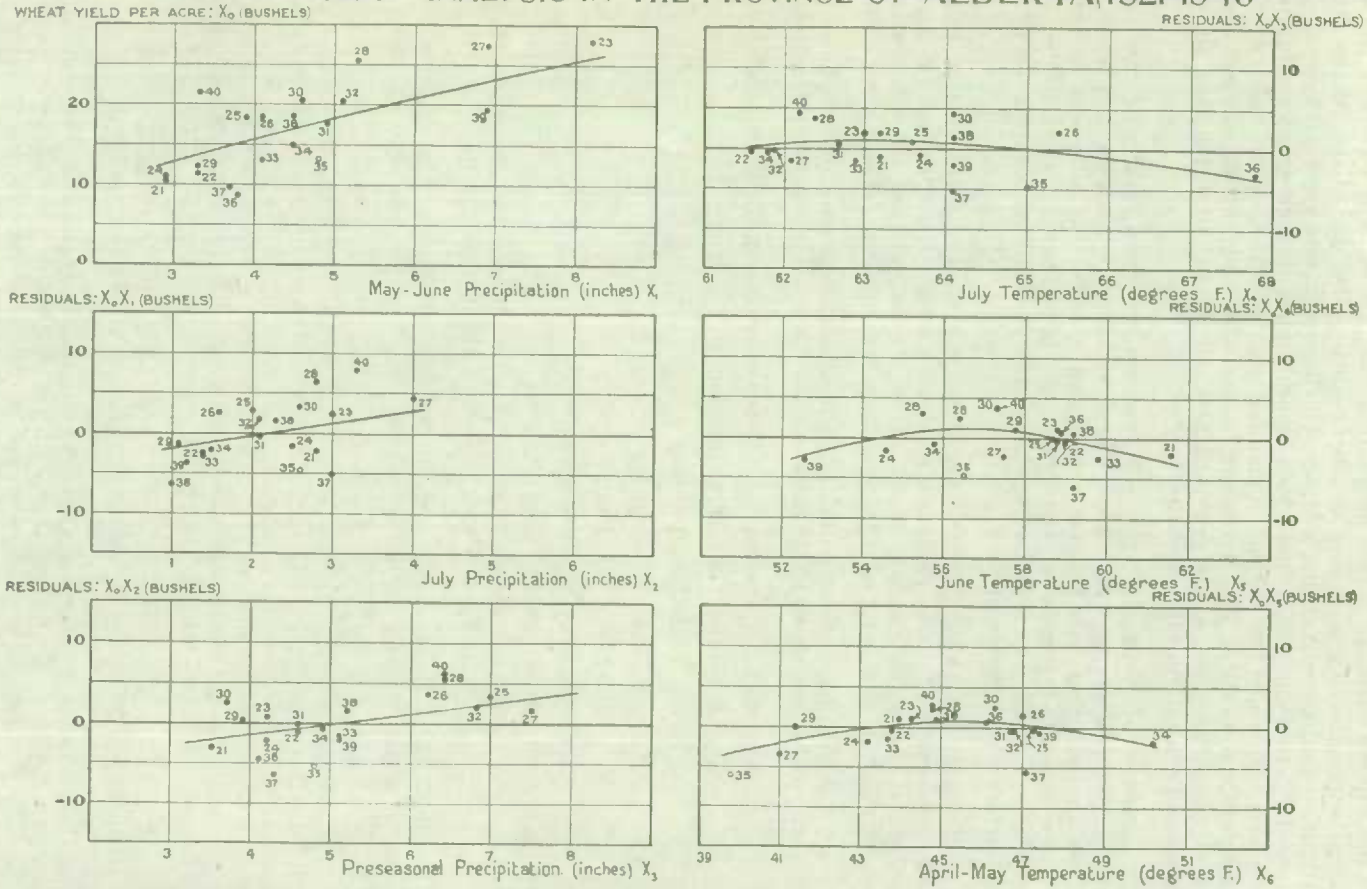

Table 7.—Wheat Yield Analysis in Province of Alberta, 1921 to 1940

Year	(1) Wheat Yield per Acre X_0	(2) May-June Precipitation X_1	(3) Residuals X_0X_1	(4) July Precipitation X_2	(5) Residuals X_0X_2	(6) Pre-seasonal Precipitation[1] X_3	(7) Residuals X_0X_3	(8) July Temperature X_4	(9) Residuals X_0X_4	(10) June Temperature X_5	(11) Residuals X_0X_5	(12) April-May Temperature X_6	(13) Residuals X_0X_6
	bushels	inches	bushels	inches	bushels	inches	bushels	degrees F.	bushels	degrees F.	bushels	degrees F.	bushels
1921	10·4	2·9	−2·2	2·8	−3·1	3·5	−1·1	63·2	−2·1	61·6	+1·0	44·0	+0·6
1922	11·3	3·3	−2·4	1·4	−1·1	4·6	−0·5	61·6	−0·7	59·0	−0·5	43·8	−0·8
1923	28·0	8·2	+2·1	3·0	+0·8	4·2	+2·0	63·0	+1·0	58·8	+1·0	44·3	+0·5
1924	11·0	2·9	−1·6	2·5	−2·1	4·2	−0·9	63·7	−1·7	54·6	−1·9	43·2	−1·8
1925	18·3	3·9	+2·9	2·0	+3·2	7·0	+0·7	63·6	−0·2	58·7	−0·3	47·3	−0·6
1926	18·5	4·1	+2·6	1·6	+3·5	6·2	+2·0	65·4	+2·4	56·4	+1·2	47·0	+0·8
1927	27·4	6·9	+4·4	4·0	+1·6	7·5	−1·6	62·1	−2·3	57·5	−3·4	41·0	−1·4
1928	25·5	5·3	+6·4	2·8	+5·5	6·4	+3·8	62·4	+2·9	55·5	+2·1	44·8	+1·4
1929	12·3	3·3	−1·4	1·1	+0·4	3·9	+1·9	63·2	+0·9	57·8	0·0	41·4	+1·6
1930	20·5	4·6	+3·2	2·6	+2·5	3·7	+4·3	64·1	+3·6	57·4	+2·5	46·3	+1·8
1931	17·7	4·9	−0·4	2·1	−0·2	4·6	+0·4	62·7	−0·6	58·8	−0·6	46·7	−1·2
1932	20·4	5·1	+1·8	2·1	+2·0	6·8	−0·2	61·9	−0·7	59·0	−0·5	46·8	−1·0
1933	13·0	4·1	−2·9	1·4	−1·6	5·1	−1·6	62·9	−2·6	59·8	−1·6	43·7	−1·8
1934	15·0	4·5	−2·0	1·5	−0·8	4·9	−0·5	61·8	−0·9	55·8	−1·9	50·2	+0·2
1935	13·2	4·8	−4·6	2·6	−5·3	4·8	−4·9	65·0	−4·9	56·5	−6·1	39·8	−2·8
1936	8·8	3·8	−6·3	1·0	−4·4	4·1	−3·2	67·8	+0·6	58·9	+0·7	46·1	−0·1
1937	9·7	3·7	−5·1	3·0	−6·4	4·3	−5·4	64·1	−6·1	59·2	−5·7	47·1	−6·1
1938	18·6	4·5	+1·6	2·3	+1·4	5·2	+1·2	64·1	+0·5	59·2	+0·9	44·9	+0·1
1939	19·3	6·9	−3·7	1·2	−2·1	5·1	−2·1	64·1	−2·8	52·6	−0·6	47·4	−0·8
1940	21·6	3·3	+7·9	3·3	+6·1	6·4	+4·4	62·2	+3·6	57·4	+2·5	44·8	+1·8

[1]August to October of preceding year plus April of current year.

Table 8.—Estimates of Wheat Yield per Acre in Province of Alberta, as Readings from Weather Regressions, 1921 to 1940

Year	(1) May-June Precipitation X_1	(2) July Precipitation X_2	(3) Pre-seasonal Precipitation X_3	(4) July Temperature X_4	(5) June Temperature X_5	(6) April-May Temperature X_6	(7) Estimated Yield per Acre	(8) Official Yield per Acre	(9) Deviation of Estimated from Official Yield per Acre	(10) Wheat Acreage	(11) Estimated Total Production	(12) Official Total Production	(13) Deviation of Estimated from Official Production
	bushels per acre	bushels per acre	bushels per acre	bushels per acre	bushels per acre	bushels per acre	bushels	bushels	bushels	acres	000 bushels	000 bushels	000 bushels
1921	12·6	+0·9	−2·0	+1·0	−3·1	+0·4	9·8	10·4	−0·6	5,123,404	50,209	53,044	− 2,835
1922	13·7	−1·3	−0·6	+0·2	−0·2	+0·3	12·1	11·3	+0·8	5,765,595	69,764	64,976	+ 4,788
1923	25·9	+1·3	−1·2	+1·0	0·0	+0·5	27·5	28·0	−0·5	5,172,643	142,248	144,834	− 2,586
1924	12·6	+0·5	−1·2	+0·8	+0·2	−0·1	12·8	11·0	+1·8	5,573,813	71,345	61,312	+10,033
1925	15·4	−0·3	+2·5	+0·9	+0·1	+0·3	18·9	18·3	+0·6	5,347,972	101,077	97,962	+ 3,115
1926	15·9	−0·9	+1·5	−0·4	+1·2	+0·4	17·7	18·5	−0·8	6,161,383	109,056	113,986	− 4,930
1927	23·0	+2·8	+3·2	+0·7	+1·1	−2·0	28·8	27·4	+1·4	6,251,000	180,029	171,286	+ 8,743
1928	19·1	+0·9	+1·7	+0·9	+0·8	+0·7	24·1	25·5	−1·4	6,707,526	161,651	171,000	− 9,349
1929	13·7	−1·8	−1·5	+1·0	+0·9	−1·6	10·7	12·3	−1·6	7,551,215	80,798	92,534	−11,736
1930	17·3	+0·7	−1·8	+0·7	+1·1	+0·7	18·7	20·5	−1·8	7,164,000	133,967	147,000	−13,033
1931	18·1	−0·2	−0·6	+1·0	0·0	+0·6	18·9	17·7	+1·2	7,942,856	150,120	140,603	+ 9,517
1932	18·6	−0·2	+2·2	+0·5	−0·2	+0·5	21·4	20·4	+1·0	8,201,000	175,501	167,355	+ 8,146
1933	15·9	−1·3	0·0	+1·0	−1·0	+0·2	14·8	13·0	+1·8	7,898,000	116,890	102,334	+14,556
1934	17·0	−1·2	−0·3	+0·4	+1·0	−2·1	14·8	15·0	−0·2	7,501,000	111,015	112,500	− 1,485
1935	17·8	+0·7	−0·4	0·0	+1·2	−3·3	16·0	13·2	+2·8	7,500,000	120,000	98,648	+21,352
1936	15·1	−1·9	−1·2	−3·8	−0·1	+0·8	8·9	8·8	+0·1	7,537,200	67,081	66,000	+ 1,081
1937	14·8	+1·3	−1·0	+0·7	−0·4	+0·4	15·8	9·7	+6·1	7,834,000	123,777	75,700	+48,077
1938	17·0	+0·2	+0·2	+0·7	−0·4	+0·8	18·5	18·6	−0·1	7,969,000	147,427	148,200	− 773
1939	23·0	−1·6	0·0	+0·7	−2·2	+0·2	20·1	19·3	+0·8	8,379,000	168,418	161,400	+ 7,018
1940	13·7	+1·8	+1·7	+0·8	+1·1	+0·7	19·8	21·6	−1·8	8,667,000	171,607	187,000	−15,393

Table 9.—Comparison of Deviations of September and Regression Estimates from Official Estimates of Wheat Yield in Alberta, 1921 to 1940

Year	Official Estimate	September Estimate	Percentage Deviation of September Estimate from Official	Regression Estimate	Percentage Deviation of Regression Estimate from Official
	000 bushels	000 bushels	p.c.	000 bushels	p.c.
1921	53,044	60,716	+14·5	50,209	− 5·3
1922	64,976	69,237	+ 6·6	69,764	+ 7·4
1923	144,834	149,122	+ 3·0	142,248	− 1·8
1924	61,312	66,192	+ 8·0	71,345	+16·4
1925	97,962	110,856	+13·2	101,077	+ 3·2
1926	113,986	119,434	+ 4·8	109,056	− 4·3
1927	171,286	168,862	− 1·4	180,029	+ 5·1
1928	171,000	170,296	− 0·4	161,651	− 5·5
1929	92,534	86,547	− 6·5	80,798	−12·7
1930	147,000	120,000	−18·4	133,967	− 8·9
1931	140,603	119,100	−15·3	150,120	+ 6·8
1932	167,355	172,000	+ 2·8	175,501	+ 4·9
1933	102,334	103,100	+ 0·7	116,890	+14·2
1934	112,500	116,000	+ 3·1	111,015	− 1·3
1935	98,648	116,000	+17·6	120,000	+21·6
1936	66,000	68,200	+ 3·3	67,081	+ 1·6
1937	75,700	76,000	+ 0·4	123,777	+63·5
1938	148,200	141,000	− 4·9	147,427	− 0·5
1939	161,400	145,000	−10·2	168,418	+ 4·3
1940	187,000	203,000	+ 8·6	171,607	− 8·2

As evidenced in column 13 of Table 7, final residual variation does not exceed 1·8 bushels per acre in eighteen of the twenty years under review. In the other two years, namely 1935 and 1937, final residuals are −2·8 and −6·1 bushels per acre, respectively. As indicated above, frost damage will account for the unexplained variation in 1935. The extremely large residual for 1937 is the result of very unusual rainfall distribution in June and July of that year, when the long period of drought beginning in the first week in June was finally broken by fairly heavy rains during the last week of July. Consequently, the effect of July rainfall on the wheat crop was almost entirely that of promoting second growth. The failure of the analysis to explain yield in 1937 may, then, be attributed to the exceptional departure of underlying conditions from normal.

The comparison of the regression and September estimates (Table 9), reveals that in eleven years of the twenty-year period, the regression estimates more closely approximated the final official figures than did the September estimates.

Application of Results to Current Estimating

Weather data required in evaluating the various weather variables covering the growing season, April 1 to July 31, is made available to the Bureau each year in special weekly reports from the Meteorological Service of Canada. The reports covering weekly periods reach the Bureau on the Tuesday of each succeeding week. In addition, records of precipitation in the preceding year are obtained from the "Monthly Weather Map", a publication of the same Service.

With this information at hand, it is a relatively easy matter to estimate yields per acre from the regressions, the algebraic sum of the curve readings corresponding to the values of the respective weather variables providing the desired estimate. Since the necessary weather records are available by the first week in August each year, the regression estimate is obtained about one month in advance of the Bureau's first yield estimate published in September.

The condition of the wheat crop in each province is appraised at the end of each month by calculating the yield per acre expected on the assumption of normal weather conditions in that period of the growing season not already elapsed. Weather variables may be evaluated by combining records of actual precipitation and temperature, for the period previous to the point of time at which the condition is to be estimated, with normal values for the remaining period of the growing season. Readings from the regressions may then be taken and an estimate of 'expected' yield per acre secured. This yield value expressed as a percentage of the long-time average yield* would represent the condition of the wheat crop at the end of the given month.

However, when yield-weather regressions are curvilinear, as in the relationships between yields and temperatures, the normal value of the weather variable is inconsistent with the normal influence of that variable on yields. Normal temperature values are associated with near-optimum positive yield influences and as temperatures deviate from normal, corresponding yields tend to be lowered. Consequently, the use of normal temperatures in calculating expected yields leads to a positively biased condition figure. To eliminate such bias normal temperature values are replaced by 'normal weather equivalents', the latter being used in the evaluation of temperature variables. A 'normal weather equivalent' is merely the value of a weather variable equivalent to the average, rather than the optimum reading of the curve.

Reliability of Current Estimates

The potential worth of these yield and condition estimates to the Bureau's crop-reporting program is dependent primarily on their reliability. While the analyses presented would appear to constitute good descriptions of the principal variable influences on wheat yields in the respective provinces, except in years when such factors as rust or insects seriously affect yields, the assessment of the reliability of regression estimates must give due consideration to the large number of variables employed and the short period of observation included in the determination of the net regression approximations.

Following the method suggested by Ezekiel†, the number of constants required for mathematical description of the several net regressions is estimated for each province. Deducting these from the number of observations in the respective analyses, an observation being a year in which the extraneous factor rust did not seriously reduce yields, the number of degrees of freedom in each analysis is obtained. The latter may be said to represent the 'technical' size

*The long-time average yields per acre of wheat are: Manitoba, 16 bushels; Saskatchewan, 15 bushels; Alberta, 18 bushels.

†Op. cit., Chaps. 15 and 16.

of the samples of annual yields. In Alberta, the year 1937 was excluded as an observation because of the extremely abnormal distribution of rainfall in June and July.

The Standard Error of Estimate (S_o) and the Index of Multiple Correlation (P_o), adjusted for the number of degrees of freedom, then provide statistical measures of the descriptive power of the analyses and the reliability of regression estimates in future years. Their values in each province together with the data relating to degrees of freedom are shown in the following table.

Province	Number of Observations	Number of Constants	Number of Degrees of Freedom	Adjusted Standard Error of Estimate (S_o)	Adjusted Index of Correlation (P_o)
				bu. per acre	
Manitoba	16	9	7	2·033	·807
Saskatchewan[1]	19	11	8	2·067	·930
Alberta	19	11	8	2·021	·936

[1] Yields per acre were adjusted for damage by entomological factors in the years 1931 to 1939, inclusive.

Estimates based on the net regressions may be expected to fall on an average of two out of three times within the range set by the adjusted standard error of estimate, provided that the underlying conditions relating to yields do not change appreciably. The index of multiple correlation measures the degree of association between yields and the weather variables employed.

Since the condition of the wheat crop at July 31 is synonymous with the final yield per acre, according to the yield-weather relations established, the reliability of the July 31 condition estimate may be obtained in terms of condition by relating the standard errors of estimate above to the long-time average yields per acre in the respective provinces. The resulting standard errors of condition estimates are 13 points in Manitoba, 14 points in Saskatchewan and 11 points in Alberta. These measures of reliability are applicable only to condition estimates for July 31, but it can be inferred from the nature of the yield-weather correlations that the standard errors of the condition estimates for May 31 and June 30 will be less than those for July 31.

The ultimate test of the validity of the net regression approximations is, of course, the test of experience through their application to estimating the condition and yield of the wheat crop in future years. Such tests of experience were carried out in the three years 1938 to 1940 in Saskatchewan and in the year 1940 in both Manitoba and Alberta, net regressions being originally based on the period 1921–1937 in Saskatchewan and on the period 1921-1939 in the other two provinces. The original regressions were employed to estimate yields per acre in the years in question and the apparent errors of estimate, as measured by the deviations of the regression estimates from the official estimates of the Bureau, were compared with the adjusted standard errors of estimate for the original regression approximations.

In Saskatchewan, the apparent errors were less than the standard error in two of the three years while the error in the remaining year was well within the range of twice the standard error. Thus, in this province, theory was precisely substantiated by fact. The error in the regression estimate for 1940 in Manitoba was less than half the standard error, and in Alberta the corresponding estimate deviated from the official yield figure by 1·6 times the standard error. Experience in these two provinces, therefore, has so far been consistent with the net regressions established over the period 1921-1939.

TELEGRAPHIC CROP REPORT SUMMARIES

JULY 2

Crop growth has been rather backward in the Maritime Provinces. The season is late in Prince Edward Island and Nova Scotia, although the prospects continue favourable in these provinces. In New Brunswick, a comparatively dry spring season has checked the growth of the hay and cereal crops. Rainfall during the last few days in Quebec has relieved the drought that prevailed during the previous two weeks. Crop conditions are favourable in eastern Quebec, but in the southern and western districts, hay and pasture conditions are only fair, and further rain would be welcome. Ontario is taking off a very short hay crop and pasture conditions are poor, following the past fortnight of high temperatures. Thunder showers over the past week-end brought partial relief to eastern and central Ontario districts, but further rains are badly needed over almost the whole of the province to prevent further deterioration of feed crops and pastures.

Light to heavy rains over the week-end at most points in the prairies brought welcome relief from the protracted heat wave of the past fortnight. In Manitoba moderate showers maintained the favourable moisture situation and prospects for most crops remained excellent. Considerable improvement in the corn crop resulted from the high temperatures. A serious decline in crop prospects occurred in widespread areas of Saskatchewan. In the area from Moose Jaw to and surrounding Swift Current damage to stubble crops for the most part is beyond repair, and only late sown and summer-fallowed crops will benefit from the week-end rains. In most of the east-central and central districts declines in crop condition occurred which recent rains have temporarily checked. Elsewhere, crop prospects remain generally good. Moderate showers in Alberta during the week and less extreme temperatures at most points, brought considerable improvement to crops. Moisture supplies are adequate in most sections of the province, although some shortage is evident in parts of the east-central area. Pastures and grasses will benefit greatly from the recent rains, particularly in Saskatchewan. Damage from insects has been slight so far this season.

British Columbia field crop prospects continue favourable, with ample moisture supplies received. Apart from apples, all tree fruits are promising good yields.

Maritime Provinces.—Although pastures and upland hay meadows in the Maritimes are making good growth, elsewhere development has been only fair. The grain and hoed crops in Nova Scotia are very late, but growth is good. The prospects for the apple crop are average, while good crops of pears, plums and strawberries are expected. Seeding in the eastern counties of New Brunswick will only be completed this week. With the rainfall this season considerably below average, haying is ten days later than normal. The growth of both hoed and grain crops in this province has been slow. Although the continued dry weather has reduced prospects for the strawberry crop, the outlook for apple production remains good.

Quebec and Ontario.—Up until the past week-end, almost the whole of Quebec suffered from drought which checked the growth of the hay and cereal crops. Pastures and meadows were also dry. Heavy week-end rains in most sections of the province greatly relieved the drought situation, although further rains will be needed in the Eastern Townships and districts west of Montreal to bring along the late hay and cereal crops. The recent rainfall was particularly heavy in the Lake St. John and Kamouraska districts, where crop con-

ditions are now very favourable and pastures are good. Temperatures in Quebec have varied over a wide range within the past week. During the night of June 25 light frosts occurred, and a small amount of damage was done to the tobacco and truck crops in L'Assomption district.

In Ontario haying is in full progress with about half a normal crop being harvested. Through most of southern, central and eastern Ontario, the dry weather and high temperatures of the past two weeks have not only shortened the hay crop but have dried up pastures as well. Cereal crops are also light, and the winter wheat crop is ripening up thin. Eastern Ontario districts received thundershowers on June 28 which brought only partial relief. Central Ontario districts received some heavy showers on June 30. Crops in the Kent and Essex districts have fared better than in the rest of the province.

Prairie Provinces—Extremely warm weather prevailed in Manitoba during the greater part of last week, with light to fair rains and lower temperatures at most points over the week-end providing welcome relief. Moisture supplies are still generally satisfactory with the exception of the north-central and extreme north-western districts. All crops are developing rapidly and early sown fields of wheat are well headed. The corn crop has shown considerable improvement throughout the province. Haying is well under way with fairly heavy stands in most areas. Leaf rust is reported to be prevalent on susceptible varieties in the Red River Valley and traces have been found as far west as Brandon and north as far as Dauphin. Very little grasshopper damage is evident as yet. Pastures and gardens are in good condition except in the extreme northern areas.

The hot, dry spell of the past two weeks in Saskatchewan was finally broken over the week-end. Moderate to heavy rains fell over most of the southern, east-central, central and north-eastern districts, with lighter precipitation occurring in the remainder of the province. A serious decline in crop prospects over wide areas in the province resulted from the moisture shortage and high temperatures, and in the area from Moose Jaw west to Swift Current and south to Cadillac the week-end rains came too late to repair damage already suffered. Stubble crops are practically a complete failure over a considerable portion of this area, but some late-seeded fields and summer-fallow crops will benefit from the rains. In the east-central and central parts of the west-central and north-central districts, crop deterioration has been temporarily arrested. Conditions in the south-eastern, north-eastern and north-western sections are generally good with adequate moisture supplies. Over the province as a whole, about 65 per cent of the wheat has reached the shot-blade stage and in the drier areas much wheat has headed prematurely with short straw. Only slight grasshopper damage is reported. Pastures will benefit greatly from the recent rains.

Crop prospects in Alberta showed general improvement during the past week. Light to heavy showers over most of the province during the week and good rains over the week-end in the south maintained the favourable moisture situation. Extreme temperatures during the early part of the week in the southern districts caused severe burning of crops, but the week-end rains have provided an ideal basis for recovery. Some parts of the east-central area are still in need of a general rain, with stubble crops showing signs of moisture shortage. Crop growth is progressing well and wheat is entering the shot-blade stage in most sections of the province. Some early fields are commencing to head in the drier sections and in the north-east. Wheat-stem sawfly is abundant throughout the grain-growing area. Beet webworms are reported menacing sugar beets. Pastures are in generally good condition and the grasslands in the south will benefit greatly from the recent rains.

British Columbia.—Heavy showers that fell during the third week of June were followed by a week of warm, bright days. Moisture supplies are ample in the province, and field crops are mostly in excellent condition. A good hay crop is being taken off, although the rains caused some damage to the first crop of alfalfa. Apart from apples, which are only 70 per cent of average, all tree fruits are promising well.

JULY 8

Local showers were received at most points in the Prairies during the past week, with heavier rains occurring at scattered points in Saskatchewan and Alberta. Crop prospects in Manitoba remain unchanged for the most part. The wheat crop is well advanced and heading out in all districts. In Saskatchewan, crop conditions are poor in the south-central and part of the central districts where stubble crops are virtual failures. With the exception of the south-east, the remainder of the province is in need of rain to maintain conditions, which are generally only fair. Over most of Alberta, conditions are fair to good, but in parts of the south-west and east-central districts, where moisture supplies are low, rain is needed to check further deterioration. Wheat is heading out in all parts of the province. Insect damage is reported as very light although grasshoppers are very active in all three provinces.

Manitoba.—Light local showers over the greater part of the province and fair rains in the south-eastern and northern districts during the past week maintained crop prospects in Manitoba. With moderately warm weather growth of all crops was good, and most of the wheat crop has headed out. The corn crop continues to show improvement. Haying is well advanced with yields heavy in most sections. Little grasshopper damage is evident as yet. Sugar beets are beginning to show signs of injury from the beet webworm.

Saskatchewan.—Precipitation during the past week was variable throughout the province with light local showers at many points and fairly heavy rains in some areas. Little change in crop prospects occurred during the week and conditions are extremely variable. Crops on stubble lands in the south-central and parts of the central districts are virtual failures, while summer-fallow crops have shown some improvement during the past week. Conditions in south-eastern Saskatchewan are generally good but in practically all other parts of the province rain is needed to prevent further deterioration and to check declines which are threatening. About ninety per cent of the wheat has reached the shot-blade stage and in the drier areas is heading out short. Some hail losses were reported from scattered points in the south-eastern districts. Only slight grasshopper damage has occurred so far.

Alberta.—Local showers over most of the province and fairly heavy rains at widely scattered points were received during the past week. Temperatures were well above normal, and in the drier parts of the province, especially in the area surrounding Vulcan and in parts of the east-central district, moisture shortages are becoming critical. Elsewhere, moisture supplies are fair to good but rain will be needed soon to support crop growth which is fairly heavy. Wheat is heading out in all parts of the province, and is farthest advanced in the south. Coarse grains are progressing well. Hailstorms occurred at several points in the south-western and west-central districts causing heavy local damage. Insect damage so far this season has been light. Pastures are in generally fair to good condition and the grasslands in the south have shown considerable improvement.

JULY 15

Crop prospects in eastern Canada have been considerably improved by frequent rains during the past two weeks. The growth of hay and grains in Prince Edward Island and Nova Scotia has been good but rain has delayed haying operations. Variable temperatures and lack of sufficient moisture have retarded growth in New Brunswick. Good rains in Quebec and Ontario have greatly improved prospects for all crops but have delayed haying in eastern and northern Ontario during the past two weeks. Fall wheat is now being harvested in old Ontario with yields fair to good. The straw of early seeded oats and barley is short and the yields below average.

Moderate temperatures with showers over most of the Prairies and some good rains at scattered points caused little change in crop prospects during the past week. Manitoba crops continue to show excellent prospects except in parts of the north-west where dry weather has caused some deterioration. In Saskatchewan conditions are extremely variable with the best prospects in the south-eastern and Regina-Weyburn districts and in parts of the northern districts. Summer-fallow crops in the area surrounding Swift Current have shown some improvement from recent rains but stubble crops are beyond repair and will yield only feed. Conditions in the central districts and parts of the north are generally only fair, while prospects on the heavier lands in the west-central district are somewhat better. Apart from the Vulcan area and much of the east-central district, prospects in Alberta are fair to good. In these areas stubble crops have suffered severely from dry weather and rain is required immediately to prevent permanent damage. Hail storms were reported at many points throughout the Prairies with the heaviest losses occurring in central Alberta. Insect damage continues to be light.

Good yields of both spring and fall grain crops are in prospect in British Columbia. The harvesting of fall wheat and barley is now under way on Vancouver Island and cutting will commence elsewhere at an early date. Haying operations generally are well advanced and the yield is heavy. Prospective production of stone fruits in the Okanagan district had been reduced by a dropping of leaves and fruit, but the outlook for the apple and pear crop has improved.

Maritime Provinces.—Although rainfall has been abundant in Nova Scotia and Prince Edward Island, moisture supplies in New Brunswick have been light. Showery weather in Prince Edward Island has promoted good growth of cereal crops and weed development in late seeded fields has been rapid. Hay, clover and pastures are average or better than average, and root and vegetable crops are also growing well. Frequent rains have delayed haying in Nova Scotia, but the crop is better than expected. Pastures also are in excellent condition. Although the grain and hoed crops are late, development has been good. Tree fruit crops are making satisfactory growth in most cases, but heavy rains have seriously damaged the cherries. Apple scab is prevalent in poorly sprayed orchards Light rainfall and variable temperatures have delayed crop growth in New Brunswick. Although the pastures are still fair, grain crops are heading out prematurely with short straw. Growth of hoed crops has been slow.

Quebec and Ontario.—Good rains over widespread areas of Quebec have greatly improved crop prospects in that province. Haying operations are nearing completion although somewhat delayed by wet weather. The volume of the hay crop was sharply reduced in most areas as a result of dry weather earlier in the season. In the St. Johns area abundant rains have improved crop conditions greatly although hay yields are considerably below normal. Vegetable

and tobacco crops benefited from rains in L'Assomption district. The potato crop is promising in all districts. Pastures have improved and dairy production remains at a high level. The corn borer is causing considerable damage and appears to be increasing. The satin moth is also attacking poplar trees.

General rains throughout the province of Ontario have improved the prospects for pastures, all late crops, second crop alfalfa and red clover, tree fruits and tobacco. Fall wheat is now being harvested with fair to good yields, particularly in Essex and Kent. Haying is almost completed in old Ontario with yields very low but quality good. Rains in eastern and northern Ontario have delayed haying during the past week. Some cutting of early seeded oats and barley has commenced but the straw is short and yields are below average. Corn for husking, dry beans and sugar beets are growing fairly well in south-western Ontario. The tobacco crop in Essex county looks good and rapid growth is reported in the Norfolk area. The early seeded grain crops in eastern Ontario have been improved by the recent rains. Frost on July 8 damaged potatoes and vegetables in Kapuskasing district. Bud moth and leaf roller are causing serious damage to apples in both eastern and western Ontario.

Prairie Provinces.—Scattered showers were received during the past week over most of Manitoba but were very light at some points in the north-west. Crop conditions are generally excellent with adequate moisture supplies in most districts. Some deterioration of crops occurred during the week in the extreme southern part of the central district and in parts of the north-west, and rain is needed to prevent premature ripening. All except late seeded crops are headed and filling well, and some early sown fields are reported turning colour in the south. The condition of the corn crop continues to be good. Haying is continuing and a generally heavy crop is being gathered. Hail at many points in the south and west of the province caused some local damage to crops. No further grasshopper damage occurred during the week. Traces of stem rust are reported on barley in southern Manitoba and leaf rust is moderately heavy on all susceptible wheat varieties.

Precipitation was generally light during the past week in Saskatchewan with a few good rains at some points in the south. With temperatures moderate, little change in crop prospects occurred during the week and prospects remain extremely variable throughout the province. Crops have continued to make good progress in the south-eastern and Regina-Weyburn districts and conditions are generally good. Stubble crops in the area surrounding Swift Current have been damaged too severely by drought and will provide only feed, but crops on summer-fallow land have benefited by recent rains. Elsewhere in the south conditions are fair to good. The outlook in the east-central and central districts is only fair and over a considerable portion of these districts only light yields are in prospect. Crops on the heavier lands of the west-central districts are in fair to good condition. In the southern portion of the northern districts prospects are only fair. About eighty-five per cent of the wheat is in head, and in the drier area the straw is very short. A general soaking rain over the entire province is needed to ensure proper filling of heads and to improve pastures. Several hail storms causing some damage to crops were reported from scattered points in the south.

Showers occurred at most points in Alberta during the week with heavier rains in parts of the south, west-centre and north-west. Moisture conditions remain fairly satisfactory in nearly all districts although shortages are still critical in the Vulcan area and over much of the east-central district. Stubble crops have suffered considerably from the dry weather but crops on summer-fallow have stood up well. A good general rain is needed immediately in these areas and would be welcome in the Edmonton district and parts of the north-

east. For the province as a whole the wheat crop is practically all headed out and some early fields of coarse grains are beginning to head. Heavy hail losses occurred in the central districts during the week and lighter storms were reported at many scattered points. Grasshoppers have caused little damage. Pastures are generally good though turning brown in the drier areas.

British Columbia.—The weather during the past two weeks has been generally fine and warm throughout the province. The fall wheat and rye crops are developing well and heavy yields are in prospect. Spring grains are filling rapidly and show promise of good yields. Haying operations are well advanced and the yield is heavy. Dropping of leaves and fruit has slightly reduced the estimates of peaches, apricots and prunes in the Okanagan district but prospects for the apple and pear crops have improved.

JULY 22

Hot, dry weather and strong winds over most of the Prairie areas during the past week caused serious declines in crop prospects in Saskatchewan and Alberta. In Manitoba, showers and good subsoil moisture reserves minimized the effect of the higher temperatures and only slight deterioration occurred. The severe drought areas in the Moose Jaw-Swift Current district and west from North Battleford in Saskatchewan have widened and little commercial crop is anticipated. Rain is needed immediately in the central and east-central districts to prevent widespread failure. Conditions are fair to good in the south-east and crops in parts of the west-central and north-eastern districts are standing up well. Most stubble crops in the Vulcan area and east-central districts of Alberta have been damaged beyond repair but summer-fallow crops would benefit greatly from immediate rains. Elsewhere in the province, moisture reserves alleviated the intense heat and deterioration was less severe. Grasshopper damage is becoming more intensive in southern Saskatchewan.

Manitoba.—Moderately high temperatures and drying winds during the past week caused some slight declines in crop prospects. While showers were received at most points they were too light to support the generally heavy crop growth and moisture reserves are being rapidly depleted. Crops are generally filling well but premature ripening of early fields of wheat and barley has occurred in the southern and north-western districts. More rain is needed to ensure proper filling of all crops. Some early fields of wheat and barley are being cut, and harvesting of fall rye is under way. Leaf rust is prevalent on susceptible wheat varieties and in the south crown rust on oats is general. Hail losses during the week were negligible. Pastures are in good condition.

Saskatchewan.—Further sharp declines in crop prospects occurred over the greater portion of the province during the week as a result of the prevailing high temperatures and hot, drying winds. Precipitation was extremely light in all districts and moisture reserves were inadequate to prevent deterioration and premature ripening, except in parts of the south-eastern and much of the Regina-Weyburn districts The areas of extreme drought in the Moose Jaw-Swift Current district and west from North Battleford have widened, and little commercial crop is anticipated In central and east-central Saskatchewan further serious deterioration has occurred and heavy rains are needed immediately to prevent widespread failure. Crops on the heavy lands in the southern portion of the west-central district and in much of the north-eastern district are standing up fairly well in spite of light moisture supplies. Soaking rains are needed over the whole province to check further deterioration. Some grasshopper damage is reported from points in the south and sawfly infestation is extensive. Serious injury from hail occurred in the north-east.

Alberta.—Intense heat with practically no rain during the past week caused considerable decline in crop prospects in all parts of the province. In the Vulcan area and much of the east-central district most stubble crops have been damaged beyond recovery but crops on summer-fallow would benefit greatly from immediate rains. All grains were forced by the hot weather, and early fields of wheat and barley are ripening prematurely in parts of the south and in the northern districts. A general rain is needed badly in all districts to check further deterioration and replenish moisture reserves. The most serious infestation of the wheat-stem sawfly ever recorded is reported as covering the entire open prairie area in Alberta. Considerable damage to wheat has been caused by Say's grain bug in the south. Pastures are in fair condition but would benefit from good rains.

JULY 29

General rains have promoted good growth of all crops in the Maritime Provinces and cutting of the heavy hay crop is well advanced. Haying has been completed in most areas of Quebec with yields much below average. Grain prospects vary considerably but yields are generally promising. Recent rains have improved pastures, potatoes and corn. The tobacco crop is only poor to fair and low yields are expected. Harvest operations are general in all parts of Ontario except the north. The yield of grain has been reduced as much as twenty-five per cent by the dry weather, but quality is good. Recent rains have improved pastures and late crops. Harvesting of tobacco has commenced in Essex and Norfolk districts and better than average yields are expected. Grain crops are excellent in northern Ontario but frequent rains have delayed haying operations.

Declining temperatures in Alberta and Saskatchewan during the past week brought partial relief from the intense heat of the previous week and further serious crop deterioration was checked. In Manitoba the weather continued warm and all crops are maturing rapidly. Heavy week-end rains which occurred over the greater portion of the province will materially benefit late sown crops and gardens. Good rains were received over the week-end at many points in south-eastern, south-central and central Saskatchewan and some improvement in crop conditions took place. Prospects are fair to good in the south-eastern, Regina-Weyburn and north-eastern districts and on the heavy lands in the west-central district, but only light yields are expected in the remainder of the province. In Alberta precipitation was light but apart from the Vulcan area and much of the east-central districts, prospects remain fair to good, and are particularly good in the Peace River district and adjacent areas. Cutting of wheat is under way in Manitoba and some early fields are being cut in southern Alberta.

Dry weather has promoted rapid ripening of grain crops in British Columbia. Heavy hay and second-cut alfalfa crops are being stored in good condition. Vegetable crops are developing rapidly and early tree fruits are moving to market.

Maritime Provinces.—Heavy rains have promoted good growth of all crops. Cutting of the heavy hay crops is well advanced and grain fields are beginning to head. Early sown grains are turning colour. Roots and potatoes are growing rapidly and fruit crops are promising.

Quebec and Ontario.—Haying has been completed in most sections of Quebec and yields are much below average. Operations have been delayed somewhat by rains in the north-east. There is considerable variation in the condition of grain crops. In some areas the straw will be short but yields are generally promising and the harvest has commenced in early localities. Pastures

have been improved by recent rains. The potato crop is average or above for the province as a whole. Corn is making good progress although heavy infestation of corn borer is reported for most areas. The tobacco crop in L'Assomption area is only poor to fair and low yields are anticipated.

Harvest operations are general over western Ontario, and threshing is under way in many districts. Dry weather earlier in the season has reduced yields of spring grains by as much as twenty-five per cent, but the quality is good. Recent rains have improved late crops but pastures are still in need of rain. The tobacco crop is better than average and harvesting of the flue-cured crop is under way. Harvesting of grain is general in eastern Ontario with fair yields reported. Frequent rains in northern Ontario have delayed haying operations and the yield is only fair. Grain crops are excellent in the north and pastures are in good shape.

Prairie Provinces.—Warm weather prevailed in Manitoba during the past week and all crops are rapidly approaching maturity. Heavy rains occurred over the week-end in all sections of the province, except along the International Boundary, and late sown crops and gardens will be materially benefited. Prospects generally continue to be very favourable although some deterioration occurred in the south and north-west as a result of the high temperatures. Some lodging of the crop is reported in the Portage la Prairie district and in the north-west. Cutting of wheat is under way in many districts and some early fields of barley are being harvested. Sugar beets and potatoes are doing well. Grasshoppers are plentiful but damage so far has been relatively light. Pastures are in good condition.

Crop deterioration in Saskatchewan was checked during the past week by good showers and somewhat moderating temperatures, while some improvement in prospects occurred as a result of heavy rains over the week-end at some points in the south-eastern, south-central and central districts. Virtual failures are anticipated in the areas around Swift Current and west from North Battleford, but good rains would greatly benefit crops in the south-western, central, east-central and north-western districts and ensure proper filling. Only a light crop at best can be expected in these districts. Prospects remain fair to good in the south-eastern, Regina-Weyburn and north-eastern districts, and on the heavy lands in the west-central district. Timely precipitation would improve coarse grain prospects in all parts of the province. Grasshoppers are becoming more active in the southern districts and increased damage to crops is evident. The wheat-stem sawfly infestation is becoming more apparent. Pastures are in need of rain in most districts but live stock generally are in satisfactory condition.

In Alberta cool weather during the week brought partial relief from the intense heat of the previous week and further crop deterioration was checked in most districts. Precipitation was generally very light, however, except in the northern and Peace River districts where good rains were received. Only a light crop is expected in the Vulcan area and in much of the east-central district where crops have suffered from inadequate moisture supplies, but elsewhere in the province prospects are fair to good. Crops are filling satisfactorily for the most part and in the drier sections of the province are ripening rapidly. In the south some early fields of wheat are being cut and harvesting of barley and oats is commencing this week. The severe wheat-stem sawfly infestation may cause future damage, especially to late crops. Little hail damage occurred during the week.

British Columbia.—Hot, dry weather has prevailed generally during the past fortnight. Grain crops are ripening rapidly and harvesting of fall wheat, fall rye and dried peas is now under way. Early stands of oats are now being cut

while other fields are ripening rapidly. Heavy hay and second-cut alfalfa crops are being cut and stored in good condition. Vegetable crops are developing rapidly and stone fruits and early apples are moving to market.

AUGUST 6

Scattered showers occurred over most of the Prairie areas during the past week with moderate to heavy rains at many points in the southern half of Manitoba and Saskatchewan and in the central and northern districts of Alberta. Harvesting is general in most sections of Manitoba with yields very promising. While most grains are too far advanced to benefit from the recent rains, some late grains, pastures and gardens will show improvement. In Saskatchewan little change occurred in crop prospects although some deterioration occurred in those sections where rainfall was light. Prospects are good in the south-eastern, Regina-Weyburn and north-eastern districts and on heavy lands in the west-central district, but elsewhere are only poor to fair. Crops are ripening rapidly with cutting of wheat under way in many districts. In Alberta crops are filling well and conditions are generally fairly good except in the east-central district and parts of the Vulcan area. Harvesting operations have begun in the south and in the Peace River district but elsewhere only a few early fields of grain have been cut.

Manitoba.—Scattered showers over most of the province and heavier rains at many points in the south-western and central districts occurred during the past week. While most grains are too far advanced to benefit from the additional moisture some late grains, pastures and gardens will be improved. Harvesting is general in most sections of the province and yields are very promising. Conditions for cutting and combining are generally satisfactory although some lodging of the crop in the central and parts of the north-western districts is causing difficulty. The corn crop is generally in good condition except in the extreme south-west where rain would bring considerable improvement. Prospects for potatoes and sugar beets are good. Grasshopper damage is still relatively light, but the wheat-stem sawfly has been more injurious than usual. Hail losses are reported from points in the north-west.

Saskatchewan.—Moderate to heavy rains were received over much of the south-eastern, south-central and parts of the central and west-central districts during the week but elsewhere only scattered showers occurred. Crop prospects were generally fairly well maintained although some deterioration was experienced in parts of the south-central, south-western, east-central, central and north-western districts. Late sown coarse grains and pastures showed considerable improvement as a result of the recent rains. Conditions continue to be fair to good in the south-eastern, Regina-Weyburn, and north-eastern districts and on the heavy lands in the west-central district, while prospects range from near failures to only light crops in other sections of the province. Crops are ripening rapidly and cutting of wheat is well under way in many districts. Further grasshopper damage has occurred in the southern districts, and widespread and severe sawfly injury is becoming apparent over much of the open prairie area. Hail losses are reported from many points in the south-central district.

Alberta.—Scattered showers occurred over the southern and eastern portions of the province during the week with heavier rains at many points in the central and northern districts. Cooler weather in all but the southern sections promoted the satisfactory development and filling of heads and crop prospects remain generally good, except in the east-central and parts of the Vulcan districts. Prospects are only fair in these latter districts and a light crop is expected. Coarse grain prospects in the central and north-central districts are below

average. In the southern and Peace River districts all grains are rapidly approaching maturity and the wheat harvest has commenced but elsewhere only a few early fields have been cut. Sawfly damage has become more extensive. Scattered hail storms occurred during the week. Pastures are in good condition generally and live stock are doing well.

AUGUST 12

The Maritime Provinces have had heavy rains, which have delayed haying, but a very heavy yield is being harvested. All grain crops, potatoes and roots are making good progress and pastures are in fine condition. Haying has been about completed in Quebec and harvesting of grain is under way. Hay and grain yields will be below average. Corn is making good progress and potatoes are from fair to good. Recent rains have improved pastures to some extent. Harvesting of grain crops is nearing completion in old Ontario. Yields are below average but the quality is excellent. Pastures are still poor in western Ontario but have improved in the eastern section. The corn crop has made excellent progress. In northern Ontario crop prospects are good.

Harvesting operations are well under way in all three Prairie Provinces and threshing has started in several parts of Manitoba. In Manitoba yields of early seeded crops will be fair to good but returns from the late seeded crop are somewhat disappointing. The corn crop is generally good but further rainfall would be beneficial. Sugar beets are very promising. Little change in prospects has occurred in Saskatchewan although early returns in the south-eastern district indicate a somewhat lighter yield than was anticipated. Prospects are still fair to good in the south-eastern, Regina-Weyburn and parts of the north-eastern districts and on the heavy lands in the south-western and west-central sections. In other areas only very light yields are anticipated. Late sown coarse grains have benefited from recent rains. Light scattered showers occurred in Alberta with heavier rainfall in the north-central and northern districts. Prospects are good in the extreme south, along the foothills, in parts of the central sections and in the north-central and Peace River districts, but elsewhere are only poor to fair. Coarse grain yields are expected to be below average in much of the central and eastern sections and oats are being cut for food in east-central Alberta.

Heavy rains were received in the coastal and southern interior districts of British Columbia early in August. The second cut of alfalfa yielded well, and for the province as a whole, the cereal grains now being harvested are promising high yields. Early apples and pears are beginning to move to market in volume.

Maritime Provinces.—The three Maritime Provinces have had heavy rains during the first week of August, with temperatures somewhat below normal. The hay crop has been slow in maturing and although haymaking has been delayed by the wet weather a very heavy yield is being harvested. Feed grains are now ripening rapidly with very good yields in sight. Pastures are in fine condition for this season of the year as well. Vegetable, potato and root crops are also reported to be making vigorous growth in Prince Edward Island and in New Brunswick.

Quebec and Ontario.—Haying has been completed in most areas of Quebec and harvesting of grain is now under way. The hay crop was much below average and grain yields will also be below normal, although there is a wide variation over the province. The corn crop has made good progress and good prospects are reported from several districts. Pastures have been dry, but recent rains have improved conditions. Potatoes are reported in from fair to good condition. The tobacco harvest has commenced in l'Assomption with only poor to fair yields reported.

The harvesting of grain crops in old Ontario is nearing completion. Yields are considerably below normal but the quality is excellent. Pastures in western Ontario are still suffering from dry weather and many farmers are using second growth alfalfa and clover for pasture. Better moisture conditions have improved pastures and late crops in eastern Ontario. The corn crop has made good progress in almost all parts of the province. Root crops need rain in the western counties. In the north haying is about completed with a fair crop reported. Grain crops continue to make good progress and early fields are ripening.

Prairie Provinces.—Harvesting operations progressed rapidly in Manitoba during the week and over sixty per cent of the wheat has been cut or swathed. The weather was generally warm but scattered showers in many districts interrupted operations. Threshing has started in several parts of the province and will likely be general the beginning of next week. The yield and quality of the crop was adversely affected by the abnormal heat of July and while early seeded fields will give fair to good returns, much late seeded crop is somewhat disappointing. In the central districts the straw is heavy and considerable lodging is making harvesting difficult. The corn crop is generally in good condition but would benefit from further rainfall. Sugar beets are very promising. Grasshoppers have damaged late crops, particularly barley, in the Red River Valley. Light to heavy hail losses were reported from many scattered points. Pastures are generally in good condition and livestock are doing very well.

Warm weather with scattered showers prevailed over Saskatchewan during the past week and all grains matured rapidly. Cutting of wheat is well under way in most parts of the province, with considerable swathing being carried on in some districts to minimize losses from sawfly injury. Little change in prospects has occurred although early returns in the south-eastern district would indicate a somewhat lighter yield than was anticipated. Only very light yields are expected over a large portion of the province but prospects are still fair to good in the south-eastern, Regina-Weyburn and parts of the north-eastern districts and on the heavy lands in the south-western and west-central sections. Late sown coarse grains have benefited from recent rains and the fodder outlook has been improved. Sawfly injury is fairly general in southern, central and west-central Saskatchewan with damage varying from slight to severe. Rust is prevalent on flax in the south-east but the extent of injury is obscure as yet. Hail losses are reported from a few scattered points.

Light scattered showers were received over the greater part of Alberta during the past week with rainfall heavier in the north-central and northern districts. Warm weather hastened the maturity of all grains and harvesting has begun in all parts of the province. Cutting is general in the south and will be general in most districts by the beginning of next week. Prospects are good in the extreme south, along the foothills, in parts of the central sections, and in the north-central and Peace River districts, but elsewhere are only poor to fair. Coarse grain yields are expected to be considerably below average in much of the central and eastern sections, and oats are being cut for feed in east-central Alberta. Sawfly injury is becoming more serious than was anticipated and considerable losses are evident on harvested fields. Hail is reported from scattered points in the southern and central districts.

British Columbia.—The coastal and southern interior districts of the province received heavy rains on August 2 and 3, but elsewhere the past fortnight has been bright and warm. The second cutting of alfalfa has yielded well, and for the province as a whole, the cereal grains now being harvested are promising high yields. Continued drought around Agassiz has lowered the cereal yields in that area. Early apples and pears are beginning to move in volume, although the main Bartlett pear crop will not be ready for marketing for another week.

AUGUST 19

Harvesting operations progressed fairly well in all three provinces during the past week although showers over most of Manitoba and Saskatchewan caused some delays. In Manitoba cutting of wheat is nearly completed and threshing is under way at many points. Yields vary from average to better than average but grades are somewhat lower than usual ranging from No. 2 to No. 4 Northern. Cutting is well advanced in Saskatchewan with threshing started in some districts. Prospects for wheat remained unchanged during the week. Early threshing returns are mainly bearing out earlier yield expectations, and the grades so far are predominantly No. 2 Northern. In southern Alberta harvesting is well under way but cutting is just beginning in the northern parts of the province. Early wheat samples in the south are grading high for the most part. Yields of wheat are highly variable, with the better crops on summer-fallow in the south-western and west-central districts, and crops in the east-central districts being generally poor. Slightly below normal yields are expected in the Peace River district.

Manitoba.—The wheat harvest made considerable progress last week throughout the province. Cutting is nearly completed, and threshing is getting well under way. Yields are varying from average to better than average. The grades, however, are running lower than in recent years, with the samples ranging from No. 2 to No. 4 Northern. Showers over the past week-end held up threshing temporarily. Coarse grains are also promising average yields or better, and the corn crop in the main has been doing very well, although slight damage in the Morden area is beginning to appear, as a result of dry weather. Pasture conditions on the whole are very good for this season of the year.

Saskatchewan.—Fair progress was made in harvesting during the past week although light to heavy showers in most districts caused temporary delays. Cutting of wheat is nearing completion in some districts and threshing has started at many points. Little change has occurred in wheat prospects during the week but early returns in the Indian Head district indicate yields will be slightly better than anticipated. So far the predominating grade has been No. 2 Northern. Further damage to crops, chiefly to oats, has been caused by grasshoppers in the south-central district, while sawfly injury varying from light to considerable is evident in fields in the open prairie area. Some severe leaf rust of wheat is reported in the south-east. Pastures are in fair to good condition and live stock are doing well.

Alberta.—Harvesting is getting well under way in the southern part of the province, with cutting just beginning in the northern areas. In the central and southern districts the weather has continued mostly dry, favouring harvesting, although some widely scattered hailstorms have wrought further damage in local areas. The early wheat samples in the south are showing predominantly high grades. Wheat yields are highly variable, with some good crops on summer-fallow in the Calgary, Lethbridge and Cardston districts, and some very poor crops on stubble. Yields in the east-central districts are generally poor. Showers in the Edmonton, northern and Peace River districts have caused a certain amount of delay in cutting, but the harvest will soon be general. In the Peace River, yields will be hardly up to average for that area, and the grades may be lowered due to the presence of green and heat-shrunken kernels showing up in the early samples.

AUGUST 26

Haying is still in progress in the Maritime Provinces, due to delay from continued heavy rains. Harvesting of cereals has commenced in New Brunswick and in Prince Edward Island, but these crops are still just ripening in Nova Scotia. Pastures are in very good condition, and potatoes and roots are promising well.

In Quebec the cereal harvest is making good progress, and yields are almost up to normal, being somewhat better than was anticipated earlier. Rainfall was none too plentiful during the past fortnight, and pastures are still in need of heavy rains. Most of Ontario enjoyed intermittent, and in some cases heavy showers over the past week. Pastures and late crops have benefited considerably. Much of the harvesting of the cereal crops was completed before the rains came.

Continued satisfactory progress was made in harvesting the Prairie crop during the past week. Showers at most points and heavy rains in southern Saskatchewan during the week caused some delay in operations, while heavy precipitation in west-central and northern Alberta over the week-end will hold up further work temporarily. Harvesting is furthest advanced in Manitoba where cutting is practically finished and threshing is over fifty per cent completed. Yields of wheat are somewhat above average but grades are low. Oats promise above average yields. In Saskatchewan cutting is from sixty to seventy per cent completed and about twenty per cent of the wheat has been threshed. Threshers' returns are substantiating yield expectations, and while grades are generally high some lowering of the grade has occurred in the southeast. Harvesting is latest in Alberta. Cutting is general throughout the province but very little threshing has been done except in the south. Prospects for wheat remained unchanged during the week. Early returns in the south indicate fair to good yields and grades are high.

British Columbia has experienced cool and somewhat showery weather over the past two weeks. Harvesting of feed grains is mostly completed. Small fruits are almost finished, and peaches are past the peak of their harvest. A substantially reduced apple crop from last year's production is anticipated.

Maritime Provinces.—A few fine days have followed the very heavy rains which fell up to August 18. The grain harvest is under way in New Brunswick and Prince Edward Island but continued showery weather has delayed cutting in Nova Scotia. Yields of grain crops in all three provinces are reported to be average or better. Haying continues throughout the Maritimes with heavy yields being cut, although the quality of the crop is deteriorating as a result of the continued rains. Pastures, however, are in excellent condition for this time of year. Roots, potatoes and vegetables all promise good yields.

Quebec and Ontario.—Weather conditions have been mostly favourable in Quebec during the past two weeks. The harvest of cereal crops is well under way. The yields per acre are proving superior to those previously anticipated, and are just slightly below normal. Potatoes and roots promise an average crop although the white grub has caused some injury to potatoes. Pasture conditions are very mixed with some areas having benefited by the none-too-heavy showers of the past fortnight, and other areas still continuing poor.

The greater part of Ontario enjoyed heavy rains last week. Most of the harvesting of feed grains has been completed, although in some instances threshing was delayed by the rains. Apart from the Galt district where only light showers were received, pastures and late crops, including corn, potatoes and roots benefited considerably from the much-needed precipitation. Soil con-

ditions are now favourable for cultivation, and in the winter wheat areas, seeding has already begun. An increase in the area sown to winter wheat is anticipated this autumn.

Manitoba.—Harvesting continued satisfactorily in Manitoba during the past week Cutting is practically completed except for a small amount of coarse grains and most of the flax crop. Threshing is well advanced and over fifty per cent has been completed. Operations in the Swan River district have been held up by wet weather and threshing is just starting with considerable coarse grains still to be cut. Yields of wheat are somewhat better than average but grades are lower than usual, running No. 2 and No. 3 Northern for the most part. Early seeded coarse grains in the west-central district are good but late fields are poor. Oat yields are generally above average. Prospects for the corn crop are good. Continued showery weather, while hindering harvesting has aided gardens and pastures, particularly in the north-west.

Saskatchewan.—Good progress was made in harvesting the Saskatchewan crop during the past week in spite of showers and some heavy rains which hindered operations and at some points caused considerable delay. About seventy per cent of the wheat crop and sixty per cent of the coarse grains have been cut, operations being furthest advanced in the south-eastern, east-central, central and northern districts. Threshing is well under way in the south-central, south-western and central districts where between twenty-five and fifty per cent of the wheat threshing has been completed, but for the province as a whole only about twenty per cent of the wheat has been threshed. Threshing returns so far generally substantiate previous yield expectations with some reports indicating slightly higher yields. While wheat is grading well in most districts, several districts, particularly in the south-east, report lowered grades resulting from shrunken and green kernels. Further grasshopper and sawfly damage has occurred in the southern and western parts of the province. Pastures in many districts have been improved by the fall rains.

Alberta.—Harvesting operations progressed satisfactorily in Alberta during the week but heavy week-end rains in the west-central and northern districts will cause considerable delay. In the southern districts cutting and combining is well advanced and threshing is under way. While cutting is general in the central and northern districts, very little threshing has been completed and will not be general till the first week in September. Wheat samples in the south indicate that yields will be fair to good with high grades prevailing. Fair to good yields are expected in the west-central and parts of the northern districts, but very light yields are anticipated in the east-central and parts of the central districts. While stands are heavy in the Peace River district, yields will be slightly below normal. Recent rains have improved late sown coarse grains and pastures, particularly in the central districts.

British Columbia.—The weather has been cool and showery over most of the province during the past fortnight. Threshing of feed grains is nearly completed on the Island and lower mainland, although harvesting operations are later in the districts further inland. The small fruit harvest is finished with the exception of blackberries, and the peach harvest is past its peak. The apple crop is placed at twenty-eight per cent below last year's production, with the injury from codling moths more serious than usual.

September 3

Almost all sections of the Prairie Provinces have experienced cool, showery weather during the past ten days, which has generally delayed harvesting

operations. In Manitoba, threshing had been well advanced prior to the past week when showers brought operations almost to a standstill. In Saskatchewan, about eighty per cent of the wheat has been cut, but only thirty-five per cent has been threshed, with the work proceeding very slowly during the past week. Much less wheat has been cut in Alberta, and threshing in most districts is barely under way. Although temperatures were on the low side across the Prairies during the week, there were no damaging frosts so far as the main cereal crops are concerned. In northern Saskatchewan, however, some late oats and barley and garden crops were injured by frost during the early part of last week. The continued showery weather has caused some loss of grade through bleaching and sprouting. Apart from impeding the general harvest, however, the rains have benefited the late oats crop in Alberta, and have improved pasture conditions across the three provinces.

Manitoba.—Threshing operations were virtually at a standstill during the past week as a result of cool, showery weather in almost all parts of the province. Threshing is nearing completion in some of the earlier sections in the eastern districts but has just begun in the Minnedosa area and in the Swan River Valley. No change in prospective yields or grades of wheat is reported. While early oats and barley will yield well, the late crops of these grains are generally poor. Corn promises well but is slow in maturing. Sugar beets and potatoes are good crops. Fodder crops are abundant in most districts and pastures are generally fair to good.

Saskatchewan.—Cool, showery weather in most parts of the province during the past week retarded harvesting operations. Cutting proceeded slowly and for the province as a whole about eighty per cent of the wheat crop and seventy per cent of the coarse grains have been cut. Damp grain resulting from the heavy rains in southern districts over the previous week-end and showers in most districts during the week, held up threshing operations and only about thirty-five per cent of the wheat has been threshed. Some loss in grade through bleaching has resulted from the wet weather while sprouting of cut grain has occurred at points in the southern districts. Lodging in fields damaged by sawflies is also hampering harvesting. Frost in the northern districts during the early part of the week damaged garden stuff and late grains. Pastures generally have shown improvement and live stock are doing well.

Alberta.—Harvesting operations were generally delayed throughout the province during the past week, as a result of frequent showers. Although fair progress with wheat cutting had been made prior to the past ten-day period of showery weather, much of the cutting still remains to be done. In the Edmonton district, the late summer rains have resulted in a certain amount of second growth, making harvesting more difficult. Around Sedgewick threshing and combining were progressing favourably during the past week, but elsewhere in the province very little threshing was reported. Late oat crops have benefited by the recent rains, and pasture and range conditions have improved considerably, thereby helping the feed situation. Live stock on the range lands are reported to be in excellent condition.

CARRY-OVER STOCKS OF CANADIAN GRAIN AT JULY 31 1941

The Bureau issued on August 13, a report covering the total carry-over stocks of Canadian grain in both Canadian and United States positions at the end of the crop year, July 31, 1941, as compared with stocks at the same date in 1939 and 1940.

Carry-over of Wheat

The total carry-over of Canadian wheat in all Canadian and United States positions at July 31, 1941, amounted to 480,083,691 bushels. Of this amount 448,292,181 bushels were in store, in transit or on farms in Canada, while 31,791,510 bushels were in store or in transit in the United States. The total carry-over is by far the largest amount of Canadian wheat ever carried over from one crop year to the next, having exceeded last year's record carry-over of 300,473,465 bushels by 179,610,226 bushels.

This year's wheat carry-over on farms in Canada is estimated at 13,954,000 bushels, as compared with 17,286,000 bushels carried over on farms a year ago.

Carry-over of Other Grains

Total stocks of Canadian oats, barley and rye in Canadian and United States positions were lower at July 31, 1941, than on the same date in 1940. Flaxseed stocks, on the other hand, were slightly higher than in 1940.

Table 1.—Total Stocks of Canadian Grain in Canada and the United States, at July 31, 1939 to 1941

Grain	1939	1940	1941
	bu.	bu.	bu.
Wheat	102,910,853	300,473,465	480,083,691
Oats	48,887,155	46,931,028	41,713,303
Barley	12,804,186	12,653,875	10,674,811
Rye	2,921,434	5,351,661	4,911,710
Flaxseed	118,822	583,307	620,313

Table 2.—Detailed Stocks of Canadian Grain in Canada and the United States at July 31

Description	Wheat				Oats	
	1938	1939	1940	1941	1940	1941
	bu.	bu.	bu.	bu.	bu.	bu.
In Canada						
On farms	5,061,000	4,682,000	17,286,000	13,954,000	39,781,000	37,102,000
Country and private terminal elevators	1,166,971	7,811,988	57,659,694	217,873,891	1,962,724	722,020
Western mills and mill elevators	1,642,481	6,074,235	6,307,227	6,550,267	750,317	551,209
Interior terminal elevators	9,078	2,976,672	14,342,472	18,330,920	65,362	572
Vancouver-New Westminster elevators	79,074	6,433,326	15,393,777	17,592,322	78,402	37,593
Victoria and Prince Rupert elevators	–	318,674	1,748,490	2,198,953	–	–
Churchill elevator	11,820	2,455,598	2,494,610	2,617,396	–	–
Fort William-Port Arthur elevators	7,501,303	16,827,641	80,176,682	81,809,414	1,122,423	1,576,195
In transit—Lakes	1,630,537	1,346,228	2,275,678	3,441,031	20,474	80,212
In transit—Rail	789,861	3,465,994	14,601,791	17,634,992	1,058,847	611,571
Eastern elevators	4,626,499	41,135,051	59,499,624	65,053,695	669,140	307,766
Eastern mills	1,034,604	1,104,541	1,141,887	1,235,300	1,076,727	412,900
Total in Canada	**23,553,228**	**94,631,948**	**272,927,932**	**448,292,181**	**46,585,416**	**41,402,038**
Total Canadian Grain in the United States	**982,630**	**8,278,905**	**27,545,533**	**31,791,510**	**345,612**	**311,265**
Total Canadian Grain in Canada and the United States	**24,535,858**	**102,910,853**	**300,473,465**	**480,083,691**	**46,931,028**	**41,713,303**

Table 2.—Detailed Stocks of Canadian Grain in Canada and the United States at July 31
—concluded

Description	Barley		Rye		Flaxseed	
	1940	1941	1940	1941	1940	1941
	bu.	bu.	bu.	bu.	bu.	bu.
In Canada—						
On farms	7,075,000	6,505,000	619,000	460,000	26,800	15,000
Country and private terminal elevators	1,113,229	767,478	556,708	399,395	198,684	109,667
Western mills and mill elevators	1,347,939	1,088,747	16,206	46,035	27,958	32,809
Interior terminal elevators	5,504	68	475	6	–	4
Vancouver-New Westminster elevators	28,878	23,412	11,315	–	–	–
Victoria and Prince Rupert elevators	–	–	–	–	–	–
Churchill elevator	–	–	–	–	–	–
Fort William-Port Arthur elevators	848,011	1,159,702	357,402	642,498	207,045	255,598
In transit—Lakes	58,399	191,452	30,000	–	20,749	81,150
In transit—Rail	296,431	412,512	97,333	127,638	46,908	76,907
Eastern elevators	638,011	218,080	308,141	164,687	55,163	49,178
Eastern mills	90,968	91,600	49,056	12,200	–	–
Total in Canada	**11,502,370**	**10,458,051**	**2,045,636**	**1,852,459**	**583,307**	**620,313**
Total Canadian Grain in the United States	**1,151,505**	**216,760**	**3,306,025**	**3,059,251**	–	–
Total Canadian Grain in Canada and the United States	**12,653,875**	**10,674,811**	**5,351,661**	**4,911,710**	**583,307**	**620,313**

Table 3.—Stocks of Grain on Farms at July 31, 1939 to 1941

Description	Total Production 1938	On Farms, July 31, 1939		Total Production 1939	On Farms, July 31, 1940		Total Production 1940	On Farms, July 31, 1941	
	000 bu.	p.c.	bu.	000 bu.	p.c.	bu.	000 bu.	p.c.	bu.
Canada—									
Wheat	360,010	1·3	4,682,000	520,623	3·3	17,286,000	551,390	2·5	13,954,000
Oats	371,382	10·7	39,654,000	384,407	10·3	39,781,000	380,526	9·8	37,102,000
Barley	102,242	7·2	7,346,700	103,147	6·9	7,075,000	104,256	6·2	6,505,000
Rye	10,988	3·5	380,000	15,307	4·0	619,000	13,994	3·3	460,000
Flaxseed	1,259	0·4	4,900	2,044	1·3	26,800	3,189	0·5	15,000
P.E. Island—									
Wheat	180	1·3	2,300	165	1·6	3,000	238	3·4	8,000
Oats	4,844	5·3	257,000	4,868	6·7	326,000	4,998	7·8	390,000
Barley	195	1·9	3,700	252	1·5	4,000	397	3·1	12,000
Nova Scotia—									
Wheat	54	1·5	800	45	4·0	2,000	55	2·5	1,000
Oats	2,667	4·5	120,000	3,325	5·8	193,000	3,265	8·1	264,000
Barley	243	1·9	4,600	297	2·4	7,000	351	4·1	14,000
New Brunswick—									
Wheat	150	1·7	2,600	140	1·0	1,000	176	1·3	2,000
Oats	6,236	5·6	349,000	6,671	8·3	554,000	6,507	10·4	677,000
Barley	382	2·7	10,300	459	0·3	1,000	521	6·8	35,000
Quebec—									
Wheat	758	6·6	50,000	577	7·0	40,600	522	5·0	26,000
Oats	38,492	12·0	4,619,000	45,293	14·0	6,341,000	44,290	13·0	5,758,000
Barley	4,164	10·0	416,000	4,055	9·0	365,000	3,888	14·0	544,000
Rye	111	–	–	111	–	–	103	–	–
Flaxseed	27	–	–	32	–	–	140	–	–
Ontario—									
Wheat	21,424	8·3	1,778,000	23,821	12·0	2,859,000	23,400	9·9	2,317,000
Oats	82,147	9·2	7,558,000	86,639	10·0	8,664,000	86,554	11·0	9,521,000
Barley	16,646	6·5	1,082,000	16,600	8·0	1,328,000	15,519	6·4	993,000
Rye	1,438	2·3	33,000	1,378	5·0	69,000	1,557	3·7	58,000
Flaxseed	44	0·2	100	58	0·2	100	170	0·8	1,000

Table 3.—Stocks of Grain on Farms at July 31, 1939 to 1941—concluded

Description	Total Production 1938	On Farms, July 31, 1939		Total Production 1939	On Farms, July 31, 1940		Total Production 1940	On Farms, July 31, 1941	
	000 bu.	p.c.	bu.	000 bu.	p.c.	bu.	000 bu.	p.c.	bu.
Manitoba—									
Wheat	50,000	1·1	561,000	61,300	1·6	1,000,000	66,000	1·5	1,000,000
Oats	41,000	9·0	3,690,000	34,500	7·8	2,691,000	33,000	6·9	2,277,000
Barley	31,000	6·6	2,046,000	28,000	6·0	1,680,000	27,500	4·8	1,320,000
Rye	3,240	1·3	42,000	2,000	1·5	30,000	2,250	1·1	25,000
Flaxseed	300	0·3	1,000	425	0·4	1,600	800	0·4	3,000
Saskatchewan—									
Wheat	137,800	0·4	528,000	271,300	2·3	6,250,000	272,000	1·7	4,500,000
Oats	90,000	8·4	7,560,000	112,000	9·9	11,088,000	93,000	6·8	6,324,000
Barley	20,000	4·3	860,000	26,000	5·5	1,430,000	23,500	3·5	823,000
Rye	3,400	3·6	122,000	9,300	4·3	400,000	7,000	2·6	182,000
Flaxseed	725	0·2	1,500	1,250	1·6	20,000	1,650	0·3	5,000
Alberta—									
Wheat	148,200	1·2	1,716,000	161,400	4·3	7,000,000	187,000	3·2	6,000,000
Oats	101,000	15·1	15,251,000	85,000	11·1	9,435,000	103,000	11·2	11,536,000
Barley	29,200	10·0	2,920,000	27,000	8·3	2,241,000	32,000	8·6	2,752,000
Rye	2,700	6·7	181,000	2,400	4·8	115,000	3,000	6·4	192,000
Flaxseed	160	1·4	2,300	275	1·8	4,900	425	1·5	6,000
British Columbia—									
Wheat	1,444	3·0	43,300	1,875	7·0	131,000	1,999	5·0	100,000
Oats	4,996	5·0	250,000	6,111	8·0	489,000	5,912	6·0	355,000
Barley	412	1·0	4,100	484	4·0	19,000	580	2·0	12,000
Rye	99	2·0	2,000	118	4·0	5,000	84	4·0	3,000
Flaxseed	3	–	–	4	5·0	200	4	–	–

DISPOSITION OF THE 1940 PRAIRIE WHEAT CROP

According to the preliminary disposition data shown below, the 1940 wheat crop in the Prairie Provinces appears to have been over-estimated by the relatively small amount of 4·7 million bushels or 0·9 per cent. The primary marketings are subject to subsequent revision, as well as the estimate of the amount fed on farms. For this reason, no revision will be made in the present production estimate of 525,000,000 bushels until the January 21, 1942 crop report is issued, when final disposition data will have become available.

WHEAT SUPPLIES AND DISPOSITION IN THE PRAIRIE PROVINCES, 1940-41 SEASON

Item	Manitoba	Saskatchewan	Alberta	Prairie Provinces
	000 bu.	000 bu.	000 bu.	000 bu.
Carry-over on farms, July 31, 1940	1,000	6,250	7,000	14,250
January estimate 1940 crop	66,000	272,000	187,000	525,000
Total available	67,000	278,250	194,000	539,250
Marketings[1]	57,304	242,030	158,450	457,784
Seed	3,969	14,150	8,516	26,635
Feed[1]	5,000	13,000	19,000	37,000
Country millings[1]	523	657	467	1,647
Carry-over on farms, July 31, 1941	1,000	4,500	6,000	11,500
Total disposition	67,796	274,337	192,433	534,566
Extent of error indicated	+796	−3,913	−1,567	−4,684
Production estimates as indicated by preliminary disposition data	66,796	268,087	185,433	520,316

[1] Subject to revision.

PRODUCTION AND DISTRIBUTION OF WHEAT IN CANADA, 1868-69 TO 1940-41

Crop Year	Estimated population	Production	Imports[1]			Exports[1]			Apparent consumption
			Wheat	Wheat flour	Wheat and flour[2]	Wheat	Wheat flour	Wheat and flour[2]	
	000	000 bu.	bu.	bbl.	bu.	bu.	bbl.	bu.	000 bu.
1868-69	3,511	*22,156*	3,501,948	349,248	5,163,564	2,809,208	375,219	4,497,694	*22,822*
1869-70	3,565	*22,578*	4,402,773	326,387	5,871,515	3,557,101	382,177	5,276,898	*23,173*
*1870-71	3,625	*16,724*	4,201,657	392,843	5,969,451	1,748,977	306,339	3,127,503	*23,563*
1871-72	3,689	*23,149*	4,168,179	376,372	5,861,853	2,993,119	453,144	5,032,277	*23,979*
1872-73	3,754	*23,838*	5,821,390	278,832	7,076,134	4,379,741	474,190	6,513,596	*24,401*
1873-74	3,826	*24,180*	8,405,616	288,056	9,701,868	6,581,217	540,317	9,012,644	*24,869*
1874-75	3,895	*25,853*	5,105,158	467,786	7,210,195	4,383,022	302,783	5,745,546	*25,318*
1875-76	3,954	*26,093*	5,855,656	376,114	7,548,169	6,070,393	415,504	7,940,161	*25,701*
1876-77	4,009	*22,601*	4,589,051	549,063	7,059,835	2,393,155	268,605	3,601,878	*26,059*
1877-78	4,064	*25,903*	5,635,411	314,520	7,050,751	4,393,535	476,431	6,537,475	*26,416*
1878-79	4,120	*30,359*	4,210,165	313,088	5,619,061	6,610,724	574,947	9,197,986	*26,780*
1879-80	4,185	*34,876*	10,176	101,799	468,272	5,090,505	544,591	7,541,165	*27,203*
*1880-81	4,255	32,350	76,652	197,581	965,767	2,523,673	439,728	4,502,449	28,813
1881-82	4,325	38,000	345,909	172,517	1,122,236	3,845,035	469,739	5,958,861	33,163
1882-83	4,375	47,752	44,097	264,956	1,236,399	5,867,458	489,046	8,068,165	40,920
1883-84	4,430	30,841	298,660	531,188	2,689,006	745,526	197,389	1,633,777	31,896
1884-85	4,487	45,363	373,101	540,108	2,803,587	2,340,956	123,777	2,897,953	45,269
1885-86	4,537	42,736	66,084	201,327	972,056	3,419,168	386,099	5,156,614	38,551
1886-87	4,580	38,225	22,540	169,629	785,871	5,631,726	520,213	7,972,685	31,038
1887-88	4,626	38,954	12,042	62,482	293,211	2,163,754	350,115	3,739,272	35,508
1888-89	4,678	32,965	15,167	258,813	1,179,826	490,905	131,181	1,081,220	33,064
1889-90	4,729	30,792	188,934	169,869	953,345	422,274	115,099	940,220	30,805
*1890-91	4,779	42,223	147,521	57,489	406,222	2,108,216	296,784	3,443,744	39,185
1891-92	4,833	60,721	66,113	36,559	230,629	8,714,154	380,996	10,428,636	50,523
1892-93	4,883	48,182	9,069	34,507	164,351	9,271,885	410,185	11,117,718	37,229
1893-94	4,931	41,347	60,773	32,506	207,050	9,272,208	428,610	11,200,953	30,353
1894-95	4,979	43,221	499,720	47,883	715,194	8,825,689	222,975	9,829,077	34,107
1895-96	5,026	55,703	142,131	41,436	328,593	9,919,542	186,716	10,759,764	45,272
1896-97	5,074	39,570	83,589	26,377	202,286	7,855,274	421,758	9,753,185	30,019
1897-98	5,122	54,418	58,045	35,587	218,187	18,963,107	1,249,438	24,585,578	30,051
1898-99	5,175	66,495	35,546	57,745	295,399	10,305,470	792,536	13,871,882	52,919
1899-1900	5,235	59,912	27,262	50,659	255,228	16,844,650	768,162	20,301,379	39,866
*1900-01	5,301	55,572	104,782	46,638	314,653	9,739,758	1,118,700	14,773,908	41,113
1901-02	5,371	88,337	148,326	47,143	360,470	26,117,530	1,086,648	31,007,446	57,690
1902-03	5,494	97,073	84,931	35,247	243,543	32,985,745	1,287,766	38,780,692	58,536
1903-04	5,651	81,888	37,171	40,849	220,992	16,779,028	1,587,600	23,923,228	58,186
1904-05	5,827	71,838	92,406	42,397	283,193	14,700,315	1,321,469	20,646,926	51,474
1905-06	6,002	107,033	64,927	41,912	253,531	40,399,402	1,532,014	47,293,465	59,993
1906-07	6,097	135,602	35,251	44,072	233,575	39,434,658	1,562,491	46,465,868	89,370
1907-08	6,411	93,131	104,267	44,194	303,140	40,077,950	1,667,903	47,583,514	45,851
1908-09	6,625	112,434	28,186	33,489	178,887	47,696,065	2,008,349	56,733,636	55,879
1909-10	6,800	166,744	73,078	30,273	209,307	52,623,887	3,374,268	67,808,093	99,145
*1910-11	6,988	132,078	107,903	66,608	407,639	48,442,780	3,101,185	62,398,113	70,088
1911-12	7,207	231,237	140,626	52,191	375,486	78,786,889	4,180,892	97,600,903	134,012
1912-13	7,389	224,159	619,031	60,079	889,387	95,510,826	4,496,299	115,744,172	109,304
1913-14	7,632	231,717	129,823	50,632	357,667	114,902,121	4,596,739	135,587,447	96,487
1914-15	7,879	161,280	1,964,466	47,905	2,180,039	63,901,874	5,077,389	86,750,125	76,710
1915-16	7,981	393,543	131,308	38,638	305,179	235,738,776	7,426,437	269,157,743	124,690
1916-17	8,001	262,781	86,043	48,531	304,433	140,223,819	7,631,429	174,565,250	88,520
1917-18	8,060	233,743	183,639	21,693	281,258	118,579,601	11,257,942	169,240,340	64,784
1918-19	8,148	189,075	290,891	6,815	321,559	55,921,319	9,119,796	96,960,401	92,436
1919-20	8,311	193,260	115,420	19,186	201,757	63,450,123	6,455,429	92,499,554	100,962
*1920-21	8,556	226,508	304,642	33,357	454,749	136,968,832	6,721,469	167,215,443	59,747
1921-22	8,788	300,858	193,234	39,935	372,942	150,935,359	7,740,960	185,769,679	108,759
1922-23	8,919	399,786	93,571	67,544	397,519	229,849,410	11,003,460	279,364,980	129,719
1923-24	9,010	474,199	40,772	88,882	440,741	292,425,153	12,021,424	346,521,561	94,650
1924-25	9,143	262,097	352,923	61,660	630,393	146,958,158	10,169,692	192,721,772	87,451
1925-26	9,294	395,475	154,963	49,829	379,194	275,557,078	10,896,654	324,592,021	62,501
1926-27	9,451	407,136	139,486	59,474	407,119	251,265,788	9,247,824	292,880,996	100,191
1927-28	9,637	479,665	148,904	72,410	474,749	288,567,390	9,865,754	332,963,283	120,172
1928-29	9,835	566,726	994,922	77,991	1,345,881	354,424,699	11,808,775	407,564,187	133,805
1929-30	10,029	304,520	1,003,998	82,384	1,374,726	155,766,106	6,778,023	180,267,210	111,943
1930-31	10,208	420,672	131,608	25,025	244,221	228,536,403	6,701,663	258,693,887	139,487
1931-32	10,376	321,325	123,524	20,623	216,328	182,803,382	5,383,594	207,029,555	117,560
1932-33	10,506	443,061	51,320	27,043	173,014	240,136,568	5,370,613	264,304,327	99,123
1933-34	10,681	281,892	10,676	89,442	413,165	170,234,013	5,454,636	194,779,875	104,518
1934-35	10,824	275,849	2,794	198,640	896,674	144,374,910	4,750,310	165,751,305	101,583
1935-36	10,935	281,935	15,111	61,422	291,510	232,019,649	4,978,917	254,424,775	121,702
1936-37	11,028	219,218	146,959	56,986	403,396	174,858,160	4,525,665	195,223,653	99,542
1937-38	11,120	180,210	5,743,998	87,738	6,138,819	76,713,595	3,609,656	92,957,047	103,562
1938-39	11,209	360,010	1,558,559	73,915	1,891,177	146,240,344	4,604,245	166,959,447	123,083
1939-40	11,315	520,623	16,306	95,125	444,368	177,380,363	6,781,367	207,896,515	134,458
1940-41	11,422	551,390	398	27,200	122,798	177,967,532	10,288,827	224,267,254	153,056

[1] Years ended June 30, 1869 to 1905, and July 31, 1906 to 1941.

[2] Wheat flour has been converted into bushels of wheat at the average rate of 4½ bushels to the barrel of 196 lb. of flour.

[3] In calculating the apparent home consumption, stocks of wheat on hand at July 31 have been included since 1921 and stocks of wheat flour since 1926. The consumption figures for these years are not, therefore, strictly comparable with the figures for the earlier years, for which data on carry-over stocks are not available.

* Production figures from records of the decennial census.

NOTE.—For description of methods of calculation see Monthly Bulletins of Agricultural Statistics, January 1927, pp. 25-27; and September, 1937, p. 274.

DISPOSITION OF AGRICULTURAL PRODUCTS IN CANADA

The following table is a continuation of those appearing previously in the September issues of the Monthly Bulletin of Agricultural Statistics. The figures for 1940-41 are preliminary and subject to revision. The figures for 1939-40 have been revised.

(Thousands omitted)

Description	Unit	Stocks on hand		Production		Imports[1]		Exports[1]		Stocks on hand	Apparent consumption	
		July 31, 1939	July 31, 1940	1939	1940	1939-40	1940-41	1939-40	1940-41	July 31, 1941	1939-40	1940-41
Field Crops—												
Wheat	bu.	99,075[2]	277,787[2]	520,623	551,390	444[2]	123[2]	207,897[2]	224,267[2]	451,977[2]	134,458	153,056
Oats	"	49,163[3]	46,971[3]	384,407	380,525	13[3]	23[3]	23,911[3]	14,603[3]	41,846[3]	362,701	371,071
Barley	"	12,784	11,502	103,147	104,256	4	0	12,148	2,097	10,458	92,285	103,203
Rye	"	1,976	2,046	15,307	13,994	0	0	4,571	3,544	1,852	10,666	10,644
Peas	"	[5]	[5]	1,307	1,355	79	78	32	73	[5]	1,354	1,360
Beans	"	[5]	[5]	1,527	1,477	251	70	581	417	[5]	1,197	1,130
Buckwheat	"	[5]	[5]	6,848	6,692	0	11	592	3	[5]	6,256	6,700
Corn	"	[5]	[5]	8,097	6,956	8,490	7,174	7	14	[5]	16,580	14,116
Potatoes	cwt.	[5]	[5]	36,390	42,300	543	409	3,104	1,444	[5]	33,829	41,265
Turnips, etc	"	[5]	[5]	37,636	39,016	–	–	1,495	1,392	[5]	36,141	37,624
Hay[4]	ton	[5]	[5]	17,082	18,574	0	0	101	48	[5]	16,981	18,526
Sugar beets	"	[5]	[5]	586	830	–	–	–	–	[5]	586	830
Flaxseed	bu.	119	583	2,044	3,049	1,392	176	18	76	620	2,954	3,112
Tobacco	lb.	[5]	[5]	107,703	61,136	4,292	2,825	13,630	4,836	[5]	98,365	59,125
Animal Products—		Jan. 1, 1939	Jan. 1, 1940			1939	1940	1939	1940	Jan. 1, 1941	1939	1940
Butter	"	45,120	41,769	371,335	363,341	6	4	12,399	1,338	33,829	362,293	369,947
Cheese	"	31,500	25,812	126,522	143,123	1,397	970	90,945	106,631	24,707	42,662	38,567
Evaporated (whole and skim)	"	15,088	12,661	117,850	136,436	–	–	25,012	34,746	11,774	95,265	102,577
Beef and veal	"	23,490	33,841	689,882[6]	684,135[6]	15,161	10,776	4,352	3,703	25,721	690,340	699,328
Pork	"	27,237	44,880	774,219[6]	976,836[6]	26,647	37,155	194,992	353,309	61,517	588,231	644,045
Lard	"	2,609	4,134	74,819	86,626	187	2	7,503	2,690	4,903	65,978	83,169
Mutton and lamb	"	5,420	6,356	64,896[6]	56,408[6]	1,566	921	205	183	5,456	65,321	58,046
Wool	"	[5]	[5]	17,846	18,127	51,933[7]	86,170[7]	4,879[7]	2,681[7]	[5]	64,900	101,616
Eggs	doz.	3,834	4,680	242,237	256,606	728	621	1,274	10,980	4,538	240,845	246,389
Poultry	lb.	12,331	14,597	224,247	229,699	–	–	3,516	2,761	11,935	218,465	229,600
Other Products—												
Apples	bbl.	[5]	[5]	5,476	4,292	265	103	2,039	1,080	[5]	3,702	3,315
Peaches	bu.	[5]	[5]	935	787	430	368	94	29	[5]	1,271	1,126
Strawberries	qt.	[5]	[5]	28,290	25,299	5,256	3,711	4,978	1,270	[5]	28,568	27,740
Honey	lb.	[5]	[5]	28,873	23,673	28	2,769	4,707	10,780	[5]	24,194	15,662
Maple products	gal.	[5]	[5]	2,592	3,099	0	1	988	367	[5]	1,604	2,733

[1] Crops in years ending July 31; other products in calendar years. [2] Including wheat flour.
[3] Including oatmeal and rolled oats. [4] Including grain hay, clover and alfalfa. [5] Information not available.
[6] Not including live animals exported. [7] Converted to a greasy basis.

FRUIT AND VEGETABLE CROP REPORTS

JULY 28

Prince Edward Island (July 23).—The weather has been warm and dry, and frequent showers have fallen since the last report. The combination of heat and rain has promoted good growth of both fruit and vegetable crops. Vegetable crops which had only a fair start are now making excellent growth. Both insect pests and diseases have been troublesome this season. Apple scab has been very serious in unsprayed and partly sprayed apple orchards while brown rot is causing severe losses of plums where spraying is not being done thoroughly. Bud moth, codling moth and tent caterpillar larvae are all causing injury in the apple orchards while strawberry weevils have been active in many districts and doing considerable damage. It is still too early to forecast the probable production of vegetables this year but if present weather conditions continue, heavier-than-average yields are expected.

Nova Scotia (July 21).—Ideal growing conditions have prevailed since the last report. Abundant moisture supplies promoted excellent tree and fruit growth but the frequent rains have interfered with spraying and apple scab is prevalent. If spraying is continued, however, serious loss from this cause can be prevented. Insect damage is confined to injury by bud moth larvae and leaf rollers, but the infestation of the latter is considered to be lighter than usual. No serious outbreak of codling moth has been reported to date. The first estimate of apple production indicates an increase of 41 per cent over the 1940 crop at 1,623,000 barrels. Both plums and pears are expected to be lighter than last year with plums estimated at 6,200 bushels, a reduction of 22 per cent and pears at 19,500 bushels, a reduction of 10 per cent. Although the rain has caused strawberries to size well, it has caused the fruit to be too soft and ripen too fast. The crop, however, is estimated to be 12 per cent larger than that of last year at 1,404,700 quarts. Raspberries, on the other hand, are somewhat lighter than a year ago and a crop of 69,600 quarts is in prospect. Ideal growing conditions for cranberries have prevailed since the last report. The bushes are making excellent growth and runners are developing rapidly. The bloom is heavy on nearly all bogs and the prospects are excellent for a crop. Some insect injury is reported but control measures are being carried out. Although the outlook for potatoes is not as favourable as usual, some sections report excellent prospects. Early cabbage, cauliflower, leaf lettuce, iceberg lettuce and beets have grown well and are now ready to be marketed, while early turnips and potatoes will be ready in about two weeks. Although the potato acreage is smaller than that of last year the area planted to vegetable crops generally is about average.

New Brunswick (July 23).—The weather was unsettled with much rain until July 15 but since then it has been mostly fine and warm. The season has been favourable for good growth and the apples are sizing well. The usual amount of spraying has been carried out and insect and scab damage has been kept at a minimum. The apple "drop" is still taking place and the set of fruit is below that indicated by the bloom. The crop is expected to be 25 per cent heavier than the 1940 production and is estimated at 67,000 barrels. Harvesting of the strawberry crop is not yet completed. The berries in the late areas are of good quality and the crop is expected to be larger than average. Picking of raspberries has begun and the prospect is for an average or slightly below average crop. Cranberry bogs have developed favourably but an exceptionally heavy rain on July 12 and 13 may have affected the bloom and set of the fruit. The bushes were in full bloom on July 12 to 15, but the blossom was not as heavy as

anticipated in the eastern section of the province. However, with good worm control the crop should be 30 to 40 per cent larger than that of last season. The weather has been satisfactory for the growth of vegetable crops since the last report. The principal vegetables now being marketed are cabbage, cauliflower, lettuce, bunched beets, onions and early potatoes. There is some decrease in the table corn and carrot crops due to unfavourable weather at planting time.

Quebec (July 23).—Recent rains have kept soil moisture supplies sufficient to maintain good growth of foliage and fruit in the apple orchards. Although it has been warm, there have been no serious storms. The fruit generally is growing well and is expected to be as large as usual. Codling moth is prevalent in a good many orchards but other insects are not numerous. Fireblight is very serious everywhere and it will cause some decrease in production in addition to injuring the trees. The scab infection is the lightest in many years. While the prospects for the early varieties have improved during the month, there has been a decided decline in the late varieties, especially Fameuse. The first estimate of the crop indicates a reduction of 50 per cent from that of last year with prospective production set at 161,700 barrels. The picking of raspberries reached the peak on July 22. The heavy winds of July 19 and 20 caused much ripe fruit to drop, considerably reducing market supplies.

Very hot, dry weather during the month of June seriously reduced supplies of all early and mid-season vegetables, but heavy showers on July 7, 9, 17 and 19 have greatly improved conditions. Telephone peas are now being marketed in Brome county and the yield promises to be a hundred bushels to the acre. The market prospect for Brome county peas is the best in six years as the Gaspe supplies will not be ready to pick for at least four weeks. Supplies in the Montreal area are smaller than expected, with the telephone variety being practically a failure. Supplies of summer cabbage will be limited, due to the smaller acreage and adverse weather conditions. The heads are small and very hard. The fall crop acreage is 20 per cent larger than that harvested in 1940 but undoubtedly part of this will be cut as soon as ready to supply the heavy demand. Head lettuce, spinach and cauliflower supplies will be limited until September. The fall crop is making good growth and promises to be better than last year if soil moisture continues to be satisfactory. Beets and parsnips are developing normally with crop prospects better than in 1940 due to an increased acreage. Carrots are sizing rapidly following the rains that fell in mid-July. Onion maggots have reduced the prospective onion crop 10 to 15 per cent. This, coupled with a 20 per cent decrease in acreage will reduce the 1941 crop 30 to 35 per cent. To further complicate the forecast of winter supplies, many growers intend to sell large quantities of bunched onions to meet the present strong demand. Wind and rain this past week-end broke many tomato plants in Laprairie area which will tend to reduce the crop some. The main varieties John Baer, Chalks Jewel, Asgrow and Rose look very promising. The corn borer has already appeared in sweet corn supplies now being marketed and many retailers are refusing to purchase or handle corn for this reason. The table turnip acreage is practically the same as last year in the Laprairie area.

Ontario (July 21).—Western Ontario.—Despite the dry weather, the sizing of the fruit and development of the trees in the apple orchards in this district have been good. Most of the main winter varieties indicate a slight to heavy decrease in production compared with the 1940 crop. Although Wealthy and other early varieties show a substantial increase, the preliminary estimate of all varieties is placed at 20 per cent below the 1940 crop. The spray program was generally well carried out under favourable conditions and fungous pests

have been fairly well controlled. Bud moth appears to be the most serious insect pest. Slight localized hail damage is reported from Niagara, Middlesex, Huron, Elgin and Essex counties. All varieties of pears show a decrease as compared with last year's production. The size, however, is excellent and the fruit is clean. Hail has damaged the fruit in a few areas in the Niagara District. The plum crop is expected to show an increase of approximately 17 per cent over that of last year. Pests are well controlled and development of the fruit is excellent, particularly where thinning has been practised. Although the peach crop in the Niagara District is slightly below that of last year, the crop in Norfolk county will be approximately 60 per cent larger. Total production in western Ontario, however, will be probably about the same as in 1940. Spraying has been well done and the fruit is clean and developing well. The only damage reported was caused by localized hail storms in Niagara and by peach moth in some districts. The sweet cherry crop was harvested under ideal conditions, the only damage being caused by splitting in the late varieties. There is a substantial increase in the size of the crop this year as compared with that of last season. Sour cherries also show an increase in production. A light crop of strawberries resulted from the excessive heat and dry weather prior to and during harvesting. A considerable reduction in new plantings is reported. In spite of the spring killing-back of canes, raspberry bushes have developed well and with a heavy bloom larger crops than expected were harvested in Niagara, Burlington, Peel and the southwestern counties, although a poor crop is reported in Norfolk, Middlesex and Brant. Damage to the grape crops, apart from a few localized areas where some slight hail injury is reported, has been slight. With the fruit developing exceptionally well and an average two-bunch set, the preliminary estimate indicates a crop equal in size to that of 1940. The present weather and moisture conditions are favourable to the development of all vegetable crops, some of which were slightly retarded by the dry weather during part of June and early July. Harvesting is generally about one week ahead of last year. Hail damage is restricted to a few small areas in eastern Niagara where tomatoes were affected.

Eastern Ontario.—The drought was broken with heavy general rains on July 11. The following week was warm, but occasional rains maintained the moisture supply. Some damage was caused by hail in small sections of Prince Edward and Northumberland counties. In spite of the prolonged dry weather, the apples have been sizing well. Foliage and fruit are free of scab where regular sprays were applied. The fruit in some orchards, however, shows considerable leaf roller, bud moth and side worm injury. Very little thinning is necessary this year as the "drop" has been quite heavy. The crop, with the exception of the early varieties, is below that of 1940. Pears are sizing well and are quite free of insect damage and disease where proper spraying practices were carried out. The crop is below average but is somewhat heavier than that of last season. Plums are developing normally and insect damage is at a minimum. The crop, although 20 per cent lighter than that of 1940, is about average size.

The vegetable crops in Durham and Ontario counties, as well as the St. Lawrence River district did not suffer from the dry season quite as much as in the remainder of eastern Ontario. The crops in all districts are much improved by the rains that have fallen since July 11. Corn and early potatoes suffered most from the lack of moisture and in sections where these crops have been harvested the yield is poor. In general, the development of all crops is ten days to two weeks ahead of last year.

The condition of the vegetable crops in Ontario during the third week of July and the percentage change in acreage from last year are as follows:

Description	Percentage Change in Acreage from 1940		Condition	
	Western Ontario	Eastern Ontario	Western Ontario	Eastern Ontario
Beans, snap	0	− 17	3·0	3·0
Beets, bunching	0	0	3·0	2·9
Cabbage, early	+ 2	+ 2	3·0	3·2
Cauliflower, early	+ 3	0	2·9	3·0
Carrots, bunching	0	0	3·0	3·1
Celery, early	+ 5	+ 1	3·1	2·9
Celery, late	− 3	0	3·0	3·2
Corn, sweet	+ 2	− 1	2·9	2·8
Corn, processing	+ 5	0	3·0	2·4
Cucumbers	− 2	0	3·0	3·0
Lettuce	+ 15	+ 2	3·0	3·1
Onions	− 14	+ 6	3·0	2·9
Peas, garden	0	+ 5	2·9	1·9
Peas, canning	+ 6	+ 5	2·9	1·7
Potatoes, early	+ 2	+ 1	2·9	2·3
Spinach	+ 4	+ 1	2·9	3·0
Tomatoes, fresh consumption	+ 6	+ 1	3·0	3·0
Tomatoes, canning	+ 6	− 5	3·0	2·9

NOTE.—Condition figures: 1–poor; 2–below average; 3–average; 4–above average; 5–excellent.

Manitoba (July 22).—Climatic conditions have been generally favourable since the last report. Rainfall has been adequate throughout the commercial area around Winnipeg and in the southern part of the province. Slight damage occurred to some crops around the city, particularly to strawberries, because of the scarcity of moisture during the last of June. This condition was only temporary as rain fell on June 30, and continued showers since have supplied the necessary moisture. The northwestern part of the province and the Swan River Valley are dry. Gardens in these sections are reasonably good, but are beginning to suffer from lack of rain. Temperatures have been high since the last report except for a few days early in July. The last week of June was unusually hot but no serious damage was reported. Slight frost occurred in northern sections about July 8 or 9. The very tips of corn and melon leaves were touched in low spots.

Peas, beans, cabbage, bunched beets, bunched carrots and green onions are on the market in large quantities. Cauliflower, cooking onions, and celery are available in limited amounts; a few early lots of these crops have been appearing for over a week. New potatoes are also available. The quality of these crops in all cases is excellent.

An excellent crop of strawberries has been harvested in most cases. The season for this particular fruit is somewhat too dry in the northern areas and consequently the yield has been rather low. Raspberries are only fair, due to some winter-killing and lack of moisture in the northern sections. An excellent crop has been harvested in the south. The set of fruit of apples and plums is somewhat below normal because of early spring frosts at blossoming time.

Insect damage has been kept well in hand by the growers through persistent spraying and dusting. Colorado potato beetles have been very much in evidence and required several sprayings to keep them in check. Beet webworms were present again, although they are not as plentiful as last year. Generally, insects are well under control.

Saskatchewan (July 22).—With some exceptions gardens on the whole are in fair to good condition. After a somewhat slow start due to the cool weather early in the season, good rains at the end of June followed by generally light showers during the early part of July together with warmer weather stimulated growth. Since the tenth of July, however, the weather has been mostly dry with extremely high temperatures during the past few days accompanied by strong hot winds and in most districts good rains are now needed to bring along the later crops, particularly potatoes. Some damage has resulted from potato beetles and the beet webworms and frequent spraying has been necessary. Grasshoppers have done a limited amount of damage in scattered districts. In areas where the frost of June 6 was most severe small fruits will be a very light crop. Early garden stuff such as radishes, lettuce, onions, peas, beets, etc., have been available for some time and carrots, beans, turnips, and tomatoes will be ready shortly in many districts. Reports indicate that considerable quantities of vegetables are being preserved for future use in areas where supplies are abundant.

Alberta (July 23).—The general condition of the vegetable crops in the Calgary district has been favourable up to the present as general rains have arrived in time to save the crops. North of the city, however, losses from drought are reported. Normal crops of potatoes and other vegetables are expected in the Lethbridge district. With favourable rains and plenty of irrigation water, most crops are expected to be average or better than average. Light crops of cabbage and carrots will be harvested, however, as plantings were much smaller than in past years. In the Medicine Hat district, the onion crop which last year amounted to approximately 1,000 tons will be reduced by 25 per cent on account of worm damage. Cabbage also will be light as a result of worm injury. Other crops including potatoes promise fair yields. In the Taber district such canning crops as peas, beans, corn and pumpkins record an increase in production as moisture supplies have been plentiful. Other vegetable crops are very promising.

British Columbia (July 22).—The recent week of high temperatures has been followed by cooler weather and rain in practically all districts. In the berry sections, harvesting of strawberries is finished while loganberries and raspberries will be completed this week. Early apples are now appearing in quantity. Apricot picking has passed the peak in southern Okanagan and will be finished in all sections about the first of August. Peaches and tomatoes will be shipped in volume by the end of the month. Some Okanagan sections have suffered considerable hail damage, necessitating lower grades for shipments of stone fruits.

August 29

Prince Edward Island (August 25).—The weather during August was cool and wet with a minimum of sunshine. Prospects for the fruit crops on the whole, are quite good. Apples are sizing well and a good average yield is expected. There is considerable scab in poorly sprayed and unsprayed orchards. The cherry crop was below average and many trees are affected with shot-hole disease. The plum crop should be good, provided there is no late attack of brown rot. The yield of raspberries was excellent. The cool, damp weather affected the growth of corn, cucumbers, tomatoes, squash and pumpkins. The yields of cucurbits will be very poor and tomatoes are ripening slowly. Other vegetables such as peas, beans, beets, turnips, onions and potatoes are doing well. Club root of cabbage, cauliflower and turnips has been more prevalent this year than usual due to the abundant supply of soil moisture. There is some late blight in most potato fields but the disease has not yet assumed epidemic proportions. Leaf roll disease of potatoes is much more prevalent this season

than in previous years. Mosaic has been severe but not more so than usual. Insect injury has been quite severe during the past month. Aphid infestations are heavy on practically all fruits, vegetables and field crops. Flea beetles and Colorado potato beetles are causing considerable damage to potatoes in some sections. Cabbage maggot damage is severe to turnips and cabbage. Other insects such as tussock moth and apple maggot are causing damage in unsprayed orchards.

Nova Scotia (August 23).—The weather during the past month has been generally cool with a few warm bright days and frequent heavy rains but no hail or heavy windstorms to date. The appearance of the orchards is good, as a result of the abundant moisture supplies, but the apples are not sizing as well as usual for this time of year. The drop continued well into August and this, with the lack of size, has reduced the crop prospects from the July outlook. The fruit, however, is colouring more rapidly than usual. Scab is more prevalent especially in poorly sprayed and unsprayed orchards. Codling moth injury is now apparent in a good many sections and aphids are also troublesome. The plum crop, although light, is reported to be of good quality in most districts. The prospects for the pear crop are variable, depending on the locality and a further reduction from the July estimate is now shown. The fruit, however, is developing rapidly and is of excellent quality and high colour. The cranberry crop continues to develop well and the prospects are for a considerably larger crop than last year. Except in a few cases, fruit worm damage has been slight. The frequent rains have benefited the vegetable crops materially. Prospects for the potato crop are good and digging has begun. Early turnips are also reported to be good.

New Brunswick (August 26).—The weather has been cool with frequent heavy rains and very little sunshine. The abundance of moisture has promoted luxuriant growth of the apple trees and the fruit is sizing rapidly. In spite of the frequent rains very little scab and insect injury has been reported. There has been no change in the condition of the apple crop since July and the estimate of production remains the same. Conditions have not been favourable for the cranberry crop, however. The heavy rains and cool weather have retarded the development of such crops as cucumbers, tomatoes and squash and delayed the maturity of corn and other hot weather crops. Leafy vegetables are making satisfactory growth with prospects for normal yields. The condition of most vegetable crops is above normal.

Quebec.—Fruit (August 25).—The weather during the first ten days of August was hot and dry, turning cool with strong winds later in the month. A heavy rain and hailstorm on August 19 caused some damage to the apple crop in the district south of Montreal. The crop is generally sizing well and early varieties such as Melba and Duchess have been on the market for some time. The only insect damage was caused by codling moth larvae which are more numerous than last year.

Vegetables (August 21).—The lack of sufficient rain and the high temperatures coupled with the drying winds have seriously affected all vegetable crops in the Montreal area. The showers have passed south of Montreal in many instances. All vegetable crops benefited from the heavy shower on the night of August 19, together with colder weather this week. Gaspe peas have moved in volume from the Cape Cove and Grand River area. Crop prospects are promising as the vines are strong and the set is heavy with little disease in evidence. Onion pulling now is general over the district. The crop will be about 60 per cent of last year's production as the bulbs are small to medium in size. The tops are drying quickly and topping will soon commence. Tomatoes are ripening somewhat more slowly with the cooler weather. The early crops

are finished north of Montreal and the yield has been much lighter this year. The indications are that the late crop will also be lighter but the total production will be larger due to heavier planting. Shipments to outside points, especially to the Maritimes, are heavier this year. Canners have contracted for increased supplies and are paying about $2.00 per ton more than last year. Potatoes are not yielding well, as the set of tubers is only three or four per hill. North of Montreal the continued drought has reduced the size. South of Montreal there has been more moisture and the yields will be larger, but conditions are "spotty". The muckland crop will be heavier as the tubers are much larger. The field cucumber crop is very light due to the high winds and the drought. Late cabbage, cauliflower, lettuce and root vegetables are improving quickly following the rain on August 19. The late carrot crop will be smaller due to the heavy demand for bunched stock and the smaller acreage sown.

Ontario (August 25).—Western Ontario.—An improvement of approximately 2 per cent in the production of apples over last month's estimate is now indicated. Practically all districts report good sizing and colouring of the fruit, although the sizing is somewhat uneven in the Essex-Kent-Lambton district and only fair in the Burlington area. Most districts report pests well under control, but codling moth injury is becoming more apparent in the Burlington and Middlesex areas. Some slight sunscald injury is now evident in Essex. Hail damage has been confined to small localized areas in the Niagara, Elgin-Oxford, Middlesex-Huron and Peel-York districts. Pears are sizing well and are generally free of fungous and insect pests, although some damage to the crop is reported in a few localized areas in the Niagara district. Conditions generally have been favourable for a clean plum crop. The size of the fruit is fair except on heavily loaded trees which have not been thinned and particularly where there has been an extreme lack of rainfall. The fruit this year appears to be particularly free of insect damage and brown rot. Peaches are developing favourably in all producing areas; however, in some parts of Niagara heavy culling has been necessary due to bud moth injury and poor sizing. As reported for other fruits there has been some localized hail injury in the Niagara district. Completed harvesting figures now indicate a much heavier production of sour cherries than was at first indicated. The grape crop is developing satisfactorily. Grape leaf hopper to date has been well controlled and the only damage reported was caused by hail in small localized areas.

Early hot, dry weather somewhat retarded the normal growth and development of the vegetable crops but more recent showers in most producing areas helped materially. Weather conditions have promoted rapid maturing of some produce. Heavy frosts in the Alliston district on July 12 caused extensive damage to the late potato crop.

Eastern Ontario.—The weather has been moderately warm during the past month with moisture supplies sufficient for continued development of the fruit crops. Light hail injury is reported in the St. Lawrence Valley and Prince Edward County districts but several orchards show heavy damage. Apples are colouring well and the fruit varies considerably in size depending on local orchard conditions. All varieties are maturing at least ten days earlier than last season. In general, apples are free of scab but considerable insect injury is reported in some orchards where leaf roller, bud moth and codling moth have been troublesome. Drought spot and cork are becoming evident in quite a few orchards where borax was not used. Pears are developing well and are quite free of insect injury where regular sprays were applied. Bartletts will be somewhat smaller than average. Harvesting of this variety will begin early in September. Plums are also smaller than average size. Insect injury on this fruit has been very slight. The early potato crop is much below average size.

Fields now being harvested, however, are showing better yields and the quality of the tubers is much improved. Late plantings continue to look well with foliage exceptionally heavy, but reports indicate that yields will be only average. After a poor start the yields of corn are now expected to be above average.

The condition of the vegetable crops in Ontario during the third week of August, and the percentage change in acreage from last year are as follows:

Description	Percentage Change in Acreage from 1940		Condition	
	Western Ontario	Eastern Ontario	Western Ontario	Eastern Ontario
Beans, snap	0	− 17	2·9	3·0
Beets, bunching	0	0	3·0	3·0
Cabbage, early	+ 2	+ 2	2·9	3·0
Cauliflower, early	+ 3	0	2·9	3·1
Carrots, bunching	0	− 1	3·0	3·2
Celery, early	+ 5	+ 1	3·1	2·9
Celery, late	− 3	0	2·9	3·1
Corn, sweet	+ 3	− 1	2·8	3·2
Corn, processing	+ 31	+ 41	2·9	3·4
Cucumbers	− 2	0	3·0	3·0
Lettuce	+ 15	+ 3	3·0	2·9
Onions	− 14	+ 6	2·8	3·1
Peas, garden	0	+ 5	2·9	–
Peas, canning	+ 11	+ 5	2·9	–
Potatoes, early	+ 2	+ 2	2·9	2·3
Spinach	0	+ 2	2·9	3·0
Tomatoes, fresh consumption	+ 6	+ 1	3·0	3·3
Tomatoes, canning	+ 6	− 5	3·0	3·5

NOTE.—Condition figures: 1-poor; 2-below average; 3-average; 4-above average; 5-excellent.

Saskatchewan (August 27).—The weather has been generally warm during August, becoming cooler during the past few days. Local showers fell in most districts and heavy rains occurred recently at points in the south. Most districts report potato beetles which are causing considerable damage in some localities. Grasshoppers have also caused serious damage in some southern areas and vegetables at a number of points have suffered from beet webworms and cabbage worms. The vegetable crops show considerable variation in different localities, ranging from only fair to good. Gardens are very good in the south-east, fairly good in the south-central, south-western, east-central and central districts, but only fair in the west-central and some northern areas. Potato prospects have been improved by some recent rains.

Alberta (August 25).—There has been very little change in the condition of the vegetable crops since the July report. The weather has been generally fine and warm with local showers and thunderstorms. This past week has been very wet in the Calgary district, but it is not believed that this rain was general as far south as Lethbridge. The canneries at Lethbridge and Taber have been very busy. The pea pack is completed, corn is now being canned at Taber and beans are being handled at Lethbridge.

British Columbia (August 25).—The weather has been cool with showers in practically all districts. The picking of all main crop small fruits, with the exception of blackberries, is now finished. Blackberries and everbearing strawberries will continue in varying quantities until frost. The apricot harvest is finished and peaches are past the peak. Harvesting of other fruits is progressing favourably with a heavy demand from marketing centres for all fruits and vegetables.

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Prince Edward Island (September 20).—The weather has been cold and wet with very little sunshine during the month. The apples are smaller than average for this season of the year. Apple scab is serious even in well sprayed orchards and is threatening to become worse. Plums are developing well in spite of excessive moisture but are ripening slowly. Brown rot although not serious may result in considerable losses.

Nova Scotia (September 20).—The weather for the most part has been cool with an abundance of rainfall. Although conditions vary depending on the locality, apples generally are of smaller than average size. As a result, the estimate of the crop has declined 8 per cent from a month ago and is now set at 1,265,000 barrels. There have been no hail or windstorms to date. Insect damage has been caused chiefly by codling moth and where spraying was not thoroughly carried out apple scab is plentiful. The pear crop although small is of good quality. The fruit is sizing well and is generally free of insect or disease damage. The plum crop is also smaller than that of a year ago and the fruit is somewhat undersize. There has been no serious outbreak of brown rot this season.

Vegetable crops are progressing favourably but due to the cool wet weather tomatoes are ripening very slowly.

New Brunswick (September 20).—The weather continued wet and cool until September 15 and as a result the apples are later in maturing than normal. The fruit is small in size and colouring very slowly. Although no severe windstorms have occurred, strong winds have caused considerable dropping particularly of the early varieties. Apple scab still remains a serious problem, but insects have caused very little damage.

The maturity of both vine crops and corn was retarded by the adverse weather which prevailed until the middle of the month. The supplies of these vegetables, consequently, were below local requirements. On the other hand, cauliflower, cabbage, celery and lettuce are plentiful and root crops promise normal yields. From September 15 the weather has been clear and warm and late crops are now growing rapidly and harvesting is progressing favourably. Frosts on September 13 destroyed most of the tender vegetable crops.

Quebec (September 23).—In the Montreal area the weather has been warm and dry during the past two weeks. Reports from the Hemmingford district indicate that the trees are showing the effects of the continued dry spell. Several growers are spraying to prevent excessive dropping of the fruit. The picking of McIntosh apples is practically completed and Fameuse are now being harvested. Although the colour of the early pickings of McIntosh was poor, later pickings have had exceptionally high colour. Fameuse also are reported to be well coloured. Fruit is moving directly into consumption with very small quantities going to storage. Prices are reported to be the best in several years.

Ontario (September 22).—WESTERN ONTARIO: An estimated decrease of 20 per cent in the commercial production of apples compared with last year is now indicated. Increases in the production of early varieties, Wealthy, Snow and Greening, are offset by reduced crops of all other varieties. The size and colour of the fruit is fair to good. While apple scab is well controlled, some late brood codling moth larvae are causing damage particularly in the Niagara, Elgin-Oxford and Essex-Kent-Lampton areas. Heavy winds on September 6 resulted in some dropping of the fruit in several areas, especially in Wentworth and Halton counties. Conditions were favourable for the harvesting of a clean crop of plums. As European and prune varieties were heavier than anticipated, the estimate of the crop has been increased 5 per cent since last month. The movement of Damson plums to the United States for processing has already

amounted to approximately 275 tons. While peach production in the Niagara District is estimated at approximately the same as last year, heavy increases are reported in other areas, particularly in Norfolk county. The peach crop in Ontario is now estimated to be 7 per cent larger than that of last year. Sizing has been satisfactory except in a few Niagara areas, and harvesting conditions were good, the fruit being generally clean, well coloured and of good flavour. Harvesting of Bartlett pears is now completed. Kieffers and Anjous are developing well and the fruit is clean and of good quality. Heavy wind on September 6 caused some dropping of these varieties. Although the grape crop is somewhat irregular, conditions have been favourable for development and harvesting has been earlier than usual. Concords are now in excellent condition for harvesting and the bunches are firm and the berries fair to good in size and of uniform maturity.

EASTERN ONTARIO: Moisture supplies were sufficient to promote rapid sizing of fruits during the last month. With ideal weather conditions apples have taken on good colour and the size of some varieties is above average. In general, the fruit is exceptionally free of scab and insect injury. In some orchards, however, side worms, bud moth and leaf rollers have caused considerable damage. The apple maggot survey has been completed and the infestation is lighter than in past seasons. Two-thirds of the McIntosh crop was picked by September 20 and the percentage of No. 1 fruit is larger than last season. Harvesting of both McIntosh and Snow will be completed in another week. The size of late varieties is improving. The quality of the plum crop is good, and harvesting has been a week earlier than average. The size of the pear crop is well above average and the fruit is practically free of insect and fungous damage. All varieties were harvested a week to ten days earlier than last season.

All late vegetables are in generally good condition but need more moisture. As reported last month, the early potato crop is generally below average and reports now indicate that the yield of late varieties will also be disappointing in most sections. The yield of corn has been much better than average and the infestation of corn borers and ear worms has been very light, especially on the late varieties. The canning plants expect the pack of sweet corn to be heavier than last season provided there are no frosts. The yield of tomatoes is now indicated to be above that of last year. With the harvest starting two weeks earlier, many processing plants have already equalled the 1940 pack.

The condition of the vegetable crops in Ontario during the third week of September and the percentage change in acreage from last year are as follows:

Description	Percentage Change in Acreage from 1940		Condition	
	Western Ontario	Eastern Ontario	Western Ontario	Eastern Ontario
Beets, bunching	0	0	3·0	2·9
Beets, topped	0	0	3·0	3·0
Cabbage, late	+ 2	+ 3	2·9	3·1
Cauliflower, late	0	− 2	2·8	3·0
Carrots, bunching	0	− 1	3·0	2·8
Carrots, topped	− 3	− 3	3·0	3·0
Celery, late	− 3	0	2·9	2·9
Corn, sweet	+ 3	− 1	2·9	3·2
Corn, processing	+ 31	+ 41	2·9	3·4
Cucumbers	− 2	0	3·0	3·3
Lettuce	+ 15	+ 3	3·0	3·0
Onions	− 7	+ 6	2·8	3·0
Potatoes, late	− 11	+ 2	2·8	2·8
Tomatoes, fresh consumption	+ 6	+ 1	3·0	3·1
Tomatoes, canning	+ 6	− 5	3·0	3·3

NOTE.—Condition figures: 1-poor; 2-below average; 3-average; 4-above average; 5-excellent.

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Manitoba (September 23).—An abundance of rain has fallen throughout most of Manitoba since September 3. The continuous rain has made harvesting operations very difficult. This is especially the case on the heavier soils of the Red River Valley. Fortunately, however, there have been no serious frosts. About one-third of the onion crop still remains in the ground. The yield is reported to be very high this year. Because of the wet weather, beets, carrots, and parsnips still remain to be dug. The yield per acre of potatoes promised to be unusually good, but late reports indicate that the tubers are rotting in the ground, particularly in the section north of Winnipeg. It is possible that the excessive soil moisture may affect their keeping quality. The tomato crop has been excellent although ripening has been slow. After a slow start the corn crop developed satisfactorily. In many parts of the province sweet corn is still being used and is of excellent quality. The yield of root crops of all types will be good, but several weeks of dry warm weather will be required to complete the harvest.

Saskatchewan (September 24).—Light to heavy showers have fallen during September. The heaviest precipitation has been in the west-central and northwestern districts but practically all other areas have received frequent light to moderate rains. Light frosts have occurred at scattered points throughout the province with injury to vines and tender garden stuff. Heavy frosts resulting in more serious injury are reported in a few northern districts. Aside from fairly extensive infestation of potato beetles and damage by grasshoppers in a few areas, very little insect injury has taken place. There was, however, a heavy late infestation of beet webworm in some districts. Although the weather during September has been cool, growth has been stimulated by the additional moisture and potatoes particularly have been benefited. The production of garden stuff is reported sufficient to meet local requirements in practically all districts and at a few points there will be a surplus. Cucumber, pumpkin and other vines have been particularly good this year.

Alberta (September 25).—The condition of all vegetable crops continues to be satisfactory. Reports indicate that the supplies of turnips, parsnips, beets, and cabbage are sufficient to meet all normal market demands. There is some uncertainty, however, as to the availability of sufficient supplies to meet the demands of military camps.

British Columbia (September 24).—The weather conditions in all sections of the province have been most unsatisfactory for the harvesting of all crops. It has been extremely wet in both the interior and coastal areas during the past four weeks. Small fruit crops such as everbearing strawberries and blackberries are still being harvested. The peach crop is practically over and the picking of prunes is completed. The tonnage will possibly be somewhat larger than the original estimates. The pear harvest is also finished. Apple picking is well under way with a heavy movement of McIntosh to marketing centres. The September estimate shows the apple crop to be approximately 30 per cent less than that of 1940. Some difficulty is being experienced in curing the onion crop and the wet weather has materially shortened tomato production. Seed growers are having difficulty in harvesting seeds of onions and other late seed crops.

Preliminary Estimates of Canadian Fruit Production, July-September, 1941 as compared with Final Estimates for 1940

Description	1940	1941		
		July	August	September
	bbl.	bbl.	bbl.	bbl.
Apples—				
Nova Scotia	1,151,000	1,623,000	1,375,000	1,265,000
New Brunswick	53,600	67,000	67,000	67,000
Quebec	323,500	161,700	161,700	166,700
Ontario	783,200	567,200	582,800	582,000
British Columbia	1,981,000	1,465,300	1,441,500	1,415,100
Canada	**4,292,300**	**3,884,200**	**3,628,000**	**3,495,800**
	bu.	bu.	bu.	bu.
Pears—				
Nova Scotia	21,700	19,500	17,400	17,400
Ontario	264,300	213,000	215,800	213,200
British Columbia	290,300	323,100	329,400	329,400
Canada	**576,300**	**555,600**	**562,600**	**560,000**
Plums and Prunes—				
Nova Scotia	7,900	6,200	5,500	5,500
Ontario	72,500	84,100	84,200	87,600
British Columbia	133,900	158,600	158,600	158,600
Canada	**214,300**	**248,900**	**248,300**	**251,700**
Peaches—				
Ontario	595,000	595,000	595,000	636,600
British Columbia	192,000	218,600	218,600	218,600
Canada	**787,000**	**813,600**	**813,600**	**855,200**
Apricots—				
British Columbia	56,400	68,000	68,000	68,000
Canada	**56,400**	**68,000**	**68,000**	**68,000**
Cherries—				
Ontario	87,700	125,300	160,900	160,900
British Columbia	69,700	60,700	60,700	60,700
Canada	**157,400**	**186,000**	**221,600**	**221,600**
	qt.	qt.	qt.	qt.
Strawberries—				
Nova Scotia	1,254,200	1,404,700	1,404,700	1,404,700
New Brunswick	1,275,000	–	1,657,500	1,657,500
Quebec	3,636,000	–	2,727,000	2,727,000
Ontario	10,966,000	5,651,800	6,039,000	6,039,000
British Columbia	8,167,600	–	7,828,000	7,828,000
Canada	**25,298,800**	–	**19,656,200**	**19,656,200**
Raspberries—				
Nova Scotia	74,000	69,600	66,600	66,600
New Brunswick	40,000	–	37,800	37,800
Quebec	2,771,200	–	1,385,600	1,385,600
Ontario	5,864,700	3,781,900	3,949,600	3,949,600
British Columbia	2,943,300	–	3,280,300	3,280,300
Canada	**11,693,200**	–	**8,719,900**	**8,719,900**
	lb.	lb.	lb.	lb.
Loganberries—				
British Columbia	2,383,500	–	2,490,000	2,490,000
Canada	**2,383,500**	–	**2,490,000**	**2,490,000**
Grapes—				
Ontario	49,900,000	49,900,000	49,900,000	49,900,000
British Columbia	2,827,200	2,675,000	2,655,000	2,655,000
Canada	**52,727,200**	**52,575,000**	**52,555,000**	**52,555,000**

NOTE.—British Columbia estimates are converted on the following basis: Apples, three boxes to the barrel; pears, box 42 lb., bushel 50 lb.; plums and prunes, peaches, apricots and cherries, 3 crates to the bushel; strawberries and raspberries, 12 quarts to the crate; loganberries 18 lb. to the crate.

TOBACCO CROP REPORTS

JULY 31

Weather conditions in Ontario during the month of July have been quite favourable for the development of the tobacco crop. As a result the crop is at least one week ahead of normal in maturity and harvesting of flue-cured tobacco is already in progress. This crop is of very good quality and yields are expected to average considerably higher than in 1940. Burley tobacco is also promising but the crop is expected to be slightly lighter than in the previous year. Some two thousand acres of flue-cured tobacco in the Norfolk district were damaged by a hailstorm on July 16. Normal amounts of rootrots, both brown and black, are in evidence but the crop is particularly free from mosaic this year. There has been no appreciable damage from the hornworm as yet.

Development of the Quebec crop has been retarded during the past month by drought and very high winds, with the result that the crop is extremely uneven, and yields of all types will be considerably reduced. The flue-cured crop in British Columbia is well advanced.

Quebec.—As a result of the very dry weather and exceptionally strong winds which have prevailed throughout the past month, development of the tobacco plants has been delayed. The early planted fields benefited greatly from the favourable moisture conditions at the time and a few scattered fields are promising, but in general, there is a goodly number of missing plants. The crop is very uneven and in only poor to fair condition. While three or four weeks of warm humid weather could still improve conditions considerably, present indications are that with acreages lower for all types than in 1940, the yield will be considerably reduced.

Damage from drought and high winds has been extensive in the flue-cured areas, with injury to the cigar and pipe tobaccos less severe. Frost on June 25 injured some tobacco plantations especially in the flue-cured districts of Joliette and Three Rivers. Damage from hail has been very slight.

Cutworms were prevalent this year and necessitated heavy replantings. Wireworms also were more numerous than in the 1940 season. Grasshoppers have just made their appearance but have done no appreciable damage to date.

Mosaic infestation is about average. Black rootrot is not a serious problem, as the dry weather has not been favourable to its development.

Ontario.—Weather conditions during the month of July have been quite favourable for the development of the tobacco crop which is one week earlier than normal in maturity and is considered a better than average crop. Rainfall has been rather patchy in the Old Belt, but it has been for the most part ample for the tobacco crop in Essex and Kent counties, with no damage from drought as yet, although the plants are now beginning to suffer from the extreme heat and rain is needed. The soil in the New Belt became so dry by the first of July that some damage from drought resulted before the heavy rains came. Growth was somewhat slow during the early period of development but a very good root system was developed and heavy rains during the month of July have encouraged very rapid growth.

Development of the flue-cured crop in parts of Essex County is slightly more advanced than in the New Belt, but harvesting is already in progress in both the Old and New Belts. Weather conditions on the whole have been so favourable that a crop of very good quality is expected, with average yields considerably higher than in 1940. The root systems on the flue-cured plants in the Old Belt are smaller than normal and under such conditions, frequent showers will be required during the next few weeks to maintain normal development until maturity.

The burley crop is at least a week earlier than normal in development, and some of the early crops are already topped. Although there is a wide range in development, the crop as a whole looks very promising. Due to excessive moisture in some limited areas in Essex and Kent counties during the early growing period a slightly lighter crop is expected.

A hailstorm on July 16 damaged some two thousand acres of flue-cured tobacco in the Norfolk area. This storm centred along a line running from Tillsonburg, down the eleventh concession of South Norwich, through Hawtrey, north of La Salette and Teeterville to a point just north of Vanessa. The storm appeared to cover a strip nearly two miles wide and was reduced in intensity as it proceeded eastward. A number of crops near Tillsonburg were completely destroyed by hail, but the damage at the eastern end of the area was considerably less. This is the only hailstorm of any consequence yet reported in 1941. There has been some damage from high winds in many areas.

Where recommended methods of control have been practised the hornworm has not caused any appreciable damage to date. The crop as a whole is particularly free from mosaic this season, but normal amounts of rootrots, both brown and black, are in evidence.

British Columbia.—Tobacco plantings are making rapid growth and some fields are almost ready for topping. Late plantings are well advanced and making good development. The weather, which has been more settled since the middle of June, has been hot and dry throughout July, except for heavy showers on the 20th. Growers are making arrangements to irrigate if more rain does not come soon. No serious damage from insects or disease is reported.

August 30

The total area planted to tobacco in 1941 is slightly lower than the acreage in 1940. The preliminary estimate of 65,700 acres shows a reduction of approximately 3 per cent from the 67,900 acres planted in the previous year. An increase of 5 per cent in the area of flue-cured tobacco is more than offset by decreases of 27 per cent in plantings of burley tobacco, 11 per cent in cigar leaf and 31 per cent in the pipe types.

Weather conditions during August have been generally favourable for the tobacco crop which is maturing rapidly. Harvesting is general in all three provinces. Good average yields of fair quality leaf are expected from the flue-cured crops in Ontario and British Columbia. The burley crop will be considerably reduced from the 1940 production and the quality of the crop as a whole will be only fair. Lower yields are expected from all types grown in Quebec, a decrease of 15 per cent in the total production being indicated at the present time.

Planted Acreages, 1941

The first estimate of the total area planted to tobacco in 1941 is placed at 65,700 acres, which is 3 per cent lower than the 67,900 acres planted in 1940. Decreases are shown for all types planted, with the exception of flue-cured tobacco for which increases are shown in the three producing provinces. Although complete data on the measured acreage of flue-cured tobacco in Ontario are not yet available, a total area of approximately 44,500 acres is indicated. This is slightly higher than the 42,640 acres planted in 1940. The area planted to flue-cured tobacco in Quebec shows a slight increase from 5,520 acres in 1940 to 5,800 acres in 1941. In British Columbia there was an increase from 450 acres in 1940 to 630 acres in 1941.

The total acreage of burley tobacco planted this year is 7,120 acres, a decrease of 27 per cent compared with the 9,710 acres planted in 1940. With the exception of about 40 acres, all burley tobacco is grown by members of the Burley Marketing Association of Ontario and production is confined almost entirely to the counties of Essex and Kent. The acreage planted to dark tobacco is also lower than in 1940.

Decreases are general for the cigar and pipe types, which are grown in Quebec. A reduction of 16 per cent is shown in the area planted to cigar leaf tobacco in the northern district of Quebec, 2,175 acres being planted in 1941 compared with 2,590 acres in 1940. In the southern district, 1,690 acres were planted in 1941, a reduction of 5 per cent from the 1,780 acres planted in 1940. The 1941 plantings of all pipe types totalled 2,810 acres, compared with 4,090 acres in the previous year, a decrease of 31 per cent. The greatest decrease has been in the large pipe types, plantings of which amount to only 680 acres compared with 1,840 acres in 1940. Decreases are shown in the areas of medium and small aromatic pipe types, the former decreasing from 1,670 acres in 1940 to 1,580 acres in 1941 and the latter from 580 to 550 cares.

Crop Development and Progress in Harvesting

Quebec.—Weather conditions during the past month have been quite favourable and the tobacco crop generally has made good progress. However, most plantations, especially in the northern district, are still showing the effects of the drought that prevailed earlier in the season, with the result that development is still below normal and the crop is very uneven. Harvesting in the flue-cured district commenced about August 2 and to date the most advanced crops have had three primings and the average crops only two. Harvesting of cigar and pipe tobaccos is in full swing in both the northern and southern districts, but is further advanced in the south where precipitation has been more abundant. In general the crop is quite free from disease, but grasshopper damage is heavy in certain areas. Yields will be lower than in the previous year, a decrease of 15 per cent in the total production being indicated by present developments. While it is still too early to predict the quality of the crop, it will probably make good filler tobacco with a low percentage of binders.

Ontario.—Drought and hot weather during the last week of July and the early part of August materially affected the tobacco crop in Ontario. The burley tobacco in Essex and Kent Counties in particular suffered quite severely from the drought even to the extent of some leaves burning in the field. Good rains during the week ending August 16 have partially rectified the situation, but the yields of burley in Essex and Kent as well as the yield of the flue-cured in Essex County will be considerably lower than anticipated at an earlier date. Flue-cured tobacco in the Norfolk district was also affected by the drought, but to a much lesser extent than in Essex County.

Harvesting of flue-cured tobacco is now well under way in both Essex County and in the new belt. It is estimated that thirty per cent of the flue-cured crop in Essex County and twenty per cent of the flue-cured crop in the Norfolk district was harvested by August 23. Due to the much greater volume of production in the Norfolk district, it is estimated that about one-fifth of the total flue-cured crop has now been harvested. The quality of leaf in the first curings was rather poor and quite variable, but there is every indication that the quality of the flue-cured crop in Ontario as a whole this year will be fair. During the season some three or four thousand acres were damaged to some extent by hail, with a total estimated loss of one million pounds. There is every indication that the yield of flue-cured tobacco in Ontario will be fairly good provided the entire crop is harvested before frost. An average yield of about 1,100 pounds per acre is indicated at the present time.

The harvesting of burley tobacco is also under way and it is estimated that about ten per cent of the crop had been harvested by August 23. In addition to a reduction of acreage this year in the burley crop, there is every indication that there will also be a reduction in yield as compared with the past two seasons. If a considerable portion of the early burley crops is harvested before any further heavy rains, the quality of leaf from these early crops should be good. While there is quite definite evidence that the quality of the burley crop as a whole will be only fair, at the same time it will be better than in the 1940 crop. Some scattered hailstorms have occurred in the burley tobacco districts, but the damage as a whole has not been great. The dark tobacco crop is in only fair condition at this time, with a number of fields showing very poor prospects.

British Columbia.—The dry, warm weather throughout July and the first three weeks of August has hastened the maturity of the Sumas tobacco crop. Harvesting of sand leaves commenced about August 5 and was general by August 15. The kilns that have been cured, mostly sand leaves, show good colour and very high quality. Field work is well in hand and there is very little evidence of disease or insect damage, only one crop showing considerable mosaic. Slightly better than average yields of fair to good quality leaf are expected. A preliminary estimate of the average yield per acre is placed at 1,000 pounds.

September 30

The first estimate of Canadian tobacco production in 1941 shows a total crop of 74,875,700 pounds compared with the revised estimate of 61,136,100 pounds in 1940. The 1941 crop was produced on 69,140 acres, which was a slightly larger area than the 67,880 acres planted in 1940. Flue-cured production this year is estimated at 58,871,500 pounds harvested from 54,050 acres as compared with 39,144,000 pounds from 48,610 acres in the previous year. This represents an increase of 50 per cent in volume and 11 per cent in area. The 1941 acreage of the burley tobacco crop shows a reduction of 27 per cent, cigar leaf 12 per cent and pipe types 31 per cent. Yields of these types were also lower than in 1940. Harvesting operations have been carried out under generally favourable weather conditions. There is only a small carry-over into the new crop year of unsold tobacco from the 1940 crop and the marketing outlook for all types is favourable. Arrangements have been completed with the United Kingdom Board of Trade for the entry into the United Kingdom of 8 million pounds of unmanufactured tobacco from Canada.

Area and Production

The area planted to all types of tobacco in Canada in 1941 is estimated at 69,140 acres, which represents an increase of 2 per cent as compared with 67,880 acres planted in 1940. There was an increase of 11 per cent in the acreage planted to flue-cured tobacco, but this increase was practically offset by decreases in the areas of the other types. Percentage decreases in acreage are estimated at 27 per cent for burley tobacco, 12 per cent for cigar leaf, and 31 per cent for the pipe types.

According to the first estimate of production, the 1941 crop will total approximately 74,875,700 pounds, as compared with the 1940 output of 61,136,100 pounds. The increased production is largely in the flue-cured areas in Ontario, where a heavy crop of average quality has been harvested. The total flue-cured crop is now estimated at 58,871,500 pounds which represents an average yield of approximately 1,100 pounds per acre. This is considerably better than the 1940 output when an average of only 805 pounds per acre was harvested from the entire flue-cured acreage.

The burley tobacco crop is estimated at 8,188,000 pounds as compared with the 1940 crop of 11,818,100 pounds. The crop is of good quality but yields are relatively light.

A decrease of 27 per cent in the acreage of cigar leaf tobacco reduced the area from 4,370 acres in 1940 to 3,860 acres in 1941. Of the area planted this season, 2,175 acres were in the Northern Quebec District and 1,690 acres in the Yamaska Valley. Average yields are somewhat lower than in 1940 and the crop is estimated at 3,860,000 pounds, as compared with 4,693,800 pounds produced in 1940. Lower yields and reduced acreages are also general for all pipe types.

Acreage data for 1940 and 1941 by types and provinces are shown in Table 1, and with corresponding production data in Table 2. Revised estimates of the 1940 crop, based on marketings to date, are shown in Table 3.

Table 1.—Acreages Planted to Various Types of Tobacco, 1941 as compared with 1940

Type	1940	1941	Increase+ or Decrease−	Percentage Change from 1940
	acres	acres	acres	p.c.
Flue-cured—				
Quebec	5,520	5,800	+ 280	+ 5·1
Ontario	42,640	47,610	+4,970	+ 11·7
British Columbia	450	640	+ 190	+ 42·2
Total	48,610	54,050	+5,440	+ 11·2
Burley—				
Ontario	9,710	7,120	−2,590	− 26·7
Dark—				
Ontario	1,100	1,300	+ 200	+ 18·2
Cigar Leaf—				
Quebec	4,370	3,860	− 510	− 11·7
Large Pipe—				
Quebec	1,840	680	−1,160	− 63·0
Medium Aromatic Pipe—				
Quebec	1,670	1,580	− 90	− 5·4
Small Aromatic Pipe—				
Quebec	580	550	− 30	− 5·2
Total	**67,880**	**69,140**	**+1,260**	**+ 1·9**

Table 2.—Area and First Estimates of Production of Tobacco, 1941 as compared with Revised Estimates for 1940

Type	Planted Area		Average Yield		Production	
	1940	1941	1940	1941	1940	1941
	acres	acres	lb.	lb.	lb.	lb.
Flue-cured	48,610	54,050	805	1,089	39,144,000	58,871,500
Burley	9,710	7,120	1,217	1,150	11,818,100	8,188,000
Dark	1,100	1,300	1,333	1,260	1,466,000	1,638,000
Cigar leaf	4,370	3,860	1,074	1,000	4,693,800	3,860,000
Large pipe	1,840	680	1,151	1,050	2,111,500	714,000
Medium aromatic pipe	1,670	1,580	954	850	1,592,800	1,343,000
Small aromatic pipe	580	550	530	475	309,900	261,200
Total	**67,880**	**69,140**	**901**	**1,083**	**61,136,100**	**74,875,700**

Table 3.—Revised Estimates of the Commercial Crop of Leaf Tobacco, Canada, 1940[1]

Description	Planted Area	Average Yield	Production	Average Farm Price	Gross Farm Value
	acres	lb. per acre	lb.	cents	$
Flue-cured—					
Quebec	5,520	804	4,436,300	19·0	842,900
Ontario	42,640	802	34,200,000	20·8	7,096,700
British Columbia	450	1,128	507,700	19·5	99,000
Total	48,610	805	39,144,000	20·5	8,038,600
Burley—					
Ontario	9,710	1,217	11,818,100	12·2	1,440,600
Dark—					
Ontario	1,100	1,333	1,466,000	10·5	153,900
Cigar Leaf—					
Quebec	4,370	1,074	4,693,800	10·4	490,400
Large Pipe—					
Quebec	1,840	1,151	2,111,500	6·5	137,200
Medium Pipe—					
Quebec	1,670	954	1,592,800	10·0	159,300
Small Pipe—					
Quebec	580	530	309,900	16·0	49,600
Total	**67,880**	**901**	**61,136,100**	**17·1**	**10,469,600**
RECAPITULATION BY PROVINCES					
Quebec—					
Cigar leaf	4,370	1,074	4,693,800	10·4	490,400
Large pipe	1,840	1,151	2,111,500	6·5	137,200
Medium pipe	1,670	954	1,592,800	10·0	159,300
Small pipe	580	530	309,900	16·0	49,600
Flue-cured	5,520	804	4,436,300	19·0	842,900
Total	13,980	940	13,144,300	12·8	1,679,400
Ontario—					
Flue-cured	42,640	802	34,200,000	20·8	7,096,700
Burley	9,710	1,217	11,818,100	12·2	1,440,600
Dark	1,100	1,333	1,466,000	10·5	153,900
Total	53,450	888	47,484,100	18·3	8,691,200
British Columbia—					
Flue-cured	450	1,128	507,700	19·5	99,000
Total	**67,880**	**901**	**61,136,100**	**17·1**	**10,469,600**

[1] Revised September, 1941.

Seasonal Conditions and Progress in Harvesting

Quebec.—Weather conditions during the past month were somewhat more favourable, and the tobacco crop made considerable progress, particularly in the flue-cured districts. Although harvesting operations in general were not as advanced as in the previous year, practically all the cigar and pipe tobaccos were in the curing barns by September 10. Ripening of the flue-cured tobacco was considerably delayed and only about 60 per cent of the crop had been harvested when frost which was general on September 13 destroyed all the unharvested portion of the flue-cured crop, thereby reducing the average yield to approximately 600 pounds per acre. The total loss was estimated at 1·5

million pounds, with the damage ranging from 15 to 100 per cent according to the lateness of the crop. All types of leaf are of lower quality than in the previous year, as a result of the excessively dry season.

Ontario.—With exceptionally fine weather prevailing, the harvesting of the tobacco crop was practically completed during the first three weeks of September. It is estimated that ninety-eight per cent of the burley tobacco and at least ninety-five per cent of the flue-cured crop was harvested by September 23.

The quality of the flue-cured tobacco is very variable with the first primings or bottom leaves in the Norfolk district of rather indifferent quality, and the second primings in Essex County of the same general quality. The crop as a whole, however, is of very fair quality, but there is a considerable amount of "throw-out" grade in both the first and second primings. On the whole, the crop appears to be of average quality. The quality of the burley crop is very good, although there is considerable variation. At the present time the crop is considered somewhat superior to the 1940 crop and compares favourably with the 1939 burley crop. The dark air- and fire-cured types are reported to be of fair to good quality.

No damage from frost has yet occurred in Essex or Kent counties, but a few crops of burley in Elgin County near Rodney were damaged by frost with a possible loss of forty thousand pounds. On the other hand, a light frost was general in the New Belt and it is estimated that approximately one million pounds of flue-cured tobacco was lost on the night of September 11, when the temperature dropped to 33 degrees at Delhi. While the frost damage in the New Belt was only light in general, the degree of damage varies considerably. It was most severe in the King Lake area, in the Silver Hill district, and on the ninth concession of Charlotteville. Scattered damage also occurred in practically all other parts of Norfolk County. Some damage occurred in Elgin County in the Straffordville district, in the Aylmer district, and to a very slight degree in the Union district south of St. Thomas.

British Columbia.—Although rainfall during the past month has been excessive, on the whole it has been beneficial to the tobacco crop. A fairly long drought was broken by rain on August 25 and plants which had been maturing too rapidly with the hot drying winds were decidedly benefited. The heavy rain made harvesting conditions unpleasant and added somewhat to the curing costs but it did not affect the quality of the leaf, which is considered very good. The cured samples are of even better quality than last year's crop which was above the average. Seventy-five per cent of the crop was reported harvested by September 17 and it was expected that harvesting operations would be completed within the next ten days.

Carry-over from the 1940 Crop

A relatively small proportion of the 1940 crop is still unmarketed. There is an unsold surplus of some 4 million pounds of the Ontario flue-cured crop, which together with a surplus of 11 million pounds from the 1939 crop will be carried into the new crop year. About 15 per cent of the large pipe production in 1940 and 10 per cent of the medium aromatic pipe types are still to be sold. It is expected that these surpluses will bring slightly higher prices than were paid for the balance of the crop which was marketed during the 1940-41 season.

Marketing Outlook

Marketing prospects for the new crop are favourable. Arrangements have now been completed whereby the United Kingdom Board of Trade will issue

import licences covering 8 million pounds of Canadian leaf tobacco. These licences will be granted on the same basis as the 1939 quota, namely 70 per cent of the imports made by individual importing firms during the three-year period 1936 to 1938.

Tobacco Production in the United States

The Crop-Reporting Board of the United States Department of Agriculture issued on September 10, a General Crop Report as of September 1, from which the following section relating to tobacco is quoted:—

"On September 1 a total tobacco crop (all types combined) of 1,255,865,000 pounds is indicated as compared with 1,288,212,000 pounds on August 1. A tobacco crop of this size would be about 14 per cent less than the 1940 production and about 10 per cent less than the 10-year (1930-39) average production. Reports on Dark tobacco, both "fired" and "air-cured," indicated a higher yield on September 1 than a month earlier but for all other classes, lower yields are in prospect than on August 1.

"In all flue-cured tobacco producing States, except Florida and Alabama, yield prospects declined during August with the result that a flue-cured crop of only 647,657,000 pounds is forecast for this season. This would be the smallest crop of flue-cured tobacco harvested in this country since 1934 and would be about 14 per cent less than last year's crop. The decrease from last year is due to a reduction in yield from 1,027 pounds per acre in 1940 to 866 pounds indicated on September 1 this year. This season's relatively low yield appears to be due to a combination of circumstances. Dry weather at setting time made it difficult to secure good stands; abnormally heavy rains fell in early July which caused quick growth of tobacco; hot and dry weather thereafter caused tobacco to ripen prematurely."

MAPLE PRODUCTS

The output of maple products in Canada during the 1941 season was 26·5 per cent less than production in the previous year and slightly below the ten-year average. The total production of maple sugar and syrup in terms of syrup is estimated at 2,276,400 gallons as compared with 3,099,000 gallons in 1940 and the ten-year (1930-39) average of 2,486,500 gallons. The farm production of maple sugar amounted to 10 per cent of the total crop as compared with 11 per cent in 1940. Prices paid to producers for the 1941 crop averaged 20 cents per gallon higher for maple syrup and 2·5 cents per pound more for maple sugar than in the previous year. However, the combined production of maple sugar and syrup in 1941, valued at $3,561,200 as compared with $4,209,300 in 1940, shows a decrease of $648,100 or 15 per cent.

Production

The production of maple syrup and sugar in 1941 is estimated in terms of maple syrup at 2,276,400 gallons, which is smaller by 822,600 gallons or 26·5 per cent than the 3,099,000 gallons produced in 1940 and slightly below the ten-year (1930-39) average production of 2,486,500 gallons. The 1941 production of maple syrup amounted to 2,037,400 gallons and the farm make of maple sugar to 2,390,000 pounds. These estimates represent decreases of 717,800 gallons of syrup and 1,047,500 pounds of sugar from the production of 2,755,200 gallons of syrup and 3,437,500 pounds of sugar in 1940. The Bureau's correspondents report that practically the same proportion of the total 1941 production was made into maple sugar on farms as in the previous three years, 10 per cent as compared with 11 per cent in 1940 and 1939 and 10 per cent in 1938.

The distribution of production by provinces in order of magnitude follows, with the corresponding estimates for 1940 within brackets: Maple syrup (gallons)—Quebec 1,650,000 (2,211,000); Ontario 370,700 (519,400); New Brunswick 11,400 (16,800); Nova Scotia 5,300 (8,000). Maple sugar (pounds)—Quebec 2,244,000 (3,251,700); New Brunswick 66,700 (94,100); Ontario 43,200 (50,000); Nova Scotia 36,100 (41,700).

Table 1.—Farm Production of Maple Syrup and Maple Sugar, in Canada, 1932 to 1941

Year	Maple syrup	Maple sugar	Total production expressed as syrup
	gal.	lb.	gal.
1932	1,710,000	7,260,000	2,436,000
1933	1,262,300	5,785,100	1,840,800
1934	1,838,400	4,940,700	2,332,500
1935	2,250,800	6,539,000	2,904,700
1936	2,022,700	9,231,800	2,945,900
1937	1,232,000	4,413,100	1,673,400
1938	2,955,300	3,453,900	3,300,700
1939	2,302,200	2,900,200	2,592,200
1940	2,755,200	3,437,500	3,099,000
1941	2,037,400	2,390,000	2,276,400
5-year Average 1935-39	2,152,600	5,307,600	2,683,400
10-year Average 1930-39	1,903,900	5,825,500	2,486,500

NOTE.—Ten pounds of maple sugar equals one gallon of maple syrup.

Table 2.—Farm Production of Maple Syrup and Maple Sugar in Canada by Provinces, 1941 as compared with 1940

Province	Maple syrup		Maple sugar	
	1940	1941	1940	1941
	gal.	gal.	lb.	lb.
Nova Scotia	8,000	5,300	41,700	36,100
New Brunswick	16,800	11,400	94,100	66,700
Quebec	2,211,000	1,650,000	3,251,700	2,244,000
Ontario	519,400	370,700	50,000	43,200
Canada	**2,755,200**	**2,037,400**	**3,437,500**	**2,390,000**

SEASONAL CONDITIONS

Although the season opened somewhat earlier and more trees were tapped in Quebec and Ontario in 1941 than in the previous year, runs were generally light and the season disappointingly short, owing to warm, sunny weather and the absence of frost, The product, however was of generally good quality.

The average dates of first and last runs of sap as reported by crop correspondents in 1941 compared with corresponding dates reported in 1940, are shown below:

Province	1940		1941	
	Average date first run began	Average date last run ended	Average date first run began	Average date last run ended
Nova Scotia	March 29	April 20	March 30	April 12
New Brunswick	March 25	April 25	April 1	April 15
Quebec	April 1	April 27	March 27	April 18
Ontario	April 1	April 20	March 27	April 12

Runs were very short in the Maritime Provinces. Heavy snow in Nova Scotia prevented many operators from opening up the roads in time to take advantage of the full season's run and in many cases operations were carried on for only a few days. In New Brunswick, rainfall last autumn was exceedingly heavy and snow covered the ground before there was any serious penetration of frost. This largely accounts for the very short season which terminated suddenly with a warm rain on Good Friday.

In Quebec the tapping season was about two weeks shorter than in the previous year. Spring weather was exceptional. It was fairly cool until the end of March by which time the snow was practically all gone. The first three weeks of April were bright and sunny with temperatures as high as 70 degrees and no rain or snow. As there was no quick transition from winter to spring, producers scarcely knew just when to tap. Those who tapped early reported good runs. Others who waited for a typical season were disappointed and lost the first good runs. As a result reports from the different districts vary greatly. Some producers claim to have made only 50 gallons of syrup from 1,500 trees while others who got an early start have made up to 200 gallons from the same number of trees. The colour and flavour of the syrup was good and the product was of generally good quality, although not as high as the 1940 crop.

The excellent quality of the syrup produced in Ontario can be attributed in part to the absence of rain during the short and very dry season. There were no night frosts, and with no frost in the ground the flow was cut off suddenly by an extremely warm spell in the second week of April. The tapping season was about five days shorter than in 1940.

Prices and Marketings

Average prices paid to producers for this year's maple crop were higher than at any time in the past ten years. Prices in 1941 averaged $1.54 per gallon for maple syrup and 17·5 cents per pound for maple sugar, which represent increases of 20 cents per gallon for maple syrup and 2·5 cents per pound for sugar as compared with prices paid for the 1940 crop. These increases, which were common to all provinces, were in line with the general upswing in prices of food commodities. With a very small carry-over from last year and a smaller crop this season, demand was brisk and the bulk of the crop moved easily at prices well above the 1940 levels.

Approximately 80 per cent of the total production of maple syrup and 70 per cent of the maple sugar produced on farms was reported by crop corres-

pondents as having been marketed at May 31. Of the total sales of maple syrup, approximately 65 per cent were direct to the consumer and 35 per cent to wholesale packers. For maple sugar, the corresponding percentages were 69 and 31. Expressed as a percentage of the total production, sales of the 1941 crop as at May 31, with the corresponding percentages for 1940 within brackets, were as follows: Maple Syrup—Nova Scotia 95 (93); New Brunswick 96 (75); Quebec 78 (80); Ontario 83 (81). Maple Sugar—Nova Scotia 100 (98); New Brunswick 95 (96); Quebec 64 (67); Ontario 69 (62).

Average prices per gallon received by the producers for maple syrup are estimated as follows, with the 1940 prices within brackets: Nova Scotia $2.07 ($1.78); New Brunswick $2.12 ($1.85); Quebec $1.47 ($1.27); Ontario $1.84 ($1.59). Prices reported for maple sugar, in cents per pound, averaged for Nova Scotia 26 (23); New Brunswick 25 (23); Quebec 17 (15); Ontario 25 (22).

Despite higher prices, the total value of the combined production of maple sugar and syrup in 1941, estimated at $3,561,200, is less than the value of the 1940 crop by $648,100 or 15 per cent. The values by provinces in order of magnitude follow, with the corresponding values for 1940 within brackets: Quebec $2,807,000 ($3,295,800); Ontario $692,900 ($836,800); New Brunswick $40,900 ($52,800); Nova Scotia $20,400 ($23,900).

Exports

Exports of maple products during the fiscal year ended March 31, 1941, consisted of 376,364 gallons of maple syrup and 4,559,671 pounds of maple sugar, as compared with 207,281 gallons of syrup and 6,750,670 pounds of sugar in the previous crop year. Expressed in terms of maple syrup this represents a decrease of 55,892 gallons. During the three months April-June 1941, exports in terms of maple syrup totalled 344,863 gallons, of which 136,217 gallons were exported as maple syrup and the remainder as maple sugar. Exports during this period were smaller than in the corresponding three months in 1940 when 319,006 gallons of maple syrup and 1,145,435 pounds of maple sugar were exported.

Table 3.—Exports of Maple Sugar and Maple Syrup from Canada, 1932 to 1941

Year ended March 31	Maple syrup	Maple sugar expressed as syrup[1]	Total exports in terms of maple syrup
	gal.	gal.	gal.
1932	13,816	297,021	310,837
1933	21,756	317,647	339,403
1934	21,709	229,504	251,213
1935	106,440	317,666	424,106
1936	208,646	402,214	610,860
1937	14,104	603,184	617,288
1938	6,910	421,865	428,775
1939	10,013	763,531	773,544
1940	207,281	675,067	882,348
1941	376,364	450,092	826,456

[1] Converted to syrup on basis of ten pounds of sugar equivalent to one gallon of syrup.

United States Crop Report

A crop report as of June 1, 1941, issued by the United States Department of Agriculture states:—

"It is estimated that 10,126,000 trees were tapped in the 10 Northern States producing maple products, or slightly less than the 10,178,000 trees tapped in the 1940 season. The quantity of syrup made this year—2,061,000 gallons was materially less than the 1940 production of 2,628,000 gallons. Only 556,000 pounds of maple sugar were made this season compared with 629,000 pounds made in the previous year. The unusually low production of maple products in 1941 was due largely to the very short campaign in most States. This season opened somewhat late and closed rather abruptly, as unseasonably hot weather occurred in most sections early in April. The flow of sap was retarded by the warm weather and lack of frost in the ground but the sap was quite sweet and the syrup produced was of good quality."

PROCESSED CHEESE

Source: Dairy Factory Statistics Section, Dominion Bureau of Statistics

The production of processed cheese in Canada in 1940 amounted to 16,914,252 pounds, valued at $3,943,106, an increase in quantity, compared with the preceding year, of 1,347,185 pounds, or 9 per cent, and an increase in value of $465,069, or 13 per cent. Processed cheese is made from Canadian cheddar cheese, the process consisting of grinding the cheese, heating it in a jacketed container with agitation, and filling it into the proper receptacles. The number of plants recording a production of processed cheese in 1940 was 22, located by provinces as follows: Ontario, 9; Quebec, 9; Manitoba, 2; Saskatchewan, 1; and Alberta, 1.

According to information supplied by the manufacturers, the exports of processed cheese totalled 360,570 pounds in 1940, compared with 397,371 pounds in 1939.

The principal statistics of the industry in the years 1939 and 1940 are given in the following table.

Item		1939	1940
Establishments	No.	23	22
Capital investment	$	3,226,254	3,796,618
Employees:			
Male	No.	274	284
Female	No.	176	188
Salaries and wages	$	478,534	507,046
Power equipment (ordinarily in use):			
Steam engines	No.	3	2
	H.P.	23	18
Electric motors	No.	189	240
	H.P.	824	988
Stationary boilers	No.	11	11
	H.P.	618	620
Cost of fuel and electricity used	$	28,077	31,265
Materials used:			
Cheese for processing	Lb.	12,395,456	12,640,434
	$	1,617,282	1,829,182
Other materials	$	1,527,252	1,840,647
Total value of materials used	$	3,144,534	3,669,829
Products:			
Processed cheese	Lb.	15,567,067	16,914,252
	$	3,478,037	3,943,106
Other products	$	1,575,353	1,707,310
Total value of products	$	5,053,390	5,650,416

VISIBLE SUPPLIES OF CANADIAN GRAIN

Canadian Grain in Store and in Transit in Canada and the United States, by Weeks, July-September, 1940 and 1941

Distribution	Durum Wheat	Other Wheat	Oats	Barley	Rye	Flaxseed
Week ended July 4, 1941	bu.	bu.	bu.	bu.	bu.	bu.
In Elevators—						
Western country	800,000	218,945,000	1,655,000	1,070,000	495,000	257,000
Interior private and mill	50,000	8,025,000	590,000	1,315,000	71,000	35,000
Interior public and semi-public terminal	–	18,355,899	2,643	3,586	732	4
Vancouver-New Westminster	–	18,303,492	13,443	18,590	501	–
Victoria	–	997,145	–	–	–	–
Prince Rupert	–	1,207,975	–	–	–	–
Churchill	–	2,617,396	–	–	–	–
Fort William and Port Arthur	414,390	77,911,739	371,867	499,293	419,149	150,009
Eastern	838,907	53,067,723	690,296	443,628	153,788	47,590
U.S. lake ports	–	21,547,101	497,000	161,000	3,417,000	–
U.S. Atlantic seaboard ports	302,648	10,896,330	–	1,000	1,230,000	–
In transit lake	17,231	4,839,904	145,874	207,410	69,503	79,896
In transit rail	–	23,173,531	957,257	499,362	135,758	84,294
In transit U.S.A	–	4,269,683	–	–	–	–
Total	2,423,176	464,157,918	4,923,380	4,218,869	5,992,431	653,793
Total same period 1940	8,862,308	272,251,385	6,162,850	6,939,896	4,719,979	574,524
Week ended July 11, 1941						
In Elevators—						
Western country	775,000	214,155,000	1,555,000	1,020,000	439,000	233,000
Interior private and mill	40,000	8,010,000	640,000	1,240,000	69,000	31,000
Interior public and semi-public terminal	–	18,348,305	2,643	1,616	228	4
Vancouver-New Westminster	–	18,149,530	29,168	19,497	501	–
Victoria	–	994,478	–	–	–	–
Prince Rupert	–	1,207,975	–	–	–	–
Churchill	–	2,617,396	–	–	–	–
Fort William and Port Arthur	443,651	77,971,706	577,262	728,961	364,227	181,369
Eastern	827,360	56,943,104	593,190	322,511	171,337	60,571
U.S. lake ports	–	21,314,082	299,000	148,182	3,559,000	–
U.S. Atlantic seaboard ports	302,648	10,979,726	–	34,000	1,225,000	–
In transit lake	–	2,911,483	–	59,823	58,017	60,844
In transit rail	–	23,299,950	1,030,111	479,495	156,437	95,105
In transit U.S.A	–	4,153,372	–	–	–	–
Total	2,388,659	461,056,107	4,726,374	4,054,085	6,042,747	661,893
Total same period 1940	8,820,516	273,430,733	6,117,752	6,580,648	4,707,249	569,538
Week ended July 18, 1941						
In Elevators—						
Western country	710,000	213,990,000	1,395,000	935,000	384,000	187,000
Interior private and mill	30,000	7,885,000	590,000	1,186,000	70,000	38,000
Interior public and semi-public terminal	1,490	18,335,389	2,643	–	228	4
Vancouver-New Westmineter	–	17,715,272	34,220	19,606	–	–
Victoria	–	994,478	–	–	–	–
Prince Rupert	–	1,207,975	–	–	–	–
Churchill	–	2,617,396	–	–	–	–
Fort William and Port Arthur	597,265	77,986,115	906,277	697,187	456,279	239,085
Eastern	686,827	60,065,031	465,445	299,981	154,968	61,309
U.S. lake ports	–	20,321,601	357,000	205,182	3,599,000	–
U.S. Atlantic seaboard ports	74,648	10,760,730	–	66,008	1,200,000	–
In transit lake	–	4,296,654	29,767	–	20,158	–
In transit rail	–	21,709,890	1,094,571	848,734	178,309	134,771
In transit U.S.A	–	1,632,653	–	–	–	–
Total	2,100,230	459,518,184	4,874,923	4,257,698	6,062,942	660,169
Total same period 1940	8,707,778	273,410,380	5,911,197	6,876,431	4,650,430	575,172
Week ended July 25, 1941						
In Elevators—						
Western country	720,000	213,720,000	890,000	690,000	312,000	94,000
Interior private and mill	31,000	7,789,000	575,000	1,121,000	69,000	31,000
Interior public and semi-public terminal	1,490	18,329,406	2,643	68	6	4
Vancouver-New Westminster	–	17,539,692	33,955	20,605	–	–
Victoria	–	994,311	–	–	–	–
Prince Rupert	–	1,207,975	–	–	–	–
Churchill	–	2,617,396	–	–	–	–
Fort William and Port Arthur	618,795	78,429,984	1,052,697	905,148	516,501	233,681
Eastern	576,831	62,444,547	343,496	239,086	163,241	49,260
U.S. lake ports	–	20,290,550	382,000	97,182	3,637,000	–
U.S. Atlantic seaboard ports	74,648	10,946,578	–	52,008	1,195,000	–
In transit lake	10,577	4,941,887	–	8,655	40,085	–
In transit rail	–	20,229,277	1,228,429	548,703	163,313	148,775
In transit U.S.A	–	819,485	–	–	–	–
Total	2,033,341	460,300,088	4,508,220	3,682,455	6,096,146	556,720
Total same period 1940	8,612,563	272,745,859	5,691,834	5,740,568	4,654,183	591,879

Canadian Grain in Store and in Transit in Canada and the United States, by Weeks, July-September 1940 and 1941—continued

Distribution	Durum Wheat	Other Wheat	Oats	Barley	Rye	Flaxseed
Week ended August 1, 1941	bu.	bu.	bu.	bu.	bu.	bu.
In Elevators—						
Western country	640,000	211,990,000	735,000	695,000	335,000	93,000
Interior private and mill	40,000	7,684,000	525,000	1,057,000	40,000	32,000
Interior public and semi-public terminal	1,490	18,329,430	572	68	6	4
Vancouver-New Westminster	–	17,592,322	37,593	23,412	–	–
Victoria	–	990,978	–	–	–	–
Prince Rupert	–	1,207,975	–	–	–	–
Churchill	–	2,617,396	–	–	–	–
Fort William and Port Arthur	647,020	81,104,019	1,555,779	1,148,918	640,236	254,356
Eastern	576,036	64,477,659	307,766	218,080	164,687	49,178
U.S. lake ports	–	19,097,665	231,585	127,161	3,500,009	–
U.S. Atlantic seaboard ports	74,648	10,098,723	79,680	89,509	1,191,251	–
In transit lake	71,004	3,182,945	80,212	191,452	–	81,150
In transit rail	–	21,351,509	708,331	478,485	175,653	95,819
In transit U.S.A.	–	1,163,263	–	–	–	–
Total	2,050,198	461,787,884	4,261,518	4,029,175	6,046,842	605,507
Total same period 1940	8,694,036	273,593,035	6,054,320	5,476,073	4,638,118	559,951
Week ended August 8, 1941						
In Elevators—						
Western country	540,000	209,675,000	620,000	745,000	421,000	90,000
Interior private and mill	44,000	7,821,000	423,000	1,008,000	42,000	24,000
Interior public and semi-public terminal	1,490	18,328,776	397	135	6	4
Vancouver-New Westminster	–	17,633,194	36,368	12,848	–	–
Victoria	–	990,978	–	–	–	–
Prince Rupert	–	1,207,975	–	–	–	–
Churchill	–	2,617,396	–	–	–	–
Fort William and Port Arthur	568,634	81,421,989	1,402,299	1,279,257	508,529	175,274
Eastern	694,052	65,851,776	224,903	347,276	156,595	102,434
U.S. lake ports	–	18,687,232	285,000	117,161	219,000	–
U.S. Atlantic seaboard ports	74,648	11,118,367	176,000	129,008	1,168,000	–
In transit lake	54,264	1,861,858	174,288	59,456	–	62,066
In transit rail	–	23,437,290	490,015	494,494	215,682	38,473
In transit U.S.A.	–	1,567,238	–	–	–	–
Total	1,977,088	462,220,069	3,832,330	4,192,635	2,730,812	492,251
Total same period 1940	8,562,505	273,394,774	5,260,298	5,402,736	4,634,055	502,952
Week ended August 15, 1941						
In Elevators—						
Western country	500,000	207,325,000	710,000	980,000	604,000	88,000
Interior private and mill	38,000	7,870,000	300,000	978,000	45,000	20,000
Interior public and semi-public terminal	1,090	18,309,918	–	891	6	4
Vancouver-New Westminster	–	17,750,994	27,005	7,848	–	–
Victoria	–	1,000,012	–	–	–	–
Prince Rupert	–	1,207,975	–	–	–	–
Churchill	–	2,617,396	–	–	–	–
Fort William and Port Arthur	431,969	82,087,351	1,356,705	1,284,464	325,484	96,947
Eastern	671,595	64,194,818	191,083	312,884	157,352	86,518
U.S. lake ports	–	17,800,732	68,000	107,161	132,000	–
U.S. Atlantic seaboard ports	74,648	11,194,792	274,000	8	1,163,000	–
In transit lake	120,036	3,221,344	–	177,903	–	78,753
In transit rail	–	23,582,246	400,507	832,425	271,708	41,304
In transit U.S.A.	–	2,408,389	–	–	–	–
Total	1,837,338	461,170,967	3,327,300	4,681,584	2,698,550	411,526
Total same period 1940	8,714,652	275,859,593	5,115,009	5,550,595	4,799,178	482,114
Week ended August 22, 1941						
In Elevators—						
Western country	450,000	207,885,000	935,000	1,360,000	739,000	121,000
Interior private and mill	32,000	8,014,000	257,000	1,006,000	44,000	18,000
Interior public and semi-public terminal	1,090	18,309,893	2,486	934	6	4
Vancouver-New Westminster	–	17,805,877	24,905	6,890	–	–
Victoria	–	1,009,143	–	–	–	–
Prince Rupert	–	1,207,975	–	–	–	–
Churchill	–	2,617,396	–	–	–	–
Fort William and Port Arthur	536,026	87,781,074	1,018,615	1,696,672	460,094	111,986
Eastern	691,910	64,317,493	231,221	525,000	125,799	147,217
U.S. lake ports	–	16,138,818	384,000	97,182	64,000	–
U.S. Atlantic seaboard ports	74,648	11,778,207	–	8	1,156,000	–
In transit lake	7,490	3,613,277	–	66,554	–	–
In transit rail	–	18,208,523	373,873	798,347	238,414	32,010
In transit U.S.A.	–	1,839,984	–	–	–	–
Total	1,793,164	460,526,660	3,227,100	5,557,587	2,827,913	430,217
Total same period 1940	8,600,223	284,274,313	5,086,542	5,619,171	4,954,375	453,717

Canadian Grain in Store and in Transit in Canada and the United States, by Weeks, July-September 1940 and 1941—continued

Distribution	Durum Wheat	Other Wheat	Oats	Barley	Rye	Flaxseed
Week ended August 29, 1941	bu.	bu.	bu.	bu.	bu.	bu.
In Elevators—						
Western country	425,000	209,925,000	1,305,000	1,510,000	839,000	175,000
Interior private and mill	25,000	8,089,000	287,000	990,000	47,000	30,000
Interior public and semi-public terminal	1,090	18,311,484	801	1,397	6	85
Vancouver-New Westminster	–	17,830,572	24,905	5,428	–	–
Victoria	–	1,016,247	–	–	–	–
Prince Rupert	–	1,207,975	–	–	–	–
Churchill	–	2,617,396	–	–	–	–
Fort William and Port Arthur	485,514	92,043,961	860,177	2,446,408	647,743	126,663
Eastern	824,648	64,121,090	171,858	464,334	117,698	142,737
U.S. lake ports	–	14,194,203	282,000	87,181	–	–
U.S. Atlantic seaboard ports	74,648	11,907,668	142,000	8	1,153,000	–
In transit lake	54,934	4,178,187	349,195	102,896	31,000	–
In transit rail	–	16,931,396	555,694	1,385,324	324,393	32,368
In transit U.S.A.	–	1,884,602	–	–	–	–
Total	1,890,834	464,258,781	3,978,630	6,992,976	3,159,840	506,853
Total same period 1940	8,259,028	295,610,728	4,753,177	5,523,989	4,850,750	454,222
Week ended September 5, 1941						
In Elevators—						
Western country	440,000	210,875,000	1,490,000	1,525,000	803,000	247,000
Interior private and mill	18,000	8,010,000	361,000	981,000	56,000	38,000
Interior public and semi-public terminal	1,090	18,310,923	2,592	4,145	6	162
Vancouver-New Westminster	–	17,870,075	18,405	2,095	1,714	–
Victoria	–	1,025,405	–	–	–	–
Prince Rupert	–	1,205,961	–	–	–	–
Churchill	–	2,617,396	–	–	–	–
Fort William and Port Arthur	436,630	95,954,170	781,693	2,925,074	810,436	130,186
Eastern	730,622	67,236,380	339,416	681,254	140,432	76,469
U.S. lake ports	–	11,799,399	81,000	77,181	–	–
U.S. Atlantic seaboard ports	74,648	12,000,668	192,000	8	1,153,000	–
In transit lake	107,741	3,266,909	–	198,494	56,306	14,747
In transit rail	–	16,472,690	738,457	1,445,137	285,363	45,725
In transit U.S.A.	–	2,412,678	–	–	–	–
Total	1,808,731	469,057,654	4,004,563	7,839,388	3,306,257	552,289
Total same period 1940	8,423,908	308,140,123	4,488,855	5,502,798	5,029,915	551,135
Week ended September 12, 1941						
In Elevators—						
Western country	405,000	208,365,000	1,705,000	1,440,000	772,000	289,000
Interior private and mill	21,000	8,007,000	455,000	962,000	63,000	48,000
Interior public and semi-public terminal	1,090	18,308,472	2,592	4,129	6	158
Vancouver-New Westminster	–	17,924,968	17,584	1,262	643	–
Victoria	–	1,024,405	–	–	–	–
Prince Rupert	–	1,205,961	–	–	–	–
Churchill	–	2,617,396	–	–	–	–
Fort William and Port Arthur	320,712	97,661,503	814,324	2,887,657	613,904	127,513
Eastern	653,381	68,913,924	233,368	875,676	153,097	16,716
U.S. lake ports	–	10,991,399	28,000	131,181	280,000	–
U.S. Atlantic seaboard ports	74,648	12,889,523	43,734	8	1,149,000	–
In transit lake	54,553	2,913,347	–	719,502	171,311	21,030
In transit rail	–	16,920,879	649,298	894,960	246,112	60,565
In transit U.S.A.	–	2,003,588	–	–	–	–
Total	1,530,384	469,747,365	3,948,900	7,916,375	3,449,073	562,982
Total same period 1940	8,643,505	323,222,497	4,416,204	6,280,754	5,379,679	554,190
Week ended September 19, 1941						
In Elevators—						
Western country	430,000	208,560,000	2,490,000	2,195,000	943,000	409,000
Interior private and mill	18,000	8,216,000	511,000	939,000	60,000	55,000
Interior public and semi-public terminal	1,090	18,313,734	1,190	3,283	6	1,014
Vancouver-New Westminster	–	17,988,575	15,379	1,262	643	–
Victoria	–	1,025,217	–	–	–	–
Prince Rupert	–	1,205,961	–	–	–	–
Churchill	–	2,617,396	–	–	–	–
Fort William and Port Arthur	344,145	99,784,773	835,014	2,994,879	592,950	113,020
Eastern	466,369	70,298,137	206,742	1,725,036	141,626	16,627
U.S. lake ports	–	9,554,399	27,000	214,181	224,000	–
U.S. Atlantic seaboard ports	74,648	12,987,523	45,979	8	1,147,000	–
In transit lake	19,524	2,951,797	–	523,892	102,676	48,435
In transit rail	–	15,278,548	1,125,086	1,442,201	423,547	100,435
In transit U.S.A.	–	2,731,056	–	–	–	–
Total	1,353,776	471,513,116	5,257,390	10,038,742	3,635,448	743,531
Total same period 1940	8,918,961	348,977,076	4,424,689	6,583,433	5,513,130	783,809

Canadian Grain in Store and in Transit in Canada and the United States, by Weeks, July-September, 1940 and 1941—concluded

Distribution	Durum Wheat	Other Wheat	Oats	Barley	Rye	Flaxseed
Week ended September 26, 1941	bu.	bu.	bu.	bu.	bu.	bu.
In Elevators—						
Western country	425,000	209,595,000	2,770,000	2,275,000	931,000	587,000
Interior private and mill	26,000	8,304,000	673,000	980,000	74,000	54,000
Interior public and semi-public terminal	1,090	18,022,948	1,190	3,283	6	1,014
Vancouver-New Westminster	–	18,012,493	22,285	1,262	643	–
Victoria	–	1,024,217	–	–	–	–
Prince Rupert	–	1,205,961	–	–	–	–
Churchill	–	2,617,396	–	–	–	–
Fort William and Port Arthur	376,985	99,468,798	799,589	3,029,463	554,140	78,759
Eastern	443,267	70,098,023	170,111	1,795,980	240,294	64,225
U.S. lake ports	–	8,787,043	181,000	47,181	470,000	–
U.S. Atlantic seaboard ports	74,648	12,900,523	45,979	8	1,146,000	–
In transit lake	–	2,738,847	157,496	708,314	–	58,445
In transit rail	–	16,539,803	1,991,904	2,372,115	675,649	170,079
In transit U.S.A.	–	3,566,299	–	–	–	–
Total	1,346,990	472,881,351	6,812,554	11,212,606	4,091,732	1,013,522
Total same period 1940	9,323,134	380,969,476	5,050,733	6,929,302	5,815,897	951,925

METEOROLOGICAL RECORDS

Temperature and Precipitation at the Dominion Experimental Farms and Stations, by Months, July to September, 1941, compared with Normal

SOURCE: Division of Field Husbandry, Dominion Department of Agriculture.

Experimental Farm or Station	Temperature (°F.)												Precipitation (inches)					
	July				August				September				July		August		Sept.	
	High	Low	Mean	Normal	High	Low	Mean	Normal	High	Low	Mean	Normal	Actual	Normal	Actual	Normal	Actual	Normal
Ottawa, Ont.	95	47	70	69	91	38	64	66	87	28	59	59	2·8	3·6	2·6	3·0	1·3	2·9
Charlottetown, P.E.I.	82	52	67	66	78	46	61	65	78	34	54	58	5·4	2·9	4·8	3·3	3·4	3·8
Kentville, N.S.	94	45	67	66	86	39	62	65	80	31	56	58	2·2	2·9	3·8	3·3	2·0	3·4
Nappan, N.S.	86	40	65	64	83	41	61	63	77	25	54	o6	3·6	2·8	4·6	3·1	1·9	3·3
Fredericton, N.B.	92	44	67	66	83	38	61	64	85	26	55	56	5·2	3·0	5·5	3·7	1·9	3·3
Ste. Anne de la Pocatiere, Que.	89	47	67	65	81	40	61	62	78	32	55	54	3·2	3·6	4·3	3·1	7·4	3·4
Lennoxville, Que.	90	43	68	66	88	32	61	64	86	24	57	56	3·9	4·0	1·8	3·6	2·5	3·6
L'Assomption, Que.	94	48	70	68	92	38	64	66	85	28	58	58	4·2	3·8	2·4	3·7	1·9	3·5
Normandin, Que.	92	40	65	–	79	33	57	–	84	28	52	–	5·2	–	3·1	–	4·6	–
Harrow, Ont.	96	49	74	73	92	47	70	70	87	41	67	65	2·3	1·7	3·5	2·1	1·7	2·6
Delhi, Ont.	95	45	71	71	90	36	66	68	85	33	64	61	4·5	1·9	1·6	2·2	1·1	3·8
Kapuskasing, Ont.	92	33	66	62	79	36	56	60	83	26	54	51	3·2	3·2	5·2	3·0	5·6	3·4
Morden, Man.	100	46	72	69	94	36	67	66	89	29	55	56	1·0	2·7	1·5	1·7	6·6	2·3
Brandon, Man.	102	37	69	65	94	30	64	62	87	20	52	52	3·0	2·8	2·1	2·5	4·8	1·9
Indian Head, Sask.	103	40	68	65	91	35	64	62	90	13	51	52	3·0	2·4	1·4	2·0	0·5	1·9
Swift Current, Sask.	99	47	70	66	94	37	65	63	75	14	49	52	2·2	1·9	2·4	1·8	0·9	1·0
Scott, Sask.	99	41	68	63	91	37	62	61	69	17	46	50	0·8	2·2	2·3	1·6	1·2	1·3
Lacombe, Alta.	100	38	66	61	90	35	61	58	72	20	46	49	1·9	2·8	3·1	2·4	1·4	1·6
Lethbridge, Alta.	95	44	68	64	87	38	62	62	71	26	49	53	4·1	1·7	1·8	1·6	2·8	1·7
Manyberries, Alta.	97	49	71	69	94	41	69	66	76	24	50	55	0·5	1·2	1·1	0·8	1·8	1·0
Beaverlodge, Alta.	98	44	65	60	82	31	58	58	64	21	44	49	4·6	2·3	3·2	1·8	4·0	1·7
Ft. Vermilion, Alta.	101	44	66	60	86	30	57	57	69	18	44	46	2·0	1·9	2·0	1·7	2·1	1·3
Summerland, B.C.	104	50	73	70	95	47	69	69	73	37	56	59	1·7	0·7	1·7	0·6	2·4	0·8
Agassiz, B.C.	100	47	69	64	90	45	65	64	75	39	57	58	0·5	1·9	3·2	2·2	10·0	4·3
Sidney, Vancouver Is., B.C.	94	48	66	63	81	50	62	62	67	43	55	56	0·1	0·6	1·8	0·7	2·4	1·5

PRICES OF AGRICULTURAL PRODUCE

Table 1.—Average Monthly Cash Prices per Bushel of Canadian Grain at Winnipeg, Basis in Store Fort William-Port Arthur, July-September, 1941

Grain and Grade	July	August	September
	$ c.	$ c.	$ c.
Wheat—			
No. 1 Manitoba Hard	0 74⅜	0 73¼	0 72½
No. 1 Manitoba Northern	0 74⅜	0 73¼	0 72½
No. 2 Manitoba Northern	0 72⅛	0 70⅞	0 70
No. 3 Manitoba Northern	0 69⅝	0 67⅝	0 67⅝
No. 4 Manitoba Northern	0 68⅛	0 66⅞	0 66¾
No. 5	0 72⅛	0 65⅝	0 65¼
No. 6	0 71⅛	0 63⅝	0 64¼
Feed	0 61⅝	0 57½	0 58¼
Tough—No. 1 Hard	0 72⅛	0 71¼	0 70½
No. 1 Northern	0 72⅛	0 71¼	0 70½
No. 2 Northern	0 69⅝	0 68¼	0 67⅞
No. 3 Northern	0 67¼	0 65½	0 65½
Rejected—No. 1 Northern	0 68¼	0 67⅛	0 67
No. 2 Northern	0 67⅜	0 65⅞	0 65½
No. 3 Northern	0 64¼	0 62⅞	0 63¼
Smutty—No. 1 Northern	0 70¼	0 68½	0 67⅝
No. 2 Northern	0 68⅛	0 66½	0 66
No. 3 Northern	0 66	0 63⅝	0 63⅜
No. 1 C.W. Garnet	0 69⅞	0 68⅛	0 67⅝
No. 2 C.W. Garnet	0 68⅝	0 67⅛	0 66⅝
No. 3 C.W. Garnet	0 68¼	0 66¼	0 66⅛
No. 1 C.W. Amber Durum	0 70⅛	0 70⅝	0 72⅜
No. 2 C.W. Amber Durum	0 70⅛	0 70⅜	0 72¾
No. 3 C.W. Amber Durum	0 69½	0 69½	0 72
Oats—			
No. 2 C.W.	0 40¼	0 45¼	0 49¼
No. 3 C.W.	0 38	0 43⅜	0 47½
No. 1 Feed	0 36⅛	0 40⅝	0 44⅛
No. 2 Feed	0 35⅜	0 39⅜	0 42⅝
No. 3 Feed	0 33⅜	0 37⅝	0 40⅞
Barley—			
No. 1 C.W. Six-Row	0 54⅝	0 50⅛	0 56¼
No. 2 C.W. Six-Row	0 54⅝	0 50⅛	0 56¼
No. 3 C.W. Six-Row	0 53⅛	0 49	0 54¼
No. 1 C.W. Two-Row	0 54⅝	0 51	0 58⅜
No. 2 C.W. Two-Row	0 54⅝	0 51	0 58⅜
No. 1 Feed	0 52⅜	0 48¼	0 52⅜
No. 2 Feed	0 50⅞	0 47⅜	0 52¼
No. 3 Feed	0 49¾	0 46⅝	0 51⅝
Rye—			
No. 2 C.W.	0 55	0 54⅞	0 62¼
No. 3 C.W.	0 50	0 50	0 58¾
No. 4 C.W.	0 48⅛	0 49	0 57⅞
C.W. Ergoty	0 45⅞	0 45⅛	0 54⅞
Rejected No. 2 C.W.	0 49	0 48¼	0 55½
Flaxseed—			
No. 1 C.W.	1 58⅜	1 45⅞	1 54⅜
No. 2 C.W.	1 54⅜	1 40⅜	1 50½
No. 3 C.W.	1 39⅜	1 24⅝	1 34½
No. 4 C.W.	1 34⅜	1 19⅝	1 29½

Table 2.—Average Monthly Prices per Bushel of Grain in the United States, July-September, 1941

SOURCE: Bureau of Agricultural Economics, United States Department of Agriculture

Description	July	August	September
	cents	cents	cents
Wheat—			
No. 2 Hard Winter, Kansas City	98·3	106·6	114·1
No. 1 Dark Northern Spring, Minneapolis	100·4	106·1	113·5
Corn—			
No. 3 Yellow, Chicago	73·7	74·5	75·1
No. 3 Yellow, Kansas City	–	70·0	72·0
Oats—	35·6	37·3	45·9
No. 3 White, Chicago	32·1	35·9	42·8
No. 3 White, Minneapolis			
Barley—	44·8	51·4	60·4
No. 3, Minneapolis			

Table 3.—Average Monthly Prices of Flour, Bran and Shorts at Principal Markets, July-September, 1941

SOURCE: Canadian Markets, Internal Trade Branch, Dominion Bureau of Statistics; Minneapolis and Duluth, *The Northwestern Miller*.

Description	Unit	July	August	September
		$ c.	$ c.	$ c.
Flour[1]—				
Montreal, first patents	bbl.	5 85	5 03	4 95
Ontario Winter Wheat delivered Montreal	"	5 05	5 10	5 38
Toronto, first patents	"	5 85	5 03	4 95
Winnipeg, first patents	"	5 89	5 13	5 12
Vancouver, first patents	"	6 29	5 53	5 50
Minneapolis, first patents	"	5 65—5 84	5 99—6 20	6 24—6 45
Duluth, first patents	"	6 20	6 38	6 63
Bran—				
Montreal	ton	26 00	24 50	27 75
Toronto	"	26 00	24 50	27 75
Winnipeg	"	25 54	25 08	28 32
Vancouver	"	31 00	28 00	32 00
Minneapolis	"	23 75—24 00	26 80	30 00—31 00
Shorts—				
Montreal	"	27 00	25 50	28 75
Toronto	"	27 00	25 50	28 75
Winnipeg	"	27 46	26 08	29 32
Vancouver	"	33 00	30 00	34 00
Minneapolis[2]	"	27 13—27 38	26 80	30 50
Middlings—				
Montreal	"	29 65	28 50	31 90
Toronto	"	29 65	28 50	31 90
Winnipeg	"	27 00	27 00	27 80
Vancouver	"	34 33	32 80	37 00

[1] Price per barrel of 2-93's cotton: Ontario Winter Wheat and Minneapolis, jute.
[2] Standard middlings.

BASIS OF QUOTATION:—

Montreal and Toronto: carlots f.o.b. Ontario and Montreal lake and rail points. *Winnipeg:* flour, bran and shorts—carlots f.o.b. warehouse outright purchases; middlings—wholesale carlots. *Vancouver;* flour—carlots f.o.b. warehouse outright purchases; bran and shorts—carlots or mixed carlots in bags ex track; middling—sacked l.c.l. *Minneapolis:* carlots, prompt delivery.

Table 4.—Weighted Average Monthly Prices per cwt. of Live Stock at Principal Canadian Markets, July-September, 1941

SOURCE: Market Information Service, Dominion Department of Agriculture

Market	Cattle			Calves			Hogs*			Sheep and Lambs		
	July	August	Sept.	July	August	Sept.	July	August	Sept.	July	August	Sept.
	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
Montreal	6 26	6 04	5 83	7 17	7 01	6 86	15 05	14 83	14 77	10 49	9 97	9 75
Toronto	7 42	7 58	7 58	10 11	10 57	10 28	14 62	14 62	14 65	11 93	10 91	9 98
Winnipeg	6 59	6 76	6 69	8 48	8 58	8 77	13 87	13 59	13 55	9 87	9 24	8 69
Calgary	6 91	6 57	6 78	7 70	6 67	8 41	13 27	13 20	13 34	9 96	9 04	8 65
Edmonton	6 66	6 03	6 27	7 31	7 13	8 35	13 10	13 21	13 27	8 61	7 84	8 00
Moose Jaw	5 56	5 91	6 67	6 71	7 31	7 86	13 43	13 30	13 17	7 01	8 52	7 88

* Grade B—hogs dressed.

Table 5.—Average Monthly Prices per cwt. of Live Stock at Chicago, U.S.A. July-September, 1941

SOURCE: Bureau of Agricultural Economics, United States Department of Agriculture.

Description	July	August	September
	$ c.	$ c.	$ c.
Cattle and Calves—			
Beef steers, choice and prime	11 76	12 06	12 02
Beef steers, good	11 11	11 58	11 56
Beef steers, medium	10 43	10 62	10 38
Vealers, good and choice	12 01	12 41	13 65
Stocker and feeder steers, average price, all weights[1]	9 59	9 79	9 98
Hogs, average price, all purchases	10 75	10 68	11 04
Slaughter lambs, good and choice	11 37	11 63	11 93

[1] Kansas City.

Table 6.—Average Monthly Prices per cwt. of Live Stock at Principal Canadian Markets, July-September, 1941

SOURCE: Market Information Service, Dominion Department of Agriculture

Description	July	Aug.	Sept.
	$ c.	$ c.	$ c.
Montreal—			
Steers, up to 1,050 lb.....good	8 94	8 90	9 16
medium	8 14	8 22	8 29
common	6 47	6 53	6 07
Steers, over 1,050 lb.....good	8 95	9 08	9 20
medium	8 05	8 22	8 25
common	5 84	5 84	5 89
Heifers.....good	7 75	7 78	8 09
medium	6 53	6 94	6 82
Calves, fed.....good	–	–	10 57
medium	–	–	8 23
Calves, veal.....good and choice	10 39	11 45	12 50
common and medium	7 48	9 07	9 98
Cows.....good	6 65	6 75	6 84
medium	5 88	5 95	5 99
Bulls.....good	6 50	6 21	6 31
Hogs.....slaughter[1]	15 05	14 83	14 77
feeders[2]	12 68	11 08	11 22
Lambs.....good handyweights	12 53	11 58	11 12
Sheep.....good handyweights	6 25	6 25	6 22
Toronto—			
Steers, up to 1,050 lb.....good	8 71	8 79	8 95
medium	8 26	8 50	8 57
common	7 49	7 89	7 88
Steers, over 1,050 lb.....good	8 73	9 01	9 15
medium	8 36	8 65	8 64
common	8 10	8 27	8 26
Heifers.....good	8 67	8 75	8 86
medium	8 30	8 48	8 53
Calves, fed.....good	9 50	9 99	10 27
medium	8 93	9 25	9 49
Calves, veal.....good and choice	11 31	12 36	12 75
common and medium	9 19	9 74	10 45
Cows.....good	6 59	6 66	6 71
medium	5 88	5 90	5 99
Bulls.....good	7 11	7 01	7 01
Stocker and feeder steers.....good	7 61	7 84	8 10
common	6 62	6 88	7 19
Hogs.....slaughter[1]	14 62	14 62	14 65
feeders[2]	–	–	–
Lambs.....good handyweights	13 51	12 01	10 89
common, all weights	11 02	9 18	8 88
Sheep.....good handyweights	5 71	5 95	6 12
Winnipeg—			
Steers, up to 1,050 lb.....good	8 50	8 70	8 60
medium	7 75	7 85	7 72
common	6 76	6 75	6 58
Steers, over 1,050 lb.....good	8 46	8 74	8 59
medium	7 75	7 88	7 75
common	6 75	6 75	6 76
Heifers.....good	7 73	7 91	7 62
medium	6 75	6 89	6 80
Calves, fed.....good	8 54	9 17	9 25
medium	7 75	7 95	8 00
Calves, veal.....good and choice	9 44	9 88	10 58
common and medium	7 48	7 44	7 43
Cows.....good	6 12	6 31	6 31
medium	5 27	5 35	5 37
Bulls.....good	6 92	6 95	6 66
Stocker and feeder steers.....good	6 66	7 33	7 47
common	5 68	5 85	5 90
Stock cows and heifers.....good	5 76	5 75	5 96
common	4 49	4 51	4 50
Hogs.....slaughter[1]	13 87	13 59	13 55
feeders[2]	10 67	9 31	10 01
Lambs.....good handyweights	11 31	10 11	9 38
common, all weights	8 64	8 00	7 34
Sheep.....good handyweights	5 27	4 31	4 35

Description	July	Aug.	Sept.
	$ c.	$ c.	$ c.
Calgary—			
Steers, up to 1,050 lb.....good	8 44	8 72	8 79
medium	7 75	7 79	7 90
common	6 81	6 83	6 93
Steers, over 1,050 lb.....good	8 11	8 34	8 65
medium	7 50	7 58	7 80
common	6 71	6 74	6 92
Heifers.....good	7 75	7 76	7 87
medium	7 10	7 02	7 18
Calves, fed.....good	8 52	9 00	9 79
medium	7 95	8 44	9 14
Calves, veal.....good and choice	8 84	8 09	9 39
common and medium	7 03	7 00	7 67
Cows.....good	5 71	6 02	6 13
medium	4 90	5 18	5 43
Bulls.....good	6 96	7 10	6 30
Stocker and feeder steers.....good	7 27	7 40	7 60
common	6 27	6 26	6 47
Stock cows and heifers.....good	5 89	6 25	6 27
common	4 89	5 22	5 21
Hogs.....slaughter[1]	13 27	13 20	13 34
feeders[2]	10 26	9 95	9 85
Lambs.....good handyweights	11 01	9 79	9 37
Edmonton—			
Steers, up to 1,050 lb.....good	7 82	8 16	8 56
medium	7 40	7 50	7 91
common	6 14	5 95	6 58
Steers, over 1,050 lb.....good	7 75	7 92	8 29
medium	7 22	7 20	7 75
common	5 96	–	6 43
Heifers.....good	7 50	7 75	7 77
medium	6 75	7 09	7 19
Calves, fed.....good	7 91	8 35	8 83
medium	7 40	7 54	7 76
Calves, veal.....good and choice	8 00	8 06	9 38
common and medium	6 25	6 07	7 00
Cows.....good	5 53	5 86	6 00
medium	5 11	5 00	5 03
Bulls.....good	6 00	5 85	6 00
Stocker and feeder steers.....good	6 32	6 44	6 64
common	5 34	5 45	5 24
Stock cows and heifers.....good	5 50	5 21	5 71
Hogs.....slaughter[1]	13 10	13 21	13 27
feeders[2]	9 32	9 35	9 42
Lambs.....good handyweights	9 77	8 68	8 63
common, all weights	6 50	5 87	5 67
Sheep.....good handyweights	5 00	–	–
Moose Jaw—			
Steers, up to 1,050 lb.....good	7 34	7 55	7 75
medium	6 75	6 95	7 19
common	5 90	6 17	5 95
Steers, over 1,050 lb.....good	7 46	7 58	7 69
medium	6 77	–	7 13
common	–	–	–
Heifers.....good	7 01	7 42	7 16
medium	6 40	6 63	6 46
Calves, fed.....good	7 51	–	7 83
medium	–	6 62	7 14
Calves, veal.....good and choice	8 03	8 42	9 02
common and medium	5 97	6 37	7 13
Cows.....good	5 71	5 94	6 00
medium	4 71	5 25	5 36
Bulls.....good	5 77	5 75	5 55
Stocker and feeder steers.....good	5 98	6 33	7 41
common	4 99	5 34	5 69
Stock cows and heifers.....good	5 14	5 43	5 80
common	3 93	3 76	4 17
Hogs.....slaughter[1]	13 43	13 30	13 17
feeders[2]	10 18	10 16	10 05
Lambs.....good handyweights	9 66	9 45	8 76

[1] Sold on dressed carcass basis.

[2] Sold alive.

Table 7.—Wholesale Prices of Produce at Principal Canadian Markets, July-September, 1941

Description	Unit	July	Aug.	Sept.
		$ c.	$ c.	$ c.
Halifax—				
Hams, 12 to 18 lb.	lb.	0 33	0 33	0 35
Bacon, choice side	"	0 36	0 36	0 38
Barrelled mess pork, P.E.I.	bbl.	33 50	33 50	33 50
Beef, carcass, steer	lb.	0 17	0 17	0 17
Lamb, spring	"	0 26	0 27	0 22
Lard, pure	"	0 11	0 15	0 15
Butter, fresh-made creamery prints	"	0 37	0 40	0 38
Cheese, new	"	0 22	0 24	0 26
Eggs, grade A, large	doz.	0 37	0 41	0 43
Potatoes, Canada No. 1	75 lb.	1 14	1 35	1 20
Saint John—				
Hams	lb.	0 28	0 30	0 30
Bacon	"	0 27	0 34	0 34
Beef, carcass, country beef steers	"	0 14	0 14	0 14
Lamb, frozen	"	0 20	[1]0 24	[1]0 24
Lard, pure	"	0 12	0 15	0 16
Butter, creamery	"	0 34	0 40	0 40
Cheese, new	"	0 22	0 24	0 26
Eggs, grade A, large	doz.	0 36	0 40	0 40
Potatoes, Canada, No. 1	75 lb.	0 99	1 21	1 02
Hay, pressed, car lots, No. 1	ton	14 00	14 00	14 00
Montreal—				
Hams, smoked, light, 12 to 16 lb.	lb.	0 30	0 29	0 28
Bacon, smoked, light, 6 to 8 lb.	"	0 32	0 31	0 31
Pork, mess, barrelled	bbl.	28 35	29 16	29 16
Beef, carcass, good steer, 400 to 600 lb.	lb.	0 16	0 16	0 16
Lamb, choice, fresh	"	0 25	0 23	0 21
Lard, pure, in tierces	"	0 12	0 14	0 15
Butter, first grade, creamery prints	"	0 36	0 38	0 36
Cheese, new, western, No. 1	"	0 16	0 16	0 16
Eggs, grade A, large	doz.	0 36	0 39	0 42
Potatoes, Canada No. 1, Que.	75 lb.	0 84	1 03	0 93
Timothy hay, extra, No. 2	ton	12 50	14 50	18 00
Toronto—				
Hams, No. 1, smoked, light, 12 to 16 lb.	lb.	0 30	0 30	0 31
Bacon, No. 1, smoked, light, 4 to 8 lb.	"	0 33	0 33	0 33
Pork, mess, barrelled	bbl.	29 16	27 22	28 08
Beef, carcass, good butcher, 450 to 650 lb.	lb.	0 16	0 16	0 17
Lamb, good, 37 to 48 lb.	"	0 26	0 23	0 20
Lard in 60 lb. tin	"	0 13	0 14	0 16
Butter, first grade, creamery prints	"	0 36	0 38	0 36
Cheese, No. 1, large	"	0 19	0 24	0 31
Eggs, grade A, large	doz.	0 35	0 38	0 42
Potatoes, Canada No. 1, Ontario White	75 lb.	1 35	1 22	1 21
Timothy hay, baled, No. 2	ton	12 47	14 18	15 71
Winnipeg—				
Hams, smoked, 12 to 16 lb.	lb.	0 34	0 32	0 32
Bacon, smoked, 6 to 8 lb.	"	0 37	0 34	0 34
Pork, mess, barrelled	bbl.	[2]28 08	[2]28 08	[2]28 08
Beef, carcass, good butcher, 450 to 650 lb.	lb.	0 15	0 16	0 16
Lamb, good, 37 to 48 lb.	"	0 23	0 22	0 19
Lard, tierces	"	0 12	0 14	0 14
Butter, first grade, creamery prints	"	0 36	0 38	0 37
Cheese, Manitoba triplets	"	0 20	0 21	0 24
Eggs, grade A, large	doz.	0 32	0 36	0 39
Potatoes, Canada No. 2, Manitoba	75 lb.	0 96	0 60	0 51
Regina—				
Hams, smoked, Dominion, 12 to 16 lb.	lb.	0 31	0 31	0 31
Bacon, smoked, Dominion, 6 to 8 lb.	"	0 34	0 34	0 34
Beef, carcass, good steer and heifer, 550 to 750 lb	"	0 15	0 16	0 16
Lamb, good spring	"	0 20	0 20	0 19
Lard, in tierces, approx. 360 lb.	"	0 11	0 12	0 14
Butter, first grade, creamery prints	"	0 35	0 37	0 36
Cheese, Sask. 3tiltons	"	–	–	–
Eggs, grade A, large	doz.	0 27	0 32	0 35
Potatoes, Canada No. 1, Alberta, white	cwt.	1 70	1 14	1 06
Calgary—				
Hams, smoked, Dominion, 12 to 16 lb.	lb.	0 30	0 30	0 30
Bacon, smoked, Dominion, 6 to 8 lb.	"	0 31	0 32	0 32
Barrelled mess pork	bbl.	41 00	41 00	41 00
Beef, carcass, good steer, 450 to 650 lb.	lb.	0 16	0 16	0 16
Lamb, good, 37 to 48 lb.	"	0 21	0 21	0 20
Lard, in tierces, approx. 360 lb	"	0 11	0 13	0 14
Butter, first grade, creamery prints	"	0 35	0 37	0 35
Cheese, Royal Canadian half stiltons, new	"	0 22	0 24	0 25
Eggs, grade A, large	doz.	0 26	0 32	0 35
Potatoes, Canada No. 1	cwt.	0 88	1 66	1 50
Vancouver—				
Hams, smoked, 12 to 16 lb.	lb.	0 31	0 31	0 32
Bacon, smoked, 6 to 8 lb.	"	0 36	0 37	0 37
Pork, mess, barrelled	bbl.	38 88	38 88	38 88
Beef, carcass, Grade A, good steer	lb.	0 17	0 18	0 18
Spring lamb, good	"	0 25	0 22	0 21
Lard, tierces	"	0 11	0 13	0 15
Butter, first grade, creamery prints	"	0 35	0 39	0 37
Cheese, mild, Ontario, stiltons	"	0 23	0 24	0 27
Eggs, grade A, large	doz.	0 31	0 39	0 39
Potatoes, Canada No. 1, British Columbia	cwt.	1 64	1 30	1 39

[1]Fresh [2]Nominal.

All prices (except eggs and potatoes) for Halifax, Saint John, Regina and Calgary; timothy hay No. 2, Montreal; butter, first grade, creamery prints, Vancouver, are as at the 15th of the month. All other quotations are averages for the month.

Table 8.—Average Prices of Milk in Principal Canadian Cities, 1937 to 1941

SOURCE: Dealers' Quotations

Season	Year	Halifax, N.S.	Montreal, P.Q.	Toronto, Ont.	Winnipeg, Man.	Vancouver, B.C.
		cents	$	$	$	cents
		per gal.	per cwt.	per cwt.	per cwt.	per lb. butter fat
Price Paid to Producers—						
Winter	1937	21·5—25·6	2·10	2·10—2·24	1·77—1·92	53
Spring	1937	25·6	2·10	2·24	1·95	53
Summer	1937	21·5	1·76	2·10	1·67	49·4
Fall	1937	21·5—25·6	2·20	2·10—2·40	1·67—2·00	49·4
Winter	1938	25·6	2·20	2·32	2·00	49·4
Spring	1938	21·5—25·6	2·20	2·10—2·32	2·00—2·01	47·7
Summer	1938	21·5	1·77	2·10	1·83	47·7
Fall	1938	21·5	2·16	2·10	2·13	47·3—48·6
Winter	1939	22·2—22·5	2·16	2·10	2·13	49
Spring	1939	22·2	2·16	2·10	2·13	48·5—49
Summer	1939	22·2	1·78	2·10	1·83	48·5—49
Fall	1939	22·2	1·78—2·16	2·10	2·13	46·2—46·8
Winter	1940	22·2—24·2	2·16	2·10	2·13	46·2—46·9
Spring	1940	23·6	2·16	2·10	2·13	46·5—46·9
Summer	1940	23·6	2·06	2·10	2·06	45·7—45·9
Fall	1940	23·6	2·06—2·32	2·10	2·06—2·13	45·8—46·6
Winter	1941	23·6	2·32	2·10—2·40	2·13	46·7—46·9
Spring	1941	23·6	2·32	2·40	2·13	46·2—46·6
Summer	1941	24·7	2·32	2·40	2·03—2·13	45·2—45·8
		cents	cents	cents	cents	cents
		per qt.	per qt.	per qt.	per qt.	per qt.
Retail Price—						
Winter	1937	12	10	12—12·5	10	10
Spring	1937	12	10	12·5	10	10
Summer	1937	12	9—10	12—13	10	10
Fall	1937	12	10—11	12	10	10
Winter	1938	12	11	13	10	10
Spring	1938	12	11	13	10	10
Summer	1938	12	10	12	10	10
Fall	1938	12	11	12	11	10
Winter	1939	11·7	11	12	11	10
Spring	1939	12	11	12	10	10
Summer	1939	12	10·5—11	12	9·5—10·0	10
Fall	1939	12	10·5—12	12	10·9—10·5	10
Winter	1940	12	11—12	12	10·0—11·0	10
Spring	1940	12	11—12	12	11	10
Summer	1940	12	11—12	12	11	10
Fall	1940	12	11—12	12	11	10
Winter	1941	12	12—12·5	12—13	11	10
Spring	1941	12	12—12·5	13	11	10
Summer	1941	12	12—12·5	13	11	10