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Grain and Feed Update

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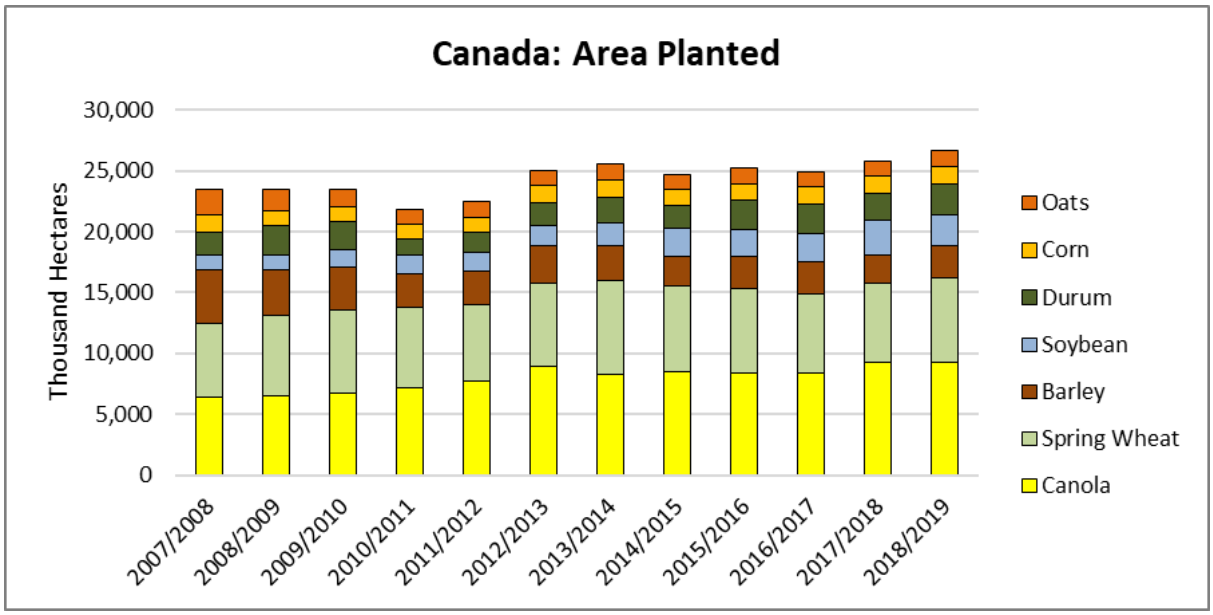
Report Highlights:
FAS/Canada anticipates increased total wheat area planted to drive up total wheat production in marketing year 2018/19, more than offsetting lower yields on difficult harvest conditions. Spring wheat, barley and oat quality are expected lower on extensive moisture at harvest, including early October snow, which should drive up feed quality grain supplies in Western Canada. Durum quality is expected to be good, as most of the crop was harvested before the snow. Marketing year 2018/19 corn production is projected at a record high on greater area planted and improved yields.

Keywords: Canada, CA18058, Grain, Wheat, Barley, Corn, Oats

The FAS/Ottawa October *Grain and Feed Update* and the April *Grain and Feed Annual* cover coarse grains as well as wheat. The January and July *Grain and Feed Update* reports focus exclusively on wheat. Throughout this report, the term "total wheat production" refers to all wheat, including durum.

Area planted to field crops in general was at a ten-year high for marketing year (MY) 2018/19, with canola and spring wheat leading the way (Figure 1). Looking forward, the steady expansion of soybean area planted across the prairies is expected to continue to alter crop ratios seen in Figure 1. Looking forward to MY 2019/20, farmers in the prairie provinces will be considering the current low price of soybean contracts written on Chicago Board of Trade prices (nearly all Canadian soybeans) and growing conditions next spring. Fall 2018 rain and snow should improve subsoil moisture levels in Manitoba and Saskatchewan, creating better conditions for planting soybeans in 2019 and drawing area out of wheat in MY 2019/20.

Figure 1: Area Planted to Principal Field Crops in Canada



Source: Statistics Canada

Wheat

Table 1: Wheat Production, Supply and Distribution

Wheat	2016/2017		2017/2018		2018/2019	
Market Begin Year	Aug 2016		Aug 2017		Aug 2018	
Canada	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Area Harvested	8976	8976	8983	8983	9800	9825
Beginning Stocks	5178	5178	6856	6856	6180	6221
Production	32140	32140	29984	29984	31500	31019
MY Imports	498	499	450	444	450	460
TY Imports	503	503	445	446	450	460
TY Imp. from U.S.	334	337	260	290	0	0
Total Supply	37816	37817	37290	37284	38130	37700
MY Exports	20157	20211	21954	21955	24000	22100
TY Exports	20235	20269	21989	21966	24000	22100
Feed and Residual	5821	5757	4256	4208	4000	5000
FSI Consumption	4982	4993	4900	4900	5000	5000
Total Consumption	10803	10750	9156	9108	9000	10000
Ending Stocks	6856	6856	6180	6221	5130	5600
Total Distribution	37816	37817	37290	37284	38130	37700
Yield	3.5807	3.5807	3.3379	3.3379	3.2143	3.1572
(1000 HA) ,(1000 MT) ,(MT/HA)						

Source: Global Trade Atlas, Statistics Canada, FAS/Ottawa estimates

The growing season for MY 2018/19 began late, after an unusually long winter that extended into late April, which was rapidly followed by an exceptionally dry and hot May. This led to rapid snowmelt, lots of runoff, and very little soil moisture retention, setting the foundation for a growing season reliant on timely moisture because of the lack of reserves. Adequate rains in June allowed the wheat crop to germinate and sprout, but prolonged periods of dryness throughout July and August led to stunting and lower yields overall.

Average wheat yield is expected to be 3.16 MT/hectare in MY 2018/19, down slightly from the 3.34 MT/hectare in MY 2017/18, and even further from MY 2016/17 (Table 1). However, increased area harvested in MY 2018/19 should push overall production above 31 million metric tons (MMT), up from MY 2017/18 (Table 2).

Table 2: Canadian Wheat Production

Production (MT)	2017/2018	2018/2019 (f)	Percent change
Durum	4,962,200	5,705,800	14%
Spring wheat	22,166,700	22,910,500	3.5%
Winter wheat	2,855,300	2,394,200	-16%
All wheat	29,984,200	31,019,000	3.5%

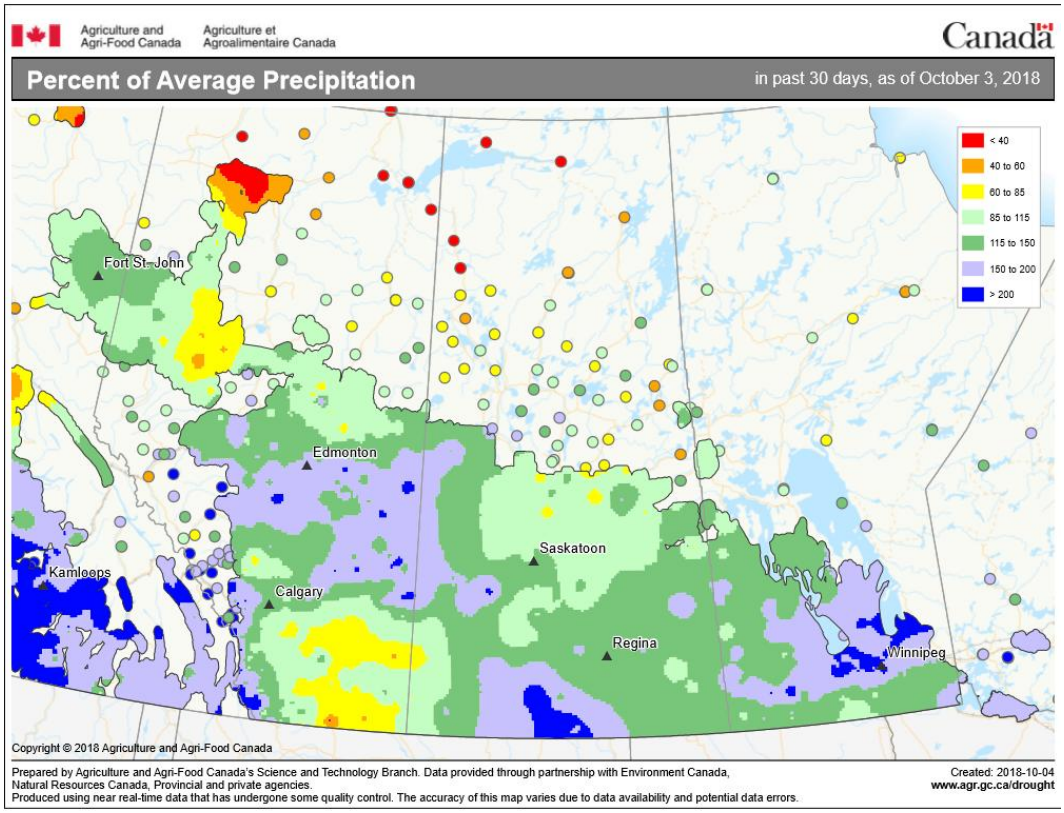
Source: Statistics Canada

Durum has seen the largest increase in production of all wheat, growing by 750,000 MT in MY 2018/19. Industry sources indicate the 2018 durum quality to be excellent relative to the spring wheat crop, given that a lot of the durum is located in the southern half of the prairies. Earlier maturation facilitated the majority of harvesting prior to the poor October weather. The southern regions of Alberta avoided much of the rain and snow that delayed harvest further north in late September and early October (

Figure **2**).

Poor weather in late September and early October, including early snows, is expected to have reduced the quality of MY 2018/19 spring wheat, which typically accounts for 94 percent of Canada's total wheat production. The Canadian Grain Commission's (CGC) sample survey from October 23, 2018, revealed that 77 percent of spring wheat graded number 1, 11 percent number 2, and 7 percent number 3. Number 3 grade is considered 'feed grade.' FAS/Ottawa predicts that the percentage of spring wheat grading at number 2 and number 3 will increase as more data is collected, which could alleviate livestock feed supply concerns in Western Canada and reduce the volume of corn entering from the United States through the remainder of MY 2018/19. Record high cattle on feed numbers in Canada in August 2018, combined with expected higher supplies of lower quality barley and spring wheat led FAS/Ottawa to project feed wheat consumption at 5,000 MT for MY 2018/19.

Figure 2: Percent of Average Precipitation for September



Source: Agriculture Agri-Food Canada (AAFC)

While early snowfall in the prairies is expected to have a particularly negative impact on MY 2018/19 wheat crop quality, FAS/Ottawa predicts the harvest was close to 90 percent complete for the prairies at the time of writing. Warmer weather near the end of October improved harvest conditions, and farmers across the prairies have been going steady since they could safely put their equipment back in the fields. Reports have been coming in of farmers helping neighbours to complete their harvests as well as of customs operators coming up from the United States to get the MY 2018/19 crop in the bin.

Canada imported roughly 444,000 MT of wheat in MY 2017/18, with roughly 65 percent coming from the United States. Wheat imports into Canada from the United States were primarily from Montana and North Dakota. Canada exported close to 22.0 MMT of wheat in MY 2017/18, with both Indonesia and Japan accounting for over 1.0 MMT each. Minnesota and Ohio were the largest U.S. importers of Canadian wheat in MY 2017/18.

In June 2018, Japan and South Korea temporarily suspended purchases of Canadian wheat following announcement of a GE wheat discovery in Alberta (see GAIN report CA18042). Trade was disrupted for less than one month and the overall impact on Canadian wheat exports was minimal.

Durum exports from Canada to Italy have not recovered from the introduction of country-of-origin labelling on pasta by Italy in July 2017 (see GAIN report CA18049). In MY 2017/18, Canada exported 388,000 MT of durum, which was a 58 percent reduction from the 5-year average. The majority of the loss in export market for durum was diverted to the United States, which increased imports by 69 percent above the 5-year average in MY 2017/18.

Barley

Table 3: Barley Production, Supply and Distribution

Barley	2016/2017		2017/2018		2018/2019	
Market Begin Year	Aug 2016		Aug 2017		Aug 2018	
Canada	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Area Harvested	2266	2266	2114	2114	2350	2356
Beginning Stocks	1523	1523	2120	2122	1250	1256
Production	8839	8839	7900	7891	8800	8230
MY Imports	64	64	59	59	100	70
TY Imports	74	74	60	45	100	65
TY Imp. from U.S.	73	74	0	59	0	70
Total Supply	10426	10426	10079	10072	10150	9556
MY Exports	1546	1546	2021	2020	2200	1800
TY Exports	1809	1809	2000	1734	2200	1600
Feed and Residual	5500	5608	5608	5666	5600	5656
FSI Consumption	1260	1070	1200	1130	1200	1200
Total Consumption	6760	6678	6808	6796	6800	6856
Ending Stocks	2120	2122	1250	1256	1150	900
Total Distribution	10426	10346	10079	10072	10150	9556
Yield	3.9007	3.9007	3.737	3.7327	3.7447	3.4932
(1000 HA) ,(1000 MT) ,(MT/HA)						

Source: Global Trade Atlas, Statistics Canada, FAS/Ottawa estimates

Barley yields for MY 2018/19 are predicted to be roughly 6 percent lower than MY 2017/18 on the same lack of timely precipitation that reduced wheat yields (Table 3). However, given the increased area planted this spring, the overall production should be slightly higher at 8.23 MMT, or just over 1 percent above MY 2017/18. Just over 2.0 MMT of Canadian barley production is expected to be used for malting (for domestic use and for export), while the remainder (much of which will be malting quality)

is expected to be used as feed. Barley maltsters generally look for barley with lower protein (in the range of 11 to 12.5 percent on a dry basis), moisture content of 13.5 percent, and plump kernels of uniform size.[1] According to industry sources, brewers using barley malt have shown limited acceptance of new varieties, limiting the use of new varieties. As most of Canada's barley is planted for the intended use of malting, the majority of barley varieties sown are ten to twenty years old.

Canada imported 59,000 MT of barley in MY 2017/18, with 99 percent coming from the United States (Table 4). By comparison, Canada imported 1.74 MMT of corn from the United States in the same year.

Table 4: Canadian Imports of U.S. Barley

Importing Province in Canada	Quantity (MT)	Exporting State
Alberta	34,000 MT	Montana
New Brunswick	7,000 MT	Maine
Quebec	2,500 MT	Maine
Manitoba	6,000 MT	North Dakota
Saskatchewan	2,300 MT	North Dakota
British Columbia	4,200 MT	Washington State

Source: Global Trade Atlas

Exports of barley reached 2.02 MMT in MY 2017/18, with China accounting for 85 percent of total exports, or 1.72 MMT (

Figure **3**). China is now the largest consumer of beer globally and its demand for barley has been growing. In MY 2017/18, Canada was the second largest exporter of barley to China, accounting for 22 percent of China's total barley imports. Canada supplied 1.72 MMT of barley to China in MY 2017/18, which was 21 percent of Canada's production for the year and a 73 percent increase from the previous year.

[1] Source: Agriculture and Agri-Food Canada, https://www.grainscanada.gc.ca/barley-orge/harvest-recolte/2016/qbsm16-qosm16-2-en.htm

Figure 3: Barley Exports to China

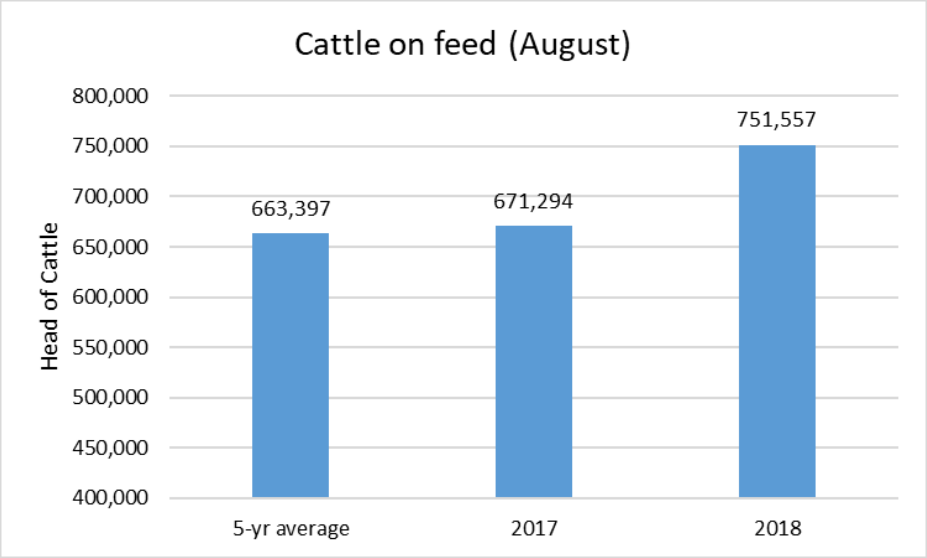
Source: Global Trade Atlas

Saskatchewan supplied roughly 50 percent of Canada's barley exports, with Alberta and Manitoba supplying 37 percent and 9 percent, respectively. Focusing on the top export destinations in the United States in MY 2017/18, North Dakota imported 53,000 MT, Wisconsin 41,000 MT, Minnesota 25,000 MT and Montana 18,000 MT.

The bulk of Canada's barley production is used as livestock feed. The majority of Canada's cattle industry is located in the prairies, with over 70 percent of fed cattle in Alberta and Saskatchewan. Feeder cattle are the primary consumers of barley in Canada. Cattle numbers on feed in Canada have increased significantly this year. As of October 1, 2018, the number of cattle on feed in Alberta and Saskatchewan was 18 percent higher than 2017 (

Figure **4**).

Figure 4: Cattle on Feed in Alberta and Saskatchewan



Note: The above table depicts the number of cattle on feed on 1,000 head or greater feedlots in Alberta and Saskatchewan as of August 1.
Source: CANFAX

Corn

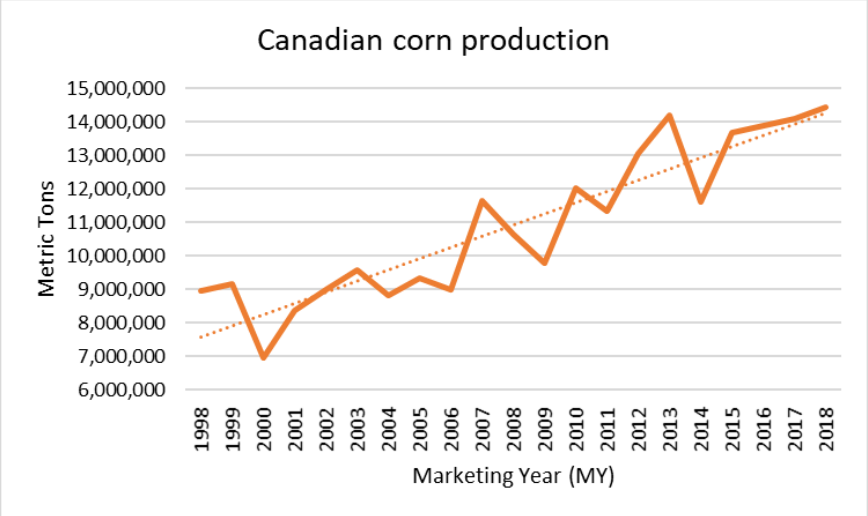
Table 5: Corn Production, Supply and Distribution

Corn	2016/2017		2017/2018		2018/2019	
Market Begin Year	Sep 2016		Sep 2017		Sep 2018	
Canada	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Area Harvested	1414	1414	1406	1406	1450	1439
Beginning Stocks	2450	2450	2574	2497	2369	2417
Production	13889	13889	14100	14095	14500	14461
MY Imports	706	832	1669	1663	500	1500
TY Imports	686	805	1650	1790	500	1500
TY Imp. from U.S.	683	765	0	1740	0	0
Total Supply	17045	17171	18343	18255	17369	18378
MY Exports	1516	1522	1936	1845	1600	1800
TY Exports	1538	1538	1950	1910	1600	1800
Feed and Residual	7500	7760	8400	8866	8300	8700
FSI Consumption	5455	5184	5638	5127	5400	5400
Total Consumption	12955	12944	14038	13993	13700	14100
Ending Stocks	2574	2497	2369	2417	2069	2478
Total Distribution	17045	16963	18343	18255	17369	18378
Yield	9.8225	9.8225	10.0284	10.0249	10	10.0493
(1000 HA) ,(1000 MT) ,(MT/HA)						

Source: Global Trade Atlas, Statistics Canada, FAS/Ottawa estimates

Corn yields are in MY 2018/19 are expected to be 10.05 MT/hectare, similar to MY 2017/18, and above the five-year average. Total corn production continued to rise in Canada, reaching 14.5 MMT in MY 2018/19 (Figure 5), as new varieties developed for areas with lower heat units continued to be planted further west and north into Saskatchewan and Alberta.

Figure 5: Canadian Corn Production

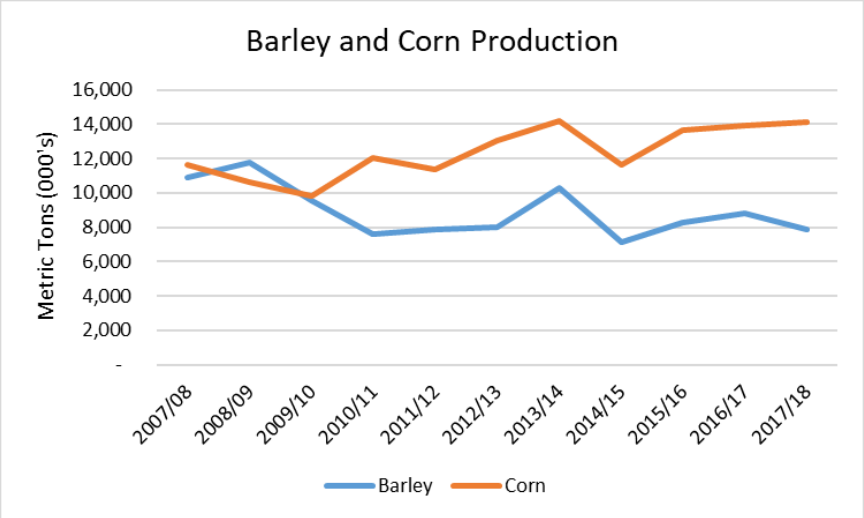


Source: Statistics Canada (CANSIM 001-0017)

Corn area planted in Manitoba reached 172,000 hectares in MY 2018/19, equal to 12 percent of national area planted. Area planted in Western Canada continued to increase and displace barley area planted (Figure 6). This trend is expected to continue because of the lack of investment in new barley varieties and the improved yields for corn producers, as well as the livestock sector routinely incorporating more corn into feed rations. Increased production of corn in Canada has also displaced corn imports from the United States (
Figure **7**). While
Figure **7** does show a sharp increase in imports for MY 2017/18, this was largely attributed to the 18 percent increase in cattle on feed in the prairies and tighter stocks of Canadian forage and feed-quality wheat and barley (

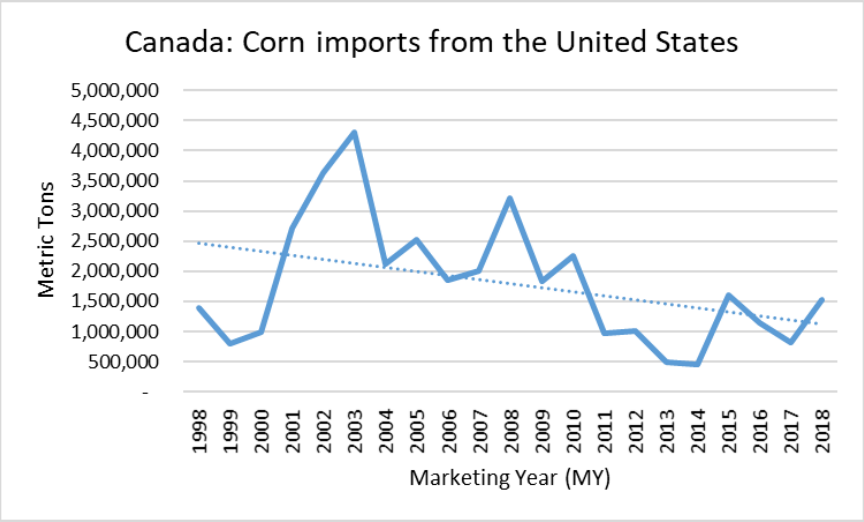
Figure **4**).

Figure 6: Canadian Barley and Corn Production



Source: Statistics Canada

Figure 7: Canadian Corn Imports from the United States



Source: Global Trade Atlas

The top corn exporting provinces were Ontario and Quebec at 1.25 MMT and 0.50 MMT, combining to account for 99 percent of total exports. The majority of Canada's corn exports were destined for the United States and Europe (
Table **6**).

Table 6: Canadian Corn Trade for MY 2017/18

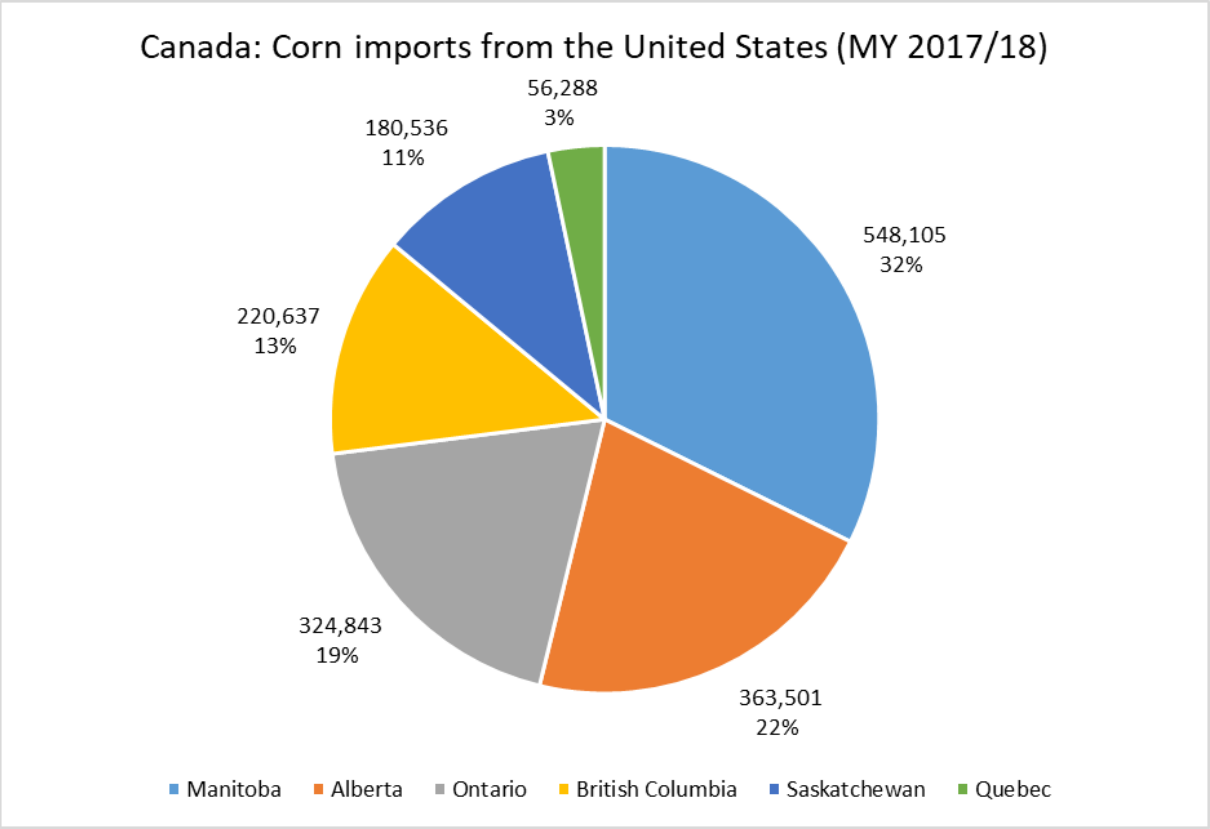
Exports	
Total	1.85 MMT
Ireland	588,000 MT
United States	457,000 MT
Spain	354,000 MT
Imports	
Total	1.66 MMT
North Dakota	796,000 MT
Minnesota	406,000 MT
Michigan	160,000 MT

Source: Global Trade Atlas

Manitoba, Alberta, Ontario and British Columbia imported the most corn in MY 2017/18 (

Figure 8). Manitoba and Alberta alone imported 550,000 MT and 364,000 MT of corn in MY 2017/18, respectively. Manitoba imported corn to feed an ethanol facility that had converted feedstocks from wheat to primarily corn as well as for hog production. Alberta's imports were primarily destined for the cattle feedlots. While Ontario and Quebec consume more corn than the other provinces, they produce 85 percent of total production in Canada and tend to supply their own markets. Transportation costs to move corn from Ontario and Quebec to the prairies tends to price Canadian corn out relative to U.S. corn coming up from North Dakota and Minnesota. The same argument applies to corn moving into British Columbia. Surplus corn from Ontario and Quebec is generally exported to the United States and Europe instead of to Western Canada.

Figure 8: Corn Imports from the United States



Note: Values around the pie chart above percentages are in Metric Tons (MT)
Source: Global Trade Atlas

Oats

Table 7: Oats Production, Supply and Distribution

Oats	2016/2017		2017/2018		2018/2019	
Market Begin Year	Aug 2016		Aug 2017		Aug 2018	
Canada	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Area Harvested	925	925	1052	1052	1000	987
Beginning Stocks	947	947	703	704	784	784
Production	3231	3231	3733	3733	3450	3386
MY Imports	21	20	14	14	10	20
TY Imports	18	18	10	18	10	18
TY Imp. from U.S.	18	20	0	14	0	14
Total Supply	4199	4198	4450	4451	4244	4190
MY Exports	1642	1571	1631	1630	1600	1630
TY Exports	1557	1550	1650	1600	1600	1600
Feed and Residual	934	977	1135	1032	1100	880
FSI Consumption	920	966	900	1005	800	1080
Total Consumption	1854	1943	2035	2037	1900	1960
Ending Stocks	703	704	784	784	744	600
Total Distribution	4199	4218	4450	4451	4244	4190
Yield	3.493	3.493	3.5485	3.5485	3.45	3.4306
(1000 HA) ,(1000 MT) ,(MT/HA)						

Source: Global Trade Atlas, Statistics Canada, FAS/Ottawa estimates

Oat yields are expected to be down to 3.43 MT/hectare in MY 2018/19, and the quality of the crop has likely been affected by the cool and damp weather during harvest (Figure 2). Producers south of the TransCanada Highway, or south of Swift Current in Saskatchewan, have experienced an early harvest, whereas those further north have been facing some difficulty due to significant autumn precipitation.

MY 2018/19 area planted was down 5 percent from MY 2017/18. FAS/Ottawa predicts total supply of oats to decrease by 6 percent in MY 2018/19, with yields slightly behind last year's record, but in line with the three-year average.

Canadian oat imports fell 30 percent in MY 2017/18 (

Table **8**) on higher Canadian production. The State of Maine is the largest oat exporter to Canada, with all of the imports crossing the border into New Brunswick. Consultations with industry reveal that there are several facilities located near the Maine border that import from the United States.

Table 8: Canadian Oat Trade in MY 2017/18

Exports	
Total	1.63 MMT
Iowa	470,000 MT
Minnesota	330,000 MT
Wisconsin	244,000 MT
Imports	
Total	14,000 MT
Maine	12,000 MT

Source: Global Trade Atlas

Policy

Agriculture and Agri-Food Canada (AAFC) has been consulting with seed trade groups in Edmonton, Saskatoon, Winnipeg and Ottawa, regarding proposed regulatory changes to the Plant Breeders' Rights (PBRs) Act. In November 2018, further consultations will include the Canadian Federation of Agriculture, Grain Growers of Canada, and other organizations.

Stakeholders in the Canadian seed sector, including the Seed Synergy Group, are proposing a check-off scheme for grains and pulses as well as a trailing royalty model to compensate plant breeders for farm saved seed of protected varieties. The seed companies believe that levels of investment and innovation are less than they are in crop value chains where the use of farm saved seed is less common. Currently, the seed sector emphasizes that the industry is unable to recover the full cost of variety development. Unlike many other important crops grown in Canada, neither cereals nor pulses have a royalty collection system in place at this time. The Canadian Wheat Board provided significant funding for research and development prior to being dissolved in 2015. Value creation and modernization are the priorities for seed sector stakeholders in Canada, and they see their proposals as a way ensuring the future viability of seed innovation in Canada.

These consultations follow a letter from seed sector stakeholders addressed to Agricultural Minister Lawrence MacAulay on April 4, 2018, highlighting the contributions of Canada's seed sector to the economy as well as their concern with Canada's "readiness to adopt the newest cutting-edge innovations." Discussions with stakeholders regarding the above proposed updates to the PBR Act have highlighted the diversity of opinions amongst Canadian stakeholders. For instance, the proposals from the Seed Synergy Group[2] have been generally opposed by the National Farmers Union (NFU). In Western Canada, advocates for centralized, government led research and development programs housed within leading agricultural universities in the prairies, such as the universities of Alberta, Saskatchewan and Manitoba, continue to push back against a check-off system for wheat that would place growers' funds into the hands of the private sector for research and development. However, supporters of the

[2] Includes the Canadian Seed Growers' Association (CSGA), the Canadian Seed Trade Association (CSTA), the Canadian Seed Institute (CSI), the Commercial Seed Analysts Association of Canada (CSAAC), the Canadian Plant Technology Agency (CPTA) and CropLife Canada.

check-off see the Seed Synergy proposals as practical solutions for sectors (grains and pulses) that have fallen behind crops, such as corn, soybean and canola, when it comes to new trait development.