Bi-weekly Bulletin

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CORN: SITUATION AND OUTLOOK

In recent years, world corn prices have been pressured by burdensome supplies. However, prices are expected to strengthen as carry-out stocks for 2000-2001 decline due to lower production and increased domestic use. In Canada, corn production has decreased significantly from 1999-2000 due to extremely poor crop growing conditions in Ontario and Quebec, which are its major corn growing provinces. As a result, Canada's imports of corn are forecast to increase to a record high. This issue of the *Bi-weekly Bulletin* examines the situation and outlook for corn.

SITUATION: 2000-2001

Coarse Grains

World coarse grain **production,** as estimated by the United States Department of Agriculture (USDA), decreased to about 858 million tonnes (Mt) from 876 Mt in 1999-2000. Increased production in the United States (U.S.), the European Union (EU), and Brazil has been offset by lower production in Romania, China, Canada, and South Africa. Romania, for instance, has suffered its worst drought in years and, as a result, its coarse grains production is estimated to decrease to 5.1 Mt from 11.9 Mt produced in 1999-2000. World **trade** is expected to decrease by 3%, to about 101 Mt, due largely to lower imports by Russia, Brazil, South Korea, and Mexico. **Consumption** is forecast to increase to a record 882 Mt from 881Mt in 1999-2000 due largely to increased consumption in the U.S., China and Brazil. **Carry-out** stocks are forecast to decrease to about 142 Mt from 165 Mt in 1999-2000, as most major coarse grain producing countries, except the U.S., experience significant reductions in their carry-out stocks.

Corn

World corn **production** is estimated to decrease to about 584 Mt from 605 Mt in 1999-2000. Corn represents about 70% of the world coarse grains market. Corn production is concentrated in the U.S. and China, producing about 40% and 20% of the world corn crop, respectively. World corn **supplies** are expected to decrease by about 18 Mt from the 1999-2000 record of 727 Mt. World **carry-out** stocks are estimated to decrease significantly to about 105 Mt from the record of 125 Mt in 1999-2000.

In the **U.S.**, corn production is expected to increase to a record 9.97 billion bushels (bln bu) from 9.43 bln bu in 1999-2000. This is due to a near-record yield of 137.1 bushels per acre (bu/ac), up from 133.8 bu/ac in 1999-2000, and an increase in harvested area to 72.7 million acres (mln ac) from 70.5 mln ac in 1999-2000. Total domestic supplies are forecast at a record 11.7 bln bu, and in spite of increased domestic consumption and exports, carry-out stocks are forecast to remain burdensome at 1.8 bln bu, 5% above 1999-2000.

Since the introduction of the Federal Agricultural Improvement and Reform Act in 1996, the loan deficiency payment (LDP) program has provided strong support for U.S. producers. The program allows farmers who meet certain criteria to receive a one-time payment for the difference between the loan rate and their posted county price and, in return, they forego any further benefits from the marketing assistance loan program for that year. In a period of low market prices, relative to the loan rate, a farmer receives a substantial LDP payment, maintains ownership of the grain, and can then sell at a higher price when prices strengthen. There is, however, a risk that prices could decrease even more after the farmer receives the LDP payout, eroding some of the gains from the payout.

The average farm price is forecast to increase slightly to US$1.65-2.05 per bushel (/bu) from US$1.82/bu in 1999-2000. For 2000-2001, LDP payouts on corn to-date have averaged US$0.31/bu on 6.5 bln bu, which is about 65% of the crop. In 1999-2000, payouts for the year averaged US$0.27/bu on 7.3 bln bu, or 77% of the corn crop.

China is the second largest corn producer in the world. In the last decade, area seeded to corn increased significantly as farmers responded to government programs aimed at making the country more self-sufficient in food. These

WORLD: CORN SUPPLY AND DISPOSITION

September-August crop year	**1999 -2000**	**2000 -2001**	**2001 -2002f**
	.....million tonnes.....		
Carry-in Stocks	121.9	124.6	104.5
Production	605.2	584.4	596.0
Supply	**727.1**	**709.0**	**700.5**
Consumption	602.5	604.5	612.0
Demand	**602.5**	**604.5**	**612.0**
Carry-out Stocks	124.6	104.5	88.5
Trade	72.9	72.1	74.0

f: forecast, AAFC, January 2001
Source: USDA, January 2001

policies and programs kept domestic corn prices considerably higher than world prices and contributed to China's overproduction and burdensome supplies.

For 2000-2001, the USDA estimates China's corn production at 105 Mt, versus 128 Mt in 1999-2000 and the record of 133 Mt in 1998-1999. Poor weather conditions in its major corn producing areas reduced yields by about 12%. Corn consumption is estimated to increase slightly with an expected increase in feed use. Carry-out stocks are forecast to decrease to 34 Mt from the record 53 Mt in 1999-2000.

Canada

Canada's corn production has steadily increased in response to a growing need for feed corn for its livestock industry and as input to the growing fuel ethanol industry. Some of Canada's increased corn production in the past few years is attributed to the availability of higher yielding and pest resistant varieties of corn. For example, Statistics Canada reports that 27% of the area devoted to grain corn for 2000-2001 was planted with genetically modified (GM) seed.

For 2000-2001, Canadian corn production decreased to 6.8 Mt from the record of 9.2 Mt in 1999-1000, due largely to reduced yields in Ontario and Quebec, which are the major corn growing provinces. Although record high carry-in stocks are expected to offset some of the reduced production in these two provinces, net imports are expected to increase considerably. Canada's carry-out stocks are expected to decrease significantly.

In **Ontario,** the corn supply is about 9% below 1999-2000 and, despite abnormally high carry-in stocks from 1999-2000, imports are expected to increase by about 60%, to 0.75 Mt. Carry-out stocks are forecast at 0.6 Mt, about half of the 1999-2000 level of 1.1 Mt. Corn production is estimated at 4.5 Mt, down by about 1.3 Mt from 1999-2000. Yields decreased from 128 bu/ac to an estimated 105 bu/ac in 2000-2001 as poor weather conditions delayed planting and slowed down crop development. Ontario has historically produced about 70% of Canada's total corn production, however, that share dropped to about 65% in 2000-2001.

Chatham corn **prices** are forecast to average at $120/t, up from $107/t in 1999-2000. The Chatham corn price is largely determined by several factors including: the price of corn in the northern U.S.; supply/demand conditions in Canada, which determine whether Ontario is at an export or import competitive position; and the Canada/U.S. exchange rate. Corn is typically priced on an export basis immediately following harvest, however, due to the lower quantity and quality of the 2000-2001 crop, corn is expected to be priced on an import basis throughout most of the crop year.

CANADA: CORN SUPPLY AND DISPOSITION

September-August crop year	**1999 -2000**	**2000 -2001f**	**2001 -2002f**
Harvested Area (kha)	1,141	1,088	1,182
Yield (t/ha)	8.03	6.27	7.50
	.....thousand tonnes.....		
Carry-in Stocks	886	1,552	750
Production	9,161	6,827	8,863
Imports	1,022	1,500	800
Total Supply	**11,069**	**9,879**	**10,413**
Exports	226	150	200
Food & Industrial Use	2,020	2,047	2,100
Feed	7,240	6,900	7,231
Seed	31	32	32
Total Use	**9,517**	**9,129**	**9,563**
Carry-out Stocks	1,552	750	850
Average Chatham price (CAN$/t)	107	110	115
		-130	-135

f: forecast, AAFC, January 2001
Source: Statistics Canada and AAFC

In **Quebec**, corn production decreased to 2.0 Mt from 3.0 Mt in 1999-2000, compared to the 10-year average of 2.1 Mt. Despite relatively high carry-in stocks and a slight reduction in total use in 2000-2001, imports from the U.S. are forecast to more than triple, to about 0.7 Mt, due mostly to lower corn production in Quebec and Ontario. Carry-out stocks are forecast to decrease to 0.15 Mt in 2000-2001, versus 0.43 Mt in 1999-2000.

In **Manitoba**, corn production has increased significantly since the mid 1990s and, for 2000-2001, is estimated at a 15-year high of 264,200 t. Corn use, which is primarily for livestock feed and for distilling food grade alcohol, is expected to increase marginally due to continued expansion in the livestock sector. However, imports of U.S. corn are forecast to decrease considerably from 0.24 Mt in 1999-2000.

On July 10, 2000, the Manitoba Corn Growers Association filed a complaint alleging injurious dumping and subsidization of imports of grain corn from the U.S. The complaint is limited to imports into Canada west of the Ontario-Manitoba border and involves about $50 million in imports over the period in question. The Canadian International Trade Tribunal (CITT) determined on October 10 that the evidence presented is a reasonable indication that the dumping and subsidizing of grain corn from the U.S. caused injury to the domestic industry. On November 7, the Canada Customs and Revenue Agency (CCRA) made a preliminary determination that grain corn imported from the U.S. into western Canada has been dumped at prices that were, on average, US$1.01/bu below profitable levels and that U.S. corn was subsidized by, on average, US$0.57/bu. Accordingly, a provisional countervail duty of US$1.58/bu will be applied to grain corn imported from the U.S., and destined for locations west of the Manitoba/Ontario border.

The CCRA has preliminarily determined that the following U.S. farm programs constitute actionable subsidies: (a) loan deficiency and marketing assistance loans; (b) marketing loss assistance payments; and (c) federal crop insurance programs.

The CITT will now make a full inquiry into the question of injury to the Canadian corn industry with a final decision by March 7, 2001. At the same time, the CCRA will continue its investigation and make a final decision on dumping and subsidizing by February 5, 2001.

OUTLOOK: 2001-2002

World

For 2001-2002, world **coarse grain** supplies are expected to decrease slightly, due to lower carry-in stocks. Production is forecast to increase by 11 Mt to 870 Mt due mostly to higher corn production in

China. With lower supplies, and a small increase in the consumption, the stocks-to-use ratio is expected to drop to about 14%, the lowest level since 1995-1996 (12%), and significantly lower than the 10-year average of 17%. World **corn** supplies are also expected to decrease. Lower supplies of U.S. corn are expected to offset higher supplies in China, Canada, and Australia.

United States

U.S. corn supplies are expected to decrease slightly to about 11.6 mln bu, despite relatively high carry-in stocks. Production is expected to decrease by about 2% from 2000-2001, to 9.8 bln bu. This is due in part to a reduction in corn area as farmers respond to high fertilizer prices and shift some of their land to soybean production. In addition, U.S. corn yields are expected to return to normal levels following record yields experienced in 2000-2001. Although feed use is expected to remain strong due to a good export market for beef and pork, any increases in U.S. total corn utilization may be limited by competition from China in the export markets. Nevertheless, U.S. carry-out stocks are expected to decrease considerably which would be supportive for corn prices.

Furthermore, due to the major increase in crude oil prices in 2000, the use of corn for ethanol production is expected to increase considerably. Over 5% of U.S. corn is currently used for the production of ethanol and other alternative fuels, and developments in this area will continue to influence corn prices, especially since about 95% of North America's ethanol is made from corn. In November 2000, the U.S. announced a US$300 million program to expand ethanol production. This highlights the importance of ethanol in helping reduce dependance on imported crude oil and providing support for the agricultural sector.

The average U.S. farm price of corn is forecast to increase to US$2.10/bu from US$1.90/bu in 2000-2001. This implies a nearby average futures price on the Chicago Board of Trade of about US$2.35/bu, 10% above 2000-2001. U.S. LDPs are expected to decrease slightly from 2000-2001 due to higher market prices.

China

Corn supplies in China are expected to increase significantly. Production is forecast to increase significantly to 125 Mt as yields recover from the drought-related lows of 2000-2001, offsetting the lower carry-in stocks. China's exportable surplus of corn is therefore expected to increase and provide increased competition to the U.S. in some of the Asian markets. The anticipated admission of China into the World Trade Organization (WTO) is expected to increase trade opportunities for its member nations. Under a WTO accession agreement negotiated last year, China consented to eliminate export subsidies and improve market access for a wide array of food and agriculture products. As part of the accession agreement, China has committed to establish a tariff rate quota for corn. In its first year of WTO membership, China has agreed to allow access for 4.5 Mt of corn, increasing it to 7.2 Mt by the fourth year. During the past five years, China's imports of corn have been minimal, ranging from 75,000 to 287,000 t. The elimination or reduction in China's export subsidies would be supportive for U.S. corn prices since it would reduce the degree of competition in export markets.

Canada

Corn supplies in Canada are forecast to increase as increased domestic production offsets lower carry-in stocks. Area seeded is expected to increase by 3%, to 1.16 million hectares, and yields are expected to return to normal. Agriculture and Agri-Food Canada forecasts corn production at 8.9 Mt, versus 6.8 Mt in 2000-2001.

The International Biosafety Protocol

Developments in biotechnology have created a need for an effective protocol to deal with the new technology and its implications for world trade. Negotiations on the Cartagena Protocol on Biosafety (otherwise known as the Biosafety Protocol) were concluded in January 2000. The agreement regulates the international trade of living modified organisms (LMOs) which may have adverse effects on biodiversity. By definition, an LMO is any living biological entity that has been genetically modified and is still capable of transferring or replicating genetic material. Therefore, almost all processed products are not covered. The Protocol will provide a "biosafety clearinghouse" where industry can see which LMOs have been approved by which governments. The Protocol will require that shipments of LMO commodities be identified as such on the accompanying documentation.

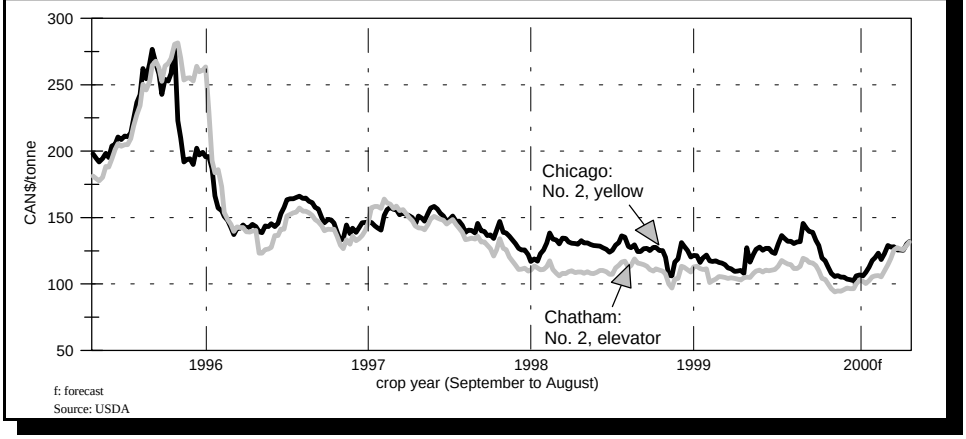
The Protocol was opened for signature by countries in May 2000 and will remain open until June 2001. To date, 80 countries have signed the Protocol. Canada has not signed yet and neither has Brazil, Japan, Australia, and South Africa. The U.S. will not be able to sign or ratify until they have first ratified the Convention on Biological Diversity, which is not likely to happen in the near future. The Protocol will not enter into force until 50 countries have ratified it. Currently, there are two ratifications and the Protocol could enter into force as soon as April 2002. In the meantime, Canada is working with other countries to facilitate the smooth and workable implementation of the Protocol. A key Canadian objective in the implementation process is to ensure that the Protocol cannot be used to unjustifiably restrict trade.

Biotechnology and the Markets

A key consideration in the planting decisions of farmers in major corn exporting countries such as the U.S. is whether genetically modified (GM) corn is approved by the EU for food use. To that extent, U.S. Processing giant Archer Daniels Midland's (ADM) has a policy on GM grains which clearly states that only corn containing transgenic corn gene/traits that have been approved by the EU is to be accepted at ADM's corn processing plants.

According to the USDA, the proportion of total area seeded to GM corn increased to almost 35% in 1999, but then dropped to 25% in 2000. Only about 5% of the GM corn produced in the U.S. is not approved for export to the EU. Of that 2000 figure, 18% is bacterium thuringiensis (Bt) corn, 6% herbicide resistant corn, and the remainder is some combination of the first two types. Bacillus thuringiensis is a naturally occurring soil bacterium that is deadly to the European corn borer, and it is this genetic characteristic that has been spliced to corn's DNA, giving Bt corn the ability to kill corn borer worms that feed on it. The U.S. Environmental Protection Agency (EPA) recently approved the use of Bt corn, claiming that it increases corn yields, reduces the use of farm chemicals (by about US$100 million in 1999), and lessens ground water contamination.

CORN PRICES: CHICAGO VERSUS CHATHAM



f: forecast
Source: USDA

Domestic consumption is forecast to increase due largely to increased ethanol production as the industry responds to higher crude oil prices. Looking forward to the future, Jungbunzlauer (JBL), a company with headquarters in Switzerland, is building its first citric acid plant in North America. The plant will be located in Port Colborne, Ontario and is expected to be in operation within two years. The plant will use dextrose (glucose) manufactured by Casco, a company whose wet milling facility will need to increase by 100,000 tonnes of corn per year (t/yr), in addition to the 300,000 t/yr already being milled by Casco.

With the return of domestic supplies to normal levels, Canada's corn imports for 2001-2002 are estimated at 0.8 Mt, about half of the forecast for 2000-2001. However, the outcome of the CITT/CCRA trade investigation, expected in the spring of 2001, will be a critical factor in determining corn imports into western Canada. Canada's carry-out stocks are expected to increase slightly, to 0.85 Mt, from the low levels in 2000-2001.

Prices

For 2001-2002, corn prices are expected to strengthen. The Chatham price is forecast at CAN$115-135/t, up from CAN$110-130/t in 2000-2001. Increased domestic consumption and spillover from higher corn prices in the U.S. will likely more than offset any pressures from increased Canadian corn supplies and forecasts for a stronger Canadian dollar.

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StarLink™ Corn

StarLink™ corn, developed by Aventis in the U.S., is a grain engineered to be pest resistant but is only approved in the U.S. for feed, and not for human consumption. It is currently being evaluated in the U.S. to determine if it contains allergenic components. Although there is a system in the U.S. to keep the grain separate, due to an error, the grain was inadvertently commingled. The effect of this mixture on U.S. corn exports is uncertain but there is evidence that the mishandling of StarLink™ corn on Midwest farms may have jeopardized overseas market opportunities. U.S. corn storage and delivery systems are not designed to handle a two-tiered corn export program. In the past, U.S. elevators have not had to segregate corn into that which is for animal feed and that which is strictly for human consumption. Japan, the largest customer for U.S. corn, wants assurances that shipments will be StarLink™-free.

Of the 80 mln bu of StarLink™ corn grown in 2000-2001, virtually all of it has either been put into storage or used for animal feed and non-food industrial use such as ethanol production.

StarLink™ corn is not visually distinguishable from other varieties of corn and, as a result, it has been inadvertently mixed with StarLink™-free corn. This has resulted in logistical delays and increased marketing costs. The cost of testing for StarLink™ is estimated at US$0.06-0.08/bu, which Aventis has agreed to cover on a case-by-case basis.

Although only about 1% of Iowa's corn acreage was seeded with StarLink™ in 2000-2001, much of Iowa's corn supply was contaminated through commingling at either the farm or elevator level. Many farmers and grain operators did not realize that StarLink™ had to be kept separate from StarLink™-free corn.

StarLink™ corn is not approved for either use in Canada. The Canadian Grain Commission (CGC) requires that any U.S. corn delivered to a licensed elevator be certified as StarLink™-free. Certification must be based on official testing procedures established by the USDA, and all testing must be performed by Federal Grain Inspection Service or licensed designated agents. U.S. corn which is not certified in accordance with the above requirements is not accepted into Canada's licensed elevator system.