



Bi-weekly Bulletin

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FEED GRAINS IN CANADA

Feed grain prices in Canada have decreased significantly from last year due to the record corn crop in the United States and high supplies of feed wheat and barley in western Canada. This issue of the Bi-Weekly Bulletin examines the situation and outlook for feed grain in Canada.

Feed grain for livestock in Canada consists of coarse grain (barley, corn, oats, rye, mixed grain) and feed wheat. The availability of feed quality wheat is largely dependent on weather and growing conditions. Soymeal and canola meal and feed peas are also significant components in livestock rations as a source of protein. The feed grain market is dominated by barley in western Canada and corn in eastern Canada. With the exception of drought years, western Canada generally produces a significant surplus of barley.

In western Canada, wheat and barley are the major feed grains. Wheat is produced primarily for the domestic and export food market but a significant proportion is also used for food. Although some barley is selected for the production of malt, about 85 percent of production is generally used in the feed market. In eastern Canada, corn is the dominant feed grain.

Feed grain prices in Canada have been negatively affected by several factors during 2004-05: (a) the record corn crop in the US, (b) the severe downgrading of the wheat and barley crops in western Canada and (c) the appreciation of the Canadian dollar.

Record Corn Crop in the US

In the US, corn has historically been grown specifically for livestock production, ensuring a consistent feed supply for US livestock. However, an ever increasing part of the crop is being diverted to the ethanol and fructose markets. Corn production in the US has been strongly supported by government support programs, which have caused area seeded to corn in

the US to steadily increase over time, and public and private research funding, which has caused corn yields to increase. In 2004-05, the US had a record corn crop of 11.8 billion bushels (bln bu) due to extremely good growing conditions which led to a 10 percent increase in the average US corn yield to 160 bu/ac, from 142 bu/ac in 2003-04. US exports are actually expected to decrease marginally from last year. Despite a significant increase in domestic feed use and higher food and industrial use, carry-out stocks for corn in the US are expected to more-than double from last year to about 2.1 bln bu. As a result, the average US farm price is forecast to fall to US\$2.05/bu from US\$2.42/bu for 2003-04.

Canadian Feed Supplies - Record Large in 2004-05

Supplies of feed grains increased sharply in Canada in 2004-05 due to the severe downgrading of the western wheat and barley crops. The cool growing season delayed crop development across most of the Prairies, and an early frost was received on August 20 across much of eastern Saskatchewan and western Manitoba. A frost on this date would normally have had limited impact on production or quality, since the majority of the barley and wheat crops would have been ripe. However, the delayed crop development meant that most crops were about a month behind normal, so that the impact was similar to having a frost at the end of July, which is unprecedented. With many wheat crops only in the soft dough stage at this date, the result was a significant downgrading to feed grade due to frozen green kernels and low

test weights. The impact was somewhat less dramatic for barley, due to the generally more advanced stage of development, but a less than normal proportion of the barley in the frost-affected region was suitable for malting. In other regions, the cool wet fall resulted in increased damage and downgrading due to sprouting and mildew.

In a normal year, only about 5-10% of the western wheat crop is of feed quality, equivalent to about 0.9 to 1.8 million tonnes (Mt). In 2004, 45% or more of the crop was downgraded to feed, equivalent to about 8.5 Mt. The impact on barley quality is more difficult to quantify, but the Canadian Wheat Board expects that only about 2.0 Mt will be selected for malting in 2004-05, compared to a normal 2.5 Mt. As total western barley production rose by 0.9 Mt in 2004-05, this implies additional feed barley supplies of 1.4 Mt. The total increase in feed quality wheat and barley compared to 2003-04 likely exceeds 8 Mt.

FEED GRAINS IN CANADA

Qualities desired in a feed grain:

The basic qualities desired are:
(a) energy, often expressed in kilocalories of metabolizable energy/kilogram. Energy, unlike protein content, can not be measured directly, but grains of high density (weight/volume) usually contain high energy levels. The main sources of energy are supplied in the form of carbohydrates (starch), fat, fibre and protein. Starch content is of interest to both the livestock feeder and the ethanol plant; (b) protein, more specifically amino acids, lysine,

methionine, cystine and tryptophan are of interest to feedmills but it causes problems in ethanol production. Protein, however, may make the distillers grain more marketable; (c) vitamins and minerals - phosphorus, calcium, vitamins, trace minerals and (d) fatty acids. From a cost of production perspective, high yields are also required.

Wheat

Wheat is normally used as a feed ingredient by the hog and poultry industries, which consume about 3 Mt annually. In most years, much of this is low-quality milling wheat, such as No.3 CWRS, Canada Prairie Spring Red or western red winter wheat, as supplies of feed quality wheat are insufficient to meet demand. Wheat downgraded to feed quality may often also be light weight, which is not desired by hog feeders in particular. This is therefore an additional concern in 2004-05, as much of the feed wheat is below the normal 60 pound per bushel test weight, and therefore not attractive to the hog feeder. Despite large supplies of feed wheat, these feeders may still have difficulty accessing wheat of the desired quality. Much of the lower weight wheat is expected to be consumed by the cattle industry, which will incorporate wheat into the ration if the price is attractive. However, this wheat will have to compete with increased supplies of feed barley, which is the traditional feed ingredient for the western feedlot industry. While it would be logical to expect that the surplus to domestic needs will be exported, the CWB PRO for feed wheat is even lower than the currently depressed domestic off-Board market. It is therefore anticipated that a significant proportion of the poorer quality feed wheat produced in 2004-05 will be carried into 2005-06, and continue to affect the Canadian feed industry during 2005-06.

Barley

Western Canada produces between 10-13 Mt tonnes of barley annually. In general about 15-20 percent of the barley produced is selected for malting purposes with the remainder used for feed. But today, US corn, CPS wheat and low quality CWRS wheat can compete with western barley. In addition the threat of Fusarium Head Blight has turned some Canadian

producers away from wheat and barley. This is of particular concern in eastern Manitoba, where strong feed demand from the hog industry has resulted in imports of wheat and barley from further west, and corn from the US. Most feed barley supply is based on malting barley varieties that failed to be selected for malting, rather than higher-yielding feed varieties.

For years, the standard for judging the quality of feed barley has largely been the bushel weight. Research has indicated that bushel weight is correlated to feed value, but not necessarily to feed energy. Feed barley of the same test weight can have a large variation in feed energy.

Fusarium Head Blight

The fungal strain *Fusarium Graminearum* produces mycotoxins such as Deoxynivalenol (DON) that can threaten the health of livestock. All non-ruminants and hogs in particular have an extremely low tolerance level to the mycotoxins. The prevalence of the disease in wheat and barley crops in Manitoba and to a lesser extent in Saskatchewan means that feed mills have had to source feed grains from regions farther away that have lower or no levels of infection. This has added to the cost of hog production over and above the cost of testing for the mycotoxins. Grain corn appears less susceptible to fusarium and therefore a much larger percent of the grain will be suitable for the feed industry.

Corn

Corn is one of the highest energy yielding cereals, largely due to its high starch content. It is mostly used as a valuable feed source for livestock, and increasingly for the production of ethanol. Cattle feeding performance on corn is about the same as on barley, so feed lot operators can easily substitute corn for use in their feed rations. Compared to barley as a feed ingredient, corn has about 8-9 percent more energy but slightly less protein.

About 65 percent of Canada's corn is grown in Ontario and 30 percent in Quebec. In western Canada, US corn imports increase when the landed price of US corn becomes competitive with domestic feed grains. Corn production in Manitoba has been increasing over the last ten years due to the introduction of new varieties that

require fewer heat units. New improved corn varieties better suited for production in western Canada, fusarium concerns with barley production and corn's relative substitutability in feed rations make it likely that corn will become an increasingly important feed source for Canada's growing hog industry.

Oats

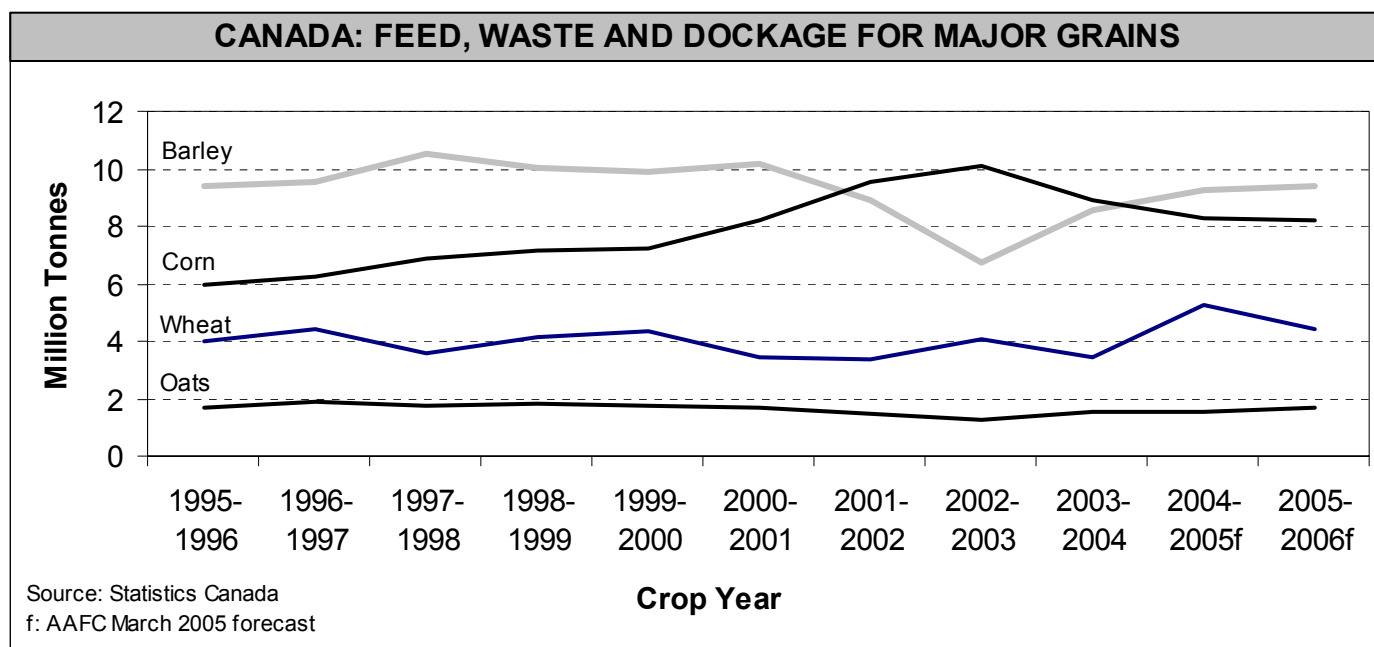
Oats are primarily used in the food milling industry and the performance horse feed market, with the remainder used in the feed market. For horses, oat starch is more digestible than the starch in corn or barley. The main feed market for lower quality oats in Canada is cattle. The high fibre content of hulled oats decreases the nutrient value of oats which in turn can raise the costs and time required for animals to reach slaughter weight.

Rye

Rye has a feeding value of about 85 to 90 percent that of corn, and contains more digestible protein and total digestible nutrients than oat or barley. Rye is most satisfactorily used when mixed with other grains at a proportion less than a third, because it is not highly palatable and is sticky when chewed. Feed quality rye is normally priced at a discount to feed barley on a per tonne basis, and this discount can

Feed, Waste and Dockage as a percentage of Supplies	
2004-05	%
Corn	68
Barley	61
Oats	35
Rye	21
Wheat	16
Source: AAFC	

vary widely. Livestock and poultry feeders have been reluctant to use rye in their feed rations due to concerns over the presence of ergot alkaloids, the anti-nutritional effects of pentosans in rye and the reduced feed intake of animals consuming rye. Recent improvements in animal feed production technology, especially in the use of various enzymes to improve palatability, led to a substantial increase in the proportion of rye grain that can be included in mixed animal



feeds. Its high energy level and protein content combined with a large yield potential make fall rye a potential excellent choice as a feed crop.

DEMAND FOR FEED GRAIN

Feed demand in western Canada has been steadily increasing over the past few years. A dramatic increase in the size of the hog industry has contributed to this trend. As well, steady growth in cattle production has increased feed demand. In recent years this has been partly attributable to the closure of the US border to live cattle because of the BSE crisis. The livestock sector has benefited considerably from the abolition of the WGTA and the resulting interest in value-added activity.

Cattle

The cattle industry has grown by about 20 percent since 1995, to about 15.1 million head (Mhd) at the end of 2004. Generally, dairy and beef cattle consume about 50% of the feed grain in Canada. Cattle are ruminants, multi-stomach animals, which make use of bacteria to break down feed. For cattle, roughage can be substituted for feed grain. For health reasons some roughage is required in a cattle ration. As a result, relative prices of the various feed grains and roughage sources (various hays and straws) have a significant impact on the composition of the feed ration. Barley's high fibre content accounts for the popularity of barley in cattle

rations. Corn makes up much of the rest of the grain fed to cattle.

Hogs

Hogs are the second largest consumer of Canadian feed and feed grains, consuming 35 to 40 percent of the feed grain in Canada. Nutrition is very important to the hog industry, owing to the rapid growth and mono-gastric nature of hogs.

Corn, barley and wheat are all used for hog feed. In eastern Canada, corn is the primary feed grain. Both domestic and imported corn contribute to the eastern feed market. In western Canada, the market is slightly more complex with both imported corn and domestic wheat and barley going into the feed market.

Poultry

Poultry are another large consumer of feed. Supply management has led to a relatively stable poultry industry, growing with population over time. Chickens are the primary poultry product and consume the vast majority of feed, with turkeys consuming the bulk of the remainder.

Other

Other noteworthy consumers of feed are sheep, lambs and horses. Horses are primarily used for recreational purposes. The numbers are relatively steady, and they represent a small but premium portion of the overall feed market. Sheep and lambs are also a small portion of the feed market,

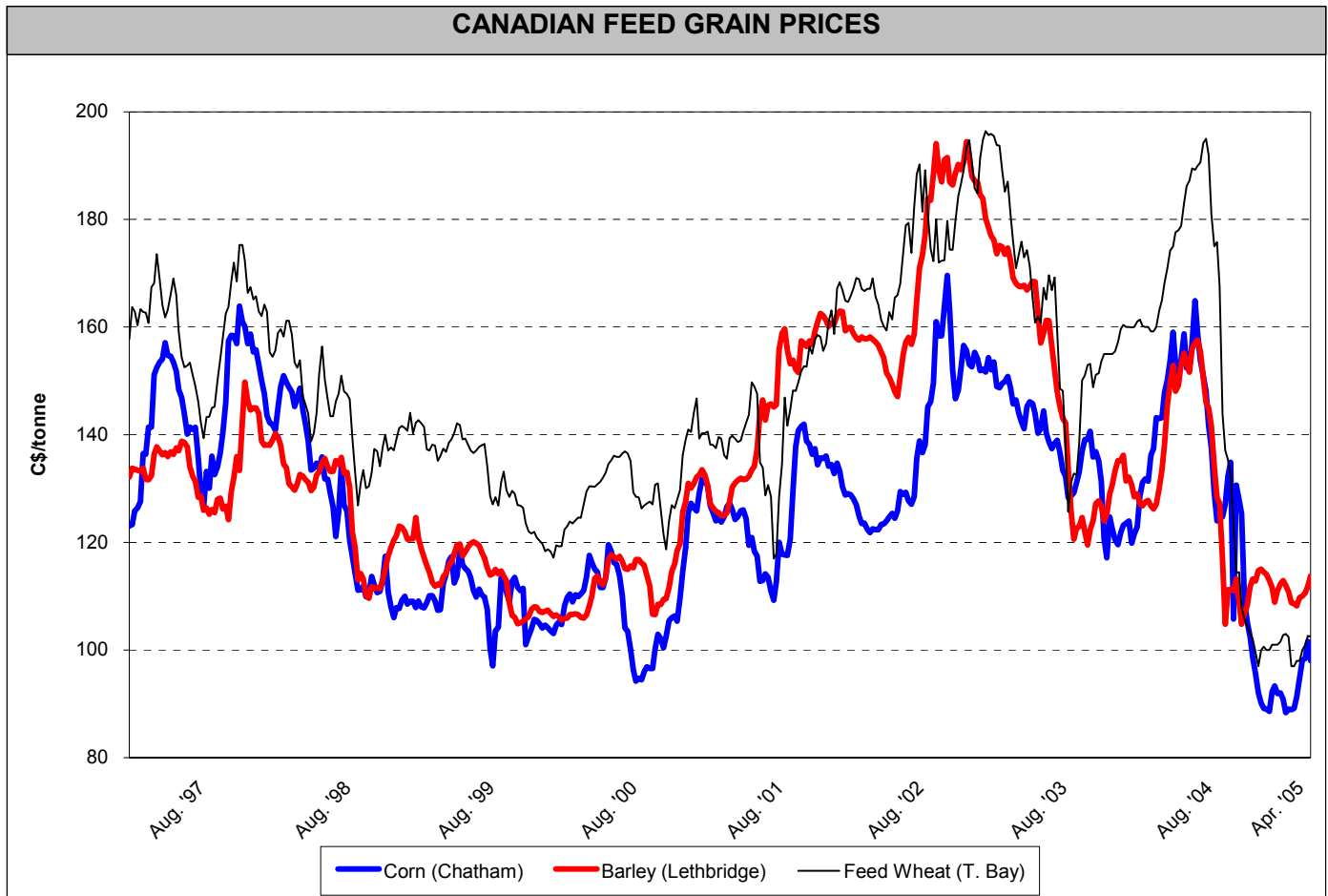
however this portion is growing. Both sheep and horses are sensitive to fusarium.

FEED GRAIN PRICES

The impact of the large feed supplies in western Canada has been a sharp decline in prices, particularly for feed wheat. Feed barley prices have remained surprisingly strong, given the large supplies, with the Winnipeg Commodity Exchange (WCE) Lethbridge cash price expected to average about \$110/t in 2004-05, about 20% lower than in 2003-04. While this is a significant decline, it is in fact better than US corn prices, which are forecast to fall by over 25% (in Canadian dollar terms). The WCE average feed wheat cash price at Thunder Bay, however, is expected to fall by almost 35%, to about \$110/t. The spread over Chicago corn is forecast to average only \$10/t, compared to the normal of about \$22/t. The average Chatham corn price is expected to decrease to \$100/t vs. \$137/t for 2003-04.

OUTLOOK 2005-06

Feed grain prices are expected to remain low. Prices will continue to be pressured by the significant increase in carry-in stocks of corn in the US. Although the USDA is currently forecasting lower corn yields for 2005-06, US corn supplies are forecast to increase slightly and will pressure US corn prices lower, unless US corn



exports unexpectedly increase significantly.

In western Canada, as with feed wheat, carry-in stocks of feed barley are expected to rise sharply for 2005-06. This is attributable to high supplies in 2004-05, which exceeded domestic demand. The CWB PRO is at a discount to domestic returns, so that minimal exports are expected. These larger carry-in stocks may more than offset an expected decline in production. Therefore, supplies of feed barley may increase in 2005-06.

For 2005-06, the Canadian barley price is expected to remain near the 2004-05 level, with a lower projected US corn price offset by reduced feed supplies and strong feed demand in western Canada. Feed wheat prices will continue to be pressured for the

first part of the crop year due to large carry-in stocks, but assuming a return to normal crop quality in 2005-06, prices are expected to begin to strengthen partway through the crop year, and average about 15% higher than in 2004-05. The average Chatham corn price is expected to be the same as 2004-05 at \$100/t.

The value of the Canadian dollar is expected to be similar to 2004-05, remaining at an historically high value against the US dollar. This will continue to pressure Canadian feed grain prices relative to US corn prices.

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