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Volume 1, Number 6

AN OVERVIEW OF SELECTED FARM INPUT PRICES IN ONTARIO AND MANITOBA, 2004-2008

December 30, 2009

Prepared by:
Farm Income and Inputs Section
Farm Economic Analysis Division
Research & Analysis Directorate
Strategic Policy Branch
Agriculture & Agri-Food Canada

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Market Analysis Group
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Agriculture & Agri-Food Canada
500-303 Main Street
Winnipeg, Manitoba, Canada R3C 3G7
Telephone: 204-983-8473
Fax: 204-983-5524
Email: bulletin@agr.gc.ca

Market Analysis Group
Director: Steve Lavergne 204-984-5484
Chief: Fred Oleson 204-983-0807

Farm Economic Analysis Division
Director: Fay Abizadeh 613-773-2410
Chief: Robert Koroluk 613-773-2428

Senior Economist: Xianqiang Zhang
Phone: 613-773-2426
Fax: 613-773-2499
Email: xianqiang.zhang@agr.gc.ca

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AN OVERVIEW OF SELECTED FARM INPUT PRICES IN ONTARIO AND MANITOBA 2004-2008

ABOUT SURVEY

Agriculture and Agri-Food Canada has contracted with Ridgetown College, University of Guelph to conduct a survey of the prices of farm machinery fuels, fertilizers and pesticides in Ontario and the neighboring US states of Michigan, Ohio and Indiana. Similarly, the Department has contracted with The Thomsen Corporation to conduct a survey of the prices of farm machinery fuels, fertilizers, pesticides and seeds in Manitoba and the neighboring US states of North Dakota and Minnesota. The Ontario/US survey is conducted four times per year, with collection periods in May, June and October while the Manitoba/US survey is conducted three times per year in spring, summer and fall. Collectively, these two individual surveys form Agriculture and Agri-Food Canada's *Farm Input Price Survey*.

The survey has been on-going since 1993. In the past this price information has been used in economic studies on the fertilizer, pesticides, and fuel sectors. The survey has been particularly useful in investigating the extent of price differences on both sides of the Canada-US border.

The prices collected by the survey are defined as the cash retail prices an average commercial farmer would pay. However, they exclude (1) price reductions due to large volumes, special memberships and year-end sale incentives; (2) all additional services such as delivery, testing and application; and (3) where applicable, GST. The US prices are converted to their Canadian equivalents by adjusting for exchange rates, units of measure, and concentration. The arithmetic average is calculated for each price of selected items.

The sample size of the survey is relatively small. Approximately 30 Ontario and 21 US border area retail outlets are surveyed by the Ontario/US survey, and about 29 Manitoba and 20 US border area retail outlets are surveyed by the Manitoba/US survey.

OVERVIEW

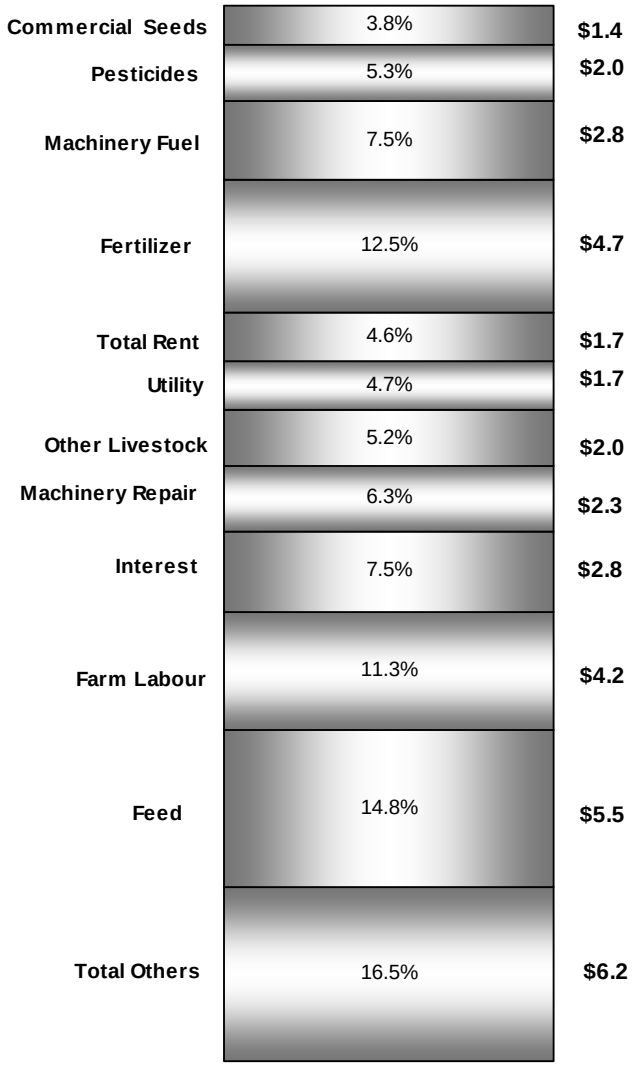
This publication provides an overview of the prices of selected farm machinery fuels, fertilizers, pesticides and seeds in Ontario, Manitoba and the neighboring US border area from Agriculture and Agri-Food Canada's farm input price survey over 2004-2008.

Figure 1 shows the components of 2008 Canadian farm operating expenses. The selected farm inputs of machinery fuels, fertilizers, pesticides and commercial seeds accounted for 29% of total Canadian farm expenses, or $10.9 billion in 2008.

CANADA: FARM OPERATING EXPENSES (2008)

Figure 1

Total: $37.5 billion



Source: (1) Statistics Canada; (2) AAFC calculations

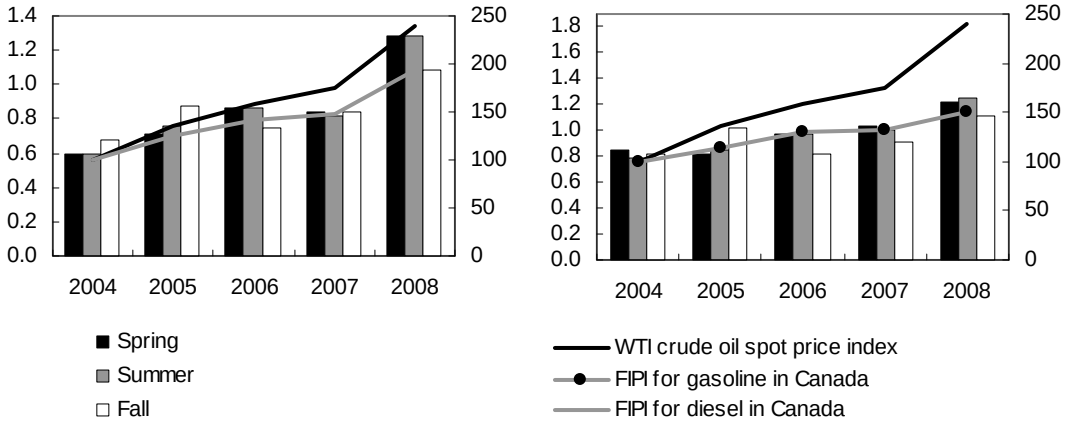
Farm Machinery Fuel Prices

Farm machinery fuel consists mainly of diesel and gasoline, but also includes lubricants. Most of the machinery fuel used in Canadian agriculture is diesel, accounting for about 64% of total fuel usage. Gasoline accounted for about 36% of total fuel usage over 2004-2007. The price of fuel is generally determined by the forces of global supply and demand. The agricultural sector is a price taker for both diesel and gasoline.

Figure 2 presents the average farm machinery fuel prices in Ontario collected by the farm input price survey over 2004-2008, compared with the West Texas Intermediate (WTI) crude oil price index and the Canadian farm input price index (FIPI) for fuel (2004=100). The average farm diesel price in Ontario has increased from $0.62 per litre to $1.21 per litre, almost doubling between 2004 and 2008. The average farm gasoline price has increased from $0.82 per litre to $1.20 per litre, or 46%, between 2004 and 2008. Meanwhile, the WTI crude oil price has increased by 140% from 2004 to 2008 and Canadian farm input prices for diesel and gasoline have increased by 94% and 51%, respectively. The farm machinery fuel prices in Ontario generally track the global crude oil price and average Canadian farm fuel prices.

AVERAGE FARM FUEL PRICES IN ONTARIO, WITH WTI CRUDE OIL PRICE INDEX AND CANADIAN FIPI FOR FUEL, 2004-2008

Figure 2

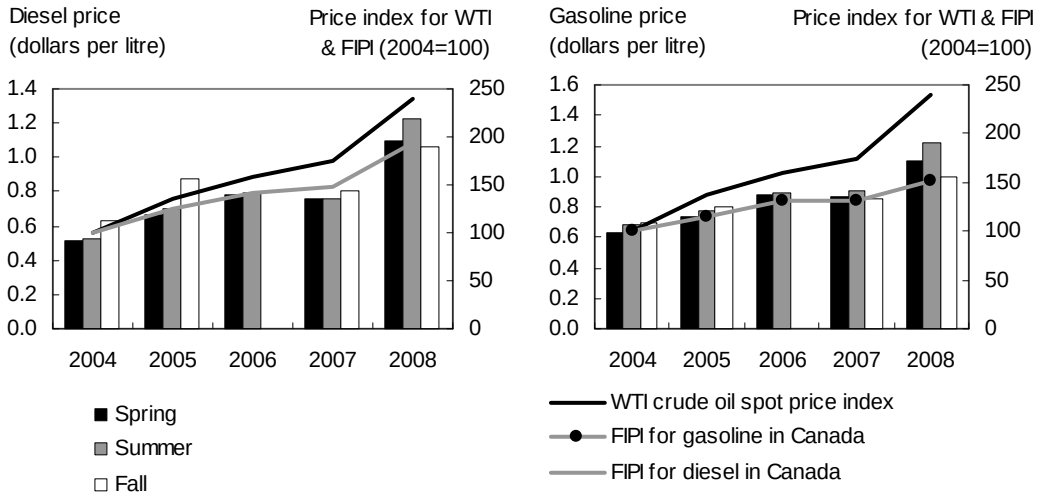


Source: (1) Farm Input Price Survey, AAFC; (2) Statistics Canada; (3) United States Energy Information Administration; (4) AAFC calculations.

Figure 3 presents the average farm fuel prices in Manitoba collected by the farm input price survey over 2004-2008, compared with the WTI crude oil price index and Canadian FIPI for fuel (2004=100). The average farm diesel price in Manitoba has increased from $0.56 per litre to $1.13 per litre, more than doubling between 2004 and 2008. Meanwhile, the average farm gasoline price has increased from $0.67 per litre to $1.11 per litre, or 65%, between 2004 and 2008. The farm machinery fuel prices in Manitoba also generally track the global crude oil price and average Canadian farm fuel prices.

AVERAGE FARM FUEL PRICES IN MANITOBA, WITH WTI CRUDE OIL PRICE INDEX AND CANADIAN FIPI FOR FUEL, 2004-2008

Figure 3



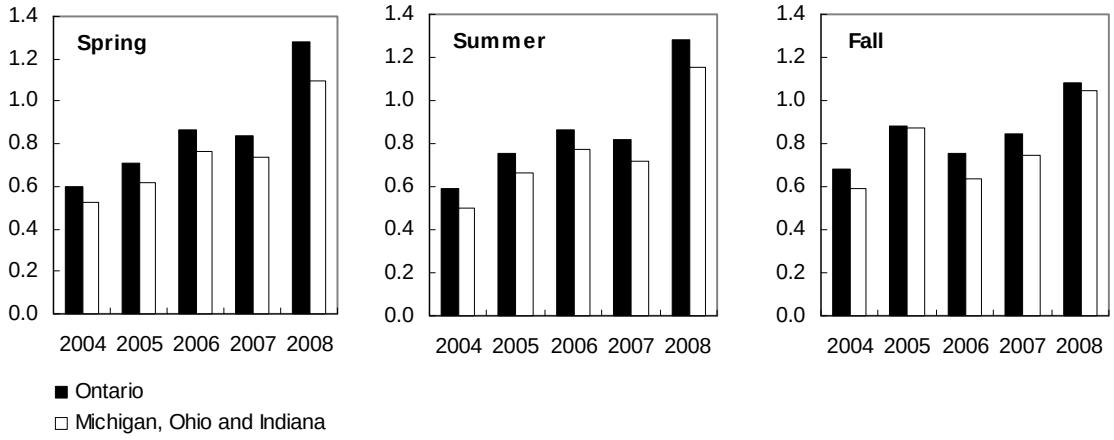
Source:(1) Farm Input Price Survey, AAFC; (2) Statistics Canada; (3) United States Energy Information Administration; (4) AAFC calculations.

The rising fuel prices in Canada over 2004-2008 were primarily due to tight crude oil supplies, ongoing international political uncertainty in the major oil exporting regions such as the Middle East, and strong world demand attributed to rising economic growth largely in developing countries.

Figures 4 and 5 present the diesel and gasoline price comparisons between Ontario and the neighbouring US border area over 2004-2008. Average prices for both diesel and gasoline were higher in Ontario than in the neighbouring US states of Michigan, Ohio and Indiana over 2004-2008.

DIESEL PRICE COMPARISON BETWEEN ONTARIO AND US BORDER AREA, 2004-2008

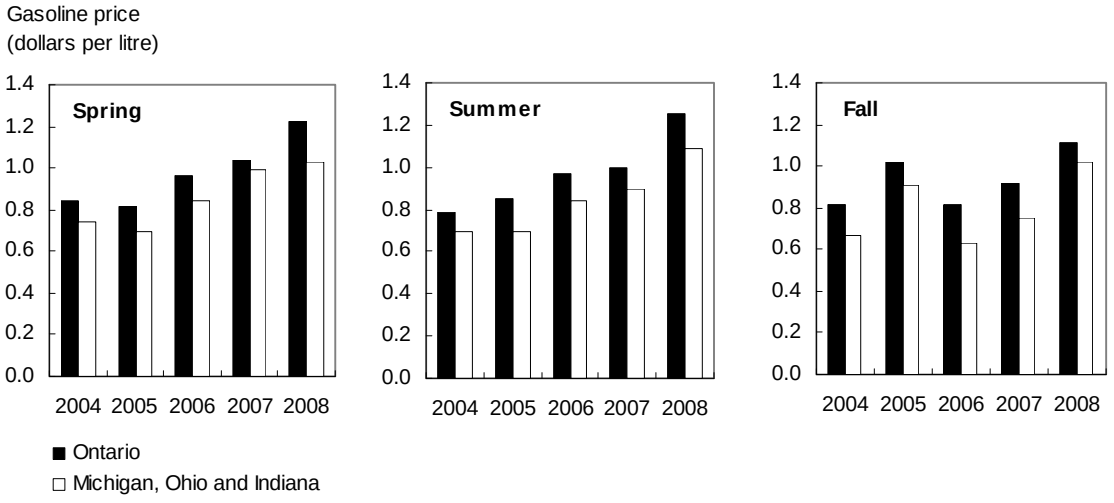
Figure 4



Source: Farm Input Price Survey, AAFC.

GASOLINE PRICE COMPARISON BETWEEN ONTARIO AND US BORDER AREA, 2004-2008

Figure 5

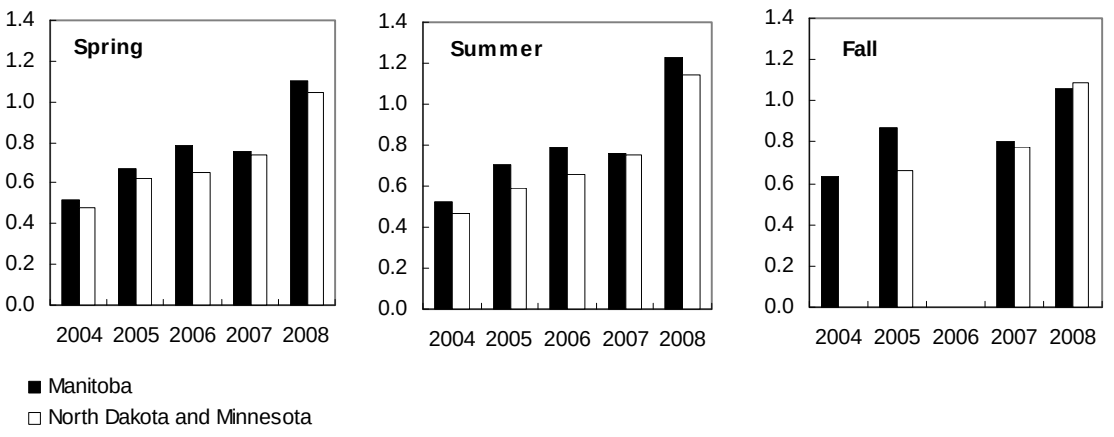


Source: Farm Input Price Survey, AAFC.

Figures 6 and 7 present the diesel and gasoline price comparisons between Manitoba and the neighbouring US border area over 2004-2008. Except for diesel in fall 2008, average prices for both diesel and gasoline were also higher in Manitoba than in the neighbouring US states of North Dakota and Minnesota over 2004-2008.

DIESEL PRICE COMPARISON BETWEEN MANITOBA AND US BORDER AREA, 2004-2008

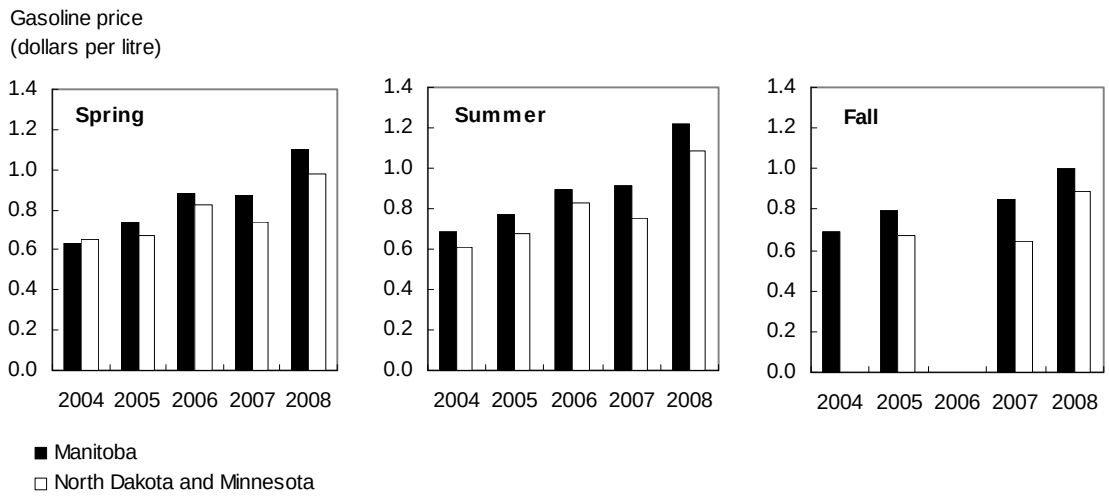
Figure 6



Source: Farm Input Price Survey, AAFC.
Note: Data not available in fall 2004 for US and fall 2006 for both Manitoba and US.

GASOLINE PRICE COMPARISON BETWEEN MANITOBA AND US BORDER AREA, 2004-2008

Figure 7



Source: Farm Input Price Survey, AAFC.

Note: Data not available in fall 2004 for US and fall 2006 for both Manitoba and US.

The farm fuel price disparities between Canada and US result from factors such as different fuel taxes, tax exemptions for agriculture and exchange rate fluctuations. There is no indication of a lack of market competition or factors that would limit competition.

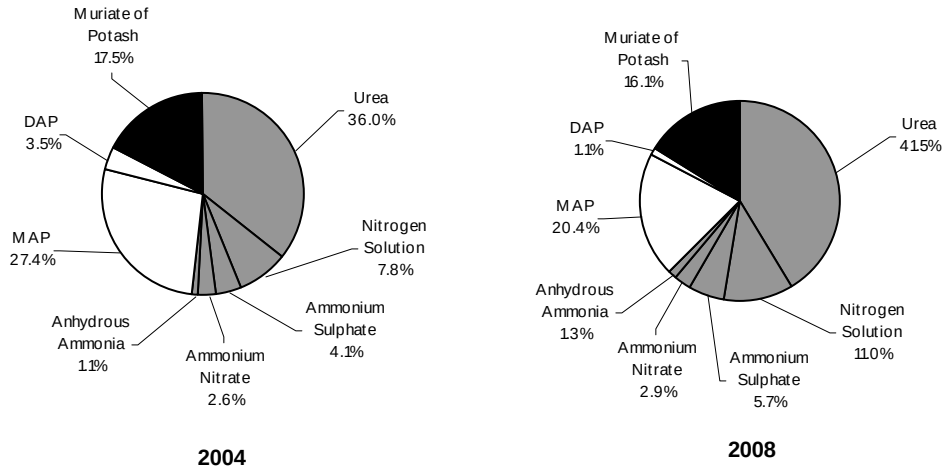
Fertilizer Prices

Figure 8 shows the components of fertilizers and their usage in Canadian agriculture in 2004 and 2008[1]. Nitrogen fertilizers, including anhydrous ammonia, urea, nitrogen solution, ammonium nitrate and ammonium sulphate, are the largest nutrient used in Canadian agricultural production, accounting for 62% of total fertilizer usage, or about 3.6 million tonnes in 2008. The usage of nitrogen increased by an annual growth rate of 9% from 2004 to 2008, with urea representing the largest volume used. Phosphate fertilizers, including monoammonium phosphate (MAP) and diammonium phosphate (DAP), accounted for 22% of total fertilizer usage, or about 0.9 million tonnes. Potash fertilizer accounted for 16% of total usage, or about 0.6 million tonnes in 2008. Potash is used primarily in eastern Canada.

[1] Usage is based on a fertilizer year (July 1 – June 30).

Figure 8

FERTILIZER TYPES AND USAGE IN CANADIAN AGRICULTURE, 2004 AND 2008 FERTILIZER YEARS

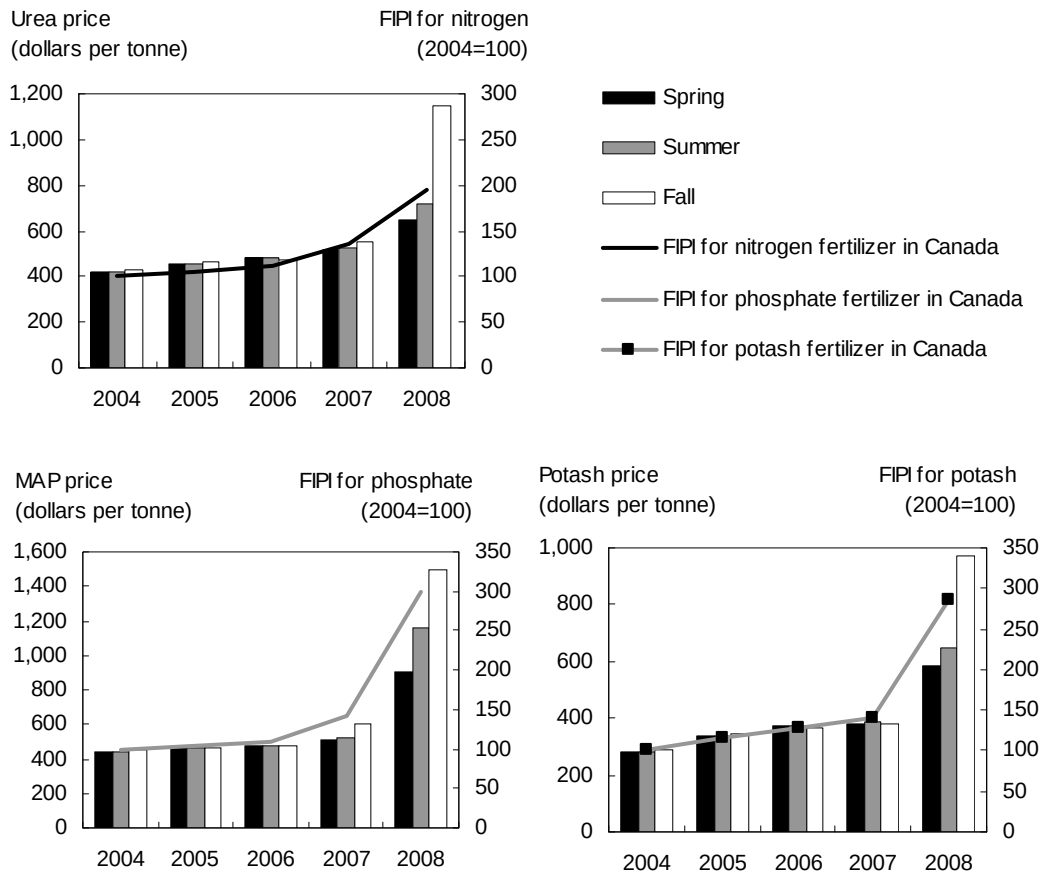


Sources: (1) Canadian Fertilizer Institute; (2) Statistics Canada; (3) AAFC calculations.
Note: The fertilizer year is July 1-June 30.

Figure 9 presents the average prices for selected fertilizers in Ontario collected by the survey over 2004-2008, compared with Canadian FIPI for fertilizers (2004=100). Fertilizer prices in Ontario have risen steadily since 2004, but increased sharply to historical highs in 2008. The average urea price in Ontario has increased from $427 per tonne to $840 per tonne, almost doubling between 2004 and 2008. Meanwhile, the average MAP price has increased from $442 per tonne to $1,183 per tonne and the average potash price has increased from $284 per tonne to $734 per tonne, both more than doubling between 2004 and 2008. Overall, the farm input prices for nitrogen, phosphate and potash in Canada have increased by 94%, 200% and 187%, respectively, from 2004 to 2008. Fertilizer prices in Ontario generally track average Canadian fertilizer prices.

AVERAGE FERTILIZER PRICES IN ONTARIO, WITH CANADIAN FIPI FOR FERTILIZERS, 2004-2008

Figure 9

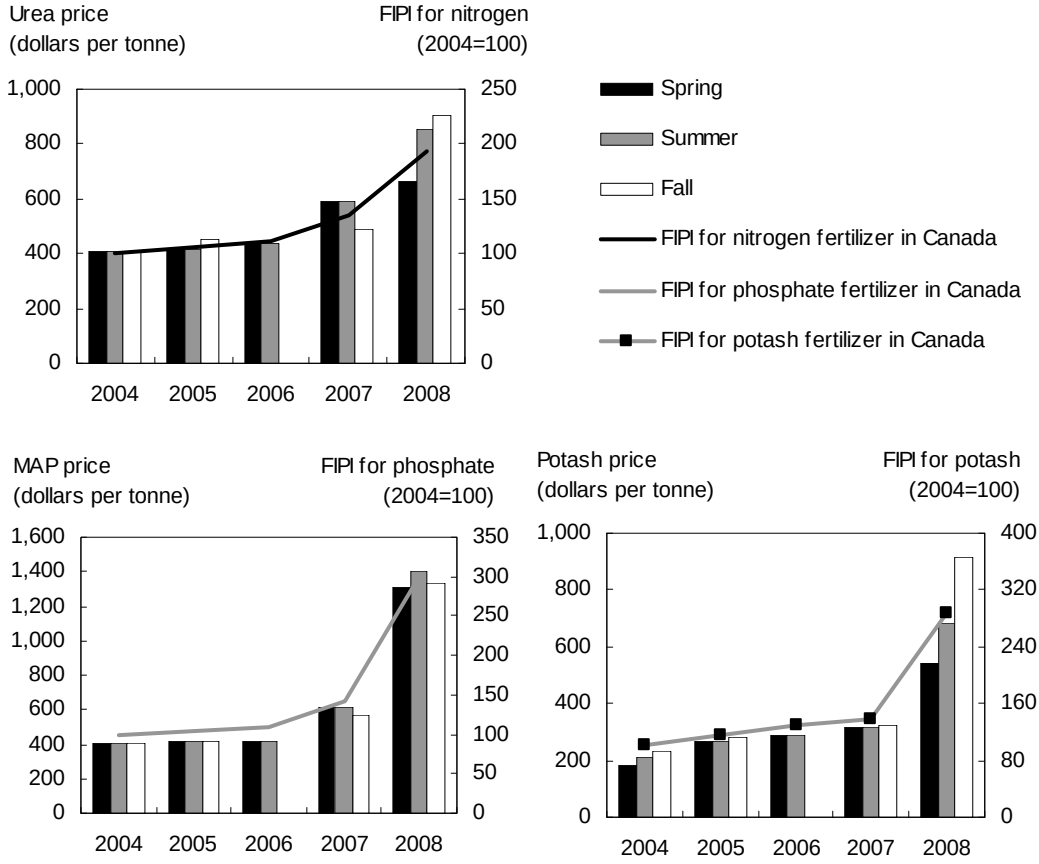


Source:(1) Farm Input Price Survey, AAFC; (2) Statistics Canada; (3) AAFC calculations.

Figure 10 presents the average prices for selected fertilizers in Manitoba collected by the survey over 2004-2008, compared with Canadian FIPI for fertilizers (2004=100). As is the case in Ontario, fertilizer prices in Manitoba have continued to rise since 2004, but increased sharply to historical highs in 2008. The average urea price in Manitoba has increased from $409 per tonne to $807 per tonne, almost doubling between 2004 and 2008. Meanwhile, the average MAP price has increased from $406 per tonne to $1,349 per tonne and the average potash price has increased from $210 per tonne to $714 per tonne, both more than tripling between 2004 and 2008. Fertilizer prices in Manitoba also generally track average Canadian fertilizer prices.

Figure 10

AVERAGE FERTILIZER PRICES IN MANITOBA, WITH CANADIAN FIPI FOR FERTILIZERS, 2004-2008

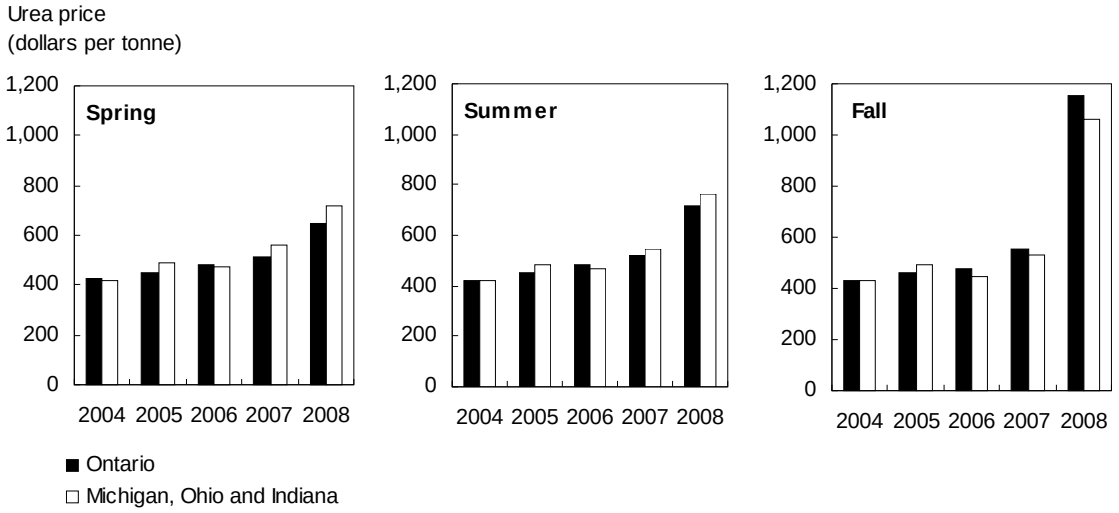


Source:(1) Farm Input Price Survey, AAFC; (2) Statistics Canada; (3) AAFC calculations.

Figures 11, 12 and 13 present selected fertilizer price comparisons between Ontario and the neighbouring US border area over 2004-2008. The price differences between Ontario and the neighbouring US states of Michigan, Ohio and Indiana varied from season to season over 2004-2008.

UREA PRICE COMPARISON BETWEEN ONTARIO AND US BORDER AREA, 2004-2008

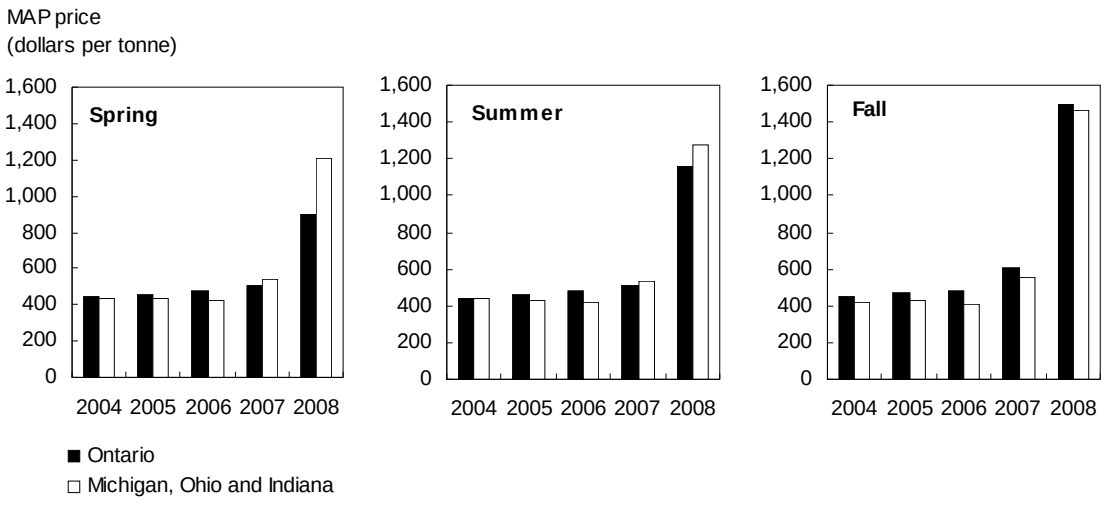
Figure 11



Source: Farm Input Price Survey, AAFC.

MAP PRICE COMPARISON BETWEEN ONTARIO AND US BORDER AREA, 2004-2008

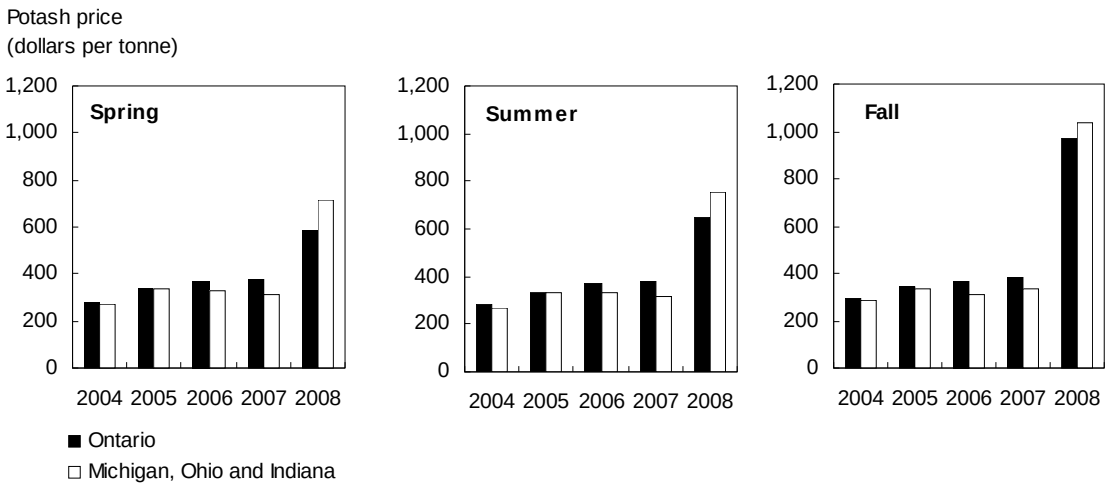
Figure 12



Source: Farm Input Price Survey, AAFC.

POTASH PRICE COMPARISON BETWEEN ONTARIO AND US BORDER AREA, 2004-2008

Figure 13

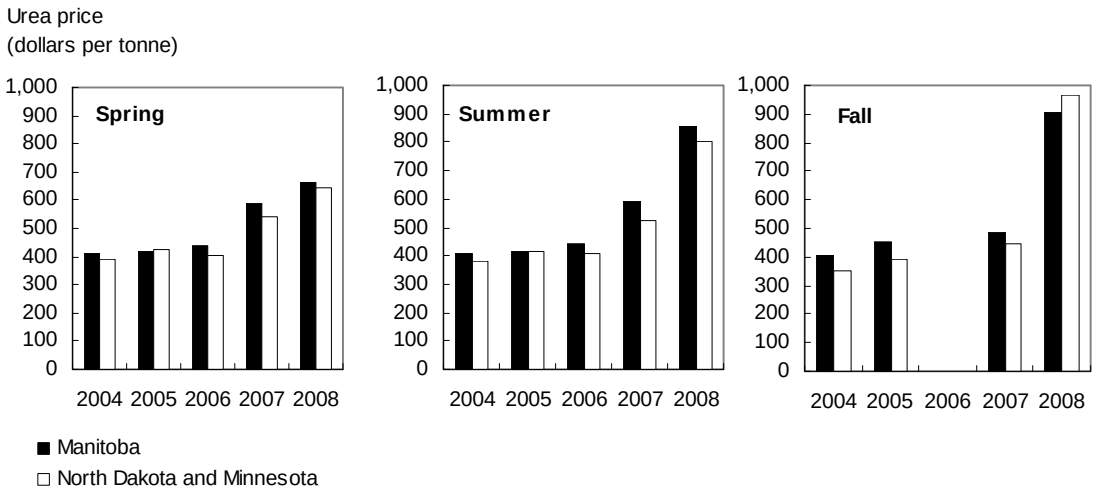


Source: Farm Input Price Survey, AAFC.

Figures 14, 15 and 16 present selected fertilizer price comparisons between Manitoba and the neighbouring US border area over 2004-2008. Average prices for both urea and MAP were higher in Manitoba than in the neighbouring US states of North Dakota and Minnesota in most of the seasons over 2004-2008. However, the price differences for potash between Manitoba and neighbouring US states varied from season to season over 2004-2008.

UREA PRICE COMPARISON BETWEEN MANITOBA AND US BORDER AREA, 2004-2008

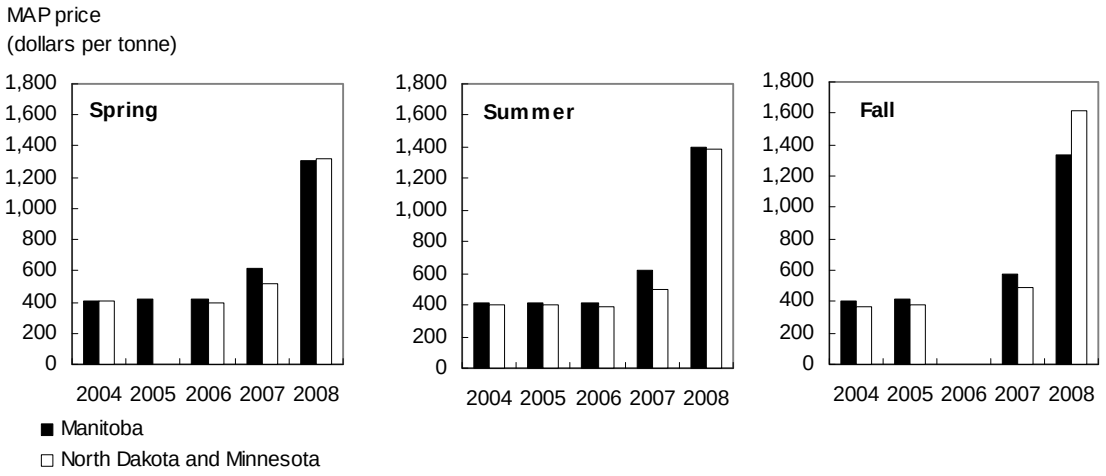
Figure 14



Source: Farm Input Price Survey, AAFC.
Note: Data not available in fall 2006 for both Manitoba and US.

MAP PRICE COMPARISON BETWEEN MANITOBA AND US BORDER AREA, 2004-2008

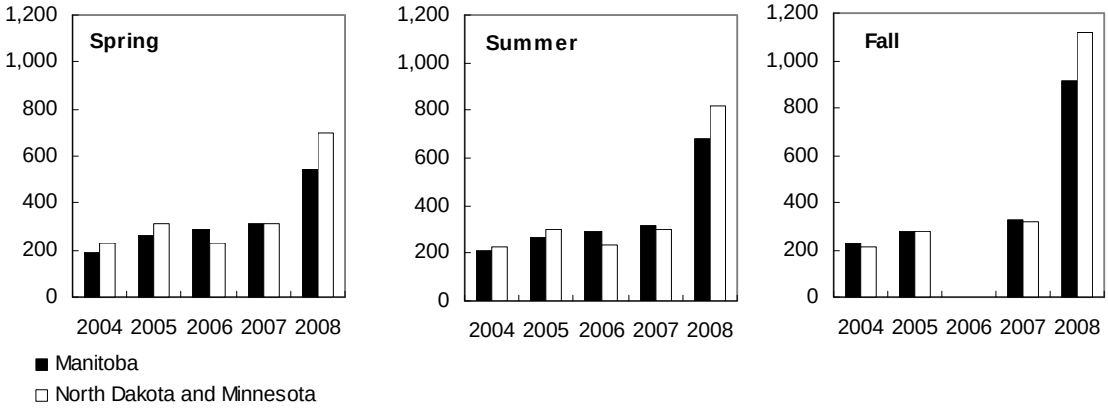
Figure 15



Source: Farm Input Price Survey, AAFC.
Note: Data not available in fall 2006 for both Manitoba and US.

POTASH PRICE COMPARISON BETWEEN MANITOBA AND US BORDER AREA, 2004-2008

Figure 16



Source: Farm Input Price Survey, AAFC.
Note: Data not available in fall 2006 for both Manitoba and US.

In fertilizer markets, demand and supply conditions are changing constantly. At any point in time, the price of an old stock of fertilizer or an existing contract may be higher or lower than the actual market price. As a result, fertilizer prices can vary greatly over time and across regions, depending on the local infrastructural endowments, pre-purchase contracts and availability of stocks held by local dealers. In addition, transportation costs, exchange rate fluctuations and economies of scale can also contribute to price disparities.

Pesticide Prices

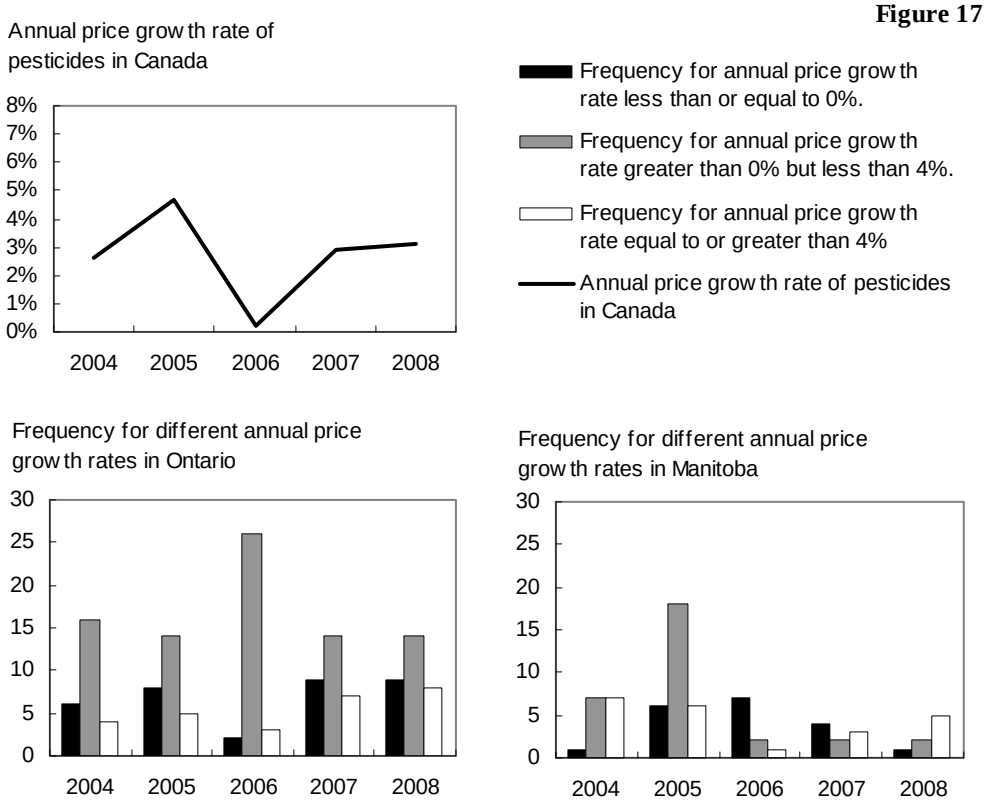
Pesticides include all herbicides, insecticides and fungicides used in agricultural production. Though some pesticides are used to control pests in the livestock sector, most pesticide use in Canada is related to crop production. Pesticide use in Canada varies greatly depending on the crop seeded and on growing conditions. Total pesticides expense in Canadian agriculture increased modestly from $1.7 billion to $2.0 billion, or 3.6% annually between 2004 and 2008. Most of the pesticides used in Canada were herbicides, accounting for about 80% of total pesticide usage.

Figure 17 presents the frequency for three categories of annual price growth rates for pesticides surveyed in Ontario and Manitoba, comparing them to the annual price growth rate of pesticides in Canada over 2004-2008. Based on the Farm Input Price Index for pesticides from Statistics Canada[2], pesticide prices in Canada increased moderately with growth rates between 0% and 4% from 2004 to 2008. The number of pesticides surveyed by AAFC in Ontario that can be used for annual comparison varied between 26 and 31 while the number of pesticides surveyed in Manitoba was between 8 and 10 in most of the years from 2004 to 2008. Most of the pesticide prices in Ontario increased with growth rates between 0% and 4% from 2004 to 2008, which was consistent with the average Canadian pesticide price change. Although the situation in Manitoba seems somewhat different, results are based on a much smaller sample of pesticides surveyed in Manitoba, particularly for the period between 2006 and 2008.

[2] It should be noted that FIPI for pesticides from Statistics Canada tracks a limited basket of pesticides.

FREQUENCY FOR THREE CATEGORIES OF ANNUAL PRICE GROWTH RATES FOR PESTICIDES SURVEYED IN ONTARIO AND MANITOBA, WITH ANNUAL PRICE GROWTH RATE OF PESTICIDES IN CANADA, 2004-2008

Figure 17

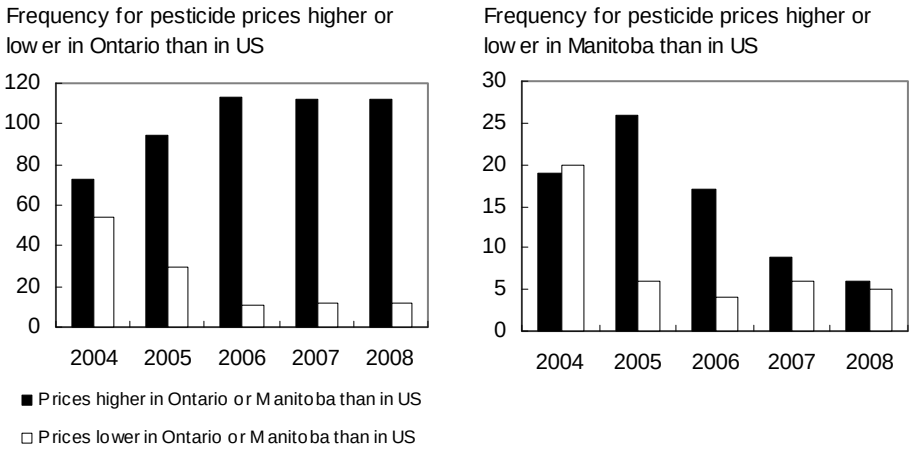


Source: (1) Farm Input Price Survey, AAFC; (2) Statistics Canada; (3) AAFC calculations.

Figures 18 presents pesticide price comparisons between Ontario, Manitoba and the neighbouring US border area over 2004-2008. Most of the pesticide prices were higher in Ontario than in the neighbouring US states of Michigan, Ohio and Indiana between 2004 and 2008. Except in 2004, a similar situation was observed in Manitoba from 2005 to 2008 compared to the neighbouring US states of North Dakota and Minnesota.

FREQUENCY FOR PESTICIDE PRICES HIGHER OR LOWER IN ONTARIO AND MANITOBA THAN IN US BORDER AREA IN ALL SURVEY PERIODS, 2004-2008

Figure 18



Source:(1) Farm Input Price Survey, AAFC; (2) AAFC calculations.

Care should be used when interpreting the pesticide price disparities between Canada and US border area since the US prices have been converted to Canadian dollars. Thus some of the differences in the price comparison may be caused by simple exchange rate fluctuations during the survey period. Other factors that also have an impact on price differentials include Canada-US pesticide regulation, patent and data protection status, the demand and supply situation and economies of scale.

Commercial Seed Prices

Commercial seed includes seeds and seedlings purchased by farmers through commercial channels, such as elevators, seed houses and seed dealers. Total commercial seed expense in Canadian agriculture increased from $1.2 billion to $1.4 billion, or 7% annually between 2006 and 2008.

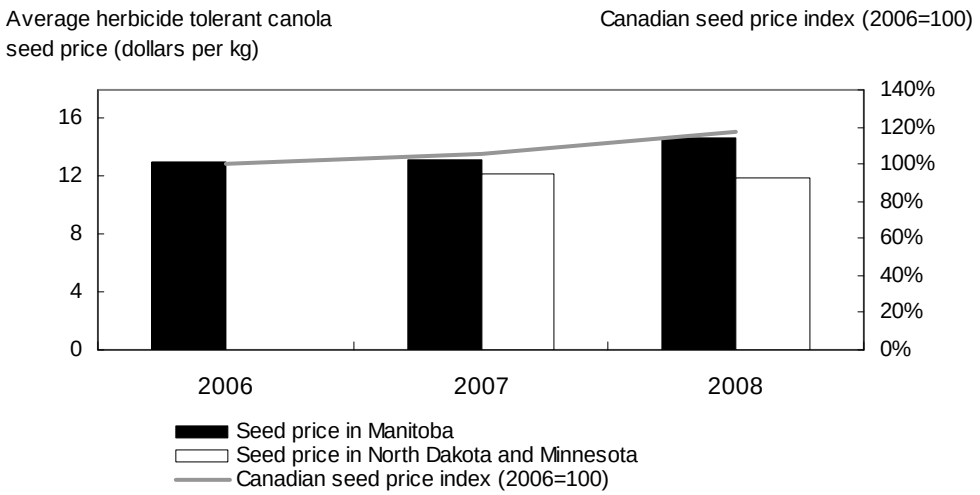
Figure 19 presents selected canola seed prices in Manitoba and the US border area collected by the survey, compared with the Canadian seed price index (2006=100), 2006-2008.[3] The average price for herbicide tolerant canola seed in Manitoba has increased from $13.07 per kilogram to $14.66 per kilogram, or 12% between 2006 and 2008. Overall, commercial seed prices in Canada have increased by 17% from 2006 to 2008.

The average price for herbicide tolerant canola seed was higher in Manitoba than in the neighbouring US states of North Dakota and Minnesota during 2007 and 2008.

[3] Data are not available from the survey for 2004 and 2005.

AVERAGE HERBICIDE TOLERANT CANOLA SEED PRICES IN MANITOBA AND US BORDER AREA, WITH CANADIAN SEED PRICE INDEX, 2006-2008

Figure 19



Source:(1) Farm Input Price Survey, AAFC; (2) Statistics Canada; (3) AAFC calculations.
Note: Data not available for US in 2006.

CONCLUSION

This publication presents the historical price trends of a selection of farm inputs in Ontario and Manitoba over 2004-2008. The inputs include major farm machinery fuels, fertilizers, pesticides and commercial seeds. Farm machinery fuel and fertilizer prices increased significantly in both Ontario and Manitoba between 2004 and 2008 due mainly to tight supplies and strong world demand attributed to rising economic growth largely in developing countries. Most of the pesticide prices in Ontario increased moderately with growth rates between 0% and 4% from 2004 to 2008. Average price for herbicide tolerant canola seed increased relatively strongly in Manitoba between 2006 and 2008.

This publication also compares the prices of the selected farm inputs in Ontario and Manitoba with their respective US border areas. Average prices for farm machinery fuels and majority of pesticides were higher in Ontario and Manitoba than in neighbouring US states during most of the period over 2004-2008. The average price for herbicide tolerant canola seed was also higher in Manitoba than the US border area during 2007 and 2008. However, major fertilizer price differences between Ontario, Manitoba and the neighbouring US border areas varied from season to season over 2004-2008.