

SOYBEAN SECTOR

OVERVIEW OF THE SOYBEAN SECTOR IN MANITOBA



- Soybeans were first introduced in Manitoba in the early 1900s when they were brought up from the United States. Due to the soybean's satisfactory palatability and relatively good yields, early production was used both for human consumption and as a fodder crop for livestock.
- In the 1950s, research at the University of Manitoba began to develop breeds more suitable to Manitoba's growing conditions. From the 1970s until today,

further soybean research and development at the University of Manitoba, eastern Canada and in the United States led to the introduction of early-maturing, high-yielding soybeans with high protein levels, better suited for Manitoba's climate.

- This research, in combination with Manitoba farmers continued search for diversification opportunities, led to a significant increase in soybean acres.
- Over the last decade, soybeans have become a success story for agriculture in Manitoba with the arrival of early maturing and glyphosate resistant varieties. The new varieties make it possible to grow soybeans in northern and western areas of the province instead of only in the traditional Red River Valley region.
- The ratio of genetically modified (GM) to non-GM identity preserved (IP) soybeans is typically 93 to 95% GM and 5 to 7% non-GM.
- In 2011, Manitoba reported 1,858 soybean farms compared to 1,321 in 2006. This represents 6.8% of soybean farms in Canada and approximately 10 to 18% of Canada's total soybean production.

Soybeans	Manitoba	Manitoba	Canada	Canada
	2011	2006	2011	2006
Number of farms	1,858	1,321	27,215	23,263
Acres	705,032	350,567	3,957,772	2,970,449
Hectares	285,316	141,869	1,601,653	1,202,098

Source: Census of Agriculture 2011

PROCESSING SOYBEANS SEED IN MANITOBA

- Different varieties of soybeans have been developed for different uses; for example, soybeans intended for use in soy foods have a light-coloured seed coat and hilum. Soybeans intended for crushing or roasting have a high oil or high protein content.
- Soybeans are used to make a diverse range of food products including soy milk, tofu, soy sauce, natto, miso, tempeh, oil, margarine, shortening, soy nuts, edamame, simulated meat (eg. artificial bacon bits) and food product ingredients.
- Industrial products made with soybeans include printing ink, biodiesel, waxes for crayons and candles, solvents, lubricants, hydraulic fluid, plastics, fibres and textiles, and adhesives.
- In agriculture, soybean meal and roasted soybeans are used in livestock feed.
- Canadian food grade soybeans are well suited for manufacturing uses due to high average protein content, high soluble sugar content and a high ratio of sucrose to oligosaccharides, important for tofu and soymilk quality and flavour. The isoflavone content of soybeans is also important depending on the processing end use.

- Canadian Generic Food Type Soybean Composition - dry matter (DM), 2011:

Chemical composition (g/100 g DM)	
Protein content	41.8
Oil content	20.6
Sugar content (g/kg DM)	
Sucrose	66.2
Raffinose	7.7
Stachyose	38.0
Verbascose	1.0
Total oligosaccharides ¹	46.7
Total Isoflavones ² (mg/kg DM)	2,555.0

1 Sum of raffinose, stachyose and verbascose.

2 Sum of isoflavone aglycones (daidzein, genistein and glycitein), glucosides, malonyl glucosides and acetyl glucosides.

- Important Characteristics in Soyfood Manufacturing:

Major Components	Minor Components	Characteristics	Appearance
Protein (quantity and quality)	Isoflavones	Size	Seed coat colour
Oil	Vitamin E	Shape	Hilum colour
Sucrose, oligosaccharides, total sugars	Saponins	Uniformity	Seed coat sheen and brightness
Fibre (as okara)	Lignins, other antioxidants	Water uptake capacity and rate	Seed coat integrity
	Anti-nutritionals (heavy metals, allergens)	Stone seed	

- The main factors that can affect the requirements and specifications for raw soybeans required by the soyfood manufacturer include industry consolidation, technological progress in manufacturing processes, higher production volumes, food safety requirements, packaging and labeling standards, and food manufacturing waste disposal restrictions.

Trade

- Currently Manitoba exports to the United States, Japan, and several other countries in both Asia and Europe.
- Producers and exporters must ensure proper segregation and management of both genetically modified (GM) and non-GM soybeans. Prior to shipping, the beans are cleaned to export standard and either bagged or shipped in bulk via railcar.
- Approximately 35 percent of soybeans grown in Canada are non-GM, of which Japan is the largest customer. Food grade identity preserved (IP) soybeans are used to manufacture products such as soymilk, tofu, miso, natto, soy sauce and other soyfoods. Non-GM soybeans are also exported to several Asian countries and the European Union (E.U.). In addition, over half of the soybeans exported to the E.U. are GM, used in the crush market for biofuel.
- In Canada, exporting companies specializing in non-GM soybeans work closely with farmers who grow non-GM soybeans. Contracts are developed based on the needs of the customer and are signed by the IP soybean farmer. Farmers must meet the quality standards specified in the contract to receive an IP premium. The Canadian Identity Preserved Recognition System operated by the Canadian Grain Commission covers all aspects of soybean production and processing from seed to export.
- Although Canada is a small player in the international soybean trade, domestic soybean production of specialized high-quality, food-grade beans target local and foreign markets. Japan, Singapore and Malaysia are important markets for Canadian food grade soybeans.
- Significant amounts of soybean oilcake and meal, valued at \$80 million in 2011, are imported from the United States to supplement local feed supplies, mainly for pigs.
- Future expectations of the Manitoba soybean industry include greater sizing and cleaning capacity, additional production for the high-value human food market and further value-added bean processing in the province.
- Local developments may include Manitoba livestock producers purchasing roasters to roast soybeans for use in their livestock operations.
- Soyfood markets are dynamic and evolve with changing consumer interest in new products and with nutritional and health concerns. Traditional soyfood markets, including tofu and soymilk, continue to respond to changing preference characteristics such as reduced beany or green flavour. Increasing interest in non-traditional products such as health beverages and snack foods is also generating new opportunities and challenges.
- Organic soybean production and trade is relatively stable, estimated to represent less than 1% of Canada's total soybean production. It is considered a niche opportunity for Canadian soybean growers in the short-term.

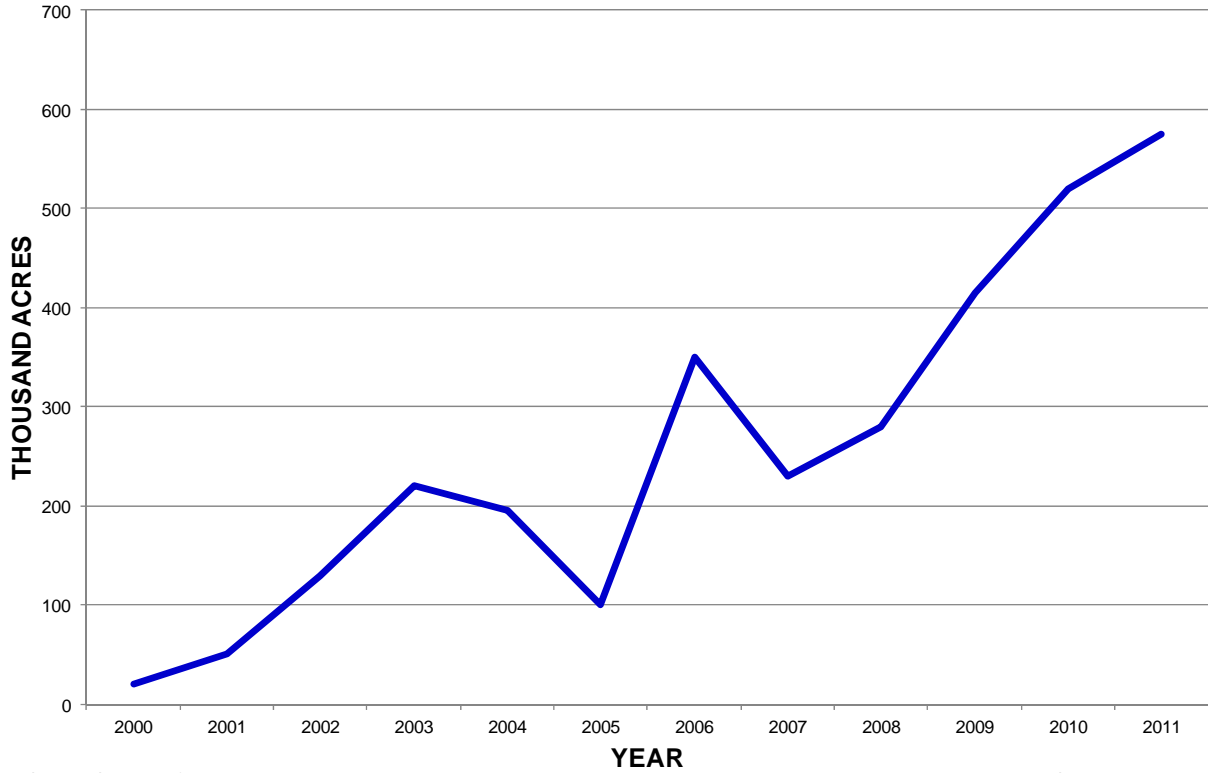
Soybean Outlook for Canada 2012-2013

- For 2012-13, planted and harvested area are expected to rise by 4% and 2%, respectively. Abandonment is expected to be near normal.
- Production and supply in Canada is forecast to decrease slightly.
- However, higher imports will partly offset the impact of lower carry-in stocks.
- Exports are forecast to decline only marginally in the face of solid world demand for conventional-crush and food-grade soybeans.
- Total domestic use is forecast to rise slightly on a steady crush pace supported by stable crush margins.
- Carry-out stocks are forecast to decline slightly.
- Prices are also forecasted to decrease as higher US prices are offset by a slight strengthening of the Canadian dollar and a widening of the Chicago-Chatham cash price spread.
- For 2012-13, the USDA is forecasting the average US farm price of soybeans to increase by almost US\$1.00/bu, to US\$12.00 to US\$14.00/bu despite higher production and supply. While world prices are expected to be strong during the first half of 2012-13, they are expected to ease during the second half, on forecasts of a large US and South American crop, stable Chinese buying and a return to normal yields.

Outlook for Soybeans	2010-2011	2011-2012p	2012-2013f
Area Seeded (kha)	1,483	1,550	1,606
Area Harvested (kha)	1,477	1,542	1,576
Yield (t/ha)	2.94	2.75	2.60
Production (kt)	4,345	4,246	4,100
Imports (kt)	266	200	350
Total Supply (kt)	4,912	4,748	4,800
Exports (kt)	2,757	2,600	2,700
Food & Industrial Use (kt)	1,448	1,450	1,450
Feed, Waste & Dockage (kt)	243	203	255
Total Domestic Use (kt)	1,853	1,798	1,850
Carry-out Stocks (kt)	301	350	250
Average Price (\$/t)	447	435 to 465	450 to 480

Source: Statistics Canada and Agriculture and Agri-Food Canada, June 2012

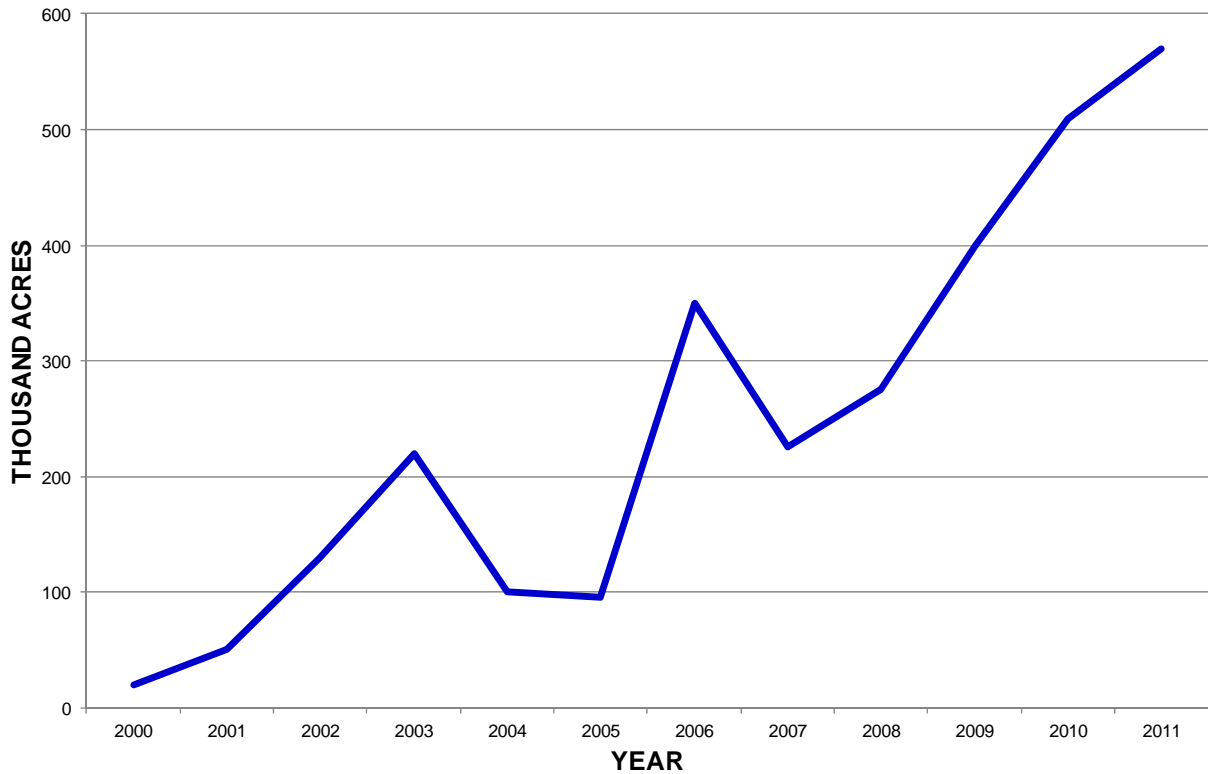
Soybeans - Seeded Acres in Manitoba 2000 - 2011



Source: Statistics Canada

Industry Intelligence Section, MAFRI

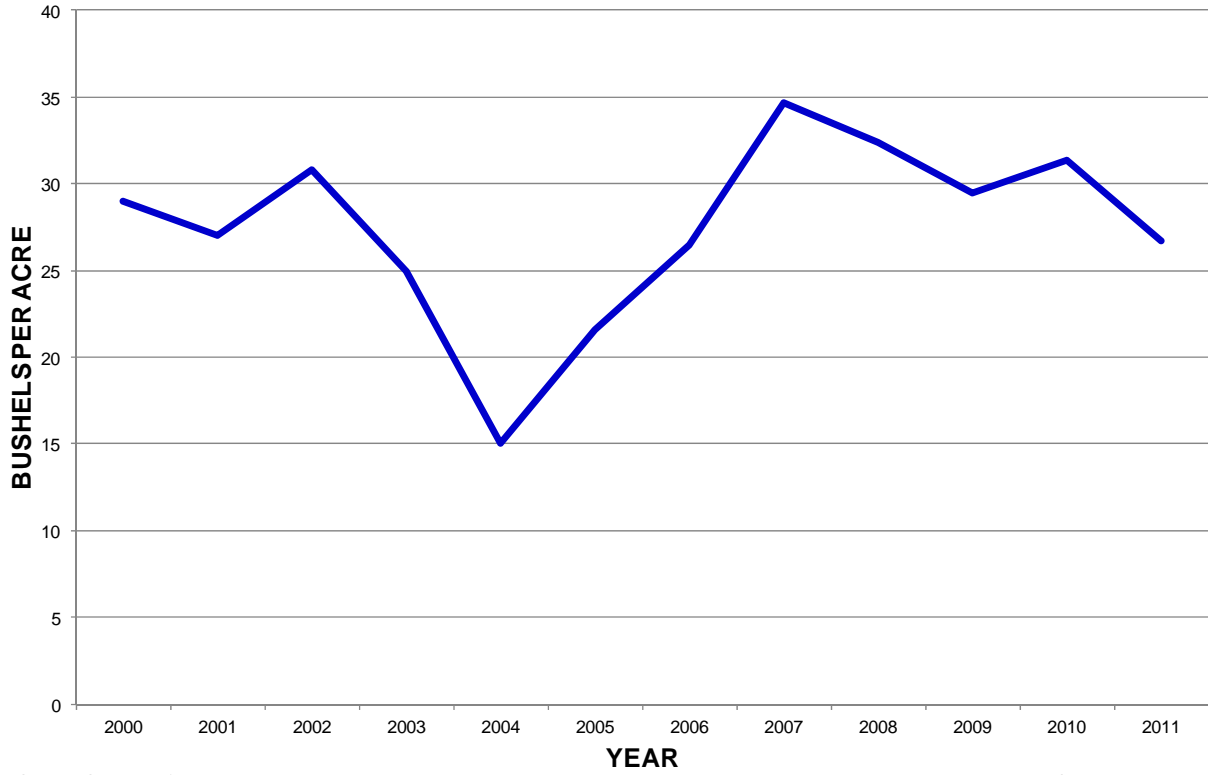
Soybeans - Harvested Acres in Manitoba 2000 - 2011



Source: Statistics Canada

Industry Intelligence Section, MAFRI

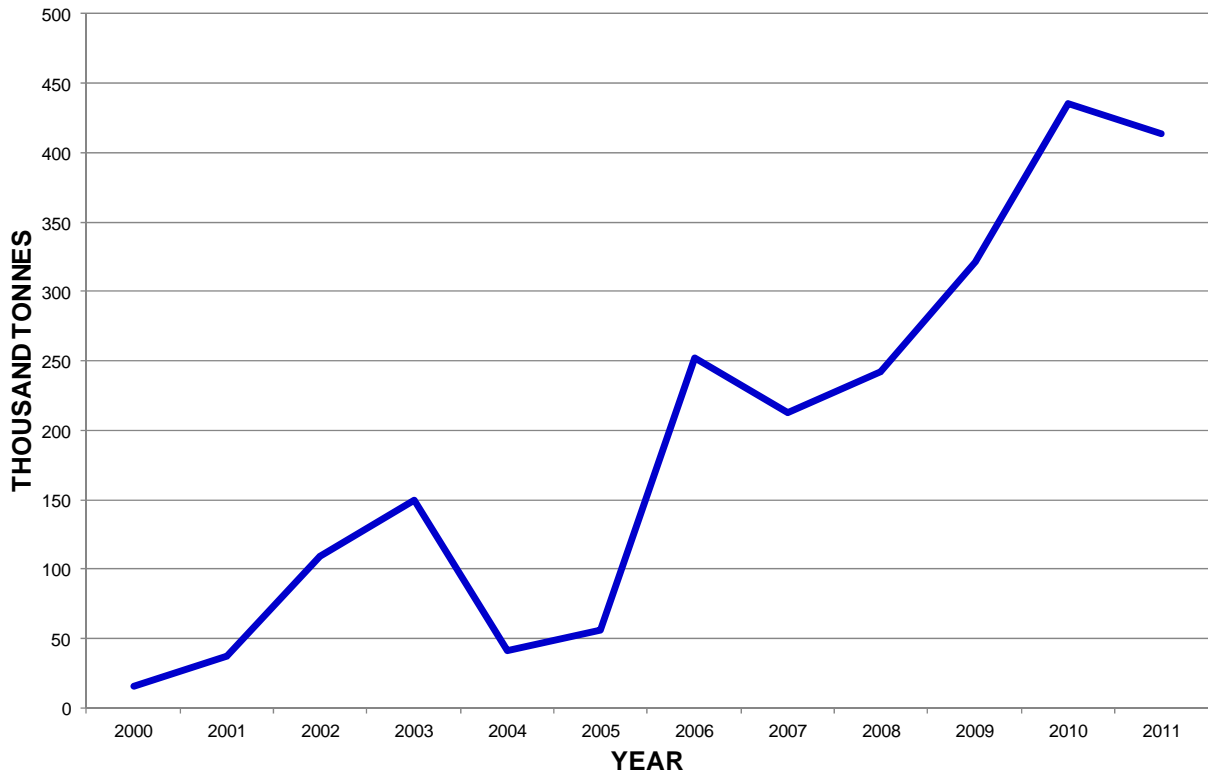
Soybeans - Yield per Acre in Manitoba 2000 - 2011



Source: Statistics Canada

Industry Intelligence Section, MAFRI

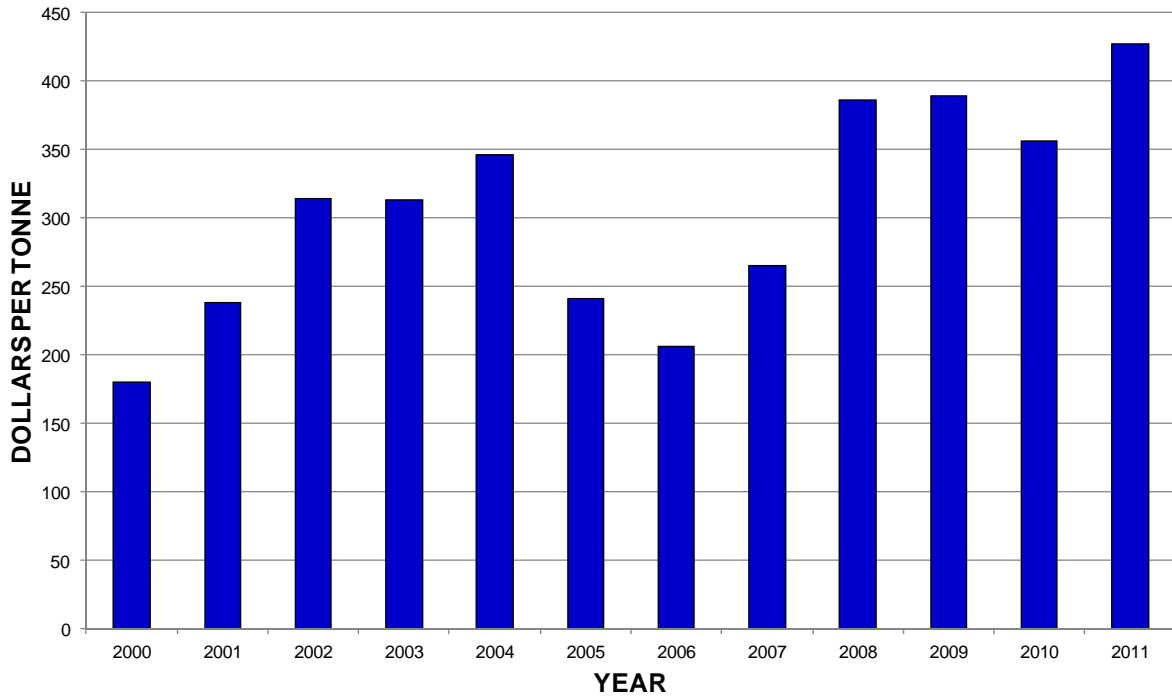
Soybean Production in Manitoba 2000 - 2011



Source: Statistics Canada

Industry Intelligence Section, MAFRI

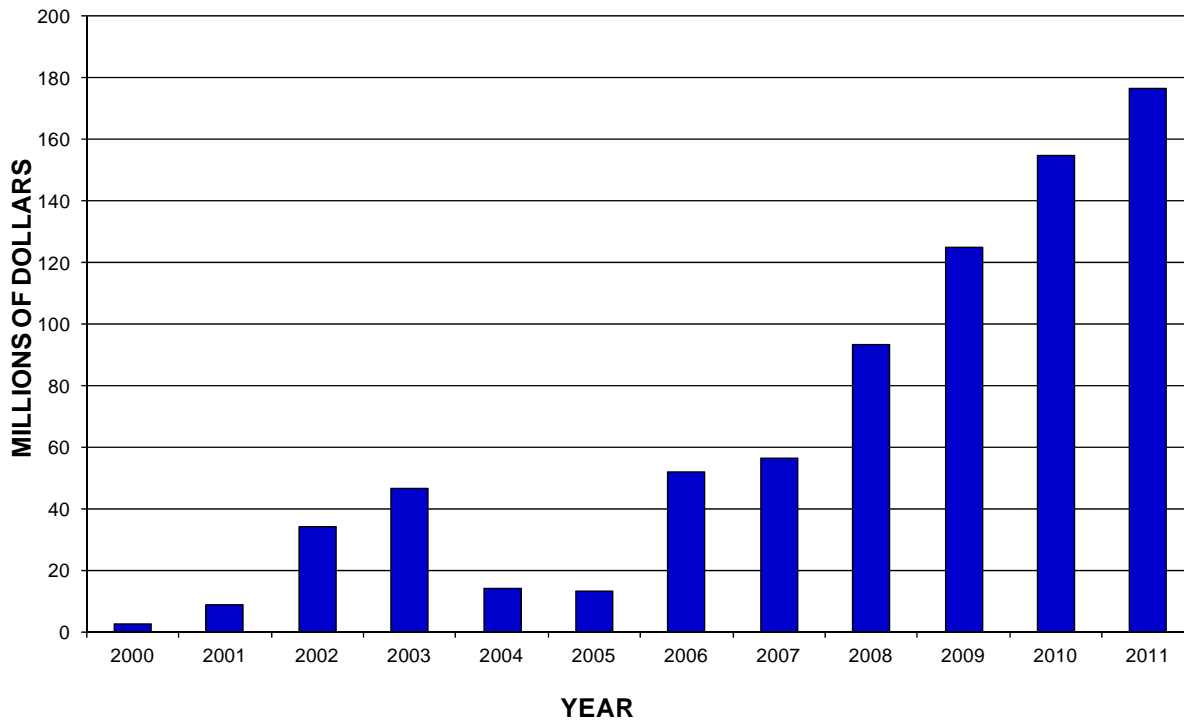
Soybean Prices in Manitoba 2000 - 2011



Source: Statistics Canada

Industry Intelligence Section,

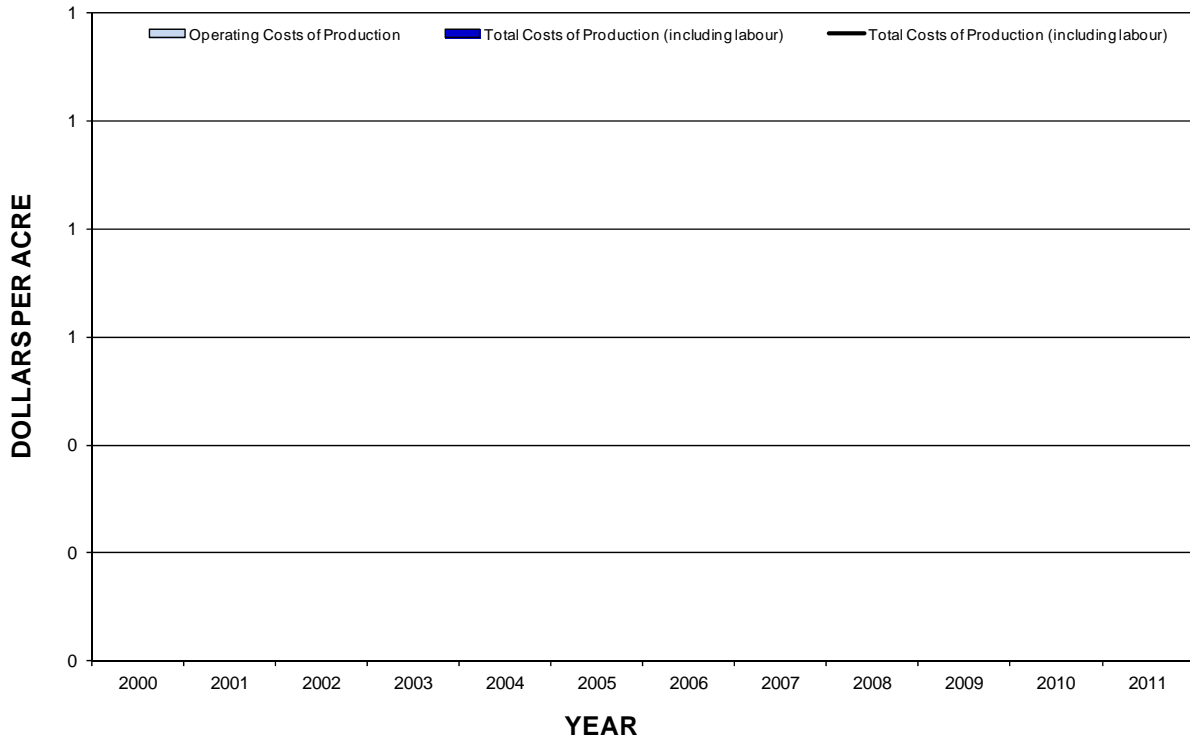
Value of Soybean Production in Manitoba 2000 - 2011



Source: STC, AAFC, MAFRI

Industry Intelligence Section, MAFRI

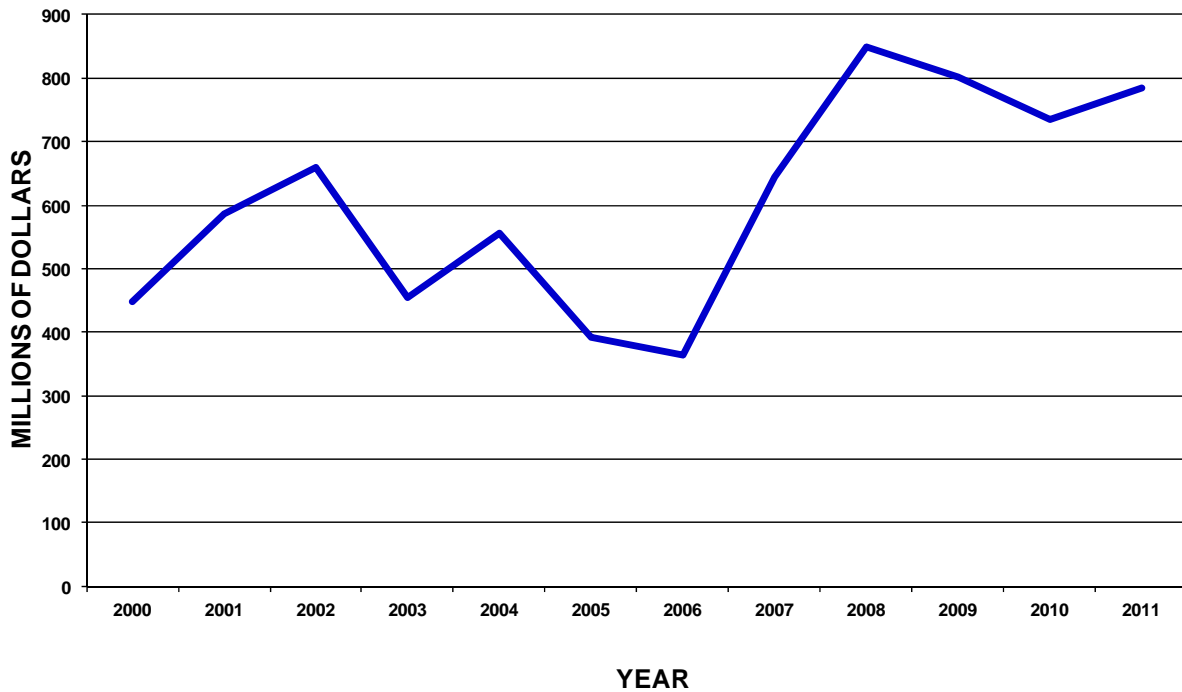
Cost of Soybean Production in Manitoba 2000 – 2011



Source: MAFRI

Industry Intelligence Section, MAFRI

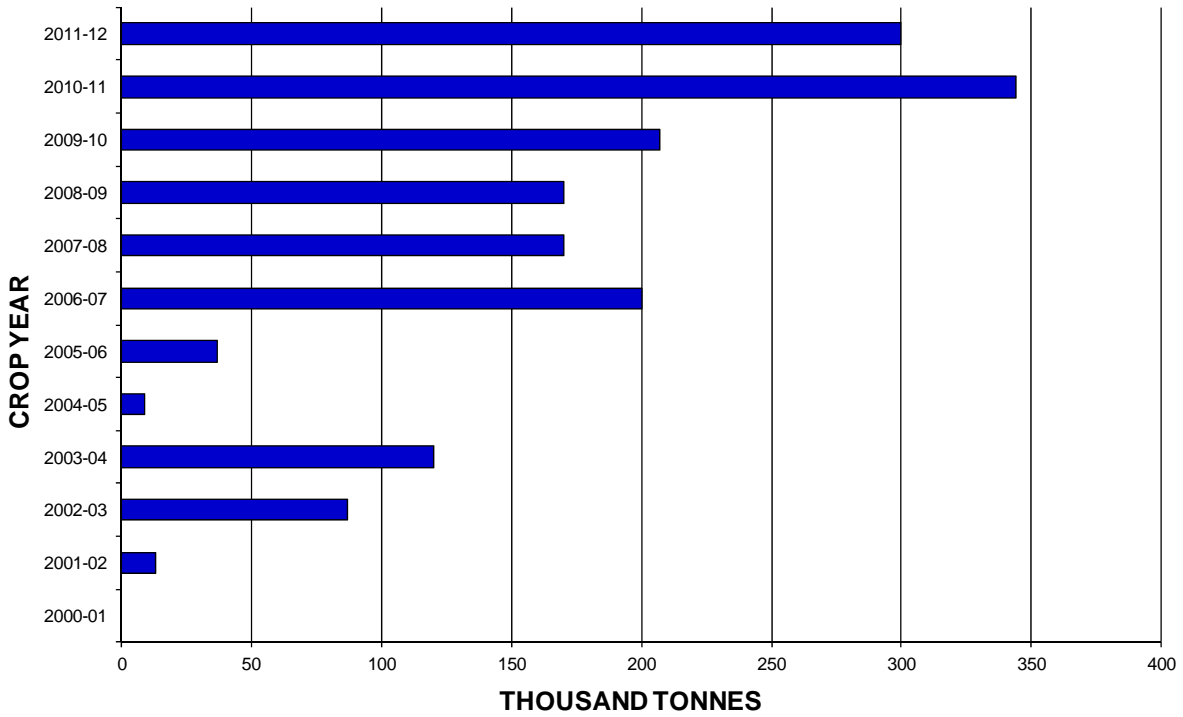
Farm Cash Receipts for Soybeans in Manitoba 2000 – 2011



Source: Statistics Canada

Industry Intelligence Section, MAFRI

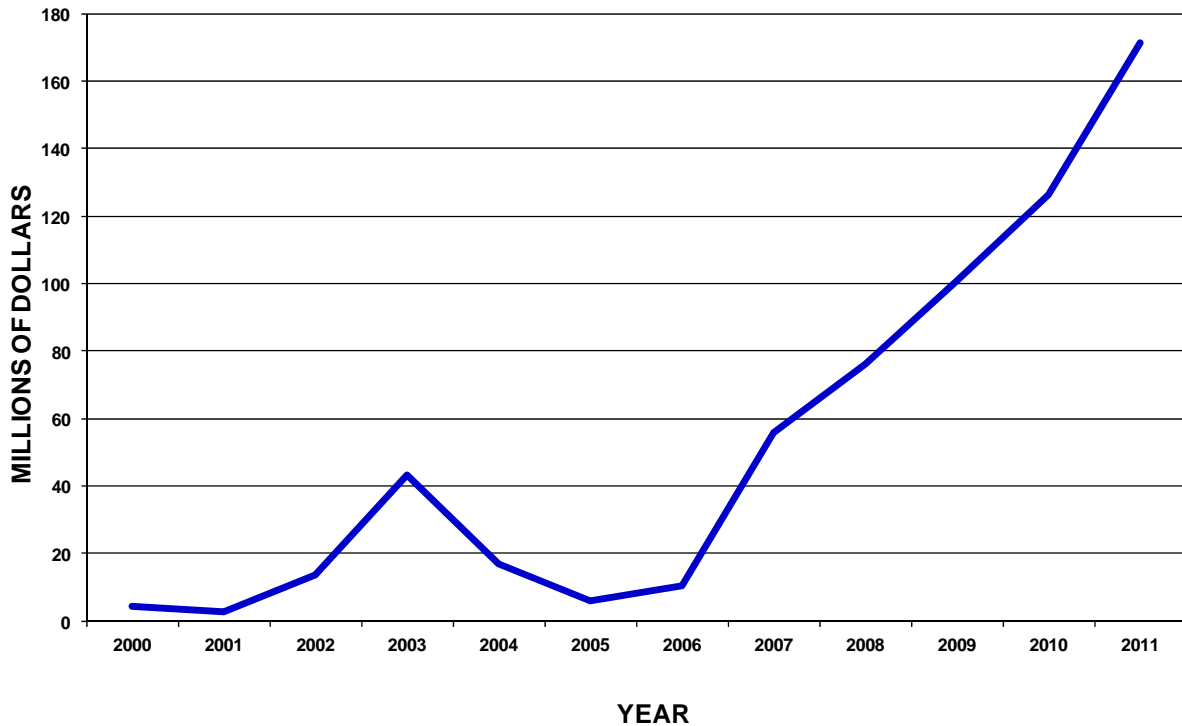
Marketings of Manitoba Soybeans 2000 - 2011



Source: STC, AAFC, MAFRI

Industry Intelligence Section, MAFRI

Manitoba Soybean Exports 2000 - 2011



Source: Statistics Canada

Industry Intelligence Section, MAFRI

Farm Supply and Disposition of Manitoba Soybean Crop, 2000/01 to 2011/12

<i>000 tonnes</i>	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
Opening Stocks Aug1	2	15	35	20	9	10	20
Production	56	252	212	242	321	435	414
Total Supply	58	267	247	262	330	445	434
Marketings	37	200	170	170	207	344	300
Seed	0	0	0	0	0	0	0
Carry-over	15	35	20	9	10	20	30
Feed/Waste/Dockage	6	32	57	83	113	81	104
Total Disposition	58	267	247	262	330	445	434

<i>000 pounds</i>	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
Opening Stocks Aug1	73	551	1,286	735	331	367	735
Production	2,058	9,259	7,790	8,892	11,795	15,984	15,212
Total Supply	2,131	9,811	9,076	9,627	12,126	16,351	15,947
Marketings	1,360	7,349	6,246	6,246	7,606	12,640	11,023
Seed	0	0	0	0	0	0	0
Carry-over	551	1,286	735	331	367	735	1,102
Feed/Waste/Dockage	220	1,176	2,094	3,050	4,152	2,976	3,821
Total Disposition	2,131	9,811	9,076	9,627	12,126	16,351	15,947

- **SOYBEANS - Common Conversions**
 1 metric tonne soybeans = 36.744 bushels.
 There are 60 lbs in 1 bushel of soybeans.

Production and Value of Manitoba Soybeans

Year	Seeded Area (hectares)	Harvested Area (hectares)	Average Yield (kg per ha)	Production (tonnes)	Price/Tonne (\$/tonne)	Total Value (\$000)
1998	7,300	7,300	1,980	14,454	259	3,744
1999	2,000	2,000	2,040	4,080	173	706
2000	8,100	8,100	1,950	15,795	180	2,843
2001	20,200	20,200	1,800	36,700	238	8,727
2002	52,600	52,600	2,100	108,900	314	34,189
2003	89,000	89,000	1,700	149,700	313	46,849
2004	78,900	40,500	1,000	40,800	347	14,137
2005	40,500	38,400	1,500	55,800	242	13,477
2006	141,900	141,600	1,800	252,300	207	52,123
2007	93,100	91,100	2,300	212,300	265	56,293
2008	113,300	111,300	2,200	242,200	386	93,450
2009	167,900	161,900	2,000	321,100	389	124,962
2010	210,400	206,400	2,100	435,400	356	155,046
2011	232,700	230,700	1,800	413,700	427	176,704

Year	Seeded Area (acres)	Harvested Area (acres)	Average Yield (bu per acre)	Production (000 bushels)	Price per Bushel (\$/bushel)	Total Value (\$000)
1998	18,000	18,000	29.5	531	7.05	3,744
1999	5,000	5,000	30.5	153	4.63	706
2000	20,000	20,000	29.0	580	4.90	2,843
2001	50,000	50,000	27.0	1,350	6.46	8,727
2002	130,000	130,000	30.8	4,000	8.55	34,189
2003	220,000	220,000	25.0	5,500	8.52	46,849
2004	195,000	100,000	15.0	1,500	9.42	14,137
2005	100,000	95,000	21.6	2,050	6.57	13,477
2006	350,567	350,000	26.5	9,270	5.62	52,123
2007	230,000	225,000	34.7	7,800	7.22	56,293
2008	280,000	275,000	32.4	8,900	10.50	93,450
2009	415,000	400,000	29.5	11,800	10.59	124,962
2010	520,000	510,000	31.4	16,000	9.69	155,046
2011	575,000	570,000	26.7	15,200	11.63	176,704

SOURCE: Statistics Canada; Agriculture and Agri-Food Canada; Manitoba Agriculture, Food and Rural Initiatives.