



Bi-weekly Bulletin

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SUNFLOWER SEED: SITUATION AND OUTLOOK

Canada is a major producer of sunflower seed, both the confectionery and oilseed types. There is a large sunflower seed processing industry in western Canada, which includes a human food market, snacks and kernels, as well as a bird seed market. The value of Canadian sunflower seed exports rose to \$63 million in 2006-2007. For 2007-2008, Canadian production is estimated to decrease from 2006-2007 due to higher abandonment and lower yields, as the seeded area is similar to 2006-2007. This issue of the *Bi-weekly Bulletin* examines the situation and outlook for sunflower seed.

WORLD

Production and Trade

World sunflower seed production has been variable during the past ten years, ranging from a low of 21.4 million tonnes (Mt) in 2001-2002 to a high of 30.1 Mt in 2006-2007, but there has been a slight upward trend. There are two types of sunflower seed produced, oilseed and confectionery. More than 90% of world production is the oilseed type and the remainder the confectionery type.

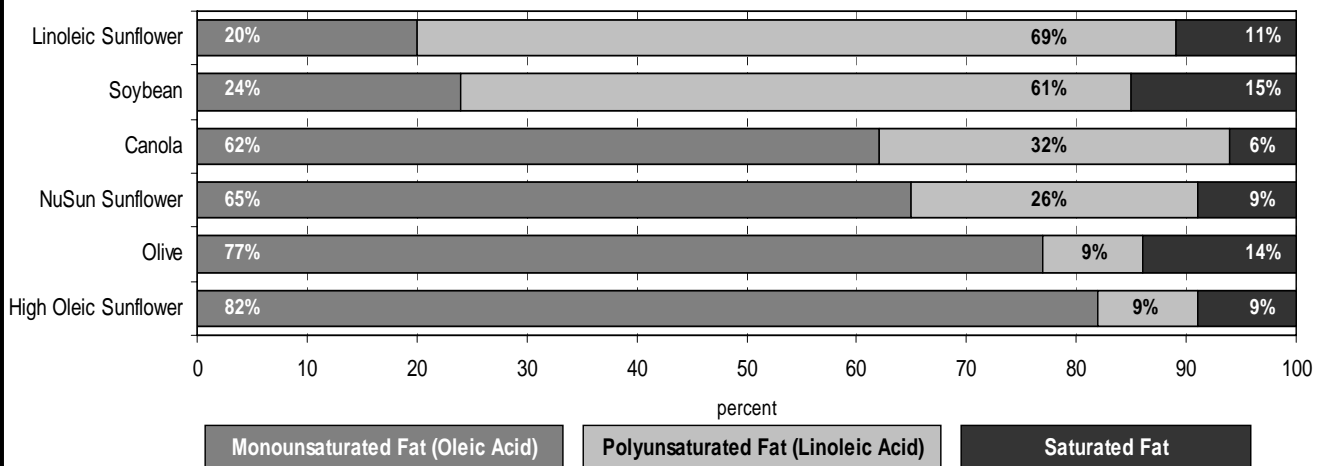
Sunflower seed exports have been variable, in line with the variability in production, ranging from 1.21 Mt to 2.27 Mt during the past four years. The European Union (EU), Russia, Ukraine, the United States (US), China, Argentina and Canada are the largest exporters. The EU and Turkey account for most of the imports. The US, Canada and China are the main exporters of confectionery sunflower seeds, with the EU, Mexico and the Middle East being the main destinations, excluding trade between Canada and the US.

UNITED STATES AND CANADA

Oil Sunflower Seed

The majority of the oil sunflower seeds are crushed after the hull is removed. The hull represents about 15% of the seed weight. Dehulled seed yields 45-50% oil and 50-55% meal. The oil is used for frying or to produce salad dressing, shortening and margarine. The meal is used as a protein supplement in livestock feed and usually contains about 35% protein. The hulls are used mostly for livestock bedding, with some used as a source

VEGETABLE OILS:
COMPARISON OF FATTY ACID COMPOSITION



Source: US National Sunflower Association

of fibre for cattle feed. Use of oil sunflower seed by the bird seed industry is growing. In Canada, the majority of the oilseed type seed is used by the bird seed industry. Less frequently, sunflower seeds are used for cattle feed. Usually damaged seed is used, but good quality seed is sometimes used in dairy cattle rations.

There are three kinds of oil sunflower seed produced in the US and Canada: linoleic (traditional), mid-oleic (NuSun) and high oleic. Oil from all three kinds has low saturated fat, but the oleic acid (monounsaturated fat) and linoleic acid (polyunsaturated fat) profiles vary.

Linoleic (traditional) sunflower seed oil contains about 69% polyunsaturated fat, 20% monounsaturated fat and 11% saturated fat. It accounts for nearly all of the sunflower seed oil produced outside the US.

Oil produced from **NuSun** hybrids contains about 65% monounsaturated fat, 26% polyunsaturated fat and 9% saturated fat. The 69% linoleic acid (polyunsaturated fatty acid) content of oil from traditional hybrids has been reduced to 26%, which means that partial hydrogenation, bubbling hydrogen into the oil, is not necessary for oil produced from NuSun hybrids. Since there is no hydrogenation, there is no formation of trans fatty acids.

There are several advantages to NuSun oil. First, the costs of partial hydrogenation are avoided since it holds up longer in frying vats without flavour deterioration. Second, trans fatty acids, which are considered to be unhealthy, are not present because there is no partial hydrogenation. Third, end user costs are lower since it is not necessary to replace the oil as frequently during frying as with other vegetable oils. Finally, at frying temperatures, NuSun oil produces more flavour-stable snack food.

Commercial production of NuSun hybrids started in the US in 1998 and has increased significantly since then to meet market demand. The development of NuSun has shifted sunflower oil use in the US to domestic markets from export markets. In recent years, about 80% of the US oil sunflower seed production has been from NuSun hybrids. NuSun hybrids are also produced in Canada, but their acceptance has not been as fast as in the US because most of the Canadian oil sunflower seed is sold into the bird seed market.

High oleic oil contains about 82% monounsaturated fat, 9% polyunsaturated fat and 9% saturated fat. It is a premium oil used in applications where high monounsaturated fat levels are required such as spray coating oils for cereal, crackers and dried fruit.

As the production of NuSun and high oleic oil increased in the US and the production of linoleic oil decreased, total US **oil exports** decreased, but exports to Canada increased. Canada has become the main market for US sunflower seed oil and nearly all of the sunflower seed oil used in Canada is imported from the US.

Confectionery Sunflower Seed

Confectionery sunflower seeds are larger, average lower yields and have lower oil content than oil sunflower seeds. Large seeds are generally processed by roasting, seasoning and packaging for the snack food market. Medium seeds are generally de-hulled and the kernels are used mainly in baking, although some are also used in the snack food market. Sunflower seeds are an excellent source of protein and the trace mineral selenium, and deliver the following nutrients: vitamin B6, folate, vitamin E,

WORLD: SUNFLOWER SEED SUPPLY AND DISPOSITION

	2003	2004	2005	2006	2007
	-2004	-2005	-2006	-2007	-2008f
Harvested Area (kha)	23,287	21,369	23,117	23,841	22,829
Average Yields (t/ha)	1.15	1.19	1.30	1.26	1.20
thousand tonnes.....				
Russia	4,850	4,800	6,450	6,750	5,700
European Union	6,155	6,463	5,958	6,483	4,470
Argentina	3,240	3,600	3,800	3,500	4,400
Ukraine	4,252	3,050	4,700	5,300	4,000
China	1,743	1,552	1,927	1,900	1,800
India	1,700	1,224	1,550	1,280	1,650
United States	1,209	930	1,823	972	1,312
Turkey	600	650	750	850	700
South Africa	651	620	520	309	570
Pakistan	262	329	348	520	560
Canada*	142	52	84	157	125
Others	<u>2,087</u>	<u>2,132</u>	<u>2,084</u>	<u>2,124</u>	<u>2,089</u>
Total Production	26,891	25,402	29,994	30,145	27,376
Carry-in Stocks	<u>2,227</u>	<u>2,960</u>	<u>2,508</u>	<u>2,816</u>	<u>2,490</u>
Total Supply	29,118	28,362	32,502	32,961	29,866
Total Use	26,158	25,854	29,686	30,471	27,751
Carry-out Stocks	2,960	2,508	2,816	2,490	2,115
Stocks-to-use ratio	11%	10%	9%	8%	8%

f: forecast, USDA, except *AAFC, October 2007

Source: USDA, except *Statistics Canada - October 2007

magnesium, pantothenic acid, fibre, iron, thiamin, copper and zinc. Smaller seeds are generally sold into the bird seed market. Some low quality seeds are used for cattle feed.

CANADA

Production

Sunflowers grow best on loam, silty loam, and silty clay loam soils with good drainage. They have a low

tolerance for saline conditions; therefore soils with moderate to high levels of salinity should be avoided. Sunflowers have a deep tap root that can obtain water and nutrients 1.5-1.8 metres (5-6 feet) deep in the soil. These reserves of water and nutrients are unavailable to most other annual crops, making sunflowers a good rotational crop. Sunflowers should be seeded as early as possible, usually in the first half of May, since they require 115-125 days to reach maturity. Canadian sunflower seed production fell sharply in the mid-1990s when crushing ended in Canada. However, it recovered somewhat in the late 1990s with most of the increase for the confectionery type, which has become the main type produced. Manitoba accounts for a large majority of the production, followed by Saskatchewan, Alberta and Ontario. However, for 2006-2007 and 2007-2008 production data is only available for Manitoba. The Canadian sunflower seed harvest occurs mainly in October.

Sunola and Sunwheat

Shorter season oilseed type varieties have been developed for areas of Canada where the traditional hybrids cannot be grown. They have the further advantage of being able to be sown and harvested with the same equipment as cereal grains or canola, whereas the traditional hybrids require specialized equipment. **Sunola** is a miniature, open pollinated sunflower, which requires 99-103 days to maturity. The oil content is equal to sunflower hybrids. **Sunwheat** is a dwarf hybrid sunflower and requires 100-110 days to maturity. Its oil content is slightly lower than Sunola. It is more suited to the arid areas and able to withstand periods of summer heat better than some other crops. Both Sunola and Sunwheat have lower yields than sunflower hybrids and are not grown extensively.

CANADA: SUNFLOWER SEED SUPPLY AND DISPOSITION

<i>August-July crop year</i>	2003	2004	2005	2006	2007
	-2004	-2005	-2006	-2007	-2008f
Seeded Area (kha)	108	81	87	77	77
Harvested Area (kha)	106	55	71	77	75
Yield (t/ha)	1.34	0.95	1.18	2.04	1.67
.....thousand tonnes.....					
Carry-in stocks	35	25	15	27	23
<i>Production:</i>					
<i>Confectionery</i>	78	34	59	117	78
<i>Oilseed</i>	<u>64</u>	<u>18</u>	<u>25</u>	<u>40</u>	<u>47</u>
Total Production	142	52	84	157	125
Imports	<u>16</u>	<u>35</u>	<u>26</u>	<u>12</u>	<u>15</u>
Total Supply	193	112	125	196	163
<i>Exports</i>					
<i>United States</i>	84	27	31	97	70
<i>Middle East & Africa</i>	4	1	6	18	14
<i>Central and South America</i>	3	3	7	4	4
<i>Europe</i>	4	1	1	1	1
<i>Asia & Oceania</i>	<u>1</u>	<u>0</u>	<u>1</u>	<u>1</u>	<u>1</u>
Total Exports	96	32	46	121	90
Total Domestic Use	<u>72</u>	<u>65</u>	<u>52</u>	<u>52</u>	<u>53</u>
Total Use	168	97	98	173	143
Carry-out Stocks	25	15	27	23	20
Stocks-to-use ratio (%)	15%	15%	28%	13%	14%
Seeded Area (kac)	267	200	215	190	190
Harvested Area (kac)	262	136	175	190	185
Yield (lb/ac)	1,195	844	1,056	1,819	1,487
<i>Average producer price*</i>					
<i>Confectionery</i>					
\$/t	474	661	375	408	463
\$/lb	21.5	30.0	17.0	18.5	21.0
<i>Oilseed</i>					
\$/t	331	375	287	353	441
\$/lb	15.0	17.0	13.0	16.0	20.0

* Manitoba, No. 1 Canada grade

Notes:

For 2006-2007 and 2007-2008, area and production estimates are only for Manitoba. For 2005-2006, area and production estimates are for Manitoba and Saskatchewan. For 2003-2004 and 2004-2005, area and production estimates are for Manitoba, Saskatchewan and Alberta.

f: forecast, Agriculture and Agri-Food Canada, October 2007

Source: Statistics Canada and AAFC

Marketing

Sunflower seed is sold on the open market to dealers and processors located mostly in Manitoba and Alberta. Sunflower seed is mostly shipped bulk in trucks or rail hopper cars. Containers are used for shipment to some overseas markets. Some sunflower seed is grown under production contracts which guarantee a price for part of the production.

The Canadian Special Crops

Association (CSCA)

(www.specialcrops.mb.ca) establishes trade rules for domestic trade and serves as a forum for exporters, dealers and brokers involved in the industry of trading Canada's pulses and special crops, including sunflower seed. The CSCA's website includes a section where buyers can submit a request for prices.

The Canadian Grain Commission

(CGC) administers quality control standards for sunflower seed. There are two grades for each type of sunflower seed. In addition, sunflower seed can be graded "Sample" if it does not meet the specifications for the two grades. For further information, or to access the Official Grain Grading Guide, please visit the CGC website: (www.grainscanada.gc.ca)

Exports

The majority of Canadian sunflower seeds exports are to the US, with the balance going mostly to, the Middle East, northern Africa and Latin America. In 2006-2007, the United Arab Emirates (UAE) became the most significant importer after the US. From the UAE, the seed is distributed throughout the Persian Gulf region. Other major importing countries are Syria, Mexico and Algeria. Exports to the US are both oilseed and confectionery types, while exports to other parts of the world are mainly the confectionery type. In addition to the seed, prepackaged snack food,

dehulled sunflower seed and bird seed are also exported.

Domestic Use

The Canadian domestic use estimate includes food, feed, seed, dockage and waste. Sunflower seed crushing in Canada stopped in 1995, but the crush use has been replaced by increased processing of confectionery sunflower seed and increased use for bird seed. In recent years, some very small scale crushing operations have started. The markets for in-shell snack food, dehulled snack food, baking and bird seed have increased significantly.

Prices

In general, Canadian sunflower seed prices follow US prices adjusted by

exchange rates. Oil sunflower seed prices are affected by the supply and demand factors for vegetable oil and, to a lesser extent, protein meal. However, since US oil sunflower seed production shifted to the NuSun varieties, the main influences on prices has been US supply. Confectionery sunflower seed prices depend on supply and demand conditions in the confectionery market. The main impact on confectionery sunflower seed prices is total US and Canadian supply as these countries account for most of the world confectionery sunflower seed trade. China is the only other significant exporter of confectionery sunflower seed. Bird seed sunflower prices mostly follow the prices of the oilseed type. Top grade prices of both

WORLD: SUNFLOWER SEED EXPORTS					
	2003	2004	2005	2006	2007
	-2004	-2005	-2006	-2007	-2008f
thousand tonnes.....				
Russia	311	45	396	180	290
European Union	387	518	355	800	252
Ukraine	928	12	220	336	180
United States	170	141	178	190	166
China	74	114	113	102	115
Argentina	46	107	45	85	110
Canada*	96	32	46	121	90
Other	<u>261</u>	<u>245</u>	<u>139</u>	<u>82</u>	<u>95</u>
Total	2,273	1,214	1,492	1,896	1,298
WORLD: SUNFLOWER SEED IMPORTS					
	2003	2004	2005	2006	2007
	-2004	-2005	-2006	-2007	-2008f
thousand tonnes.....				
European Union	1,066	413	627	660	500
Turkey	660	529	345	419	380
United States	90	44	39	111	84
Morocco	61	18	66	50	20
Canada*	16	35	26	12	15
Mexico	36	11	17	15	14
Pakistan	136	1	5	280	10
Other	<u>103</u>	<u>83</u>	<u>115</u>	<u>144</u>	<u>118</u>
Total	2,168	1,134	1,240	1,691	1,141

f: forecast, USDA, except *AAFC, October 2007

Source: USDA - October 2007

confectionery and oilseed types increased in 2006-2007 from 2005-2006 because of the lower total US and Canadian supply.

OUTLOOK: 2007-2008

World

Total world sunflower seed production and supply are forecast to decrease by 9% from 2006-2007 to 27.4 Mt and 29.9 Mt, respectively. Total use is expected to fall due to the lower supply and carry-out stocks are forecast to decrease.

United States

US sunflower seed production is estimated to increase by 35% to 1,312,000 tonnes (t), because of a 6% higher seeded area, lower abandonment and higher yields. The term "abandonment" refers to the area which was not harvested because of crop damage. Supply is forecast to increase by 10% to 1,449,000 t, as lower carry-in stocks offset most of the increase in production. Oil sunflower seed production is forecast to increase by 39% to 1,130,000 t and supply to increase by 10% to 1,188,000 t.

Confectionery sunflower seed production is forecast to increase by 13% to 182,000 t and supply to increase by 7% to 261,000 t.

Canada

Canadian sunflower seed production is estimated to decrease by 20% to 125,000 t, with a stable seeded area, higher abandonment and lower yields. There has been some shift in production from the confectionery type to the oilseed type as Canadian producers became more interested in growing NuSun varieties because of attractive contract prices and delivery points in Canada offered by US crushers, and the development of hybrids which are more suitable for Canadian growing conditions. Oilseed type production is expected to increase by 18% to 47,000 t, while confectionery type production decreases by 33% to 78,000 t. Quality is expected to be normal. Supply is estimated to decrease by 17% to 163,000 t, due to the lower production. Exports are forecast to decrease due to the lower supply, while domestic use remains relatively stable because the confectionery and bird seed processing plants need sufficient supply to maintain their markets. Carry-out stocks are forecast to decrease to 20,000 t, with a stocks-to-use ratio of 14%.

Total Canada and United States

Oil sunflower seed production is forecast to increase by 38% to 1,177,000 t, while supply increases by 9% to 1,243,000 t. Confectionery sunflower seed production is forecast to decrease by 5% to 260,000 t and supply to decrease by 6% to 354,000 t.

Prices

For both types, the average Canadian price is forecast to increase from 2006-2007 levels. Prices of both types are expected to be supported by the lower world supply and strong commodity prices. In addition, prices of the oilseed type are expected to be supported by stronger demand and of the confectionery type by lower total US and Canadian supply.

LONGER TERM OUTLOOK: CANADA

Production of confectionery sunflower seed is expected to grow moderately in line with the growth in demand. The sunflower seed industry has been developing new products, such as spreads and snacks made from sunflower seed kernels, which are expected to increase demand.

Oil sunflower seed production is also expected to grow, but the rate of increase will depend on the growth in demand for NuSun oil and, to a lesser extent, on the growth in demand for bird seed. A continuing strong increase in demand for NuSun oil and attractive prices could result in a faster increase in Canadian oil sunflower seed production and possibly a return to large scale sunflower seed crushing in Canada.

UNITED STATES: SUNFLOWER SEED OIL SUPPLY AND DISPOSITION					
	2003	2004	2005	2006	2007
	-2004	-2005	-2006	-2007	-2008f
thousand tonnes.....				
Carry-in stocks	12	18	10	25	30
Production	270	120	247	287	295
Imports	<u>12</u>	<u>34</u>	<u>26</u>	<u>66</u>	<u>23</u>
Total Supply	294	172	283	378	348
<i>Exports to Canada</i>	20	45	49	56	56
Total Exports	107	57	95	79	59
Domestic Use	<u>169</u>	<u>105</u>	<u>163</u>	<u>269</u>	<u>259</u>
Total Use	276	162	258	348	318
Carry-out Stocks	18	10	25	30	30
Stocks-to-use ratio (%)	7%	6%	10%	9%	9%

f: forecast, USDA, October 2007

Source: USDA

The demand for NuSun oil is expected to continue growing, especially in the snack food market and the fast food industry. The labelling regulations which require the listing of the amount of trans fatty acids will contribute to the growth in demand.

Research is underway to develop hybrids that are tolerant to *sclerotinia*, the most devastating disease of sunflowers. Sclerotinia tolerant hybrids would decrease the risk of producing sunflower seed and improve producers' financial returns.

Although oil from sunflower seed can be used to manufacture biodiesel, the price premium over other oils may make it prohibitive to use sunflower seed oil for biodiesel.

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UNITED STATES AND CANADA: TOTAL OIL SUNFLOWER SEED SUPPLY AND DISPOSITION					
	2003	2004	2005	2006	2007
	-2004	-2005	-2006	-2007	-2008f
.....thousand tonnes.....					
Carry-in stocks	168	139	73	283	66
<i>Production:</i>					
<i>United States</i>	1,025	800	1,442	811	1,130
<i>Canada</i>	<u>64</u>	<u>18</u>	<u>25</u>	<u>40</u>	<u>47</u>
Total Production	1,089	818	1,467	851	1,177
Total Supply	1,257	957	1,540	1,134	1,243
Total Use	1,118	884	1,257	1,068	1,184
Carry-out Stocks	139	73	283	66	59
Stocks-to-use ratio	12%	8%	23%	6%	5%

UNITED STATES AND CANADA: TOTAL CONFECTIONERY SUNFLOWER SEED SUPPLY AND DISPOSITION					
	2003	2004	2005	2006	2007
	-2004	-2005	-2006	-2007	-2008f
.....thousand tonnes.....					
Carry-in stocks	66	49	32	100	94
<i>Production:</i>					
<i>United States</i>	184	130	381	161	182
<i>Canada</i>	<u>78</u>	<u>34</u>	<u>59</u>	<u>117</u>	<u>78</u>
Total Production	262	164	440	278	260
Total Supply	328	213	472	378	354
Total Use	279	181	372	284	284
Carry-out Stocks	49	32	100	94	70
Stocks-to-use ratio	18%	18%	27%	33%	25%
Excludes imports as US imports are mainly from Canada and Canadian imports are mainly from the US.					
f: forecast, USDA and AAFC, October 2007					
Source: USDA, Statistics Canada and AAFC estimates, October 2007					

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