

Bi-weekly Bulletin

May 11, 2001

Vol. 14 No. 8

MUSTARD SEED: SITUATION AND OUTLOOK

Canada is normally the second largest producer of mustard seed in the world and accounts for about 75-80% of world exports. The value of Canadian mustard seed exports has averaged about \$90 million during the past 4 years. Canadian production, including yellow, brown, and oriental types, is forecast to decrease sharply by 40% in 2001-2002 in line with lower seeded area, with the total supply decreasing by 34%. The lower total supply is expected to support prices. Therefore, the average price, over all 3 types, is forecast to increase by 22%. This issue of the *Bi-weekly Bulletin* examines the situation and outlook for mustard seed.

BACKGROUND

Agronomics

Production of mustard seed in Canada started in 1952. The three types of mustard seed produced are yellow (*Sinapis alba*), brown, and oriental (both *Brassica juncea*). Mustard seed can be grown on most soil types, but is best adapted to the brown and dark brown soils. Soils prone to crusting and dry, sandy soils are not recommended. All mustard seed types tolerate drought conditions better than canola. To minimize the effect of sclerotinia, mustard seed should not be seeded in the same field more than one year in four. Fields should be free of wild mustard and volunteer oilseed crops. Mustard seed fits well in a rotation with cereal grains. Mustard seed requires 90-95 days to mature and the seedlings are quite tolerant of frost. Early seeding is recommended to avoid flowering during the hottest part of the summer, thereby improving yields. Yellow mustard seed is resistant to shattering and therefore can be straight-combined. Full seed maturity is necessary to produce a good quality crop. Brown and oriental mustard seeds are less resistant to shattering and are usually swathed. Brown and oriental mustard seed should be swathed when about 75% of the seeds have reached their mature colour (yellow or brown). Mustard seed is ready to combine

when seed moisture reaches 12-13% or less and no green seed can be found. For long-term storage, mustard seed moisture levels should be under 9.5% to minimize spoilage.

Uses

Yellow mustard seed is suitable for a wide range of applications, including dry milling for flour, wet milling for mustard pastes, and whole ground seed for spice mixes, meat processing and other food products. It is the type of mustard seed used for processing into the North American hot dog mustard, which uses the whole seed for a milder product. In processed meats, it is used as a binder and a protein extender, and to enhance the flavour. Since there are several varieties of yellow mustard seed grown in Canada, there is a range of mucilage (a gummy substance) contents available, allowing processors to blend varieties to reach a standard viscosity. Dry milled flour is used for condiments and as an ingredient in compounded products. The extracted seed hulls

are used for thickening and stabilization in mustard and other prepared foods. Yellow mustard seed can also be ground for use as an ingredient for the prepared meat industry, where it contributes to total protein and the gelling of the mucilage increases water absorption into the product, which provides enhanced economy and improved efficiency in the smooth moulding of shaped products. Heat inactivated (spice heat removed) whole ground seed is used as an ingredient in many food products providing colour, flavour, viscosity and

WORLD: MUSTARD SEED PRODUCTION *

	1997 -1998	1998 -1999	1999 -2000	2000 -2001	2001 -2002f
.....thousand tonnes.....					
Canada**	243	239	306	202	120
Nepal	119	110	120	123	120
Russia	58	68	43	33	35
Czech Republic	18	37	45	14	20
United States***	27	37	22	17	19
Myanmar	8	10	13	13	13
China	10	10	12	12	12
Romania	4	7	9	12	12
Other	21	20	17	17	19
World	508	538	587	443	370

* partial

Note: India, Pakistan, and Bangladesh are important producers, but mustard seed production data for these countries is not available as it is combined with rapeseed production data.

f: forecast, AAFC, May 2001

Source: FAO, except **Statistics Canada, ***USDA, May 2001



emulsification. The oil content of yellow mustard seed is about 27%.

Brown mustard seed is ground into flour which is used to produce a hot mustard used in European products. The flour is also used in mayonnaise, salad dressing and sauces. The oil content of brown mustard seed is about 36%.

Canadian oriental mustard seed varieties have been bred for specific levels of oil and volatility to meet alternative market requirements. High volatility, high oil content oriental mustard seed varieties are suitable for the oilseed demand in the Indian sub-continent, while low volatility, low oil content mustard seed varieties are suitable for dry milling purposes. Stronger flavoured oriental mustard seed varieties are also available if the miller or processor requires it. There are oriental mustard seed varieties grown in Canada that have oil contents as high as 50%, although the average oil content is about 39%.

WORLD

Production

India produces the bulk of world mustard seed. However production data for India, as well as two other significant producers Pakistan and Bangladesh, is not available since these countries combine mustard seed production data with rapeseed production. Unofficial estimates for mustard seed production in these countries are about 2.5 million tonnes (Mt) for India and about 150,000 tonnes (t) each for Pakistan and Bangladesh. Excluding these three countries, mustard seed production has increased from 357,000 t in 1991-1992 to a peak of 587,000 t in 1999-2000. For 2000-2001, production dropped sharply to 443,000 t mainly because of lower production in Canada, which is normally the second largest producer in the world. Other significant mustard seed producers are Nepal, Czech Republic, Russia, and the United States (U.S.).

Consumption and Trade

Mustard seed is typically consumed in the country where it is produced.

Mustard seed exports have increased from 180,000 t in the early 1990s to a peak of 284,00 t in 1996 and subsequently trended downward, with 233,000 t exported in 1999, the latest year for which world trade statistics are available. The timing of delivery accounts for the difference between export and import volumes. Canada dominates world mustard seed exports with a 75-80% share, if re-exports are

excluded. The only other significant exporters are the Czech Republic, Netherlands and Hungary. The top six importing countries are Bangladesh, U.S., Germany, France, Netherlands, and Japan. In total, they account for about 85% of world imports.

CANADA

Production

Canadian mustard seed production increased rapidly during the early 1990s before peaking at 319,000 t in 1994-1995. Production dropped in the following years, but rose sharply to 306,000 t in 1999-2000. For 2000-2001, production dropped sharply to 202,000 t, largely because of lower seeded area in response to high carry-in stocks. Saskatchewan dominates Canadian mustard seed production with 92% of the production in 2000-2001, followed by Alberta at 7% and Manitoba at 1%. Production by type varied from year to year depending on price prospects for each type of mustard seed. In 2000-2001, about 24% of the production was brown, 47% was oriental and 29% was yellow. Oriental mustard seed generally has the highest yield. The yields of brown and yellow mustard seed are about 5% and 20% lower than oriental, respectively. Since the costs of production are similar for all types, prices for brown mustard seed have to be about 5% higher and for yellow mustard seed about 25% higher compared to oriental mustard seed to encourage production of the brown and yellow types as compared to the oriental type.

Marketing

All of the mustard seed produced in Canada is sold on the open market to dealers. There are about twenty dealers across the Prairie provinces who buy, clean, and ship mustard seed to domestic and export markets. The dealers range from large corporations and co-operatives to small family-owned businesses. Mustard seed is shipped both bulk and in containers depending on the volume shipped and the destination. Deliveries to domestic and U.S. customers are in bulk in trucks or in containers which are carried by trucks or trains. Some mustard seed is grown

WORLD: MUSTARD SEED EXPORTS

<i>calendar year</i>	1995	1996	1997	1998	1999
thousand tonnes.....				
Canada	168	173	161	168	159
Czech Republic	6	12	15	12	23
Netherlands	13	14	13	13	11
Hungary	9	16	11	17	13
Russia	1	33	20	3	3
Other	<u>22</u>	<u>36</u>	<u>28</u>	<u>26</u>	<u>24</u>
Total	219	284	248	239	233

WORLD: MUSTARD SEED IMPORTS

<i>calendar year</i>	1995	1996	1997	1998	1999
thousand tonnes.....				
Bangladesh	115	80	45	101	52
United States	59	72	59	55	47
Germany	36	35	29	37	40
France	31	23	31	28	30
Netherlands	22	16	23	19	14
Japan	11	9	10	9	10
Other	<u>51</u>	<u>34</u>	<u>33</u>	<u>43</u>	<u>42</u>
Total	325	269	230	292	235

Note: The difference between imports and exports is attributed to the timing of delivery.

Source: FAO, May 2001

CANADA: MUSTARD SEED PRODUCTION BY TYPE

<i>August-July crop year</i>	1997 -1998	1998 -1999	1999 -2000	2000 -2001	2001 -2002f
.....thousand tonnes.....					
Brown	60	70	80	48	25
Oriental	68	74	150	95	40
Yellow	<u>115</u>	<u>95</u>	<u>76</u>	<u>59</u>	<u>55</u>
Total	243	239	306	202	120

f: forecast, AAFC, May 2001

Source: AAFC estimates based on Statistics Canada and industry reports

CANADA: MUSTARD SEED EXPORTS

<i>August-July crop year</i>	1997 -1998	1998 -1999	1999 -2000	2000 -2001f	2001 -2002f
.....thousand tonnes.....					
Europe	60	52	49	50	46
United States	61	51	52	52	52
South America & Central America	2	2	2	2	1
Asia	41	56	61	55	50
Other*	<u>2</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>
Total	166	162	165	160	150

* Middle East, Africa, and Oceania

f: forecast, AAFC, May 2001

Source: Statistics Canada

under production contracts, which guarantee a price for part of the production, and the rest is sold on the spot market. Market development activities are carried out under the leadership of the Canadian Special Crops Association, an industry organization representing traders, exporters, and processors.

The Saskatchewan Mustard Growers' Association was formed in 1997 to advance the production of mustard seed and promote the industry.

The Canadian Grain Commission administers quality control standards for mustard seed. There are four grades for each type of mustard seed. In addition, mustard seed can be graded sample if specifications for the four grades are not met.

Domestic Use

Canadian domestic use, which includes food, seed, dockage and waste, accounts for about 30% of the total use. It has been fairly stable at about 70,000 t during the past 4 years. There are several processors of mustard seed in Canada, concentrating on milling seed for its flour and for condiments. Most of the mustard seed processed in Canada is the yellow type, however some brown and oriental types are also milled mainly to be blended with yellow mustard flour for customers who want a spicier product.

Exports

Canadian mustard seed exports are mainly in the bulk, unprocessed form. Europe (mainly Belgium, Netherlands, Germany, France, Switzerland, and

the United Kingdom), Asia (mainly Bangladesh, India, and Japan), and the U.S. account for the majority of the exports. Europe imports mainly brown mustard seed, Asia mainly oriental and the U.S. mainly yellow. Canadian exports peaked at 220,000 t in 1993-1994 and decreased to a low of 141,000 t in 1996-1997. Exports recovered during the past 3 years and are forecast at 160,000 t for 2000-2001.

In addition to seed exports, some of the mustard seed flour produced in Canada is exported to the U.S. and other markets.

Prices

Canadian prices are determined on an export basis because Canada exports about 70% of its production. Therefore, they are highly sensitive to the value of the Canadian dollar in foreign markets. Average prices, over all three types, rose steadily during the 1990s until peaking at \$385 per tonne (/t) in 1997-1998. The average price decreased in the following 3 years and is forecast at \$265-285/t for 2000-2001. Prices of the yellow type are usually higher than for the brown and oriental types, however since yields of the yellow type are

CANADA: MUSTARD SEED SUPPLY AND DISPOSITION

<i>August-July crop year</i>	1997 -1998	1998 -1999	1999 -2000	2000 -2001f	2001 -2002f
Harvested Area (thousand ha)	292	279	273	208	123
Yield (t/ha)	0.83	0.86	1.12	0.97	0.98
.....thousand tonnes.....					
Carry-in Stocks	38	48	50	115	90
Production	243	239	306	202	120
Imports	<u>2</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>
Total Supply	283	288	357	318	211
Exports	166	162	165	160	150
Total Domestic Use	<u>69</u>	<u>76</u>	<u>77</u>	<u>68</u>	<u>56</u>
Total Use	235	238	242	228	206
Carry-out stocks	48	50	115	90	5
Stocks-to-Use Ratio (%)	20	21	48	39	2
Average producer price (\$/t)	385	350	285	265-285	320-350
Harvested Area (thousand ac.)	722	689	675	514	304
Yield (lb/ac.)	741	767	999	865	874
Production (Mlb)	536	527	675	445	265
Average producer price (\$/lb)	0.175	0.159	0.129	0.120	0.145
				-0.129	-0.159

f: forecast, AAFC, May 2001

Source: Statistics Canada and Agriculture and Agri-Food Canada

usually lower, earnings per hectare tend to be similar for all three types over the long-term. Since there is no futures market for mustard seed, prices are negotiated directly between the producer, dealer, and customer based on supply and demand factors for each type of mustard seed. The prices negotiated could be for immediate delivery or for delivery at some future date.

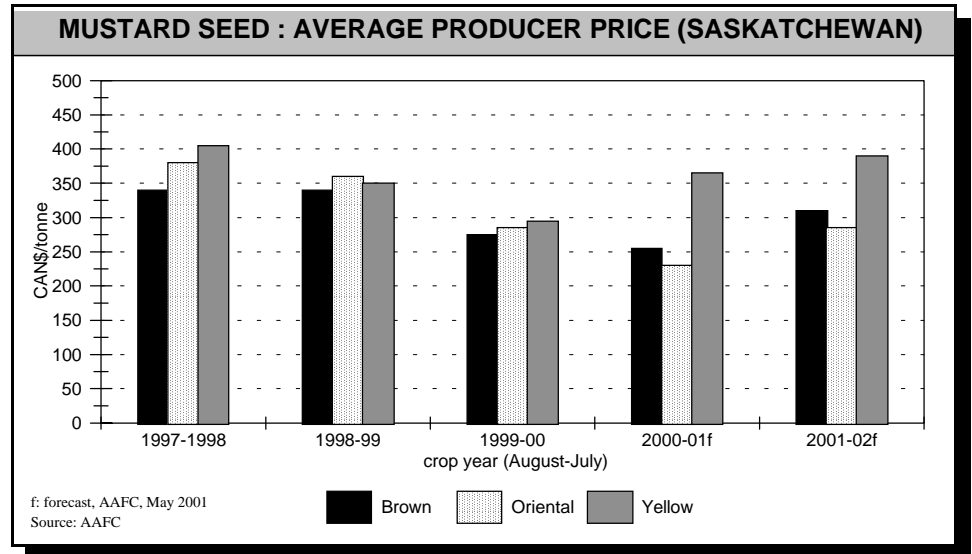
OUTLOOK: 2001-2002

World

Due to lower production in Canada, world mustard seed production (excluding India, Pakistan, and Bangladesh) is forecast to decrease by 16% to 370,000 t. This would be the lowest production level since 1992-1993. Total supply is also forecast to decrease by 17% to 500,000 t.

Canada

Area seeded is forecast to decrease sharply by 40%, according to Statistics Canada's seeding intentions survey which was conducted during the period of March 23-30, 2001 and released on April 24, 2001. The reasons for the expected decrease could include dry conditions in western Saskatchewan and Alberta during the survey period, as well as better expected financial returns for some alternative crops, such as spring wheat and chick peas. Assuming normal abandonment rates and yields, production is also forecast to decrease by 40% to 120,000 t. Since the price of yellow mustard seed is significantly higher, both for current and 2001-2002 contract prices, compared to brown and oriental types, the largest decrease in production is forecast for the oriental and brown types, with a smaller decrease for the yellow type. Therefore, about 21% of the production is expected to be the brown type, 33% the oriental type, and 46% the yellow type. Since the decrease in production is expected to be in Saskatchewan, that province's share of Canadian production is forecast to decrease to 79%, while Alberta's share increases to 17% and Manitoba's to 4%. Total supply is forecast to decrease by 34%. Carry-



in stocks for brown and oriental mustard seed are expected to be higher than for yellow mustard seed. However, since production of brown and oriental mustard seed is expected to drop more than for yellow mustard seed, the total supply is forecast to be tight for all three types. Therefore, exports and domestic use are forecast to decrease because of the lower supply. Carry-out stocks are forecast to decrease to a negligible level. The lower supply and strong demand are expected to support prices, with average prices increasing for all three types. Therefore, the average price, over all three types, is forecast to increase by about 22% to \$320-350/t, because of the lower supply and a shift to the production of the higher priced yellow type.

Seeding of mustard seed is underway, but many areas are still dry. Therefore, factors to watch include soil moisture conditions in the Canadian mustard seed growing areas, as well as Statistics Canada's actual seeded area report, which will be released on June 29, 2001.

For periodic updates on the situation and outlook for mustard seed, visit the Market Analysis Division Website for "Canada: Special Crops Situation and Outlook."

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Market Analysis Division Website:

<http://www.agr.ca/policy/winn/biweekly/index.htm>

The Bi-weekly Bulletin is published by the:
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Strategic Policy Branch,
Marketing Policy Directorate,
Agriculture and Agri-Food Canada,
500-303 Main Street
Winnipeg, Manitoba R3C 3G7
Telephone: (204) 983-8473
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