



## Canada receives 'Controlled Risk' rating for BSE

The international framework for the evaluation of the BSE risk of countries has continuously evolved over the past several years in response to advancements in the understanding of the disease and the demonstrated effectiveness of measures over time.

Initially, in the absence of an agreed international standard and assessment criteria, BSE risk assessments varied by country and were conducted through bilateral and multilateral arrangements. These ranged from the European Union's Geographic Based Risk (commonly referred to as the GBR), to the harmonized questionnaire and shared assessment undertaken by Canada, the United States and Mexico (NAFTA Protocol), to the Australian-New Zealand Food Safety Assessment.

In 1999, the World Organization for Animal Health (referred to by its historical acronym, the OIE), recognized by the World Trade Organization as the international standard-setting body for animal health and diseases, developed a five-level system that would categorize BSE risk in countries as free, provisionally free, minimum, moderate and high risk.

In 2003, due to advancements in the International Terrestrial Animal Health Code and improved surveillance standards, the OIE began developing a revised, simplified categorization system which was more reflective of the science of the day.

Under the previous five-level system of categorization, one of the determining factors for categorization of a country had been the number of cases detected within a 12-month period. However, it was demonstrated not to be a scientifically sound indicator of a country's true BSE status. For example, the detection of 10 cases in a 12-month period where the animals found were all nine years of age or older is not indicative of the BSE status of the country at present but rather is reflective of events some nine to 10 years previous due

to the long incubation period of the disease.

Furthermore, the system, as it was, did not objectively take into account the evolving science with respect to the impact on incubation of the age of animal at exposure or the level of exposure to BSE, nor did the system adequately recognize and reward investments countries had made to effectively mitigate the further spread of the disease.

In May 2005, during the 73rd General Session of the International Committee of the OIE, the member countries formally adopted a simplified three-tiered categorization system for evaluating the BSE risk.

The revised categorization system was designed to reflect the current knowledge and understanding of BSE and to demonstrate the effectiveness of investments countries have made to mitigate the spread and eventually eradicate the disease. The categories are: Negligible, Controlled and Undetermined risk.

In applications for BSE risk assessment, countries must demonstrate compliance with the following recommended safeguards: BSE surveillance has been conducted in accordance with the OIE's BSE guidelines; an appropriate feed ban is in place; awareness, education and reporting programs exist; diagnostic competency is demonstrated; and a risk assessment has been undertaken to guide the design of policies to protect animal and human health.

Under the OIE criteria, a country can be categorized as negligible risk if it can demonstrate compliance with the recommended safeguards and it has either never had a case of BSE in a domestic animal or any infected domestic animals were born more than 11 years ago. Canada was categorized as a controlled risk country because, while it has demonstrated compliance with the recommended safeguards, it has had BSE cases in domestic animals born in the previous 11 years. Coun-

tries which are not able to demonstrate they meet, or have not been assessed against, the requirements for negligible risk or controlled risk are placed in the undetermined category.

To determine a country's BSE risk, country submissions and supporting evidence are reviewed by a team of international subject matter experts. Based on their evaluation, a recommendation is made to the Scientific Commission for Animal Diseases. The Commission reviews the recommendation and, if accepted and endorsed, a proposal is made for the country as either a Negligible or Controlled BSE risk. The proposal is then circulated to the Delegates of all OIE member countries. Member countries then have sixty days in which to register an objection in writing with supporting scientific or technical grounds. Official recognition is achieved through adoption of a resolution by the International Committee during the General Session comment.

Countries which have been assessed as negligible or controlled risk must also notify the OIE in writing during the month of November of each year that the epidemiological situation in respect of BSE has remained unchanged and document their the continued observance of OIE standards. Failure to comply provides grounds for the OIE to revoke the given status. ■

*(Source: Canadian Food Inspection Agency Fact Sheet)*

# Mustard Seed: Situation and Outlook

by Stan Skrypetz, Pulse and Special Crops Analyst

Canada is the largest exporter and the second largest producer of mustard seed in the world. The value of Canadian mustard seed exports averaged about \$70 million during the past five years. For 2007-2008, Canadian seeded area and production are forecast to increase from 2006-2007. Supply is expected to decrease because sharply lower carry-in stocks are expected to more than offset the increase in production. This issue of the Bi-weekly Bulletin examines the situation and outlook for mustard seed.

## World — Production and Trade

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 the production data for mustard seed and rapeseed. Mustard seed produced in India, Pakistan and Bangladesh, as well as in most other Asian countries, is mainly crushed for oil. Excluding these three countries, mustard seed production has been variable.

Mustard seed exports have also been variable, but with a slight upward trend, peaking at 315,000 tonnes (t) in 2006. Canada accounted for about 55 per cent of total world exports during the past five years, if re-exports are excluded. The only other significant exporters are Russia, Ukraine and the Czech Republic. Exports from Germany, Netherlands and Belgium are re-exports of imported seed. The top five importing countries — United States (U.S.), Germany, Bangladesh, France and Netherlands — accounted for about 70 per cent of world imports.

## Canada — Production

The three types of mustard seed produced in Canada 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. Mustard seed fits well in a rotation with cereal grains. Yellow mustard seed requires 90-92 days to mature, brown 85 days and oriental 86-88 days. Seedlings are quite tolerant of frost. Therefore, early seeding is recommended to avoid flowering during the hottest part of the summer, thereby improving yields. The Canadian mustard seed harvest normally occurs from mid-August to late September.

Canadian mustard seed production has been variable during the past 10 years, ranging from a low of 105,000 t in 2001-2002 to a high of 306,000 t in 2004-2005. Production fell during the next two years because of declining seeded areas and lower yields. The seeded area decreased because of historically low prices. Saskatchewan dominates Canadian mustard seed production with 78 per cent of the production in 2006-2007, followed by Alberta at 21 per cent and Manitoba at one per cent.

Production by type varies from year to year depending on price prospects for each type of mustard seed. The yields of brown and yellow mustard seed are about five per cent and 20 per cent lower than oriental, respectively.

Since the costs of production are similar for all types, expected prices for brown mustard seed have to be about five per cent higher and for yellow mustard seed about 25 per cent higher compared to oriental mustard seed to encourage production of the brown and yellow types rather than the oriental type.

The quality of the 2006-2007 crop was higher than normal. According to a survey conducted by Saskatchewan Agriculture and Food, about 84 per cent of the mustard seed in that province graded 1 Canada (normally 74 per cent), 15 per cent graded 2 Canada (18 per cent), one per cent graded 3 Canada (five per cent) and none graded 4 Canada and Sample (three per cent).

#### **Uses**

Mustard seed is a nutritious food ingredient. Its high protein content of 20–32 per cent is of particular interest when used in processed meats. The volatile oil in mustard seed inhibits growth of certain yeasts, moulds and bacteria, which enables mustard seed to function as a natural preservative and extends the shelf life of finished foods.

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 familiar 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. It is also used in mayonnaise and salad dressings.

Dry milled flour is used for condiments and as an ingredient in processed meat products. The extracted seed hulls are used for thickening and stabilization in mustard and other prepared foods. Mucilage is a gummy substance found in the seed coat of yellow mustard seed. It absorbs water, keeps meat dry and is a binding and thickening agent in meat and soup. Since there are several varieties of yellow mustard seed grown in Canada, there is a range of mucilage contents available, allowing processors to blend varieties to reach a standard viscosity. Yellow mustard seed can also be ground for use as an ingredient for the prepared meat industry, where it contributes to total protein.

As well, 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 emulsification. The oil content of yellow mustard seed is 24–35 per cent and the protein content is 20–32 per cent.

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 35–45 per cent and the protein content is 20–24 per cent. The fixed oil content of Canadian brown mustard seed gives no separation problems and the volatile oil content has long been the standard in formulations. Fixed oil is the oil obtained in crushing the seed, whereas volatile oil is a breakdown prod-

uct from glucosinolates. Volatile oil gives mustard the spicy taste.

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. The oil content of oriental mustard seed is 35–50 per cent and the protein content is 20–24 per cent.

### **Marketing**

All of the mustard seed produced in Canada is sold on the open market to dealers who buy, clean, and ship mustard seed to domestic and export markets. Mustard seed is shipped both bulk and in containers, depending on the volume and destination. Deliveries to domestic and U.S. customers are in bulk in trucks or in containers which are carried by trucks or trains.

The Canadian Special Crops Association (CSCA) ([www.specialcrops.mb.ca](http://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 pulse and special crops, including mustard 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 mustard seed. There are four grades for each type of mustard seed. In addition, mustard seed can be graded "Sample" if it does not meet the specifications for any of the four grades. Top grades of mustard seed are obtained when seeds are well matured, have good colour with minimal damage, and are free of seeds from volunteer canola plants and weeds such as cow cockle. For further information, or to access the Official Grain Grading Guide, please visit the CGC website: ([www.grainscanada.gc.ca](http://www.grainscanada.gc.ca))

### **Domestic Use**

Canadian domestic use, which includes food, seed, dockage and waste, accounts for about 35 per cent of the total use. There is some processing 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, the Netherlands, Germany, France and United Kingdom), Asia (mainly Bangladesh, India, Japan, Thailand and South Korea), 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.

For 2006-2007, Canadian exports are expected to increase slightly from 2005-2006 due to stronger demand from the U.S., where production fell.

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 mainly on an export basis because Canada exports about 65 per cent of its production. Therefore, they are highly sensitive to the value of the Canadian dollar in foreign markets. 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. Some mustard seed is grown under production contracts, which guarantee a price for part of the production, and the rest is sold on the spot market.

For 2006-2007, prices for No.1 grade of all types of mustard seed are expected to average significantly higher than for 2005-2006, because of the lower supply.

## Outlook

### World: 2007-2008

World mustard seed production (excluding India, Pakistan, and Bangladesh) is forecast to increase by seven per cent from 2006-2007 to 520,000 t, due to higher production in Canada.

### Canada: 2007-2008

Area seeded is expected to increase by 18 per cent from 2006-2007 due to lower carry-in stocks and higher prices.

Assuming normal abandonment rates and trend yields, production is forecast to increase by 25 per cent to 145,000 t. Production is expected to increase for all three types. Assuming normal growing and harvest conditions, quality is expected to return to normal and be slightly lower than for 2006-2007. Supply is forecast to decrease by 20 per cent because of lower carry-in stocks. Exports are forecast to fall slightly because of the lower supply and carry-out stocks are forecast to decrease further.

The lower supply is expected to support prices, with average prices increasing significantly for all three types.

The main factor to watch is weather conditions, especially precipitation, during the growing and harvest periods.

### Canada: longer-term

There is strong and growing demand for mucilage and plant breeders have responded by developing yellow mustard seed varieties with higher mucilage levels. Newer varieties, Ace and Andante, have mucilage levels which are about 30 per cent higher than traditional varieties. Work is continuing on developing additional varieties. Higher mucilage levels are expected to increase demand for yellow mustard seed, as marketers promote the value of the product to end users. Producers could only receive premiums for growing varieties with high mucilage levels through segregation and identity preservation because there is no way to measure mucilage levels at the plant. However, premiums for high mucilage may not always occur if the price of yellow mustard seed is too high, because users of mucilage may switch to substitute products, such as guar gum.

Demand for mustard seed is expected to increase during the next decade due to increased population, increased use of spices and increased demand

for other uses such as mucilage.

A potential additional use of mustard seed could be for biodiesel. Oil crushed from mustard seed can be used in the production of biodiesel, a fuel for compression-ignition engines coming from biological sources. However, the mustard seed oil price would have to be competitive with alternative sources, such as soyoil and canola oil. Therefore, biodiesel might become a market for low quality mustard seed.

Demand is expected to grow from end users for identity preservation (IP) to ensure specific quality characteristics. IP systems ensure traceability of product from the end-user back to the producer. It involves documentation for each step of production, handling and processing, as well as production, handling and processing standards, and auditing. Although there will be extra cost in an IP system, it will be an important marketing tool for Canadian mustard seed. The mustard seed industry is beginning to use the CGC's Canadian Identity Preserved Recognition System (CIPRS) to assist in the marketing and delivery of special product characteristics. CIPRS certifies companies' identity preserved programs provided they have effective quality management systems and traceability for the production, handling and transportation of specialty products. ■

*(Source: Agriculture & Agri-Food Canada  
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