Fast Facts

No. 2 – August 2003

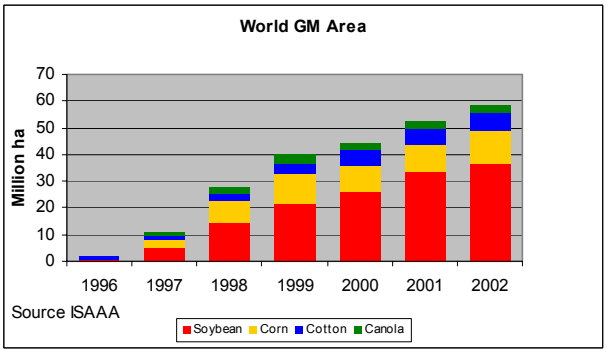
Market Implications with GM Canola

Many questions have been raised regarding potential market impacts for canola and other grains, such as wheat and barley, in the event genetically modified (GM) canola varieties are approved for commercial release in Australia.

This Question and Answer Fast Facts has been developed to aid the understanding of issues surrounding the market impacts assisted from overseas experiences following the commercial release of GM crops.

What is the extent of GM production throughout the world?

GM crops were first commercialised in the mid 1990's and the area planted to these varieties has been expanding consistently since then reaching 58.7 million hectares in 2002. The U.S., Argentina, Canada and China rapidly adopted the technology and account for 99 per cent of all GM production in 2002. Other countries such as Australia, the European Union and Brazil have been struggling with issues surrounding the use of GM crops.



Soybeans are the major GM crop representing 62 per cent of the total area in 2002 followed by corn (21%), cotton (12%), and canola (5%). Over half of the global soybean area was planted to GM varieties in 2002.

In the countries that grow GM crops, these varieties have been widely accepted by growers and in many cases are now the most extensively used varieties. Nearly three quarters of U.S. soybean and one third of corn production in 2002 was from GM varieties. In the same year, 95 per cent of Argentinean soybean production and two thirds of Canadian canola production was produced from GM varieties.

The latest USDA figures show further increase in 2003. For the first time, the total area of biotech crops in the US exceeded 100 million acres (40 million hectares) reaching a total of 41 million hectares, up 10.6% on 2002. Although total US soybean area is reported to be down slightly, the proportion planted to varieties with a biotech traits is up to 81% (75% in 2002), biotech corn is also up to 40% (34% in 2002) of the total corn area, biotech cotton accounts for 73% of cotton acres, up from 71% last year.

How extensively are the GM crops traded and what countries accept them?

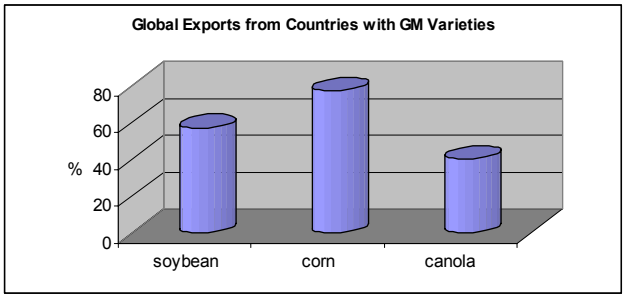
A significant proportion of global soybean and corn production, and to a lesser extent canola, now comes from GM varieties. As a result a large proportion of international trade in these products also comes from GM varieties. With the exception of some specialty crops, GM varieties are not routinely segregated from conventional varieties and therefore make up a considerable proportion of all exports.

The majority of global soybean exports now come from countries that produce GM varieties, with 57 per cent of 2003/04 forecasted exports coming from Argentina and the U.S. In terms of corn the figure is even higher, with Argentina and the U.S., the major GM corn

producers, comprising 77 per cent of global exports. Canadian canola normally accounts for 40 per cent of world exports, increasing to 67 per cent of world trade if intra-European trade is excluded.

Japan and China represent nearly half of all canola imports increasing to over sixty per cent when intra-European trade is excluded.

China and the European Union (EU) are the major soybean import destinations, each expected to import approximately 18 million tonnes this year. Japan is also an important soybean importer with annual purchases of 5 million tonnes. The EU is also the major soybean meal destination, and is forecast to import 19.6 million tonnes or 41 per cent of global trade this year.



Japan is the major global importer of corn and is expected to buy 15.5 million tonnes in 2003/04 with South Korea importing a further 9.5 million tonnes.

What has happened to Canadian canola exports following the introduction of GM varieties?

The commercial release of GM canola varieties in 1996 resulted in Canada losing access to the EU market because these varieties had not been approved by the European Commission. The EU placed a moratorium on the approval of new GM varieties in 1998 and only varieties approved prior to this time can be imported, such as the major variety of GM soybeans.

Despite losing access to the EU market, Canadian canola exports have increased following the commercial release of GM varieties reaching record levels in 2000-01.

Canadian Canola Exports by Destination (kt)

	1996	*1997*	*1998*	*1999*	*2000*	*2001*	*2002*
China	20	-	1045	1285	1024	1254	66
EU	270	68	2	1	1	2	-
Japan	1599	1813	1821	1796	1785	1703	1443
Mexico	536	435	667	480	862	764	409
US	267	320	355	223	249	164	120
Other	21	1	50	5	22	8	-
Total	**2713**	**2637**	**3940**	**3790**	**3943**	**3885**	**2038**

Source: ABARE

China and Japan account for the majority of Canadian canola exports with Mexico and the U.S. also being important export destinations. Canada has approximately 80 per cent of the important Japanese canola demand and a significant proportion of the Chinese market. It should be noted that China has been replacing canola imports with soybeans reflecting processing economics as canola prices have increased relative to soybeans as a result of droughts in Canada and Australia. This has not been a reflection they will not buy GM product as most of the soybeans have come from GM producing origins.

So far only the EU has stopped imports of Canadian canola because it contains GM varieties.

Has Australia captured a non-GM premium?

Australia competes directly with Canadian canola into Japan, China and, more recently, Pakistan and Bangladesh. Australia is viewed as the major non-GM exporting country as most European canola, also non-GM, is traded within Europe and not regularly available for major importers such as Japan and China. As a result, Australia is well positioned to capture any market premiums for non-GM canola if they exist.

However there is little indication of market premiums for our non-GM status into the key markets of Japan and China or the increasingly important markets of Pakistan and Bangladesh.

Analysis conducted by ABARE has shown there is no clear evidence Australia is receiving a market premium for non-GM canola.

Australian Canola Exports by Destination (kt)							
	1996	*1997*	*1998*	*1999*	*2000*	*2001*	*2002*
B'desh	108	75	120	89	112	158	115
China	-	74	210	588	915	248	386
EU	-	-	90	315	-	362	63
Japan	242	245	237	302	426	393	446
Mexico	-	-	21	155	66	-	-
Pakistan	-	-	28	68	68	182	307
Other	2	1	14	54	28	76	35
Total	**352**	**395**	**720**	**1571**	**1615**	**1419**	**1352**

Source: ABARE

This conclusion is supported by major Australian canola exporters who have indicated they have been unable to capture non-GM premiums compared to Canadian canola.

In the vast majority of cases, the non-GM integrity of Australian canola is lost following discharge in Japan where it is blended with Canadian canola to manage other quality attributes such as protein, oil and chlorophyll levels.

Although most exporters do say that our non-GM status provides a marketing advantage into Europe in years when there are shortfalls in the European production. However, as can be seen in Australia's canola exports by destination, EU is not a consistent market for Australian canola.

Have any non-GM markets been identified for Australian canola exports?

Industry estimates indicate that approximately 50,000 tonnes of Japan's 2.1 million tonnes annual canola imports is non-GM specific, whereby the non-GM integrity of the canola oil is maintained into food processing. However, as yet, Australian canola exporters have been unable to capture premiums for this demand as Japanese importers currently regard all Australian canola exports as non-GM and thus see no reason to pay a premium to access this particular quality. This may change if Australia begins to produce GM canola.

Is there evidence of non-GM premiums in other crops?

While there does not appear to be widespread non-GM premiums available, there is evidence of some premiums into specific market segments within the importing country, usually for food quality products.

An example would be food grade soybeans into Japan. Approximately 20 per cent, or 1 million tonnes, of Japan's 5 million tonne annual soybean imports are for food grade quality. These are used in products such tofu, misso, natto and other food products. For this demand Japanese buyers seek out soybeans with defined quality characteristics such as specific varieties, specific sized soybeans, white hilum soybeans, organic soybeans and other quality characteristics, primarily from U.S. and Canadian growers. The integrity of these quality characteristics are maintained through the supply chain by identity preservation management practices and there is good evidence that growers receive premiums for some of this quantity.

The size of the market premiums can vary considerably depending on availability of the specific quality characteristic, demand for the specific quality characteristic and the additional costs incurred in producing and preserving each particular quality trait.

There is less evidence of similar quality segregations into Japan for crops that are primarily used for animal feeding such as corn, or for highly processed food products such as soy sauce

What are the tolerance levels for GM grains in our major trading partners?

Increased global production of GM varieties has resulted in the widespread introduction of labelling laws in many countries. These policies specify under what circumstances GM foods and, in some cases, feeds must be labelled.

While there is a diversity of approaches towards labelling policies, they all broadly aim to provide consumers with a level of choice between GM and non-GM foods.

Summary of National Labelling Laws	
Bangladesh	Currently no laws but planning to introduce a framework in the next 12 months
China	GM crops are subject to labelling and require a Government Safety approval
EU	GM foods and feeds require labelling with a tolerance of 0.9%.
Indonesia	Draft labelling laws with 5% tolerance
Japan	Specified foods must be labelling if > 5%
Malaysia	Currently no laws but considering 3% tolerance
Philippines	Currently no labelling laws
Pakistan	Govt. still to finalise
South Korea	Require labelling of corn, soybean, bean sprouts and potato if >3%
Taiwan	Processed foods with GM corn & soybean if >5%
Thailand	Draft legislation for specified products >5%
Vietnam	Notification required to relevant parties
Saudi Arabia	All food and feed products require labelling

National labelling laws are usually accompanied by import approval requirements that assess product safety. An example is where China has introduced regulations in 2002 that deem GM products to be verified safe in the country of origin and require the granting of a Chinese Safety Certificate. Forecast record imports of soybeans in 2003/04, mostly from GM producing origins, indicates these changes has not stopped China's willingness to import GM products.

In some instances, commercial labelling requirements for specific market segments within a country may be tighter than the national labelling laws. When this occurs individual companies seek out market niches, choosing to differentiate themselves by using a lower GM tolerance and implement identity preservations to ensure this. An example of this is food soybean imports into Japan where many importers require less than one per cent GM varieties as apposed to the National laws of five per cent.

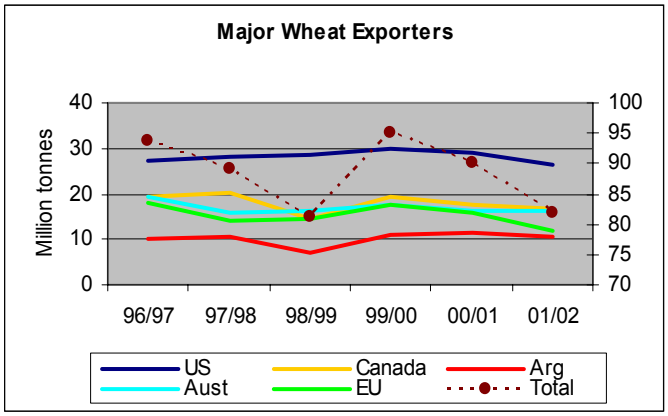
How have GM crops impacted markets for other crops such as wheat?

One of the concerns frequently raised is the market risk that GM canola may have on other crops, such as wheat and barley in the event of accidental mixing.

The vast majority of grain throughout the world uses a common supply chains to maximize storage and transportation efficiencies. As a result minute levels of mixing with other grains is possible during cultivation, harvest, storage, transportation or processing and practical tolerances are required to accommodate this, such as those recently introduced in the EU.

Most countries have accommodated this by providing set tolerance levels for accidental mixing of GM material in National labelling requirements. These tolerances vary considerably between countries but generally allow for manageable levels accidental mixing of GM material non-GM crops that may occur along the supply chain.

Examination of both U.S. and Canadian wheat exports following the introduction of GM crops into their major export destinations shows no evidence that exports have been lost as a result of the adoption of GM soybean, corn and canola varieties.



Wheat trade patterns have changed considerably since GM varieties were introduced in the mid 1990's, namely China has ceased being a major wheat importer. However the U.S. and Canada have maintained their respective market shares into most countries over this time.

The U.S. maintained strong exports into Japan, Philippines, South Korea and Egypt. Wheat exports to Europe, while comparatively small, increased over this time as durum exports to Italy increased. Exports into South and Central America also increased as trade access improved.

Japan also remained an important importer of Canadian wheat over this period, as was Indonesia, Algeria and Iran. Total Canadian wheat exports to Europe also increased in line with higher exports to Italy.

While there is no evidence that either the U.S. or Canada have lost market share for wheat exports as a result of accidental mixing with other GM grains, this does not imply that wheat customers would accept GM wheat varieties. Market sensitivities towards GM varieties are higher in food markets, such as wheat, with a number of countries including Japan and Korea expressing concerns regarding the use of GM wheat varieties. However both countries have differentiated between GM wheat and other GM varieties maintaining significant imports of other GM varieties such as soybeans, corn and canola despite having expressed concerns about the use of GM wheat.

How have countries that have introduced GM varieties ensured they can still service non-GM markets?

Increased production of GM crops has also resulted in the emergence of specific non-GM markets such as food soybeans into Japan. To cater for these markets, a number of different systems have emerged to ensure markets demanding specific quality characteristics can be serviced through the normal multi-grain supply chain.

Common elements of these systems include; established supply chain operating practices to ensure product integrity is maintained, identified tolerance levels and a means of verifying quality to ensure market confidence in the system.

Examples of these systems include the Value Enhanced Grains system developed by the U.S. Grains Council, the Canadian Soybean Export Association's identity preservation standard and the Supply Chain Initiative on Modified Agricultural Crops (SCIMAC) that was developed as a means of maintaining segregation of GM trials in the UK.

Industry within Australia has also embarked on a similar system under the Gene Technology Grains Committee, developing the Canola Industry Stewardship Principles which outline the operating practices required to ensure effective segregation of GM canola in Australia.

Key Points

- *GM crops now comprise a significant proportion of global oilseed and feed grain production and are widespread in international trade of these products*
- *Canadian canola exports have increased following the introduction of GM varieties despite losing access to the EU market. Other major canola importing nations have not differentiated against GM canola*
- *There is no clear evidence that Australia has been capturing non-GM premiums into our major canola markets such as Japan, China, Pakistan and Bangladesh*
- *While there appears to be no general premiums for non-GM varieties, international markets have demonstrated, in some cases, they will pay non-GM premiums for specific food markets, however, these usually represent a comparatively small portion of the total market*
- *There is no clear evidence that U.S. or Canadian wheat sales have decreased from accidental mixing with other GM soybean, corn or canola varieties despite many markets being extremely sensitive towards the use of GM wheat*
- *Countries producing GM crops such as the U.S. and Canada have successfully introduced identity preservation systems that allow for specific non-GM markets to be served through their multi-grain supply chains*

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