

# **A Review of the Potential Market Impacts of Commercializing GM Wheat in the U.S.**

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## Executive Summary

In 2009, as this study is being conducted, a coalition of stakeholders in the wheat industry from Australia, Canada, and the U.S. have agreed to pursue the eventual commercialization of Roundup Ready® wheat and other genetically modified (GM) traits as they become available. This stakeholder group includes wheat grower groups, the National Association of Millers, and technology providers. Monsanto tried to bring GM wheat to market several years ago but withdrew its application for commercialization in 2004 because of negative foreign consumer sentiment towards GMOs. The first GM crop ready to be introduced was Roundup Ready® hard red spring wheat.

Several things have motivated this push for GM wheat, including high prices in 2007-2008, and the perception that GM wheat is needed as one of the tools to restore U.S. wheat competitiveness. The U.S. share of the world wheat export market and the U.S. wheat acreage have trended downward for 30 years.

Is the wheat industry ready for GM wheat? A survey of the popular press and industry pronouncements says, “not yet”. There is a belief in the industry that GM wheat will not reach the market for another 10 years. The whole industry effort is predicated on foreign consumer acceptance.

A review of current consumer attitudes indicates that the EU and Japan are not ready for GM wheat. In addition, Asian countries such as South Korea and Taiwan are also reticent about importing GM wheat. The major customers of the US, particularly the EU and Japan, have labeling and traceability requirements, which make it difficult to sell GM wheat. In Europe the level of tolerance for an unapproved GMO is zero. The Canadian Wheat Board (CWB) has stated publicly that it will not support the adoption of GM wheat unless key conditions are in place, including assurances that its overseas markets would accept the crop. The CWB also wants to see a greater benefit, such as resistance to fusarium disease or improved yield and quality. In addition, the CWB said that, as the merchandising system currently stands, there is no way to effectively segregate GM wheat from non-GM wheat, another condition the board wants satisfied.

Identity preserved (IP) systems have been proposed as a way to segregate GM and non-GM wheat if the U.S. introduces GM wheat. Estimated IP costs for such systems are 3 to 6 cents per bushel. Current IP systems analyses do not incorporate liability costs and other associated costs arising from IP system failures. Hartley Furtan and Richard Gray of the University of Saskatchewan have pointed out that introducing a perceived inferior product such as GM wheat without an affordable IP segregation system will create a market for

“lemons” that will result in the loss of export markets. The existence of this market externality removes any first mover advantage from adopting GM wheat.

U.S. wheat acres and the U.S. world wheat export shares have gone down since 1960. Trends in US wheat exports indicate that hard red spring (HRS) wheat and durum wheat are most “at risk” of export loss if the U.S. approves Roundup Ready® or another variety of genetically modified wheat. **Exports to Japan and the EU would likely be curtailed because of foreign consumer concerns. The combined EU and Japanese export losses would likely be 35 and 50 percent for HRS and durum wheat, respectively.** The corresponding price drop would be 41 and 57 percent for HRS and durum wheat, respectively. If more countries in addition to the EU and Japan curtail their purchases of HRS and durum wheat, the U.S. export declines would be even higher. The routing of lost export wheat into the feed wheat markets would limit the price drops to the level of the corn market.

If the U.S. loses its HRS and durum wheat export markets due to GM wheat introduction, Russia and the Former Soviet Union (FSU) countries would likely make up the difference – as indicated by their growing world wheat export market share. As the U.S. world wheat export share is going down over time, the Russian/FSU world wheat export share is going up.

A review of the wheat breeding literature suggests that, in addition to the traditional planting breeding and GM transformation techniques, marker assisted selection (MAS) is being used to generate non-GM trait development in wheat. Non-GM trait development has recently focused on wheat varieties resistant to rust, drought, and salt. In addition, mutagenesis has been used to create non-GM herbicide-resistant wheat sold commercially today.

Depending on the trends for labeling and changing consumer sentiment, there is a mixed outlook for the marketing of GM wheat. Currently there are no commercial GM wheat varieties grown in the world. Some promote GM technology as one of the tools that can reverse the decline in the competitiveness of the wheat sector. However, the concerns of major foreign consumers about GM wheat and the lack of affordable identity preserved segregation make the U.S. introduction of GM wheat a risky proposition.

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## ... 2.0 **Consumer Preferences in the EU, Japan, Korea and Taiwan**

Currently there are no commercially available GM varieties of wheat or rice, the two largest directly consumed grains in the world - this at a time when other GM field crops such as corn, soybeans, cotton, and canola have been widely adopted. One oft-cited reason for this phenomenon is the fact that the widely adopted GM crops are highly processed before consumption or fed to livestock. Wheat and rice are more directly consumed. For this reason many foreign consumers around the world are reticent about consuming GM wheat and rice.

### ... 2.1 *European Union (EU)*

The adoption of GM crops has been dependent on the regulatory and legal environment of a particular country. The adoption of GM crops has proceeded rapidly in Argentina, Brazil, China, and India and South Africa (James, 2008). However, in the European Union (EU), adoption has been so very low. **The oft-cited reasons for the low adoption are consumer sentiment, sociological attributes of the**

**citizens of the various countries in the EU (Zechendorf, 1998), and the regulatory environment based on the precautionary principal (Kogan, 2005).** Others attribute the slow adoption of GM crops in the EU to trade barriers erected to protect EU agribusiness and producers (Anderson, et al., 2004).  
(p. 7)

#### ...References

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