

Market Risks of Genetically Modified Wheat

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This report* analyzes the potential impacts of introducing genetically modified (GMO) hard red spring wheat on export markets and prices for conventional wheat. For the short term (two to six years), the spring wheat industry faces a serious GMO marketing challenge that affects farmers, the seed industry, all businesses related to the spring wheat industry, rural communities, local governments, foreign food processors, retailers and consumers, and likely U.S. producers of other classes of wheat and feed grains.

A large majority of foreign consumers and wheat buyers do not want GMO wheat. Overseas marketing mechanisms in many countries offer consumers a choice of food products made from GMO vs. non-GMO grain. At least 37 countries currently have mandatory labeling programs for food that contains detectable GMO ingredients.

The U.S. has initiated a protest of the EU GMO regulations through WTO processes, charging that EU GMO policies are non-tariff trade barriers. Even in the case of a decision against EU policies, consumer and food industry behavior would determine whether the EU would import HRS and durum U.S. wheat.

Wheat is different in several major respects from corn and soybeans, where substantial U.S. exports continue despite widespread GMO production.

- Spring wheat is a food grain, with dominant markets being direct human consumption rather than livestock feeding or processing into vegetable oils and sweeteners
- The U.S. produces a much smaller percent of the total world wheat crop (eight percent in 2002) and has a much smaller share of world exports than is the case for corn and soybeans.
- Wheat exports are a much higher percentage of total spring wheat use than for U.S. corn (about 40% vs. 18%), creating greater downward price risk.

The issue is consumer acceptance, not food safety. Right or wrong, consumers are the driving force in countries where food labeling allows choice. Governmental approval of the product in these countries does not guarantee consumer acceptance. Attitudes toward GMO wheat may be changed by a concerted effort to address consumer concerns, and if development of GMO products with consumer benefits are developed.

U.S. Department of Agriculture survey estimated **costs of a dual marketing system** to provide U.S. GMO wheat to buyers who will accept it, and non-GMO wheat to others who don't want it, are in the \$0.70 per bushel range when all costs are included. Since wheat is produced in many parts of the world, non-GMO supplies are likely to be readily available to foreign buyers in the next two to six years, at highly competitive prices, and without added segregation costs.

Market Impacts

- Between 30 and 50 percent of the foreign market for U.S. HRS wheat and even more of the U.S. durum wheat exports could be lost if HRS GMO wheat is introduced into the U.S. in the next two to six years.

* The report was prepared for the Western Organization of Resource Councils. The full report is available at www.worc.org.

- U.S. average HRS prices would be forced down to feed-wheat price levels, approximately one-third lower than the average of recent years.
- Durum wheat exports and prices also would likely face substantial risk.
- White wheat would be at substantial risk of economically significant export market losses and similar negative price impacts if GMO HRS wheat is commercialized in the U.S.
- Export demand at risk for all classes of wheat ranges from approximately 160 to 280 million bushels. The extra feed supply would have the potential to weaken corn prices by approximately \$0.06 to \$0.10 per bushel.
- Foreign wheat production would need to increase by just 0.8 to 1.5 percent beyond growth in foreign demand to offset the estimated loss of U.S. wheat exports.
- Loss of wheat export markets would lead to loss of wheat acreage; loss of revenue to industries supplying inputs to wheat producers; losses for other rural farm-related and non-farm businesses, local and state government tax revenues, and institutions supported by tax revenues; and diminished economic health of rural communities and state governments in the spring wheat belt.
- Wheat growers would likely receive only partial compensation for a GMO-induced price decline from increased government payments.

Avoiding the full negative impacts identified here would require a turnaround in foreign consumer attitudes toward GMO wheat or a highly dependable dual marketing system, with a very low risk of contamination at an insignificant cost. Changes in consumer attitudes would require rigorous food safety testing and/or new GMO wheat products with consumer benefits.

The **organic food industry** has been the most rapidly growing component of the U.S. food sector and also is experiencing rapid demand growth in foreign markets. Price premiums for organic production may be as much as 50 percent above U.S. cash and futures prices for conventionally grown spring wheat. If cross contamination occurs with the introduction of GMO wheat, it could eliminate these premiums and the market for organic wheat.

Table 1. Estimated Hard Red Spring Wheat Short-Run Export and Price Impacts from Commercialization of GMO Spring Wheat in the U.S.

	Mil. Bu. Export Loss	Percent of 2001-02 U.S. HRS Exports Lost	Percent of 2001-02 U.S. HRS Total Demand Lost	Estimated Farm Price Impact on HRS Wheat *
Scenario I	88	43%	16.5%	-33%
Scenario II	67	33%	12.6%	-32%
Scenario III	110	52%	20.7%	-35%

* In the short run, Hard Red Spring Wheat is priced as feed wheat because of surplus volume from lost exports being forced into domestic markets.

Table 2. Estimated Durum Wheat Short-Run Export and Price Impacts from Commercialization of GMO Spring Wheat in the U.S.

	Mil. Bu. Export Loss	Percent of 2001-02 U.S. Exports	Percent of 2001-02 U.S. Total Demand	Estimated Farm Price Impact, Durum Wheat
Scenario I	32	82%	26%	-32%
Scenario II	28	71%	23%	-32%
Scenario III	34	87%	28%	-32%

Table 3. Possible White Wheat Short-Run Export and Price Impacts from Commercialization of GMO Spring Wheat in the U.S.

	Mil. Bu. Export Loss	Percent of 2001-02 U.S. WW Exports Lost	Percent of 2001-02 U.S. WW Total Demand Lost	Estimated Farm Price Impact on WW Wheat
Scenario I	32	28%	13.4%	-26% *
Scenario II	20	17%	8.4%	-26% *
Scenario III	44	37%	18.1%	-26% *

* In the short run, White Wheat is priced as feed wheat because of surplus in domestic markets from lost exports.

Table 4. Possible Hard Red Winter Wheat Short-Run Export and Price Impacts from Commercialization of GMO Spring Wheat in the U.S.

	Mil. Bu. Export Loss	Percent of 2001-02 U.S. HRW Exports Lost	Percent of 2001-02 U.S. WW Total Demand Lost	Estimated Farm Price Impact on HRW Wheat
Scenario I	44	14%	5.4%	-18% #
Scenario II	27	9%	3.4%	-11% #
Scenario III	55	17%	6.7%	-22% *

Because of the potential blending of HRS wheat with this class of wheat in domestic milling operations, the actual decline in prices could be greater than shown here.

* In the short run, Hard Red Winter Wheat is priced as feed wheat because of surplus volume from lost exports.

Table 5. Possible Soft Red Winter Wheat Short-Run Export and Price Impacts from Commercialization of GMO Spring Wheat in the U.S.

	Mil. Bu. Export Loss	Percent of 2001-02 U.S. SRW Exports Lost	Percent of 2001-02 U.S. SRW Total Demand Lost	Estimated Farm Price Impact on SRW Wheat
Scenario I	21	11%	4.6%	-15% *
Scenario II	20	10%	4.4%	-15% *
Scenario III	39	20%	8.5%	-18% *

* In the short run, Soft Red Wheat is priced as feed wheat because of surplus volume from lost exports. Note, however, that a low-cost or no-cost dual marketing system may be more workable for this class of wheat than others because of the different geographic location of its production. If that is the case, these negative price impacts for SRW wheat could be moderately over-stated.