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# Potential Market for Non-GMO Corn and Soybeans

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# Potential Market for Non-GMO Corn and Soybeans

## **Abstract**

Demand for non-GMO (genetically modified organism) corn and soybeans is high in the EU and Japan, which are two of the largest markets for U.S. corn and soybeans. This presents a potential problem for markets if U.S. processors find themselves scrambling to locate and purchase non-GMO crops. By looking at how the 1998 U.S. corn and soybean crops were used, Babcock and Beghin project possible demand in the 99/00 marketing year for non-GMO corn and soybeans.

## **Disciplines**

Agricultural and Resource Economics | Agricultural Economics | International Economics

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# Potential Market for Non-GMO Corn and Soybeans

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## Potential Market for Non-GMO Corn and Soybeans

A critical factor in determining the effects on farmers, the transportation industry, and processors from the emerging demand for non-GMO corn and soybeans is the magnitude of the new demand relative to the demand for GMO or mixed corn and soybeans. If the demand for non-GMO corn and soybeans is large relative to the supply, severe market disruptions may occur as processors scramble to locate and purchase non-GMO crops. If the new demand is relatively small, marketing of the 1999 crop may not be affected.

To date, consumers in the EU, Japan, and other countries have begun to demand that their food be produced without GMO corn and soybeans. This presents a potential problem for U.S. farmers and processors because the EU and Japan are two of the largest markets for U.S. corn and soybeans. The EU imports large amounts of soybeans and corn gluten—a byproduct of U.S. ethanol production—and Japan is a large importer of corn and soybeans.

A great deal of uncertainty exists concerning the extent to which U.S. processors and exporters will demand non-GMO corn and soybeans in 1999. However, upper-limit estimates can be made by looking at how the 1998 U.S. corn and soybean crops were utilized.

As shown in Figure 1, the 1998 U.S. corn crop was used to feed domestic livestock, exported, processed into food and corn sweeteners, or used to produce ethanol. A small portion was used to produce seed for the 1999 crop and about 5 percent of the crop was stored. The present source of demand for non-GMO corn is from the food processing industry. If the entire U.S. food processing industry switched to non-GMO corn, the market for non-GMO corn would constitute 8 percent of the corn market. If the sweetener industry joined the food

processing and ethanol industries, non-GMO corn would constitute 14 percent of the corn market.

At first glance there seems to be no reason for ethanol producers to demand non-GMO corn, but a byproduct of ethanol production is corn gluten. In the 1998/99 marketing year, exports to Europe of corn gluten were worth \$520 million. If European customers demand corn gluten made from non-GMO corn, another 6 percent, for a total of 20 percent, of the corn market would move to non-GMO corn. There seems to be no reason for this demand to materialize, however, because corn gluten is fed to livestock.

And finally, while 80-90 percent of exported U.S. corn is fed to livestock, a small portion is processed into food products. Hence, some international food processors may demand non-GMO corn. If difficulties arise in segregating non-GMO corn from GMO corn at export terminals, the entire export market could move to non-GMO corn, in which case another 17 percent of the market for U.S. corn could be for non-GMO corn. This implies that an upper limit on the market share for non-GMO corn is 37 percent.

The current demand for non-GMO soybeans is comprised of a portion of the soybeans exported, a portion of the soybeans crushed domestically and exported as soybean products (oil and meal) that are used in food processing, and a portion of soybeans crushed domestically and used to produce food that is exported. Figure 2 shows distribution of the 1998 U.S. soybean crop. The percentages are based on weight.

One cannot simply add the percentages shown in figure 2 to come up with a potential non-GMO soybean market because oil and meal

are produced together in fixed proportions. Thus if consumers demand non-GMO soybean oil, then the soybean meal produced in conjunction with the oil will also be non-GMO even if there is no consumer demand for non-GMO meal. This constraint holds true for both soybeans crushed domestically and soybeans exported and crushed abroad.

For example, the soybean oil export market represents 2 percent of the soybeans by weight but 14.6 percent of the total domestic soyoil production. Thus 14.6 percent of the soybeans crushed domestically would have to be non-GMO soybeans if the soybean oil export market were to switch to non-GMO soybeans. If the domestic soybean oil market were to follow suit, 100 percent of the domestically crushed soybeans would have to be non-GMO. Thus, if all domestic and international food processors demand on-GMO soybean oil, 100 percent of the oil and meal markets would go non-GMO.

A more likely scenario is that a portion of the soybean export market and a portion of the soybean oil export market will switch to non-GMO soybeans. If both markets switched completely, it would constitute 31.6 percent of the soybeans produced in 1999, based on 1998 utilization patterns.

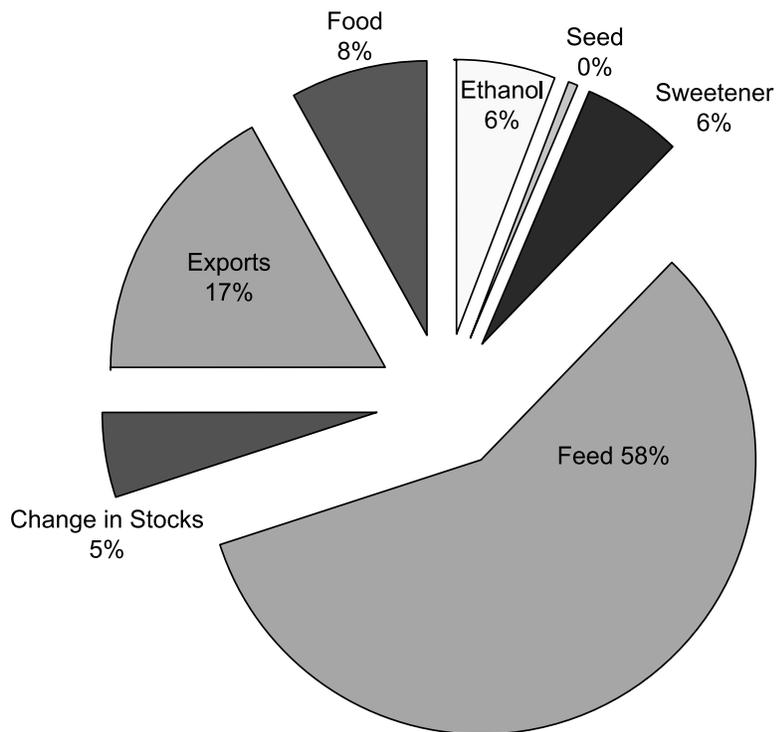


Figure 1. Where Did the 1998 Corn Crop Go?

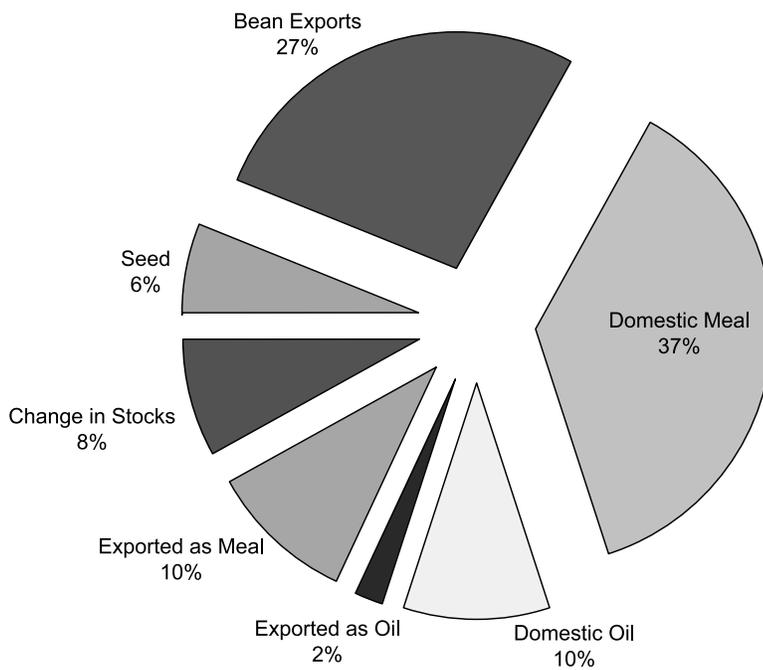


Figure 2. Where Did the 1998 Soybean Crop Go?