

CAN BIOTECH AND TRADITIONAL CROPS COEXIST? Richard S. Fawcett, Fawcett Consulting, Huxley, IA 50124.

Speaking tours were conducted in Australia, New Zealand, Russia, and Italy in 2004 and 2005 on behalf of the USDA Foreign Agricultural Service and U.S. State Department with the purpose of increasing international understanding of the U.S. experience with biotech crops, including economic and environmental benefits. Meeting audiences in each country included farmers, general public, scientists, legislators, and regulators. One of the issues of greatest interest in these countries was that of coexistence, the ability to grow, store, transport, and process biotech crops without unintended mixing with traditional crops.

Farmers in Italy and Australia were anxious to have new biotech crops approved for planting, but were concerned about maintaining markets for non-biotech grains for consumers preferring such a product. Such concerns reduced farmer enthusiasm about biotech crops in New Zealand. Provinces in Italy were in the process of writing Coexistence Plans in preparation for planting biotech crops.

There are no labeling laws concerning biotech crops in the U.S. Because almost 90% of soybeans and 50% of corn grown in the U.S. are biotech, nearly all processed foods contain some biotech grain. There is general awareness about the presence of biotech crops in the food supply by U.S. consumers. Although some consumers are concerned about the safety of biotech crops, in a 2004 International Food Information Council survey of U.S. consumers, only 1% identified biotechnology as information that they would like to see added to a food label. The position of U.S. regulatory agencies is that while certain traits of crops may require labeling, the method of breeding need not be identified.

Crops must, however, be labeled as to biotech origin in some countries, including those of the European Union (EU). The EU has set a biotech labeling standard of 0.9%. If food or feed contains less than 0.9% biotech, it is considered non-biotech. Lower thresholds are being considered for crop seeds. Meeting such standards will require measures such as separation distances or buffers to prevent pollen or other movement from biotech fields to non-biotech fields, cropping intervals and control of volunteer crops, and segregation of the harvested crop. For example, the UK has adopted a separation distance for biotech sweet corn of 200 m. Controlled studies showed that a smaller buffer of 24.4 m would meet a 0.9% labeling standard.

Although biotech crops are not required to be labeled or segregated in the U.S., farmers who sell grain which is exported to areas such as Europe which do have labeling laws and where more public concern may exist about biotech crops, need to segregate biotech crops from non-biotech crops in order to meet labeling standards. Because some biotech crop varieties approved for use in the U.S. may not be approved in other countries, these crops must be segregated for domestic use, not export. Also, there is growing concern about potential unwanted mixing of biotech crops with organic crops. Thus, general recommendations have been developed to help farmers segregate biotech crops (and certain identity-preserved crops) from non-biotech crops. Some crops have low potential for gene flow to non-biotech crops. Others have greater risk due to factors such as pollen movement or dormant seed leading to volunteer plants. Thus, coexistence standards will have to be crop specific. Pollen flow potential makes corn a crop that requires adequate buffers to prevent excessive pollen movement.

Several state seed certifying agencies that offer identity-preserved grain programs require that non-biotech identity-preserved corn be planted at a distance of at least 200 m from any biotech corn. If non-biotech fields have border rows (which would be harvested separately and marketed as non-identity-preserved grain that may be either biotech or non-biotech), the isolation distance may be reduced. The border rows ensure that the non-biotech field is "flooded" with non-biotech pollen that will reduce any potential impact of biotech pollen. Removing 8 border rows at harvest allows a separation distance of 50 m to qualify. These isolation requirements are designed to produce corn grain that is no more than 0.5% contaminated with biotech crops, almost twice as stringent as the EU

0.9% labeling standard. Thorough cleaning of planting and harvesting equipment is essential. Planters and combines can be "flushed" with non-biotech seed or grain (to be sold as non-identity-preserved grain which can be either biotech or non-biotech) before planting or harvesting non-biotech grain.

Fawcett Farms, in Eastern Iowa, produces biotech and non-biotech crops, as well as a number of non-biotech specialty grains bred through traditional breeding techniques. These include a low linolenic acid soybean that produces a more healthful oil, highly extractable starch corn, and high oil corn. In order to receive a premium price for these crops, they must meet stringent standards. For example, when delivering a truckload of non-biotech grain, the load is sampled, analyzed in a lab, and accepted before it can be unloaded. This process takes 20 to 30 min. Some identity-preserved grains are tested on the farm before delivery to insure standards are met. Fawcett Farms has voluntarily participated in the ISO 9000 program. The International Organization for Standardization has mainly involved industrial and commercial standards in the past, but is now being applied to agriculture. Detailed management plans are developed and records are kept of everything that is done to fields from planting to harvest, and how a crop was stored and marketed. Annual external audits are conducted to document record keeping and quality control of grains.

Changes in management such as switching from screw-type augers to more easily cleaned pneumatic augers to move grain have aided segregation of different types of grain on the farm. Grain buyers have also specialized so that only certain types of grain may be purchased or certain grains purchased only on specific days, so that chances of commingling are reduced. In several years of growing and marketing identity-preserved crops, no grain produced by Fawcett Farms has ever been rejected due to not meeting standards, illustrating that with proper management, coexistence of biotech and traditional crops is possible.