

**Voluntary Report** – Voluntary - Public Distribution

**Date:** August 25, 2023

**Report Number:** CH2023-0118

**Report Name:** MARA Publishes Q and A on Agricultural Biotechnology

**Country:** China - People's Republic of

**Post:** Beijing

**Report Category:** Biotechnology - Plants and Animals, Trade Policy Monitoring

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**Report Highlights:**

On August 24, the Ministry of Agriculture and Rural Affairs (MARA) published on its website the transcript of a question-and-answer session on agricultural biotechnology. The transcript provides perspective on MARA's approach to biosafety for genetically engineered (GE) products and efforts to expand commercial cultivation of GE corn and soybeans. This report provides an unofficial translation of the report.

## Summary

On August 24, MARA published a report titled [“Head of the Science and Technology Development Center and the National Agricultural Technology Extension Service Center of MARA Answering reporters' questions on promoting the pilot project of biological breeding Commercialization” \(link in Chinese\)](#). The report covers a wide range of topics related to agricultural biotechnology including food safety concerns, intellectual property, and PRC advances towards commercial cultivation of GE food crops. China is widely expected to move beyond pilot programs and approve GE corn and soybeans for commercial cultivation as early as 2024.

For additional information on agricultural biotechnology in China, please see FAS GAIN Report [China Agricultural Biotechnology Annual](#).

## BEGIN TRANSLATION

The 2023 No. 1 Document proposes to accelerate the pace of commercialization of corn and soybean biological breeding, orderly expand the scope of pilot projects, and standardize planting management. It's halfway through now, how is this work going? Recently, the reporter interviewed relevant persons in charge of the Science and Technology Development Center the National Agricultural Technology Extension Service Center of MARA on related issues.

**Question: Many people are very concerned about the industrial application of genetically engineered (GE) corn and soybeans. What is the overall consideration and arrangement for this work, and how is it progressing so far?**

A: GMOs are indeed a matter of great concern to everyone, and there are even some controversies. We also noticed that some people say that it is not possible to use conventional seeds? In fact, biological breeding is a new stage of breeding development. Generally speaking, crop breeding has experienced natural selection, hybrid breeding, and biological breeding, and it is very likely to enter the era of intelligent breeding in the future. At present, biological breeding represented by transgenics is a revolutionary technology in the field of breeding, and it is a new field and new track that must be seized. It is not optional, usable or not.

Agricultural transgenic technology has played an irreplaceable role in increasing crop yields, reducing losses from pests and weeds, reducing the use of chemical pesticides, and saving labor costs. Take the United States, the world's largest producer and consumer of GE crops, as an example. In 1995, when GE crops were not yet commercially applied, the average yield per mu of corn and soybeans was 475 kg and 158 kg respectively. By 2022, the planting area of GE corn and soybeans in the United States exceeded 90%, the average yield per mu has reached 725 kg and 222 kg, respectively, transgenic technology has played a revolutionary role. Almost all corn and soybeans grown and consumed in the United States are GE varieties.

China is not absent from the research and development of transgenic technology. It has been deployed and continuously tracked in the 863 high-tech research launched in the 1980s and the 973 basic research launched in the 1990s. Especially since 2008 when the country launched National Major Science and Technology Projects of China for Breeding New Biotech Varieties, we have made a series of significant progress in gene mining, genetic transformation, variety breeding, safety evaluation and management, etc. Based on full evaluation of safety and effectiveness, a batch of GE events have obtained safety certificates according to law. In 2021, China launched a pilot project for the commercialization of GE corn and soybeans, which was carried out in scientific research and experimental fields. In 2022, it expanded to farmer fields in Inner Mongolia and Yunnan. This year, the pilot program was expanded to 20 counties in 5 provinces including Hebei, Inner Mongolia, Jilin, Sichuan and Yunnan, and seed production was arranged in Gansu. From the pilot point of view, the traits of insect resistance and herbicide tolerance of GE corn and soybean are outstanding. The control effect on Lepidoptera pests such as *Spodoptera frugiperda* is over 90 percent, and the weeding effect is over 95 percent. GE corn and soybean can increase yield by 5.6-11.6 percent.

While promoting the pilot program, the relevant departments strictly supervised according to the "Seed Law", "Food Safety Law", "Agricultural GMO Safety Management Regulations" and other laws and regulations and cracked down on illegal activities in the process of seed production, sale, planting, processing, and sales in accordance with the law. Implement the product labelling management system to ensure the standard and orderly application of commercialization.

**Question: Some people are worried that most of the patents on transgenic technology are foreign. After China enters commercialization, how can we ensure that our varieties are independently controllable and not controlled by others?**

Answer: There is no need to worry about this issue. After decades of accumulation in the research and development of biological breeding in China, a relatively solid foundation has been established. Now the GE varieties approved for pilot projects in accordance with the law all have China's independent intellectual property rights. Promoting commercialization is conducive to promoting China's independent innovation and enhancing competitiveness. China began to promote commercialization of transgenic insect-resistant cotton in the 1990s, and continued to develop in the competition with foreign insect-resistant cotton varieties. At present, the market share of domestic insect-resistant cotton has reached 99 percent. The industry believes that if we keep refusing to apply such a revolutionary technology, it will be difficult for our agricultural technology level and industrial competitiveness to really improve, and then the gap with foreign countries will continue to widen, and we will be truly "controlled by others".

**Question: What everyone is most concerned about is the safety of GE products. For example, some people always have doubts about the fact that "worms eating GE crops will die, but people will be fine after eating them." There are also some rumors that GE foods can cause cancer and cause infertility, affect future generations, are GE products safe?**

Answer: Safety is the foundation and premise of the commercialization of GE varieties. Before marketing GE products, they must undergo scientific, comprehensive and strict food safety evaluation and environmental safety evaluation. Approved GE products are all safe. China's GMO safety assessment is under the responsibility of the National Agricultural GMO Safety Committee, which is composed of authoritative experts from various fields and departments recommended by agriculture, science and technology, health, ecological environment, inspection and quarantine, etc. across the country. China's safety assessment refers to international practice and is carried out in different stages in accordance with national laws, regulations, standards and specifications. If any problem that may affect health and environmental safety is found at any stage, the research and development test will be terminated immediately and will not enter the commercialization link.

Insect-resistant crops are the earliest transgenic products that have been applied on a large scale in the world. Scientists have transferred the "insect-resistant protein" gene into crops, making the crops resistant to insects. In fact, anti-insect protein is not a new thing. The most widely used Bt protein (from *Bacillus thuringiensis*) has been safely used as a biological pesticide for more than 80 years. The insecticidal effect of this Bt protein is highly specific, and it can only bind to the "specific receptor" on the intestinal tract of specific pests (such as moths, butterflies and other Lepidoptera pests), causing the intestinal perforation of pests to die. The gastrointestinal cells of humans, livestock, poultry, and other subjects do not have "specific receptors" that bind to this protein. After entering the human body, GE foods are digested and absorbed normally like other foods, so "worms will die if they eat them, but people will be fine if they eat them."

As for the rumors that GE foods can cause cancer, cause infertility, and affect future generations, they are all rumors. Relevant departments and experts have clarified it many times with a large amount of data and facts from scientific experiments and production practices, but they still appear repeatedly on the Internet, misleading many people. Some of these rumors are hearsay, and some have ulterior motives.

There is no scientific basis to prove that GE foods cause cancer. The link between GE food and cancer originated from a paper by the Frenchman Séralini in 2012. Relevant departments in France and the EU Food Safety Authority have conducted research on this for six years, costing more than 100 million yuan. The results show that GE corn has not caused any negative effects, and it has not been found to have chronic toxicity or carcinogenicity.

GE foods have nothing to do with infertility. The related rumors originated from a report in 2013, which claimed that "years of eating GE corn caused the sperm motility of male college students in Guangxi to decline." In fact, the claim of abnormal sperm of college students came from the "Survey Report on Sexual Health of College Students in Guangxi" by the First Affiliated Hospital of Guangxi Medical University in 2009. The report pointed out that unhealthy living habits such as environmental pollution, long-term surfing the Internet, and staying up late may lead to abnormal sperm of college students, there is no word on any GE.

GE food will not affect future generations. GE foods will not accumulate in the human body, will not accumulate in the body with the increase in intake, have no material basis for long-term effects, will not be passed on from generation to generation, and will not change our genes and affect future generations. At present, a large number of multigenerational feeding experiments of transgenic products have been carried out with model animals such as mice, pigs, and broiler chickens at home and abroad. Relevant medical research institutions in China have also carried out long-term feeding experiments on monkeys, the closest relatives to humans, and proved that they have no effect on offspring. We are also concerned about some viewpoints, why use animals for feeding experiments instead of humans? Here I would like to explain that it is an international common practice to use model animals for food safety testing. Since the development of science, a series of world-recognized test models, simulation tests, and animal tests have been developed, which can completely replace human tests. In fact, in the food safety evaluation of various countries, there is no requirement to use human beings to conduct experiments, because just imagine that it is impossible for scientists to use a food to make people eat for ten or twenty years without eating other things to do experiments, and even extend to his offspring.

**Question: Some people say that foreign GE products are exported to us. Do developed countries consume GE food? Are consumers free to choose?**

Answer: Europeans and Americans do not eat GE foods, which is a false rumor. The United States is a big country in the research and development of transgenic technology, and it is also the largest producer and consumer of GE crops in the world. At present, the United States has approved the commercialization of 22 kinds of GE crops. In recent years, about 1.1 billion mu of GE crops have been planted every year, accounting for more than 40 percent of its arable land, GE varieties exceeds 90 percent of the planting area of corn, soybean, cotton, and sugar beet, About 50 percent of the soybeans and more than 80 percent of the corn produced in the United States are consumed domestically rather than exported. The EU imports a large amount of GE agricultural products every year, mainly soybeans, corn, rapeseed, sugar beets and their processed products. According to statistics, in 2021, the EU imported about 15 million tons of GE soybeans, accounting for about 90 percent of total soybean imports, and more than 3 million tons of GE corn, accounting for about 30 percent of total corn imports. Japan, South Korea, and China's Taiwan region also import large quantities of GE agricultural products such as soybeans, corn, and rapeseed. This information has been reported in the People's Daily, Farmers Daily and other media, and it is not difficult to find out.

You sometimes see news on the Internet that some countries destroy or reject GE products. This is because importing and exporting countries and regions have licensing systems for products entering the local market, and unapproved products may be destroyed or rejected. This is not limited to GE products, and it does not mean that GE products produced in accordance with laws and regulations are unsafe.

Consumers have the right to know whether they are consuming GE products. China implements a mandatory labeling system for GE products. For example, GE soybean oil and rapeseed oil are required to be labeled with the words "processing raw materials are GE soybeans/rapeseed". What I want to explain here is that the labeling of GE foods has nothing to do with safety. All GE foods that have been

approved for marketing and circulation are safe. The labeling system is adopted mainly to protect consumers' right to know. MARA's canteens also purchase food from ordinary supermarkets and agricultural product wholesale markets. Products such as GE soybean oil have been purchased and used all the time.

**END TRANSLATION**

**Attachments:**

No Attachments.