

Development of Biotech Crops Is Booming in Asia

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CHIANG RAI, Thailand, Feb. 16 - Worried about falling behind its global competition, much of Asia is rushing forward with the development and cultivation of genetically modified crops.

The three most populous countries in Asia - China, India and Indonesia - are already planting millions of acres of genetically modified cotton. Several other large Asian countries, including Japan, Thailand, the Philippines and Malaysia, are earmarking billions of dollars for private and government-sponsored research on biotech crops.

Given that there are already 145 million acres planted with genetically modified crops worldwide, mostly in North and South America, these developments in Asia could pave the way for bioengineered crops to dominate the world's food production.

“This is a significant development in the acceptance of genetically modified crops,” said Nicholas Kalaitzandonakes, a professor of agribusiness at the University of Missouri at Columbia. “This is not only a region where most of the population growth is, it's a region where most of the food growth is.”

Aware of food safety concerns, especially among Europeans, most governments in Asia plan to move cautiously before approving the use of genetically modified food crops, which are much more controversial than nonfood crops like cotton and flowers. China for now is holding off on letting farmers plant biotech food crops, though tests are continuing.

But spending on biotech research and development is booming throughout Asia, according to delegates at a biotech policy conference sponsored here by the Asia-Pacific Economic Cooperation group.

Malaysia is creating a biotech hub outside Kuala Lumpur that it calls “biovalley.” Indonesia is setting up its own industrial park, called “bioisland.” Even in Japan and South Korea - where some consumers have been unnerved by the prospect of genetically modified foods - there are investors and others spending heavily to develop biotech products.

Experts at the conference said most of these countries must embrace biotechnology or risk seeing their crops lose value in a rapidly changing marketplace that promises a new breed of super crops.

“If they don't employ biotechnology, they're going to be left behind,” said Dr. Cho Kyun Rha, a professor of biomaterial sciences at the Massachusetts Institute of Technology and a conference participant. “They would end up buying the seed from others, and that would be biotech colonization.”

China - which after the United States has the most advanced biotechnology programs - could come to dominate agricultural production in the region, because it is so far ahead in its research on genetically modified crops.

Already, a majority of the cotton grown in China, the world's leading producer, is genetically engineered to resist pests. Besides rice and tomatoes, China has developed genetically modified corn, tobacco, sweet peppers, petunias and poplar trees.

Other Asian countries, meanwhile, are beginning to release their first biotechnology products. India and Indonesia recently approved the planting of a variety of insect-resistant biotech cotton that drastically reduces the need for pesticides.

Indeed, biotech cotton is so popular with farmers that a black market has emerged in several Asian countries that have not yet approved the products.

“There's piracy going on,” said Clive James, head of the International Service for the Acquisition of Agri-Biotech Applications, an industry-sponsored organization that tracks global plantings of biotech crops. “These farmers think so much of this technology, they will steal it.”

The enthusiasm extends beyond cotton. The Philippines has allowed the marketing of foods made with biotech corn, a first for Asia. The Philippines is also the site of the International Rice Research Institute, which is working to use biotechnology to develop “golden rice,” a variety fortified with vitamin A.

Critics of genetically modified crops say these moves in Asia could leave consumers around the world with little choice but to accept them.

“It's troublesome, because these countries don't have the regulatory infrastructure to assess the risks,” said Dr. Jane Rissler of the Union of Concerned Scientists, an advocacy group that has been critical of biotech crops.

But in the absence of any solid evidence that genetically modified crops are harmful to humans, scientists in Asia are experimenting on everything from genetically modified corn, potatoes and papaya to biotech mustard and chili peppers.

Biotechnology advocates in Asia believe that genetically modified crops will increase food production, significantly reduce the use of pesticides and insecticides and even create drought-resistant crops that can grow on land now regarded as non-arable. Farmers' incomes will rise, they claim, with the greatest benefits in the the poorest regions.

China has over 20,000 people employed in government-led research at about 200 labs. Government spending on biotech research has tripled in recent years and could top \$1.5 billion for the five years ending in 2005, making China second only to the United States in this area.

The rest of Asia is now playing catch up. India is conducting biotech research at most of its major universities. Japan and South Korea expect to spend over \$300 million a year on biotech research. Malaysia wants to engineer palm oil trees genetically to serve as factories of specialized plastics for medical devices. Vietnam and Singapore, too, are exploring the development of portfolios of biotech crops.

China's enthusiasm is dictated from the top. But both there and in India - places where small farmers work under the harshest conditions, often suffering from the effects of their own pesticide spraying - biotech crops have mainly been seen as beneficial.

However, Japan, a major food importer, has been reluctant to accept genetically modified crops, because of concerns about food safety. Opposition in Europe has prompted China to place a moratorium on biotech food crops that had already been approved for commercialization.

Some experts say the world's largest seed and biotechnology companies are lobbying in Asia to promote genetically modified crops and to sway regulators and public opinion.

“They fear if they don't succeed there, the future could be a rocky one,” said Neil Harl, a professor of agricultural economics at Iowa State University. “So there's this enormous effort under way.”

There is a push - articulated by several delegates at the conference here - to coordinate regulatory, food labeling and trade policies to ensure the success of genetically modified foods.

“With today's globalization, you can't have some do it and some don't,” said Dr. Chen Zhangliang, a professor at Beijing University and one of the leaders of China's biotechnology program, who delivered a fierce attack on biotech critics. “You need to have these issues harmonized.”

Some policy makers also worry that cross-border seed piracy could create legal trade and regulatory disputes. Biotech cotton leaked into India long before the country approved its planting. And pirated seeds are believed to be in wide use today in Thailand and Pakistan.

For many governments in Asia, though, biotechnology appears to be seen as a potential silver bullet for a host of food and agriculture ills, and a means to create new products that could sell for higher prices.

“We are trying to develop the blue orchid,” said Sotat Sriwattanapong, who works at Biotec, a government agency in Bangkok. “It doesn't exist in nature. But this may attract the people or the market.”