

# + China close to production of safe genetic rice

HONG KONG, March 9 (Reuters) - As early as this year, China could start commercial production of a new breed of genetically engineered rice.

*By Nao Nakanishi*

If adopted, it would be the world's first large-scale plantation of a major transgenic food crop and, some scientists say, would provide an environmentally friendly answer to the food problems of the world's poor.

But those who fear that genetically modified organisms (GMOs) present a danger to the natural crop balance say Beijing's haste to develop the rice has more to do with a drive to bring the income levels of its farmers in line with others who have prospered more from China's red-hot economic development.

Scientists in China, the world's top rice producer and consumer, say Beijing is looking to mass produce Xa21 rice, which contains a gene from an African wild rice.

Government officials have remained tight-lipped about plans to introduce any form of GMO rice.

The Xa21 strain, which was developed through publicly funded international research, is resistant to bacterial blight -- one of the most serious crop diseases in Africa and Asia, which can cause devastating yield loss as it spreads in water droplets.

As it derives from a wild rice gene, it has emerged as front-runner in the race to be the first GMO rice crop, ahead of insect-resistant BT rice, which contains a toxic bacterial gene.

The scientists say Beijing hopes Xa21 will help convince skeptics of the safety of genetically modified organisms, while moving China a step forward in its quest to become a global leader in biotechnology.

"Many scientists in China think the Xa21 rice is relatively safe for the environment and health, as its gene comes from a wild rice," Dayuan Xue, professor at Nanjing Institute of Environmental Sciences, told Reuters.

## CHANGE OF HEART

Should China approve commercial production of the rice, it would be the first time that the country had approved a large GMO project since 1999, when a global consumer outcry over the safety of genetically modified foods persuaded the government to stop.

It would also be in stark contrast to Monsanto Co.'s

decision last year to halt plans to introduce the world's first GMO wheat in Canada and the United States.

At present, herbicide-tolerant or insect-resistant soy, cotton, corn and rapeseed account for most of the GMOs grown commercially worldwide. Of the four, China has allowed only GMO cotton.

Clive James, chairman of the ISAAA, a group with industry and public foundation support that promotes biotech as a way to halt global hunger, sees huge significance in China's Xa21 project.

"In the near term, the one single event that is likely to have the greatest impact is the approval and adoption of ... (GMO) rice in China," he said in a 2004 report.

"That will herald a new chapter in the debate ... which will be increasingly influenced by countries in the South (developing countries), where the new technology can contribute the biggest benefits and where humanitarian needs are the greatest."

Jia Shirong, a professor from the Chinese Academy of Agricultural Sciences in Beijing, said that -- after eight years of laboratory study and field trials -- his team had applied to the government to start commercial output of Xa21 hybrid Japonica rice in the central province of Anhui, half the size of Italy.

"The field performance has been excellent," Jia told Reuters in a telephone interview. "Farmers can reduce yield losses and chemical use. Our research data showed that the transgenic rice is as safe as the traditional rice."

Jia said the Xa21 strain was created through international cooperation that included the participation of the International Laboratory for Tropical Agricultural Biotechnology (ILTAB) in the United States, partly funded by the Rockefeller Foundation.

#### **Pamela Ronald**

, from the University of California at Davis, identified and cloned the Xa21 gene in 1995 from a wild species native to Mali. With the help of ILTAB, she transformed the gene into a cultivated species.

Many scientists from the International Rice Research Institute had worked on the wild rice species from Mali since 1977 and found it could withstand various bacterial blights.

#### POTENTIAL AND CAUTION

Some say there is no need for Xa21 as there are already rice varieties resistant to bacterial blight. "The introduction of the GMO rice means taking an unnecessary risk," said Sze Pangcheung from Greenpeace in China.

Xue from the Nanjing Institute said China had had problems with insect-resistant GMO cotton, of which it is the world's top grower. In some areas, farmers needed as many chemicals as before, because the number of non-targeted pests increased, he said.

"We should take time and look at it more carefully," he said.

But asked about the possible commercialisation of Xa21 rice, Ronald told Reuters: "It would be a big step for consumers ... There is a lot of potential in this technology."

She said the University of California at Davis, which has the patent for the Xa21 gene, distributed it without charge for research purposes and for use in less developed countries.

If a company wanted to commercialise a product using the gene, it would pay royalties into a fund Ronald established in 1996, so that some of the financial benefits would be shared with Mali.

Asked if China needed to pay for the patent, she said: "Usually in China, you have government agencies that distribute seeds free to farmers. In that case, there are no fees."

"If a farmer plants a seed with Xa21 in it, he or she can harvest the seed and save some for replanting," she added.

(Additional reporting by Niu Shuping in Beijing)

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