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TOP NEWS | Thu Apr 24, 2008 | 7:47am EDT

GMO coupled with organic farms best for environment



A bakery worker stocks the shelves in a suburb of northern Sydney, April 23, 2008. REUTERS/Will Burgess



By Nao Nakanishi | HONG KONG

Genetic engineering, combined with organic farming, may be the best way to grow food for a rising population as the world confronts climate change and environmental degradation, a U.S. rice scientist said.

Pamela Ronald, professor at the University of California at Davis, told Reuters on Thursday that the world needed to use every technology available to secure food supplies for the 9.2 billion people expected by 2050, up from 6.7 billion at present.

While genetic engineering can offer new varieties, such as pest-resistant corn, organic farming can help to achieve higher yields without damaging the environment, as it does not use synthetic pesticides or fertilizers, Ronald said via telephone.

"Genetic engineering is a way to make seeds ... Farmers rely on seeds for good yields, but seeds cannot solve everything," she said. "You need some way to add fertilizer and control the pests. That's where organic farming has a lot to contribute."

Ronald, a plant pathologist, has helped to develop genetically modified (GMO) disease-resistant Xa21 rice, one of the top candidates Beijing has been considering to approve as the world's first GMO rice to be grown on a large scale.

The scientist is also behind a flood-tolerant rice currently being tested in Bangladesh.

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In her book "Tomorrow's Table", recently written with her husband, organic farmer Raoul Adamchak, she describes how the combination of GMO and organic farming could help farmers to achieve higher yields through better seeds, crop rotation and better after-harvest management without resorting to expensive and environmentally hazardous chemicals.

GMO RICE

Ronald played down consumer worries over the safety of GMOs, derided by critics as "Frankenstein food", saying it was time to abandon such caricatures of genetic engineering and see it as a tool that could promote an ecological farming revolution.

"Genetic engineering is different from conventional breeding, but it has the same results in the end: It changes the genetic makeup of the plant and you have a plant that has some enhanced characteristic," she said.

Were it not for conventional breeding in the last 40 to 50 years, the world would have used twice as much land to grow the same amount of food, she said. In future, it would take twice again as much land, unless the world raises yields.

"Resistance to disease, insects or stress -- like flood, droughts, cold, heat, salt -- are critical traits that we need to bring into the plants. It's very difficult to do it via conventional breeding," she said.

"For rice, if we can enhance yield by genetic engineering -- and there is good evidence that we can -- then we can make the farmer's life easier. There are many poor farmers."

Global rice prices have surged in the past several weeks as governments and importers rush to stockpile the grain on fears it will be in short supply, worrying policy-makers already on alert over inflation and food security.

Ronald said trials of the flood-tolerant rice had shown it produced 1 to 2 tonnes per hectare more in Bangladesh, which is facing a shortage after a devastating cyclone washed away about 1 million tonnes of the grain last year.

"If we continue with the farming system we have now, there will be tremendous negative environmental impact. For example, there's run-off of fertilizers into streams," she said.

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"We really want to get away from that sort of synthetic application and move to an organic farming system."

(Reporting by Nao Nakanishi; Editing by Edmund Klamann)

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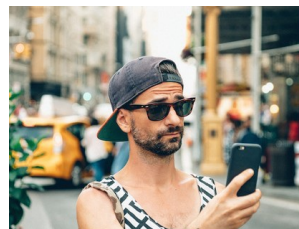
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