Photo 1 of 3

A test is carried out on Mon 810 corn

France bars strain of genetically modified corn

6 days ago

PARIS (AFP) — France decided Friday to invoke an EU safeguard procedure to bar a strain of genetically-modified corn after a watchdog said it had doubts about the product the prime minister's office said.

The government was invoking the procedure "until European authorities re-evaluate the authorisation on commercialisation" of the product, the prime minister's office said in a statement.

It had decided to act on the "principle of precaution" after the watchdog authority's findings, which have been controversial even among scientists who were involved in the authority's report, it added.

The government also announced it was investing 45 million euros (66 million dollars) in vegetable biotechnology, an eight-fold increase over the current budget.

US agricultural giant Monsanto, which produces the strain, has 15 days to present its defence.

French anti-globalisation activist Jose Bove -- who has been convicted of ripping up GM crops in southern France -- had launched a hunger strike last week to press for a year-long ban on genetically modified crops.

After France's decision on Friday, he said he would stop his hunger strike.

French President Nicolas Sarkozy said Thursday he was working with Prime Minister Francois Fillon towards a decision on suspending the Monsanto 810 maize.

France's Provisional High Authority on GM Organisms said Wednesday it had "serious doubts" as to the safety of Mon 810, the only GM crop grown in France.

It pointed to what it described as "a certain number of new scientific facts relating to a negative impact on flora and fauna."

Chairman Jean-Francois Le Grand, who also holds a seat in the Senate, said evidence had emerged that Mon 810 had an effect on insects, a species of earthworm and micro-organisms.

There was also concern that wind-borne pollen from Mon 810 could travel much further than previously thought -- perhaps as much as hundreds of miles (kilometres), said Le Grand.

In a surprise development however, 12 of the 15 scientists who compiled the authority's report issued a statement Thursday complaining that Le Grand had misrepresented thei findings.

They said their initial report had not used the words "serious doubts" or "negative" concerning the latest evidence on GM crops.

They also complained they had not been allowed time to carry out a "fuller expertise" of Mon 810.

GM crops are a fiercely contested question in Europe, pitting agribusiness corporations against a powerful green lobby.

On its website, Monsanto Co. says Mon 810 was rigorously assessed for safety by authorities before being put on the market in 1997, and extensively studied by

independent scientific experts.

Under European Union laws, a member state can invoke a safeguard clause, enabling it to bar a GM crop that has otherwise been given EU-wide authorisation, provided it has scientific evidence to back this decision.

Six other EU members have already invoked this clause.

The maize, marketed as YieldGard, has been engineered to produce a naturally-occurring toxin, Bacillus thuringiensis (Bt), that kills a pest called the corn borer.

That saves farmers money they would otherwise have spent on spraying insecticides.

REUTERS UK

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U.S. seeks to retaliate against EU in GMO case

Wed Jan 30, 2008 4:03pm GMT

GENEVA, Jan 30 (Reuters) - The United States underlined on Wednesday its right to retaliate against the European Union in a row over an EU ban on biotech crops.

The dispute has pitted the EU against the United States, Argentine and Canada, the world's three biggest growers of genetically modified (GMO) food. The World Trade Organisation (WTO) has ordered the EU to end the ban.

Brussels has found it hard to implement the WTO ruling because some of the 27 EU member states operate their own bans.

Many European consumers are wary of eating GMO crops after media scares about "Frankenfoods" and advocacy groups say they threaten biodiversity.

The WTO said it would hold an extraordinary meeting of its dispute settlement body on Feb. 8 to discuss a U.S. request for compensation in the dispute.

A trade official said this was in fact a procedural device to get around inconsistencies in the WTO's dispute rules. The item would probably be withdrawn from the agenda following a likely EU objection as part of an agreement between Washington and Brussels to pursue a negotiated solution, he said.

But if they do not succeed, the issue will return to the dispute settlement body's agenda. Wednesday's move prepares for that eventuality.

The extended deadline for Brussels to comply expired on Jan. 11. The following week the United States decided to give the EU more time to do so.

Washington reserved its right to push later for a WTO decision on whether the EU had done enough to end the ban and, if Brussels was found wanting, to retaliate.

U.S. Trade Representative Susan Schwab has said Washington's priority is to get Brussels to allow GMO crops, rather than to retaliate against EU goods.

But a document that the United States filed last week at the WTO said the U.S. reserved the right to retaliate against the EU to compensate for the

annual value of lost US exports, royalties and licensing fees to the EU from biotech crops.

These would be levied by imposing extra tariffs on EU goods or lifting other WTO agreements regulating agriculture or health and safety, the document said.

Austria continues to ban MON 810 maize made by U.S. biotech company Monsanto (MON.N: Quote, Profile, Research) and T25 maize developed by German drugs and chemicals group Bayer (BAYG.DE: Quote, Profile, Research). And days after the Jan. 11 deadline expired, the EU's biggest food producer France also imposed a temporary ban on MON 810.

The case will be closely watched by other biotech companies such as U.S. chemicals groups Du Pont (DD.N: Quote, Profile, Research) and Dow Chemical (DOW.N: Quote, Profile, Research) and Swiss agrochemicals group Syngenta (SYNN.VX: Quote, Profile, Research). (Reporting by Jonathan Lynn; editing by Robert Woodward)

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First Documented Case Of Pest Resistance To Biotech Cotton

ScienceDaily (Feb. 8, 2008) — A pest insect known as bollworm is the first to evolve resistance in the field to plants modified to produce an insecticide called Bt, according to a new research report.

Bollworm, Helicoverpa zea, moths have a wingspan of 1. 5 to 2 inches. Their caterpillars, known as bollworms, are serious pests of cotton in the southeastern US and Texas. (Credit: USDA-Agricultural Research Service)

Bt-resistant populations of bollworm, Helicoverpa zea, were found in more than a dozen crop fields in Mississippi and Arkansas between 2003 and 2006.

"What we're seeing is evolution in action," said lead researcher Bruce Tabashnik. "This is the first documented case of field-evolved resistance to a Bt crop."

Bt crops are so named because they have been genetically altered to produce Bt toxins, which kill some insects. The toxins are produced in nature by the widespread bacterium Bacillus thuringiensis, hence the abbreviation Bt.

The bollworm resistance to Bt cotton was discovered when a team of University of Arizona entomologists analyzed published data from monitoring studies of six major caterpillar pests of Bt crops in Australia, China, Spain and the U.S. The data documenting bollworm resistance were first collected seven years after Bt cotton was introduced in 1996.

"Resistance is a decrease in pest susceptibility that can be measured over human experience," said Tabashnik, professor and head of UA's entomology department and an expert in insect resistance to insecticides. "When you use an insecticide to control a pest, some populations eventually evolves resistance."

The researchers write in their report that Bt cotton and Bt corn have been grown on more than 162 million hectares (400 million acres) worldwide since 1996, "generating one of the largest selections for insect resistance ever known."

Even so, the researchers found that most caterpillar pests of cotton and corn remained susceptible to Bt crops.

"The resistance occurred in one particular pest in one part of the U.S.," Tabashnik said. "The other major pests attacking Bt crops have not evolved resistance. And even most bollworm populations have not evolved resistance."

The field outcomes refute some experts' worst-case scenarios that predicted pests would become resistant to Bt crops in as few as three years, he said.

"The only other case of field-evolved resistance to Bt toxins involves resistance to Bt sprays," Tabashnik said. He added that such sprays have been used for decades, but now represent a small proportion of the Bt used against crop pests.

The bollworm is a major cotton pest in the southeastern U.S. and Texas, but not in Arizona. The major caterpillar pest of cotton in Arizona is a different species known as pink bollworm, Pectinophora gossypiella, which has remained

susceptible to the Bt toxin in biotech cotton.

Tabashnik and his colleagues' article, "Insect resistance to Bt crops: evidence versus theory," will be published in the February issue of Nature Biotechnology. His co-authors are Aaron J. Gassmann, a former UA postdoctoral fellow now an assistant professor at Iowa State University; David W. Crowder, a UA doctoral student; and Yves Carrière, a UA professor of entomology. Tabashnik and Carrière are members of UA's BIO5 Institute.

"Our research shows that in Arizona, Bt cotton reduces use of broad-spectrum insecticides and increases yield," said Carrière. Such insecticides kill both pest insects and beneficial insects.

To delay resistance, non-Bt crops are planted near Bt crops to provide "refuges" for susceptible pests. Because resistant insects are rare, the only mates they are likely to encounter would be susceptible insects from the refuges. The hybrid offspring of such a mating generally would be susceptible to the toxin. In most pests, offspring are resistant to Bt toxins only if both parents are resistant.

In bollworm, however, hybrid offspring produced by matings between susceptible and resistant moths are resistant. Such a dominant inheritance of resistance was predicted to make resistance evolve faster.

The UA researchers found that bollworm resistance evolved fastest in the states with the lowest abundance of refuges.

The field outcomes documented by the global monitoring data fit the predictions of the theory underlying the refuge strategy, Tabashnik said.

Although first-generation biotech cotton contained only one Bt toxin called Cry1Ac, a new variety contains both Cry1Ac and a second Bt toxin, Cry2Ab. The combination overcomes pests that are resistant to just one toxin.

The next steps, Tabashnik said, include conducting research to understand inheritance of resistance to Cry2Ab and developing designer toxins to kill pests resistant to Cry1Ac.

Although preparation of this article was not supported by organizations that may gain or lose financially through its publication, the authors have received support for other research from Monsanto Company and Cotton, Inc. One of the authors (B. T.) is a co-author of a patent application filed with the World Intellectual Property Organization on engineering modified Bt toxins to counter pest resistance, which is related to research published in 2007 (Science 318: 1640-1642. 2007).

The U.S. Department of Agriculture funded the research.

Adapted from materials provided by University of Arizona, via EurekAlert!, a service of AAAS.

Tucson Citizen

Team finds tough bollworms

UA has way to counter pests that resist toxin

ALAN FISCHER

Published: 02.08.2008

With new weapons ready to fire, a University of Arizona research team has discovered a cotton pest that developed a resistance to previously successful crop protection.

The team led by Bruce Tabashnik discovered that a species of bollworm has evolved a resistance to a toxin that has protected genetically modified cotton crops for 12 years.

Growers need not worry yet as the researchers also helped develop a modified version of the toxin to handle future resistances developed by pests.

UA researchers also tested the effectiveness of a second generation of Bt toxin called Cry2Ab that is being used with the earlier toxin to control resistant pests.

Helicoverpa zea - or H. zea - bollworms studied in more than a dozen sites in Mississippi and Arkansas were found resistant to Cry1Ac, the first generation of Bt toxin introduced to cotton in 1996, said Tabashnik, professor and head of UA's entomology department.

The team's research findings were published Thursday in Nature Biotechnology, he said.

Contributing to the project were Aaron Gassmann, post doctoral fellow in

entomology; David Crowder, entomology doctorate student; and Yves Carrière, a professor of entomology.

Bt cotton crops were genetically altered to produce Bacillus thuringiensis - Bt - toxins, which kill some insects without the need for additional insecticides, he said.

The H. zea bollworms were inherently less susceptible to the Bt toxin than the pink bollworms more commonly found in Arizona that pose a bigger threat to cotton crops here, he said.

"Our conditions here are such that the pink bollworm is a major pest and H. zea is a minor pest," said Tabashnik, who led the research project and was lead author of the paper.

"In the Southeastern United States, it's paradise for the H. zea bollworms. They do really well there," he said. "They are a major threat to cotton there."

Cry1Ac remains an effective control agent for Arizona's pink bollworms, he said.

In addition, hundreds of millions of sterilized pink bollworms are being dropped on fields here to try to prevent pink bollworms from reproducing.

"We've got pink bollworm on the ropes here," he said. "That is very different from the situation in the Southeast, where the H. zea bollworm has withstood and survived the first round of Bt crops almost unscathed, and the second generation of Bt crops with two toxins is now in the fray against the bollworm."

It took seven years from the launch of Bt cotton for researchers to first document that H. zea began to develop field resistance to Bt toxin longer than the three years predicted by worst-case scenario computer modeling, Tabashnik said.

As evolution marches on and crop pests continue to develop resistances to man's efforts to keep them at bay, researchers toil to keep a full quiver of weapons available to growers.

In addition to Cry2Ab, a third-generation vegetative insecticide protein toxin called Vip3 is waiting in the wings and will likely be commercialized soon to take care of any insects that develop resistance to the two previously used toxins, Tabashnik said.

A team of UA and Mexico researchers engineered and tested a modified version of Cry1Ac called Cry1AcMod that is more potent against resistant insects, Tabashnik said. This product is not in use but could be ready for future resistances pests develop.

"In principle any toxin could be modified to be effective against an insect that has developed a resistance," he said.

But researchers must remain vigilant as nature marches forward, he said.

"No single approach is a panacea for controlling insects," Tabashnik said. "They are the champions of adaptability."

ADDITIONAL INFORMATION

Learn more about the Arizona cotton industry.

United States Department Of Agriculture
Agricultural Research Service

New Nonchemical Approach to Curbing Mosquitoes

A molecular pesticide, in which nucleic acid is the active ingredient, prevents a mosquito from making proteins necessary for survival. Above, a mosquito gets a blood meal. *Click the image for more information about it.*

By Sharon Durham
December 20, 2007

Most pesticides are toxic to insects and humans alike, but a molecular pesticide developed by Agricultural Research Service (ARS) scientists may provide a new way to deal with mosquito pests without causing a risk to human health.

The molecular pesticide technology would also overcome the mosquito's ability to develop resistance to particular pesticides. A molecular pesticide has nucleic acid, such as DNA or RNA, as its active ingredient. The technology also has potential to be used against other insect pests.

The technology was developed by ARS entomologists Julia W. Pridgeon and James J. Becnel, in the ARS Mosquito and Fly Research Unit, Center for Medical, Agricultural and Veterinary Entomology, Gainesville, Fla. Their technology prevents mosquitoes from producing essential proteins necessary for their survival. Although other approaches to nonchemical pest control are being pursued, this ARS invention has certain advantages.

The molecular pesticide concept allows scientists to design each pesticide specifically for the targeted individual pest species. It interrupts genes essential for insect survival, causing the insect to die. This recently discovered technology maximizes safety and minimizes environmental impact on beneficial insects.

In addition, molecular pesticides should be effective against pest species that are resistant to conventional chemical pesticides. Chemical pesticides often have an impact on the physiological systems shared by humans, but this new method only targets specific genes of the pest species. Molecular pesticides can also be easily administered—by contacting the insect externally.

This technology would also reduce the time and costs associated with obtaining regulatory approval of new products and would also serve as a model system for developing novel insecticides. Successful development and transfer of molecular pesticides could represent a quantum leap in developing new toxicants for pest control.

A patent application for this technology has been submitted and ARS is seeking a cooperative research and development partner to develop appropriate formulations that can be marketed and sold commercially. This research was partially funded by the Deployed War-Fighter Protection Research Program funded from the U.S. Department of Defense.

ARS is the U.S. Department of Agriculture's chief scientific research agency.

For further reading

- Keeping mosquitoes out of foreign airspace
- Partner sought to commercialize patented fly trap
- Study reveals cause of disease in beneficial insects

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