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Both Sides Cite Science to Address Altered Corn

In France and the rest of the European Union, farmers would not be allowed to plant a type of corn altered to produce insecticide.

By Elisabeth Rosenthal

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BRUSSELS A proposal that Europe's top environment official made last month, to ban the planting of a genetically modified corn strain, sets up a bitter war within the European Union, where politicians have done their best to dance around the issue.

The environmental commissioner, Stavros Dimas, said he had based his decision squarely on scientific studies suggesting that long-term uncertainties and risks remain in planting the so-called Bt corn. But when the full European

Commission takes up the matter in the next couple of months, commissioners will have to decide what mix of science, politics and trade to apply. And they will face the ambiguous limits of science when it is applied to public policy.

For a decade, the European Union has maintained itself as the last big swath of land that is mostly free of genetically modified organisms, largely by sidestepping tough questions. It kept a moratorium on the planting of crops made from genetically altered seeds while making promises of further scientific studies.

But Europe has been under increasing pressure from the World Trade Organization and the United States, which contend that there is plenty of research to show such products do not harm the environment. Therefore, they insist, normal trade rules must apply.

Science does not provide a definitive answer to the question of safety, experts say, just as science could not determine beyond a doubt how computer clocks would fare at the turn of the millennium.

“Science is being utterly abused by all sides for nonscientific purposes,” said Benedikt Haerlin, head of Save Our Seeds, an environmental group in Berlin and a former member of the European Parliament. “The illusion that science will answer this overburdens it completely.” He added, “It would be helpful if all sides could be frank about their social, political and economic agendas.”

Mr. Dimas, a lawyer and the minister from Greece, looked at the advice provided by the European Union’s scientific advisory body which found that the corn was “unlikely” to pose a risk but he decided there were nevertheless too many doubts to permit the modified corn.

“Commissioner Dimas has the utmost faith in science,” said Barbara Helfferich, spokeswoman for the environment department. “But there are times when diverging scientific views are on the table.” She added that Mr. Dimas was acting as a “risk manager.”

Within the European scientific community, there are passionate divisions about how to apply the growing body of research concerning genetically modified crops, and in particular Bt corn. That strain is based on the naturally occurring soil bacterium Bacillus thuringiensis and mimics its production of a toxin to kill pests. The vast majority of research into such crops is conducted by, or financed by, the companies that make seeds for genetically modified organisms.

“Where everything gets polarized is the interpretation of results and how they might translate into different scenarios for the future,” said Angelika Hilbeck, an ecologist at the Swiss Federal Institute of Technology in Zurich, whose skeptical scientific work on Bt corn was cited by Mr. Dimas. “Is the glass half-empty or half-full?” she asked.

Ms. Hilbeck says that company-financed studies do not devote adequate attention to broad ripple effects that modified plants might cause, like changes to bird species or the effect of all farmers planting a single biotechnology crop. She said producers of modified organisms, like Syngenta and Monsanto, have rejected repeated requests to release seeds to researchers like herself to conduct independent studies on their effect on the environment.

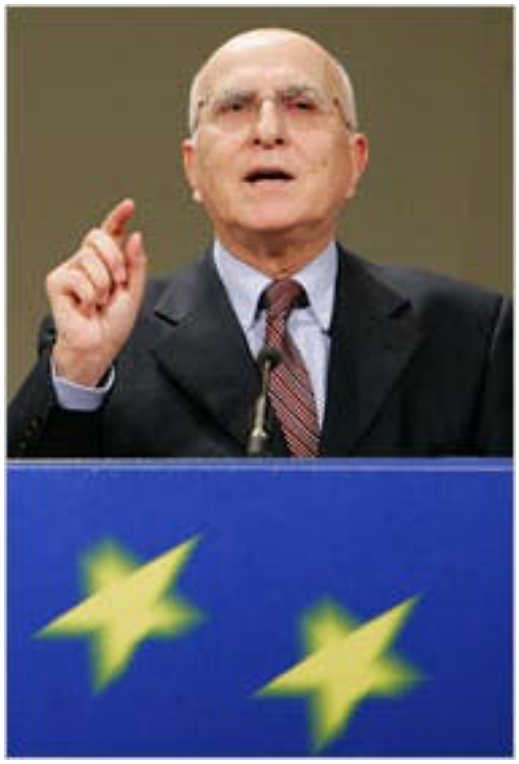
In his decision, Mr. Dimas cited a dozen scientific papers in finding potential hazards in the Bt corn to butterflies and other insects.

But the European Federation of Biotechnology, an industry group, contends that the great majority of these papers show that Bt corn does not pose any environmental risk.

Many plant researchers say that Mr. Dimas ignored scientific conclusions, including those of several researchers who advised the European Union that the new corn was safe.

“We are seeing ‘advice-resistant’ politicians pursuing their own agendas,” said one researcher, who like others asked not to be identified because of his advisory role.

But Karen S. Oberhauser, a leading specialist on monarch butterflies at the University of Minnesota, said that debate and further study of Bt corn was appropriate, particularly for Europe.



Science advisers told the European official Stavros Dimas that Bt corn was “unlikely” to pose a risk. He suggested banning it.
Thierry Roge/Reuters

“We don’t really know for sure if it’s having an effect” on ecosystems in the United States, she said, and it is hard to predict future problems. About 40 percent of corn in the United States is now the Bt variety, and it has been planted for about a decade.

“Whether Bt corn is a problem depends totally on the ecosystem what plants are near the corn field and what insects feed on them,” Ms. Oberhauser said. “So it’s really, really important to have careful studies.”

Bt crops produce a toxin that kills pests but is also toxic to related insects, notably monarch butterflies and a number of water insects. The butterflies do not feed on corn itself, but they might feed nearby, on plants like milkweed. Because corn pollen is carried in the wind, such plants can become coated with Bt pollen.

Ms. Oberhauser said she had been worried about the effect of Bt corn on monarch butterflies in the United States after her studies showed that populations of the insect dipped from 2002 to 2004. But they have rebounded in the last three years, and she has concluded that, in the American Corn Belt, Bt corn has probably not hurt monarch butterflies.

Still, she said there was disagreement about that as well as broader causes for worry. Monarch butterflies may have been saved in the United States, she said, by a fluke of local farming practices. Year by year, farmers alternate Bt corn with a genetically modified soy seed that requires the use of a weed killer. That weed killer, Monsanto’s Roundup, eliminated milkweed the monarch’s favored meal in and around corn fields, so the butterflies went elsewhere and were no longer exposed to Bt.

“It’s a problem for milkweed, but it made the risk for monarchs very small,” she said.

Still, she said, other effects could emerge with time and in farming regions with other practices. For example, Bt toxin slows the maturation of butterfly caterpillars, which leaves them exposed to predators for longer periods.

“Sure, time will give you answers on these questions and maybe show you mistakes that you should have thought about earlier,” she said.

For ecologists and entomologists, a major concern is that insects could quickly become resistant to the toxin built into the corn if all farmers in a region used that corn, just as microbes affecting humans become resistant to antibiotics that are prescribed often. The pests that are killed by modified corn are only a sporadic problem and could be treated by other means.

Scientists also worry about collateral damage because Bt toxin is in wind-borne pollen. Most pollens “are highly nutritious, as they are designed to attract,” Ms. Hilbeck said, wondering how a toxic pollen would affect bees, for example.

Having reviewed the science, insurance companies have been unwilling to insure Bt planting because the risks to people and the environment are too uncertain, said Duncan Currie, an international lawyer in Christchurch, New Zealand, who studies the subject.

In the United States, where almost all crops are now genetically modified, the debate is largely closed.

“I’m not saying there are no more questions to pursue, but whether it’s good or bad to plant Bt corn I think we’re beyond that,” said Richard L. Hellmich, a plant scientist with the Agriculture Department who is based at Iowa State University.

He noted that hundreds of studies had been done and that Bt corn could help "feed the world."

But the scientific equation may look different in Europe, with its increasing green consciousness and strong agricultural traditions.

"Science doesn't say on its own what to do," said Catherine Geslain-Lanéelle, executive director of the European Food Safety Authority. She noted that while her agency had advised Mr. Dimas that Bt corn was "unlikely" to cause harm, it was still working to improve its assessment of the long-term risk to the environment.

Part of the reason that science is central to the current debate is that European law and World Trade Organization rules make it much easier for a country or a region to exclude genetically modified seeds if new scientific evidence indicates a risk. Lacking that kind of justification, a move to bar the plants would be regarded as an unfair barrier to trade, leaving the European Union open to penalties.

But the science probably will not be clear-cut enough to let the European ministers avoid that risk.

Simon Butler at the University of Reading in Britain is using computer models to predict the long-term effect of altered crops on birds and other species. But should the ministers reject Bt and other genetically modified corn?

"My work is not to judge whether G.M. is right or wrong," he said. "It's just to get the data out there."