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Agriculture Dilemma Heats Up

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As activists become more vocal in their opposition to genetically modified organisms (GMOs) – calling for a moratorium, threatening to destroy existing crops and recruiting the support of government officials – Costa Rican scientists are defending the controversial technology.

Fearing Costa Rica will become a country that prohibits the advance of science and technology, Pedro León, director of the National Center for High Technology (CENAT), said a moratorium on the growth of genetically modified crops would send a contradictory signal to international academics and investors.

León and a group of scientists from the University of Costa Rica (UCR) say no scientific evidence suggests GMOs pose any threat to public health or the environment – as opponents claim. Research proves otherwise, they say.

GMO opponents, and some who are undecided, maintain there is a lack of studies on the environmental and health impacts of GMOs that take into account Costa Rica's ecosystems, making a moratorium on modified crops a necessity until more is known.

While the moratorium has received the support of Environment and Energy Minister Carlos Rodríguez, no other government officials have responded to the request, the moratorium's supporters said yesterday.

A moratorium would have to be declared by President Abel Pacheco, with support from the ministers of Agriculture, Health, Environment and Foreign Trade, according to Alex May, director of an effort to produce a national framework for GMO regulation.

The GMO debate, which formally entered the academic arena here earlier this year, reached new heights last week in a roundtable discussion involving León, minister Rodríguez and outspoken environmentalist and GMO opponent Fabián Pacheco.

Pacheco – son of President Pacheco – told the students, professors, farmers and activists packing a lecture room at UCR, east of San José , that if no moratorium is granted, environmentalists would destroy existing and any future genetically modified crops. He said a moratorium is not a choice, but a necessity.

Modified soy and cotton are being grown on slightly more than 600 hectares in Costa Rica , primarily in Guanacaste, according to the Ministry of Agriculture (TT, Oct. 1). These crops are grown for their seeds, all of which are exported to the United States .



CROPS of genetically modified plants must be destroyed, says environmentalist Fabián Pacheco, son of President Abel Pacheco.
Tico Times/Rebecca Kimitich

The request for a moratorium, first made in April (TT, April 23), was formally presented in September by various activist groups to the National Technical Commission on Biosecurity, which is assisting the effort to create a national framework on how to approach the GMO question (TT, April 2). The Commission consists primarily of officials from the Ministry of Agriculture, but also other government agencies.

GMO plants, also called transgenics, are species that have been genetically modified to demonstrate certain characteristics, such as resistance to viral infections, bacteria and fungi, as well as herbicides.

GMOs are created when genes from one species are inserted into another to produce the desired characteristics. Scientists are also researching other possibilities of the technology – such as creating agricultural crops that can be irrigated with salt water.

In the moratorium request, GMO opponents say this manipulation produces “genetic sequences” that are not entirely known and could result in the expression of certain unexpected, negative characteristics, particularly when the GMO interacts with the local ecosystem.

A team of scientists responded to this concern, and the 14 other points in the moratorium request, in a 13-page document, also sent to the National Commission on Biosecurity and the Agriculture Ministry.

These scientists acknowledge that the complete “genome sequence” – what they say is the proper term for genetic sequence – is not known for any agricultural crop, transgenic or traditional, although up to 90% of the sequence is known in some species.

What they say is important is they know the “regulation system” that determines whether a certain gene will express itself or not.

The scientists' rebuttal also says spontaneous mutations are possible in all plants – transgenic and traditional – because crop genomes are notoriously variable. Transgenic crops are, at least, heavily monitored, the scientists maintain.

The scientists are lead by Marta Valdez, coordinator of UCR's Institutional Commission on Biotechnology; Francisco Saborío, of UCR's Center for Agricultural Research; and Ana Mercedes Espinoza, researcher for UCR's Center for Cellular and Molecular Biology Research.

They say commission regulations on transgenic crops in Costa Rica also provide security against another risk GMO opponents label a threat – the spread of transgenic seeds and pollen outside of their growth area, leading to the perversion of traditional crops.

The Biodiversity Coordination Network – one of the leading anti-GMO groups – has photos of what members say is transgenic cotton sprouting new roots outside areas designated for the growth of the transgenic crop in Guanacaste.

“Contamination is not a question of if, but when,” Pacheco said, citing cases in Mexico and Hawaii where traditional corn and papaya crops were contaminated.

“They are breaking millions of years of natural evolution,” he said.

Scientists respond that regulations require the elimination of the remnants of a transgenic crop after a harvest and the establishment of buffer zones between transgenic and traditional crops. The National Commission on Biosecurity makes regular visits to transgenic crop sites to enforce this regulation, according to the rebuttal.

In their plea for a moratorium, GMO opponents also maintain more studies on transgenic crops in tropical ecosystems are necessary in the areas of: impact on local plants, release

of toxins in soil, allergic reactions of transgenic pollen on mammals; and effects on the health of workers who handle transgenic crops.

The Costa Rican scientists claim studies and scientific research have proved no threat exists in any of these areas.

“To this date there exists no evidence that the release of transgenic crops has had a negative impact on the environment, because the releases have been done under vigilant monitoring ... and no health damage has been demonstrated either,” León said.

The CENAT director cited a report by the European Union that makes this conclusion based on the results of 81 studies during the past 15 years on GMO cultivation.

However, a group of students at EARTH University – an international university dedicated to agricultural sciences and natural resources located near Guápiles, on the Caribbean slope – announced their support for the moratorium, based on their own research and the studies of others.

“Genetically modified foods do not satisfy the nourishment needs of the developing world, and on the contrary favor the extended production of crops in developed countries, creating an excess of foods in the hands of those who do not need them,” according to a statement signed by EARTH student Hernando Morera.

Scientists and GMO opponents in Costa Rica also disagree on the potential economic impact of a moratorium.

A letter to President Pacheco, signed by 48 academics, states the growth of transgenic crops will result in agricultural products with added value, and will “increase the competitiveness of Costa Rica in international markets.”

However, those calling for a moratorium, particularly organic farmers and the Environment Minister, maintain transgenic crops could contaminate organic produce, and have negative impacts on that growing industry here.

The lack of certainty regarding GMOs is what inspired Minister Rodríguez to throw his support behind a moratorium.

“Although I may not support all of the points of the moratorium, that fact is we haven't had enough open conversation on this topic,” he said.

“This is not a prohibition, rather a moratorium while we come up with a policy... just to give us time to research, to think. As a state, we want to come up with a balance,” he said.
