



Modified Organisms Mating

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The election is just around the corner: You may have been watching the presidential debates and the campaign ads, or putting on your bumper stickers. And while this year's presidential vote is obviously the most important issue on the November ballot, a local measure that would ban genetically modified organisms from Marin County deserves closer notice.

Measure B would ban the cultivation of all genetically modified organisms (or GMOs) with the exception of disease treatment experiments taking place in a laboratory setting. Marin is not the only county proposing a moratorium on GMOs. Sonoma, Alameda, Butte and Humboldt counties have similar measures on the ballot. This is a snowball effect of an anti-GMO movement initiated last spring when Mendocino County became the nation's first county to pass a measure banning GMO crops.

What are GMOs, and why are they so controversial? Simply put, a GMO is an organism that has been altered at the genetic level in a way that would never naturally occur. A textbook example is a rabbit that was given genes from a jellyfish. The rabbit lived a normal life span, as any rabbit would, but with a twist: it glowed neon green under a black light. When the technology is applied outside the laboratory, a number of hotly debated issues arise. There are agricultural concerns about crop contamination, ecological issues about the takeover of natural plants in the area and ethical and health concerns about the welfare of genetically modified animals.

Much of the food-safety concerns over GMOs derives from what isn't known about them. Viewed suspiciously in Europe, these foods have been branded "Frankenfood," a product of mad science that has the potential to wreak unforeseen havoc.

"The FDA scientists said, in memos that were made public from a lawsuit, that these foods are essentially inherently risky," said Jeffrey Smith, author of "Seeds of Deception." Smith, who has researched the potential hazards of GMOs on human and animal health, spoke to an audience at College of Marin in late September.

According to Smith there has not been enough human testing to determine long-term health effects. Studies that have been done on animals, however, have uncovered some disturbing results. A group of rats that were fed genetically modified potatoes developed pre-cancerous cell growth in their digestive tracts, as well as smaller brains, livers and testicles, signs of atrophy in the liver and weakened immune systems.

The central agricultural issue surrounding GMOs is that they can pollinate with non-GM crops, implanting them with modified traits, such as resistance to herbicides. According to a study by the USDA's Economic Research Service, GM plants represent 85 percent of all soybeans planted, 76 percent of cotton and 45 percent of corn. According to the Center for Food Safety, a nonprofit

public-interest and environmental-advocacy membership organization, 60 percent of processed foods in the U.S. contain genetically engineered ingredients. Pollen from corn can spread many miles by wind, and a farmer who does not purchase GM corn seeds is liable for the illegal growth of genetically modified corn and can be sued by the distributor of the GM seeds. This happened to a farmer in Canada who was sued by Monsanto for illegally growing its strain of GM canola plants.

The phenomenon of crop pollination concerns ecologists. During his talk, Smith raised the concern that when GM crops are pollinated by bees, some pollen can enter the natural ecosystem, causing local flora to exhibit unusual traits that would severely affect the natural ecosystem. This scenario remains largely untested, however.

Much of the argument by the GM industry and advocates in the agricultural community in favor of genetic modification is its promise of increased crop yield — by at least 150 percent, according to some estimates. However, a recent Sacramento Bee article reports that this increased supply would reduce the export price, as well as prohibit access to markets in Europe, where GMOs have been banned altogether. The ability to resist pesticides is tempting to some farmers, who can cover fields with herbicides and not kill a single soy plant.

Industry observers are closely watching the debate over the GM-free measure in Butte County, a key farming community that serves as a barometer for U.S. agriculture. The county generates agricultural products valued at \$300 million a year and is the state's largest rice-growing region. The measure is poised to fail in Butte, much of the resistance coming, in fact, from local farmers who do not want to lose the option to grow GM crops.

In Marin, there is widespread support for Measure B. The county Board of Supervisors adopted a resolution to support the measure in late September. "We're optimistic the measure is going to pass," said Mark Squire of GMO Free Marin.

"Unlike drugs that are found to be unsafe and can be pulled from the market, genetically modified food crops are living creatures and cannot be recalled. They become part of the environment," wrote David Suzuki, a well-known Canadian scientist, in his weekly newspaper column Science Matters in 1999.

Echoing this sentiment, Squire supports his cause by citing a recent EPA study that said pollen from a GM bentgrass, intended for golf courses, cross pollinated with naturally occurring bentgrass 13 miles downwind. Jeffrey Smith, author of the book "Seeds of Deception," warns on his Web site that this hard-to-kill grass could become a weed itself and wreak havoc on natural ecosystems. There are eight golf courses in Marin County.

But some are opposed.

"We want to get the truth out to people. We want to educate them so hopefully they can make an informed decision themselves. Hopefully they don't give in to scare tactics," said Henry Gossi, president of the Marin County Farm Bureau. "We don't realize what is down the pipeline. Some of these GMO crops have taken 10 to 20 years to develop. If something really good comes down the line the only way to get it in would be a ballot with the people, and that is not easy to go through. It would put us at a great economic disadvantage in the county."

The Farm Bureau has not received any funding from the biotechnology industry to oppose the measure.