

A Lonely Quest for Facts on Genetically Modified Crops



KONA, Hawaii — From the moment the bill to ban [genetically engineered crops](#) on the island of Hawaii was introduced in May 2013, it garnered more vocal support than any the County Council here had ever considered, even the perennially popular bids to decriminalize marijuana.

Public hearings were dominated by recitations of the ills often attributed to genetically modified organisms, or G.M.O.s: cancer in rats, a rise in childhood allergies, out-of-control superweeds, genetic contamination, overuse of [pesticides](#), the disappearance of butterflies and bees.

Like some others on the nine-member Council, Greggor Ilagan was not even sure at the outset of the debate exactly what genetically modified organisms were: living things whose DNA has been altered, often with the addition of a gene from a distant species, to produce a desired trait. But he could see why almost all of his colleagues had been persuaded of the virtue of turning the island into what the bill’s proponents called a “G.M.O.-free oasis.”

“You just type ‘G.M.O.’ and everything you see is negative,” he told his staff. Opposing the ban also seemed likely to ruin anyone’s re-election prospects.

Yet doubts nagged at the councilman, who was serving his first two-year term. The island’s papaya farmers said that an engineered variety had saved their fruit from a devastating disease. A study reporting that [a diet of G.M.O. corn](#) caused tumors in rats, mentioned often by the ban’s supporters, turned out to have been thoroughly debunked.

And University of Hawaii biologists urged the Council to consider the [global scientific consensus](#), which holds that existing genetically engineered crops are no riskier than others, and have provided some tangible benefits.

“Are we going to just ignore them?” Mr. Ilagan wondered.

Urged on by Margaret Wille, the ban’s sponsor, who spoke passionately of the need to “act before it’s too late,” the Council declined to form a task force to look into such questions before its November vote. But Mr. Ilagan, 27, sought answers on his own. In the process, he found himself, like so many public and business leaders worldwide, wrestling with a subject in which popular beliefs often do not reflect scientific evidence.

At stake is how to grow healthful food most efficiently, at a time when a warming world and a growing population make that goal all the more urgent.

Scientists, who have come to rely on liberals in political battles over stem-cell research, climate change and the teaching of evolution, have been dismayed to find themselves [at odds with their traditional allies on this issue](#). Some compare the hostility to G.M.O.s to the rejection of climate-change science, except with liberal opponents instead of conservative ones.

“These are my people, they’re lefties, I’m with them on almost everything,” said Michael Shintaku, a plant pathologist at the University of Hawaii at Hilo, who testified several times against the bill. “It hurts.”

But, supporters of the ban warned, scientists had not always correctly assessed the health and

environmental risks of new technology. “Remember DDT?” one proponent demanded.

Ms. Wille’s bill would ban the cultivation of any genetically engineered crop on the island, with the exception of the two already grown there: corn recently planted by an island dairy to feed its cows, and papaya. Field tests to study new G.M.O. crops would also be prohibited. Penalties would be \$1,000 per day.

Like three-quarters of the voters on Hawaii Island, known as the Big Island, Mr. Ilagan supported President Obama in the 2012 election. When he took office himself a month later, after six years in the Air National Guard, he planned to focus on squatters, crime prevention and the inauguration of a bus line in his district on the island’s eastern rim.

He had also promised himself that he would take a stance on all topics, never registering a “kanalua” vote — the Hawaiian term for “with reservation.”

But with the G.M.O. bill, he often despaired of assembling the information he needed to definitively decide. Every time he answered one question, it seemed, new ones arose. Popular opinion masqueraded convincingly as science, and the science itself was hard to grasp. People who spoke as experts lacked credentials, and G.M.O. critics discounted those with credentials as being pawns of biotechnology companies.

“It takes so much time to find out what’s true,” he complained.

So many emails arrived in support of the ban that, as a matter of environmental responsibility, the Council clerks suspended the custom of printing them out for each Council member. But Mr. Ilagan had only to consult his inbox to be reminded of the prevailing opinion.

“Do the right thing,” one Chicago woman wrote, “or no one will want to take a toxic tour of your poisoned paradise.”

Distrust on the Left

Margaret Wille, 66, had the island’s best interests at heart when she proposed the ban, Mr. Ilagan knew.

She majored in cultural anthropology at Bennington College in Vermont and practiced public advocacy law in Maine before moving a decade ago to the island, where her brothers once owned a health food store.

And her bill, like much anti-G.M.O. action, was inspired by distrust of the seed-producing biotechnology companies, which had backed a state measure to prevent local governments from regulating their activity.

That bill, which passed the State Senate but stalled in the House, appeared largely aimed at other Hawaiian islands, which were used by companies like Monsanto, Syngenta and Dow as a nursery for seeds. On [Kauai](#), for instance, activists had been talking about how to limit the companies' pesticide use.

The companies had no corporate presence here on the Big Island, which lacks the large parcels of land they preferred. Still, Ms. Wille [said at a "March Against Monsanto"](#) rally last spring, if the island allowed farmers to grow genetically modified crops, the companies could gain a foothold. "This represents nothing less than a takeover of our island," she told the crowd. "There's a saying, 'If you control the seed, you control the food; if you control the food, you control the people.'"

Ms. Wille, chairwoman of the Council's Agriculture Committee, warned her colleagues that what mattered was not the amount of food produced, but its quality and the sustainability of how it was grown.

"My focus is on protecting our soil and the farms and properties that are not G.M.O.," she said, noting also that there was a marketing opportunity for non-G.M.O. products.

Such sentiments echoed well beyond Hawaii, as Mr. Ilagan's early research confirmed.

College students, eco-conscious shoppers and talk show celebrities like [Oprah Winfrey](#), [Dr. Oz](#) and [Bill Maher](#) warned against consuming food made with genetically modified ingredients. Mr. Maher's audience, in turn, recently [hissed at a commentator](#) who defended genetic modification as merely an extension of traditional breeding.

New applications of the technology, so far used mostly on corn, soybeans, cotton, canola and sugar beets to make them more resistant to weeds and pests, have drawn increased scrutiny. A recent Organic Consumers Association bulletin, for instance, pictures the first genetically modified animal to be submitted for regulatory approval (a faster-growing salmon) jumping from a river to attack a bear, with the caption “No Frankenfish!” In a 2013 New York Times poll, three-quarters of Americans surveyed expressed concern about G.M.O.s in their food, with most of those worried about health risks.

As Ms. Wille’s bill was debated here throughout 2013, activists elsewhere collected 354,000 signatures for a [petition](#) asserting that G.M.O.s endanger public health. In the Philippines, protesters, citing safety concerns, [ripped up a test field of rice](#) genetically engineered to address [Vitamin A](#) deficiency among the world’s poor. A new children’s book turned [its heroine](#) into a crusader against genetic modification: “These fruits and vegetables are not natural,” she declares.

And bills were proposed in some 20 states to require “G.M.O.” labels on foods with ingredients made from genetically engineered crops (about three-quarters of processed foods now have such ingredients, mostly corn syrup, corn oil and soy meal and sugar).

The legislation is [backed by the fast-growing organic food industry](#), which sees such labeling as giving it a competitive advantage. It has also become a rallying cry among activists who want to change the industrial food system. Rachel Maddow declared the narrow failure of ballot initiatives to require G.M.O. labeling in California and Washington a “big loss for liberal politics.”

Whole Foods has pledged that by 2018 it will replace some foods containing genetically modified ingredients and label others; signs in Trader Joe’s proclaim, “No G.M.O.s Sold Here.” General Mills announced last week that it would stop using genetically modified ingredients in its Cheerios.

But the [groundswell against genetically modified food](#) has rankled many scientists, who argue that opponents of G.M.O.s have distorted the risks associated with them and underplayed the risks of failing to try to use the technology to improve how food is grown. Wading into a

debate that has more typically pitted activists against industry, some have argued that opposition from even small pockets of an American elite influences investment in research and the deployment of genetically modified crops, particularly in the developing world, where hunger raises the stakes.

“Just as many on the political right discount the broad scientific consensus that human activities contribute to global warming, many progressive advocacy groups disregard, reject or ignore the decades of scientific studies demonstrating the safety and wide-reaching benefits” of genetically engineered crops, Pamela Ronald, a professor of plant pathology at the University of California, Davis, wrote on the blog of the nonprofit [Biology Fortified](#).

And other scientists, including two Nobel Prize winners, wrote an opinion article for the journal *Science* last fall titled “[Standing Up for G.M.O.s](#).”

As he traversed the island and the Internet, Mr. Ilagan agreed with constituents that there was good reason to suspect that companies like Monsanto would place profit above public safety. He, too, wished for more healthful food to be grown more sustainably.

But even a national ban on such crops, it seemed to him, would do little to solve the problems of an industrial food system that existed long before their invention. Nor was it likely to diminish the market power of the “Big Ag” companies, which also dominate sales of seeds that are not genetically modified, and the pesticides used on both. The arguments for rejecting them, he concluded, ultimately relied on the premise that they are unsafe.

Making up his mind about that alone would prove difficult enough.

The Rainbow Papaya

The papaya farmers appeared, pacing restlessly, outside Mr. Ilagan’s office shortly after Ms. Wille introduced the proposal for a G.M.O. ban in May.

There were only around 200 of them on an island with a population of about 185,000, but many lived in his district. They wanted to be sure he understood that genetically modified papayas, the only commercially grown G.M.O. fruit in the United States, account for three-

quarters of the 30 million pounds harvested annually here.

“They’re treating us like we’re criminals,” said Ross Sibucan, the head of the growers’ association.

Another Council member favored razing every genetically modified papaya tree on the island.

But under Ms. Wille’s bill, the modified papaya, known as the Rainbow, was grandfathered in, as long as farmers registered with the county and paid a \$100 annual fee.

“You’re exempted,” Mr. Ilagan reassured Mr. Sibucan.

Even so, Mr. Sibucan replied, the bill would stigmatize any genetically modified food, making the Rainbow harder to sell.

Many of the island’s papaya farmers, descendants of immigrants who came to work on sugar plantations, have links to the Philippines, as does Mr. Ilagan, who immigrated from there as a child. As the plantations faded in the 1980s, some began growing papayas. But after an outbreak of [Papaya ringspot virus](#) in the mid-’90s, [only the Rainbow](#), endowed with a gene from the virus itself that effectively gave it immunity, had saved the crop, they told him.

If Mr. Ilagan worried about big biotechnology companies, the farmers told him, the Rainbow should reassure him. Developed primarily by scientists at academic institutions, it was a model for how the technology could benefit small farmers. Its lead developer, the Hawaiian-born Dennis Gonsalves, was, along with others on the team, awarded the 2002 Humboldt Prize for the most significant contribution to United States agriculture in five years.

Japanese as well as American regulators had approved the papaya. And because the virus was spread by insects, which growers had sought to control with pesticide sprays, the Rainbow had reduced the use of chemicals.

Mr. Ilagan took their point. “If we as a body pass this,” he said, thinking aloud at the second public hearing in July, “it shows we think all G.M.O.s are wrong.”

Superweeds and Rats

Instructed by the chairman not to applaud, the residents who packed the County Council chamber in Kona on July 3 erupted in [frequent silent cheers](#), signaled by a collective waving of hands and wiggling of fingers.

A few, like Richard Ha, an island farmer who hoped that the diseases afflicting his bananas and tomatoes might be solved with a genetic modification, were there to testify against the ban. Ranchers also were opposed; they wanted the option to grow the genetically modified corn and soybeans for cattle feed that are common elsewhere.

But a vast majority were there in support. Some were members of [G.M.O. Free Hawaii Island](#), a mix of food activists and entrepreneurs, who argued that the organisms were bad for human health, the island's ecosystem and eco-conscious business. Others, veterans of the campaign for a partial ban already in place here, reminded the Council of the precedents for Ms. Wille's bill: In 2008, organic Kona coffee farmers successfully lobbied for a ban on any cultivation of genetically modified coffee. The presence of a G.M.O. crop, they argued, would hurt their reputation and their ability to charge a premium.

At the same time, the county had banned the cultivation of genetically engineered taro, a root vegetable cultivated for centuries in Hawaii.

In the three minutes allotted to each speaker at the July hearing, some told personal tales of all manner of illness, including children's allergies, cured after going on a "non-G.M.O." diet. One woman took the microphone "on behalf of Mother Earth and all sentient beings." Nomi Carmona encouraged Council members to visit the website of her group, [Babes Against Biotech](#), where analyses of Monsanto's campaign contributions are intermingled with pictures of bikini-clad women.

Many of the most impassioned speakers came from Mr. Ilagan's district of Puna, known for its anti-establishment spirit. "These chemical companies think they're going to win," one woman said. "Hell, no, they're never going to win here."

Organic farmers worried that their crops would be contaminated also made an impression on the councilman, though he felt that the actress Roseanne Barr, who owns an organic

macadamia nut farm here, could have been kinder to the papaya farmers in the room.

“Everybody here is very giving,” she had told them. “They will bend over backwards to help you burn those papayas and grow something decent.”

More striking to Mr. Ilagan was the warning of Derek Brewer, 29, an Army veteran who served in Iraq and Afghanistan before coming to Hawaii to help found an [eco-hostel](#). “We don’t fully understand [genetics](#),” Mr. Brewer said, his dark hair tied back in a ponytail. “Once you change something like this, there is no taking it back.”

What really stuck with Mr. Ilagan were the descriptions of tumorous rats. Reading testimony submitted before the hearing, he had blanched at grotesque pictures of the animals fed Monsanto’s corn, modified with a gene from bacteria to tolerate an herbicide. According to the French researcher who performed the study, they developed more tumors and died earlier than those in the control group.

“Are we all [going to get cancer](#)?” Mr. Ilagan wondered.

Sifting Through Claims

The next week, when his legislative assistant alerted him that the rat study encountered near-universal scorn from scientists after its release in autumn 2012, doubt about much of what Mr. Ilagan had heard began to prick at his mind.

“Come to find out, the kind of rats they used would get tumors anyway,” he told his staff. “And the sample size was too small for any conclusive results.”

Sensitive to the accusation that her bill was antiscience, Ms. Wille had circulated material to support it. But in almost every case, Mr. Ilagan and his staff found evidence that seemed to undermine the claims.

A report, in an obscure Russian journal, [about hamsters that lost the ability to reproduce](#) after three generations as a result of a diet of genetically modified soybeans had been contradicted by many other studies and deemed bogus by mainstream scientists.

Mr. Ilagan discounted the correlations between the [rise in childhood allergies](#) and the consumption of G.M.O.s, cited by Ms. Wille and others, after reading of the common mistake of confusing correlation for causation. (One graph, illustrating the weakness of conclusions based on correlation, charted the [lock-step rise in organic food sales and autism diagnoses.](#))

Butterflies were disappearing, but Mr. Ilagan learned that it was not a toxin produced by modified plants that harmed them, as he had thought. Instead, the herbicide used in conjunction with some genetically modified crops (as well as some that were not) meant the [milkweed on which they hatched was no longer found](#) on most Midwestern farms.

He heard many times that there were no independent studies of the safety of genetically modified organisms. But Biofortified, which received no funding from industry, [listed more than a hundred such studies](#), including a 2010 comprehensive review sponsored by the European Union, that found “no scientific evidence associating G.M.O.s with higher risks for the environment or for food and feed safety than conventional plants and organisms.” It echoed similar statements by the World Health Organization, the National Academy of Sciences, the Royal Society of Medicine and the American Association for the Advancement of Science.

A blog post on the website of NPR, a news source Mr. Ilagan trusted, cataloged what it called “[Top Five Myths of Genetically Modified Seeds, Busted.](#)” No. 1 was a thing he had long believed: “Seeds from G.M.O.s are sterile.”

One of the more alarming effects of G.M.O.s that Ms. Wille had cited was suicides among farmers in India, purportedly driven into debt by the high cost of patented, genetically modified cotton seeds.

Biotechnology companies, she said, “come in and give it away cheap, and then raise prices.”

Monsanto’s cotton, engineered with a gene from bacteria to ward off certain insects, had “pushed 270,000 farmers to suicide” since the company started selling it in India in 2002, the activist Vandana Shiva said in a Honolulu speech Ms. Wille attended.

But in Nature, a leading academic journal, Mr. Ilagan found an [article](#) with the subhead “GM

Cotton Has Driven Farmers to Suicide: False.”

According to the Nature article, peer-reviewed research in 2011 found that suicides among farmers were no more numerous after the new seeds were introduced than before. And a 2012 study found that farmers’ profits rose because of reduced losses from pest attacks.

“There’s farmers committing suicide because of the whole debt issue, but it’s not because of the G.M.O. issue,” Mr. Ilagan said he concluded in mid-August.

Still, it was hard not to be spooked by material emailed by constituents and circulated on Facebook: images of [tomatoes with syringes stuck in them](#) and of [pears and apples stapled together](#), warnings of [children harmed](#) by parents serving genetically modified food. The specter of genetic contamination still haunted him. And his mother, who had always served papaya at home, had stopped because of her new concerns about the Rainbow variety.

Learning From a Researcher

The scientists at the national agriculture research center here were not accustomed to local Council representatives dropping by unannounced.

But one day in August, Mr. Ilagan recalled, when he turned up in search of someone who could answer questions about genetic contamination, he found a molecular biologist willing to help.

“It’s kind of a loaded term,” the councilman remembered the scientist, Jon Suzuki, saying. “What they’re talking about is cross-pollination, which is something that happens all the time within species.”

The councilman knew little about how food was grown. He enlisted in the Air National Guard immediately after high school and abandoned his first semester of community college classes when he decided to run for the Council seat.

Dr. Suzuki gave him a tutorial on plant reproduction, Mr. Ilagan recalled, explaining that with the wind, insects and animals spreading pollen and seeds, cross-pollination can never be entirely avoided.

But, Mr. Ilagan learned, by staggering planting times and ensuring a reasonable distance between crops, it is usually possible to avoid large-scale mingling. Also, plants have different fertilization methods: The Rainbow papaya, for instance, was largely self-fertilizing. If it is planted about 12 feet away from other varieties, the chance of cross-pollination is exceedingly low.

“But what about the papaya contaminating” — Mr. Ilagan recalls correcting himself — “cross-pollinating with a pineapple?”

This was the part he had trouble explaining to himself. Was the virus gene from the papaya also in Ms. Barr’s macadamia nuts and the organic coffee farmer’s beans?

Dr. Suzuki paused.

“With plants of different species — it’s kind of like how you don’t cross a cat with a dog and expect to have offspring,” he said.

“Duh!” exclaimed Mr. Ilagan. “I should have realized that.”

In the following weeks, Mr. Ilagan sometimes called Dr. Suzuki with his question du jour. For instance, do weeds near genetically modified crops turn into “[superweeds](#)” because of a rogue gene?

The scientist, he recalled, helped him understand that “superweeds” were weeds that had evolved resistance to a widely used herbicide — most likely faster than they would have if farmers had not used it so much on crops genetically engineered to tolerate it.

Biotechnology firms were already selling seeds that tolerated other, less benign herbicides, Mr. Ilagan learned. But that was a different problem from the specter conjured by a woman at one of the hearings, who said that “G.M.O.s are cross-pollinating with weeds that now can’t be controlled.”

Asked about the danger of moving genes among species where they had not originated, Dr. Suzuki explained that for millenniums, humans had bred crops of the same species to produce desired traits. But with the advent of genetic engineering, it became possible to

borrow a feature from elsewhere on the tree of life. An example Mr. Ilagan later learned about was the rice being tested in the Philippines. Modified with genes from bacteria and corn, [it can provide Vitamin A](#), the deficiency of which is a scourge of the world's poor.

That did not mean genetically engineered food could never cause harm. But the risks of such crops could be reliably tested, and they had so far proved safe. "With scientists, we never say anything is 100 percent certain one way or another," Dr. Suzuki said. "We weigh conclusions on accumulated knowledge or evidence — but often this is not satisfactory for some."

Silencing the Scientists

On Oct. 1, Mr. Ilagan voted to block the bill from moving out of committee, shortly after a day of what Ms. Wille and Brenda Ford, another Council member who was a proponent of the ban, had described as expert testimony.

At the hearing on Sept. 23, he had grown increasingly uneasy as his fellow Council members declined to call several University of Hawaii scientists who had flown from Oahu, instead allotting 45 minutes to [Jeffrey Smith](#), a self-styled expert on G.M.O.s with no scientific credentials.

One University of Hawaii at Manoa biologist, Richard Manshardt, responded to a question from Ms. Ford about the effect on honeybees of corn engineered to resist pests: none, he said, because the protein it produced affected only certain insect groups, and was not toxic to bees.

"I don't agree with the professor," Ms. Ford told her colleagues.

Many University of Hawaii scientists had already registered their opposition to the bill, in written and oral testimony and letters in the local papers.

If the ban passed, local farmers could not take advantage of projects underway at the university and elsewhere, they noted, including drought-tolerant crops and higher-yield pineapple plants. Genetic engineering is a precise technique that "itself is not harmful," the dean of the school's College of Tropical Agriculture and Human Resources, Maria Gallo, wrote in one op-ed.

But Ms. Wille had largely dismissed the opinions of university researchers, citing Monsanto contributions to the university. In 2012, she noted, the company made a one-time donation of \$600,000 for student scholarships at the College of Tropical Agriculture and Human Resources, an amount that the college said represented about 1 percent of its annual budget that year.

“It is sad that our state has allowed our university departments of agriculture to become largely dependent upon funding grants from the multinational chemical corporations,” Ms. Wille told reporters, suggesting that the university’s professors were largely a “mouthpiece for the G.M.O. biotech industry.” She did, however, rely on the opinion of a specialist in organic agriculture practices at the university, Hector Valenzuela, who supported the bill.

Mr. Smith, known for “[Genetic Roulette](#),” a movie he produced based on his book of the same title that had been shown at one of the island’s “March Against Monsanto” events, appeared at the hearing by Skype from Arizona.

He praised the Council for stepping in where he believes that federal regulatory agencies have failed, and suggested that the Rainbow papaya could harm people because of a protein produced by the viral gene added to it, adding that no human or animal feeding studies had ever been conducted on the fruit.

Mr. Ilagan was genuinely curious to hear the author’s take on his own latest realization: Each genetically modified organism was different, and came with its own set of trade-offs.

“I don’t see a blanket ban,” he told his staff that week. “It seems like it should be a case-by-case thing.”

“Aloha, Mr. Smith,” Mr. Ilagan said when he had his turn. “Or is it Dr. Smith?”

“No, Jeffrey’s fine,” Mr. Smith said over Skype.

“In your world,” Mr. Ilagan asked, “is there any room for any G.M.O.?”

Mr. Smith replied that there was not.

In the afternoon, Dr. Gonsalves, who led the development of the Rainbow papaya, was given time to respond to Mr. Smith's allegations. He laid to rest a lingering question about papaya safety that had troubled Mr. Ilagan.

He explained that any papaya infected by the ringspot virus contains the protein Mr. Smith had mentioned as potentially dangerous in the genetically modified Rainbow. Moreover, plant viruses do not infect people. "Everyone was eating virus-infected papaya in the 1990s," Dr. Gonsalves said. "And now you want to do feeding studies?"

With one member absent, only one other Council member joined Mr. Ilagan in opposing the bill. The Council deferred a decision on creating a task force to discuss the implications of banning genetically modified organisms.

Ms. Wille assured her colleagues that, upon the bill's passage, she would support the formation of such a group. But it was better not to delay, she said: "I want to draw a line in the sand until we can take a closer look."

Angry Voters

The response to Mr. Ilagan's vote was swift and unambiguous.

He was mocked on Facebook and pilloried in letters from constituents. "You have been influenced by the contrived arguments from the pro-G.M.O. interests," one letter read. "Many of my fellow Puna residents will seriously consider more progressive candidates for the next Council term."

"Greggor, what do you think you're doing?" his campaign manager, Kareen Haskin, 70, a close family friend, asked him. "The main thing I told people was you would listen to them."

He told her that though a vocal minority supported the ban, many other constituents knew little about the complex issue. "I have to do what's right for them, too."

He told Ms. Haskin what he had learned about health and environmental aspects of genetic engineering. But as he had found often happened in conversations about G.M.O.s, the subject quickly shifted. "We don't want corporations to own all the seeds," she said.

Mr. Ilagan was as opposed as Ms. Haskin was to big businesses controlling a market, in part by using patents that prohibit farmers from replanting or selling their seeds. But banning crops because they were made with genetic engineering would not change the patent laws, he told her.

Mr. Ilagan had been alarmed by testimony from farmers who said they could be sued by Monsanto and other patent-holders when patented seeds ended up in their fields by accident. But he found there was no evidence that Monsanto had ever [initiated such a lawsuit](#).

“I’m still trying to voice this out,” he said, “but to me it just seems symbolic. Like doing something that seems good, but not really achieving what you want to achieve.”

Ms. Haskin took his hand. “You have to vote for this bill,” she pleaded. “What about all the pesticides being sprayed on our food?”

The conversation, he noticed, had turned again.

Emotional Testimony

The Council meeting on Oct. 15 started with public testimony that lasted more than seven hours.

Again, Mr. Ilagan found himself touched by the emotion of the crowd. A mother brought her 8-year-old to testify. Mr. Brewer, the eco-hostel owner, was in the audience with his wife, who is deaf, signing so she could follow the debate. Invoking the Hawaiian word for “land,” several speakers — not necessarily of Hawaiian descent — begged for “our aina” to be preserved. “Our island can be the uncontaminated seedbed for the world,” one said.

Those in favor of the bill outnumbered those opposed by more than five to one.

Lukas Kambic, a biology major at the University of Hawaii at Hilo, sought to use his own experience to counter the anecdotes others voiced that night. “My mom ate organic food exclusively and did yoga all the time, and she died of a brain aneurysm,” Mr. Kambic said. “According to the logic of people here, she was killed by organic food and yoga.”

The room was silent.

Knowing that the final vote on the ban was yet to come, Mr. Ilagan voted “no” after the hearing. Then nearly 1,000 people quickly signed a petition demanding that he change his vote at the final hearing, scheduled for Nov. 18. For the first time in his career as councilman, he began to consider voting “kanalua” — yes, with reservation.

In early November, he sought to escape with a friend to a condo in Kona, only to be accosted at the pool by a voter demanding answers.

And on Nov. 14, Mr. Brewer, the veteran who runs an eco-hostel, visited him in his office. They discussed Mr. Brewer’s conviction that cross-pollination by G.M.O.s would do unknown harm to the environment and detract from the island’s image.

“We need all the votes we can get to override” a possible veto by the mayor, Mr. Brewer said. “Do you think you can vote for this bill, Greggor?”

Mr. Ilagan still had questions of his own. One scientist he had spoken to said the built-in pesticide in corn should not worry him, because many plants contain their own natural pesticides. “I still want to track that down,” he told his staff. “What is an example of a natural pesticide?”

Maybe, he thought, he would join the long-promised task force, which would weigh the implications of banning G.M.O.s on the island and report back to the Council.

The final hearing on the bill was not unlike the first. Superweeds were mentioned. Indian suicides. Contamination.

Ms. Wille urged a vote for the ban. “To do otherwise,” she said, “would be to ignore the cries from round the world and on the mainland.”

“Mr. Ilagan?” the Council member leading the meeting asked when it came time for the final vote.

“No,” he replied.

The ban was approved, 6 to 3.

The mayor signed the bill on Dec. 5.

At the Council meeting on Dec. 17, Ms. Wille's motion to create a committee to study the impact of banning genetically modified organisms on the island was not seconded, and she withdrew it. Stunned, Mr. Ilagan briefly considered making his own motion to form a task force. But he could see he would not have enough support.

It was time to move on. A fast-growing subdivision in his district needed a community park. Last week, Mr. Ilagan turned his focus to drumming up support for the bond issue he would need from the county to plan and design it.