

POLICY AND INTERGOVERNMENTAL AFFAIRS COMMITTEE
Council of the County of Maui

MINUTES

July 24, 2014

Council Chamber, 8th Floor

RECONVENE: 9:11 a.m.

PRESENT: Councilmember G. Riki Hokama, Chair
Councilmember Donald G. Couch, Jr., Vice-Chair (In 2:38 p.m.)
Councilmember Gladys C. Baisa, Member
Councilmember Robert Carroll, Member (In 9:49 a.m.)
Councilmember Elle Cochran, Member (In 9:34 a.m.; Out 11:57 a.m.)
Councilmember Stacy Crivello, Member
Councilmember Michael P. Victorino, Member (Out 2:12 p.m.)
Councilmember Mike White, Member

EXCUSED: Councilmember Don S. Guzman, Member

STAFF: Carla Nakata, Legislative Attorney
Sharon Brooks, Legislative Attorney
Tammy M. Frias, Committee Secretary

ADMIN.: Richard B. Rost, Deputy Corporation Counsel, Department of the Corporation Counsel
Patrick K. Wong, Corporation Counsel, Department of the Corporation Counsel
Edward S. Kushi, Jr., First Deputy Corporation Counsel, Department of the Corporation Counsel

OTHERS: Representatives of the SHAKA Movement:
Bruce Douglas, Spokesperson, SHAKA Movement
Hector Valenzuela, Professor & Crop Specialist, University of Hawaii College of Tropical Agriculture and Human Resources
Lorin Pang, MD, Maui District Health Officer, State Department of Health; and World Health Organization Consultant (*speaking as a private citizen*)
Walter Ritte, Hawaiian Leader, Molokai

Representatives of the U.S. Department of Agriculture via telephone conference bridge:
Michael J. Firko, Ph.D., Deputy Administrator, Biotechnology Regulatory Services (“BRS”), Animal and Plant Health Inspection Service (“APHIS”), United States Department of Agriculture (“USDA”)
Janet L. Bucknall, BRS Associate Deputy Administrator, APHIS, USDA
Dr. John T. Turner, Director, BRS Environmental Risk Analysis Programs, APHIS, USDA

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Dr. Douglas W. Grant, Branch Chief, BRS Regulatory Operations Program, Western
Compliance Assurance Branch, APHIS, USDA

Gwendolyn Burnett, BRS State and Tribal Liaison, APHIS, USDA

Representative from the John A. Burns School of Medicine, University of Hawaii at
Manoa via telephone conference bridge:

F. DeWolfe Miller, MPH, PhD, Professor of Epidemiology, John A. Burns School of
Medicine, University of Hawaii at Manoa

Department of Police representatives:

Officer Jan E. Pontanilla, Department of Police

Officer Taylor K. Kamakawiwo`ole, Department of Police

Additional attendees (30+)

PRESS: *Akaku--Maui County Community Television, Inc.*

**ITEM PIA-78: INITIATIVE PETITION TO PLACE A MORATORIUM ON THE
CULTIVATION OF GENETICALLY ENGINEERED ORGANISMS (CC 14-166)**

CHAIR HOKAMA: *... (gavel) ...* This Policy Committee meeting shall return to order. We are continuing yesterday's agenda meeting. We have completed testimony, Members. Today we shall start with a one hour maximum, so 'til 10:12, we will have a presentation from SHAKA. And they have three resource people they are going to bring up for presentation, and if you have questions, we'll do those questions after they're complete their presentations, and at 10:15, we shall move to the next presentation of our agenda. So Mr. Douglas, if you're ready, you can...your one hour starts from now. So while you're going to start, Mr. Douglas, you need to come to...you have a microphone so you can speak on the record.

MR. DOUGLAS: *... (Inaudible) ...* We're going to start with a PowerPoint presentation *... (inaudible) ...*

CHAIR HOKAMA: Okay. We'll...

MR. DOUGLAS: *... (Inaudible) ...*

CHAIR HOKAMA: You need...just, just speak in the mic so we get you on record, please, Mr. Douglas. Yeah. And then we'll...

MR. DOUGLAS: So we will start with Hector Valenzuela from the University of Hawaii.

CHAIR HOKAMA: Okay.

MR. DOUGLAS: He'll introduce himself and his credentials.

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CHAIR HOKAMA: Okay. Is it easier for you to be at the podium so that everyone can see you, Doctor? Or would you...

MR. VALENZUELA: Either way, whichever is more convenient.

CHAIR HOKAMA: I think maybe being here would be easier --

MR. VALENZUELA: I can be at the podium.

CHAIR HOKAMA: --and then that way the viewing public --

MR. VALENZUELA: Thank you.

CHAIR HOKAMA: --of the County can also witness your presentation. Thank you. Yeah, we are. We're going to bring the screen down. Okay. Just bring the screen down. We're not going to do recess. ...*(Phone ring tone)*... I gotta remind everyone to turn off cell phones including myself.

UNIDENTIFIED SPEAKER: You just did.

COUNCILMEMBER VICTORINO: Yeah. You just did. Thank you. Thank you, Chair.

CHAIR HOKAMA: Okay, Doctor, when you're ready we'll get the screen down for your presentation.

Note: Computer-generated presentation.

MR. VALENZUELA: Thank you. Good morning, everybody.

CHAIR HOKAMA: Good morning.

MR. VALENZUELA: My name is Hector Valenzuela. I have been a professor and the Crop Production Extension Specialist at the University of Hawaii, Manoa, College of Agriculture for the past 23 years or so. I became interested in the issue of crop biotechnology when our leaders claimed that crop biotech was the future of our islands, and I began to ask questions about whether that was a sustainable way for us to go. I was...

COUNCILMEMBER VICTORINO: May we have the lights off, may I ask, Mr. Chair?

CHAIR HOKAMA: Yeah. Okay. We will. Thank you.

COUNCILMEMBER VICTORINO: Please. Thank you very much.

MR. VALENZUELA: Trying to see if...I start from the beginning. I don't know if the remote is working from here. No.

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UNIDENTIFIED SPEAKER: You're at the beginning now.

MR. VALENZUELA: Thank you. About...in 2003, I was invited by the Maui County Council, I believe it was in this podium, to give my...provide my perspective in terms of crop biotechnology and I shared some of my, the concerns that I had at the time. If...at the time, I believe a lot of our concerns were based on conjectures or what, what could go wrong. If you fast forward 10 years, I could say that our conjectures have been corroborated based on what we have observed in the field in many parts of the world and also on the research literature, and that we have developed or began, we have begun to accumulate hard evidence about some of the risks of crop biotechnology. Earlier this month there was a commentary in the paper by Gary Hooser, basically indicating the concerns about industrial agriculture and that we should be moving towards agricultural, alternative agricultural systems. Over the past 30 years. there have been several scientific or policy panels at the international and national level in the United States that have basically made a call for us as a society to move away from industrial methods of agriculture and towards alternative systems of farming. This is a 1981 report calling for "A Time to Choose" to look at the structure of agriculture, which speaks about the consolidation of agriculture into fewer and fewer hands. Follow-up studies continued in the next 10 to 20 years, calling for "A Time to Act" and support small-scale farming, looking again at the structure of agriculture and saying the universities are reinforcing this structure of agriculture instead of challenging the system, calling for alternative agriculture and making a general call to say we should be relying less and less on pesticides rather than more so. I think that it would be fair to say that when crop biotechnology came into the picture in the 1990s, that we threw most of these reports out of the window. This is a report on the, the Presidential Report on the Environment and they again make a call for alternative agriculture, and as you can see in the lower hand, right-hand side, the goal is protecting the environment and the...protecting society and the economy. The reasoning provided by this report is--previous slide, please, previous--the reasoning...thank you. The reasoning provided by this report is, according to the Presidential panel, the overuse of and excess application of chemicals to soils have disrupted natural processes. Habitat loss, air pollution, and chemical pesticides have reduced populations of natural pollinators and natural control agents for agricultural pests. More than one-third of our agricultural soils have been lost to erosion and unsustainable agricultural practices. Decimation of pollinating insects has imposed large costs on agriculture. From the health standpoint, the American Medical Association has made a similar call in terms of food systems indicating we need to adopt a healthy diet based on pesticide-free whole foods such and fruits and vegetable crops. One of the concerns about crop biotechnology are the unintended consequences, what we don't know about it. This is the construct that was inserted in the papaya, the rainbow papaya, and only a couple of years ago, after 15 years the crop was released, scientists from Europe discovered that there was what appeared to be a hidden gene that was previously unknown from the part of the scientists and regulators. Over a year ago, I approached the UH papaya team asking about details about this hidden genetic construct, and I have been unable to obtain information from this team with respect to what did they tell regulators in the U.S. and in Japan about the presence of this hidden construct. We know that the companies that are growing seed crops in Hawaii have a history of chemical production and a history of chemical pollution in

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terms of links to Superfund sites and to hazardous waste sites in the United States and throughout the world. According to this report, on February 2002, a court found Monsanto guilty on six counts of negligence, wantonness, and suppression of the truth, nuisance, trespass, and outrage. Outrage, according to Alabama law is conduct “so outrageous in character and extreme in degree as to go beyond all possible bounds of decency so as to be regarded as atrocious and utterly intolerable in civilized society.” In the late ’90s, a journalist who could have ties possibly to the industry, wrote an article in a refereed journal called, “Poisons of the Mind”, and this referred that all our concerns about the health risks of Agent Orange was all in our mind and that they were not really existent in the late 1990s. According to this refereed article, there were...claimed no harm from Agent Orange. I developed a source list of scientists who all, off the record, told me the whole thing was hysteria. There was no evidence. This included reputable scientists from major universities and from the National Institute of Health. Next. However, about 10 years earlier, a classified report developed by the Department of Veterans Affairs, gave a totally different picture. According to this report, it was well-known, both by the industry and by the government, about the harmful effects of PCBs and Agent Orange many years earlier, as early as 1983. According to Admiral Zumwalt, “a significant national wrong was committed against our Vietnam veterans,” not to mention the people in Vietnam from the exposure to this product with us having a full knowledge about it. According to this report, companies that were producing these products did not reveal information as part of their research. Monsanto, an internal study from 1949, study of dioxin reported 9 instead of the actual 18 cancer deaths, thus throwing off the results. According to this report, a study by BASF, another GM seed company, from 1953 was falsified. Dow Chemical, another seed company, was aware as early as 1964. And these are a list of some of the diseases that was well-known to be caused by Agent Orange and PCBs despite the denial that we were making in public about health effects from these products in court and in the media. My point is that with respect to GM crops is that it is reasonable for the community to ask questions and to ask for disclosure about the type of activities and about the type of pesticides that are being sprayed in their communities given the past experience with these companies. I should indicate that when we talk about the risk of genetically modified crops that we should realize that we’re talking about a combination of GM crops along with the pesticides that are used, applied as part of this production package. Next. Several rather conservative scientific organizations have come together with position papers raising concerns about the exposure of pesticides to children and on reproductive phases of development. In terms of risk assessment, I say that we, I say that we have been looking the other way. In terms of the toxin, Bt toxin, we use surrogate to conduct safety studies, we use surrogate products of Bt produced by a bacteria instead of the actual product produced by the Bt plants. In terms of pesticides, we only test the active ingredient in animal safety studies instead of actually conducting an assessment of the entire product, which we are exposed in the community, and also, we have not studied what is the effect of chemical cocktails when pesticides are exposed in combinations. I have listed here the number of scientific refereed publications that I have run across in terms of adverse effects of animal studies affecting different body organs from exposure to genetically modified crops. This is not a comprehensive list. This is just a list that I have come across along my research. Impacting organs such as the digestive system, the liver, pancreas, for example, nine refereed publications; the blood, the immune system, reproduction, and Bt toxicity. On the other hand, recent studies from internal industry documents, as well as

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from the research literature, has identified a range of concerns from the exposure of Roundup herbicide, which as you know, is an integral part of most of the genetically modified crops that are grown across the world. This includes birth defects, death of the fetus/embryonic deaths, lung, kidney, skeletal malformations, endocrine or hormonal disruption, DNA damage, in parts of the nervous system and carcinogenic effects. Studies have been published over the past couple of years including long-term studies on the exposure of rats and also on pigs, demonstrating adverse effects. The first study to your left was retracted, but it was again republished in the scientific literature showing that there was nothing wrong with the original publication despite the fact that it has been demonized. The article on the right-hand side is by Professor Seneff, by MIT. Again, her work has been demonized, but on the other hand, her positions are based on observations from the research literature. For example, she has been mocked for her studies linking Roundup and autism. Next. But there have been studies over the past couple of years actually showing links between pesticide exposure and autism and especially when there was close, closer proximity to this exposure. Other studies, for instance, have shown brain...increased levels of brain tumors on childrens [sic] exposed to pesticides. Next. Another extensive review found increased cancer burden among pesticide applicators and others due to pesticide exposure finding substantial evidence. Next. We have learned that DNA or genetically modified DNA does not necessarily break down in the alimentary tract and this is again contradicting earlier statements by industry that this would not occur. This is the result from Seralini that I mentioned, a two-year, the first life-long study that conducted for two years instead of the standard 90-day study. It found early deaths of females at 2 to 3 times the ratio compared to controls, tumors in males are 4 times the ratio, which occurred 600 days earlier compared to controls, effect on the liver, kidneys. Next. And also impact on the hormonal system, endocrine disruption, as well as on the pituitary gland and sex hormonal imbalance. Again, this study has not been refuted in the scientific literature. Next. Recent publications have also shown to us the level of residues of Roundup on the products that we're consuming, as well as in humans and animals themselves. Next. Recent studies from Sri Lanka, Tacoma, Washington, Central America are finding links between Roundup and kidney disorders and perhaps Dr. Pang will talk about this. Epidemiological studies have been conducted in Latin America for the past 15 years comparing from people exposed to pesticides used to grow genetically modified crops. These studies have been published in the literature comparing populations of people that have been exposed to these pesticides compared to similar ethnic populations that have not been exposed to these pesticides. The range of diseases include birth defects and stillborns, skeletal--can you go to the next slide? I'm sorry. I'm sorry about that--skeletal malformations and growth deformities and four times their rate of cancer. Again, these are epidemiological studies in South America from people in rural areas that have been exposed to pesticides used to grow genetically modified crops. Next. And this is just a list of the publications published in the medical literature from exposure of people or wildlife to these chemicals in Latin America. In terms in ecological risks, these are the number of scientific publications that I found in the literature for several adverse effects on the environment included persistence in the environment of genetically modified DNA, impacts on microbial activity, impact on non-target organisms, biodiversity reduction from herbicide treatments, impact on bees, impact on the creation of alternative pests or secondary pests, and the big question mark of what are the unintended consequences? Next. We have seen an incidence of superbugs and

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superweeds, again, contradicting earlier statements by industry that this would not occur. Next. We have detected the presence of antibiotics and markers in the environment in rivers, in the major rivers of China. Next. And then we have the claims of safety and the claims of a consensus of safety made by industry. There's been several books that have been published documenting the product defend industry that the industry relies on, first created by the tobacco industry, to create uncertainty on studies that show adverse effects. Next. A study compared agricultural systems in the United States with similar socioeconomic areas in Europe, growing the same crops, same economic background with the exception that Europe does not grow GMOs. The study did not find any improvement in the agricultural system in the United States with regards to several parameters, throwing out of the window the proposition that we need GM crops to increase yields or reduce pesticides and so on, and so on. In terms of economic benefits for the State, as far as I know there has been no independent economic analysis to determine the value. There has been no analysis in terms of the externality or social costs of fixing problems down the road as we are doing today from a legacy of plantation agriculture in the State. In terms of the safety claims--last slide still--in terms of the safety claim made by several organizations, these organizations have not conducted their own studies and they...these organizations themselves are making call to determine...to conduct health studies on a case-by-case basis, something that we have not done with genetically modified crops. Next. I will give a brief background on the seed industry in the State. This is from Kauai but I think it's pretty much similar throughout the islands. As a general rule, you can find, you will find--next slide, next slide--something that characterizes the seed industry is that over past 15 years, most of the fields had remained fallow or bare, as you can see on the right-hand side, or exposed to erosion and the elements. Next. If you look at the data you find that about 70-85 percent of the field may remain bare or fallow at any one time during the year. Next. You can see that the fields are upslope from sensitive wildlife, communities, or aquatic habitats, and these are fields that have received extensive pesticide and chemical applications. Next. You can see here mauka to makai view of fields going downslope and exposing communities such as Waimea town to pesticide drift or chemical drift which is going with the wind, again, from mauka, east to makai. Next. Again, you can see the proximity of the agricultural fallow fields to the ocean and aquatic habitats. And again, the proximity to schools and the community which explains the call for buffer zones. And here you can see an overall perspective of the big plumes that may occur after a big rainfall, such as we had last week, so if your kids are in the ocean swimming or surfing, they may be exposed and you may assume that these plumes may contain some pesticide or chemical residues with them. And this is a list of some of the pesticides that are used by the seed industry in Kauai. So we're talking about the concept of pesticide drift. Next. And it is well established that chemicals will move offsite and reach non-target area and organisms. And these are a few pictures that the people from Kauai and Molokai have had to live with on a day-to-day basis for the past 15 years reaching out to policymakers and to our leaders, and finding only a deaf ear until the past couple of years. Pictures from Molokai. Some more dust and pesticide drift. If you drive in Molokai over the weekend you will, you will see this almost without exception. Next. And we know that these pesticides eventually make it into non-target organisms. This is a study that was just published and it finds recently 121 different pesticides, unmetabolized, were identified in the hive. So we know that these pesticides are drifting and that they're making it, reaching areas that they are not supposed to reach. On the other hand, I would

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like to mention the potentials of intensive or alternative small-scale agriculture. Next. If we take at face value the value of the seed industry at over \$200 million, they own about 25,000 acres in the State. If we divide that value, we find that the value of the industry per acre is about \$8,500 per acre for the GM seed industry. If alternatively, we develop systems to support high-value, small-scale farming agriculture, we could have farms producing, over, conservatively, \$100,000 per acre. So if we have 300 acres, for example, of GM seed industry, the value would be about \$2.5 million and if we had 300 acres of high-value, intensive diversified production of produce to be consumed by our community at home and the money staying at home, we would...the value of that, those 300 acres would be 300...30...\$30 million. Alternatives do exist for agriculture and there's a solid scientific background to develop alternative farming systems. They call about small scale farming, high-value food production, organic farming, community empowerment and self-sufficiency, respect for cultural heritage, preserve the rural lifestyle and community values, and these are called, as the earlier papers that I talked about, about changing the structure of agriculture. Next. We have considerable experience with agroecological, ecological, or organic systems throughout the world and in the islands. For instance, in Maui, Kona, Molokai, Kauai, and in Oahu, we're celebrating this Saturday, 20 years of organic farming research plots established at Manoa that I started in 1993 soon after I joined UH. Thank you all for your attention. Aloha.

CHAIR HOKAMA: Okay. Thank you very much, Dr. Valenzuela. Mr. Douglas, you got 30 minutes left.

UNIDENTIFIED SPEAKER: ...*(Inaudible)*...

CHAIR HOKAMA: The Chair doesn't discuss the time.

UNIDENTIFIED SPEAKER: Is this the pointer, Hector?

MR. VALENZUELA: ...*(Inaudible)*...

CHAIR HOKAMA: Dr. Pang, you need lights?

MR. PANG: You can turn off the lights little bit ...*(inaudible)*...

CHAIR HOKAMA: Okay.

MR. PANG: I was going to talk from here because I gotta see the PowerPoint to talk.

CHAIR HOKAMA: You need to be with a microphone, please, Dr. Pang, so we can have you on record.

UNIDENTIFIED SPEAKER: Is there a wireless?

UNIDENTIFIED SPEAKER: There's a handheld ...*(inaudible)*...

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UNIDENTIFIED SPEAKER: Speak from here.

MR. PANG: Okay.

UNIDENTIFIED SPEAKER: You getting a wireless?

UNIDENTIFIED SPEAKER: Yeah.

MR. PANG: I'll try to keep this short. Okay. I'll just speak from here ...*(inaudible)*...

CHAIR HOKAMA: That...

Note: Computer-generated presentation.

MR. PANG: I speak as a private citizen. I work for the Department of Health. My credentials beyond that, I'm retired from the Walter Reed Army Institute of Research, 20 years, retired from the World Health Organization. I teach research and clinical trials. I'm actively solicited and I serve for the U.S. Congress. We review hundreds of millions dollars of research grants each year. I am a professor of medicine. I've been a professor of medicine at the Federal universities in Thailand, Brazil. 1987, I was Adjunct Professor at UH. Okay. Next. Oh, you going do the next. First of all, on Maui, we only...there's two issues here, the mutations themselves and the pesticides associated with them. That was clear from the bill. So we've heard that on Maui right now, we only grow seed corn, seed corn, not foods, so why are we going to talk about foods? We have to talk about it a little bit because non-GM foods can be contaminated by GM crops even though it was a seed corn. For example, corn in Mexico, long grain rice in the U.S., GM papaya on the Big Island. All right. Pollen from these seed crops can spread to humans besides spreading to our non-GM crops. It can go into our GI tract, into our gut cells. It can actually spread into the human cells themselves. This has been shown for the last 10 years. And finally, we want to address GM foods, although we only grow seed corn seeds now, because if you wait 'til we grow foods and we talk about this issue, you'll be jeopardizing jobs. Next. So, we trying to...oh, I have it. So we're trying to preempt this. Over the last couple of days on this thing, you've heard this question is GM foods safe? This is a little bit strange to me because the proponents of GM said that the activists are asking for safety and nothing is perfectly safe or nothing can be shown perfectly to be safe. But yet yesterday, you heard repeatedly from them this is safe, this is safe, this is safe. So why do they accuse one side of doing something they themselves do themselves? So let's get to the bottom of this. Safety is expressed as the chance of toxicity. It's almost the opposite and it's always sandwiched scientifically by uncertainty. For example, there's the point estimate, and there's the uncertainty so if I test the drug or GM food and I say 12 percent of the people vomited, well, it's also the uncertainty. It's 12 percent but it could be anywhere from 8 to 16 percent. So the point estimate, what you saw, and the confidence interval. The point estimate can be zero. You could see nothing, but the confidence interval is never zero, and it's very, very small only if you approach a sample size, a study size approaching infinity. For example, and this is very important, faciocranial birth defects as reported by the Argentinians, Washington State, Oregon, they're claiming it increases five-fold

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above background. Oh. But the EPA, their standard test is in 40 mice. So if you did test by EPA standards and saw zero out of 40, the point estimate is zero, zero defects, but the uncertainty is zero to 6 percent. So you see that uncertainty is rather large when your study size is small. So let's get all on the same sheet of music. The industry, they say, yesterday we heard repeatedly, that this stuff is safe. What they really mean, I'll give them this, that it is as safe as conventional food, not that it's zero. Here is the National Academy of Sciences, I think the year is 2003, it's called *Safety of Genetically Engineered Foods: Approaches to Assessing Unintended Health Effects*. In this book, I believe in these guys, these guys are the ultimate science gurus, you will see this graph twice. The GM industry refers to this graph and so do I. Listed this way are all the ways you can modify and make new kinds of food crops. Here's the standard cross, pollen to pollen--never mind if you can't read it, I'll tell you what it is--crossing the big pumpkin with the yellow pumpkin to get the big, yellow pumpkin. I put stars by all the GM methods. On this axis is the likelihood, more likely, less likely of unintended health effects. Whoa. So you see the starred areas, these in particular, have a higher mean point estimate of unintended health effects, in theory, compared to the standard cross. The other thing you should note about this graph is the wide scatter, not only is the mean higher, but the variance, the scatter, that's consistency of product. Is it so unusual sometimes you might see a side effect, sometimes you don't because you're all over the board. When this was presented, started 15 years ago, to people on Maui, they said that this graph, it doesn't say that. It doesn't say health effects. Actually the book says health effects but the graph does say health effects. Next. The people from Monsanto brought out doctors from Harvard, Duke and UC-Davis, who am I to argue with them, and they said that things you see with GM foods, toxicity, you will also see with non-GM, the regular food. I agree. Nose bleed, nose bleed, but this one causes more. Cancer, cancer, but this one causes more. It is not a qualitative argument --I'm losing this--it is a quantitative argument. And finally, the argument we heard from a plant biologist from Penn...University of Pennsylvania, very prominent, she said, he's right, more unintended health effects but not all are bad. This person has no medical license. If you said that about a drug, take this drug, I don't really know what it does, but it's not all bad, maybe the good part cancels out the bad part, your license would be removed. You mean to say, good for your kidney, bad for your heart? It cancels out and you should take it? I say since it doesn't cancel out you should test it and a drug or a GM food, if you bother to study it, which has shown good for the kidney and bad for the heart, you should give to people with bad kidneys and good hearts. Think about it. People with good kidneys and bad hearts never take drugs and they shouldn't take GM foods 'til they're tested. So these things are not equivalent, and there are more risks of unintended health effects, and they don't cancel out. So if it's risky, do we test enough? That slide I showed you was 10 years old. Maybe in the last 10 years we've tested something. Repeatedly, you've heard that there are 1,700, used to be 400, then 600, then 1,700 publications of safety. This is called the Nicolai review. The people who quote this they should try to read it themselves. You should ask them what's the guy's first name? Is it a guy? Show me you've read this. You don't just throw it out there. When we start to review it, a lot of these 1,700 are irrelevant with respect to toxicity. They are not long-term studies. Why should they be long-term? Because food is eaten on a long-term basis. So we ask for two year studies as long-term. They list, but ignore studies that show toxicity. They list it as evidence that it's safe, but actually they don't cover the results that actually shows it toxic. There's only 3 human studies in this 1,700. I like human studies,

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especially when it's food and we plan to eat it, and those human studies are not really what they call "pivotal". These are marker studies. I give you the GM food. I didn't see how you did but I noticed there were some markers, antibody to the food, the DNA of the food itself. These are not valid human studies that we move forward to marketing. Next. Repeatedly, the AMA, the WHO has asked, yeah, you guys are on the right track, but can you test all the mutations that can occur from the food, not just the inserted ones and the ones you thought would change? Since it's a food, I expect you to test it against pregnant women, young children, unless you label it, which you don't. Many and...I review research moving to clinical human trials or marketing, we always review the animal studies. Based on what I see here, I'm not finished reading it, but based on what I see so far, many of these animal studies, lab studies, they would not progress to human trials. That's my personal comment. And actually, if you...in sum total, you take the ones that are relevant, it actually shows toxicity. So when they make the blanket statement thousands of, well, hundreds of articles, let's have a little debate here, article for article. My article to start with is Dr. Seralini's study referred to by Hector. This has been republished. I think there is no denial of liver toxicity and kidney toxicity. If you want to debate, or arrange a debate, I'm more than happy to. The EPA's ruling, if you look at, there was a handout yesterday, a fat booklet called *GMOs Myths and Truths*. They will talk about this. They will talk about this. The EPA's ruling of approval is based actually not on science but on the repercussions of not assuring safety. It says this in this booklet. Next we have the argument of the trillion meals. Well, you know, Dr. Pang, after that slide, 2003, we've eaten trillions of meals and so we think it's safe. There's four arguments. I'll go over them very quickly. If you take a trillion meals you need a control group because certainly after 100,000 meals some people had cancer in the next 6 months, some people went to the ER. You really mean against a control group, there is no control group since the food is not labeled. Next. How many trillions of cigarettes did we smoke before we figured out it causes lung cancer in the 1950s. Next. If you say in the last 20 years we ate trillion meals and that proves safety, 20 years ago you did not have this guarantee of safety. You had a promise of benefits, feed the world, feed yourself, but when you don't know the safety 20 years ago, you release it under written informed consent that is what I had to do for my projects, and I'd hate to see a double standard. And finally, a trillion meals, how many mutations? It's like saying I gave a trillion doses of aspirin. It looks okay so I guess all the rest of the drugs I release from now on are okay. It's a case-by-case basis on a product-by-product basis. And finally, why this needs more control is because of Monsanto themselves. Dr. Daniel Goldstein came out here about 10 years ago to present, as a doctor, he's a physician, to the Maui Medical Society, and the Maui doctor said hey, where's the human trials? When we prescribe something we like to know human trials. He said, yes, human trials are important, but they have not been done, and they can never be done. Whoa. They have not been done. That's true. They can never be done for--he gave a reason--that's totally wrong. We don't have time to discuss his reasons now but Dr. Barbarosh, the president who was there, will vouch for me. I will move to pesticide exposures. Remember there's the mutations and the pesticides, sometimes they begin to overlap. Maybe the workers are exposed but they are protected. In the past, sugarcane, pineapple, in the past it was communities, there was environment issues with sugarcane and pineapple, and in the past, we...(clears throat)...sorry, in the past--I can't even see my own slide--in the present we have some of these same issues, the community, the environment. We have--what is that?--the community--

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UNIDENTIFIED SPEAKER: Rivers?

MR. PANG: --the rivers, okay, the same...the environment, but the environment is beginning to be a big issue, and in the present, now we are faced with GM crops. They really put out a lot of pesticides, 80-plus chemicals, Hector has it as 120, and we really protect our workers, and maybe the problem's not in our workers and there is residue on our foods. This was not a problem really of the past so that's our problem with pesticides exposures. This is a statement, I won't read it to you, but the promise to use less pesticides is not panning out contrary to what Dr. Brewbaker said. You might reduce the use in the first couple years but after that the kinds and the amount increases. It's mostly because you have resistance, resistant pests, insects, weeds, and so you use more, and more, and more. So you are using more. Okay. And so, this is a general statement for the U.S. and the world, but what about Hawaii? How about our experimental field trials in Hawaii? Well, how much do these guys use? Always remember, they are using 80-plus according to me, Hector thinks maybe 120-plus chemicals. I'm talking about exposure to pesticides. Here's a survey across the U.S. of all these pesticides in drinking water and I'm not even yet talking about glyphosate. Here's glyphosate. Look. The water samples are contaminated with many pesticides. Glyphosate has not been tested formally by this group, but we suspect based on the Moms Across America, 50 percent of the water has glyphosate so we are exposed in our water. Here's the food. There's the dirty dozen and the clean 15. We are exposed by food residues, food, water. Here is a report of GM crops, Roundup-ready crops. Here's the non-Roundup-ready crops, commercial and organic, and this is the residue of glyphosate on the crops. Here is GM crops. So of course if it's going to take Roundup to kill the weeds, you're going to load it up with Roundups more and more as the weeds become resistant. These are the products of glyphosate and its breakdown product or metabolite. You see how much. So when you do a study or a report of GM food causing illness, I don't know any more if it's the mutation or the pesticide residue on it, but there's plenty pesticide residue. Here is drift, things blowing off the field. This is put on the Kauai website. This is a study by the UH. I referred to it before, and did the Department of Ag and they decided to go next to the elementary school which was complaining repeatedly of illnesses and do air sampling, and these are one, two, three pesticides they measured. And the yellow bar shows it's hundreds of times higher than the school, Hanalei Elementary, that's not next to the field so it's certainly is drifting. I claim that this sample is unrepresentative. Why? They did not do this during the years the kids were sick. They were told we're going to monitor you and so of course, the company, I heard anecdotally, was well-behaved. They moved their spraying operations away, and away, and away, but nonetheless, they saw this. So probably when the kids got sick it could be many, many times higher. Okay. So we are exposed. Is it toxic? Well, we have to ask about acute toxicity and chronic toxicity to a chemical. Acute is easy to pick off. People get sick, you report it, you piece it together. Chronic is very difficult. You have to do long-term studies looking for long-term effects mostly in the cancer areas, and we have a report now, here's the site, that there is doubling the rate of lymphoma. Next, when take it chronically, you always expose the windows, the fetus and the unborn child, and the young kid so you cross into the susceptible windows. And finally, when you have a chronic exposure, you are exposing susceptible populations, breast cancer people, there are estrogen dependent breast cancers and I have seen

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reports that glyphosate and atrazine are estrogen mimickers so I would tell a women who has estrogen dependent cancer be very careful of your sources. Next, exposures and are they toxic? All this "s" is my introduction to we are dealing with exposures to many, many pesticides, 80-plus not just one. Remember the old rule, my old rule, any combination of a mixture is considered a new, a new chemical until proven otherwise, especially with toxicity. Here's how we normally test products. We go from the lab, to the animal, we test in humans then we move to market. When you have a pesticide you will not do human studies, that's unethical so we test all we can in animals, move it to market and after we market it perhaps people are exposed and we work backwards. There's four ways we work backwards--and I'm sorry, I'm losing this thing, but that's okay--four ways we work backwards. This is how we did cigarettes after it was marketed. Number one, you can look at animal models just like we did for cigarettes. You can look at pesticides in animal models. You can look at population studies, gross aggregate things. Gee, when we smoked more, we got more lung cancer. You can do specific population studies. Within this picture, maybe the ones who smoke more got more lung cancers, but these are called the population studies. You can identify the chemicals. We know tar. We know nicotine. And we can identify the mechanism. For example, that's precancerous. Let's watch to see if it changes to cancer. So we know these four things. All the studies that Hector presented, I will present, hinge on one of these things. You need all of them to show causality, but any one of them, in my opinion, a strong showing is enough to ask for a moratorium to the other ones, give it a free bill of sale. Combinations. I don't know how many really combine, but I know there's 80-plus used. Okay. By combination I will always mean the chemicals are applied together. They are applied separately but in the environment together. They are applied separately and overlap in the body, or the damage overlaps. You damage a reef with chemical A. Before the damage recovers, you gave it chemical B. It affects another area of the reef and you have a combination effect, simple as that. I never said you combined 80 at one time. Okay. This is my estimate of the number of pesticides used during different situations. I think that's four chemicals used maybe in road clearing, putting Roundup on the weeds. With 4, there are 15 combinations to worry about. When you have 15 chemicals, let's say the history of sugarcane and pineapple, there are 30,000 combinations to worry about. When you have 30 chemicals, I don't know who uses that, there are 10 billion combinations. When you have 45 chemicals, the strawberry industry, my best guess, the strawberry, maybe apple industry, there are--what is that--10 trillion, something, 30 trillion--I can't read--10 trillion combinations. And here's 80, the GM experimentation in Hawaii. I don't know if Monsanto, but we forced disclosure on Kauai of Pioneer. There are a trillion-trillion combinations. Okay. That's impossible to test a trillion-trillion, but just because you cannot test it does not remove the fact that you are running a very high risk. You just happen not to be able to test it. So I always ask to test the mixture. I always said that. I never said kill yourself testing a trillion-trillion. And this is the position of the National Academy of Science on pesticide mixtures. For complex mixtures, we ask that you test the whole mixture or termed the mixture of concern, that's the ones that overlap. This is clearly a major source of disagreement between the National Academy of Science, uh-huh, and the EPA. The EPA gave testimony here. During that testimony in July, Bill Jordan of the EPA told the Maui Council that they don't test whole mixtures, but do follow this guidelines, giving this reference, which I read and somehow I get very nervous when our regulatory agency gives a reference, misquotes it, and says they're following. Okay, enough of that. Here's a combination,

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just two, remember, there's a trillion-trillion. Glyphosate plus a surfactant. This was published in *Scientific American* by Dr. Seralini. He showed that each one separately was relatively safe in the cell line models, but when you combine them, whoa, you see strange stuff. Apoptosis, that means early aging. This will show up in humans as Parkinson's, Alzheimer's, and fetal defects. You have to kill some cells during fetal development. If you don't, you get wacky, wacky defects. He also saw necrosis. This is necrosis, I just use one example, prominently kidney necrosis. So that's what he saw when you combine two things. This is just glyphosate alone. A lot of people no longer look at the combination. They say this is so ubiquitous, you better take a look at this alone. Here's one, two, three, four different mechanisms, five. Each of these mechanisms come with a very strange human presentation. This is the mechanism of birth defects, craniofacial defects seen in Argentina, five-fold the background rate, seen now also in Washington State and Oregon. This is Dr. Carrasco. These are the birth defects, a specific kind called craniofacial. He repeated the study in animal so he has an animal model. He has the population studies. He's piecing together the four things, just like cigarettes. The response by EPA will be, I bet you, it's we saw nothing in the mice studies. We saw zero out of 40. I don't know really if they saw it, but let's give them the fact that maybe they tested for this and zero out of 40. The uncertainty is zero to 6 percent. Well, Dr. Carrasco and Washington State is reporting a five-fold increase to 1 percent, to 1 percent. What I'm trying to say is 1 percent is within the uncertainty here, and so these two data sets are compatible. It's not that the EPA showed you it's safe. You're dealing with different sizes of uncertainty here. So next, autism. This is a ecologic study; on the red scale is glyphosate usage over the years, every four years, on the blue scale is autism. As one increases, the other increases. The industry's argument is oh, I could show you the same graph, the rise of autism and the rise of organic food consumption. Yeah, yeah, yeah. This is a ecologic study. We will pan out separately who ate what, who got what. We will pan out separately the mechanisms, but it's not one study shows everything. That's ridiculous. Here is the mechanism of the people who said autism is related to glyphosate. It is in the gut bacteria. The gut bacteria, I learned, has ten times the number of active cells as the human body, and they propose this is a way you kill the gut bacteria because glyphosate is a patented antibiotic and you change your gut bacteria which are very, very important to eating and converting that to essential elements. Here's a pig study showing feed with Roundup-ready corn and the gut is inflamed. I guess you really did mess up with the gut. I don't know if this is the mutations. I don't know if it's the residue on the glyphosate. The picture is beginning to get confused. Here's the mechanism, you remember the tobacco guys proposed mechanisms, these guys proposed mechanisms based on modification of the gut. Okay. Here is the celiac sprue. It's kind of an inflammatory bowel disease, same epidemiologic stuff. The rise of glyphosate, the rise of this disease. Okay. This is on wheat. Here is dementia and autism. The rise of one, the rise of the other. Here is kidney disease. The rise of one, the rise of the other. Just in summary, you've heard testimony, this is safe, nothing's happened. If you look chronically, stuff is happening. We're trying to piece together what's what but it's not labeled. So I offer anytime to debate anyone on this issue, but I really expect you to know the literature. Thank you.

CHAIR HOKAMA: Thank you, Dr. Pang. You can turn on the lights, please, Staff. And lift the screen.

MR. RITTE: So I'd like to...

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CHAIR HOKAMA: Mr. Ritte, could you introduce yourself, give your credentials, and share your comments with us. I know time is pressing so if you would adjust to the remaining time.

MR. RITTE: Yes. Aloha and thank you for this opportunity. My name is Walter Ritte from Molokai and I'm here to give a presentation regarding the situation on Molokai. And I'm a lifelong resident of Molokai, and been very involved in the community, and been very involved in this issue not only on Molokai but Statewide for the past 10 to 12 years. First of all, what's happening, whatever I saw yesterday, was reminded me a lot about when we started the issue of Kahoolawe and the United States government said that we were interfering with national security, and that if we continued our press to stop the bombing that the United States military was going to move out of Hawaii, and they came up with a whole bunch of graphs and stuff about the tremendous loss of jobs and the horrible effects it would have on the economy. And people called us all kinds of names, and to make a long story short, that did not happen, and we did protect an island. The other example I'd like to start off with is on Molokai for no apparent reason except profit-making, the pineapple companies decided that they were going to leave Molokai. And they left. They went to South America; they left. The unions couldn't do anything about it. Nobody could do anything about it. The government had to just react. So the State put together a task force and they did everything in their power to minimize the impact of these people leaving. But the thing that they told our community was the solution to this problem was for government not to depend on these large corporations, and that the answer to the problem was diversified agriculture. They began telling us on Molokai 'cause we were such an agricultural-based island that we have to diversify. We're going to go into small truck farms and we're not going to allow one person's problem affect the whole island again, and lo and behold, we're back in the same exact situation when it comes to the seed companies. They're now threatening to leave again, and these same threats that we hear every time we try to regulate these guys. So I'm here to say that we need to regulate and the reason we need to regulate is that Molokai, the population of Molokai is Hawaiians. That's the majority of the population, and we need to understand this population. Most of the people that were talking in the past couple days were not Hawaiians. There were a lot of Hawaiians involved, but most of 'em were talking specifically about what they need today to survive. Hawaiians have another obligation, and we're taught that from a very young age. We have what we call kuleana. We have responsibilities to our future generations because we were handed down by our kupuna the resources for us to survive in this Pacific. So we have that kuleana to hand those resources on to the next generation. That is a very serious kuleana for Hawaiians. We have that. What I'm here to tell you, this body, is that our culture is being seriously impact by these seed companies. Our ability to continue our culture on Molokai, which is a very Hawaiian island, is being threatened by these companies. We need mitigation actions. We need assurances that we will be able to hand these resources to our next generation. We will fight any threats to our ability to make sure that our resources are protected and handed down to these next generations. We live with these companies. We see every day the impacts of these companies are having on our people and on our island. We don't need to listen to the battle between scientists who are paid from one side and scientists who are concerned about what's going on. They cancel each other out. This is not a scientific problem. This is a political problem. What you guys decide is going to, is going to

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be the solutions. We already have history of the bad decisions we've made in the past. We cannot continue making those bad decisions. We need to diversify. We cannot have these companies being able to threaten our future in order to get what they want. We live...we've seen pineapple. Pineapple was borderline, right. We get ratoon crops so you don't plow your fields for what, four years, maybe five years, depending on how well you take care your field. These guys are plowing four, five times a year. We're creating dust bowls on Molokai. It's in our houses, it's in our cars, it's in our schools. The dust goes down into the ocean. We see it covering our reefs. When it rains, everything is uphill, everything goes downhill. We're worried about our reefs. Nobody is saying anything about all of the things going onto our reefs. Molokai has two economies. We have the regular economy, the cash economy that we depend on, and we also depend heavily on our subsistence economy. We have a study, State study this thick about the subsistence economy on Molokai and how it needs to be protected. We depend on our subsistence economy for 33 percent of our food. So these things need to be taken into consideration beside you cannot destroy one economy in order to have a cash economy. That puts us all in a one box where we have to have money in order to survive and then we're stuck. On Molokai we still have the opportunity to be self-sufficient so we protect that, been protecting that for 30 years. So I'm here to say that we are now not only worried about our reefs, but we are worried about the future because now glyphosate is not doing its job. They're talking about now dicamba. They talking about 2,4-D. These are way more volatile chemicals that they're going to be using. And every day we look up. We know the evaporation, it happens every day, it evaporates up into the clouds and the dust particles. It goes over our mountaintops and it rains into our mountaintops. That's our drinking water. In those chemical...in those dust particles now are going to be these chemicals, these volatile chemicals and we're worried about what's going to happen to our water.

CHAIR HOKAMA: Mr. Ritte, I'm sorry to interrupt but if you can conclude in two minutes.

MR. RITTE: Okay. I'll conclude. Today these guys, they're so arrogant, and pushy, and bullies. I mean I've gone all over the State, listened to all of the different islands, they're suing all of the counties. They're probably going to sue you guys. That's what they do. They're...Monsanto now is putting their fields around the Molokai Irrigation System that feeds the Maunaloa town, and the west end of Molokai drinking water. They feed all of us farmers in Hoolehua farm water. They're surrounding the whole MIS system with their fields. They're going right up to our schools at Kualapuu and the town of Kualapuu. These guys have no concern over communities. So I'm here to say that on Molokai this thing is going to get...this battle is going to get worse, and worse, and worse. And if we can't get solutions out of the County because we can't get it out of the State, 'cause the State is trying to preempt you guys from, from and they're trying to protect these companies, we can't get solutions out of you guys, we're going to protect our lands, and we're going to protect our kids, and if we have to go to the streets to do it, so be it. Thank you.

CHAIR HOKAMA: Thank you, Mr. Ritte. Appreciate it. We're going to take a recess. We're going to connect with our next resource, which is the USDA, and then we'll readjourn, listen to their comments, and then eventually, hopefully, we'll get to Members' discussion sometime today,

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please. So we will take a short recess and...five minutes and then...you need five minutes, Carla?

MS. NAKATA: ...*(Inaudible)*...

CHAIR HOKAMA: Okay. We'll do recess subject to the call of the Chair. ...*(gavel)*...

RECESS: 10:18 a.m.

RECONVENE: 10:20 a.m.

CHAIR HOKAMA: ...*(gavel)*... This meeting shall return to order. Members, we have made contact with the United States Department of Agriculture. We have them on conference phone and so I'm going to ask, I believe there is our main contact is Mr. Mike Firko, Ph.D., Deputy Administrator, Biotechnology Regulatory Services, Animal and Plant Health Inspection Service, United States Department of Agriculture. Mr. Firko, welcome.

MR. FIRKO: Hello, Mr. Chair, and can you hear me okay?

CHAIR HOKAMA: Yes. Thank you. Can you please introduce who else you have with you this afternoon, please.

MR. FIRKO: Yes, sir. So as you said, this is Michael Firko. I am the Deputy Administrator of APHIS, leading a group called Biotechnology Regulatory Services, and I'll let each person who is with me here, and we have one on the phone, I will let each of them introduce themselves so you can see what their voice sounds like as they speak.

UNIDENTIFIED SPEAKER: The microphone's not on.

MS. BUCKNALL: Hi. This is...I'm Janet Bucknall and I'm the Associate Deputy Administrator in APHIS, Biotechnology Regulatory Services.

MR. TURNER: I'm John Turner. I'm Director of Environmental Risk Analysis Programs here at Biotechnology Regulatory Services.

MS. BURNETT: I'm Gwendolyn Burnett and I'm the State and Tribal Liaison for Biotechnology Regulatory Services.

MR. GRANT: And calling in from Fort Collins, Colorado, this is Douglas Grant. I am the Branch Chief for the Western Compliance Assurance Branch of Biotechnology Regulatory Services.

CHAIR HOKAMA: Okay. Thank you. Mr. Firko, you or whoever you would like to start your presentation to the Committee, please.

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MR. FIRKO: Yes, sir. I'd be happy to. Under the coordinated framework for the oversight of genetically engineered organisms there are three Federal agencies with primary oversight. The agencies have separate but overlapping roles. EPA has regulatory authority over products that produce pesticidal substances to ensure that the pesticide is safe for use in the environment and for use in food and feed. The Food and Drug Administration ensures that the products are safe for use in food and feed, and we here in U.S. Department of Agriculture, APHIS, as specified in the Plant Protection Act, we are authorized to protect plant health by regulating organisms that pose a plant pest risk, such as causing disease or damage. Specific to Biotechnology Regulatory Services, we in APHIS have been regulating genetically engineered organisms since 1987, and we have the responsibility for establishing and enforcing regulations that protect American agriculture by protecting plant health in the environment while allowing for safe field testing of genetically engineered plants. APHIS's biotechnology regulations describing our oversight of the products of biotechnology are outlined in the Federal Code of Federal Regulations, Title 7, Part 340. We're committed to a strong and efficient regulatory program for new GE products under development. As certain GE products are developed, we regulate their field testing through an authorization process designed to protect surrounding crops and plants, and these authorizations come in the form of either a permit or a what we call a "notification", and both of those are described in some detail in the regulations at 7 CFR 340. Genetically engineered organisms are considered to be regulated articles under the regulations if they meet two general criteria. First, the organism has to have been altered or produced through recombinant DNA techniques, and that process has to involve DNA from a plant pest either as the donor of the DNA, a recipient of the DNA, or as the vector of the DNA. And what that means, being a "vector of the DNA", plant developers learned towards the end of the 1980s that a bacterium known as *agrobacterium tumefaciens*, naturally is capable of moving genetic material from one place to another, and scientists figured out a way to use that natural process occurring in this bacterium to move genetic material that is specified by the scientist. So we in Biotechnology Regulatory Services regulate the importation, interstate movement, and environmental release or field trials of regulated articles. Sometimes after field testing, if the developer wants to commercialize a new product and if they can demonstrate that their product does not represent a plant pest risk, they make a formal request to us for deregulation. They may petition the agency to evaluate data that they submit to us to determine that a very particular regulated article is unlikely to pose a plant pest risk and therefore should no longer be regulated. Our scientists here in Biotechnology Regulatory Services thoroughly review the request as well as all information available regarding the new GE crop and related species. We look at information provided to us by the petitioner. We look at the scientific information that's available in the scientific literature and any other information that is available to us to make an evaluation of the request. We prepare two assessments. The first is a plant pest risk assessment where we examine the likelihood of the genetically engineered organism presenting a plant pest risk. The other analysis that we do is under the National Environmental Policy Act, and that typically takes the form of an Environmental Assessment and rarely takes the form of a larger Environmental Impact Statement. We make a determination of non-regulated status only when we can determine that the new genetically engineered variety does not pose a plant pest risk according to the Plant Protection Act, and is therefore safe to be transported and grown in the environment without any regulatory oversight. Each decision for a determination of non-regulated status is accompanied

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by a public process that includes at least one public comment period and an additional public review period. In some cases, there are two separate public comment periods. APHIS, over the years, has determined non-regulated status for 106 different products representing 16 different species. Now, specific to our compliance program we are very committed to an effective and efficient compliance program. In 2000, 14 years ago, we created a separate unit within the Biotechnology program here in APHIS that is dedicated completely to compliance management. This group is known as the Regulatory Operations Program, and Dr. Douglas Grant who is on the phone from Colorado is a branch chief in that unit, and Doug may be answering some questions here in a little bit. Now to ensure that the conditions set forth by APHIS are followed carefully, compliance specialists and inspectors from APHIS perform targeted inspections and audits of field tests and we are familiar with the program run by the Hawaii Department of Agriculture. We know the inspector who does those inspections for the Hawaii Department of Agriculture and we communicate with him regularly. On those rare occasions when we uncover a compliance infraction, we move immediately to begin procedures to bring regulated entity into compliance with measures to protect U.S. agriculture and the environment. We thoroughly evaluate all compliance infractions and serious infractions are referred to APHIS Investigative and Enforcement Services. Most infractions that we uncover are paperwork infractions where someone hasn't kept proper records or there was just something about the paperwork that doesn't...isn't completely consistent with our regulations. Now before we move into a question and answer session, I would like to make sure everyone understands a few points about the coordinated framework, which is the term that refers to the collaboration among the Environmental Protection Agency, EPA, the Food and Drug Administration, FDA, and USDA APHIS to ensure oversight of genetically engineered organisms. First of all, in 1986, the coordinated framework came into being after a few years of discussions within the Federal government and with the public. And the initial findings of the Federal government and the coordinated framework, there were three primary important findings, and they remain today, in 2014, valid and key elements of the coordinated framework. First of all, it was the finding of the Federal government and the coordinated framework that the safety risks of genetically engineered organisms are not fundamentally different from safety risks posed by non-genetically engineered organisms with similar traits. And what that says, is that the act of genetic engineering is not known to introduce new or different kinds of risks. Secondly, regulation of genetically engineered organisms should be science based and conducted on a case-by-case basis. And thirdly, that existing laws provide adequate authority to provide oversight of genetically engineered organisms. I'd like to expand a little bit on this last item about statutory authorities, in other words these are laws written by the United States Congress, and how they affect the work that we do. First of all, the laws written by the United States Congress that come into play here for the Environmental Protection Agency, the first one is a law known as the Federal Insecticide, Fungicide, and Rodenticide Act, FIFRA. Secondly, is the Federal Food, Drug, and Cosmetics Act, known as FFDCA. And the third, for EPA is the Toxic Substances Control Act, TSCA, sometimes called "tosca". The US Food and Drug Administration also works under the FFDCA, Federal Food, Drug, and Cosmetics Act, and we here in the USDA APHIS work under the authority of the Plant Protection Act of 2000. So each of these laws authorizes a part of the Federal government to regulate certain things. For EPA, those laws give EPA the authority to ensure the safety of GE organisms regarding use of pesticides. For the Food

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and Drug Administration, the FFDCFA provides the authority to ensure safety regarding food and feed. And for USDA, the Plant Protection Act of 2000 provides for safety as it relates to plant health. And I should note that since the Plant Protection Act was written in 2000, the original authority within USDA was an act called the Federal Plant Pest Act. That act was superseded in 2000 by the Plant Protection Act, but the language that is germane to our regulatory activity in APHIS is the same. So that's just a technical issue. We talk about the Plant Protection Act and since I mentioned 1987 that we started regulating, I wanted to be sure you understand that there was a change in Federal laws that happened during that time, but the authority granted to us by the United States Congress did not change. They granted us the same authority in the Plant Protection Act that they granted to us in the Federal Plant Pest Act. Now along with this understanding of authority and the fact that EPA, and FDA, and USDA APHIS have different authorities from Congress is an important concept related to who can serve as spokespersons for these different functions. EPA staff are the official spokespersons for issues related to pesticides, and pesticide use, and genetically engineered organisms that produce pesticidal substances. The Food and Drug Administration staff serve as spokespersons for issues related food and feed. And we here in USDA APHIS, we can serve as spokespersons for plant health issues. Congress has not authorized me to serve as a spokesperson for issues related to the safety of pesticides, food and feed and the coordinated framework does not grant us any new authorities. And I thought it was important for folks to understand that because if you ask me or any of the folks on the phone here today certain types of questions, if they relate to the safety of pesticides or the safety of food and feed, we are not authorized by the United States Congress to speak about those things. You have to speak to FDA and EPA about those things. Many times each year, the partners of the coordinated framework, EPA, FDA, and USDA APHIS, we gather together at a variety of different meetings and that certainly facilitates folks who have questions getting an answer, because then everybody's there and there's no way that we can say we can't answer that question. So I'm sorry if I'm not able to answer questions that really may be within the authority of EPA and FDA, but we will definitely answer any questions related to plant health that you may have. Thanks very much, Mr. Chairman. Happy to answer questions.

CHAIR HOKAMA: Thank you, Mr. Firko. Is anyone else from your group going to make any, maybe opening comments to the Committee at this time, Mr. Firko?

MR. FIRKO: No, no opening comments. We're here primarily to answer your questions, sir.

CHAIR HOKAMA: Okay. Well we, first, want to thank you for participating and sharing your opening comments with us. Mr. Carroll, any questions for our resource people?

COUNCILMEMBER CARROLL: Not at this time, for this particular group, no.

CHAIR HOKAMA: Ms. Crivello, do you have a question for any of our resource people?

COUNCILMEMBER CRIVELLO: Thank you, Chair. It's good morning over here, Mr. Firko. I have some questions in regards to, as you may be well aware, that we are responding to an initiative placing a moratorium on the cultivation of GE organisms. So if it's highly regulated, you know,

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we're saying that it's...the cultivation and development of GE plants is highly regulated by USDA, and part of the initiative is Maui County residents have a right to decide if the risk associated with the GE operations and practices are unacceptable, and to take action to suspend such operations and practices. In your opinion, how does the initiative collaborate with your department in that particular item that I've just read.

MR. FIRKO: Yeah. If I understand the question correctly, we are concerned in USDA APHIS with issues related to plant health and we only authorize field trials that do not represent a risk to plant health. We, we, like I said, we have conditions that folks running these field trials, these plantings, we have conditions that must be followed. And we believe after regulating this material for 27 years, that if those conditions are followed, there is no risk to surrounding crops and plants. And to ensure our confidence that those conditions are being followed, we conduct these inspections.

COUNCILMEMBER CRIVELLO: Thank you, Mr. Firko. I'll come back again.

CHAIR HOKAMA: Yeah. Thank you. Ms. Cochran, questions?

COUNCILMEMBER COCHRAN: Good morning, Chair. Thank you. And thank you folks for being there, Mr. Firko. This is Elle Cochran, and so I understand you just deal with plants so let me focus on that then. As in here in Hawaii, you said you do communicate with our Hawaii Department of Ag and so have you folks heard of this initiative that's happening here in Maui County, and what kind of comments have you received from our particular departments in regards to any negative impacts or I don't know, concerns that are arising from this community into, in regards to cross pollination, contamination of people's non-GM type crops?

MR. FIRKO: We are certainly aware of the initiative. I'm not sure when we initially became aware of it. It was several weeks ago, maybe, maybe a month or two. We read the material. I've spoken with Sharon Cook [sic], who is with the Maui County office there. We did provide some written material, which I assume you folks have seen, is that correct?

CHAIR HOKAMA: Yes. We've...yes, we have received that material, Mr. Firko.

MR. FIRKO: Yeah. You know, we did not find it...we did not take it as our role to words...you know, to go through that point by point and make comments on it. You know, I believe that Maui County is operating in a legal fashion, and if you're operating within the law, you're within your rights to be creating a statute, and it's not really our position to call that into question. You know, our primary role here is to help you understand the rigor of our program and to help you appreciate that we are protecting plant health.

COUNCILMEMBER COCHRAN: Thank you, Mr. Firko.

CHAIR HOKAMA: You want to...you have a follow-up?

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COUNCILMEMBER COCHRAN: Yeah, a follow-up.

CHAIR HOKAMA: Please.

COUNCILMEMBER COCHRAN: If you might...yeah, okay. I have a follow-up as in here we have the open-air field testing and a lot of the crops done here are on an experimental basis. Has that any room for concern on your folks behalf?

MR. FIRKO: So we, we authorize thousands of field trials around the United States every year. There are plantings in most states, not every single state, but certainly most states. We have inspectors who are available in every single state. Sometimes folks from one state may do an inspection in a different state, but we have over 100 folks who have been trained to do inspections and some states do more than others. There are a lot of trials in Hawaii. There are a lot of trials in Puerto Rico. There are other states like Kansas and many, many others where there are many, many trials every year. And we are confident that our regulatory program manages the risks to plant health.

COUNCILMEMBER COCHRAN: Okay. And so you're, you folks have eyes and ears here for us in Maui County as in inspections and making sure things are being compliant and what have you?

MR. FIRKO: Could you repeat that? I didn't catch the middle of that.

COUNCILMEMBER COCHRAN: Oh, sorry. Here in Maui County, I just want to focus here where we are and our concerns. You're confident or do have eyes and ears, appropriate eyes and ears that these open-air trials and experimentations are, you know, compliant and not being negatively impacting upon its surrounding neighbors? 'Cause that seems to be the thrust of concern here.

MR. FIRKO: Yeah. Well, I can give you a few statistics and then ask Doug Grant to weigh in on this. In the paper that I sent that you, that you have access to, I mentioned that there are currently 132 active authorizations in the form of permits or notifications. We, we dug a little deeper because some of those are multi-year, and what I can tell you is that for all the active field plantings, and I should point out that not every authorization results in an actual planting. Only about, for Maui County, and I'm looking specifically for data for Maui County, only about 74 of the authorizations have led in 2013 to an actual planting. So all of the data about the authorizations that we issue in every state are available on our website, and that can be viewed at any time, and we can provide the websites if you're interested in those. But what that shows is where authorizations were made, and I think it's important to note that neither is every authorization actually planted, and those authorizations also lists the number of acres that are authorized. Typically the number of acres that are actually planted is much less than what is authorized. Now I can't say that in every case it's less, but if you look at overall for our national statistics, there are many fewer acres planted than are authorized. And you know, we believe that our oversight program around the country, including Maui County, is sufficient to manage the risks to plant health.

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COUNCILMEMBER COCHRAN: Okay. Thank you.

CHAIR HOKAMA: Are you going to have Mr. Grant give us some comment, Mr. Firko?

MR. FIRKO: Yes. Doug would you like to add any comments to that?

MR. GRANT: Yeah. I would just like to say that we have trained inspectors that work for APHIS. They have protection and quarantine located in Maui and until recently, had one stationed on Molokai as well. I was there in 2013 training inspectors, as well in 2010, and we have a very...a well-trained staff of inspectors that covers all of the different trials in Maui County. So I hope that everyone realizes that we do have local APHIS employees who work in Maui County to do those inspections.

COUNCILMEMBER COCHRAN: Okay. A follow-up. You said until recently you had people on Molokai but no longer?

MR. GRANT: Yeah. We had a recent move for that person that was stationed there, and they may be working on filling that position right now, but due to a hardship that individual had to move to Oahu.

MR. FIRKO: But any inspections that that person would have done would be done by someone else during this interim period. Correct?

MR. GRANT: Absolutely. Absolutely. Yes. We have someone fly over to Molokai to perform those inspections and they are continuing to occur on a regular basis.

COUNCILMEMBER COCHRAN: Okay. Thank you.

CHAIR HOKAMA: Okay. Thank you. Ms. Baisa?

COUNCILMEMBER BAISA: Yes. Thank you very much, Chair. And thank you very much Mr. Farko [*sic*]. We've heard, during the testimony, quite a bit of talk about cross-pollination, endanger to crops that are around these GMO open fields. What measures, what preventative measures are taken when field trials are performed regarding this issue of cross-pollination?

MR. FIRKO: So I'm going to let Dr. John Turner, who is here, address the sorts of conditions that are associated with these field trials that are in place specifically to address the risks associated with cross-pollination. Will that address your question?

COUNCILMEMBER BAISA: Yes. Thank you very much.

MR. TURNER: Okay. So every single field trial that takes place in the U.S. with a regulated article has certain conditions that they must follow, and we have oversight over these, and I can give you some examples of what those are. There's marking and identity to make sure that genetically

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engineered seed or plant are not inadvertently mixed with something else. We require details on how they're going to be moved, how they're going to be packaged for movement, how they're going to be stored. Planting and harvesting equipment must be cleaned and to assure that, that GE seeds aren't inadvertently moved somewhere else. And the one that gets a lot of attention, of course, are the separation distances. So we have guidance, we have minimum separation distances that must be followed for various crops. Sometimes there, there are longer separation distances, but there are minimum separation distances and that's one of the things these inspectors that Mr. Grant and Mr. Firko told you about would be looking for. There's monitoring requirements at the end of the test. You have to make sure that the plants don't persist beyond the end of the test or that seeds that might have dropped or might have been produced as a crop was produced don't germinate and persist after the test. There are plant-back restrictions on that land as to what can be planted immediately after a field test and that sort of goes hand in hand with the monitoring. You couldn't plant a crop back in there that would interfere with your ability to monitor for the GE crops. And of course, any GE material has to be devitalized or disposed in some sort of way such that it's accounted for. So those are the type of things which we oversee. Any field tests also, we think in terms of threatened and endangered species. We find out what those species are for a state, where the critical habitat is, whether the field site is in or adjacent to critical habitat. Usually, if there is critical habitat, those areas are avoided, but if it's in critical habitat then a further analysis would have to be done to ensure that the field test was not going to have any deleterious effects, and there would be measures that would be attached to that sort of field tests to ensure that there's no effect on threatened and endangered species. So those are all the sort of conditions and analyses that go into the field tests and the types of conditions that accompany the field tests that we can inspect against.

MR. FIRKO: And if I might just add, John, your question about cross-pollination, the primary thing that John addressed that relates to that are these separation distances. We are very much a science-based organization. We have worked directly and we have contracted studies from various scientific groups like AOSCA, which is a seed certification organization, to establish based on scientific studies what separation distances between any two crops in a species, whether...and in this case, we're talking specifically about a genetically engineered organism and how far it needs to be from a non-genetically engineered organism with which it could cross-pollinate. We establish based on all available science how far away those need to be from each other to ensure that cross-pollination does not occur.

COUNCILMEMBER BAISA: Follow-up, Chair.

MR. TURNER: Thanks, Mike. That's an excellent recap.

CHAIR HOKAMA: Yeah. Ms. Baisa, you have a follow-up?

COUNCILMEMBER BAISA: Yes. We are listening to your assurances and yet we are constantly hearing claims that there really is no oversight. You know, I'm hearing that there is a great deal of oversight. Are there, and do you have claims of GMO crops being grown that have not been properly vetted before they are permitted?

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MR. FIRKO: I'm not sure I heard all of the question. Did you ask if we have evidence of field trials that have taken place without our authorization?

COUNCILMEMBER BAISA: Yes. Correct. I'm wondering because we hear this that, you know, nobody's minding the store, and yet I'm hearing there's a tremendous amount of minding of the store going on so we need to hear from your side that you are comfortable that everything's being looked at. Thank you.

MR. FIRKO: Yes. Like I said, we are confident in the oversight. I've been involved in Biotechnology here in APHIS two different times, for the last three years, and then for about two years in the early 2000s, and in all that time I heard about one situation where a university professor was doing a field trial, this was not in Hawaii by the way, where a university professor, who was not aware of our regulatory requirements, was doing a field trial of a genetically engineered crop, and as soon as we found out about that we were on site and we brought that situation into compliance. So in all my years of being involved, that's the only one I ever heard of and we took care of it immediately.

COUNCILMEMBER BAISA: Thank you.

MR. TURNER: And I want to go back and add a little on how we review these notifications and...

CHAIR HOKAMA: Can you identify yourself, please, so for the record.

MR. TURNER: This is John Turner, again, I'm Director of Environmental Risk Analysis Programs.

CHAIR HOKAMA: Thank you.

MR. TURNER: So I head the group of scientists who actually review each and every one of these permits and notifications that come through. I have entomologists; I have plant pathologists; I have virologists; I have molecular biologists. I have people with plant breeding backgrounds, people with etiology backgrounds, all of my staff, nearly all, at the Ph.D. level. And each and every permit and notification that comes through gets individual attention so there's no automated program to look at these. There's no this group gets done as a batch. Each and every one gets individual attention. I mentioned earlier how we do the threatened and endangered species analysis, that is for each and every notification and permit that comes through. We also have to comply with the National Environmental Policy Act so there's a short analysis that goes through that to make sure that it's categorically excluded, that it has the built-in controls for NEPA also. So again, the point I'm trying to make is that each one of these gets attention. Each one of these analyses takes some time.

COUNCILMEMBER BAISA: Thank you very much, gentlemen. I appreciate the assurance. Thank you, Chair.

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CHAIR HOKAMA: Mr. White?

COUNCILMEMBER WHITE: Thank you, Chair. And Dr. Turner, my question is for you. I think most of my questions have to do with the pesticides and their reach but I understand that you all are not able to speak to that. So my question is, since you're responsible for plant health, what can you tell us with respect to either drift or other impacts on the health of plants being grown in areas surrounding genetically engineered crops whether they be on land or whether they be in nearby waters, whether they're fresh water or saltwater in nature? I don't know how much research you all have in that regard, but I think one of the concerns is the impact of these crops on other plants and since you're responsible for plant health maybe you can share with us whether there are concerns in that area.

MR. TURNER: Well, we certainly consider what types of other plants are in the vicinity. With respect to gene drift and pollination, we all know how that works. That's only with sexually compatible plants, you know, with corn it would be another corn crop. Hawaii is not the center of origin for corn or soybean. There are no, no wild plants that I know of, unless you can correct me, that would be out there that would be affected by the pollen. So that's one thing that we don't have to worry about with these trials. I'd say, I don't know of impacts that GE plants are having on neighboring plants that would be different than those of conventional plants. You know, agriculture itself creates its own effects on the environment, maybe runoff and other things, but the types of GE plants we've been looking at our analysis show that the impacts are not different than conventional plants.

COUNCILMEMBER WHITE: Well, I guess one of my follow-up questions would be that there are GE crops with, I guess lack for...I may not have the right terms, but that have pesticides built-in and so the question is whether that is carried in the pollen or whether that would be carried in any other plant materials that may leave the immediate fields and impact lands or waters nearby?

MR. FIRKO: So let me start. This is Mike Firko again. The types of pesticidal properties that are made by genetically engineered plants are largely and almost exclusively related to production of bacillus thuringiensis toxins and they are not damaging to plants. They are damaging to insects that eat them, but an insect would have to eat them for that to be a problem. With respect to plants that are genetically engineered to be resistant to herbicides that plant is not making any herbicides. The plant is merely resistant to herbicides. So there's nothing coming from the plant that could damage other plants.

MR. TURNER: And with respect to other parts of your question, it's possible for very low levels of this to exist in pollen, but generally, with the GE plants these days there's very little in the pollen of a Bt protein. But I would add again that one of the wonderful things about Bt as opposed to other methods of insect control is that there's a very narrow and focused spectrum of activity.

MR. FIRKO: Explain that a little bit.

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MR. TURNER: So a particular Bt gene, I'll be technical, I know I'm not supposed to, let's say a Cry 1A gene is active against a narrow spectrum of lepidopteran pests. Lepidopteran are moths and caterpillars, and there a pest of corn called the European corn borer, which is a lep, and that particular gene is very good for the European corn borer. There's two or three other less important species that it also affects. Now, when they wanted to go after the corn rootworm that's a coleopteran pest. That's a different Bt, which again, has a very narrow spectrum of activity. So this is different than some chemical insecticides which can have a quite broad spectrum of activity. So that's one thing. The other thing to remember is that these Bt preparations are available and are used...they've been used since the 1950s as spore preps. Instead of engineering the plant, this bacterium can be dried down. It contains in the spores and paraspores with this same Bt toxin in it, and that is one of the mainstays of organic agriculture, the use of these same GE, not the same GE, the same Bt toxins. So just in terms of perspective, those are things which I think are important.

MR. FIRKO: And as it turns out, under the coordinated framework both USDA and EPA regulate the development and approval of these genetically engineered plants that are genetically engineered to produce the bacillus thuringiensis or Bt toxin so we're happy to talk about that because we regulate those plants as well that produce the Bt toxins.

CHAIR HOKAMA: Mr. Firko, the person that was just responding to Mr. White previously, was that Mr. Turner?

MR. FIRKO: Yes.

CHAIR HOKAMA: Okay

MR. FIRKO: Sorry, we didn't announce...mention his name. Yes, that was Dr. Turner.

CHAIR HOKAMA: Yes. Thank you. Mr. White?

COUNCILMEMBER WHITE: One more follow-up then. It appears that one of the points you're making is that the, some of the Bt toxins are used in organic farming as well as being generated in other ways for other crops. Is that correct?

MR. TURNER: Yes.

MR. FIRKO: And this is John Turner again. Yes. So the two preparations go as follows and John described this, let me just state it differently. Either you can collect or reproduce large amounts of the bacterium bacillus thuringiensis, and that's what the Bt means, the "B" is for bacillus and "t" is for thuringiensis. That's name of that bacterium. Either you can take large amounts of that Bt bacterium and dry it down and extract this chemical that's bad for insects and actually spray it on a plant, or you can take the gene from the bacterium that produces the toxin and put that gene into a plant so that the plant itself produces that toxin that kills the insect. So that's two different ways. If you're taking the bacterium, of course which has the gene and has the toxin, and spray

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it on your plant, you can do that in an organic program. If however, you genetically engineer a plant to produce the same toxin which comes from the bacterium, then that it cannot be part of an organic program.

COUNCILMEMBER WHITE: And I guess you're not able to answer food safety questions but that brings up the question of whether there's a health...

MR. FIRKO: Well, have you spoken with the Food and Drug Administration or are you planning on discussing or getting information from the Food and Drug Administration?

CHAIR HOKAMA: Mr. Firko, if I can paraphrase. I think they punted to you. We contacted them...

MR. FIRKO: I'm sorry. What was that?

CHAIR HOKAMA: We contacted the FDA and deferred to you and your group of people, Mr. Firko.

MR. FIRKO: They deferred to us for, on food safety issues?

CHAIR HOKAMA: We invited them to participate, and we had the EPA participate, but FDA decided to allow you to speak on behalf.

MR. FIRKO: All right. So here's what I can say about that. For any genetically engineered plant that produces the Bt toxin to be used against insects, that product has gone through a process at FDA and they are...their language that they use is that they have no further questions about the safety of that in food and feed. And I have full confidence in FDA's review of those Bt plants and I know that they would not approve anything until they were sure that it was determined to be safe.

CHAIR HOKAMA: And Mr. Firko, just for the record, to be more accurate though, they did submit written materials to the Committee. They were not able to participate in a discussion with the Committee and that's why they...on that portion they deferred to you. But they did, for the record, submit written materials on this subject.

MR. FIRKO: Okay. Thank you. I appreciate that. So did...was my answer satisfactory?

CHAIR HOKAMA: Mr. White?

COUNCILMEMBER WHITE: Well, let me be a little more...ask a more direct question. I guess the question that would come to my mind is if you have, for example, organically grown soybeans versus...that have an application of Bt, a topical application of Bt is what I'm understanding you to say, versus a inbred Bt through genetic engineering, is there any difference in the, in the...I know you can't answer food safety, but is there any difference in the health of that, in your health if you consume one over the other?

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MR. FIRKO: So FDA's analysis is based on comparing the food safety of the genetically engineered crop with the crop that is not genetically engineered. And if it is different then they...then all of their questions are not satisfied and it would not receive that, that seal of approval or whatever you want to call it that FDA gives. They don't call it seal of approval. They say that they have no more questions about the safety. In the case of eating, let's say, soy that has been treated with a topical application of bacillus thuringiensis, you would be eating the soy and you would be eating the bio...the Bt organism. And of course, we eat bacteria every day, no matter what we eat, we're eating bacteria. Bacteria are in our bodies. Humans, humans are very familiar with bacteria. When you eat a genetically engineered soybean that has been genetically engineered to produce the Bt toxin, you're getting the soy and only a small part of what the bacterium is made up of.

COUNCILMEMBER WHITE: Okay.

MR. FIRKO: But you're not getting anything different.

COUNCILMEMBER WHITE: Okay. Thank you. Then my last question, if I might have one more, Chair, are there significant differences between the uses of pesticides on GE crops that grown versus food crops?

MR. FIRKO: Versus...I'm sorry. I didn't hear the end of that question.

COUNCILMEMBER WHITE: Well, I wanted to...you know, you're responsible for plant health not food safety, but my question is, we have a lot of...

MS. BURNETT: I'm sorry. I think we lost you. Were you asking us about pesticides or about plant health? I heard both and I don't know what it was.

COUNCILMEMBER WHITE: Pesticides as related to plant health because I'm assuming that you're responsible for plant health of crops growing GE seeds as well as you are for plants' health with respect to food crops. So my question is, is there any difference in the use or application of pesticides between those two types of crops, in general, if you have similar crops.

MR. TURNER: First off--

MR. FIRKO: John Turner. This is John Turner.

MR. TURNER: --this is John Turner. First off, the application of pesticides, what they may and may not be used on is directly under the purview of EPA and we can't really talk to that, but there's an excellent report and it's 2014 from the USDA Economic Research Service on the subject which I, which I think would answer a lot of the questions you're asking. It's called the *Adoption of Genetically Engineered Crops in the U.S.*, has increased steadily over the 15 years and it talks about pesticide use, and in general, in the past 10 years pesticide use on Bt corn and cotton have gone down. Herbicide use on soybeans has been fairly constant, maybe in terms of gallonage

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gone up a little bit. But this is not my data. I'd be glad if, if Gwen can send you a link to this. I think it's an excellent work and would probably answer your questions.

COUNCILMEMBER WHITE: Okay. Thank you. Thank you, Chair.

CHAIR HOKAMA: Okay. Thank you. We'd appreciate that from Ms. Burnett, the link, please. Thank you. Mr. Victorino?

COUNCILMEMBER VICTORINO: Thank you, Chair. And thank you all for...

CHAIR HOKAMA: Can you hit the mic closer? I know that's a rare request from myself.

COUNCILMEMBER VICTORINO: Yeah. For me that's a rare request. Thank you. Thank you very much, Chair. I think they can hear me pretty loud and clear.

MR. FIRKO: Actually, we can't hear you very well. If you could perhaps get a little closer to the microphone?

COUNCILMEMBER VICTORINO: Really? That is a news to me. And probably to the entire State, let alone the County. Anyhow...

MR. FIRKO: It's a long way to Hawaii.

COUNCILMEMBER VICTORINO: You got it. Thank you. Anyhow, I've been reading while all my colleagues have been asking a lot of the questions. I got your, both your mission statement and I went into also your glossary 'cause I was curious on some of the terms that you use so that I can understand what Bt was, Bt crops, you know, I wanted a better understanding. And I think one of the things that stands out really, all the questioning is great, but I think it's the fear and the lack of transparency that these citizens are bringing forward. And for me, that is probably the ultimate, really, question in all of this. It's a, it's a question about the history has not been kind and has proven to be wrong in many areas when chemical companies and various government agencies have said these foods, or these chemicals, or these whatever they might have been, are safe, and years later proven not to be safe. I think this is where this corps is going. I think this is what the initiative was all about. So my question to you are really two things, you say, very, very, very clear about transparency in your mission statement. One of your biggest issues is concise and complete reports. So am I to understand that when you put a report out that you've done your due diligence as an agency with whatever, whomever you've had to dealt with, in an exponential but unbiased manner based on scientific premise? That's my question.

MR. FIRKO: Yes. I can confirm that our scientists have been trained and operate very objectively. We make objective analyses. In terms of transparency, I'm not sure, it sounds like you perhaps are on the APHIS website--

COUNCILMEMBER VICTORINO: That is correct.

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MR. FIRKO: --but every single, every single plant pest risk assessment and every single environmental analysis that we have conducted in support of our petitions is available to you on the web--

COUNCILMEMBER VICTORINO: Okay.

MR. FIRKO: --and for all 106 of those products that I described. And we can make sure that you have the website so that you can review exactly what our scientific documents look like, what we analyze, the references that we've used and all of the different types of information that we have used to reach our conclusions. This is a...the website, we contract with the University...the Virginia Tech University and they manage the website for us, but the information on that website is from us and it lists all the items that have been approved and all of the documents that are used to support those approvals and those decisions.

COUNCILMEMBER VICTORINO: Okay. Thank you. And you're exactly right. I am on your website and I've been on it all morning, because as you spoke I tried to verify some of the items that you were bringing forward. One of the questions I think has been asked time in and time out, but I really would like to know, what is the criteria for open-air field testing 'cause the drift and the runoff is big concern, is a tremendous concern to these citizens and to all of us. So what is the criteria? Do you have a direct criteria? If the wind goes more than 15 miles an hour, 25 miles an hour, what is the criteria to approve and to monitor open field testing?

MR. FIRKO: I think we'll probably hear from both John Turner first and Doug Grant, second, on that.

COUNCILMEMBER VICTORINO: Thank you.

MR. TURNER: Well, we have criteria for things that qualify under notification and they're generally things that because of the very nature of what's been done, you understand the gene, you understand that it's not likely to be toxic to non-targets and other things, that when you take that and you put in conjunction with the safeguards that we put into place, you can conclude that the field test is not going to be risky. Now for other things, for example, pharmaceutical and industrial trials, and I'll add there are none in Maui, I don't think there've been any for several years...

MR. FIRKO: And that's pharmaceutical trials, yeah.

MR. TURNER: Pharmaceutical, but for an example, if you have something that you think would be more biologically active, we can greatly increase the regulatory rigor and the stringency of what we put on, of the conditions that we put on. But again, we look at it, it's case-by-case, and I would add also that given our experience, you know, and given that these are confined, we haven't seen the types of environmental harms that you're concerned about. We will continue, out of an abundance of caution to review these with the same rigor and to inspect them, but to date, you know, we, we approve about 600 or 700 of these, probably around 700 or 800 per year of notifications and permits, many of them contain multiple sites. I think we're well over

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100,000 field tests sites since we started, so we have a tremendous amount of experience to draw from, and again, we haven't seen those types of environmental harms. But again, we look at each one individually. If the biology dictated special concerns then there are additional safeguards that we could put on the field test.

MR. FIRKO: So to provide additional answer to your question, regarding notifications, if you look in our regulations, and of course, I sleep with this under my pillow, it...for items that are...that can be field tested under notification, which is a type of authorization that we provide, it says specifically, and I'll read right from the regulation, when the introduction is an environmental release, the regulated article must be planted in a way such that they are not inadvertently mixed with non-regulated plant materials of any species which are not part of the environmental release. The third is the plants and plant parts must be maintained in such a way that the identity of all material is known while it is in use, and the plant parts must be contained or devitalized when no longer in use. The next one says there must be no viable vector agent associated with the regulated article. And in addition...and there's more to it, but I think those are the ones that are most germane to your question. There's another, there's another thing that happens with each one of these authorizations. In addition to the conditions specified in the regulations, we review a set of what's called "design protocols" and these are the, the operating characteristics of the field test that the authorized person is saying that they will follow, and they submit those to us, and we review them, and we work with them to reach a final state of those design protocols and they go into much more detail.

MR. TURNER: That's right. They, they address...this is John Turner again. They address the exact same points that Dr. Firko was mentioning, like to ensure that they're not inadvertently mixed with other things. They tell you in great detail how they're going to accomplish that and so...

MR. FIRKO: And we need to be comfortable that their procedures are going to have the desired effect before we grant the authorization.

MR. TURNER: That's right. So the safeguards are really built into the conditions of the field trial.

MR. FIRKO: And Doug, did you want to add anything to that since you folks actually inspect for compliance with those conditions and the regulations and the design protocols?

MR. GRANT: Yeah. I would like to add something. Thank you. This is Douglas Grant speaking. When we do our evaluations, we really look at the crop biology of the particular species in how we need to achieve containment and confinement for that particular crop species. So for instance, corn is a wind-pollinated plant so we require a minimum distance of 660 feet between regulated genetically engineered corn and any non-regulated corn, whereas soybeans are a species that does not do a lot of outcrossing, and so there's a smaller isolation distance required because we don't have pollen traveling via wind to other soybeans plants primarily. And then there's also some crops that are insect mediated pollen transfer. So we take that into consideration when we set up these conditions and when we approve the design protocols that specify how a trial will be managed to ensure that we do not have pollen flow to non-regulated

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crops and also to ensure that we do not have volunteer plants that are remaining after a field trial is done. So one of the things that an inspector would do when going out to look at a field trial is to verify that, indeed, there are no sexually compatible species within the isolation distance around a regulated field trial. So if it was corn, for instance, they would be looking at that corn plot and making sure there was no non-regulated corn on that farm or on the neighboring farms within that isolation distance. And part of the reason that we have a specific distance is because we know that the biology of the pollen, how it travels through the wind, it only maintains viability for a certain distance before that pollen grain starts to desiccate and then becomes no longer viable in terms of being able to pollenate another receptive plant. So if we are ensuring that that distance is maintained, and then we're also ensuring that after the trial is finished that no volunteer plants are allowed to persist, they'd have to monitor on a regular basis so that if any, for instance, if any corn seed happened to be left in the field after a harvest and we know the climate there in Hawaii is conducive to grow it year-round, if some of those corn seeds were to germinate and start to grow, they would be monitoring for them on a very regular basis and removing those plants before they were ever able to reach sexual maturity that they would be able to shed pollen, and that's one of the important points. So it's containment of everything in terms of the material moving to the field and moving out from the field once it's harvested, and then it's confinement all throughout the field trial and also through the volunteer monitoring period that follows the field trial.

MR. TURNER: And this is John Turner with just one more point. If there is an unusual occurrence, a flood, a tornado, something of that nature, then we send people out to inspect the site and determine if there are any mitigation measures that must take place. I remember several years ago, right here near our headquarters in Beltsville, a greenhouse got destroyed by wind or a tornado that--

MR. FIRKO: Tornado, yeah.

MR. TURNER: --had regulated articles in it. We assessed the situation; there was monitoring, and it did what was needed to make sure that the situation was mitigated and there were no harms. And people who hold permits and notifications are required to notify us if there's anything like that that happens where there would be a possible breach of confinement.

COUNCILMEMBER VICTORINO: Well, Mr. Chair, thank you. And thank you, you anticipated my next question about whether we had hurricanes or flooding...

MS. BURNETT: If I can ask for you to speak up. We can't hear you at all.

COUNCILMEMBER VICTORINO: Okay. This is...this is amazing.

CHAIR HOKAMA: Unique. Unique.

COUNCILMEMBER VICTORINO: But that's okay. Unique, unique. I said thank you very much 'cause you anticipated my next question, because we have always the potential of flooding

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and/or hurricanes, or even strong tropical storms passing our islands which then gusts of wind can get up to 60-70 miles an hour without, you know, and causing some of the disturbances. So if something like that was to happen you would have someone immediately come to the area to do research and checking to make sure that none of this cross-contamination would have been...would have occurred?

MR. FIRKO: Doug, can you address that, please?

MR. GRANT: Yes, absolutely. We have had instances where we've had flooding events and other storms and things, and we make sure to follow up on self-reports that occur, because one of our requirements in our regulations is that regulated entities must self-report if there's any potential lack of or loss of confinement. So for instance, if a flood were to move through a field and some of the seed may have been carried away then what we do is we have an inspector go out and make sure that that is being monitored and that there are remedial measures in place to ensure that there is no material growing outside of the confines of the regulated field trial, and that, that helps, you know, safeguard so that we don't have any GE material moving into conventional or organic crops that might be in proximity to those field trials following one of those weather events.

COUNCILMEMBER VICTORINO: Okay. Thank you. And my final question, if I may, Mr. Chair, my final question to you is this. One of the issues many of the citizens have been bringing forward is the, the acreage that is left fallow after being used. In other words, is there a specific timeframe for when a crop has been harvested, and you said that normally that field is not used immediately because you're waiting to test for, again, maturing sexually...you got a lot of terms in here. I've written so many terms that I've become smart now; that's dangerous. But you leave the field unused for a period of time until who determines you can use the field again? Is it your agency? Is it the company? Who has that authority to say okay, you can plant another crop on that particular acreage?

MR. TURNER: We have the final say on that. Of course, we are interested in what the state has to say and we listen to the needs of the stakeholders, but we ultimately make that decision. It's possible, sometimes, that other things can be planted immediately after for erosion control or other purposes. What it has to be is something that allows for identification of any volunteers from the previous GE trials. In other words, we require that whatever would be planted is morphologically distinct from what you're going to be looking for.

MR. FIRKO: So maybe "volunteers" is one of those terms that we've thrown around that everyone doesn't understand. That's a piece of jargon that's in agriculture and it means a plant that has grown subsequent to growing the crop, and you haven't planted it, and you don't expect it to be there, but indeed, it pops up because there was some seed left in the field or whatever. So those are called "volunteer plants" because they weren't planted specifically for humans. They're just doing that as part of their biology. And so when--

COUNCILMEMBER VICTORINO: Okay.

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MR. FIRKO: --and so when we talk about volunteer monitoring after the field trial, we're talking about the requirement that people follow up for a period of time after the GE crop has been harvested to make sure that any volunteers are observed and disposed of.

COUNCILMEMBER VICTORINO: Well, thank you very much. And if I can make a suggestion, under your glossary of agricultural biotech terms, under "vector" maybe you should add that one, "volunteer plants" so that we'd understand 'cause I was looking through your glossary to find out that terminology. But thank you for that clarification. I do appreciate it, and Mr. Chair, I'll let others ask questions.

CHAIR HOKAMA: Okay.

MR. FIRKO: And I appreciate your input that will help us communicate better on the use of the jargon words, the special words that we use. Thank you.

MR. GRANT: Could I make...this is Douglas Grant, if I could just make one comment on that issue of fields left fallow. Having visited in, last year, I was impressed actually to see how much work is being done by the regulated entities in Maui and the other islands in terms of trying to come up with really good cover crops that can be used. And what those cover crops are used for is to help prevent that wind erosion so that we don't have any longer of a period than is necessary for the field to remain fallow. And those cover crops are used are morphologically distinguishable, as Dr. Turner mentioned, so that any volunteer plants can still be identified and removed, but those cover crops are also not used for food or feed. They are disked into the soil after they are grown and they are being used specifically to prevent wind erosion, and from my understanding, they're making a lot of progress in that area.

COUNCILMEMBER VICTORINO: Thank you, Chair.

CHAIR HOKAMA: Thank you very much. Mr. Carroll, any questions you'd like to pose?

COUNCILMEMBER CARROLL: Thank you, Chair, but my questions, they've indicated need to be addressed to the FDA representatives if we could have them or need to be addressed with the FDA. Thank you.

CHAIR HOKAMA: We have written material from them. They won't be, participate on a conference call, Mr. Carroll.

COUNCILMEMBER CARROLL: Thank you, Chair.

CHAIR HOKAMA: Okay. Ms. Crivello, any other questions you wish to pose?

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COUNCILMEMBER CRIVELLO: Yes. In your opinion or your knowledge, what is the average years of testing that these GM crop people test before they will be grown commercially? Is that something that you decide or the companies themselves?

MR. TURNER: So we have certain...

MR. FIRKO: So this is John Turner, sorry.

MR. TURNER: John Turner, again, sorry. We have very specific data requirements required for a petition--

MR. FIRKO: For non-regulated status.

MR. TURNER: --a petition for non-regulated status, and that's the final step something goes through before it's commercialized and available on a wide-scale basis. We don't authorize commercialization per se, but as a practical matter it would be difficult to commercialize something and ship it around the U.S. and grow it if it required notifications and permits. So we get a petition for non-regulated status, that's really our most comprehensive review, and that has data requirements that typically take several years for them to gather the needed data. Furthermore, they've usually tested these for two to three years in the field and another year or two in the greenhouse before they start gathering our required data, because the way they do these things is to transform thousands of plants and they start screening them in the greenhouse and growth chamber down to a few hundred. Then they go to the field, and then they screen it down to fewer and fewer, and then when they get down to one or two winners is when they start gathering the data that we need. And it may take one to three more years of field testing before they gather all of our data. So it's definitely a multi-year; it's definitely a very comprehensive data. It's field data to make sure that the phenotype of the plant has not been changed in any strange way other than the intended change to make sure that it has all, if you're talking corn, that it has all the characteristics of corn; it's behaving like corn, that disease and pest pressures are very similar except for any disease or pest which is being controlled by the new trait, and just a whole host of phenotype characteristics. We also get what we call molecular data to show the genes that they put in, to show what they intended to put in is exactly what did get put in and to show that in the process of inserting it to the plant it didn't get inverted or changed or rearranged in some sort of way where it may behave in an unexpected way, so we call that "intactness", to show that the genes went in in an intact fashion. Then they go further to show if it's designed to present a protein that the gene is intact and it's producing the exact same protein that they intended to produce, and that that protein is having the effect that you would expect. So there's a lot of laboratory characterization to make sure that the plant has the trait that we expected and then there's these field tests that I've talked about earlier which really look for any unintended effects. And after doing this for many years, we, we don't see those sorts of things. In terms of unintended effects, I think the consensus among plant breeders, among agronomists -- and I'm not talking about the developers, I'm talking about universities -- is that the risks from this type of varietal development is the same as that for conventional varietal development. Sure, you can

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occasionally get a deleterious effect but it's the same as conventional breeding, those things are removed and--

MR. FIRKO: Before their commercialized.

MR. TURNER: --before they're commercialized.

MR. FIRKO: Right.

MR. TURNER: So in summary, years of testing and a lot of diverse types of data.

MR. FIRKO: So, I did catch a piece of jargon in there maybe that would be helpful. John used the term "phenotype" and that is what the plant looks like or what are some major features of its biology, and I mention that because I want to stress that we not only look very closely at the molecular level at what has been done to the plant, we also look very closely at what it looks like in the field and what its biology is, and whether its biology has been changing, and that's really the phenotype part.

COUNCILMEMBER CRIVELLO: Thank you. Thank you for that clarification.

CHAIR HOKAMA: You have a follow-up?

COUNCILMEMBER CRIVELLO: I'm good, Mr. Chair.

CHAIR HOKAMA: Okay. Ms. Cochran, would you care to pose a question?

COUNCILMEMBER COCHRAN: Yeah. Thank you, Chair. And thank you, gentlemen and ladies. Lots more but I'm sure I'm very limited in questioning. So I just want to jump back on board and ask if you folks are, in regards to the volunteer monitoring, because we had GE crops grown in West Maui, the district that I represent, a while back, and so are any of you, first, have firsthand familiarity with the monitoring of those sites, and if so what...how have they progressed? Are they under use? Did they get cover crops and what have you?

MR. FIRKO: Doug, you want to comment on that?

MR. GRANT: I would just say that we may know about that in another branch of Biotechnology Regulatory Services which is the compliance evaluation and enforcement branch, but I'm personally not aware of that situation so it may have been self-reported to our other branch chief for compliance evaluation and enforcement, but I'm not familiar with that situation personally.

MR. FIRKO: Yeah. Doug, I don't think she was asking about a compliance incident. I think she was just asking, in general, would we be familiar with reports that came from the field trial about the volunteer monitoring.

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MR. GRANT: Yes. Yes, absolutely. They submit reports, after the field trial is done they have to continue to monitor for volunteers and then they have to submit reports to us that indicate their records that show that they have indeed been monitoring for those volunteers and removed any volunteer plants that they have found.

MR. FIRKO: So we wouldn't have records for every report from an inspection with us here for this meeting, but if there was a particular situation that you are particularly interested in, we could potentially look into that for you.

COUNCILMEMBER COCHRAN: Okay. Thank you. Would that be something on the website which I'm still looking to get that on air or publically stated today?

MR. FIRKO: Well, probably not on the website and let me tell you why. As you probably know, the exact location of field trials associated with particular researchers is referred to as confidential business information, and it often has what's called personally identifiable information associated with it, so that is not something that would be on the website because then we would be breaking laws if we were to reveal confidential business information or personally identifiable information, known as PII. But what I'm saying is that if you could identify a particular location that you're interested in, we may be able to go into our records and identify exactly what you're talking about and give you a general report out without revealing the confidential business information or the personal identifiable information.

COUNCILMEMBER COCHRAN: Okay. When you first referred to the website you said it was a place to go to, it was open for public viewing as in data on permits that are given and areas that are in use or not in use. So that brings the question then that's not confidential? I mean 'cause this is simply--

UNIDENTIFIED SPEAKER: ...*(Inaudible)*...

COUNCILMEMBER COCHRAN: --wait, just for me to add on why I'm asking, 'cause this is an area that was in production and now no longer, and so there's no active stuff happening but I just want to make sure that it's in compliance with as in the volunteer concerns that could occur, because there are people growing corn there on a private level, you know, not commercially and what have you, but so, I've been told that they had issues with GM corn and now that they're gone, you know, perhaps...I just want to make sure that there's precaution being taken that they're not being affected.

MS. BURNETT: Yes and I appreciate that. This Gwen Burnett. So let me clarify two things. One, our Virginia Tech website does list our permits and notifications, but the information on that website, which is open to the public, does have any CBI, confidential business information, removed. And the second point to your question that I think would be helpful is we don't put the inspection reports up on our website so that's not going to be there. But we could, if you have an idea of what area you're talking about, we certainly could look back to see if there has been an issue in that area. We don't have that with us right now.

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MR. FIRKO: Right. We wouldn't put that on the website but we could provide information back to you after we looked into our records. We would have to know exactly what area you're talking about.

MR. GRANT: Yeah. And if I could just add that...this is Douglas Grant, we do, in addition to self-reports that we require from regulated entities we do take reports from anyone who has concerns and we do follow up on those reports so if we were to get a third-party report of volunteer GE plants that were persisting or were not controlled we would definitely follow up on that. To my knowledge, we haven't received a report about this, but that may have been information that was received by another person in BRS other than myself so if, you know, if you know if that has been reported directly to us or not that would be helpful. If it was formally reported we could follow up on that.

COUNCILMEMBER COCHRAN: Thank you. Chair, I have a follow-up.

CHAIR HOKAMA: Yes.

COUNCILMEMBER COCHRAN: And so it brings to the question in regards to, I think Mr. Victorino brought up, criteria, so do we here on Maui, or Hawaii as a whole I guess, have different criteria? Or what is the criteria for you folks to mandate containment growing, like controlled I guess greenhouse, do you ever have to mandate that due to proximity to sensitive areas or, you know, we have very high wind speeds here due to our typical trade wind patterns and things. Do you ever, is there a criteria where testing needs to be in a contained-type environment and when does that occur or what's the criteria for that?

MR. TURNER: We don't...this is John Turner, we don't particularly require a contained environment for Hawaii as different than other states.

MR. FIRKO: It's not different from other states.

MR. TURNER: It's not different from other states. Yeah. Let me be clear. Again, if it were a different crop where we had a special concern we could put additional conditions on, but we've got corn, soybean, and wheat right now on Maui, and the conditions are very similar to what we use in other states.

MR. FIRKO: So activity in greenhouses is not regulated. Developers can do...they can grow these plants in greenhouses without being regulated. So when they come to us asking for something, they are asking can we grow this out-of-doors and we answer yes or no to that question.

COUNCILMEMBER COCHRAN: Okay. Alrighty. So it never becomes a mandate if there's surrounding neighbors, you know, if it's proven to have negative impacts such as chemical drift or, you know, any type of health hazard per se. That's never occurred to make you folks decide to mandate, you know, containment?

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MR. FIRKO: Well, we would not have the authority to mandate anything based on pesticides or herbicides. That would have to be EPA that did that. And you know, what they would do, you would have to ask them if you wanted...if you didn't know how to get in touch with them, and if you wanted to contact us and we could get in touch with them, and ask them to get in touch with you, we could do that, but that is something that EPA would have to deal with 'cause we have no authority to take actions based on pesticides.

COUNCILMEMBER COCHRAN: Okay. And real lastly, quickly, Chair, please, and so I think Mr. White brought up he was looking towards the runoff and then marine life impacts. So I know you folks are plants but do you consider marine aquatic life to be party under your purview?

MR. FIRKO: For genetically engineered plants?

COUNCILMEMBER COCHRAN: Well, just the effects from genetically engineered plants upon other plants and thereby be aquatic-type plants.

MR. TURNER: We would consider effects on other plants. I don't think we've...again, the types of things that are being tested, if they produce a toxin at all, it's going to be a well-characterized toxin, say a Bt toxin for an insect. We haven't seen the types of things that would be expected to affect aquatic sea life or plants. We consider non-target effects, generally, it would be non-target effects that are beneficial to agriculture because those are the ones that are relevant to plant health. But in doing that, we would be certainly aware if there was something that had the acute toxicity to have the impacts that I think you're talking of, and we haven't seen that type of thing.

MR. FIRKO: But if we encountered anything that, was...where there was evidence to suggest that it would have a negative impact on plant health, yes, we would deal with that.

COUNCILMEMBER COCHRAN: Okay. All right. Thank you folks for your time. Thank you, Chair.

CHAIR HOKAMA: Ms. Baisa, any further questions?

COUNCILMEMBER BAISA: No, thank you, Chair. I have had most of my questions answered. Thank you.

CHAIR HOKAMA: Okay. Thank you. Mr. White?

COUNCILMEMBER WHITE: No further questions. Thank you, Chair.

CHAIR HOKAMA: Mr. Victorino?

COUNCILMEMBER VICTORINO: Actually, I have more questions, but again, like Mr. Carroll, more for the FDA, and I have to look over their material, Mr. Chair, to get a better understanding. But

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I will say this, that the USDA website and their webpage has a lot of basic information and a lot of things that you can go through, and I've been able to pick up a number of items that were spoken on. So I want to thank the gentlemen very, very much for...and ladies for being here today because I think it helped me get some clarification, you know. There's still concerns, but I got a lot more confidence in what's happening in these reports and as well as some of the items that they spoke of today. So thank you, Mr. Chair, for bringing them in and I want to thank them very much so that they can hear me, thank you very, very much.

CHAIR HOKAMA: Thank you.

MR. FIRKO: Thank you.

CHAIR HOKAMA: Mr. Carroll?

COUNCILMEMBER CARROLL: Thank you, Chair. The questions I have for FDA and EPA, lot of those questions overlap those two agencies so I was hoping we'd have an opportunity to talk to both of them, if possible.

CHAIR HOKAMA: Okay. I'll address that after we get done with the USDA, Mr. Carroll. Thank you. Ms. Crivello, any last question?

COUNCILMEMBER CRIVELLO: No. I'd just like to thank you folks taking the time to be available for our questions. Thank you.

CHAIR HOKAMA: Thank you. Ms. Cochran?

COUNCILMEMBER COCHRAN: Yeah. So you folks are strictly plants, I mean no animals, insects?

MR. FIRKO: The APHIS, the Animal and Plant Health Inspection Service is concerned with animal health. We, in Biotechnology Regulatory Services, are on the plant side of the issue. If there were any animal health issues related to genetic engineering it would be our Veterinary Services branch within APHIS. They are not working on any projects right now because there are no genetically engineered animal issues representing a plant health issue before the agency right now. There is a different group within the Food and Drug Administration called the Center for Veterinary Medicine, and they also deal with animal health issues related to genetic engineering and also food, I'm sorry, not food, feed issues related to animals. But if there, if and when there is an issue related to animal health and genetic engineering, our Veterinary Services group within APHIS is definitely involved in that, yes.

COUNCILMEMBER COCHRAN: Okay. Thank you. So you're saying that the GM feed that's being fed to animals that are thereby then ingested by humans are not being tested or have any reasons for testing at this point?

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MR. FIRKO: Well, that is within the purview of the Food and Drug Administration's Center for Veterinary Medicine and the part of Food and Drug Administration that deals with food safety is involved as well.

MR. TURNER: That's right. If you're talking about the feeding of GE crops to animals and the safety of that then CFSAN who looks at human food also looks at animal feed.

MR. FIRKO: What is CFSAN?

MR. TURNER: The Center for--

UNIDENTIFIED SPEAKER: Food Safety...

MR. TURNER: --Food Safety.

MR. FIRKO: So it's a part of FDA.

MR. TURNER: It's a part of FDA.

MR. FIRKO: Yeah.

MR. TURNER: And it's the part that assesses food safety of GE crops.

COUNCILMEMBER COCHRAN: Okay. Thank you. I think my initial query was...

MR. TURNER: Center for Food Safety and Nutrition, excuse me.

COUNCILMEMBER COCHRAN: Thank you. I think my initial query went off tangent, but it was mainly in regards 'cause we hear a lot of concerns about bees and the pollinators and insects per se. You know, here we have endangered species, our State bird, the Nene goose, perhaps could, you know, feed on some of the corn and what have you that grows here so that's where I was looking towards as in animals and wildlife issues.

MR. FIRKO: So yes, we do consider those issues and Dr. Turner can talk a little bit about that.

MR. TURNER: Right. So pollinators, we agree are very important. They're important to agriculture; they're important to plant health as we all have learned. They're important to producing a large amount of our food, and I think there's a lot of concern in the U.S. about pollinators right now, and scientists have looked at a lot of different causes of what they're calling colony collapse. I may be answering the question more broadly or differently than what you were asking, but they have found no relationship of that to GE crops or Bt crops. It's centering on a complex involving a mite and maybe a virus and some nutritional issues, as I understand it, but again, one of the things to remember about Bt crops though they're active against insects, their spectrum of activity is such that they have been shown not to affect honeybees and they've been tested over

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and over. It's one of the indicator species and we know a lot about the impacts on honeybees and we've just not seen that.

MR. FIRKO: And when we do our environmental documents we look into those questions as well.

MR. TURNER: I'm saying honeybees. I should mean pollinator bees in general.

MR. FIRKO: Pollinators in general. Yeah.

COUNCILMEMBER COCHRAN: Okay. Thank you, gentlemen, for your comments. Thank you, Chair.

CHAIR HOKAMA: Okay. Any further questions for our resource people, Members? If not, Mr. Firko, I want to thank you, Mr. Turner, Mr. Grant, Ms. Burnett for participating in our Committee meeting this day on our item, and I know it's late in the afternoon on the East Coast so thank you very much for your time, and we appreciate.

MR. FIRKO: Mr. Chairman, it was our pleasure. I have great respect for the process you're going through and I'm happy to be able to have contributed to it.

CHAIR HOKAMA: Thank you very much for your participation. Thank you.

MR. FIRKO: Okay.

MS. BURNETT: Thank you.

MR. TURNER: Thank you.

MR. GRANT: Thank you.

CHAIR HOKAMA: Okay, Members, it's that time of day we're going to take our lunch break. The Chair has one more resource and then we also have a need to discuss with our Corporation Counsel any legal issues that we need to be aware of as we enter into a discussion on this matter. So you guys, 1:30 is okay with you guys?

COUNCILMEMBER BAISA: Yes.

CHAIR HOKAMA: Okay. We're going to be in recess until 1:30 p.m. . . .(gavel). . .

RECESS: 11:57 a.m.

RECONVENE: 1:36 p.m.

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CHAIR HOKAMA: . . .(*gavel*). . . We shall reconvene the Committee meeting of the Policy Committee on Item 78 regarding the initiative from the SHAKA Movement regarding genetically engineered organisms. At this time, Members, the Chair has with us on telephone conferencing, Dr. DeWolfe Miller, University of Hawaii, School of . . .John Burns School of Medicine. He's an epidemiologist and he can explain more what that is, but I've asked Dr. Miller to give us a few minutes of a presentation, and then to be open to questions from the Committee members. So Dr. Miller, thank you very much for joining us this afternoon. We appreciate you sharing some time with the Committee as we review and consider this initiative request to the Council by a citizens group.

MR. MILLER: It's my pleasure. Could you speak a little bit louder? It's a little bit hard for me to hear you. Can you hear me?

CHAIR HOKAMA: Yes. We can hear very clearly, Dr. Miller, which is kind of interesting. Most people think we talk too much and talk too loud. But if you would start your comments, please, Dr. Miller.

MR. MILLER: Well, these are comments regarding this initiative that I think there was a previous meeting about a week or so ago that I did give a three-minute comment; it was a brief comment regarding the initiative. Is that correct?

CHAIR HOKAMA: That's correct.

MR. MILLER: Is that correct?

CHAIR HOKAMA: Yes, Doctor. That's correct.

MR. MILLER: Okay. Good. So I want to be on the same page. It's a little bit abstract here for me to be here talking on the phone and you're in the courtroom there, and so I'll try to do the best I can. So my comments are whether along the lines of the, there was the head of the Department of Agriculture that also came and gave testimony when I was there, and he said he had read the initiative several times, and he had looked at and studied it, and he found the whole thing, I think his words were fallacious, and I thought that sort of struck the right note. Now a lot of these issues with the initiative have to do with agriculture and maybe environmental issues, and I'll just to speak to health issues here. Okay?

CHAIR HOKAMA: Okay. That's fine.

MR. MILLER: Okay. So when I looked at the initiative, if I look at it in the way that I would as an epidemiologist, then I would see that there's . . .it's, the initiative's in several different sections, but on the whole there's the beginning sections that say that there is some kind of problem, that there is maybe an exposure to something that concerns people in the community and these exposures are to genetically engineered food and GMOs and this pesticide Roundup, I guess. And so that seems to be the problem that they're concerned about, okay. And then as I read on, I

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see that in the other sections that, aside from all the technical information that was in the initiative, I see that they want to investigate this problem. In other words, okay, so we have these things we're concerned about, GMOs and pesticides, and we want to investigate that in regards to a quite a number of things, but also, I guess, human health. Is that correct?

CHAIR HOKAMA: That is correct.

MR. MILLER: Okay. And...okay. So if, if I take that as it is, as it stands, and I were going to do that as an epidemiologic study, as an investigation, I would have to prepare considerable more detail than what's in the initiative, because it's just simply too vague to embark on some kind of epidemiological investigation of these exposures, a great deal more, okay. But given that, the first thing I'd have to do is to prepare that study in a little more detail and present it. Because I work at the University of Hawaii, I'd have to present it to a committee; it's called the IRB, the Institutional Review Board for human subjects. All right, and they would have to approve it before I did any kind of investigation that includes human subjects. You've heard of this, I believe, right?

CHAIR HOKAMA: No. You're educating us as we go along, Doctor.

MR. MILLER: Okay. So there's a part of this study that in of itself, okay, so you could do that. I mean, I wouldn't recommend it because it would, it would take such huge resources to investigate something that obviously has questions about how exposure occurs, and what particular health outcome you're really interested in, and would be there, a sufficient number of these events to even have a study that would be sufficient to identify these health events in individuals that I wouldn't even recommend doing it in Maui, for example, do it somewhere else because Maui simply is too small a population. Okay, just on the face of it. All right. But it's also contingent on the investigation that you have a moratorium on, for some reason, I don't know why, but you have this moratorium, and this would result in people losing their jobs. Okay. And I was in the courtroom, you call it a courtroom or it's the city, I'm sorry, the County court?

CHAIR HOKAMA: It's the Chambers. It's the County Council Chambers.

MR. MILLER: Yeah. Okay. City Council. I'm sorry. I was at the Council previously, and attended the many calls-in from people in the community that had jobs that would be losing these jobs. And it changed my testimony listening to these people because it became quite apparent that if I took this as a study, presented it to the IRB, any IRB in the world practically, and said, okay, now most of these IRBs will have scientists on it, will have colleagues from the University on it, they're in my field. It'll also have people from the community on it, okay, and it'd probably have ethicists, so people who understood ethics on it, all right. And they would look at this and they would say, well, no, you can't do this. You're going to eliminate jobs, all right. This study eliminates jobs by its, by what it is here, what you...what this is written here that you would do. And eliminating jobs, we all know, has a huge impact on an individual who gets their job eliminated. It's not good for their well-being. It's not good for their health and that affects other people around them like their family. In fact, this ripples right through the community. And, oh,

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we're talking about Molokai. I mean, it would be just devastating to that small island where so many people are employed and giving a living wage where they can put food on the table, I mean this would be devastating to them, and I thought, my goodness, the audacity of them wanting to do this work. Okay. So they're worried about something that's a health problem and they want to actually put these people out of work to do this study. That's how it came to me. That's how I see it and interpret it. And I felt that this was, well, I would be embarrassed to put it in front of an Institutional Review Board, I mean, it would...I just wouldn't do it. I mean, I've been doing research in epidemiology, passing in these human subjects committees, all my career. I've done it in Hawaii and in many places around the world. I have a lot of experience in this and I just, I was appalled by the audacity that they would actually take away people's jobs in order to do a study that was ill-defined at best, and almost impossible to do even if you had all the resources that you would need to do it, and all the time. Let me give you an example. If you have something that you consider an exposure, let's call it smoking cigarettes. And you want to see what the health effect is, let's call it lung cancer. Okay, and I think everybody agrees that we've already done the epidemiology on that. We know what the exposure is because you can count the cigarettes that people smoke and they inhale the smoke. You know they're being exposed directly to it. And then we see that the risk of these people is higher than the risks of people who don't smoke. Matter of fact, the risk of people who don't smoke to lung cancer is pretty small. Almost all of lung cancer is due to cigarette smoking and countless other diseases, I mean, many other health effects. However, most people that smoke actually, how many of them, all people that smoke don't get lung cancer, right? So only a portion of all the people that smoke get lung...matter of fact, it's actually a fairly small portion. So now you have an exposure that's rather...that we really don't have a mechanism of action on. Just exactly how do these genetically modified organisms actually cause a health effect? Okay. So we actually know how these carcinogens work in smoke. We know physiologically and at the molecular level all the carcinogenic events that happen. It makes sense biologically. Okay. And when you do epidemiology you have to make sense biologically. You can't just say this falls out of the air and we're going to have some kind of effect. That doesn't make any sense. Okay. So then, you have this situation where you have an ill-defined exposure because you really don't know how people actually get exposed to it. In terms of this pesticide, do they go and get it out of the ground? I mean people are saying that it's in the air but has anybody actually detected where people are inhaling these in Maui? I mean, it would be very difficult to show how they're exposed. Well, they'll say, well, we eat these genetically modified plants all the time. Well, okay, granted. All right and so where are you going to find people that don't? So to do a prospective study you have to take an exposure, like they do with the smoking, and you start off with healthy people at the beginning, and one group smokes and one doesn't. Then you wait 20 years, okay, because that's the latency period for lung cancer and smoking. All right, so just to do something as straightforward and clear as lung cancer and smoking, you've got to put in some time. Now we have rather vague exposures that we...that no one in the world has actually said we really have a specific known health effect that we want to investigate, and we're willing to put in the time and wait until something happens. Okay, so I mean, this is, this is an undertaking that you have to think pretty hard about beforehand and do it just a whole lot of planning if you really wanted to be so ambitious, audaciously ambitious, to do it. And to do it without people who are not really...I mean, with the expertise to do this. It requires teams of people and resources, and

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people that have enormous amount of patience and time to do it, as well as money. And so, I mean, the...it would...I'd put it under the rubric of almost epidemiologic folly to do that, okay, because it should be some other evidence that would justify undertaking such a project. Okay, some other really solid justification. Oh, and by the way, you're going to put people out of work, okay. This to me is untenable, completely untenable. I was actually really shocked when I saw that you were going to eliminate...I mean, so let's say you want to do the study, go do it somewhere else, you don't put people out work. Okay. You just do not have the justification to take one job away from one person in Maui or Molokai. It's just not there and I just find that...I...you can see that I'm flustered by the mere thought of what I heard as people saying well, we'll give them other jobs. Maybe they don't want the jobs you want to give them. You don't have the right to tell people what jobs to take. And so the kinds of things I heard in testimony were, to me, troubling to say the least. I mean, we have seen when people want to experiment with people or push people around because they have an agenda, and that doesn't work very well, and it certainly shouldn't work in this country. I just...you know, and I've spent a lot of time working in other countries, undeveloped countries where things are not as clear-cut and I've always had to make it clear-cut with everybody I've worked with in these other countries, because they used to say that if you, when the Soviet Union was in place, if you wanted to study influenza go to the Soviet Union because they just tell people what to do. Okay. You go to one city or the other, you have to get permission so everything that goes between the cities you can understand, and control for, and investigate the spread of influenza from one city to the other, but you couldn't do it anywhere else in the world, and no one would dream of it. Okay. So in short, I'm trying to make, I'm trying to put some epidemiologic focus on this, all right, as a person who does epidemiology and who wouldn't want to ever participate in some kind of vaguely specified, poorly designed, badly thought-out project when I'm even wondering if there isn't some, when I listen to people talk, I hear a lot of anger about the industry, about the company that's doing this. I'm wondering if it's just not...they just don't like these companies and industries and they don't trust them, but that's a different issue. You can go and challenge them and say, okay, be transparent, all right. Be fair, you know, give people fair job, give them fair money for what they work for, whatever their problem is, but that is a separate issue. That's not putting people out of work because of some vague idea that you're having some health effect. I'll give you a health effect, take a job away from a person. That's it. I've had my rant and so that's I don't want to get off on this too far because I just...it upsets me to be...I'm...it's a pleasure for me to provide any service to the County. I think...I live in Oahu. I think the Hawaiian islands are beautiful, but I think you've got it all over Honolulu, living in Maui, you're just a bunch of lucky guys and I hope this is helpful.

CHAIR HOKAMA: Doctor, one thing you can help our community maybe by one, explaining in layman's terms what an epidemiologist is and does.

MR. MILLER: Oh, okay. So it's not about skin diseases. I tell people, what do you do, and I say epidemiologist. Usually that's the end of the conversation, but if we go beyond that, they'll say, oh, you study skin and I'll say, well, actually the word comes from epidemic, okay. So this is the investigation of or the study of diseases in population, okay. It's the study of the distribution of these diseases in the population, are the disease...is there a high occurrence of the disease, is it

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distributed somewhere, are there factors about it that might be interesting to look at and its determinants. Okay, what is causing an increase in a disease that we see? What can we link to this disease that we can specifically prevent or take an intervention for that would prevent this disease, and of course, you know, there's many examples of the successes of epidemiology down through time in the last two centuries. I mean, the example I gave earlier is smoking and lung cancer. We can prevent a huge amount, over 90 percent of all lung cancer by just getting people to stop smoking and I...that was an epidemiological contribution, huge contribution, but there are many. So that's, that's...and so I've been in the School of Public Health and in the medical school at the University of Hawaii. I was...I'm a fellow in the American College of Epidemiology and a tenured full professor at the University. I just got a letter from the Dean thanking me for my 30 years there. And so that's what I do. Does that explain what epidemiologist is?

CHAIR HOKAMA: Yes. Thank you. I'm going to ask the Committee members, Doctor, if they have some questions that we would ask you to respond, please. Mr. Victorino, I'd like to start with you, please. And because of where we testing the microphone, we all need to speak a little louder, please.

MR. MILLER: Yes, please speak louder. I'm having a really difficult time hearing you. I'm mostly just listening to my own voice.

CHAIR HOKAMA: Okay.

COUNCILMEMBER VICTORINO: Well, thank you. I think you can hear me?

MR. MILLER: Yes. That's good, yes.

COUNCILMEMBER VICTORINO: Yes. There's very few people that can't hear me, but I've been told that this morning so I'm really in kind of a shocked state right now. Does epidemiology help me in that? Never mind. Tried to lighten the room because it was getting kind of heavy here.

MR. MILLER: We hope that we would prevent that from happening in the first place.

COUNCILMEMBER VICTORINO: Thank you. Maybe too late, but anyhow, so if I heard you correctly, and I wasn't in the meeting entirely, but I was watching on my TV in the office while I met with somebody trying to stay with what you're saying that you think this initiative, if I was to paraphrase it, is very unreasonable at best.

MR. MILLER: Well, unreasonable would be an upgrade from unethical.

COUNCILMEMBER VICTORINO: Okay. You said it, not me. Okay. Thank you. I just wanted to get that across and so I have been enlightened this morning with the USDA and EPA has been through, and all of their experts have been through so there is a lot of, lot of issues that are going

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around, and trying to really get to the bottom of it, trying to get the facts out there, it's not been easy. And so I thank you for your assistance and I hope we can count on you if we need more help in the future, but thank you very much, and I'll let others ask more specific questions, Mr. Chair.

MR. MILLER: You're more than welcome. It's a real pleasure for me to participate in this and I thank you for your comments too. Thank you.

COUNCILMEMBER VICTORINO: You're welcome.

CHAIR HOKAMA: Okay. Mr. White?

MR. MILLER: I'm sorry, who is it?

CHAIR HOKAMA: Okay. This is Councilmember White.

COUNCILMEMBER WHITE: Mike White.

MR. MILLER: Okay.

COUNCILMEMBER WHITE: Thank you, Dr. Miller. My question is there's been a lot of concern voiced regarding the impacts on health not only through genetically engineered plants but also through the use of pesticides, pesticide drift, and the drifting whether it's after spraying or with the dust it may have fallen on. Does your study of epidemiology include those kinds of chemicals or is epidemiology more related to viral and other means of generating illnesses?

MR. MILLER: Right. I think I understand your question. Okay, so epidemiology includes both chronic and infectious diseases, all right, and I have been involved in studies of chronic diseases as well as infectious diseases, although my preference is infectious diseases, and this is what I've worked on mostly in my career, but I've been involved in chronic diseases, and I've been involved with in chronic diseases of a variety of different kinds of exposures that cause chronic diseases. And I also, out of interest in the subject, started, established a new, new course at the University, it was a graduate level course. It was called Environmental Epidemiology, okay, and this was the epidemiology of these kinds of issues. Like one of the topics in the course was fluoride. What is the epidemiology of fluoridation, for example, and all of this is epidemiology of various kinds of environmental exposures, and do they cause harm or not and we examine the whole literature, and look at all the plusses and minuses. And I also worked with the East-West Center. This is previously. I don't do this now, but for quite a while I was cross-appointed to the Water Resources Research Center, and I had an appointment at the East-West Center and this was about environment. We actually wrote a monograph about it, about what the scientists see as dangerous exposures in the environment and what people see as dangerous exposures in the environment, and how actually when you do that and compare them, you see there's really big mismatch. There's a big miscommunication because what the scientists see and what the people see in the community is really quite different when you do that kind of research. So I don't

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know if that answers your question, but I can say that epidemiology is a set of scientific methodology that is, that is generalized to the investigation of first, the occurrence of diseases, okay, infections and diseases, disorders in humans in the population, and secondly, to try to investigate etiology, what's causing that. To take it from the point of view of the exposures, you have to use special kinds of studies where you start with healthy people, some exposed and some not, and then follow them prospectively through time. This is the most, one of the best and most strongest types of epidemiologic studies, but they are extremely expensive; they take forever to do. We are actually lucky here in Hawaii to be the center of one of these studies. You...I don't know if you all have ever heard of the Framingham Study in Massachusetts, a very famous study of cardiovascular diseases and diseases of aging, and it was a very famous, long-term prospective study like I just talked about. Has anybody heard of the Framingham Study?

COUNCILMEMBER WHITE: No.

CHAIR HOKAMA: No.

COUNCILMEMBER BAISA: No.

MR. MILLER: Nope. Nobody. Well, don't worry. We have something better here in Hawaii. It's called the Honolulu Heart Program, and this program started about the same time that the Framingham Study started in Massachusetts. This was almost 50 years ago, okay. So this has been on-going studies of a human population for decades, and so they, in Framingham there's a little bit of a problem because as the people they were studying and following, they were just following these people trying to get all the different things that they were doing, what they were eating, what they were smoking or not, so on and so forth, what kinds of jobs they had, as those people in Framingham got older, they sort of looked around and said, well, geez, Framingham, Massachusetts is cold, and it's gray, and people are not smiling here and would leave and go to Florida, in which case, many of the people in Framingham were lost to follow-up, what we call "lost", we just don't know what happened to them. The study that started almost at the same time in Honolulu with an equal size, I mean we're talking about 8,000 people 50 years ago, we've had 1 percent. Now I know this because I spent some time as a team member in the Honolulu Heart Program and did epidemiology with them. It was a good experience, but the quality of the data that was produced here is famous, I mean, outside of Hawaii, I mean, you would be invited to conferences right away if you published something from Honolulu Heart Program, very famous program. And so, I'm trying to just by way of explaining how epidemiology works, what goes on, what we have here, I hope this is helpful. Does this answer your question at all or did I get a little bit distracted?

COUNCILMEMBER WHITE: Well, you got a little distracted but it was helpful. One of the...there are two chemicals that have been mentioned fairly often in the discussions. One is glyphosate and the other one is atrazine. Are you aware of any studies or do you have any knowledge of the effects of these two chemicals from your perspective on human health?

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MR. MILLER: Well, okay, so I'm not really best person to ask that, but it's an obvious question that you have and there's very readily an answer to that, because both of them have gone through the whole system of being evaluated, both in toxicity in animals and then we have this enormous amount of experience using them around people all over the world, okay. And so, the evidence that we have seen from using these chemicals in the environment seems to be better than the ones we were using before, okay, and have resulted in people getting food to eat. Now, that sounds like something that probably is not really important here because we have an abundance of food to eat, but in other parts of the world people don't. And when they have improved agricultural tools like these two chemicals are, they have a better chance of eating, believe it or not, and that's good for humans to eat something. And so, one of the most controversial pesticides that was ever invented is DDT. And of course, it was misused in America, and it got into the ecological system, and it caused harm. And, but it's really great for controlling malaria, and if you use it correctly it doesn't get into the environment and cause environmental problems. People miss that and so when they come down to you, if I could get this out, the environmentalists come down, we got to get rid of, we got to stop making it, they've condemned DDT, they forget the fact that people get malaria, a lot of them. And malaria kills mostly children, and that we can actually have a huge impact on saving children with DDT. So these issues actually can be quite complicated, but on the...to answer your question directly, the two chemicals that you referred to seem to me to have an extremely good track record both practically and of course, they've gone through, you know, EPA will give you all the information you need to ask about how they've been tested, probably the National Institutes of Occupational Health and other institutes for...CDC or the National Institute of Health have tested these toxicologically extensively. You can see the chemical formulas of both of these compounds and you look at it, and you can tell a lot just by taking a look at that, and you just look right away and you say this doesn't look like it's even going to be an active chemical compound or harmful. So but, I think that you have plenty other people that you could ask that and get probably much of the same answer.

COUNCILMEMBER WHITE: Okay. Thank you. Thank you, Chair.

...(Phone ringing)...

MR. MILLER: I'm going to try to get rid of that phone call. Okay. Is that...I don't think that was helpful but I hope it was a little bit helpful.

COUNCILMEMBER WHITE: Do you have, well, what I got...

MR. MILLER: Let me just add one thing. It's certain that somebody could say oh, there was an outbreak of some disease and it turned out to be one of these two chemicals. I've never seen that.

CHAIR HOKAMA: Okay.

COUNCILMEMBER WHITE: Okay. Thank you. Thank you, Chair.

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CHAIR HOKAMA: Thank you. Next is our Chair, Ms. Baisa.

COUNCILMEMBER BAISA: Thank you very much, Chair, and thank you, Dr. Miller, for your comments. I wish my husband were here in Chambers today because I would have liked him to hear what you had today, he's a...what you had to say, he's a smoker. And we have this constant battle in our house 'cause I keep wanting him to give it up and he keeps telling me about all the relatives he knows that lives to be 90 and died of old age, so I guess you make a strong point about some people are affected and some people are not. And what I'm hearing from you is that it's kind of difficult to draw a straight line to say that this is causing whatever we're being told about.

MR. MILLER: Yes. It is difficult. Epidemiology is a challenging endeavor because it involves people and people tend not to want to cooperate, and you need their voluntary and informed, completely informed consent before they can even be considered cooperating. It costs huge amounts of money because you're working with people and it takes time. And so, yeah, I mean, to say that it's difficult, it's a challenge, yes, but it's also interesting for me. I've had a really interesting career with it.

COUNCILMEMBER BAISA: So let me, let me get to my question. You know, we've been sitting here for days now, this is not the first day we're here, and we've heard many, many testimonies and a lot of allegations connecting genetically modified organisms to birth defects, to autism, to all kinds of things. And I'm, you know, after listening to you, I'm wondering are you familiar with or how do we...do we discount this? Do we say, well, how do we say it's higher here or not higher there because of this? It sounds like we're going to have to do an incredible amount of studying and after hearing you mention that 20 years or more, I talked to another oncologist and he suggested it might take 30 years for us to really know the answer. That would mean 30 years where we would have some kind of a moratorium in place, and I like you, am very concerned about the economic impact of this decision. I'm almost 74 years old; I worked in Maui's largest social service agency over 37 years, and lived through the demise of the companies on Molokai, and what it took for us to try to prop people up and save them so that, you know, economically they were okay, and I really don't relish going through that again. So my question is, you know, how do we make this connection and feel comfortable about it?

MR. MILLER: Okay. So just, first, let me just comment on something you just said was is that it takes a lot to do this kind of study, but you know, there's an abundant amount of information and knowledge that we have because of both the widespread use and occurrence of both of these things, genetically modified organisms and the pesticides, that if there had been something the process of developing these things before they went out we would have seen it, because it's a humongous amount of effort and research went into that, and then we have the evidence of many years now of something that should have happened if it was going to happen. I so...I...there's only...the people who actually think something is going wrong is actually small compared to the larger group of people that says well, this doesn't make any sense. I mean, how is a genetically modified corn if you eat it, how is that going to cause a birth defect, okay? How does that work?

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All right. Well, it doesn't. We don't have a biological mechanism for how that would happen, okay. But we have very good birth defects monitoring and registry here, and people have looked at this many times over without really anything conclusive about it because you wouldn't know how much somebody's been exposed. Okay. So, but I couldn't actually grasp the last part of, that very last thing you said 'cause I think it was a question and I'm missing it.

COUNCILMEMBER BAISA: The question I was trying to talk about and I wanted you to talk about a little bit more was you had mentioned that the effects of a person losing a job being probably worse than the effects of disease. Can you elaborate?

MR. MILLER: You know, I almost want to call on some of my friends from social work because they'll certainly tell you, they see it every day, okay. But I mean, down through, epidemiologically speaking, we always can say well, there's one thing that we don't need to study and that's money because people who have more money have better health, and we've seen this down through history, across culture. I mean, it just is...if you are better off, okay, economically, all right, than so many poor people are in the world, you're health is better. Okay. And we know, and I mean there's an abundance of epidemiology and social work that shows just what happens when you eliminate a person's job. I mean, you were around for 2008 when Wall Street crashed. Did it make you happy?

COUNCILMEMBER BAISA: No.

CHAIR HOKAMA: Nope.

COUNCILMEMBER BAISA: Definitely not.

MR. MILLER: Well, it made a lot of people really sick.

COUNCILMEMBER BAISA: Yeah. Especially the retirees that lost their, their retirement funds.

MR. MILLER: Okay. So I think you at least get the feeling for it. I mean, this is something that, you know, within the field of epidemiology it's almost unbearable to try to convince anybody that you could do an investigation because everybody already knows that, and we are tasked as epidemiologists, especially working in academia, to discover something new. Okay. And it's certainly not new that if you, if you eliminate a person's job it's going to have an impact on his well-being, on mentally and physically, and it's going to ripple through the whole, the whole nuclear and extended family, the whole community. It's just...it's breathtaking for me to think that people don't understand that, and that they would...that they're so insensitive and there's no empathy. I mean, it's just, you know, could people like that exist? You know, I just...it's astonishing.

COUNCILMEMBER BAISA: Well, Doctor, I think sometimes if you haven't been in that position, it might be difficult to have empathy, but for those of us that come from very, you know, moderate or, you know, we don't come from rich families, okay, I wasn't born with a silver spoon in my

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mouth, and I still live in that community and have relatives and family that are struggling, and I know what a paycheck means to them. And I know that they're one paycheck away from homelessness, which is another problem that we're seeing escalate here on Maui, and I don't know, you know, what it is on Molokai, but I'm sure that lot of their people that need housing are being taken care of by family members because it's a very close-knit community or it might be more noticeable there. But what I've heard from the Molokai people is how finally some of them have achieved economic independence that they're considering buying homes, that they bought cars, that they're able to send their children away to college, and the idea that we would interrupt that while we try to figure out what to do is scary for me. And so I want to thank you for your...

MR. MILLER: Well, it should be.

COUNCILMEMBER BAISA: Yeah. I want to thank you for your comments today and I really appreciate what you had to share. Thank you.

MR. MILLER: Thank you. It's a pleasure to be of service to the Council.

CHAIR HOKAMA: Okay. Dr. Miller, next is Member Crivello from Molokai.

MR. MILLER: Okay.

COUNCILMEMBER CRIVELLO: Thank you, Chair. Aloha, Dr. Miller.

MR. MILLER: Aloha.

COUNCILMEMBER CRIVELLO: My name is Stacy Crivello and I'm Council member for Maui County from the Molokai District. And thank you for your, I guess understanding with the closure of, possible closure of employment with the banning of the corn seed companies to continue existing on the island. So with your epidemiology kind of studies and your method of investigating, am I to understand that stress is one of the main factors, or you know, the behavioral health problem that comes with the loss of employment one of the contributing factors would be stress as a result of job loss?

MR. MILLER: Well, I mean, there's so many different examples to...it is certainly more than stress. Let's say that you are working, you're employed, you have health insurance. This is one of the beauties of employment in Hawaii. We have almost complete health coverage, but your unemployed now, and any medications that you might have been taking you're going to...you're having a problem, any kind of medical care that you might need to seek after your employment is going to be problematic. You may have a health condition that is perfectly fine and you can deal with because you're employed, all those are susceptible people, okay, that are going to be immediately affected by losing employment. But it goes...if you were to do a study where you, where you actually did something as crazy as put people out of work, it's only when we have seen people put out of work and we see what happens to them, they, the...all the rates, all the

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indices that we have of well-being, including mortality, go up, okay, or go down depending on whichever way you want to look at it as negative, all right. All the indices become negatively impacted, including mortality, okay. And so, I mean, morbidity, well-being, stress, it's the whole...it's the whole nine yards. I mean, I can't imagine what it would be like even for me, who's had a wealthy, well-off life if all of a sudden my job was yanked out of me. I would be, initially, I think stressed would be an understatement of how I would feel. And but, I think you were there then when I was there when I listened to the people from Molokai give testimony over the phone, and I was...how could someone not be...I mean, these are authentic real people, you know. And there's nothing wrong with them. They've got jobs and you're not just going to affect them, you got...it's Molokai, you're going to wipe out the whole island. I mean, what are they thinking? This is, this is...I got a little bit upset knowing that I was going to have to be, not have to be, but that I had put myself up in front of the Council to give testimony, thinking that I have to keep calm about this because I don't want to be...sound like I'm...I want to be a dispassionate scientist, but I mean, this goes beyond that. I really can't imagine how people would even think of this, but I guess they did.

COUNCILMEMBER CRIVELLO: Yes. Yes. Well, thank you, Doctor. So I'm just trying to see how we can have a better understanding on the work that you do. So when you do investigation of patterns and causes of disease, are some of your...so you explained earlier that there has not been a complete study, I guess, that the cause are the chemicals from the usage of pesticide as it's been addressed to us. But would you consider or is part of your studies include diets and genetics, and ethnicity for some of the chronic disease?

MR. MILLER: Are you talking about specific studies I've done--

COUNCILMEMBER CRIVELLO: I guess in general or...

MR. MILLER: --or what is already available to you as a body of literature of epidemiology, of good, solid science that we don't need to redo that would speak to that question?

COUNCILMEMBER CRIVELLO: I guess to your latter comment. Yeah. What do you have that shows that kind of determinants?

MR. MILLER: I...there is really the, there's so much evidence that says that, starting with the basic fundamental principles of biology and disease that how would exactly a genetically modified organism, corn, for example, if you ate corn that was genetically, how is that going to cause disease? I mean, you digest corn that means it's digested, okay. So if there was some carcinogen in corn, which I don't think there is in the corn that anybody's eating, I've never heard anybody getting cancer from eating corn, but I...so that would be startling for just about anybody in the world that this actually, there was some kind of carcinogenic effects. So we're just taking it as...so then you go down the line. Well, does eating corn that's been genetically modified cause myocardial infraction, infarction? Does it cause heart attacks? Well, not that we know of. It would be hard to say that that actually is linked to such a disease as cardiovascular disease, and so on. I mean, people who are diabetic may want to cut back on their corn because they have to

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watch how much, how much sugar they have in their diet, but I don't think that corn in and of itself causes diabetes. And so you go through this whole process and you look at well, where's the evidence and we look for the evidence for health effects of say, genetically modified organisms, and the abundant amount of evidence that we have today, and believe me, it's a lot because so many people have this in their food that...and actually some people said well, you didn't have any group to compare them with it. Okay, well, there are other countries that don't have genetically modified organisms, and I thought about that, and I said, well, okay, so you could do a thought experiment. And a thought experiment would be, all right, let's look at the infant mortality in the group of people that are eating genetically modified organisms, and let's look at the infant mortality of the people that are not. And I can tell you that in our country if you control for age, and ethnicity, and race, and even socio-economic that our infant mortality is going to be lower than any country that you could find that doesn't use GMOs, just for example.

COUNCILMEMBER CRIVELLO: Thank you. Thank you, Chair.

MR. MILLER: I know it's a little bit long-winded answer.

COUNCILMEMBER CRIVELLO: No.

MR. MILLER: I hope that was helpful.

COUNCILMEMBER CRIVELLO: Yes. Thank you. Thank you, Doctor. Thank you, Chair.

CHAIR HOKAMA: Thank you. Next is Mr. Carroll.

COUNCILMEMBER CARROLL: Thank you, Chair. I believe we had a discussion in the parking lot at the last meeting when the meeting was over.

MR. MILLER: A very enjoyable one.

COUNCILMEMBER CARROLL: We've heard a lot of talk about jobs and ethics and I'd like to clarify with you and everyone else why we are here. This first came up about GMO about 19...excuse me, 2003 when I was Chair of this Committee under another name, and I met with many of the GMO representatives and lobbyists. And at that time, the public relations was consisted of GMO representatives, of lawyers, and lobbyists. That was their entire public relations bit. Answers were never forthcoming. It was just unbelievable. Me and my position in the office or the public's position. It created a very strong atmosphere of distrust which lasts 'til today. We were talking about ethics and people, and jobs. It was always a concern and it always is a concern, and I agree with you on the jobs and the ethics considerations, but this is what we're dealing with. Almost 10,000 people signed a petition for this moratorium. Now we can say they're all uninformed and what, but they're not. They're concerned. They're concerned because they didn't have the information that they had to make decisions, and this information was not forthcoming from GMO, the people, Monsanto, whatever company is involved at that time. It made it difficult for us when we have to make decisions because we never, ever really had good,

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straight answers. There are legitimate concerns about their...about the effects on food both for animals and humans. There have been no real studies as you said; it's a real undertaking to make a study of what damages or possible damages food over the long-term, GMO foods might generate. Yes, it's difficult, but these concerns were brought up at least 10 years ago and probably before then. The companies that are benefiting from GMO that they are making money off of it, have made no real effort, or any effort that I know of to go over there and have a study to go over there and make sure that their product was safe in the long-term. Ten years was a long time ago. They could have done this. They decided instead to go with the public relations route of lawyers, lobbyists, and lawsuits. Now this has created this area of distrust. We talk about ethics, well, I think ethics were lacking on that side. But they did nothing illegal; however, the way they have presented their product and how it affects the community leaves much to desired. I will not argue with anything that you said; however, you can't prove that it is not; I cannot prove that it is, and no real effort has been made to substantiate this either way. And this is why we're here in this meeting because thousands, tens of thousands of people are concerned because they're not getting the answers, and because nobody has taken it upon themselves to do the studies necessary to assure the public of the safety of these products. And I think it's necessary after all the conversation you've had with my fellow Council members and your opening remarks to bring this out that is why we are here today to determine if it is necessary to have a moratorium or not, and why we should have it or why we shouldn't have it. And like I said, I don't disagree with anything. I think that jobs are really important. Molokai is one of the most economically depressed areas in the State; however, those are the concerns of our people and we need to address them. And it's not just, well, don't worry if somebody starts getting sick then we'll worry about it. I was hoping today with the conversation with you, you might come up with some viable suggestions how we can approach bringing to our people some way that they can be assured that they have safe products, and that the other concerns they have of course, which doesn't really fall under you, but it does in a way, about overspray affecting the population with pesticides. Kihei area, as you know, is very windy, and there obviously some problems over there going to be with drift; I can't see how they couldn't have it, but to address these things and make our people confident that they are being taken care of and their concerns are being met and answered. Chair.

MR. MILLER: Okay.

CHAIR HOKAMA: Do you have a question for Dr. Miller, Mr. Carroll?

MR. MILLER: Yes. Well, that was very articulate, I have to say and impressive. There's some concern about your comments technically, okay, which I don't think it's necessary to address. I'm not really sure how...I...it seems to me when I listen to this and as an outsider, but you hear this many times over in similar situations. We heard it when there was a group of people on Oahu, 10 years ago that were concerned pollutants in the water supply. And there would be people that would come to the meetings and disrupt the meetings because there were cover-ups going on. And so what I hear in this community is this same kind or similar kind of distrust for either large government or large business and I can understand that, can completely understand it. And I think that if there was something to be addressed here it would be to address that. Okay, let's

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have some more transparency, for heaven's sakes, all right. But that's not a health issue, okay. That's a policy issue. It's a public concern between the community and where the people work. I think transparency is extremely important, and whether you feel like you will ever get it or you won't get it will not be resolved by an epidemiologic investigation. I think that there is on the contrary, plenty of studies that show that there is no, and plenty of evidence, I'm completely, I have no problem myself at all thinking that GMOs and the pesticides that they're talking about, I'm just not concerned that they are, me as an epidemiologist, in my opinion, causing a specific, demonstrable health effect that we could address, okay. That's my scientific opinion. And of some of those people that signed this, some of them are genuinely concerned people, just like you said, and I believe that, and some of them, I know, because I've visited this in other settings, are just...have their minds made up, and no amount of research, no amount of evidence, hard scientific evidence is going to change their mind. And I don't know what to do about that except maybe to address the issue of the conversation that we have as a community between where we work and where we live. And I don't know if this is helpful at all, frankly, what I'm saying, but I hate to see the community torn apart on this issue when I really would wish it weren't. And if you wanted to do those studies that you say you really think you need to do, okay, do them someplace or at least do the research that says you don't need to do them, okay, and...because that's what I believe, and then, you don't have to at least eliminate people's jobs because that is a public health impact. That is it's very straight forward and the concern, I understand is about people's health is one of the concerns of this as well as the environment, and so, in that regard, the issue's clear.

COUNCILMEMBER CARROLL: Thank you. Doesn't really help us solving our problem over here, but thank you for your comments. Thank you, Chair.

CHAIR HOKAMA: Okay. Thank you. Mr. White, any further questions for Dr. Miller?

COUNCILMEMBER WHITE: No. Thank you.

CHAIR HOKAMA: Ms. Baisa?

COUNCILMEMBER BAISA: No, thanks.

CHAIR HOKAMA: Ms. Crivello?

COUNCILMEMBER CRIVELLO: No, thank you.

CHAIR HOKAMA: Okay. Well, Dr. Miller, we thank you for your participation this afternoon. We thank you for your opening comments as well as your responses to the Committee's questions. So thank you very much for your time, making yourself available, and responding to the questions.

MR. MILLER: You're more than welcome. It was a pleasure and I'd be happy to be contacted again, individually or by the Council. I'm at your service.

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CHAIR HOKAMA: Okay. Thank you very much, Dr. Miller.

MR. MILLER: Okay.

CHAIR HOKAMA: Bye-bye.

MR. MILLER: Bye-bye.

CHAIR HOKAMA: Okay, Members, thank you for that. I'm going to have Corporation Counsel, we have Mr. Kushi. I believe our chief Counsel, Mr. Wong will be joining us shortly, but I would like the Department of Corporation Counsel to give us some comments about form and legality. The Chair has some concerns about since we do not have the ability to make substantive changes to the submittal as was received by the County Clerks, I would like Corporation Counsel to be responding to some of the questions I have as well as you may have, Members. And so, Mr. Kushi, would you prefer that we wait for Mr. Wong or can we proceed?

MR. KUSHI: Yes. He should be on his way. Take a recess.

CHAIR HOKAMA: Okay. We're going take a short five-minute recess, Members. . . .(*gavel*). . .

RECESS: 2:33 p.m.

RECONVENE: 2:38 p.m.

CHAIR HOKAMA: . . .(*gavel*). . . This Committee shall come back to order. This afternoon, Members, now we have Mr. Wong and Mr. Kushi, our chief Corporation Counsel and First Deputy present. First, I'll ask Mr. Wong if he has some comments he can share with the Committee at this time. Mr. Wong.

MR. WONG: Chair, thank you. Committee members, by way of an update, when I last, in open session spoke about the litigation confronted by the County of Kauai and the County of Hawaii, there was a hearing that was set before a Federal District magistrate which occurred yesterday. I did attend that hearing and observed the presentation made by the plaintiff corporations and responded to by, also cross motions by the County of Kauai and the defendant intervener, Earth Justice. Various motions were filed, numerous motions were filed by both sides of the aisle and vigorous argument was made by I'd say about 12 attorneys, and the courtroom was very crowded. There was no seat available and people were, quite frankly, Chair, sitting in the aisles. After about two and half hours of argument and direct questions by the Court, the Court did take the matter under advisement, did inform the parties that the Court was going to generate his written decision in well enough time before the effective date that the Kauai ordinance takes or is implemented. From what I understand the original date for the Kauai ordinance was in early August to take effect. There may have been an extension to that. I'm not certain of what the deadline is for that. But the Court did indicate that it would quickly move crafting its response

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given the issues involved. One of the interesting components of the presentation, you know, both sides had very good arguments, and I think both sides represented their positions quite well, but there was one component that was very interesting to me, and that is that one of the presenters, the Kauai, the County of Kauai Special Counsel, had previously asked the Court to consider certifying the question of preemption for the Hawaii Supreme Court to review. And Judge Kurren suggested that he would take that topic under advisement, and typically, the certification of a question for the Hawaii Supreme Court is when the other Court needs guidance as to how the application of Hawaii law would play as it relates to the question before that particular Court. And Judge Kurren asked the parties to focus their oral argument on the topic of preemption, and so for about an hour for each side, they discussed that topic, and I think both groups of attorneys really did a good job presenting. So quite frankly, so even though I sat there and I listened to the Court's questions and the responses by each respective attorney, I can't discern, as the Court did not indicate an inclination one way or the other. Typically, some of the Federal Court judges would, in open court, provide their inclinations. This given circumstance, Judge Kurren did not and suggested that he will take it under advisement. I have my own thoughts on how we should proceed as it relates to what's before this body, but given the litigation that's actively ongoing and as it relates to Kauai County, and I do know that as I sit here the Hawaii County litigation is also active. They just received a motion for summary judgment filed on behalf the plaintiffs companies in that case. No hearing date has yet been set in that matter. I have received, from our sister counties, the moving papers that were filed in each proceeding. They were very voluminous and, you know, I just received today the moving papers that were filed in the Federal District Court matter. So we will review those and provide you later with our thoughts on those, but at the moment if there's any need for question or answer or just further discussion, I think that's the extent of what I want to discuss in open session. I would ask that you consider if there's any direct questions as it relates to matters pending before this body that we move into executive session for further discussion.

CHAIR HOKAMA: Okay. Thank you for that status, Mr. Wong. Maybe for the Committee's knowledge regarding the certification question to the Hawaii State Supreme Court is that something that is going to be moving forward regarding the State's position on preemption regarding State law?

MR. WONG: The Court understood the request that was being made. It was being opposed by the plaintiff corporations and the Court did not indicate whether or not he would certify that question. He said would, along with the rest of the arguments, take it under advisement.

CHAIR HOKAMA: Okay. So hearing, you know, the Committee hearing your earlier comments, Mr. Wong, did the Federal magistrate then signal enough to you that preemption was always something of a concern to him regarding Federal law?

MR. WONG: I think the Court's request of the parties was, given the time constraints and the amount of attorneys involved, and the amount of parties involved, and the risk of it extending beyond the time available for the Court, I think the Court wanted to really narrow the oral argument issues. All the rest of the issues as it relates to the voluminous complaints involved were all briefed, and

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the parties had agreed prior to that day that all matters would be decided by the Court based on their written memoranda that was submitted, and they would focus solely on the issue of preemption, not necessarily meaning that the issue in and of itself was the most prevalent one for the Court, but certainly the one that the Court had the most questions about.

CHAIR HOKAMA: Okay. Mr. White, questions for Mr. Wong?

COUNCILMEMBER WHITE: Not at this time. Thank you.

CHAIR HOKAMA: Ms. Baisa?

COUNCILMEMBER BAISA: No, nothing that I think we can discuss in open session. Thank you.

CHAIR HOKAMA: Mr. Couch?

VICE-CHAIR COUCH: No. Thank you.

CHAIR HOKAMA: Ms. Crivello?

COUNCILMEMBER CRIVELLO: In regards to your...thank you, Chair. Thank you for being here, Mr. Wong. Regarding the preemption and I don't know if...after listening to the USDA people and they seem to have such a comprehensive regulatory scheme set up so is this...like...will the proposed moratorium because of USDA's regulatory process, is that what we're talking about by maybe implying being preempted by Federal law?

MR. WONG: Without getting into the nuances of the bill as it's presented to this body, the topic of preemption would encompass the scheme and/or the breath of the scheme that may be part of what the USDA is controlled or can control. I will suggest to you that in open Court yesterday, the science of the topics were not discussed. The mechanism that is provided for in the various statutes were discussed. For example, they had a lot of argument on the extensiveness of the pesticide laws and whether or not the field preemption topic was a viable topic that would preempt, but then at the same time there was lot of discussion about the balance between the municipality's ability to create law and the challenge between the areas governed by the State and the Federal government. So without being too confusing, the simple response is that it may cover the area of preemption. Whether or not the Court was convinced yesterday, I couldn't tell you as I sit here before you.

COUNCILMEMBER CRIVELLO: Okay. Thank you.

CHAIR HOKAMA: Mr. Carroll, questions?

COUNCILMEMBER CARROLL: No questions, Chair.

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CHAIR HOKAMA: Okay. Is there other questions you wish to ask Mr. Wong in open session, you put a request to the Chair for executive session?

COUNCILMEMBER BAISA: Yes.

CHAIR HOKAMA: One second, one second. Okay. We have a request for executive session by Mr. Wong relating to Policy Item-78. This Committee can consider executive session pursuant to Section 92-5(a)(4), of the Hawaii Revised Statutes to consult with legal counsel on questions and issues pertaining to the powers, duties, privileges, immunities, and liabilities of the County, the Council, and this Committee. The Chair will be entertaining a motion for executive session.

VICE-CHAIR COUCH: Mr. Chair.

CHAIR HOKAMA: Mr. Couch.

VICE-CHAIR COUCH: Yes. I move to go into executive session pursuant to Section 92-5(a)(4), Hawaii Revised Statutes.

COUNCILMEMBER BAISA: I second the motion.

CHAIR HOKAMA: I have a motion made by Mr. Couch, seconded by Ms. Baisa. Members, is there any discussion? Having none, all in favor of the motion, please, say, "aye".

COUNCIL MEMBERS: Aye.

CHAIR HOKAMA: Opposed say, "no"? Motion passes with six ayes, three excused: Ms. Cochran, Mr. Guzman, Mr. Victorino.

VOTE: AYES: Chair Hokama, Vice-Chair Couch, and Councilmembers Baisa, Carroll, Crivello, and White.

NOES: None.

EXC.: Councilmembers Cochran, Guzman, and Victorino.

ABSENT: None.

ABSTAIN: None.

MOTION CARRIED

ACTION: APPROVE; RECESS open meeting and CONVENE executive meeting.

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CHAIR HOKAMA: We shall be in recess to prepare for executive session. . . .(gavel). . .

RECESS: 2:51 p.m.

RECONVENE: 3:50 p.m.

CHAIR HOKAMA: . . .(gavel). . . The Policy Committee shall return to open session. Members, we are on Policy Item-78. After conferring with legal counsel on the powers, duties, privileges, immunities, and liabilities of the County, the Council, and this Committee regarding Policy-78, the Chair will be making some comments as well as allowing each Member to share your thoughts regarding the potential disposition of this proposal. The Chair tried very hard to give the community information that will be useful, educational and timely in preparing on how to deal with this question. As your Chairman, I cannot in good conscience recommend that the Council pass this through a ordinance process. Your Chair feels there are too many significant flaws in the proposal. I believe it also has some structural concerns for the Chair as well as not being in compliance with the Charter. Therefore, Members, it is my position that we...I would recommend to your consideration that we allow this question to go to the ballot without Council approval because in good conscience, I will not ask you to vote on this proposal because of the flaws and legality issues that the Chair feels is too important to ignore. But at the same time, if we do move this to the ballot, I think it's critical for the Council to help educate and give the public information that I believe is responsible, accurate, and timely in making an informed decision. We have Corporation Counsel, if any of you would like to ask questions to Mr. Wong regarding some of the legality concerns of your Chairman, but that is my position. I believe that our community is matured and sophisticated enough if given the right information that our community can make the right decision. And so I will allow each Member to give comments. I'll start with our Vice-Chairman, Mr. Couch, if you have any comments you wish to share at this time?

VICE-CHAIR COUCH: No, thank you, Chair.

CHAIR HOKAMA: Okay. Ms. Baisa?

COUNCILMEMBER BAISA: Thank you very much, Chair. I'm in full support of your position. Thank you.

CHAIR HOKAMA: Thank you. Mr. White?

COUNCILMEMBER WHITE: Thank you, Chair. No, I concur with your position and I think it's appropriate to allow this to go forward to the ballot.

CHAIR HOKAMA: Okay. Thank you. Mr. Carroll?

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COUNCILMEMBER CARROLL: Thank you, Chair. I fully support that. If we didn't send it to the ballot we'd be actually ignoring four-fifth of our voters that wouldn't have a say in this. I think it's the appropriate action.

CHAIR HOKAMA: Thank you. Ms. Crivello, any comments or questions?

COUNCILMEMBER CRIVELLO: Yes. Thank you for your recommendation and I support your recommendation, and you know, I'd like to take this opportunity of deliberation on behalf of my Molokai District. And as it had stated earlier in testimony that, you know, people who testified were not too many Hawaiians but, you know, had over 50 of the 100 testifiers that were Hawaiian. But also more important, we had generational families who testified, and you know, I am of Molokai. It is my home, born and raised. I've seen the pains, and felt the pains of loss of employment, and I've seen the pains of loss of homes, foreclosure because of not being able to fulfill the mortgage obligations because of loss of employment. I've seen outsiders come in and just sweep up these foreclosed homes, and then the people who lost the homes became the tenants because they had to rely on subsidies. It has been mentioned that we have a kuleana, a kuleana to our future generation, and it is a Hawaiian concern definitely is. For Molokai, it's family. The kuleana is ohana, and that's the future generations, and so when I hear testifiers say well, find alternatives and do something else, you know, we have to find the right balance for we're no longer isolated. Molokai is not isolated, we live in a global society, and I agree, we have resources that we want to save for the next generation, and the sad thing about it that many of our resources, marine life are being depleted for the overuse, and what was plentiful at one time is no longer plentiful for whatever the reason may be said. The...it says that our cultural has...is seriously impacted by seed companies and that is one of our testifiers said that on our island. The closure of the seed companies would definitely impact our culture. We are noted as being an island of family and a caring and sharing community. This contentiousness is not caused by the corporations. And yes, we'd like to see diversification, we've been having this conversation for over 30 years, but I can count on one hand, on the successful farmers other than the agribusiness on my island. We heard from a Dr. Miller as far as the health issues that come with job losses. There's no question about that. If part of his study would just dig into the Hawaiian health system and the kind of data they have, it, you know, it does all lead to losses, whether it's employment or just part of who we are. So it was also mentioned that this is not a political problem. This is a problem, I can say, definitely for my island. I respect the process. The Movement was successful and we need to continue the process, but I cannot embrace the word "shaka" with the movement, 'cause shaka to me means a big hug of aloha. And this, I just will address it as "Movement" because there's no shaka in it, in fact, even the sign is not the shaka I grew up in within my local culture. So yes, we've seen the shutdown, but we do have challenges that the concerned people have brought to the attention, and you know, we can appreciate that, and I understand, and from my own kind of checking it out when I go home, that part of the lands that Monsanto has surrounding the schools will be planted with covers, ground covers, I guess to provide the nutrients into the soils as needed instead of the actual corn seeds. And I understand that they've had an opportunity to meet with the concerned parents and school administration most recently. So I think we find a balance with one another, that we still need our eye watchers, and if we cannot respect the regulatory profession of our Federal government,

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our State government, who's to respect us as the local government? So I think these are the kind of things that we need to decide as far as this initiative. I believe it's well intended for those who believe in their beliefs that the GMO is hazardous, and the pesticides is also another issue that is being brought up, but hopefully, as we go into it more, you know, even that, when we talk about the damage of our reefs, our watershed, I mean, you know, we need to go mauka and take care of mauka. Let's invest in our watershed so that the runoffs and the decimation of our native plants and the forest is not destroyed and in more ways than one, we will take care of our environment, and we can claim all these things about our reef and how do we protect our environment by there are other means for us to protect it. And culture, don't kill the spirit of the people. We kill the spirit of the people, we destroy the culture whether it's Hawaiian culture or our local culture. I grew up in a plantation era. You know what, that was a beautiful era 'cause we all got along. My mom's the pure Hawaiian that was...they embraced each other whether they were Japanese or Filipino, and that's what makes us Hawaii so special. And I see this initiative, and this is my personal feel, that it creates a divide coming from a certain segment of our population on Maui, and yes, I believe Molokai, there will be repercussions. I've listened to the business community. A moratorium simply means to me, to ban, and to say that they will not pull out, they will have no choice if this initiative goes through. So I appreciate the fact that we are going to continue the process that the people of the movement have started by allowing it from one way or the other to your recommendation to go before the ballot. So mahalo for giving me this opportunity.

CHAIR HOKAMA: Thank you, Ms. Crivello. Anyone else wishes to give comment? Everything goes in cycles, people. 1978 I can tell you, being a member of the Constitutional Convention, the concern of loss of culture was critical, and at that time if you, for those of you that can remember, that's when the subject of Palaka Power came to bear, Palaka Power, local power. And believe it or not, in 1978, the people of Hawaii believed strong enough that we discussed controlling in-migration from the 48 states. We wanted to put limits on who could come to Hawaii from the 48 states. Major discussion because the people didn't like what was happening to its culture. Interesting, we back in 2014, we getting something similar, not exactly the same, but it's going to be a difficult time, people. '78 was when we had the Hawaiian renaissance. We brought back many things that was important to us, the battle of Kahoolawe. Who's going to determine our island destiny, islanders or non-islanders? So there's a lot more to this ballot question than what we see on its face. It's about who we are as island people, and for those of us that have been here for hundreds of years, we understand. We don't need to know, it's in us already. Mr. Couch?

VICE-CHAIR COUCH: Thank you, Mr. Chair. Your comments and Ms. Crivello comments, you know, they hit me right here because I'm one of the guys that moved here from somewhere else. But I came here, and I said how do you live here? What are your practices? I didn't come here and say we should do this this way because that's the way it was done over there, and it infuriates me and it embarrasses me that I'm, you know, lumped in with the folks that come in and say, oh, we're coming here, this is the way you should do stuff. You gotta come here and say how do you do things here, how can we fit in, not change it to the way you want it to be, and this issue is causing such a horrible division. You look on Facebook under certain pages and it's nasty. It wasn't nasty when I moved here. It wasn't nasty for a while, until some people came and started

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making it nasty. And that is what's really, really gets you right here, for those of us who moved here and wanted to fit in. So thank you for your comments, Ms. Crivello. Thank you for your comments, Chair. And I'm sorry that people that are--

CHAIR HOKAMA: No apologies, Mr. Couch.

VICE-CHAIR COUCH: --coming are causing this kind of really nasty stuff that's going on. Thank you.

CHAIR HOKAMA: Thank you for your comments. Any other comments, Members? If not, the Chair with no objection is going to defer this item.

COUNCIL MEMBERS: No objections.

COUNCIL MEMBERS VOICED NO OBJECTIONS (excused: EC, DSG, MPV).

CHAIR HOKAMA: Okay.

ACTION: DEFER pending further discussion.

CHAIR HOKAMA: This item is deferred and this meeting is adjourned. . . .(gavel). . .

ADJOURN: 4:06 p.m.

APPROVED:



G. RIKI HOKAMA, Chair
Policy and Intergovernmental Affairs Committee

pia:min:140724r

Transcribed by: Julie Zaner

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CERTIFICATE

I, Julie, hereby certify that the foregoing represents to the best of my ability, a true and correct transcript of the proceedings. I further certify that I am not in any way concerned with the cause.

DATED the 18th day of August, 2014, in Wailuku, Hawaii.



Julie Zaner