JOINT INFORMATIONAL HEARING
SENATE COMMITTEE ON FINANCE, INVESTMENT AND INTERNATIONAL TRADE
AND
SENATE SUBCOMMITTEE ON CALIFORNIA-EUROPEAN TRADE AND DEVELOPMENT

IMPLICATIONS OF GENETICALLY MODIFIED ORGANISMS ON INTERNATIONAL TRADE

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SENATOR TIM LESLIE, CHAIR: The joint informational hearing of the Senate Committee on Finance, Investment and International Trade and Senate Subcommittee on California-European Trade and Development will come to order. Let me just say that I think we're mostly all aware here of the many conflicts that are existing in the Capitol today with bills being heard in various committees. The day of reckoning has finally arrived, and it's pretty hectic out there so members will most likely be coming and going. The hearing is being transcribed, however. And there will be a transcript available within a reasonable time after the conclusion of the hearing. So the importance of the hearing is still important because this will provide a record of information on this important issue.

I want to thank everybody for attending the joint informational hearing dealing with genetically modified organisms or GMOs as it relates to international trade. I want to tell you that I'm grateful for the participation

today of individuals representing the scientific community, the industry, and the government as well as interest expressed by others in the audience.

California continues to maintain its unique position as the world's seventh largest economic power and as American's largest exporting state. Last year, 1999, California exports exceeded $107 billion. This figure was $16.5 billion more than the second-place Texas, and accounted for 15.5 percent of total U.S. exports. Moreover, our state's exports in 1999 directly and indirectly supported about 1.29 million jobs in California.

Because of the importance of international trade to our state, it is vital that all of us become better informed about a topic that has a direct relationship to California's foreign trade. It is a topic that is in the news on practically a daily basis irrespective of whether it is cited as 'GMOs,' 'genetically modified foods,' or 'biotechnology.' The objective of this hearing is very straightforward; namely to provide information to committee members, the Senate overall, and the general public on this timely issue that will likely be subject to public policy review in the coming months and years. Our purpose today is informational: to collect information so that more enlightened public policy choices may be crafted by elected officials in the future.

From an organizational perspective, this hearing will be comprised of three separate panels: first a scientific panel, an industry panel, and a governmental panel. Each witness is requested to keep their remarks to ten minutes, and times the number of people that will pretty much take all the time we've got because we do have bills up on agenda today as well. So with that, we'll get started. And I'd like to invite the first panel up which includes the Honorable Lon Hatamiya, Secretary for the California Trade and Commerce Agency; Mr. Chris Compana, the Deputy Secretary of

International Trade and Investment for the California Trade and Commerce Agency; and Mr. Dan Webb, Deputy Secretary of the California Department of Food and Agriculture.

MR. LON HATAMIYA: Mr. Chairman, I think I'm going to be here by myself.

CHAIRMAN LESLIE: Someone's sneaking up behind you.

MR. FRED CLOSE: I'm Fred Close. I'm here for Dan Webb. I'm with the Agriculture Export Program of the California Department of Food and Agriculture.

CHAIRMAN LESLIE: Thank you.

MR. HATAMIYA: And let me apologize. My deputy secretary, Chris Compana is now on his way to Argentina to hopefully open our new office there. And so I think I'm uniquely qualified to address this issue, not only as secretary of the Trade and Commerce Agency, but prior to my appointment to this position, I served for a number of years with the Department of Agriculture specifically handling trade policy. I've spent many long hours in Brussels and Geneva and Tokyo and many other locations addressing this GMO issue. If I could start off with just a brief formal statement and overview of some of these issues, and then I'd be glad to answer any questions that you might have.

For thousands of years, farmers have been using conventional breeding practices to produce crops with desirable traits. Today, science has produced significant advances for understanding the biology of plants used for agriculture. (I'm going to leave a lot of the scientific data obviously to the experts that will follow today, but I want to just preface my comments and put it into the context of this hearing.) These advances have lead to the development of powerful molecular techniques which can precisely induce

desirable traits and introduce those traits in a timeframe that is much shorter than experience with conventional breeding practices. The sought-after traits include improved appearance, hardiness, pest resistance, or nutritional value.

Some scientists and members of the public have expressed concern that the genetic engineering of plants could result in unsafe food, harm beneficial organisms, or induce uncontrollable growth in weeds. Concern is especially elevated in countries that are major trading partners to the United States, the more specifically to the State of California. This concern comes in part from the lack of faith in the European Union and other countries to assure the safety of their food. They have no independent regulatory agencies like the FDA, USDA, or EPA. They've had many food scares in recent years, mad cow disease, and dioxin-tainted chicken, for example, that have contributed to the wariness of any food that is not produced in a traditional manner not withstanding what the science says. Ironically, they do not share that fear as it related to generically modified pharmaceuticals. And I think that's a major point to make.

In addition, there is a concern about the long-term effects regarding the consumption of genetically modified foods. These foods are relatively new and studies on the long-term effects have just started. At least one major study has been released and more studies are on the way. Recently, the National Research Council released on April 5th of 2000 of this month, the results of a year-long study titled, *Genetically Modified Pest-Protected Plants, Science and Regulation.* The NRC concluded that it was not aware of any evidence suggesting foods on the market today are unsafe to eat as a result of genetic modification and that no strict distinction exists between the health and environmental risks posed by plants genetically engineered through

modern molecular techniques and those modified by conventional breeding practices.

The United States concerns revolve primarily around GMO issues being used as an unjustified trade barrier. And I'm going to be concentrating a little bit about the impacts upon California in just a minute. The United States wants to insure scientific backing for regulations on GMOs. To date the U.S. has declined to challenge any GMO labeling laws in the WTO. The U.S. has encouraged countries to work with the Codex Alimentarius, the International Food Standards Body. Codex standards are recognized under the WTO's agreement on Sanitary and Phytosanitary measures. In January of this year, 130 countries, including the United States, agreed to new rules regulating the trans-boundary movement of GMOs as outlined in the Cartagena Protocol on Biosafety. At least 50 nations must sign and ratify the Protocol before it comes into effect and then that could take up to three years. The agreement would not allow countries to block food imports based on concerns over GMOs. Only GMOs, seeds and live fish that could be released into the environment could potentially be blocked.

Let me now talk a little bit about some of the restrictions that we're facing today. There's a growing consumer resistance to food products that have been genetically altered, particularly in Europe and Asia. So far the mid-western states have been most affected and more affected than California since those states are much more dependent upon the particular crops restricted. Restrictions fall under two major categories: one, non-acceptance, or two, labeling requirements. The European Union is a primary battleground for GMO issues. GMO products face lengthy and highly unpredictable approval processes in the EU. And as I mentioned I spent quite a bit of time in my previous job in Brussels dealing with these issues.

And almost for the whole two years I was in my position, we dealt with trying to get only three varieties approved. And it takes that long in comparison, it takes only six to nine months for approval in Canada, Japan and the United States. The EU currently has a de facto ban on approving new GMO products that will last at least until September 2000, and more likely well beyond that time.

Countries that currently require GMO food labeling include the United Kingdom, France, Germany, Italy, New Zealand, and most recently, Japan. Austria and Luxembourg have imposed market bans on GMO products even though this runs counter to EU regulations. South Korea introduced a draft regulation that would require GMO food labeling with the proposed effective date of March 2001. Please keep in mind all of those countries, many of which are major trading partners with the state of California, so they could have major implications which I will talk about in just a second.

The results of these restrictions are significant. The EU is looking increasingly to non-genetically modified suppliers. As a result, for example, soybeans exports to the EU have plunged to the rate equivalent to losing a market for one out of every three bushels of soybeans grown in Iowa. And for another example, a Japanese soy sauce manufacturer announced that it would not use genetically modified soybeans, and a Mexican tortilla maker announced it would not use GM corn. Some mid-western states are heavily dependent upon just a few genetically modified crops such as soy, wheat, or corn. GM corn, for example, is much more productive producing 30 more bushels per acre than non-GM corn. GM corn is used in thousands of different food products, yet as noted above, has come under restrictions. For 1998, 44 percent of all U.S. soybeans, and 36 percent of all U.S. corn were

produced from genetically modified seeds. In addition, bioengineered corn and soybeans account for 90 percent of global trade in GMOs.

Now let me talk a little bit, as I mentioned, about the potential impact upon California agricultural exports. At stake are California industries of agricultural production and food processing. So it has more implications than just on production but also on the processing of our food. Combined, these industries had employment of over 680,000 people in 1998, and produced a payroll over $14.7 billion. GMO export restrictions will have an impact upon California not only for raw produce, but also as ingredients in thousands of food products. Fortunately, California is less vulnerable to restriction upon any one GMO since California agriculture production is extremely diverse, producing about 350 different commodities. California is also less vulnerable to foreign restrictions as only about 19 percent of California ag products are exported.

Well, according to the Agricultural Issues Center of the University of California at Davis, in collaboration with the California Department of Food and Agriculture, the state's agriculture exports to foreign markets were estimated at about $6.7 billion in 1998 compared to a revised estimate about $7 billion in 1997. But in either case, we can see it's a major part of what you mentioned in $1.7 billion export market that we have in California. Almonds, cotton and wine continue to be the top exported commodities. And cotton, in particular, has apparently come under some GMO restrictions, but is less vulnerable to adverse economic impacts than products for human ingestion.

Japan and Canada remain the largest markets of California agricultural products. Even during the Asian financial crisis, East Asian countries received 41 percent of California's agricultural exports. The European Union and Canada also received large shares of total export value,

15 and 20 percent respectively. California continues to export, as I mentioned, 19 percent of its total agricultural production. Again, that varies from year to year, but that's roughly where we are at.

There is little data to measure the impact of GMO restrictions upon California companies, however. There are several reasons for this. The term, 'genetic modified food' is new and no standard definition exists. Such food contains such portion that is obtained from GMO and opinions vary as to what portion defines food as being genetically modified. We're in the processing stages of a particular food item, that portion is to be measured. Even if the definition of GM foods was standardized, measuring the impact would be difficult since countries often produce a mix of products, only some of which may fall under the category of GM foods. But to put that in larger context, even if there is a small percentage, it may restrict, or it may even prevent, many food processors here in California with greater labeling demands to even rethink their use of genetically modified percentages even if they were the smallest percent.

For example, I met just this past Monday with Kikkoman which produced soy sauce, and they have a facility in Folsom. But what they mentioned to me is that if they had to go totally to non-genetically modified soybeans and wheat which they use in the production of their soy sauce, it would increase the cost of their production by six cents a gallon. And it really provides a difficulty in terms of segregation, in terms of identifying. And even ultimately, they pasteurize their end product so it would be very difficult to detect levels if there are genetically modified used varieties.

Let me now talk a little bit about the potential impact upon just California biotechnology in general. Also at stake is the reputation of the California biotechnology industry and the part that California has played in

developing that industry. Biotechnology was created generally in California, was recognized in 1993 through a collaborative effort between the University of California San Francisco, Stanford, and the National Institute of Health. California has one-third of the nation's public biotechnology companies, and half the employment in the entire nation in biotechnology. The San Francisco Bay Area is now the largest biotechnology cluster in California and there are others that are also located in California: San Diego, some parts of Los Angeles, and emerging other areas of the state.

The state is home to 2,500 biomedical companies employing 213,000 people and having worldwide revenues of about $20 billion. Many of the companies are developing biomedical applications to California agriculture. Exports from biomedical companies amount to about $4.2 billion. California has 75 public and private research institutes including the UC and CSU campuses throughout the state. Some of these campuses specialize in agricultural biotechnology research such as UC Davis and CSU Chico, Fresno, and Bakersfield. So if you put this into the full context, impacts could be very great upon, not only our export production, but also upon the emerging biotechnology industry here.

And I think any type of constraint that's not based upon pure science will really chill the impact of our development. We become known for that increasing technology. California is at the cutting edge, and I think we need to remain there. I know there are questions that will probably be asked of how we can prevent these from impacting California, and I have just a couple of recommendations at this point in time.

One: I think it's incumbent upon California's industry, incumbent upon California in general, to better educate its consumers to the validity and the science-based products that are being developed by biotechnology. It's

also important for us to continue to look at other alternatives to technology that can address some of the issues that GMO products produce in terms of their benefits.

Let me just end by saying that just today I met with the Vice-President of Wal-Mart. He was here discussing some business issues in California, and I asked him this direct question saying that I was going to be testifying before you today. And I asked him just generally, "Had they been impacted by any concern among consumers not only in California but across their many stores as one of the largest retailers, and one of the largest sellers of food products in the country?" He said it had not been a large issue for them. They received very few letters of concern.

I think that's directly contributed to the fact that we have again a process by which can be followed in the regulatory side through FDA, USDA, and EPA. And I think that has really shielded us from many of the types of attacks against these products that we are seeing in other countries. But I think we need to remain diligent to insure that that information is provided. I think on the part of the State of California, we need to continue to work with the federal government to insure that California's interests are best represented, that we bring to the table our advantages, certainly the positive benefits that our products can bring in many markets around the world.

So in closing, I want to thank you for giving us the opportunity to testify today about this very important issue and how it could potentially impact California in a greater way in the years to come. Mr. Chairman, thank you very much.

CHAIRMAN LESLIE: Thank you, Lon. Do you think the EU's position against GMO is due to competitive reasons and they're using this as an excuse?

MR. HATAMIYA: In my opinion, I think there are a couple of reasons. I think I mentioned it in my testimony. One, there's a lack of confidence in their government entities to insure the safety of their food. I think that's driving a lot of it. Another is the protection of their agriculture. I think that that's one of the things. Agriculture is the base of the economy of most countries in the world, and any barrier to trade that can be placed benefits that single country. I think there's some truth to that. I think the delays in approvals of certain varieties is certainly an indication of that in my own experience.

CHAIRMAN LESLIE: Thank you very much for your statement.

MR. CLOSE: Once again, I'm Fred Close. I'm with the agricultural export program of the California Department of Food and Agriculture. First, I'd like to start out by saying that following Mr. Hatamiya kind of took a lot of the wind out of my sails. He was formally with the foreign agricultural service and did a lot of the top level negotiating on several issues including this one which we are about to discuss.

I'd first like to start out, since this is concerning the trade implications of genetically modified organisms, that in reality this issue was a trade issue from the very beginning. As Mr. Hatamiya mentioned, two years ago he was working on this issue in Geneva before it was ever even a term that was known in the United States. And, in fact, it was a trade issue with the European community long before really any one here even heard about it. The repercussions of these negotiations actually came back across the Atlantic and were felt here after they were already felt in Europe.

Just to back up what he said as far as the trade protectionism of basically every agricultural economy around the world, every country looks for ways to protect its own agriculture. We are members of the World Trade

Organization as are many of our trading partners around the world which we have all agreed that we shall all get along together. We won't have import permits, import limitations. We'll try to reduce tariffs, all this kind of thing. However, if there is a threat to our population or our agriculture, we can stop trade. That's allowable under the world treaty. This is, as I concur with Mr. Hatamiya, this is possibly a very strong reason for a particularly high level of concern for GMOs. We find it in California, a very high level of concern for many of the deleterious pests that we might have here. We're still suffering a ban on citrus in Korea from medfly that was exterminated years ago actually in certain sections of California. However, it is a convenient way of kind of keeping your farmers happy.

As far as the long-term use of GMOs, they've been around for years. The genetically modified soy products have been in our food supply. Most people don't even know it. You know it's just listed as soy or soy lecithin or something like that in the back on the list of ingredients of processed product. It has never been a concern up until just recently. The current status of GMOs and our major trading partners is pretty much outlined by Mr. Hatamiya. We expect that this issue will heat up in international trade before it cools down. We've seen the Japanese adopting a labeling requirement for GMOs. This is very recent. It is not to say that a product that is not GMO has to be labeled, but a product that is GMO is labeled. It brings up all kinds of questions as far as the oversight, how to tell a GMO product from a non-GMO product.

Very similar to the organic issue, as you may remember years ago, there was a high potential for abuse of the term 'organic' in California. And we actually had to enact an organic law to oversee the use of that term, and to, basically, police what was being produced as being organic and what was

not. We don't have any such regulatory power or oversight power to do anything like that. So a labeling requirement at this point may be really mute.

To go into the trade implications of the GMO regulations. The composition of California exports really as far as genetically modified organisms are concerned, the only major exported crop from California is cotton that contains GMOs. And of the cotton, somewhere in 20 to 30 percent of the cotton was GMO. Cotton is actually controlled by the Department as far as the varietals that are used. There is a strong fear of intermingling various cotton strains, and so those are maintained. And it is able to trace back what is cotton, or what is genetically modified cotton. However, as Mr. Hatamiya mentioned, the implications of cotton are not that severe. The real concern over GMOs is as a food product, not as whether your Levi's are made out of a GMO product or not.

The effects of our trading partners erecting GMO barriers, what I would consider a GMO barrier to import—one thing I read recently was the Chinese came out, basically announced by the year 2010, they would have 40 percent of their agriculture would be biotech, or genetically modified. Now, when the rest of the world is kind of pulling in against GMOs, the Chinese are advancing with GMOs. This may not be such a bad thing for us in California. We're finding in third countries where we export, we're finding strong competition from Chinese exports. If there are GMO barriers to entry into a country where our products are not genetically modified and the Chinese's are, it gives us a competitive edge.

However, on the other hand, as Mr. Hatamiya mentioned with the processed foods, we have a very strong problem with the soy ingredients and corn ingredients that possibly could be genetically modified and, therefore,

could be banned from foreign countries. What we're really seeing however, can somewhat answer your earlier question, is that a lot of the areas where we see the resistance to genetically modified organisms is consumer-based resistance. And that is not that the government is saying, "Don't eat things that are GMO." We're seeing the people basically saying, "We would choose not to eat genetically modified organism products." We see that primarily in Europe and also in the Japanese, two places where food is a very high percentage of the daily household bills. And also they have a very high attention to the quality of food. It's the stories of $300 melons in Japan that are legendary. So when you're looking at this high attention to food quality, it becomes almost natural that people will also prefer not to eat something that they fear.

As far as our response, the Department, and suggested response from California would be really to determine how this GMO issue will affect our farmers. As I mentioned, the cotton issue is probably the only one that is of serious importance to California agriculture as the basis of agriculture, not counting the food processing industry where some of our farmers are heavily GMO dependent, and others are completely independent. The fruits and vegetables, for example. Our California farmers tend to be very clued in to market signals. We have a farm economy that's primarily based upon consumer goods. When they pick a peach off a tree, it ends up being eaten as a peach by a consumer. So California farmers have to be very attentive to the desires of consumers. And if there is a consumer backlash in this country against genetically modified organisms, our farmers would react accordingly with or without government regulation.

The agriculture export program of the Department of Food and Agriculture continues to communicate developments on this issue through

the Internet and our newsletter to our agricultural industry. When we pick up the latest buzz on what's happening in the GMO world, we pass it on so that farmers are aware of what's happening. And in personal contact with farmers, they are concerned that they don't get embroiled in this thing. They have heard of some of the big food companies back in the Midwest that are basically beginning to require that their farmers provide them, without government regulations, they're asking to be provided with certification that the project they're providing them is not GMO. Now, this is a market force. This is not a government requirement.

In this issue, though, knowledge is the key to meeting the challenges of the marketplace. That's the way our farmers feel. And finally to reiterate what Mr. Hatamiya has said that regulations in this area should be based upon sound science and not some kind of hysteria.

Thank you.

CHAIRMAN LESLIE: Are there foreign countries that import agriculture products to the United States?

MR. CLOSE: Export products to the U.S. from, say, a banana coming from Guatemala or something like that? Sure. Coffee.

CHAIRMAN LESLIE: Are any of these GMOs? And do we have any restrictions on their's, or do we even care?

MR. CLOSE: Any restrictions on the domestic market for import, as I mentioned this World Trade Organization thing, cannot be specifically set up to try to discourage imports. So, therefore, products imported in this country are subject to the same laws as products produced in the United States. So as there are no restrictions in the United States for GMO produced products, you know, soy or whatever, it's the same with—

CHAIRMAN LESLIE: Do you anticipate restrictions in the future?

MR. CLOSE: I believe that this will be a market issue. I don't believe that there will be strong—I believe that it will follow very closely to what we've seen with organics.

MR. HATAMIYA: Mr. Chairman, if I can address that issue? There are pieces of legislation before Congress now that are looking at labeling requirements. I know there are other states that have looked at that. Other countries are also looking at other restrictions so this will be an ongoing issue as time goes on. And I think again, it's really important to the educational process, the science-based activity. The United States and especially California can take a lead in that whole effort of educating consumers as to the value of whatever product is developed. And again, in answer to the previous question you had, in terms of other imports coming into this country, the United States currently has about 50 GMO varieties that have been approved. And if those varieties are produced anywhere else, and they're coming into the United States, there's no limitation on that. The United States has probably the most open marketplace of any other in the world.

CHAIRMAN LESLIE: Well, if it's left to the market, which you think it will be, and to me that makes the most sense, it'll be a self-regulating situation because if you can't sell your food, you're not going to modify it.

MR. HATAMIYA: And I think that's what happening in the EU right now. Many companies that are trying to sell their product there are either not producing it with GMO varieties or looking at other alternatives. And it's really changed their operations.

MR. CLOSE: And we're seeing something similar in the Midwest where non-GMO varieties of corn and soy beans—farmers can't even find the seed anymore, it's in such high demand.

CHAIRMAN LESLIE: The GMO seed?

MR. CLOSE: The non-GMO seed. Farmers are already picking up that market signal—may not be the good thing to grow this year.

CHAIRMAN LESLIE: Thank you both very much for your testimony. I appreciate it.

Our next panel is Mr. Steve Foresberg, Executive Director of the Western Crop Protection Association; Alan Smith, Director of Public Policy, BIOCOM/San Diego; Mr. Jeff Barach, Ph.D., Vice President, Special Products, National Food Processors Association; Ms. Karil Kochenderfer, Director, International Trade and Environmental Affairs, Grocery Manufacturers of America; and Anne Chadwick, Executive Director of the California Association of Wheat Growers. Thank you all for being willing to spend some time with us today. We appreciate it.

MR. STEVE FORESBERG: Thank you, Mr. Chairman. Good to see you again. As you have indicated, my name is Steve Foresberg. I'm the President of the Western Crop Protection Association. I want to thank the committee for the opportunity to testify today, just a brief statement regarding the Western Crop Protection Association. We are a not-for-profit trade association representing manufacturers, formulators, distributors, and retailers of crop protection and pest control products including biotechnology products with crop production and/or crop protection characteristics. And we do this in ten western states including California.

My statement will be very brief, Mr. Chairman, covering five quick points.

CHAIRMAN LESLIE: By the way, for those of you that have a prepared statement, we appreciate that, and it will make our transcription easier if you would leave a copy with us if you can do that.

MR. FORESBERG: Specific to biotechnology, WCPA believes that all international rules and regulations governing biotechnology needs to be transparent and available to the public. Additionally, in order to insure that human health and the environment are being fully protected, a regulation of crop and/or food biotechnology must be science-based. Regarding biotechnology and the Sanitary Phytosanitary, or the SPS Agreement, we support the SPS Agreement as a whole, but the Association believes that specific issues of interpretation must be resolved regarding the application of Sanitary and Phytosanitary measures.

CHAIRMAN LESLIE: You're just a little advanced for me.

MR. FORESBERG: SPS, has to do with standards for food safety, if you will. What's allowed on food, and these are international standards that are established principally through subsidiary, subsets of the United Nations. We believe that these interpretative issues can be resolved without opening the SPS agreement to major change. But there is on-going negotiation now.

Regarding crop protection chemicals in the SPS Agreement, measures to achieve protection of human, animal, and plant life, and health by governments, again, need to be based on scientific methods. We strongly oppose the incorporation of broadly interpreted precautionary principle and all other non-scientific criteria into the SPS Agreement, and into its regulatory decision making. Hypothetical risks about pesticide residues must not be allowed to become barriers to trade. And that's a potential issues out there, both on the pesticide side as well as on the crop biotechnology side.

Intellectual property protection: Our members are the providers of the technology, Mr. Chairman. We support the establishment of basic standards to improve global protection of intellectual property. According to the TRIPS, which is the Trade Related Aspects of Intellectual Property Rights to that

Agreement, safety environmental impact or efficacy data generated by a manufacturer to register a new product or upgrade information on existing products needs to be protected under this agreement. That's how you stimulate further R and D and attract the new dollars that are necessary—

CHAIRMAN LESLIE: Would you make that statement again?

MR. FORESBERG: We need to insure that the data that is developed by the manufacture is protected under international trade agreements. And, again, if the manufacturer does not have assurance that their confidential data will be protected, then it's a deterrent to investing additional research dollars into this technology.

A word if I might on the precautionary approach. WCPA supports the precautionary approach, and I'll distinguish that from the precautionary principle, as defined in Principle 15 of the Rio Declaration, the Rio De Janeiro Declaration on Environment and Development. You'll recall that took place in 1992. Most industries support the principle that was captured in there. I've attached to the comments and for the record a white paper on the precautionary principle which further explains that whole issue.

And then, finally, on tariff reduction: We believe that custom tariffs on food products, agricultural commodities and/or agricultural seed products including products and commodities developed by biotechnology should be eliminated. Tariffs should be eliminated. They should not become a barrier to trade or restriction on trade.

Thank you, Mr. Chairman, for the opportunity, and I'm available to assist the committee in any way I can.

CHAIRMAN LESLIE: Thank you so much. I appreciate it.

MR. ALAN SMITH: I'm Alan Smith. I'm director of public policy for BIOCOM/San Diego which is 501C6 trade association for the San Diego

region representing biotechnology, biopharmaceutical, bioagriculture, and medical device and diagnostics companies. We are at the head waters of the food process. We're the farthest ones away from the consumer. We are the ones who are developing the technologies that farmers and growers, producers, and hopefully those more informed consumers are all pulling for us that we will be able to develop the technologies, methodologies that will enable us to have a plentiful, reliable, reasonably-priced food supply.

In San Diego, if we are not already there, we are rapidly on our way to becoming the leading plant genome center of the world where much of the cutting edge research and development that's being done in agricultural biotechnology will be taking place in our laboratories. Even though our soil is not particularly suited for growing large field crops, we are a place where there is a very fertile soil for intellectual ideas and development of those ideas. You've already heard some of the numbers from Secretary Hatamiya, and I will give you a handout at the end of my presentation on the 212,000 employees in the State of California working in the entire biotechnology and medical device industry and the $20 billion in worldwide revenues, and the $13.7 billion in salaries that are paid to employees in this industry.

With respect to what our issues are today, the trade barrier issues I think will be adequately addressed by others. Perhaps where we can shed the most light is on the safety and regulatory issues which really you can't get to the trade barriers without dealing with these first because safety and regulation are the excuses given for why there should be trade barriers. What really is going on in our mind with respect to safety is that there's a—flames have been developed by a public relations war of those who are opposed to biotechnology in general and applied to agriculture in particular. It's been fanned by a media that loves anything that bleeds. And they love to

open up a story with a headline that will excite people, get them to watch the news—

CHAIRMAN LESLIE: We have a good understanding of that.

MR. SMITH: And it's been fueled by a lack of public understanding. Recently, I was in Boston for the largest gathering of biotechnology companies and professionals in the world at BIO 2000. The first night I was at a restaurant and the waitress asked what we were there for. We told her. She said, "What's biotechnology?" This is a problem that we have everywhere that we go is people not understanding the technology in general and, specifically, as it's applied to food.

Well, with respect to the biotechnology itself, in traditional plant breeding, you may be shuffling thousands of genes, you take two plants, you like them both, you like some of their traits, put them together. You hope that they will produce offspring that have the desirable traits. Unfortunately, among those thousands of genes may go across, you may only need a couple of them. And you either have to accept those genes you didn't particularly want or you just have to keep crossbreeding until you get it down to the most acceptable traits and the least undesirable traits. So even in traditional plant breeding, we've been manipulating genetic material. It's just been in a very imprecise way, and it requires several iterations.

On the other hand with bioengineering, which is a phrase that I kind of wish we could kind of come up with a different one, but it's the best one that we've got, we are manipulating genetic material through very precise scientific methods. We are able to identify one, two, perhaps three genes that we want that will express a protein that will create a certain trait that is desirable. And instead of shuffling thousands of genes across, we take those one, two, or three traits, put them into the new plant, and we will get only

the traits that we had desired. Not only does it provide greater precision and certainty with what it is we're going to come out with at the end, but it also enables us to do the process much more quickly than Mother Nature herself would allow us to do.

There are many benefits that come through biotechnology. Some that are now in the field allow us to have plants produce their own pesticides and thus reduce the need for other pesticides, and they're always in concentrations—

CHAIRMAN LESLIE: You said your plants would produce their own pesticides?

MR. SMITH: For example, the BT toxin. Now, rather than applying it externally, we can put a gene into the plant, a BT gene, that creates its own toxin. The corn bore comes along, eats it, it dies. And it's in very low concentrations, it's in a very specific location. It's not just spread all over the plant or in the vicinity of the plant. So the plant now produces its own toxin. That's one of the ways in which it's used.

UNIDENTIFIED: Alan, excuse me, Mr. Chairman, if I might. The BT molecule component is ubiquitous. It's virtually everywhere, and it's non-toxic to mammals, to birds, to fish, but it happens to be an organism that is acutely toxic to certain, not all, but certain types of insect predators on plants. So by inserting this gene, this BT gene, into the plant, you in effect make that plant, you beef up that plant's defense mechanism, and you make it more resistant to that pest. But you do not make it toxic at all to humans, or to mammals, birds, fish, other forms of wildlife.

MR. SMITH: I appreciate that clarification. That's exactly right. We can also make plants resistant to herbicides so that when Round-Up or some other herbicide is being used, it only kills the weeds now, it doesn't also kill a

certain percentage of the plants. We're working on developing greater crop yields, better taste, better appearance of food, being able to grow plants in salty soil where they would not otherwise grow. Grow plants that use less water than normal, and improve the nutritional content. So there's a lot of benefits that are already being produced through biotechnology and a great many more that will be developed in years to come.

With respect to regulation, that's one of the biggest arguments that is used. We were in a hearing this morning on a bill by Senator Hayden on labeling in which the statement was made—

CHAIRMAN LESLIE: What happened?

MR. SMITH: What was the outcome? I had to leave early.

UNIDENTIFIED: Chairman Costa put the bill over, Senator Hayden proposed some amendments. I think he and Senator Costa are getting closer, and they're working it out.

MR. SMITH: Well, with respect to regulations, a statement was made that there's absolutely no regulation in this area at all and that is blatantly untrue. With respect to any plants, whether it's done through traditional breeding methods or through biotechnology, USDA requires that there be a field test through several seasons to make sure the plant looks right, that it grows right, that it tastes right. Tests are done. In the FDA process, there's a voluntary consultation process and here's where the loophole is that is always used to say there is not regulation. True, there's no mandatory regulation by the FDA. It's a voluntary consultation process in which it is my understanding that no company has every skipped the voluntary consultation process because they know they have a legal obligation to put safe food on the market.

And it is in their best interests to go through the voluntary consultation process so that they have scientists looking over their shoulder, probing, asking questions, examining data. Asking questions that they may not have thought of themselves so that they can make sure that the product is safe. Now, FDA approaches it from the point of view of not what was the process, how did we get their tradition or biotechnology, but what does the product look like at the end? What are its qualities? And if it is substantially equivalent to a traditionally bred plant, if there's no greater allergenicity, no greater toxicity, the nutritional content has not been substantially changed, and it pretty much is the same plant, it's just arrived at in a different method, then FDA says, "That's fine." And they allow it to go to market though the company is still liable for its safety. All kinds of documentation is provided through a very thorough consultation process. To date no one has passed on that voluntary consultation process.

So with respect to safety, should we worry? No. Should we be vigilant? Of course we should. This is a new technology. There is no evidence to date that there has been any harm at all, that there's any undue risk that has been created for the consuming public or for the environment. That doesn't mean just because it hasn't happen it might not. So therefore, we should be vigilant. But there is no reason to worry at this point in time. There's no reason for us to ring our hands, there's no reason to unduly regulate on the basis of ideology. We need to be regulating on the basis of science.

CHAIRMAN LESLIE: Are you ringing your hands over the possibility of what other countries may do or the acceptance even of GMO here in the United States once people are more aware that it exists?

MR. SMITH: Well, what we rang our hands about is an ill-informed public that is manipulated by a public relations war that has been going on in

Europe for a long time, and has now come to our shores very quickly, much more quickly than we expected. Our biopharmaceutical companies that don't even do anything in bioagriculture are worried about this public relations war because the way our biopharmaceutical companies view it is, the attack is on biotechnology itself as applied to agriculture. If the same arguments are then turned around on them, they will be the next ones in line.

CHAIRMAN LESLIE: It was either Mr. Hatamiya or Mr. Close, I think, who said that it's interesting that they're not concerned about the pharmaceuticals, but they are about the agriculture. But you're making the point that the camel's nose may creep under the tent, and then—

MR. SMITH: We may be worrying unnecessarily, but our industry presently is very concerned across the board that that will be the next target and that ultimately is the target. It is not agricultural biotechnology.

CHAIRMAN LESLIE: Do you think that some of the concern that might be out there would be more related to concern about human biotechnology experimentation, and they just lump all of the biotechnology issues together?

MR. SMITH: You know, sometime last fall, I believe it was Jeremy Rifkin who is a noted anti-biotechnology spokesman worldwide. I believe that he had induced some scientist somewhere to put some human cells into a cow embryo, and then they tried to patent it. It was all a public relations ploy primarily to get the Patent Trademark Office to declare what is a human being since it has a cow embryo as a part of it, as sort of the vehicle. Well, I remember the day that hit the newspaper. In San Diego, one of our radio talk show hosts got a hold of this, and he went on a three-hour terror that was absolutely amazing. And it ran the entire range, people drew absolutely no distinction in this three-hour call-in talk show between biotechnology and

the pharmaceutical side through gene therapy through putting it in your food. People were actually calling up—I remember one caller in particular. She said, "You know, my father has Parkinson's disease, and it's pretty advanced. Even if they could come up with something genetic to do for him, and I wouldn't let them put a gene in him."

Now, you've got to keep in mind in the public information wars that there have been surveys done in which 25 percent of the American public believes that they do not have any genes themselves, and frankly, they don't want any. Now, we all know that we've got genes. I came across a web site the other day, and it took me about 20 minutes to decide that I'm pretty sure that it's a spoof, and it was called a DNA-free food. And it had scientific looking articles, and they were striving for DNA-free food, and I thought—it took me a good 20 minutes to decided, and I don't know for sure.

But I'm pretty sure that it really was a spoof based upon the fact that people just don't understand that they actually—every time they eat a fish at the restaurant, they are eating something that's got fish DNA in it. Every time they eat a plant—no matter what we eat, it's got DNA in it. It's all around us. People don't understand the bacteria that are crawling all over the place, and, frankly, just as soon not know about a lot of that. And, frankly, as much as I have learned in the last year and a half in the industry, I feel much safer with genetically modified foods than I do with organic foods simple because of how they're grown and treated.

But our problem is this huge lack of public understanding, and it's incumbent upon our industry to step up to the plate, unfortunately, belatedly, and everybody in the food processing chain to educate the public about where our food comes from and what is the level of safety. I will leave with you an interview by FDA commissioner, Jane Heney, on, *Are Bioengineered Foods*

Safe? And the FDA has come to the conclusion, as well as a panel of the National Academy of Sciences that, "Yes, biotechnology-produced foods are indeed safe in and of themselves." We still need to keep an eye on individual products, but there's nothing inherently wrong with the process itself. And we need to make sure before those who are opposed to the technology win the public relations war that we can educate the public enough about these issues so that they will not be unduly alarmed and they will ask intelligent questions—

CHAIRMAN LESLIE: Is that the private sector's responsibility?

MR. SMITH: It's an enormous part of the private sector's responsibility, but we also feel that this is something that the State of California and the government of the United States can work with us together on. One of the ways in which we would seek your support as representatives of the state government is that you not stand aside in the debate and simply say whatever you guys end up deciding. But that you stand with us in supporting the technology to the extent of your understanding and knowledge about the safety issues and the regulatory issues. And if you're satisfied that it's safe, we hope that you won't stand in the background, but that you'll stand shoulder to shoulder with us in promoting the technology. We feel very good about having Secretary Hatamiya at the helm of Trade and Commerce because of his professional background in the regulatory process and because he comes from an agricultural family.

CHAIRMAN LESLIE: Have you run into the European anti-GMO stance yet? Have your customers started to notice this?

MR. SMITH: Well, I tell you where we have noticed it, and that is that I have been in meetings where there are a lot of different commodities

producers present, and I remember specifically, I believe it was the rice growers who said, "You know, we believe in the technology. We think it is the wave of the future. There's a lot there for consumers as well as for our producers. But the fact is we don't see any market for it in the next three years. It is your problem to solve the public perception issues that are keeping up from having markets to sell to. But we believe in the technology."

CHAIRMAN LESLIE: It took a long time to get our rice over to Japan. You don't want to lose that opportunity.

MR. SMITH: Well, I talked with someone who suggested that if we could get a grower in Japan to start growing genetically modified rice, that it would be a whole lot easier to introduce American-grown genetically modified rice. In fact, that's where one of the more interesting cutting edges of technology is. There are millions of women and children every year who die from Vitamin A deficiency and iron deficiency around the world that die needlessly, and it's because they have heavily rice-based diets where they're missing the irons and vitamins that would defeat these diseases. And if we could change the genetic structure of the rice so that it takes up rather than inhibits Vitamin A and iron, we would solve a lot of these unnecessary deaths in the world. One of the problems we have is it tends to turn the rice golden rather than white that they're culturally accustomed to. Somehow we've got to solve that particular problem. But there's great promise.

And so we find that people at the production end of the food river if they don't find a market, then they say to us, "You know, keep researching but boy, you've got to solve this PR problem." And if you look at Frito Lay—

CHAIRMAN LESLIE: We're going to have to, I think, move on or we're going to limit the people at the end of the agenda. I appreciate your comments. They're very thoughtful and helpful.

MR. SMITH: Thank you.

CHAIRMAN LESLIE: Thanks.

Jeff.

DR. JEFF BARACH: Yes, Jeff Barach. I'm Vice-President of special projects with the National Food Processors Association, and we appreciate this opportunity to appear before these committees to discuss the science, safety, and trade implications on processed and packaged food products developed using the tools of modern biotechnology. NFPA is the voice of the $460 billion food processing industry on scientific and public policy issues involving food safety, nutrition, regulatory and consumer affairs. NFPA is a non-profit group that has resources including three laboratory centers one located in Dublin, California. We're very interested in policy development in countries that trade with the United States, and today I represent over 400 NFPA member companies. About 60 of these companies have businesses that are operating in California.

The food industry strongly believes modern biotechnology is the best way to respond to global demands for world food security, and to deliver new food varieties that are safe, healthy, while simultaneously minimizing adverse environmental consequences. NFPA also reaffirms its members commitment to the safety of these products and vigorous regulatory oversight of the food supply. The food industry supports the FDA's May 1992 policy with regard to both regulation and labeling requirements. We believe, as do others, that the application of biotechnology to food does not impose the need for either special regulation or special labeling unless there are scientifically established issues such as safety or nutrition.

In my testimony today, I want to discuss several issues that are effecting free trade today, and the written testimony that you have has a lot

more background and information, and I won't be talking about Codex Alimentarius very much, and also the biosafety protocol. There is the background information there. Although my comments are mostly directed towards the EU, the issues are beyond the EU, and there are many other countries that we have to deal with especially on the labeling issues.

The three points that I want to make have to do with the EU's approval process. Approval of new products of food biotechnology has basically been frozen with no new safety reviews occurring since 1998. This is causing market uncertainty, especially for corn and corn products, that are made with corn ingredients. Number two, the mandatory labeling—

CHAIRMAN LESLIE: What was that year again?

DR. BARACH: Nineteen ninety-eight was the last review. The United States, as was mentioned earlier, has close to 50 approvals of products, Canada about 40. The EU now only has nine, and that's where it stopped.

Mandatory labeling regulations: These are being advanced in the EU and other countries such as Japan, causing markets for some U.S. products to collapse. It is too difficult and there are too many uncertainties that exist to try and meet these requirements. In the U.K., the outcome of this consumer-right-to-know type labeling has actually been to deny consumer choice. There are biotech-type products now that are taken off the shelves, and I'll talk a little bit more about that later. And then the third issue that I want to touch on is the negative sentiment, and this was discussed a little earlier. This is coming from Europe and other countries, and this may cause biotech foods in the United States to be stigmatized, resulting in a fall-off of consumer acceptance here and also causing domestic and international market disruptions.

The U.S. is a leader and remains a leader in agricultural biotechnology. There are nearly 66 million acres of U.S. cropland that are now planted in genetically modified crops. That represents about 20 percent of the overall crop acreage in the United States. The production agriculture system is based on economy of scale, and handling items that are handled in bulk. For commodity crops like corn and soy, the large majority are treated without regard to specific crop variety or genetic event. Bulk grains are harvested, hulled, processed into ingredients as if they were from a common source, without any intent or opportunity for segregation of crops as to genetic variety. In Europe, new food approvals have been halted and a moratorium basically exists against biotech foods today. The moratorium of new product approvals and elimination of trade opportunities for commodity corn, grain, and feed, as well as soy, have raised serious questions about protectionism—and we heard this word used a lot earlier—"protectionism" in the EU countries.

The result has been market disruption in Europe and this has affected U.S. processing companies doing business in Europe. In most cases, U.S. manufacturers have not formulated their products specifically for the U.S. marketplace. And this has been the case up to more recent months. Several factors are taken into consideration in marketing products internationally, and these include the relative costs of regulatory compliance. In past years, we have enjoyed trade increases with the EU nations. However, in recent months some NFPA member companies have deferred or rejected offers to supply products to European importers because of some of or all of the following reasons, and these are both regulatory reasons and otherwise. There are definitely uncertainties regarding the legal status of some biotech foods in Europe and elsewhere. And this is also because not all the corn

varieties that are approved in the United States have been given safety approval in other countries. And, therefore, they may be illegal in that country.

There are also gaps in labeling regulations and compliance uncertainties. We don't know enough about what their intent is on labeling and how to comply with it. And there's also no segregation of bulk commodities here in the United States, and this really prevents a lot of compliance with a mandatory labeling type scheme. And the costs associated with reformulating products can be very high and prohibitive, and also the cost for using identity-preserved. And these are crops that are, say, non-biotech that are followed all the way from seed to the finished product and documented by certification. These costs to use the identity-preserved products can be prohibitive to switch formulas.

NFPA and its member companies strongly support the FDA's current policy on labeling requirements for biotech foods. We believe it is essential that labeling be reserved for information that is material and that is specifically addressing the safety, the health, the composition, or the nutritional value of the food. NFPA further supports the use of voluntary labeling schemes to indicate the presence or the absence of bioengineered ingredients.

A consumer expects the label to provide safety and ingredient information regarding the product. Additional mandatory information regarding the genetic origin or the genetic content of the product without an explanation of benefits or the advantages is more than likely to be preserved as a warning statement, and unnecessarily alarm the consumer regarding the food's safety or the food's quality. The EU has included the consumer right-to-know provisions that go much beyond the U.S. labeling in their

standards. And it is claimed that in the EU the consumer wants to know if the process of genetic engineering was used in the development of the crop and, if so, then the food and any ingredients derived from the food must be labeled to allow the consumer to have a choice.

U.S. food companies contend that consumer choice regarding genetically modified foods will be available through several mechanisms, one mechanism being labeling. But there are other important mechanisms that should not be overlooked. And these included such avenues as contacting the company through their 1-800 numbers; displaying point-of-purchase type of brochures; and information at where the product is bought; conducting educational campaigns in both the schools and the media; using web sites to assist with choice; and purchasing only organic foods or those labeled, 'free of genetically modified ingredients.' So you can see there are other choices rather than just putting a nondescript quotation in a box on the label that doesn't mean anything to the consumer. There are much more effective ways of getting consumer information out there, and then affording the consumer the choice to make if they desire to.

The lack of completing the details of the European Union labeling regulation in a lengthy—and these were not completed in a very timely manner, and they were very poorly crafted. And, in fact, today there still are some doubts as to exactly how to label. This has resulted in much confusion and frustration for the U.S. exporter. NFPA would stress that perhaps one of the most significant barriers to trade to date really has been sort of this vacuum of appropriate guidance in the area of labeling over the past few years. Other countries also are adopting labeling policies for genetically modified foods: Australia, Japan, Korea, even Russia are all working on labeling regulations. And then the written testimony, there's a chart in the

back that shows many different countries and at the various stages at which they are at and their labeling regulations.

NFPA believes that the promulgation of mandatory labeling standards by the EU and other countries have adversely affected and halted trade of certain products that are made here in the United States. In some cases, it's proven easier to export to markets other than the EU and in other cases it's proved that one could try and attempt to reformulate the product with identity-preserved ingredients only. Both of these avenues have been pursued by our member companies.

The EU mandatory labeling regulations are now seen as a protectionist tactic and not as a means to inform the consumer. Food companies in good faith, our food companies, have attempted to comply with these EU rules and the prospects of mandatory labeling have in the United Kingdom, basically by the food retailers, been rejected. And, basically, the food retailers in the UK have eliminated or reformulated all the food products. So products that would be labeled, 'contains genetically modified materials' are not even on the shelves. So in effect, consequently, many of the American companies have dropped products from the U.S. to be shipped to the UK. And the result has been actually to remove the choice from the UK consumers. These types of products are not even on the market. This to me tells me this is the end point of mandatory labeling. We can see this as a model of where the U.S. would go if they were to adopt mandatory labeling- type schemes.

The negative sentiment that we talked about earlier is certainly in Europe today but has a possibility to move over into the United States. This flame of doubt about skepticism about the products, about its safety is being fueled by the lack of confidence in not only the European food authorities but also the fact that scientific and academic voices in the EU are not speaking

out about the safety of the technology. And, therefore, the consumer groups like Greenpeace are filling in this void with information for their own political agenda.

I would summarize now to say that NFPA urges the State of California and its Legislature to strongly support the science-based regulations of the U.S. Food and Drug Administration regarding both the safety assessment guidelines and the labeling provisions for foods for modern biotechnology. We're also encouraging academics and opinion leaders like yourself to speak out on the safety and importance of the current agricultural production advances that have been afforded to our current economy and also are important to our future. We believe the U.S. faces significant trade challenges today as this technology emerges globally. We feel perhaps the three biggest hurdles that we have right now are the fact that there is currently no functioning approval process for these foods in the EU. There is a multitude of complex labeling regulations applying to foods of biotechnology now emerging in many countries. And there is a potential for erosion of consumer confidence and loss of support for this important technology in the United States.

Thank you, Mr. Chairman and committee members, for this opportunity to bring this information forward.

CHAIRMAN LESLIE: Thank you very much. We appreciate your time and your input.

Karil.

MS. KARIL KOCHENDERFER: Good afternoon, Mr. Chairman. My name is Karil Kochenderfer and I direct International Trade and Environment Affairs for the Grocery Manufacturers of America. I also coordinate the association's extensive activities on biotechnology and would

be happy to share any answer to many of the questions that you might have today.

As background, GMA is the world's largest trade association representing food, beverage, and consumer product manufacturers.

CHAIRMAN LESLIE: Where do you work out of?

MS. KOCHENDERFER: I work out of Washington D.C., but on any given day I'm on a plane.

On any day, my orders are given by 42 CEOs of our food, beverage, and consumer product companies. We have sales of more than $460 billion here in the United States and employ upwards of 2.5 million workers, 70,000 of them are here in California and upwards of 400 of them are in plants here. I appreciate the opportunity to testify before the committee. GMA has been very active on this issue in various international forums whether it's the World Trade Organization, the Codex Alimentarius, the Organization for Economic Cooperation and Development, or the Convention on Biodiversity and the Biosafety Protocol. We have been engaged in each of those forums, and I'd be happy to get into the technical details of those discussions.

But before we got into any discussion of biotech, it is important to recognize first and foremost that biotech foods are safe. The U.S. government has a regulatory process in place shared by the U.S. Department of Agriculture, the U.S. Environmental Protection Agency, and the Food and Drug Administration that guarantees the health and safety of these foods. In fact, in a report mentioned by Secretary Hatamiya, that was issued by the National Academy of Sciences, states that there is no evidence that unique hazards exist that distinguished biotech foods from traditional foods. And this study builds on a study of ten years ago that found similar findings.

As a national center of agricultural biotech activity that my colleague here mentioned as well as the largest exporter of agriculture goods here in the United States, California clearly has a role to speak to the promise of biotechnology as well as to speak to its safety. Broadly speaking the regulatory programs instituted by governments to assure consumers about the safety of biotech foods should be based foremost, as my other colleagues have mentioned, on science and internationally recognized principles of risk assessment, risk management, and risk communications. In addition, such programs should be open to public input and scrutiny instituted in a timely and straight-forward manner, and implemented and enforced in a non-discriminatory way.

We are fortunate here in the United States to have regulatory authorities that meet these criteria and in the process inspired tremendous consumer confidence and trust. In fact, according to the Gallop organization, over 80 percent of Americans have confidence in the safety of the U.S. food supply and the regulatory system behind it. This is critical. When you look at the U.S. regulatory system for biotech foods, it has been in place for over a decade. When you look elsewhere around the world, particularly in Europe, these systems have not even been completed. And the history and credibility of this system speaks to the confidence we have today on consumers.

But, clearly, public acceptance of modern biotechnology is anything but unanimous throughout the world as one might expect with an evolving technology, and one with such far reaching potential. Already tense trade relations between the United States and Europe have intensified as European consumers and institutions have begun to ask questions about the technology raising consumer resistance in the European marketplace. Many things have contributed to the situation. A series of public health crises in

Europe—we've all heard about mad cow, HIV blood contamination in France, dioxin-tainted animal feed. There's also been a vacuum of information relative to the benefits of biotechnology. They've heard about all the negative aspects, but they haven't heard about the benefits. We've also seen the activists intervene with sensationalist claims, and they've been aided by the media.

Moreover, there's no perceived immediate consumer benefits that the Europeans have seen. And on top of this, we have retailers demanding non-biotech. Moreover, there are no farmers using biotechnology, and so we have no supportive constituency in the farming community in Europe. And finally, we have nationalist sentiments that this is a U.S. technology despite the fact that three of the four largest biotech companies are European.

In the absence of a broader public dialogue and understanding on the issue, regrettably, labeling of biotech foods is mistakenly viewed as a means to reduce or eliminate some of these tensions. Labeling proponents arguing food labeling will send signals in the marketplace and provide for consumer choice. The reality is that absent other information, a labeling indicating genetic modification does not provide for consumer choice, and mistakenly raises questions about the safety of biotech foods that have been found safe by regulatory authorities here in the United States as well as others worldwide. Even proponents of biotech labeling here in the United States acknowledge that legislation to mandate biotech labeling that is pending before Congress would become a scare label.

Moreover, complexities associated with how to label and in a manner that is truthful and meaningful to consumers confounds government authorities and raises potential barriers to international trade. For example, few, if any, reliable and efficient tests exists as to ascertain whether a food

has been genetically modified or not. And no scientific consensus exists as to how these tests should be consistently and uniformly applied. Tests of oils derived from biotech soy, corn, and cotton routinely fail even though they've been genetically modified. Lacking such tests, companies look to grain suppliers to provide documentation that the varieties they are using are not biotech. This segregation comes at a significant cost to U.S. farmers and grain handlers which is passed on to food processors and retailers and, ultimately, to consumers without any food safety benefits.

Now, because of this labeling policy in Europe, U.S. and European food companies have clearly reformulated their products to maintain their sales in Europe and some U.S. companies have even abandoned sales altogether. And in light of this European experience, countries that have been considering biotech food labeling proposals such as Australia, New Zealand, Mexico, Korea, and Japan are even reconsidering their proposals and concluding that more communication is necessary, not necessary technical labeling requirements.

There is also the issue of costs. At the request of the Australian and New Zealand food authorities, KPMG Australia undertook a study to determine the economic impact of proposed biotech labeling in the two countries. The results of the preliminary study indicated it would cost $3 billion to set up a labeling system, and another l.5 percent of annual food sales in Australia and New Zealand to maintain the system. Extrapolating just the l.5 annual cost of the system to the United States produces an estimated labeling cost in the United States of $12.6 billion dollars. And there are no additional food safety benefits coming from this cost.

Ultimately, GMA believes markets will develop to cater to consumers who are interested in purchasing non-biotech foods and who are willing to

pay a premium price for that assurance similar to organic foods and other specialty foods such as kosher. We support the right of manufacturers to voluntarily make claims about the products they made without biotechnology so long as they're truthful and non-misleading. And, in fact, this month GMA along with the Food Marketing Institute and several others will petition FDA and the Federal Trade Commission to develop guidance to help companies make such claims in a truthful, consistent, and non-misleading manner.

As we look for it internationally, clearly, more is required from governments, business, agriculture, scientists, health professionals and others to insure that information regarding agriculture biotechnology is available to consumers. I think Dr. Barach mentioned speaking to consumers on the Internet, consumer brochures, and company 1-800 lines. These are excellent venues to share and speak with consumers. Moreover, GMA along with the American Farm Bureau Federation, the Food Marketing Institute, and more than 40 other organizations have established the Alliance of Better Foods to speak to a fact-based dialogue on biotechnology with consumers. The Alliance has developed a web site, **www.betterfoods.org**, and I encourage the members of the committee, as well as staff and reporters, to look at the web site and garnish some of the information at this web site.

Finally, and most importantly, before escalating the issue of biotechnology to the WTO, and exacerbating existing trade tension in which no one benefits, more effort needs to be invested in insuring a balanced dialogue in the international forums where biotech presently is being discussed. This includes the Codex Alimentarius, the Convention on Biodiversity, the Organization for Economic Cooperation and Development and also the existing bilateral avenues such as the European one that this

committee focuses on. GMA has participated in these dialogues and in each of these forums, and I encourage your closer attention to these deliberations.

I thank you for the opportunity to speak, and if you have any technical questions about the nature of some of these international dialogues, I'd be happy to share my thoughts with you. Thank you.

CHAIRMAN LESLIE: Thank you, very much. I have a couple of questions, but I'm afraid I'm running short on time so I may call you. I will ask this question, though, are we using biotechnology in the wine/grape industry? Do we know? We're not?

UNIDENTIFIED: Not that I'm aware of.

UNIDENTIFIED: I'm not sure that that's accurate. I'm positive I have an article somewhere about that, and if I can find it, I'll send it to you.

CHAIRMAN LESLIE: Okay. Thank you.

MS. KOCHENDERFER: Moreover, it gets to the term, what is biotechnology. You were talking about recompetent DNA, I'm sure a different definition would apply in essence of the wine industry.

CHAIRMAN LESLIE: Senator Karnette has joined us. Thank you, Senator.

Okay, then our last person to speak in this segment is Anne Chadwick.

MS. ANNE CHADWICK: Good afternoon. My name is Anne Chadwick, and I am an agricultural policy consultant working for the California Association of Wheat Growers.

Let me start by saying that genetically enhanced wheat is not yet available for commercial production in the United States. But we anticipate that it will be available pretty soon so we're watching this issue very closely, especially what's going on with corn and soybeans. The wheat industry is making a real effort to be consumer-oriented. We're not in the business of

forcing buyers either at home or abroad to purchase any product that millers will not use and consumers will not buy. We respect the wishes of our customers who are simply trying to meet the demands of consumers. Consumer orientation means the consumer is always right.

As individual nations respond to the needs and wishes of their consumers, we need to examine how the mechanisms of global transportation, food processing, and testing will work. We in California have a somewhat unique ability within the wheat industry to preserve the identity of wheat all along the marketing chain. It's expensive, as my colleague mentioned, but we do try to do that currently. This will be increasingly important as markets become more diverse and more segmented. It will not be easy, but it will be important to insure that each customer gets the specific characteristics that they seek.

In addition to consumer preferences, there are always, of course, government requirements. We believe that science is the only appropriate basis for government restrictions. The World Trade Organizations is probably the best equipped body to review and regulate trade related aspects of the biotechnology issue. Speakers before me have talked about some of the market development—

CHAIRMAN LESLIE: I thought I just heard Karil say that we didn't want the World Trade Organization involved in this?

MS. CHADWICK: It brings a certain expertise that we believe is an excellent form for discussion of this issue, but we would not want to see an arbitration at all.

SENATOR BETTY KARNETTE: Especially right now.

MS. CHADWICK: Especially right now.

Some of the speakers before me talked about some of the market developments that we're seeing but I wanted to add a couple. One is that in the United Kingdom, regulations now require all restaurants to identify dishes containing biotechnology ingredients. So imagine the logistics of that. Wimpys, Burger King, and Pizza Hunt indicate they will not use GMO foods in their products in the UK. Fifteen supermarket chains there say they are selling only GMO-free food, and seven more have plans to implement the same policy. Some British schools are announcing they will stop selling GMO foods, and in Spain and Portugal both nations have shifted to corn from non-U.S. sources to avoid GMO corn. Australia and New Zealand are considering labeling as was mentioned, and in South Korea, a survey showed that 95 percent of Korean consumers believe some GMO labeling is needed. In Mexico, a major flour miller has stopped buying GMO corn. I think that was mentioned regarding tortillas.

But let me tell you about a trade problem that we've already faced in the wheat industry that is kind of startling since we don't have any GMO wheat. A shipment of U.S. wheat to Thailand was held up for a couple of weeks because it was suspected of being genetically modified. Our shippers and our government officials assured the importers that wasn't possible because we don't have GMO wheat in the United States. Their tests, however, showed genetically altered grain was in the cargo. Well, it turns out that the wheat was shipped in a container that had previously contained genetically altered corn, and that was showing up in the tests. Just the trace elements of the corn. So the corn residue was enough to show genetic alternation.

I share this story to illustrate just how difficult it might be to meet zero tolerance standards of foreign buyers. The science does not indicate that

there's any health risks associated with GMOs, but consumers obviously do have concerns. Whatever we do, we should establish some sort of reasonable science-based measurable standards that minimize the use of biotechnology as an unfair barrier to trade.

I thank you for your time.

CHAIRMAN LESLIE: Thank you very much. Let me just ask. It may have already been stated, I think it has been, but oh well! Everybody says we need to base our decisions on scientific information, which I agree with. So if we come up with a new GMO product technology, who does that? What independent group in the United States studies it to see that it's okay to go ahead and start distributing that?

MS. CHADWICK: I would say FDA, but I would also defer to _____

UNIDENTIFIED: FDA and voluntary consultation process would want to see data. They'd want to know what gene was used, what protein does it express, what's the biological function? How much is in the product?

CHAIRMAN LESLIE: This gets back to that voluntary program?

MS. CHADWICK: It's a coordinated structure between USDA, EPA, and FDA where they each look at different aspects in a coordinated fashion to make sure that there are no environment or human health defects, and that it's safe for the market.

CHAIRMAN LESLIE: And that's done now. I think the testimony was, as far as we know, such that no one has not availed themselves of this.

UNIDENTIFIED: That's my information.

CHAIRMAN LESLIE: But they could.

MS. CHADWICK: No, no, every product that has gone to the market, has gone through this process. It is the consultation process that some people

question whether it's voluntary, not one of our companies wouldn't move forward without doing it. It's the prudent thing to do.

SENATOR KARNETTE: I wasn't here earlier so you may have discussed this earlier, but what is the propaganda that is influencing the people who are so frightened? Because they obviously are frightening or they wouldn't behave in this manner. What kinds of information are they getting and from whom and what do they think going to happen to them?

UNIDENTIFIED: I debated in Santa Barbara about a month ago. A prominent anti-biotechnology person from the United Kingdom, and he was using arguments such as genes have memory of where they have come from, that almost sort of that they have some spiritual essence, and a gene that expresses a particular trait, it knows what plant or animal it came out of. All kinds of things that have zero scientific basis at all as far as I know. You get such a mixture of arguments. A dozen issues were all thrown together and what I would describe it as—it's always risky to reduce anything to a slogan—but essentially modern-day Luddites, people who are against not the technology of machine, but the technology of biology. And it's very hard to put your finger on it exactly, what their beef is. Most of what they're concerned about is the unknown. And so, essentially, with the precautionary principle, they're saying if you can't prove before you do it that it's safe, then don't do it at all.

Well, if that was the case in life, I would never get out of bed in the morning. Although, one night I did lose a lot of sleep after reading a book on *Microbes Are Your Friends And Your Worst Nightmare* and spent the entire night thinking about the microbes crawling on me. So we can worry ourselves to death about what could happen. And I think it's more than anything as you listen to these folks, it is the fear of the unknown. And I met

a lot of folks in Santa Barbara, some of whom are just outright demagogues, but a lot of other people who are genuinely concerned, and they just are fearful of tampering with mother nature. And those people, I enjoyed having an opportunity to dialogue with them. They tried to turn me into a vegan with vegetarian meals, which was okay for a couple days. But I think it's that fear of the unknown among many of them. But some of the more ardent and strident spokesmen against the technology, I think, have different agendas.

CHAIRMAN LESLIE: Thank you very much.—tape turned—

SENATOR KARNETTE: I think this is similar to the flying saucer type of thinking. I mean, I'm not putting these people down because a lot of people really believe and maybe some of their belief is—I think in some ways this can't go on, it cannot. But we don't want to lose any—

MS. CHADWICK: I think the key information there is, yes, there's a lot of conjecture. There's a lot of suggestion about possible risk. And I think the best solution to that is to have more dialogue, more forums, more articles, more scientists, health professionals. The more vigorous the public debate and communication, I think we all are obligated to have, the more the public will realize that it is safe and move on to the next issue of the day.

CHAIRMAN LESLIE: Which is what we're doing today.

Thank you very much. I appreciate it.

We're going to move along, and I think if we do this right, we should be done pretty close to 3 p.m., and then we'll convene the regular day's agenda. Okay, now, we have Ms. Martina MacLaughlin, Ph.D., Director, Biotechnology Program, UC Davis; and Mr. Daniel Sumner, Ph.D., Director of Agricultural Issues Center, University of California Davis. Thank you, Ms. MacLaughlin.

DR. MARTINA MACLAUGHLIN: I want to thank you and the committee for inviting me to have this opportunity to testify today. And before I start, I did want to respond to a comment that was made regarding that site on DNA-free food. That was a spoof, and it actually came from a horrific study that was done a couple of months ago where individuals throughout the world were questioned on whether or not tomatoes had DNA before Cal Gene put the gene in there. And 44 percent of Austrians and Germans said, "No." And I'm very embarrassed to say so did 29 percent of Irish. So I guess some education is needed here.

I just wanted to specifically sort of present the scientific point of view. A lot of other people have dealt with trade issues, and that's not necessarily my area of expertise. And without question, biotech is one of the areas receiving a great amount of attention from environmental and consumer groups around the world. And most scientists working in the field are actually in total agreement with the state's admission of these groups, that is we need to feed and clothe the world's people while minimizing the impact of agriculture and the environment. But the human population continues to grow while arable land is a finite quantity. So we must make optimum use of all tools available to improve productivity and quality of food production while minimizing impact on the environment and insuring human safety.

As noted by Dr. Norman _____, who's the father of the green revolution, he said, "Biotech is a new revolution providing, feed, food, and industrial products to support a global population increasing at the rate of 100 million per year." Without question as was stated earlier as well, the greatest impact of biotech to date has been in medicine. Over 200 million people worldwide, myself included, have benefited from the hundreds of diagnostics, therapeutics, and vaccines produced by the $13 billion

biomedical-biotech industry. But scientists agree that the greatest future impact will actually be in plant agriculture. And it was commented earlier that you see San Diego has a strong program there. I would beg to say that Davis has an even stronger program. And we have the lands to grow it, too.

Using genetic engineering, scientists can enhance the nutrition content, vitamins, minerals, antioxidants, remove and _____, and improve the texture, color, flavor, expand the growing season, increase and improve stress tolerance, increase yield, increase geographic distribution, disease resistance, shelf life and other properties of production crops. Add the ability, in fact, to manipulate plant nutritional content heralds an exciting new area and has the potential to directly benefit not just the farmer but more specifically the consumer. And I think, to date, that has been the issue. The consumer cannot directly see the benefit to themselves when they go to the supermarket. They feel that the specific impact from an environmental point of view is a little too esoteric to be able to put your finger on where it benefits them specifically. So I think until such time as we have products there that they can see for themselves how it benefits for them, it will be a little bit more of a hard sell for consumers.

We also, in fact, now have the ability to use plant delivery systems to provide not just enhanced nutrition, but also vaccines and therapeutics, which are especially important, of course, in developing countries. You can now produce, for example, vaccines in bananas and use these are a delivery system for vaccines which will be an incredible advantage in developing countries where refrigeration is a big issue. And indeed getting all the children to comply with vaccination.

In addition to plants, engineering microbes and enzymes products using recompedent DNA methods are used in many aspects of food

production and, in fact, have been for the last ten years. Over 90 percent of all enzymes used in food production and industry at this stage are genetically engineered. And I don't think many people realize this. Everything from your stressed jeans to your stale-free bread use genetically engineered enzymes to achieve those traits. By reducing dependency on chemicals and tillage, through the development of nature fertilizers, of pest-resistant plants, biotech has the potential to conserve natural resources, prevent soil erosion, and improve environmental quality.

Strains of microorganisms could increase the efficiency, capacity, and variety of waste treatment. And we can especially use microorganisms as bioprocessing tools for using all of that biomass out there as a renewal resource for the production of feed stocks for the chemicals, synthetics, and biofuel industries. Right now, we're depending on non-renewable resources, such as petroleum, which unfortunately right now is still too cheap. You probably don't believe me when you go to the gas station, but that's the truth. In time, biotech products will definitely be able to compete in that market. The most cost-effective and environmentally sound general method for controlling pest and disease is the use of that totally organic substance, DNA. This approach has already lead to a reduction in the use of strayed chemical insecticides. It has been estimated based on recent scientific data that growing genetically modified potatoes that carry genes for resistance to Colorado potato beetle could eliminate the use of nearly three million pounds of chemical pesticides. And the savings of insecticides in corn and cotton are even greater because cotton is one of the most intensive pesticide use of all crops in the country.

According to the U.S. Natural Agricultural statistics services, two million fewer pounds of insecticides were used in 1998 to control _____

worm and _____ worm in cotton than were used in 1995 before BT cotton was introduced. And the BT gene which is introduced into the plant and not strayed into the atmosphere is present in minute amounts and spares beneficial insects. An additional advantage is that through BT protection, micro-toxin contamination has been reduced by 92 percent, and these deadly toxins produced by fungi have been found among other things to cause liquefaction of horses brains and liver cancer. They're pretty nasty things, and there's no real good way of dealing with them using present methods except for using fungicides. And of course using biotech in a gene-based approach is much better than using chemicals.

At the U.S. National Center for Food and Agriculture _____ study which just came out found that Round-Up-ready soybeans offers several advantages to farmers including easier weed management, less injury to crops, no restriction on crop rotations, increase in the use of _____ which spares the environment, and cheaper costs. U.S. farmers using Round-Up-ready soybeans saved an estimated $220 million in 1998 due to lower herbicide costs. And the broad spectrum of weeds controlled by _____ means that soybean growers no longer need to make as multiple applications with combinations of herbicides. They now only have to spray once if the weeds are there.

Adoption rates for transgenic crops are some of the highest for new technologies by agricultural industry standards. High adoption rates obviously grower satisfaction with the products that offer a significant benefits ranging from more flexible crop management, labor savings, higher productivity, and a safer environment through decreased use of conventional pesticides and shifts to reduce tillage systems which collectively contribute to a more sustainable agriculture. Over half of all economic benefits generated

by these technologies have gone to the farmers, and that's way more than has been appropriated by biotechnology and seed companies combined. The farmers have been the biggest winners to date.

The view that the present day recompentent DNA engineered organizations pose new or greater dangers to the environment or human health are neither supported by the weight of scientific research nor by a great majority of the scientific community. As was stated already on April 5, U.S. National Academy of Sciences issued a report which stated that there is no evidence suggesting foods produced using biotechnology are any less safe than conventional crops. In fact, the scientific panel—

CHAIRMAN LESLIE: Are there people out there looking?

DR. MACLAUGHLIN: Are they looking? Oh, yes, absolutely. And this is one of the requirements that are done by EPA, USDA, and FDA. In fact, what they found is growing such crops could have environmental advantages over other crops.

Another recent report from the U.S. Congress Committee on Science came out last week, and what it did, it summarized testimonies from leading scientists which made a very strong case for the safety of biotech and warned against needless over-regulation which could delay development of a technology with great potential for public good. In fact, the subtlety altered products on our plates have been put through more thorough testing than any conventional food has ever been subject to in history. Many scientists who work in the past in crop improvement using much less precise methods of cross breeding, mutation-induced breeding or w-crosses where hundreds of thousands of untested genes are combined did not undergo the same type of scrutiny or inquiry. In fact, there are 1,800 cultivers in existence today that were produced using chemical and cobalt irradiation-muted genesis where

you have no clue what you have done to the genome. In fact, I have got photographs of this being done in Japan where you've got this cobalt irradiation source modifying huge rings of crops. And, in fact, a number of those crops are used in organic farming where they have actually been irradiated.

In fact, ironically many of our daily staples would be banned if subjected to today's rigorous standards. Potatoes and tomatoes contain toxic glycoside which have been linked to spina bifida. Kidney beans contain _____ and are poisonous if undercooked, and dozens of people die each year from synergistic glycosides from peach seeds. But our food is generally regarded as safe because we've dealt with these issues over the years. And scientists working on GMOs have used strict scientific principles and thorough analysis to confirm for themselves and the public that the genes and techniques used are safe for the consumer and for the environment.

I think the most we can ask is that all foods produced by whatever method receive the same level of evaluation, both with regard to impact on the environment and safety to the consumer. Millions of people have eaten the products of genetic engineering and no adverse effects have been demonstrated. Scientists are confident in the scientific validity of systems that regulate and oversee the American food supply. They are equally confident, but if we abandon the scientific process in judging the safety of the food supply, we will slow or destroy the advances that will reduce the use of unsafe chemicals and agricultural practices in this country. And furthermore, we will limit the wonderful potential of improved nutrition and quality, the promise to strengthen the agricultural economies in the U.S. and around the world. As noted by former U.S. President Jimmy Carter, who I

think carries some credibility, "Responsible biotechnology is not the enemy. Starvation is. Without adequate food supplies at affordable prices, we cannot expect world health or peace."

Thank you.

CHAIRMAN LESLIE: Thank you very much. I appreciate your time getting here today.

Yes, sir. This is Daniel Sumner.

DR. DANIEL SUMNER: Let me begin. I'm not a biological scientist, and I'll defer questions you have on that to my colleague. I'm an economist who specializes in agricultural trade issues, and that's what I'll focus on. Even among agricultural trade issues, I'll only focus on a few issues that I think are particularly important for these committees. The disputes over GMOs are being played out mainly in the media, but there are also potential disputes in the context of the World Trade Organization. We saw GMO and WTO intertwined, for example, up in Seattle. Of the two anachronisms, in fact, seem to be intertwined in a popular psyche that is surprising to people who have worked on either issue or both issues over the year. But that's a fact and that's what we have to deal with.

I should give a little background about the WTO in this context. The WTO is new, it was created in 1994, but the GATT which it's related to goes back to 1947. There were three major interventions in the WTO in the GATT in 1994 that I think are important to understanding the role of trade in GMOs. The first was that in 1994, WTO members agreed unanimously to important new rules that limit the scope for conventional trade barriers such as import tariffs or import quotas to be used in agriculture. And it's widely acknowledged that reducing these conventional trade barriers, it has increased the pressure on governments to find alternative means to protect

domestic industries from legitimate international competition. That's not the whole story behind the GMO controversy, it's certainly a part of the story behind it.

Second, the 1994 GATT agreement includes provisions outlining the scope of barriers related to human health, animal health, plant safety, the so-called Sanitary and Phytosanitary Agreement that you heard about earlier. That reemphasized the crucial and legitimate role of governments to protect their citizens, their agriculture and their environment from foreign pests and diseases. Those protections that we apply here in California and the United States and everywhere else in the world are acknowledged to be legitimate and important. However, this agreement also reconfirms the GATT principle that such protection be aimed only at real threats and not be used as disguised trade barriers that allow domestic industries to operate with less competition from imports. In order to distinguish a real protection from pests and diseases or other threats from misuse of these claims, WTO members agreed unanimously to require that all such trade barriers be scientifically based. And I emphasize the European Union was an early signer of this agreement.

Overall, as a matter of fact, very few SPS regulations have been challenged. For example, the United States and California in particular have literally thousands of rules dealing with exotic pests and diseases that may affect agriculture as well as lots of regulations related to food safety. For example, we require elaborate protocols for eliminating pests from shipments that come into California. In some cases, we ban the imports from certain parts of the world for pests that we think we're vulnerable to. We also require that imports meet all food safety and nutritional standards that apply in the domestic market and require labels that comply with the

national regulations. And in only a few cases, disputes have led to GATT challenges or WTO challenges. For example, South Korea initially attempted to enforce some shelf-life standards on imported foods. Those had no scientific or health basis, clearly discriminated against imports. When challenged, South Korea changed their regulations to comply. And that's the typical procedure in the WTO.

I emphasize these SPS regulations in the WTO provisions do not require WTO members to have the same food safety or environmental or plant or animal health regulations or standards. Members may apply whatever standards suit their own populations. So long as there's some demonstrable scientific basis. In addition, under regionalization of provisions agreed to in '94, parts of member countries such as individual U.S. states, California, for example, may be treated as distinct units for dealing with SPS concerns. In that way, California can be recognized as free of citrus canker when Florida still has the problem. The SPS principles and provisions would seem to apply directly to the GMO issue. As adjudicated under WTO rules, member nations may apply trade barriers only to satisfy legitimate human, animal, or plant health, or safety concerns that have a basis in scientific assessments, that is some discussion of science is the level of discussion not other issues. And regulations must not discriminate against imports.

The third change in 1994 in the WTO had to do with dispute settlement. Prior to 1994 GATT, disputes were rarely if ever resolved—occasionally resolved. The reason was simple. Decisions needed to be unanimous, and the defendant in the lawsuits was on the jury. You can picture the situation. Things did not get resolved very often. By 1994, everyone agreed that that just wasn't working. The current system establishes panels of experts, an elaborate system of appeals as similar to the

judicial system in the United States or other countries. WTO/GMO kind of dispute, something that became a formal dispute, something that hadn't happened yet would become the biggest challenge yet to the world trading system and system of rules. I think this is a confrontation we'd like to avoid.

Now, let me turn to California policy in agricultural trade and GMOs. I would note that biotech is routinely applied here in California. GMOs are not yet in widespread use in California production and trade. However, as you've heard first from Secretary Hatamiya, Europe is a significant market for California agriculture, about 22 percent of California agricultural exports go to Europe, particularly wine, tree nuts, and dried fruit. GMOs are not yet important there. However, as commercialization of GMOs is proceeded deliberately, and with lots of regulatory oversight, the major technologies adopted have not addressed our crops. That said, livestock feed, the dairy industry, for example, the cattle feedlot industry, processed food ingredients used in California have all been produced with seed from a GMO process. And, of course, the potential for direct California production and trade of GMO related products is moving closer all the time. We heard from the wheat industry a few minutes ago. We also have a major biotech research industry and have a major export of our research which is another thing that this committee needs to pay close attention to.

Let me turn to labeling policy. As I've discussed above, the SPS provisions are fully consistent with the informative labels on food products. WTO rules are consistent with the kind of U.S. regulations that have been implied so long as labels aren't misleading and claims of product differentiation are verifiable. Voluntary labels would seem to deal with the essence of concerns of some consumers with respect to GMOs without misleading the rest of the public. This has been an approach we followed for

years in the organic area which has been sited earlier. And that area we don't require conventionally produced products to carry a specific label, but we do provide some certification or registration to allow voluntary labeling of organic foods so long as claims on a label are verifiable.

That does not preclude some firms from highlighting the GMO presence of their foods and some merchants may request that of processors even with no mandates from the government. I would argue that California needs to recognize these kinds of principles as we think about labeling here in California. We also need to recognize that U.S. constitutional issues arise if California requirements are seen to discriminate against products from other states, just as WTO issues arise if U.S. requirements discriminate against products from other nations.

Let me turn very briefly to innovation policy. The State of California is a major source of funds for—the state government's a major source of funds for basic and applied research and biotechnology. Much of the best work is done here in California. Such research has lots of potential. Martina went through the potentials, I won't repeat those, everything from nutritional quality of food to lower food costs, environmental benefits. But where we have to recognize is the role of the university which is funded by the State of California is crucial in biotech. Biotech is also a part of the continuity of the research enterprise. I'm struck not by the differences between biotech research, but by the continuity of that research enterprise. And we have lots of data about the payoff to agricultural research. Those benefits are very large. They accrue mainly to consumers.

I would note that California's agriculture is particularly dependent on innovation. The competitive position on many parts of California agriculture relies on staying ahead of the competition by adapting and adopting

technology management tools and marketing innovations. To aid California, the state government can provide an innovation policy that encourages applications to research and facilitate collaboration between private and public sector innovation. I know here that among the challenges for agriculture in California are environmental and other regulatory constraints that we expect our producers to meet.

California has, frankly, expected more of agriculture than is demanded in other places in the U.S. or other parts of the world. Agriculture has met these challenges in part with their implied research and innovation. Clearly biotech research efforts and GMOs in particular have a potential to help agriculture met these demands while remaining economically viable. Another part of innovation policy that I will highlight to you has to do with nutrition food safety, environment consequences, and public policy related to biotech. As a major player here, California can contribute research in these food safety areas of both the research and the outreach efforts so that the public has reliable science-based information. I think that's a role that the University of California in particular can play.

Finally then there are two key trade concerns directly related to biotech in agriculture in California. First is innovation is important to the competitiveness of California agriculture and to the rest of our economy. We must be careful to stimulate and not impede this appropriate innovation. Second, the WTO system and lowered trade barriers in general benefit California agriculture and the whole economy. Trade barriers erected on the basis of unsupported claims or popular opinion shake the foundations of international agreements that are so important to our prosperity.

Thank you.

CHAIRMAN LESLIE: Thank you very much for your time and efforts to prepare these remarks. I had one question. It seems as though poorer countries are less concerned about GMO foods than more technically advanced countries. Would you agree with that, and if you do, why do you think that is?

DR. SUMNER: Well, the general rule is that people that are hungry are interested in getting more food and cheaper food. I should say, and I think that's generally true of poor people. And the China example presented earlier makes that very clear. You go to a country like China where the farmer will consumer roughly half of what that farmer produces. They're perfectly willing to produce with innovate products, biotech products, GMO products and consume those right on their own farm. There are cases, however. India's a good example where there is an elite, quite separate from the agriculture in that country, that tends to control the regulatory process. In fact, what I would consider one of the potential tragedies of the world is that some of the world's poor farmers, India in particular but other places too, farmers will be prohibited from having access to technology because someone else, either their government through a regulatory process or some other part of the environmental lobby will block their access. And that is a concern.

CHAIRMAN LESLIE: Thank you very much.

That concludes this informational hearing. I want to, again, thank everyone for their participation, and we will try to have a record available fairly soon.

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