Testimony of L. Val Giddings[1]

Vermont Agricultural & Forest Products Advisory Board
Vermont Statehouse, Room 11
Burlington, Vermont

15 February 2013

Thank you for the opportunity to speak here today. I am here at the invitation of a friend who works for the Biotechnology Industry Organization. He asked me to speak with you because of my experience with the science, policy, and regulation of crops and foods improved through biotechnology. I have worked as a regulator, prepared environmental assessments of transgenic crops, and supervised and reviewed hundreds of such risk assessments. As an expert and consultant I have advised government and United Nations' agencies, companies, and NGOs around the world over more than three decades.

I understand you are considering H112, which would require process specific labels in Vermont for some foods containing ingredients derived from crops improved through certain techniques of modern biotechnology. I have read this proposal. It is based on a number of misunderstandings and factual errors. Experience has shown that proposals like this, when enacted, have a history of delivering results opposite of those supporters claim to seek. Let me mention a few of these claims specifically, and compare them with the actual facts and our historical experience with similar legislation:

FACT: Consumers already have access to abundant information about the foods they buy, whether or not it has been improved through biotechnology and the information and freedom to choose to avoid it if they wish.

Historical reality: To put everything anybody has said they'd like to see on a food label would require an encyclopedia. In order to make sure consumers are not denied any information they seek about the foods they consider buying, food companies routinely place toll-free telephone numbers on every label for consumers to call if they have a question not addressed on the label itself.

The U.S. Food and Drug Administration requires that information that must be placed on a label be limited to that which is relevant to health, safety, and nutrition. They have not mandated "GMO" content labels *because the only differences related to safety that scientists have ever been able to detect show biotech foods to be safer than other foods*. Labels requiring GMO

[1] ITIF is a nonprofit, non-partisan public policy think tank committed to articulating and advancing a pro-productivity, pro-innovation and pro-technology public policy agenda internationally, in Washington and in the states. Through its research, policy proposals, and commentary, ITIF works to advance and support public policies that boost innovation, e-transformation and productivity.

content to be indicated on the label therefore mislead consumers into thinking there might be some risk involved when there is not. Indeed, it is precisely this confusion proponents of labels seek to exploit to achieve their real objective, which is not to inform consumers, but to scare them into avoiding foods carrying a GMO content label.

- "[R]ather than have two labels, food companies would simply not carry the product, especially if the new label would be the equivalent of a skull and crossbones… This is why we are so committed to this initiative as victory [in California] will likely eliminate genetically engineered foods from the U.S." **Joseph Mercola, March 20, 2012**

- "We believe that just like in Europe, consumers will complain to stores, stores will complain to suppliers, and suppliers will go back to farmers. If [Prop 37] passes, it will dramatically reduce the [U.S.] market share of GE foods and ingredients." **Ronnie Cummins, Founder and Director, Organic Consumers Association, Oct. 27, 2012**

FACT: Consumers already have a readily accessible means enabling them to avoiding foods made with biotech derived ingredients if they choose.

H112 would do nothing to increase consumer choice options, because consumers already have a means, in place today, through which they can choose foods grown with methods that did not involve biotechnology improved seeds – the USDA Organic label.

Because farmers have so consistently found that crops improved through biotechnology are so superior to other crops in terms of yield, economics, harvest quality and reduced environmental impact, biotech varieties of corn, cotton, soybeans and canola have rapidly become the predominant varieties of those crops grown in North America. Estimates indicate that they or their derivatives are present in 70-80% of the foods found in supermarkets today. If some consumers prefer foods with ingredients derived through other sources, however, they can freely choose to buy products marked with the USDA Organic label. This label is awarded to growers who avoid using biotech seeds on their farms.

Further, when scientifically unjustified GMO content labels have been imposed by governments, despite the demonstrated safety of these foods, campaigners with vested financial interests have organized boycotts to intimidate supermarkets into dropping or reformulating products to avoid such labels. This scenario has played out across much of Europe. Although indications are that this gambit would not succeed in the U.S., food companies are understandably concerned, and have therefore fought hard to preserve the scientific integrity of food labels in the U.S.

- This isn't about freedom of choice. It's about destroying biotechnology and getting it off the shelves.
    - Bruce Chassy, Assoc. Director, University of Illinois Biotechnology Center.

- If these products all have to be labeled, who is going to put it on the market? It's a big risk for food companies and for retailers because they run the risk that the clients don't take the product. The market rejections and the consumer rejections plus the labeling laws will make sure that GMOs will not enter in Europe.
    - Geert Ritsema, Friends of the Earth Europe

- "Personally, I believe GM foods must be banned entirely, but labeling is the most efficient way to achieve this. Since 85% of the public will refuse to buy foods they know to be genetically modified, this will effectively eliminate them from the market just the way it was done in Europe."
    - Joseph Mercola at http://vtdigger.org/2012/04/17/wanzek-genetically-modified-food-is-perfectly-healthy/

FACT: H112 would mislead consumers into believing foods from biotech improved seeds are more risky than other foods.

Proponents of mandatory labeling provisions like H112 claim either that we do not know enough about biotech derived foods, or that there is actual evidence of harm from eating them. They say there are no long term studies of food safety, and that the risks of unknown toxins or allergy are too high, and that foods are not reviewed to assure their safety before they are placed on the market. All these claims are false, abundantly contradicted by facts.

There are a number of long term animal feeding studies with crops improved through biotechnology. I can provide you with references if you like. It is true, however, that there are no such tests with humans, for a number of reasons. First, if there were any legitimate uncertainty about the safety of these foods, such tests on humans would be unethical. Second, even animal feeding studies involving whole foods are so difficult and costly to conduct, and so complicated (impossible) to interpret, that the scientific consensus is that there are far superior ways to evaluate safety, namely those that are routinely used on biotech foods. Indeed, the U.S. General Accounting Office looked at this issue more than a decade ago, and concluded that

> Monitoring the long-term health risks of GM foods is generally neither necessary nor feasible, according to scientists and regulatory officials we contacted. …such monitoring is unnecessary because there is no scientific evidence, or even a hypothesis, suggesting that long-term harm (such as increased cancer rates) results from these foods. Furthermore, there is consensus among these scientists and regulatory officials that technical challenges make long-term monitoring infeasible. (U.S. General Accounting Office, GAO-02-566, 2002).

Crops and foods improved through biotechnology have been subjected to more scrutiny, in advance, in depth and detail, than any others in the history of food. The regulatory system here in the U.S. was put in place in 1986, a full decade before any biotech improved crops were

commercially grown. USDA, EPA, and FDA all look at these crops and the products derived from them pursuant to their own legal authorities, which are robust. Opponents of biotechnology make much of the fact that the FDA review is "voluntary" rather than mandatory. This, however, ignores the fact that FDA has an overarching and absolute requirement that prohibits any food being placed on the market that is not safe, and that every biotech derived food to date has gone through this "voluntary" review process and demonstrated its safety. Opponents also neglect to point out that biotech companies have long been on record as supporting that such reviews be mandatory, based on their thinking that they are complying anyway, so why not deprive opponents of the opportunity to mislead folks.

Not only are these products more reviewed than any others in history, they have an unblemished safety record. I am familiar with the various claims of harm that are circulated by the opponents, and would be happy to discuss any of them. None are supported in fact. Indeed, even in that model for how to approach biotech crops and foods that opponents like to urge us to emulate, Europe, scientists and regulatory authorities are a firm part of the worldwide scientific consensus that these crops and foods are safe. Don't take my word for it – listen to what they say:

> **Indeed, the use of more precise technology and the greater regulatory scrutiny probably make them even safer than conventional plants and foods; and if there are unforeseen environmental effects - none have appeared as yet - these should be rapidly detected by our monitoring requirements. On the other hand, the benefits of these plants and products for human health and the environment become increasingly clear.**
>
> **--European Commission, Press Release of 8 October 2001, announcing the release of 15 year study incl 81 projects/70M euros, 400 teams**
>
> (http://ec.europa.eu/research/fp5/eag-gmo.html and http://ec.europa.eu/research/fp5/pdf/eag-gmo.pdf)
>
> The main conclusion to be drawn from the efforts of more than 130 research projects, covering a period of more than 25 years of research, and involving more than 500 independent research groups, is that biotechnology, and in particular GMOs, are not per se more risky than e.g. conventional plant breeding technologies…
>
> http://ec.europa.eu/research/biosociety/pdf/a_decade_of_eu-funded_gmo_research.pdf

Indeed, as our own U.S. National Academy of Sciences has concluded,

> "In contrast to adverse health effects that have been associated with some traditional food production methods, similar serious health effects have not been identified as a result of genetic engineering techniques used in food production. This may be because developers of bioengineered organisms perform extensive compositional analyses to determine that

each phenotype is desirable and to ensure that unintended changes have not occurred in key components of food." (p. x).

--National Academy of Sciences, 2004. Safety of Genetically Engineered Foods: Approaches to Assessing Unintended Health Effects. National Research Council, Washington DC. 256pp. ISBN 0-309-53194-2. http://www.nap.edu/catalog/10977.html.

Despite this extraordinary consensus of expert opinion and experience (far stronger, I note, than the consensus in support of anthropogenic climate change…) , opponents continue to raise the same abundantly resolved issues time and again. Near the top of the list of such unfounded worries is the spectre of unexpected allergies. This is worth some attention.

Foods derived from crops improved through biotechnology are routinely subjected to far greater scrutiny than applied to any others, as discussed above. Allergenicity is included in this screening. This is of particular, personal importance to me, because my son has a potentially life threatening food allergy: he could be killed by something as simple as a shared cookie at school. This is an issue I take very seriously.

The fortunate facts are that alone among foods brought to the market, all those derived through biotechnology are screened in advance to ensure no new allergies are introduced into any foods to surprise sensitive individuals. The DNA sequences of inserted genes are routinely screened against a database of known allergens to ensure nothing suspect inadvertently gets by. It is therefore clear that from an allergy sensitive point of view, biotech derived foods are far safer than any others. Contrast that with what we saw when kiwi fruits were first introduced in the United States. Despite a known history of allergenicity in kiwi fruits and their relatives, because of a long history of generally safe consumption, no safety screening was required before kiwis could be introduced, sold, and consumed in the U.S. Those concerned about food allergies would find a more deserving focus of their interests on foods other than those derived through biotechnology. Indeed, far from being the source of increased allergenicity risks, biotechnology offers the potential to eliminate the proteins known to cause food allergies to soy, dairy, peanuts, and other foods of concern, as well as the potential to develop tools for diagnosis and treatments that can be developed in no other way. The threat of food allergies is actually reduced significantly by biotechnology.

There are other safety issues that are repeatedly raised as well: claims that rats fed biotech derived soy or corn develop cancer; claims that previously unknown viral DNA sequences ha ve recently been discovered in biotech crops and foods; and many more. There are far too many to discuss in the time we have available, but I would be pleased to address any that you are specifically interested in.

FACT: H112 will provide Vermont farmers with a competitive advantage.

As we have seen above, it is the intent of a small cadre of professional campaigners to stigmatize foods containing ingredients improved through biotechnology. If foods produced by VT farmers are forced to carry such labels, in the environment of fear and misunderstanding created by these campaigners VT farmers will be at a competitive disadvantage as they try to compete against farmers from neighboring states not so burdened. They will not thank VT legislators if this should come to pass.

FACT: Organic and biotech crops have a track record of peaceful coexistence.

There are those who argue coexistence is not possible; that pollen from biotech crops will be borne by the wind or pollinating insects to neighboring fields, and cost organic producers their certification and make it impossible for them to sell their harvests. Experience shows that these claims are false, and that biotech crops and organic crops can and do coexist happily. Indeed, the Secretary of Agriculture's advisory committee ("AC21") recently spent a whole year considering this issue, and whether or not a mechanism should be developed to compensate organic farmers injured by the nearby growing of biotech crops. Advocates of such a compensatory mechanism had a full year to make a case. At the end of the year they had not produced a single example of a farmer who had suffered any losses. This is because the Organic Standard was deliberately written as a guide to permissible practices which specifically protects organic growers against the inadvertent presence, in any quantity, in their harvests, of material derived through prohibited methods like biotechnology. (The relevant USDA policy memo is attached below).

The fact of the essential compatibility of organic and biotech production methods is corroborated by data on the growth of each. According to the Organic Trade Association website (accessed 12 February 2013) U.S. sales of organic food and beverages have grown from $1 billion in 1990 to $29.22 billion in 2011. OTA website April 23, 2012. At the same time, biotech-improved crops acres have increased around the world from zero to over 384 million acres, grown by 16.7 million farmers, 15 million of wh9om are small farmers in developing countries.[2] In all that experience, we are unaware of any farmer losing their organic certification due to the adventitious presence of biotech derived material.

We could continue to talk about related issues for much longer than the time available to us today, so I will conclude my remarks here by thanking you again for the opportunity to visit with you today. I am willing to answer any questions you may have.

[2] See http://www.isaaa.org/resources/publications/briefs/43/executivesummary/default.asp

Policy Memorandum

To: Stakeholders and interested parties

From: Miles McEvoy, Deputy Administrator

Subject: Genetically modified organisms

Date: Original Issue Date – April 15, 2011

The National Organic Program (NOP) has recently received questions concerning the use of genetically modified organisms (GMOs) under the U.S. National Organic Standards. This policy memorandum addresses frequently asked questions concerning GMOs and reiterates the statements made in a 2004 letter from USDA Undersecretary Bill Hawks to the National Association of State Departments of Agriculture.

Compliance with the organic standards entails that operations have verifiable practices in place to avoid contact with GMOs. Since organic certification is process-based, presence of dateable GMO residues alone does not necessarily constitute a violation of the regulation. The NOP relies on organic certifiers and producers to determine preventative practices that most effectively avoid contact with GMOs on an organic operation.

The use of GMOs is prohibited in organic production and handling. The NOP regulations prohibit the use of GMOs as "excluded methods" under 7 CFR § 205.105, "Allowed and prohibited substances, methods, and ingredients in organic production and handling." Excluded methods are defined as:
A variety of methods to genetically modify organisms or influence their growth and development by means that are not possible under natural conditions or processes and are not considered compatible with organic production. Such methods include cell fusion, microencapsulation and macroencapsulation, and recombinant DNA technology (including gene deletion, gene doubling, introducing a foreign gene, and changing the positions of genes when achieved by recombinant DNA technology). Such methods do not include the use of traditional breeding, conjugation, fermentation, hybridization, in vitro fertilization, or tissue culture. (7 CFR § 205.2-Terms defined)
This policy memo reiterates that the use of GMOs is prohibited under the NOP regulations and answers questions that have been raised concerning GMOs and organic production and handling.

United States Department of Agriculture 1400 Independence Avenue SW. Policy Memo 11-13
Agricultural Marketing Service Room 2646-South Building National Organic Program
Washington, DC 20250 *PM 11-13 GMOs Internal Rev02 10 31 11* Authorized Distribution:

Issue: If a producer adheres to all aspects of the NOP regulations, including never utilizing genetically modified seeds, but a certifying agent tests and detects the presence of genetically modified material in the crop, is that crop's status determined to be no longer certified organic?

Reply: Organic certification is process based. That is, certifying agents attest to the ability of organic operations to follow a set of production standards and practices which meet the requirements of the Organic Foods Production Act of 1990 and the NOP regulations. The NOP regulations prohibit the use of excluded methods (i.e., "GMOs") in organic operations. If all aspects of the organic production or handling process were followed correctly, then the presence of a detectable residue from a genetically modified organism alone does not constitute a violation of this regulation. This policy was established at the promulgation of the NOP Regulation in the Preamble to the Final Rule (FR Vol. 65, No. 246, p. 80556), December 21, 2000. The Preamble stated that:
As long as an organic operation has not used excluded methods and takes reasonable steps to avoid contact with the products of excluded methods as detailed in their approved organic system plan, the unintentional presence of the products of excluded methods should not affect the status of the organic operation or its organic products.

Issue: Is the inadvertent presence of GMOs in organic seeds a violation of the NOP regulations? Can organic producers use seeds that contain the inadvertent presence of GMOs?

Reply: 7 CFR § 205.105 of the NOP regulations prohibits the use of GMOs as excluded methods in organic production and handling. The use of excluded methods, such as planting genetically modified seeds, would require a specific intent, and would render any product ineligible for organic certification. However, the inadvertent presence of GMOs in organic seeds does not constitute a use because there was no intent on the part of the certified operation to use excluded methods. The presence of detectable GMO residues alone in an organic seed does not constitute a violation of the NOP regulations.

Issue: How do organic producers avoid contact with GMOs?

Reply: Organic producers utilize a variety of methods to avoid contact or the unintentional presence of GMOs including testing seed sources for GMO presence, delayed or early planting to get different flowering times for organic and GMO crops, cooperative agreements with neighbors to avoid planting GMO crops adjacent to organic crops, cutting or mowing alfalfa prior to flowering, posting signs to notify neighboring farmers of the location of organic fields, and thorough cleaning of farm equipment that has been used in non-organic crop production.

Issue: What are organic producers required to do in order to avoid the presence of GMOs in their products?

Reply: In order to become a certified organic operation, a producer must submit an organic system plan to a NOP accredited certifying agent for approval. The producer's organic system plan must include a description of management practices and physical barriers established to prevent contact of organic crops with prohibited substances. Certifying agents evaluate the preventative practices and buffer zones to determine if they are adequate to avoid contact with GMOs.

Issue: Could a farm's organic certification status be threatened if sufficient buffers and barriers are not established and inadvertent contact with GMO material occurs?

Reply: Organic producers that implement preventive measures to avoid contact with GMOs will not have their certification threatened from the inadvertent presence of the products of excluded methods (GMOs). Crops grown on certified organic operation may be sold, labeled and represented as organic, even with the inadvertent presence of GMOs, provided that all organic requirements under 7
CFR Part 205 have been followed.

Issue: Is there a working definition of the word "contamination" within the NOP?

Reply: There is no definition in the NOP regulations for the word "contamination," even though it is mentioned frequently in the standards. The use of excluded methods in organic production is prohibited, as cited in 7 CFR § 205.105.

Issue: What actions are authorized or required when organic crops or products are found to contain unintended or inadvertent genetically modified substances?

Reply: The inadvertent presence of genetically modified material does not affect the status of the certified operation and does not result in loss of organic status for the organic product, provided it was produced in accordance with all of the organic requirements under 7 CFR Part 205. Certifying agents are responsible for working with organic producers to identify the source of the inadvertent GMOs and to implement improvements to avoid contact with GMOs in the future.

Issue: Are organic products tested for genetically modified substances?

Reply: Under 7 CFR § 205.670(b) certifying agents may test organic products when there is reason to believe that excluded methods were used in the production or handling of an organic agricultural product. Certifying agents may also collect and test organic products from organic handlers to ensure that practices are in place to prevent commingling or contamination during handling and processing.

Issue: Are organic products free of GMO contaminants?

Reply: Organic standards are process based. The NOP regulations prohibit the use of genetically modified organisms, prohibit commingling or contamination during processing and

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