



# BEYOND PESTICIDES

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## Statement of

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in Support of

**SB778**

Health - General - Genetically Engineered Food - Labeling Requirements  
before the

Education, Health, and Environmental Affairs Committee, Maryland Senate  
Annapolis Maryland  
March 11, 2014

Honorable Chair and members of the Committee, thank you for this opportunity to offer testimony concerning this important piece of legislation. I am Jay Feldman, Executive Director of Beyond Pesticides, a national, grassroots, membership organization that represents community-based organizations, bridging farmer and consumer interests to improve protections from pesticides and promote alternative pest management strategies that reduce or eliminate a reliance on toxic pesticides. Our membership includes residents of Maryland and spans the 50 states and groups around the world.

We are submitting this testimony in support of SB778 – Health - General - Genetically Engineered Food - Labeling Requirements.

As you are aware, this important legislation requires that certain foods must be labeled if more than .9% by weight of the food contains genetically engineered (GE) ingredients. This bill would not affect farmers, restaurants, bake sales, or cafeterias. The label would appear on the front or back of the processed food package, or on the shelf in the case of produce.

We believe that this legislation is long overdue. People nationwide, including residents of Maryland, want the right to know whether or not their food is grown with or contains GE ingredients. People want to be able to make choices in the marketplace that they believe are protective of their family's health and the larger environment in which food is grown. Because we have a regulatory system at the federal and state level that has deregulated major GE crops in agriculture without complete health and safety reviews associated with their cropping systems, consumers want the ability to make

independent judgments. This is especially true in light of increased pesticide use in GE crops, elevated pesticide exposure, and residues of modified toxins found in human blood samples. By adopting this legislation, Maryland would join the growing group of states and consumer groups that are demanding valuable information for consumers so they can make fully informed food choices for their family.

### **GE Ingredients Are Fundamentally Different**

Consumers want GE ingredients labeled because they understand GE crops are fundamentally different than their traditionally bred counterparts. Despite this understanding, consumers do not have access to the necessary information to know if their food contains GE ingredients.

As a general rule, traditional crop breeding develops new plant varieties by the process of selection, and seeks to achieve expression of genetic material that is already present within a species. The product of traditional crop breeding emphasizes certain beneficial characteristics that have been present for millennia within the genetic potential of the species.

To the contrary, genetic engineering works primarily through insertion of genetic material or manipulation of existing genetic sequencing. A gene “gun,” a bacterial “truck,” or a chemical or electrical treatment inserts the genetic material into the host plant cell and then, with the help of genetic elements in the construct, this genetic material inserts itself into the chromosomes of the host plant. This insertion and manipulation process does not occur in nature and is nothing like the traditional crop breeding practiced by farmers over the centuries.

Genetic engineering permits foreign genetic material to be inserted from unprecedented sources. For example, it is now possible to insert genetic material from species, families and even kingdoms that could not previously be sources of genetic material for a particular species,<sup>1</sup> and even to insert custom-designed genes that do not exist in nature. As a result, genetic engineering creates synthetic life forms, something that could not be done by traditional crop breeding.<sup>2</sup>

The growth of GE crop varieties, both herbicide-tolerant and pesticide-incorporated crops, creates new potential environmental and human health effects, most of which are

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<sup>1</sup> Bassin, Rice. November.Bt-Corn: What it is and How it Works. *University of Kentucky*. <http://www2.ca.uky.edu/entomology/entfacts/entfactpdf/ef130.pdf>. 2003.

<sup>2</sup> Hansen, Michael. Genetic Engineering is not an Extension of Conventional Plant Breeding. *Consumers Union*. <http://consumersunion.org/wp-content/uploads/2013/02/Wide-Crosses.pdf>. January, 2000.

poorly understood and do not undergo full testing before ending up in the mouths of consumers. In one study, consumption of GE pesticide-incorporated plants is resulting in residues of the engineered toxin in the bloodstream of pregnant women and their fetuses. A 2011 study conducted by scientists at the University of Sherbrooke in Quebec, Canada found that the Cry1Ab toxin, which is an insecticidal protein produced by certain varieties of Bt incorporated crops, was detected in 93% of maternal blood samples, 80% of fetal blood samples and 69% of the non-pregnant women's blood.<sup>3</sup> None of the women in the study had ever worked or lived with a spouse that worked in contact with pesticides. The diet of the women involved in the study is described as "typical of a middle class population of Western industrialized countries."<sup>4</sup>

Beyond giving consumers better information about the food they are buying for themselves and their families, this legislation would give researchers the ability to track GE food consumption. This would allow scientists to better understand the effects of consuming GE foods.

### **The Growth of GE Crops Has Led to Resistance and Increased Pesticide Use**

While GE labeling would establish a better system with which to track, study, and identify GE food issues, it is also necessary to give consumers and growers a choice in whether they wish to support farming practices that have known and untested impacts on the environment.

***Herbicide-Tolerant Crops.*** Herbicide-tolerant crops are designed to tolerate specific broad-spectrum herbicides, which kill weeds in the fields, but leave the cultivated crop intact. These crops, known as "Roundup Ready," have become ubiquitous in conventional, chemical-intensive American agriculture with 93% of soybeans, 82% of cotton, and 85% of corn now engineered to be glyphosate (active ingredient in Roundup) resistant.<sup>5</sup> As the planting of GE crop varieties has grown, herbicide resistant weeds have grown with them.

Weed resistance to pesticides, the ability of an organism to withstand a poison, is a predictable consequence of repeated pesticide use. How quickly pesticide resistance develops in weeds depends on: the frequency of use, the mechanisms of resistance, the

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<sup>3</sup> Aris, Aziz. Maternal and fetal exposure to pesticides associated to genetically modified foods in Eastern Townships of Quebec, Canada. *Reproductive Toxicology*.

<http://www.usherbrooke.ca/gnec/pj/Article%20paru%20dans%20Reproductive%20Toxicology%20%28document%20PDF%29.pdf>. June, 2010.

<sup>4</sup> *Id.*

<sup>5</sup> USDA Finds More Acres Planted In GE Crops. *Farm Futures*. <http://farmfutures.com/story-usda-finds-more-acres-planted-ge-crops-0-100408>. July, 2013.

genetics of the resistance mechanism, the size of the gene pool, and how quickly the organisms reproduce.

A study published by Washington State University's research professor Charles Benbrook, PhD,<sup>6</sup> found that heavy reliance on the herbicide Roundup has placed weed populations under progressively intense and unprecedented selection pressure, triggering a perfect storm for the emergence of glyphosate-resistant weeds. According to the study, the emergence and spread of glyphosate-resistant weeds has led to an increased use of herbicides on GE crops.

This finding of increased herbicide use was confirmed by a recent U.S. Department of Agriculture (USDA) report<sup>7</sup> that found herbicide use on GE corn increased from around 1.5 pounds per planted acre in 2001 to more than 2.0 pounds per planted acre in 2010. According to the report, "[G]lyphosate resistance among weed populations in recent years may have induced farmers to raise application rates. Thus, weed resistance may be offsetting some of the economic and environmental advantages of HT [herbicide-tolerant] crop adoption regarding herbicide use."<sup>8</sup> Herbicide use on non-GE corn has remained relatively level during that same time frame. Beyond using more pesticides, weed resistance has forced farmers to be granted emergency exemptions to use incompletely tested herbicides on now glyphosate-resistant weeds.<sup>9</sup>

At the same time, USDA is moving to deregulate new GE varieties of herbicide-tolerant crops. Recently, USDA released for public input its Draft Environmental Impact Statement (DEIS),<sup>10</sup> which calls for the deregulation of GE corn and soybeans engineered to be tolerant to the highly toxic herbicide 2,4-D. Much like glyphosate, these new varieties of GE corn and soybeans are set to usher in dramatic increases in 2,4-D, a fact noted in USDA's own National Environmental Policy Act alternatives evaluation.

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<sup>6</sup> Benbrook, Charles. Impacts of genetically engineered crops on pesticide use in the U.S. -- the first sixteen years. *Environmental Sciences Europe*. 24:24 <http://www.enveurope.com/content/24/1/24/abstract>. September, 2012.

<sup>7</sup> USDA. Genetically Engineered Crops in the United States. [http://www.ers.usda.gov/publications/err-economic-research-report/err162.aspx#.Uxi08\\_1dVc0](http://www.ers.usda.gov/publications/err-economic-research-report/err162.aspx#.Uxi08_1dVc0) February, 2014.

<sup>8</sup> USDA, p25.

<sup>9</sup>EPA. Fluridone; Pesticide Tolerances for Emergency Exemptions.

<https://www.federalregister.gov/articles/2012/11/07/2012-27066/fluridone-pesticide-tolerances-for-emergency-exemptions>. November, 2012.

<sup>10</sup>USDA. Dow AgroSciences Petitions (09-233-01p, 09-349-01p, and 11-234-01p) for Determinations of Nonregulated Status for 2,4-D-Resistant Corn and Soybean Varieties.

[http://www.aphis.usda.gov/brs/aphisdocs/24d\\_deis.pdf](http://www.aphis.usda.gov/brs/aphisdocs/24d_deis.pdf). 2013.

**Insecticide Incorporated Crops.** Existing GE crops are not limited to herbicide-resistance strains. Insecticide-incorporated crops, those that are genetically engineered to kill insects, have also been introduced into the environment and consumer goods.

Resistance to these strains of GE crops has become an issue, as expected by many in the scientific community. The escalating problem of insecticide resistant pests, such as the Western corn rootworm,<sup>11</sup> in insecticide-incorporated cropping systems, is evolving similarly to the problem of weed resistance associated with elevated use of herbicides in herbicide-tolerant crops. In fact, the U.S. Environmental Protection Agency (EPA) has concluded that corn rootworm is now resistant to genetically engineered corn infused with a toxin derived from *Bacillus thuringiensis*, or Bt, in certain parts of the Corn Belt, casting doubt on the future viability of GE corn. The conclusion of EPA's Insect Resistance Management (IRM) Team is based on several years of data indicating that the Cry3Bb1 protein strain of Bt is ineffective at controlling corn rootworm.<sup>12</sup>

As a result of this inevitable fallout, farmers are stockpiling alternative insecticides. According to a report in the *Wall Street Journal*, insecticide sales soared in 2013 as target insects have developed resistance to GE crops. Pesticide manufacturers American Vanguard, FMC Corp, and Syngenta have all reported higher sales in 2012 and 2013 than in previous years. Syngenta alone reported doubling sales in 2012. Similarly, American Vanguard reported soil insecticide revenues rose by 50% in 2012.<sup>13</sup>

### **Health and Environmental Effects of Pesticides Integral to GE Crops**

Documented health and environmental risks associated with pesticides integral to GE crops continue to rise as well. Glyphosate-formulated herbicides have been linked to numerous health problems including cancer, particularly non-Hodgkin's lymphoma,<sup>14</sup> ADHD,<sup>15</sup> rhinitis,<sup>16</sup> and hormone disruption.<sup>17</sup> Short-term health effects include lung

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<sup>11</sup> Spencer, Joe. Severe Corn Rootworm Injury to Bt Hybrids in First-Year Corn Confirmed. *The Bulletin*. <http://bulletin.ipm.illinois.edu/?p=1629>. August, 2013.

<sup>12</sup> Matthew, Keith. Summary of October 11, 2012 BPPD IRM Team Review. *EPA*. <file:///C:/Users/mosquito/Downloads/EPA-HQ-OPP-2011-0922-0039.pdf>. January, 2013.

<sup>13</sup> Berry, Ian. Pesticides Make a Comeback. *Wall Street Journal*. <http://online.wsj.com/news/articles/SB10001424127887323463704578496923254944066?mg=reno64-wsj&url=http%3A%2F%2Fonline.wsj.com%2Farticle%2FSB10001424127887323463704578496923254944066.html>

<sup>14</sup> Hardell, L., & Eriksson, M. 1999. A Case-Control Study of Non-Hodgkin Lymphoma and Exposure to Pesticides. *Cancer*, 85(6), 1353–1360. March 11, 2014.

<sup>15</sup> Garry, Vincet. Birth defects, season of conception, and sex of children born to pesticide applicators living in the Red River Valley of Minnesota, USA. *Environ Health Perspect*. 110 (Suppl 3): 441–449. 2002.

<sup>16</sup> Slager, RE. Rhinitis associated with pesticide exposure among commercial pesticide applicators in the Agricultural Health Study. 2009.

congestion and increased breathing rates.<sup>18</sup> Chronic exposures at levels above Maximum Contaminant Levels (MCL) are likely to produce kidney damage and reproductive effects.<sup>19</sup>

Widespread herbicide use also threatens pollinator habitats. Recent reports show that the planting of herbicide-tolerant GE crops is responsible for habitat loss and the decline of native pollinators like the Monarch butterfly.<sup>20</sup> The expansion of glyphosate-tolerant GE corn and soybean cropland has allowed farmers to kill milkweed, the primary source of food for Monarchs, which historically grew between crop rows in the Midwest. Detection of glyphosate in rain and stream samples is on the rise,<sup>21</sup> which is potentially damaging to the aquatic species already facing challenging environmental conditions throughout the Chesapeake Bay watershed.

Risks from insecticide-incorporated crops extend to pollinators. Adults and larvae of honey bees are inevitably exposed to transgenic material via pollen consumption of GE-crops, which may be another confounding factor for bee health. Although minor evidence showed adverse effects of Bt-crops on honey bees, the risk assessment of combined effects of Bt-crops and pesticides are completely lacking.<sup>22</sup>

GE crops are grown with increasing amounts of pesticides that are harmful to human and environmental health. Knowledge about the agricultural system in which their food is grown will enable Marylanders to make better informed purchasing decisions.

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<sup>17</sup> Gasnier, C., et al. Glyphosate-based herbicides are toxic and endocrine disruptors in human cell lines. *Toxicology*, doi:10.1016/j.tox.2009.06.006. 2008.

<sup>18</sup> Northwest Coalition for Alternatives to Pesticides (NCAP). Herbicide Factsheet: Glyphosate (Roundup). *Journal of Pesticide Reform*. 18(3):4. 1998

<sup>19</sup> EPA. Technical Factsheet on: Glyphosate. <http://www.epa.gov/safewater/pdfs/factsheets/soc/tech/glyphosa.pdf>.

<sup>20</sup> Caldwell, Wendy. 2013-14 Monarch Overwintering Population Numbers Released. *Monarch Joint Venture*. <http://monarchjointventure.org/news-events/news/2013-14-monarch-overwintering-population-numbers-released>. January, 2014.

<sup>21</sup> Chang, Feng-Chih. Occurrence and Fate of the Herbicide Glyphosate and its Degradate Aminomethylphosphonic Acid in the Atmosphere. *Environmental Toxicology and Chemistry*, Vol. 30, No. 3. 2011.

<sup>22</sup> Zhu, Wanyi. Four Common Pesticides, Their Mixtures and a Formulation Solvent in the Hive Environment Have High Oral Toxicity to Honey Bee Larvae. *PLOS one*. <http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0077547#pone.0077547-Babendreier2>. January, 2014.

## **GE Labeling Will Not Raise Food Costs**

Support of this legislation will not raise food costs for consumers. The legislation will only promote access to much-needed information. While opponents of GE labeling claim that this legislation would lead to increases in food prices, several studies indicate this claim to be spurious. A 2012 study,<sup>23</sup> prepared by Joanna M. Shepherd of Emory University School of Law, found that, "Food prices [are] likely to remain unchanged for consumers," and that, "The relabeling expenses are a one-time expense rather than a permanent increase in costs." Other researchers have noted that labeling changes are trivial and that food manufacturers voluntarily change their labels on an ongoing basis.<sup>24</sup>

## **The States Are Best Suited to Provide Consumer Choice and Protection**

Federal legislation has been introduced several times to label GE ingredients. Such legislation, like the *Genetically Engineered Food Right-to-Know Act*, H.R. 1699 and S. 809, has been repeatedly stalled in Congress. This lack of legislative progress continues to harm consumers and their ability to make knowledgeable decisions.

In reaction to this lack of interest on a federal level, states have stepped up to the plate to inform and protect consumers. Multiple states have taken up this issue and both Connecticut and Maine have passed legislation that will go into effect when similar legislation is passed by other states in the New England region. Maryland is not the first state to take on GE labeling and would join a growing movement of state governments that are focused on creating strong consumer right-to-know priorities and protections.

## **Conclusion**

Consumers in Maryland and across this country genuinely care about their right to know what goes into the food they eat. A recent *New York Times* poll shows national support for GE labeling reaching 93%,<sup>25</sup> a number consistent with past polls showing broad support that cuts across race, gender, socio-economic class, and political party affiliation. Consumers are concerned with the environmental and human health

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<sup>23</sup> Shepherd, Joanna M. Economic Assessment: Proposed California Right To Know Genetically Engineered Food Act (Prop 37) Likely To Cause No Change In Food Price, Minor Litigation Costs, And Negligible, Administrative Costs. <http://www.anh-usa.org/wp-content/uploads/2012/08/GE-Food-Act-Costs-Assessment.pdf>. 2012.

<sup>24</sup> Lipsky, Michael. Why GMO Labeling Won't Increase Food Prices. *Grist*. [http://grist.org/food/would-gmo-labeling-increase-food-prices/?utm\\_source=syndication&utm\\_medium=rss&utm\\_campaign=feed\\_living](http://grist.org/food/would-gmo-labeling-increase-food-prices/?utm_source=syndication&utm_medium=rss&utm_campaign=feed_living). October, 2013.

<sup>25</sup> Kopicki, Allison. Strong Support for Labeling Modified Foods. *The New York Times*. [http://www.nytimes.com/2013/07/28/science/strong-support-for-labeling-modified-foods.html?\\_r=0](http://www.nytimes.com/2013/07/28/science/strong-support-for-labeling-modified-foods.html?_r=0). July, 2013.

impacts that are associated with the cultivation of GE crops. They care about the food they eat. It is up to the states to give consumers the information they need to make informed choices for their families. By passing this legislation, Maryland will be putting consumers first and give them the power of choice.

Thank you for the opportunity testify on SB778. We appreciate your commitment to protecting and improving health and the environment for the residents of the state of Maryland.