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FARM&RANCH FREEDOM ALLIANCE℠

March 4, 2014

Submitted online: www.regulations.gov/#!submitComment;D=APHIS-2013-0047-0061

Re: Docket No. APHIS-2013-0047

Dear Secretary Vilsack and USDA staff:

The Weston A. Price Foundation (WAPF) is a nonprofit organization with members in every state and internationally. WAPF was founded in 1999 to disseminate the research of Dr. Weston Price, whose studies of isolated nonindustrialized peoples established the parameters of human health and determined the optimum characteristics of human diets. WAPF is dedicated to restoring nutrient-dense foods to the human diet through education, research and activism.

The Farm and Ranch Freedom Alliance (FARFA) is a national nonprofit organization with members in 45 states that supports independent family farmers and protects a healthy and productive food supply for American consumers. FARFA promotes common sense policies for local, diversified agricultural systems.

WAPF and FARFA jointly submit the following comments on the issue of coexistence.

As stated by the USDA, "Agricultural coexistence refers to the concurrent cultivation of crops produced through diverse agricultural systems, including traditionally produced, organic, identity preserved (IP), and genetically engineered crops." 78 Fed. Reg. 65961 (Nov. 4, 2013). The track record from the last 20 years of coexistence of genetically engineered and non-genetically engineered crops shows that our existing system is **not** workable and **not** equitable. The recommendations developed by USDA's Advisory Committee on Biotechnology for 21st Century Agriculture (AC21) do not provide meaningful solutions, and the issues cannot be solved simply by communication and education initiatives.

I. Contamination is widespread and carries significant costs.

Pollen from genetically engineered crops (GE) naturally and inevitably migrates to neighboring lands, creating GE contamination throughout the seed supply. Given the realities of farming, it is all but impossible to farm non-GE soy, canola, corn, or cotton in this country without being contaminated at some level with patented genetically engineered seeds plants.

Many farmers do not wish to use these products, whether because they are selling into a specialty market (such as organic or non-GMO) or because they have health and safety concerns. There is a growing body of evidence on the problems caused by both the GE crops themselves and the over-use of the herbicide Roundup® due to GE herbicide-tolerant crops. For example, a 22-week feeding trial with pigs found that animals fed GE corn and soy had significantly heavier uteri and higher rates of severe stomach inflammation. *See* Carman et al., A Long-Term Toxicology Study on Pigs Fed a Combined Genetically Modified (GM) Soy and GM Maize Diet, J. ORGANIC SYSTEMS 8:1 (2013). Reviews of multiple studies have also raised concerns. An evaluation of studies on crops genetically modified to produce the insecticide *Bacillus thuringiensis* ("Bt")[1] in India concluded that the studies, which Monsanto claimed supported the safety of its crops, "ignored toxic endpoints" that may have significant implications for human health. Rats fed the GE grain showed damage to the animals' ovaries, livers, and immune systems. *See* L. GALLAGHER, BT BRINJAL EVENT EE1: THE SCOPE AND ADEQUACY OF THE GEAC TOXICOLOGICAL RISK ASSESSMENT: REVIEW OF ORAL TOXICITY STUDIES IN RATS (2010) at p.2. Another review of the studies on GE crop feeding trials found that the trials used "controversial protocols" and ignored statistically significant results indicating the potential for chronic diseases in the liver and kidney. *See* G. Seralini et al., Genetically Modified Crops Safety Assessments: Present Limits and Possible Improvements, ENVTL SCI. EUR. 23:10 (2011). The active ingredient of Roundup®, glyphosate, has been found to cause damage to human embryonic and placental cells, and to make plants more susceptible to disease. *See* N. Benachour et al., *Time- and Dose-Dependent Effects of Roundup on Human Embryonic and Placental Cells*, ARCH. ENVTL. CONTAM. TOXICOL. 53, 126-133 (2007); G.S. Johal and D.M. Huber, *Glyphosate Effects on Diseases of Plants*, 31 EUR. J. AGRONOMY 144-152 (2009).

For these and other reasons, many people are not interested in including GE products in the food chain. Unfortunately for both farmers and consumers, however, avoiding GE contamination is effectively impossible. GE contamination can occur at any stage of the food chain as a result of both natural processes and human intervention: from seed production to crop growing to harvesting to cleaning to storage and transport. To avoid or minimize contamination, a farmer must undertake expensive and burdensome measures at every step of production:

1) having the seed tested;
2) implementing buffer zones to avoid cross-pollination;
3) paying for extra time and equipment to ensure that the harvester and cleaner do not contaminate the crop from previous jobs;
4) testing after harvest to check for contamination from events such as seed blowing from a passing truck (a frequent occurrence in an agricultural area);
5) paying to have the truck cleaned prior to hauling non-GE grain to market;
6) paying extra for special storage or storing the grain on the farm after harvest.

Consider the first two steps in more detail. Even if the seed is not labeled as GE, there is a very high probability that it is already contaminated to some degree. As a federal district court found:

> Monsanto's domination of the soybean seed market, combined with the regeneration of the Roundup Ready® trait and the lack of any restriction against the mixing of soybeans harvested from a

[1] Strains of the bacteria *Bacillus thuringiensis* ("Bt") produce proteins, known as Bt toxins, that are toxic to certain crop-destroying insects.

> Roundup Ready® crop from those that are harvested from a crop that was not grown from Roundup Ready® seed, has resulted in the commodity soybeans sold by grain dealers ***necessarily carrying the patented trait*** …

Monsanto Co. v. Bowman, 686 F. Supp. 2d 834, 836 (S.D. Ind. 2009) (emphasis added). *See also* L.F. Friesen et al., *Evidence of Contamination of Pedigreed Canola (Brassica napus) Seedlots in Western Canada with Genetically Engineered Herbicide Resistance Traits*, 95 AGRONOMY J. 1342-1347 (2003); B.L. Ma et al., *Extent of Cross-Fertilization in Maize by Pollen from Neighboring Genetically engineered Hybrids*, 44 CROP SCI. 1273-1282 (2004). Therefore, to obtain non-GE seeds, farmers must go to significant effort and cost in both sourcing and testing the seeds.

The burdens associated with buffer zones are even higher. According to the Ohio State University Extension, for corn, a buffer zone of 660 feet is required to limit cross-pollination to 1% or less. With a buffer zone of less than 165 feet, the Extension recommends removal of several rows of corn. The actual impact on a small farmer raising 20 acres of corn is significant. Incorporating a 165-foot buffer zone on two sides of a 20-acre field would result in the loss of the use of 35% of that field.[2] The alternative, according to the Extension, is to remove 16 border rows on each side, resulting in losses from the expense of planting that corn, harvesting it separately and disposing of it. *See* PETER THOMISON**,** OHIO STATE UNIVERSITY EXTENSION, FACT SHEET, MANAGING "POLLEN DRIFT" TO MINIMIZE CONTAMINATION OF NON-GMO CORN (2004), available at http://ohioline.osu.edu/agf-fact/0153.html.

If a farmer tests his crop at the end of the season and finds contamination, he faces a dilemma. If he is selling into an organic or non-GMO market, he loses that sale and the associated premium. If he had hoped to save the seed for replanting, he now must choose between planting the contaminated seed (and risking a patent infringement lawsuit by the patent holder, with potentially treble damages for willful infringement since he now knows of the contamination), or disposing of all the seed, a significant loss, and seeking out uncontaminated seed at significant trouble and expense. The dilemma is inescapable because there is no effective way for a farmer to save seed only from the non-GE portion of his field because the plants intermingle. There are two ways to detect GE contamination. The first is to test a sample of the grain. Such testing will tell the farmer whether or not there is GE contamination, but it will *not* enable the farmer to segregate the GE portion from the non-GE portion because, in order to be a representative sample, the sample must include grains from multiple plants from throughout the field. The second way to determine GE contamination is to spray herbicide on the field, killing everything *except* the GE herbicide-tolerant plants and leaving the farmer with no non-GE grain or seed. For farmers wishing to avoid planting GE crops, this second option is entirely counter-productive. Moreover, it only works with crops engineered to be resistant to herbicides, not insecticide-producing GE crops. Thus, the threat posed by contamination places the burden on the farmer not only to test the seed, but to then either risk a patent infringement suit or bear significant burdens to find non-contaminated seed.

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[2] One acre equals 43,650 square feet. A 20 acre-field is 934' x 934'. Incorporating a 165' buffer zone on two sides would reduce the field to 604' x 934', or 564,136 sq. ft or 12.9 acres.

Even with these extensive precautions, GE contamination cannot be wholly prevented. For example, gene flow from a GE bentgrass patented by Scotts was observed to have spread as far as 21 kilometers (13 miles) away from the experimental plantings in the direction of prevailing winds. *See* L.S. Watrud et al., Evidence for landscape-level, pollen-mediated gene flow from genetically modified creeping bentgrass with CP4 EPSPS as a marker, PROC. NAT'L ACAD. SCI. U.S. 101: 14533-14538 (2004). *See also* U.S. ENVIRONMENTAL PROTECTION AGENCY, WIND MOVES POLLEN WITH ALTERED GENETIC TRAITS BEYOND FIELDS OF EXPERIMENTAL BENTGRASS, http://www.epa.gov/wed/pages/news/04Nov/lead.htm. In Canada, testing of canola seeds from "certified seedlots" revealed GE contamination in all but one seedlot, with approximately 10% of the seedlots showing "very high levels" of contamination, namely greater than 2.0%. *See* Friesen et al. at p.9-10. Notably, the seed samples in the Canadian study were taken in 2002, when only 40% of the Canadian canola was estimated to be GE, and the pedigreed crops were required to have extensive isolation distances to try to minimize contamination. *See* Friesen et al. at p.3 & 11. In contrast, 93% of all soybeans, 90% of all cotton, and 90% of all corn planted in the U.S. is currently genetically modified, vastly increasing the probable extent and levels of contamination. *See* U.S. DEPARTMENT OF AGRICULTURE, ECONOMIC RESEARCH SERVICE, ADOPTION OF GENETICALLY ENGINEERED CROPS IN THE U.S., 1996-2013, http://ers.usda.gov/data-products/adoption-of-genetically-engineered-crops-in-the-us/recent-trends-in-ge-adoption.aspx#.UxYXX84xMdY .

The biological reality is that a U.S. farmer who raises corn, cotton, soybeans, canola, sugar beets, or alfalfa cannot reliably avoid contamination. The fault lies, not with the non-GE farmer, but with those who develop and plant GE crops.

II. The entities who benefit from genetic engineering should be the ones that bear the costs.

By developing a self-replicating product, one virulent in its spread, the biotech companies have created a situation in which contamination is a certainty and occurs at ever-increasing levels. The companies enjoy the benefits of charging technology fees to the farmers who buy the seeds; they further benefit from the legal protections of U.S. patent law, which have enabled them to pursue farmers who have been contaminated by GE products for damages.

In essence, the biotech companies reap significant financial benefits from their inventions without paying the full costs, creating problematic externalities. Externalities are impacts generated by one economic actor, which are felt by others, but the market doesn't bring these impacts back to affect the actor that originated them. In the case of GE crops, some of the costs are to the environment and society in general, such as the increased use of herbicides such as Roundup®. Others fall on specific individuals, particularly farmers who are growing non-GE crops.

The costs and burdens discussed above should be paid for by the companies that benefit from the GE crops. Externalities prevent efficient market outcomes, resulting in overproduction of products with negative externalities. Neoclassical economists long ago recognized that the inefficiencies associated with technical externalities constitute a form of "market failure." Private market–based decisionmaking fails to yield efficient outcomes from a general welfare

perspective. The appropriate economic solution is government intervention to correct for the effects of externalities.

III. Recommendations

We urge the USDA to establish fair standards that protect all U.S. growers and our agricultural economy. Specifically, we urge the USDA to:

1) Establish mandatory measures that prevent GE contamination. Our country has used voluntary measures for the last twenty years, and they have failed. Furthermore, education alone cannot prevent contamination. USDA must mandate best practices to prevent GE contamination by all farmers who use GE seed and require concrete contamination prevention measures on their farms, such as requiring farmers planting GE crops to use buffer zones, rather than placing that burden on non-GE farmers. Included in these measures should be a halt in the planting of GE crops whose pollen is easily spread long distances, such as alfalfa, canola, and sugar beets.

2) Reject AC21's compensation proposal. Farmers should not be forced to buy crop insurance to protect themselves against unwanted GE contamination. This unfairly requires organic and non-GE producers to spend even more money to protect themselves, while GE manufacturers would completely escape responsibility for contamination prevention and compensation. Under a crop insurance system, as recommended by the committee, non-GE farmers would have to spend more money on insurance for damages that are caused by the biotehnology industry.

3) Adopt a fair compensation proposal. The patent holder should be responsible for segregation and traceability, from seed to plate. They should be held responsible for the economic and market harms their products cause. Those who promote, profit from, and use GE products must be responsible for preventing contamination and for covering the financial risks associated with contamination.

4) Include analysis of the fuller environmental and economic implications of GE contamination and the implications of managing GE crops. These are also of critical importance to the ideas underpinning "coexistence" – how one system of agriculture can directly and indirectly impact the viability of the other.

5) Catalogue instances of crop contamination and the incidental economic losses while enforcing best practices for preventing contamination.

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