

GMO Journal
Public Comment
Docket No. APHIS-2007-0044

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Regulatory Analysis and Development, PPD, APHIS, Station 3A-03.8
4700 River Road Unit 118
Riverdale, MD 20737-1238

February 15, 2010

RE: **GE Alfalfa Should Not Be Deregulated**
APHIS-2007-0044

Dear Sir or Madam,

In U.S. Department Agriculture's ("USDA") Draft Environmental Impact Statement ("DEIS") (Docket No. APHIS-2007-0044) on genetically engineered alfalfa ("GE alfalfa")¹, the Animal and Plant Health Inspection Service ("APHIS") makes claims that discount science, consumer rights and the rights of organic farmers. I urge you to reject Monsanto's GE alfalfa, the crop genetically modified to tolerate applications of Monsanto's glyphosate (Roundup) herbicide. As a consumer of organic foods, I care about the integrity of the food I eat and the health and environmental impact of GM foods, and I do not want organic and other non-genetically engineered crops to be contaminated by genetically engineered alfalfa.

As drafted, the DEIS favors the corporation while discounting scientific evidence to the contrary and should not be the Agency's final position on GE alfalfa.

While many of the arguments advanced in DEIS in favor of deregulating J101 and J163 alfalfa are disputed, this comment will focus on two of the USDA's unsound conclusions.

USDA improperly concluded that the increase use of Roundup will not be significant. Similarly, the agency improperly concluded that the planting of Roundup Ready alfalfa will decrease the use of more toxic herbicides.

Additionally, this comment also informs USDA that consumers do in fact care about the integrity of their food and will indeed reject GE contamination of organic alfalfa even if the contamination is unintentional.

For all the foregoing reasons and those that follow, I urge you to reject Monsanto's GE alfalfa.

A. Background on GE Alfalfa

Alfalfa is our nation's fourth largest crop, behind corn, soybean and wheat.¹ It's a staple of the American farming diet. Grown on 23 million acres, and used primarily for forage, it is the first perennial crop to be genetically modified.² Indeed, alfalfa is the staple food for dairy cows and

¹ The terms "genetically engineered" ("GE") and "genetically modified" ("GM") are used interchangeably.

beef cattle, lambs, pigs, and even honeybees.³ As such, even if we do not see it on our dinner plates, the crop plays a crucial role in the food we eat.⁴ Furthermore, because of its pervasiveness, alfalfa is an important habitat for wildlife, including over 130 species of birds.⁵

Unlike other crops, GE alfalfa presents a unique risk to growers: alfalfa is pollinated by bees that travel anywhere between two⁶ to five miles.⁷ Despite Monsanto's expedient predictions about gene contamination (or lack thereof), this method of alfalfa pollination by bees results in higher risk of cross pollination between GE alfalfa and unmodified and organic varieties.⁸

Furthermore, given that California is the largest producer of alfalfa seed, and California, Idaho, Washington and Nevada together produce 85% of all domestic alfalfa seed, such gene transmission is especially likely.⁹ And once the gene transmission occurs and a farmer's seed crop is contaminated with the Roundup Ready gene, there is no way for the farmer to remove the gene from the crop or control its further spread.¹⁰

As such, should GE alfalfa be deregulated, and I urge you not to take this course of action, there is a real concern that in the near future, all of the alfalfa grown in the United States will be contaminated by GM alfalfa. Allison Snow, PhD, gene flow expert at Ohio State University, stated, for example, stated that "[h]uman error, random events, substandard stewardship practices, and the forces of nature make it impossible to guarantee that a 'zero tolerance' threshold for transgenic seeds or plants can be achieved after the release of [Roundup Ready] alfalfa, even within specially designated areas."¹¹ This is not news to APHIS. Documents produced during the Geertson litigation revealed an internal APHIS email in which the agency acknowledges that "[i]t may be hard to guarantee that seeds or sprouts are GE free."¹²

The transfer of genes from GM crops to organic and conventional crops is already a pervasive problem and the planting of GE alfalfa will only exacerbate it. For example, statistics from GM Contamination Register, an initiative to record incidents of contamination by intentional or accidental releases of GM crops lists at least 142 known cases of GM contamination in 43 countries on five continents since GM crops were introduced in 1996.¹³ Similarly, a study authored by the Union of Concerned Scientists also showed that U.S. organic and conventional crops are plagued by contamination from GM crop varieties.¹⁴

In the short term, gene contamination from GM crops depletes crop diversity and thus poses a threat to our nation's food supply. In the immediate present, GM crop contamination poses, among other things, many problems to organic and conventional farmers, such as, the loss of premium prices afforded by non-GM markets¹⁵ and the loss in consumer confidence. Farmers also risk losing the genetic integrity of seeds that took years to develop through careful breeding.¹⁶

B. Roundup Ready Alfalfa = More Herbicides

(a) GE Crops Lead to Significant Increase In the Use of Glyphosate

While the DEIS notes that introduction of Roundup Ready alfalfa will increase Roundup use, USDA improperly concludes that the increase is not significant¹⁷ and that Roundup (glyphosate) will replace other, more toxic herbicides.

It is no longer debatable that GM crops do in fact cause a significant increase in the use of pesticides, including glyphosate. In general, as a result of the planting of GM seeds, farmers applied 318 million more pounds of pesticides over the last 13 years compared to the amount of pesticide likely to have been applied in the absence of GM seeds.¹⁸ This difference represents an average increase of about 0.25 pound for each acre planted to a GE trait.¹⁹ As far as glyphosate is concerned, the herbicide has become one of the most widely used weed killing chemical in the United States, to the tune of 135 million pounds of glyphosate used annually on agricultural fields, lawns, right-of-ways and other areas where weeds are not want.²⁰

Increase pesticide use inexorably leads to pesticide resistant weeds requiring many farmers to resort to using more and/or additional pesticides.²¹ For example, Dr. Charles Benbrook, PhD, who studied the increase in glyphosate resistance weeds using USDA's data, found that after just a few years of Roundup use, weed shifted to more glyphosate tolerant species, leading to higher rates of Roundup use.²²

Indeed, the application of glyphosate on other deregulated GE crops demonstrates that only after a few years, glyphosate weeds emerge requiring more use of herbicides. Dr. Benbrook, for example, found that glyphosate use on cotton rose from 0.63 pounds in 1996 to 1.89 pounds in 2007, or 18.2% per year per acre as a result of the introduction of Roundup Ready cotton.²³ Most of this increase was driven by the need to make additional Roundup applications. Dr. Benbrook thus found that:

One application of glyphosate brought about adequate control in 1996 on most cotton farms. Just two years later, 1.5 applications were necessary. By 2003, an average of two applications were made, and by 2007, 2.4 applications.²⁴

Similarly, the soybean glyphosate rate per crop year increased from 0.69 pounds per acre in 1996 to 1.36 pounds in 2006, or 9.8% per year.²⁵

The increased use in glyphosate use was a direct result of the growth of weeds that became resistant to the herbicide.

In addition to threatening the livelihood of farmers²⁶ by, for example, requiring more labor intensive weeding methods and higher input costs,²⁷ increase use of glyphosate is a major health and environmental concern for consumers. While the USDA may not have the authority to regulate herbicide use associated with plants genetically engineered to tolerate applications of

glyphosate which have been deregulated, the Agency should also not ignore the ramifications that result from excess glyphosate persisting in our environment that are a direct result of agricultural use. For example, the health and environmental degradation that are associated with glyphosates include, to name a few, increased risk of non-Hodgkin's Lymphoma (NHL), genetic damage, neurological impacts, water contamination, and adverse impacts on amphibians.²⁸ Associations have also been found between glyphosate exposure and multiple myeloma, as well as ADD/ADHD, increased risks of late abortion, and endocrine disruption with glyphosate use.²⁹

Since the widespread adoption of glyphosate-resistant soybeans, corn, and cotton has vastly increased the use of glyphosate herbicide,³⁰ the addition of glyphosate-resistant alfalfa will further increase and intensify the application of this herbicide.

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(b) GE Crops Lead to Use of More Toxic Pesticides

Widespread use of [herbicide resistant] technology has turned the U.S. into the resistant weed epicenter of the world. The [Weed Science Society of America] records 125 resistant biotypes of 68 weeds, infesting up to 18 million acres in the U.S., while Australia is a distant second with 53 resistant biotypes. ~ Dr. Charles Benbrook, PhD³¹

Dr. Benbrook goes on to note that the actual number of resistant weed populations and the acreage infested with them are likely higher, since the Weed Science Society of America system is a passive reporting system that depends on academic weed scientists to upload their data on resistant populations.³² Indeed, superweeds are invading our nation's fields at an alarming rate and even the additional applications of glyphosate herbicide do not stem their growth. In fact, the most resistant weed populations thus far have been driven by intensive glyphosate use associated with Roundup Ready soybeans and Roundup Ready cotton, which are often rotated.³³ As such, deregulating GE alfalfa, a widely grown perennial, will only intensify the glyphosate resistance to glyphosate and thus encourage more weeds.³⁴

It is no longer possible to deny that resistance to glyphosate, the main ingredient in Roundup, is a serious problem, both, in the United States and abroad. To date there are at least nine glyphosate resistant weeds that infest millions of acres of U.S. cropland, including such superweeds as common ragweed, common water hemp, giant ragweed, hairy fleabane, horseweed, Italian Ryegrass, Johnson grass, palmer amaranth and rigid ryegrass.³⁵ Farmers in the South, and the Midwest (including states such as Minnesota, Wisconsin and Michigan), that are dealing with such superweeds would likely consider glyphosate resistance a significant impact.³⁶

Contrary to the conclusion reached by the DEIS, glyphosate resistance in weeds leads not only to more use of glyphosate³⁷ but also to greater use of more toxic herbicides, such as paraquat and 2,4-D, one component of the Vietnam War defoliant, Agent Orange.³⁸ The use of such toxic herbicides will lead to heightened risk of birth defects and other reproductive problems, more

severe impacts on aquatic ecosystems, and much more frequent instances of herbicide-driven damage to nearby crops and plants, as a result of the off-target movement of herbicides.³⁹

Scientific evidence thus points to the following salient and inescapable conclusions: (1) GE crops lead to increase use of herbicides, including glyphosate; (2) greater use of herbicides on GE crops leads to superweeds; (3) as a result of the growing problem with superweeds, farmers have to use more pesticides, and often times more toxic pesticides, to kill the superweeds.⁴⁰

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C. Consumer Rights and Expectations

While the DEIS acknowledges that the organic food sector is steadily growing and that evidence that consumer perceptions of organic food safety may be an important driver for consumer substitution of organic for conventionally produced food, it claims that consumers will not reject GE contamination of organic alfalfa if the contamination is unintentional or if the GE material is not transmitted to the end milk or meat product. That is not so.

As a consumer of organic products, I care about the foods that I eat and the methods used to produce them. Organic to me means non-gmo. When I spent more money to purchase organic foods, I pay the extra premium with the expectation that the food is not contaminated with, or made from, genetically engineered ingredient, irrespective of whether such contamination was intentional or not. And I am not alone. More than 75% of consumers believe that they are purchasing products without GE ingredients when they buy organic.⁴¹ In fact, USDA's failure to exclude GE crops from the first version of the organic rule was one of the main reasons that 275,000 people filed public comments in 1997-- the largest outpouring of public participation in the history of U.S. administrative procedure.

Consumers such as me thus *care deeply* about organic integrity, and genetic engineering is fundamentally at odds with organic.

As such, I will reject GE contamination of organic *by any means* or *at any stage* of sustainable food production.

USDA should not deregulate GE alfalfa.

Thank you for your attention to my comment.

Deniza Gertsberg,
www.gmo-journal.com

¹ Western Organization of Resource Councils, Genetically Modified Alfalfa, p. 5 available at [http://www.worc.org/userfiles/file/Guide %20to %20GM %20Alfafa %20 v2.pdf](http://www.worc.org/userfiles/file/Guide%20to%20GM%20Alfafa%20v2.pdf) (last visited on February 2, 2010) ("WORC").

² Beyond Pesticides, Public Comments Needed To Stop Genetically Engineered Alfalfa, Feb. 1, 2010, available at <http://www.beyondpesticides.org/dailynewsblog/?p=3048#comment-87185> ("Beyond Pesticides"); see Geertson

Seed Farm v. Johannes, 2007 WL 518624 at *5 (N.D. Ca. Feb. 13, 2007) (noting that alfalfa is a perennial crop and once gene contamination occurs there is no way for the farmer to remove the crop or control its further spread).

³ WORC, supra note 1 at 5.

⁴ Id.

⁵ Id.

⁶ Beyond Pesticides, supra note 2.

⁷ Saskatchewan Organic Directorate, Position Paper On The Introduction Of Genetic Modification of Alfalfa, (March 26, 2006), available at http://www.saskorganic.com/oapf/pdf/SOD_GMO-Alfalfa_Position_Paper.pdf (last visited on February 3, 2010); see also Beyond Pesticides, supra note 2.

⁸ See Geertson Seed Farm v. Johannes, 2007 WL 518624 at *5 (N.D. Ca. Feb. 13, 2007). In Geertson, the District Court found that “[a]lfalfa seeds are pollinated by bees and, as a result, there is a realistic potential for contamination from seed fields to nearby seed fields; indeed, APHIS admits that insects pollinate alfalfa up to two miles from the pollen source.”

⁹ See Geertson, 2007 WL 518624, at*4-5 (District Court found there is a realistic potential for contamination from seed fields to nearby seed fields because alfalfa is pollinated by bees).

¹⁰ Id.; see also WORC, supra note 1 at 49 (in an interview with Phillip Geertson, alfalfa produce and one of the plaintiffs in the Geertson lawsuit, Geertson stated that “[o]nice [Roundup Ready alfalfa] is in the environment, it’s there—it will get in everything.”)

¹¹ WORC, supra note 1 at 37.

¹² Geertson, 2007 WL 518624 at *6.

¹³ Id. at 38 (citing Gene Watch UK & Greenpeace. 2005. GM Contamination Register Report 2005, <http://www.genewatchorg/sub-531036> as well as the report published by the Union of Concerned Scientists, http://www.ucsusa.org/assets/documents/food_and_agriculture/seedreport_fullreport.pdf).

¹⁴ Margaret Mellon and Jane Wissler, Union of Concerned Scientists, Gone To Seed, Transgenic Contaminants In The Traditional Food Supply (2004), available at http://www.ucsusa.org/assets/documents/food_and_agriculture/seedreport_fullreport.pdf (last visited on February 6, 2010); see also WORC, supra note 1 at 47 (identifying incidents of genetic contamination and the States in which the contamination occurred).

¹⁵ WORC, supra note 1 at 39.

¹⁶ Id.

¹⁷ USDA, Draft Environmental Impact Statement, p. 61, (November 2009) available at http://www.aphis.usda.gov/biotechnology/downloads/alfalfa/gealfalfa_deis.pdf (last visited on February 6, 2010). While USDA cites Dr. Charles Benbrook study from 2004, it ignores Dr. Benbrook’s study from Nov. 2009.

¹⁸ Dr. Charles Benbrook, PhD, Impacts of Genetically Engineered Crops On Pesticide Use In The United States: The First Thirteen Years, p 3 (Nov. 2009) (The Organic Center), available at http://www.organic-center.org/reportfiles/13Years20091126_FullReport.pdf (last visited on February 14, 2010) (“Benbrook”).

¹⁹ Id.

²⁰ Beyond Pesticides Public Comment to the Environmental Protection Agency regarding health and environmental risks associated with glyphosate herbicide, (September 21, 2009) available at <http://www.beyondpesticides.org/documents/glyphosate-final9-21-1.pdf> (last visited on February 6, 2010) (“Beyond Pesticides EPA Comment”).

²¹ Benbrook, supra note 18 at 28-29; WORC, supra note 1 at 33-35.

²² Benbrook, supra note 18 at 3-4, 28-29.

²³ Id. at 30.

²⁴ Id.

²⁵ Id.

²⁶ See e.g., Steve Tsunami, Killer Pig Weeds Threaten Crops in the South, The Tenacious Weed Has Adapted and Is No Longer Susceptible to Pesticides, (ABC News), (Oct. 6, 2009), available at <http://abcnews.go.com/WN/pig-weed-threatens-agriculture-industry-overtaking-fields-crops/story?id=8766404&page=1> (last visited on February 13, 2010).

²⁷ WORC, supra note 1 at 33.

²⁸ Beyond Pesticides EPA Comment, supra note 20.

²⁹ Id.

³⁰ Benbrook, supra note 18 at 3.

³¹ Id. at 34.

³² Id. at 34-35.

³³ Id. at 3 and 36 (Dr. Benbrook notes that “[e]xcessive reliance on glyphosate has spawned a growing epidemic of glyphosate-resistant weeds, just as overuse of antibiotics can trigger the proliferation of antibiotic-resistant bacteria.”); see also Beyond Pesticides EPA Comment, supra note 20 (stating that the prevalence of Roundup-ready crops, genetically modified to tolerate glyphosate, has contributed to the high rates of glyphosate use on agricultural sites).

³⁴ See WORC, supra note 1 at 33.

³⁵ Benbrook, supra note 18 at 3-4, 34-35.

³⁶ Id. at 4; see also Tsunami, supra note 26.

³⁷ For example, WORC, reports that the National Center for Food and Agriculture Policy estimates that unregulated GE alfalfa could result in the application of an additional 200,000 pounds of herbicides per year in California alone.

See WORC, supra note 1 at 7, 35; see also Geertson, 2007 WL 518624 at *10.

³⁸ Benbrook, supra note 18 at 4; WORC, supra note 1 at 32-33.

³⁹ Benbrook, supra note 18 at 4.

⁴⁰ See Benbrook, supra note 18 at 4; WORC, supra note 1 at 34;

⁴¹ Organic Community Comments to APHIS, Proposed Rule and Programmatic Environmental Impact Statement for the Introduction of Genetically Engineered Organisms, APHIS Docket 2008-002, and June 29, 2009.