

SOCC – Petition to APHIS to Direct Preparation of an EIS
Docket No. APHIS–2010–0103

PETITION OF:
SAVE OUR CROPS COALITION
[Docket No. APHIS–2010–0103]

Wednesday, April 18, 2012

ELECTRONIC SUBMISSION

**RE: CITIZEN'S PETITION TO DIRECT PREPARATION OF AN ENVIRONMENTAL
IMPACT STATEMENT TO CONSIDER THE CUMULATIVE EFFECTS OF SYNTHETIC
AUXIN HERBICIDE TOLERANT CROPS**

Summary of the Petition

The **Save Our Crops Coalition (SOCC)** is a grassroots coalition of farm interests organized for the specific purpose of preventing injury to non-target plants from exposure to 2,4-D and dicamba. SOCC does not oppose advances in plant technology, particularly genetic modification, but does oppose actions that would result in substantial injury to non-target crops and to the habitats necessary for their pollinators.

Non-target plant damage associated with pesticide spray drift and volatilization is a major concern for specialty crop growers and processors. Credible estimates project significant increases in the application rate of synthetic auxin herbicides, like 2,4-D and dicamba, upon the introduction of synthetic auxin herbicide tolerant crops. Synthetic auxin herbicides, because of their potential to drift and volatilize, have proven to be America's most dangerous herbicides for non-target plant damage.

Thus, SOCC respectfully submits this petition to USDA pursuant to 7 C.F.R. part 1.28 and the Administrative Procedure Act §551 *et seq.* This petition requests APHIS prepare an environmental impact statement to consider the cumulative impacts of the deregulation of synthetic auxin herbicide tolerant crops.

SOCC has also submitted this petition to the Animal and Plant Health Inspection Service (APHIS) docket for the petition for non-regulated status of DAS-40278-9 Corn, APHIS–2010–0103. Before the end of the comment period, SOCC intends to submit an additional comment to that docket requesting, among other things, that APHIS prepare an environmental impact statement for DAS-40278-9 Corn. However, SOCC recommends preparation of a single, comprehensive environmental impact statement on the cumulative impacts associated with the deregulation of all pending synthetic auxin herbicide tolerant crops as the most appropriate and efficient means of informing regulatory decision makers of the environmental impacts of a surge in the use of these dangerous herbicides.

As a complement to this petition, SOCC has also petitioned the Environmental Protection Agency to convene a Scientific Advisory Panel to support preparation of the environmental impact statement petitioned for herein.

Petitioner

SOCC represents nearly every segment of American agriculture, from growers to processors, both conventional and organic. All SOCC growers cultivate specialty crops, but they also cultivate significant acreages of major agronomic crops, like corn and soybeans. SOCC is over 2,000 growers strong, including grower organizations such as the Indiana Vegetable Growers Association and the Ohio Produce Growers and Marketers Association, and is supported by major processors like Seneca and Red Gold.

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Factual Background

Drift and Volatilization

Due to the potential for crop injury, pesticide spray drift and volatilization from agronomic crops is a major concern for specialty crop growers and processors. Spray drift is the airborne movement of pesticide spray particles to non-target sites. Spraying during windy conditions, or using nozzles or pressures that result in the creation of fine spray particles, increase the risk of spray drift. Volatilization is the airborne movement of pesticide vapor to a non-target site. Volatilization occurs when a pesticide is applied to a target site, subsequently evaporates, and moves off-

target. The calm, windless environmental conditions that minimize drift, ironically, only increase the potential for volatilization.

All herbicides may have harmful effects on non-target crops if they drift or volatilize away from their intended areas of application; however, synthetic auxin herbicides, like 2,4-D and dicamba, have proven to be especially prone to cause drift and volatilization damage.¹ A survey of state pesticide control officials listed 2,4-D as the herbicide most often involved in pesticide drift incidents for every year the survey has been taken.² The same survey listed dicamba as the 3rd most commonly involved in drift incidents for two years in a row.³ This incidence of drift occurrence far outpaces the relative use of these herbicides. 2,4-D ranked 7th on an EPA list of most commonly applied conventional pesticide active ingredients.⁴ Dicamba did not even make the list of the top 25.⁵ Drift concerns have led some states to enact safeguards such as requiring the use of lower volatility formulations, restrictions on application times, and even bans on synthetic auxin herbicide use.⁶ Thus, SOCC regards 2,4-D and dicamba as America’s most dangerous herbicides.

Herbicide tolerant crops allow growers and applicators to apply herbicides weeks later in the growing season. The high temperatures and high humidity of this time of year substantially increase the potential for herbicide volatilization. Applications at this time of year occur when other crops are ‘leafed out,’ further increasing the risk of non-target damage.⁷ This risk is particularly alarming in the case of synthetic auxin herbicides like 2,4-D and dicamba, because they cause substantial harmful effects at very low application rates, and they are especially prone to volatilize.

APHIS is preparing to consider several petitions for non-regulated status for synthetic auxin herbicide tolerant crops. The first petition to be considered by APHIS is DAS-40278-9, developed by Dow AgroSciences, hereafter Dow 2,4-D Tolerant Corn. Dow 2,4-D Tolerant Corn is a corn crop genetically engineered with

¹ Sciumbaro, Audie S., et al. *Determining Exposure to Auxin-Like Herbicides. I. Quantifying Injury to Cotton and Soybean*, Weed Technology, Vol. 18, 1125-1134 (2004).

² *2005 Pesticide Drift Enforcement Survey Report*, Association of American Pesticide Control Officials (2005), available at <http://aapco.ceris.purdue.edu/doc/surveys/DriftEnforce05Rpt.html>

³ *Id.*

⁴ *Pesticides Industry Sales and Usage: 2006 and 2007 Market Estimates*, EPA (Feb. 2011) available at http://www.epa.gov/opp00001/pestsales/07pestsales/market_estimates2007.pdf

⁵ *Id.*

⁶ 4 Tex. Admin. Code § 7.50 (2011); Or. Admin. R. 603-057-0301 (2012); Wash. Admin. Code 16-228-1250 (2012).

⁷ *Determining Exposure to Auxin-Like Herbicides. I. Quantifying Injury to Cotton and Soybean.*

traits to make it tolerant to the herbicide 2,4-D. APHIS has two other 2,4-D tolerant crops from Dow AgroScience in its petition queue, DAS-68416-4, a 2,4-D tolerant soybean crop, and DAS-44406-6, a 2,4-D and glyphosate tolerant soybean crop, and a dicamba tolerant soybean from Monsanto, MON-87708-9.⁸

Synthetic Auxin Herbicide Drift Has Substantial Harmful Effects at Very Low Application Rates

Researchers at the Ohio State University Department of Horticulture and Crop Science conducted a study on the effect of simulated 2,4-D and dicamba spray drift and volatilization on tomatoes grown for processing.⁹ Their objective was to quantify the impact of low rates of 2,4-D and dicamba on broadleaf crops with respect to plant injury and the potential for yield losses.

Their conclusions are startling. Simulated 2,4-D and dicamba drift and volatilization caused tomato bloom to "abort," causing a subsequent late bloom. Late bloom resulted in significantly less marketable red tomato fruit and more immature green tomato fruit. Applications of 2,4-D and dicamba at levels as low as 1/300th of the field rate for soybeans caused statistically significant field loss in tomato crops. The late drift of either herbicide, during bloom, caused a 17-77% reduction in the marketable fruit when applied at 1/100th of the field rate. Early drift of 2,4-D, soon after transplanting, resulted in up to 25% loss of ripe marketable fruit at 1/100th the field rate and 43% increase in green fruit. See Figure 1 and 2, below.

⁸ *Petitions for Nonregulated Status Granted or Pending*, APHIS (Jan. 26, 2012) available at: http://www.aphis.usda.gov/biotechnology/not_reg.html

⁹ Doohan, Doug and Koch, Tim, *Effect of Simulated Dicamba and 2, 4-D Drift on Processing Tomatoes*, Ohio State University/OARDC (2010).

Figure 1.

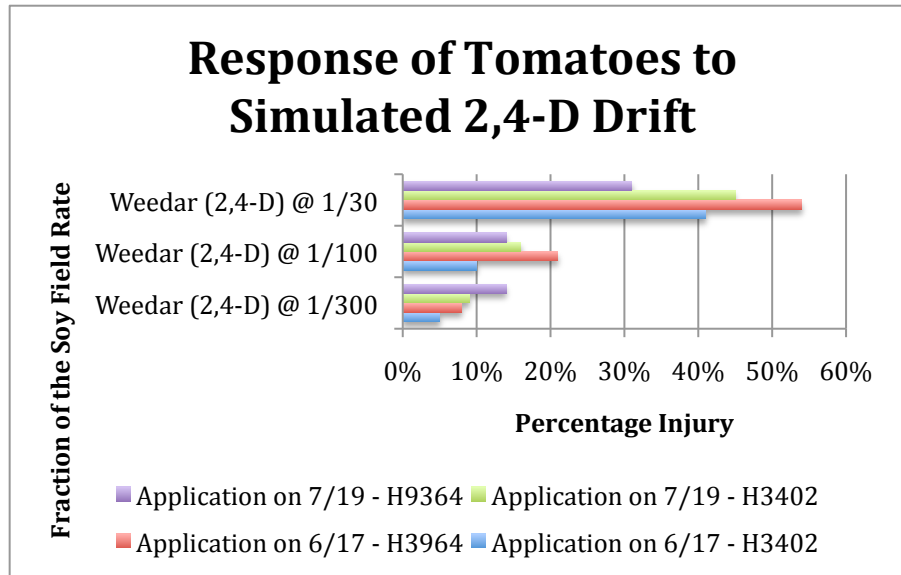
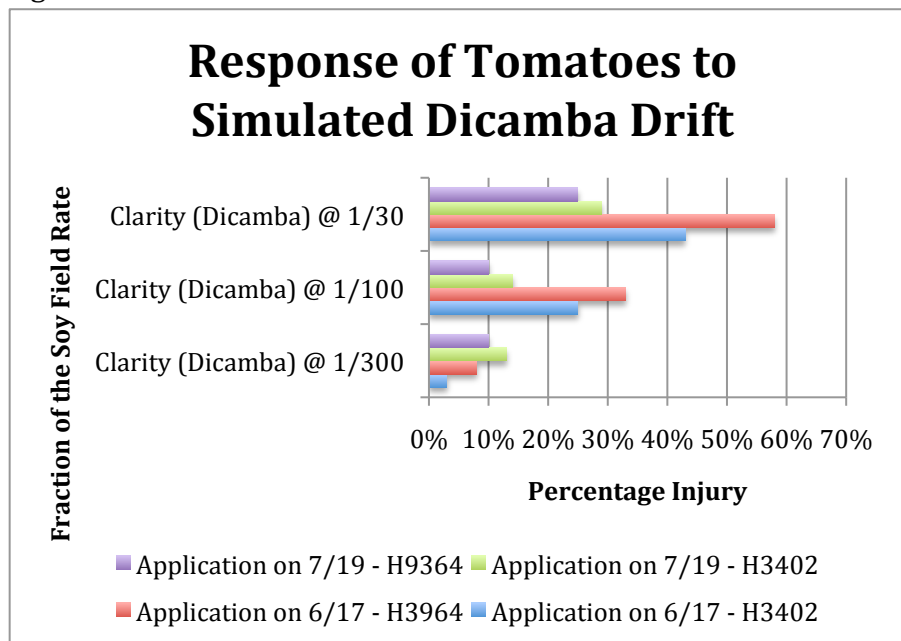


Figure 2.



Vapor Pressures of 2,4-D and Dicamba Make Them Prone to Volatilize

The vapor pressures of 2,4-D and dicamba make these herbicides especially prone to volatilize and subsequently move off-target. The vapor pressure of a substance is a measure of its tendency to volatilize, that is, to escape from a liquid or solid state to a gaseous vapor. There is a direct relationship between vapor pressure and volatility such that liquids with higher vapor pressures are more likely to volatilize at lower temperatures.¹⁰

¹⁰ Atkins, Peter and Loretta Jones, *Chemical Principles: The Quest for Insight*, 310-311 (4th ed. 2008).

Glyphosate tolerance is a commonly engineered crop trait, and glyphosate is currently the most frequently applied herbicide on U.S. corn crops. Glyphosate is applied to 76% of U.S. corn acreage.¹¹ Herbicide tolerant crop varieties are 72% of the total US corn crop market.¹² Glyphosate has an extremely low vapor pressure, and, therefore, is very unlikely to volatilize, whereas many formulations of 2,4-D and dicamba have high relative vapor pressures and, therefore, readily volatilize at low temperatures.^{13 14 15}

The Effect of Dow 2,4-D Tolerant Corn on Herbicide Use

The rationale presented by APHIS for Dow 2,4-D Tolerant Corn and other synthetic auxin herbicide tolerant crops is that these regulated articles will present another weed management option for farmers, because "increased selection pressure resulting from the wide-spread adoption of glyphosate-resistant crops, along with the reductions in the use of other herbicides and weed management practices, has resulted in both weed population shifts and growing numbers of glyphosate resistance among some weed populations."¹⁶ Thus, synthetic auxin herbicide tolerant crops are intended as a replacement for glyphosate tolerant crops, because the widespread use of glyphosate tolerant crops has contributed, through natural selection, to the glyphosate resistant weed populations.

Gauging the Increase in 2,4-D Use

This shift in herbicide tolerant crop utilization is anticipated to increase the use of the herbicide 2,4-D, however, APHIS has not estimated the potential impact of an increase in application levels of 2,4-D resulting from introduction of Dow 2,4-D Tolerant Corn.¹⁷¹⁸ Within its draft environmental assessment for Dow 2,4-D

¹¹ USDA, *Data and Statistics - QuickStats: 2010 Corn Fertilizer Use* (accessed March 9, 2012), available at: <http://quickstats.nass.usda.gov/results/FF6C5AFF-A0B0-3ADC-9962-311B64606F83#6BC4656D-E986-3103-93A5-EAAF8EFDEBCD>

¹² USDA, *Genetically engineered (GE) corn varieties by State and United States, 2000-2011* (accessed March 9, 2011) available at:

<http://www.ers.usda.gov/Data/BiotechCrops/ExtentofAdoptionTable1.htm>

¹³ *Glyphosate Technical Fact Sheet*, National Pesticide Information Center - Oregon State University (2012), available at <http://npic.orst.edu/factsheets/glyphotech.pdf>

¹⁴ *2,4-D Technical Fact Sheet*, National Pesticide Information Center - Oregon State University (2012), available at <http://npic.orst.edu/factsheets/2,4-DTech.pdf>

¹⁵ *Dicamba Technical Fact Sheet*, National Pesticide Information Center - Oregon State University (2012), available at http://npic.orst.edu/factsheets/dicamba_tech.pdf

¹⁶ *Plant Pest Risk Assessment for DAS-40278-9 Corn*, APHIS (Dec. 27, 2011), available at http://www.aphis.usda.gov/brs/aphisdocs/09_23301p_dpra.pdf at 2-3.

¹⁷ *Plant Pest Risk Assessment for DAS-40278-9 Corn*, at 3.

¹⁸ *Dow AgroSciences Petition (9-233-01p) for Determination of Nonregulated Status of Herbicide Tolerant DAS-40278-9 Corn, Zea mays, Event DAS-40278-9: Draft*

Tolerant Corn, APHIS did consider the potential for an increase in total herbicide use, but did not address the heart of the matter, the extent to which the introduction of 2,4-D tolerant crops, as an alternative to glyphosate tolerant crops, would increase use of 2,4-D.¹⁹ This shift in herbicide use patterns associated with an herbicide tolerant crop is a core environmental concern, and its omission from the draft environmental assessment is a serious shortcoming.

Fortunately, other scholars have estimated the potential impact of Dow 2,4-D Tolerant Corn on application levels of 2,4-D. One such scholar is Dr. Chuck Benbrook. Dr. Benbrook has served as the agricultural staff expert to the Council on Environmental Quality, and as the Executive Director of the National Academy of Sciences' Board on Agriculture.²⁰ Dr. Benbrook is widely regarded as an expert on genetically modified crops and agricultural policy. Even APHIS, within its draft Environmental Assessment for Dow 2,4-D Tolerant Corn, cited Dr. Benbrook's figures for genetically modified crop utilization within the U.S., and noted him as a voice of concern on the issue of increased utilization of herbicides upon the introduction of other genetically modified crops.²¹

Projections provided by Dr. Benbrook anticipate, over the course of just 5 years, a 1070% increase in pounds of 2,4-D applied to corn and an increase of over 45% in corn acreage treated, given market introduction of Dow 2,4-D Tolerant Corn in 2013.²² This represents a dramatic shift in the utilization of a pesticide. Even the increase in the use of glyphosate upon the introduction of glyphosate tolerant crops, an increase of almost 600%, would be eclipsed by this shift in pesticide use.²³

It should be noted Dow 2,4-D Tolerant Corn is only the first of many synthetic auxin herbicide tolerant crops slated for deregulation by APHIS. APHIS has two other 2,4-D tolerant crops from Dow AgroScience in its petition queue, and a dicamba tolerant

Environment Assessment, APHIS (Dec. 27, 2011), available at www.aphis.usda.gov/brs/aphisdocs/09_23301p_dea.pdf

¹⁹ *Id.*, at 14.

²⁰ *The Organic Center :: About the Center :: Staff*, The Organic Center (2012), available at http://www.organic-center.org/about.staff.php?action=detail&bios_id=43

²¹ *Event DAS-40278-9: Draft Environment Assessment*, at 11,14.

²² Benbrook, Charles. *The Good, the Bad, and the Ugly: Impacts of GE Crops in the United States*, presented at the National Academy of Science Beckman Center conference "Pesticides: Domestic and International Perspectives from Science, Law, and Governance (April 12, 2012).

²³ Gianessi, L. P. and N. Reigner, *Pesticide Use in U.S. Crop Production: 2002 with Comparison to 1992 and 1997*, (2006) available at: <http://www.croplifefoundation.org/Documents/PUD/NPUD%202002/Fung%20%20Herb%202002%20Data%20Report.pdf>

soybean from Monsanto.²⁴ Dr. Benbrook’s projections only take into account increases associated with Dow 2,4-D Tolerant Corn and not the further increases associated with other synthetic auxin herbicide tolerant crops. Thus, it may be reasonably assumed that Dr. Benbrook’s projections understate the total increase in the use of synthetic auxin herbicides in corn and soybean producing areas.

Proximity of Agronomic Crop Acreage to Broadleaf Crop Acreage in the Midwest

The map of Michigan, below, produced by USDA’s CropScape, shows the relative proximity of corn fields to soybeans fields in the Midwest.²⁵ The yellow pixels represent corn acreage, and the dark green pixels represent soybean acreage. Soybeans are a major agronomic broadleaf crop. *See* Figure 3.

The second map, below, is a close-up of a portion of Monroe County, Michigan.²⁶ Growers in Monroe County cultivate fruit and vegetable crops in proximity to major agronomic crops like corn and soybeans. This is representative of the Midwest generally. The large greyish pink portion in the middle of the map is a tomato field surrounded by corn and soybean fields. Tomatoes are also a broadleaf crop. *See* Figure 4.

As noted above, 2,4-D and dicamba have substantial harmful effects on unmodified broadleaf crops even at very low applications rates, and because 2,4-D and dicamba tolerant crops will be grown in such close proximity to unmodified broadleaf crops like soybeans and tomatoes, the potential for non-target plant damage is great.

²⁴ *Petitions for Nonregulated Status Granted or Pending*, APHIS (Jan. 26, 2012) available at: http://www.aphis.usda.gov/biotechnology/not_reg.html

²⁵ *2011 Michigan*, USDA/NASS (Apr. 14, 2012) available at: <http://nassgeodata.gmu.edu/CropScape/>

²⁶ *2011 Area of Interest*, USDA/NASS (Apr. 14, 2012) available at: <http://nassgeodata.gmu.edu/CropScape/>

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Figure 3.

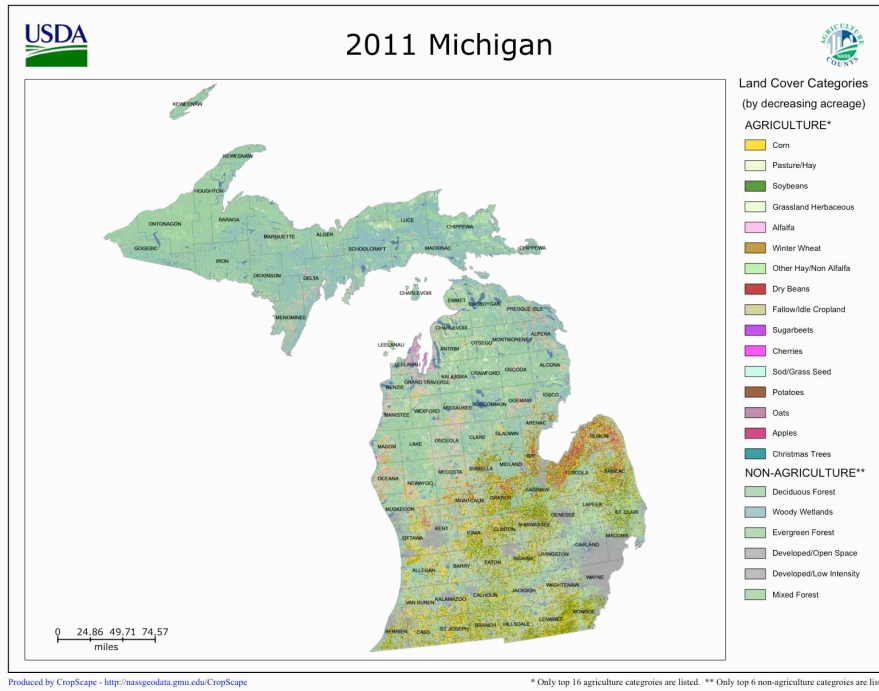
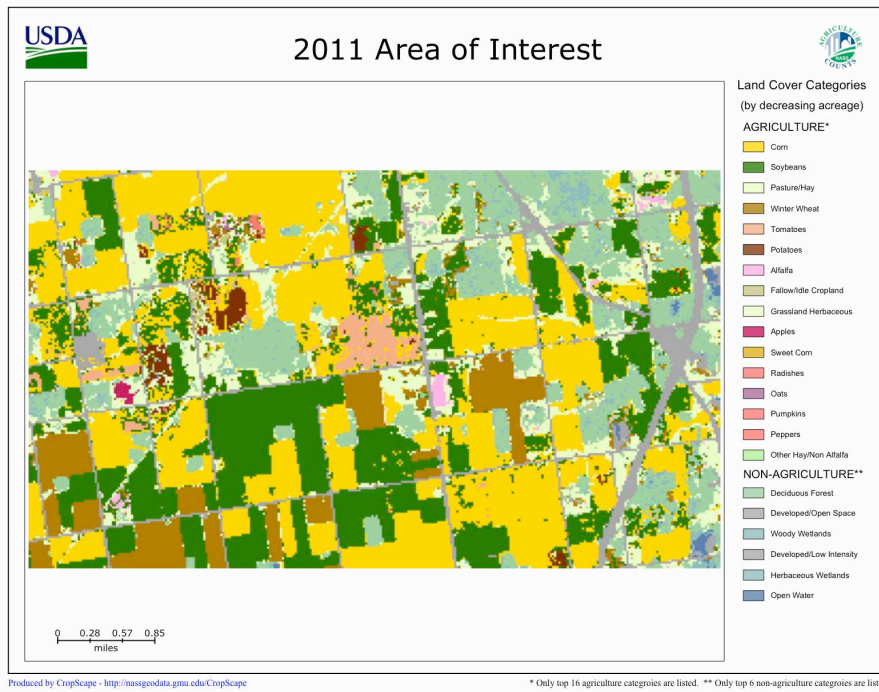


Figure 4.



Petition

APHIS Should Prepare an EIS

The National Environmental Policy Act (NEPA) requires federal agencies “to the fullest extent possible” prepare an environmental impact statement (EIS) for “every recommendation or report on proposals for legislation and other major Federal action significantly affecting the quality of the human environment.”²⁷ An agency need not complete an EIS for a particular proposal if it finds, on the basis of a shorter “environmental assessment” (EA), that the proposed action will not have a significant impact on the environment.²⁸

Unfortunately, APHIS did not consider the cumulatively significant environmental impacts of synthetic auxin herbicide tolerant crops in its draft Environmental Assessment for Dow 2,4-D Tolerant Corn. Upon consideration, APHIS would find the adverse environmental impact of synthetic auxin herbicide spray drift and volatilization to significantly affect the quality of the human environment. Therefore, the environmental assessment for Dow 2,4-D Tolerant Corn is insufficient, and APHIS should prepare an EIS to address the environmental impact of all synthetic auxin herbicide tolerant crops.

Standard for Preparation of an EIS: “Substantial Question” of “significant Effect”

The US District Court for the Northern District of California, in *Geertson Seed Farms v. Johanns*, required APHIS to prepare an EIS in the context of a petition for nonregulated status for a glyphosate tolerant alfalfa crop developed by Monsanto, because substantial questions were raised as to whether the action would have a significant effect on the environment.²⁹ In *Geertson Seed Farms*, the District Court noted the standard for “substantial question” is relatively low, “To prevail on a claim that (APHIS) violated its statutory duty to prepare an EIS, a plaintiff need not show that significant effects will in fact occur. It is enough for the plaintiff to *raise substantial questions* whether a project *may* have a significant effect on the environment” (emphasis added).³⁰ In that action the District Court found APHIS had not adequately considered two “substantial” questions raised by the plaintiffs, one, possible gene transmission to nongenetically engineered alfalfa, and, two, the possible development of glyphosate resistant “superweeds.”³¹

Synthetic Auxin Spray Drift and Volatilization Raise a “Substantial Question,” therefore APHIS Should Prepare an EIS

Spray drift and volatilization associated with the use of synthetic auxin herbicide tolerant crops may raise a substantial question whether the cumulative effect of

²⁷ 42 U.S.C. §4332(2)(C)

²⁸ 40 C.F.R. §1501.4(2)(B)

²⁹ *Geertson Seed Farms v. Johanns*, 2007 WL 518624 (N.D. Cal. 2007).

³⁰ *Geertson Seed Farms*, at *4.

³¹ *Geertson Seed Farms*, at *12.

such crops may have a significant effect on the environment. Therefore, the petitions for deregulation of synthetic auxin herbicide crops currently within the APHIS petition queue cumulatively constitute a “significant” action, and APHIS should prepare an EIS.

NEPA requires federal agencies “to the fullest extent possible” prepare an EIS for “every recommendation or report on proposals for legislation and other major Federal action significantly affecting the quality of the human environment.”³² “In determining whether a federal action requires an EIS because it significantly affects the quality of the human environment an agency must consider what ‘significantly’ means.”³³ As the implementing regulations state, a “significant” action has two components: context and intensity.³⁴ “Context refers to the setting in which the proposed action takes place.”³⁵ “Intensity means the ‘severity of the impact.’”³⁶ Here, although APHIS prepared a draft EA for Dow 2,4-D Tolerant Corn, APHIS did not adequately consider both the “context” and the “intensity” of its proposed actions.

The setting of the proposed action is the U.S. corn acreage in production. In 2010, total acreage in corn production was over 88 million acres.³⁷ Glyphosate is applied to 76% of U.S. corn acreage.³⁸ Herbicide tolerant crop varieties are 72% of the total US corn crop market.³⁹ Projections provided by Dr. Benbrook anticipate, upon the introduction of Dow 2,4-D Tolerant Corn in 2013, a 1070% increase in pounds of 2,4-D applied to corn and a more than 45% increase in corn acreage treated by 2,4-D over the course of just 5 years.⁴⁰

Synthetic auxin herbicide tolerant crops are intended as a replacement for glyphosate tolerant crops where glyphosate resistant weeds are prevalent, and as

³² 42 U.S.C. §4332(2)(C)

³³ *Ocean Advocates v. U.S. Army Corps of Engineers*, 402 F.3d 846, 863 (9th Cir. 2005).

³⁴ 40 C.F.R. §1508.27

³⁵ 40 C.F.R. §1508.27(a)

³⁶ 40 C.F.R. §1508.27(b)

³⁷ USDA, *U.S. corn long-term projections* (accessed on March 9, 2011) available at: <http://usda.mannlib.cornell.edu/usda/ers/94005/2010/Table18.xls>

³⁸ USDA, *Data and Statistics - QuickStats: 2010 Corn Fertilizer Use* (accessed March 9, 2012), available at: <http://quickstats.nass.usda.gov/results/FF6C5AFF-A0B0-3ADC-9962-311B64606F83#6BC4656D-E986-3103-93A5-EAAF8EFDEBCD>

³⁹ USDA, *Genetically engineered (GE) corn varieties by State and United States, 2000-2011* (accessed March 9, 2011) available at: <http://www.ers.usda.gov/Data/BiotechCrops/ExtentofAdoptionTable1.htm>

⁴⁰ Benbrook, Charles. *The Good, the Bad, and the Ugly: Impacts of GE Crops in the United States*, presented at the National Academy of Science Beckman Center conference "Pesticides: Domestic and International Perspectives from Science, Law, and Governance" (April 12, 2012).

part of a weed management strategy, along with glyphosate tolerant crops, to decrease the likelihood of a growth in glyphosate resistant weed populations. But whereas glyphosate is virtually non-volatile, many formulations of 2,4-D and dicamba readily volatilize.^{41 42 43} Given the shift in pesticide use from glyphosate to 2,4-D and dicamba and given the relative volatility of these herbicides, the environmental effects of this action would encompass a much broader swath of affected cropland than existing uses. Because APHIS did not estimate the potential impact of an increase in application levels of 2,4-D resulting from introduction of Dow 2,4-D Tolerant Corn, APHIS could not adequately consider the setting of the proposed action.

Moreover, Dow 2,4-D Tolerant Corn is the first in a series of synthetic auxin herbicide crops to be introduced to market. APHIS also did not estimate the absolute increase in application levels of all synthetic auxin herbicides resulting from the introduction of a series of synthetic auxin herbicide tolerant crops and, therefore, APHIS could not consider how a shift in use from glyphosate to synthetic auxin herbicides would further affect the scope of the “context” of the proposed action.^{44 45}

The “context” factor also requires consideration of a proposed action’s effect in contexts beyond the absolute acreage affected, such as that of “society as a whole (human, national), the affected region, the affected interests, and the locality.”⁴⁶ Because major agronomic crops, like corn, are grown in proximity to broadleaf crops throughout the Midwest and other areas, the impacts on specialty crops in the those areas would be especially severe. It is reasonable to anticipate significant impacts in multiple contexts, including the acrimony that would develop among neighboring growers in the many communities that rely upon grower and processor income, and among growers and homeowners where home gardens and horticulture are adversely affected by non-target damage.

Because APHIS did not address the acreage likely to be affected by a shift in herbicide use from glyphosate to synthetic auxin herbicides, and this acreage is likely to be sizable, APHIS could not adequately assess the extent to which its action would cause significant environmental effects in excess of those created by existing

⁴¹ *Glyphosate Technical Fact Sheet*, National Pesticide Information Center - Oregon State University (2012), available at <http://npic.orst.edu/factsheets/glyphotech.pdf>

⁴² *2,4-D Technical Fact Sheet*, National Pesticide Information Center - Oregon State University (2012), available at <http://npic.orst.edu/factsheets/2,4-DTech.pdf>

⁴³ *Dicamba Technical Fact Sheet*, National Pesticide Information Center - Oregon State University (2012), available at http://npic.orst.edu/factsheets/dicamba_tech.pdf

⁴⁴ *Plant Pest Risk Assessment for DAS-40278-9 Corn*, at 3.

⁴⁵ *Event DAS-40278-9: Draft Environment Assessment*.

⁴⁶ 40 C.F.R. §1508.27(a)

uses. APHIS also failed to address the harms particular to broadleaf crop acreage proximate to corn and soybean producing areas. Thus, APHIS did not consider the “affected region” and “affected interest[s]” of the proposed action.⁴⁷ Therefore, APHIS could not adequately address the “context” of the proposed action. Upon consideration of the “context” factor, we submit that APHIS would find the proposed action to have severe environmental impacts in multiple contexts, which may raise a substantial question about whether the proposed action will have a significant effect on the environment.

2,4-D and dicamba spray drift and volatilization, even at extremely low levels, has the potential to cause crop damage that very significantly affects crop yields. At application levels as low as 1/300th of the expected soybean field rate, 2,4-D causes statistically significant yield losses. One instance of simulated drift at the 1/300th field rate caused a 27% reduction in marketable ripe fruit.⁴⁸ Given the acreage affected, high relative volatility of 2,4-D and dicamba, and the likelihood of yield losses at even low application rates, the impacts are likely to be “severe.” Therefore, APHIS failed to adequately assess the intensity of environmental effects of the proposed action.

The NEPA regulations note several additional factors to be considered within the “severity” analysis. The “cumulatively significant impacts” factor is especially pertinent to Dow 2,4-D Tolerant Corn, the first synthetic auxin herbicide tolerant crop to be introduced into any market. This factor asks the agency to consider, “[w]hether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.”⁴⁹ Therefore, related actions with cumulatively significant impacts on the environment are deemed “significant.”

The rationale presented by APHIS for Dow 2,4-D Tolerant Corn and other synthetic auxin herbicide tolerant crops is that these regulated articles will present another weed management option for farmers, because “increased selection pressure resulting from the wide-spread adoption of glyphosate-resistant crops, along with the reductions in the use of other herbicides and weed management practices, has resulted in both weed population shifts and growing numbers of glyphosate resistance among some weed populations.”⁵⁰ It is presumed APHIS will present this rationale for each and every synthetic auxin herbicide tolerant crop. If APHIS intends to present this rationale for every synthetic auxin herbicide tolerant crop,

⁴⁷ 40 C.F.R. §1508.27(a)

⁴⁸ Doohan, Doug and Koch, Tim, *Effect of Simulated Dicamba and 2, 4-D Drift on Processing Tomatoes*, Ohio State University/OARDC (2010).

⁴⁹ 40 C.F.R. §1508.27(b)(7)

⁵⁰ *Plant Pest Risk Assessment for DAS-40278-9 Corn*, at 2-3.

then all petitions must be considered related actions, because they are a concerted effort by APHIS to address the same issue, glyphosate resistant “superweeds.” APHIS cannot avoid the preparation of an EIS by breaking its reaction to “superweeds” into smaller component parts. Thus, even if APHIS determines 2,4-D spray drift and volatilization resulting from the use of Dow 2,4-D Tolerant Corn is not a significant impact, the “cumulative significant impacts” factor requires APHIS to anticipate the cumulatively significant impact of all synthetic auxin herbicide tolerant crops within their petition queue when considering the impact of the first, Dow 2,4-D Tolerant Corn.

This factor proved especially important to the District Court in *Geertson Seed Farms*, “APHIS’s failure to consider . . . more crops seeking to enter the market, means that it did not take the ‘hard look’ NEPA requires.”⁵¹ In dicta, the District Court warily noted, “. . . [I]t is unclear from the record whether any federal agency is considering the cumulative impact of the introduction of so many glyphosate resistant crops; one would expect that some federal agency is considering whether there is some risk to engineering all of America’s crops to include the gene that confers resistance to glyphosate.”⁵² Similarly, one would expect some federal agency to consider the cumulative impacts of synthetic auxin herbicide tolerant crops, through some method, before the first crop enters the market. Fortunately, NEPA provides such a process, the EIS. In fact, the purpose of the NEPA statute is to “insure that environmental information is available to public officials and citizen before decisions are made and before actions are taken.”⁵³

Upon consideration of the “intensity” factor, APHIS would find the proposed action to have “severe” impacts that may raise a substantial question about whether the proposed action will have a significant effect on the environment. Upon consideration of the “context” and “intensity” factors of a “significant” action, APHIS would find the proposed action may raise a substantial question about whether the proposed action will have a significant effect on the environment.

The petitions for deregulation of synthetic auxin herbicide crops currently within the APHIS petition queue constitute a “significant” action, and synthetic auxin herbicide spray drift and volatilization may raise a substantial question whether the cumulative effect of synthetic auxin herbicide tolerant crops may have a significant effect on the environment. Therefore, APHIS should prepare an EIS addressing the cumulative significant impacts associated with the substantial question raised.

APHIS should revoke its notice of petition for non-regulated status for Dow 2,4-D Tolerant Corn, and issue a new notice of petition and reinitiate review of the regulated article only upon completion of an EIS. APHIS should suspend review of

⁵¹ *Geertson Seed Farms*, at *9.

⁵² *Geertson Seed Farms*, at *10.

⁵³ 40 C.F.R. §§1500.1

all petitions for non-regulated status for synthetic auxin herbicide tolerant crops until it has completed an EIS. APHIS should also request that other agencies with joint regulatory authority over biotechnology products, as identified in the *Coordinated Framework for Biotechnology*, suspend all actions associated with synthetic auxin herbicide tolerant crops until APHIS has completed such an EIS.

Conclusion

The implementing regulations for the National Environmental Policy Act (NEPA) state their purpose is to “insure that environmental information is available to public officials and citizen before decisions are made and before actions are taken,” but ultimately “it is not better documents but better decisions that count. NEPA’s purpose is not to generate paperwork . . . but to foster excellent action.”⁵⁴ The implementing regulations further state the “[EIS] shall provide full and fair discussion of significant environmental impact and shall inform decisionmakers and the public of reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment.”⁵⁵

The interests of the public and APHIS are best served by an informed decision making process. In this instance, APHIS has not given a significant environmental concern the full and fair discussion envisioned by NEPA, and which this concern ultimately deserves. To insure that decision makers and the public are informed of reasonable alternatives to the proposed action and APHIS makes the best possible decision, the Save Our Crops Coalition respectfully requests APHIS prepare an EIS on the effect of the proposed deregulation of all synthetic auxin herbicide tolerant crops now under review by APHIS.

Respectfully submitted,

_____/s/_____

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⁵⁴ 40 C.F.R. §§1500.1, 1500.2

⁵⁵ 40 C.F.R. §1502.1

SOCC – Petition to EPA to Convene SAP Meeting

April 18, 2012

Lisa P. Jackson, Administrator
Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Dr. Steven Bradbury, Director
Office of Pesticide Programs
Environmental Protection Agency
One Potomac Yard
2777 South Crystal Drive
Arlington, VA 22202

Via Registered Mail, Return Receipt Requested this 18th day of April, 2012,

RE: CITIZEN'S PETITION FOR THE ADMINISTRATOR TO CONVENE A SCIENTIFIC ADVISORY PANEL MEETING TO ADDRESS SPRAY DRIFT AND VOLATILIZATION ISSUES ASSOCIATED WITH SYNTHETIC AUXIN TOLERANT CROPS

Summary of the Petition

The **Save Our Crops Coalition (SOCC)** is a grassroots coalition of farm interests organized for the specific purpose of preventing injury to non-target plants from exposure to 2,4-D and dicamba. SOCC does not oppose advances in plant technology, particularly genetic modification, but does oppose actions that would result in substantial injury to non-target crops and to the habitats necessary for their pollinators.

Non-target plant damage associated with pesticide spray drift and volatilization is a major concern for specialty crop growers and processors. Credible estimates project significant increases in the application rate of synthetic auxin herbicides, like 2,4-D and dicamba, upon the introduction of synthetic auxin herbicide tolerant crops. Synthetic auxin herbicides, because of their potential to drift and volatilize, have proven to be America's most dangerous herbicides for non-target plant damage.

Thus, SOCC respectfully submits this petition to Environmental Protection Agency (EPA) pursuant to the Administrative Procedure Act §551 *et seq.* This petition requests EPA conduct a Scientific Advisory Panel (SAP) meeting and for the Administrator to appoint additional advisors to the panel, as needed, to discuss and address herbicide spray drift and volatilization impacts associated with the use of synthetic auxin herbicide tolerant crops.

Attached is a corresponding petition to the Animal and Plant Health Inspection

Service (APHIS) of the Department of Agriculture (USDA) in which SOCC requests preparation of an environmental impact statement to consider the cumulative impacts of deregulation of synthetic auxin herbicide tolerant crops. A factual background for this petition is also included in the attached petition to APHIS.

Petitioner

SOCC represents nearly every segment of American agriculture, from growers to processors, both conventional and organic. All SOCC growers cultivate specialty crops, but they also cultivate significant acreages of major agronomic crops, like corn and soybeans. SOCC is over 2,000 growers strong, including grower organizations such as the Indiana Vegetable Growers Association and the Ohio Produce Growers and Marketers Association, and is supported by major processors like Seneca and Red Gold.

Regulatory Background

The Animal and Plant Health Inspection Service of USDA (APHIS) is preparing to consider several petitions for non-regulated status for synthetic auxin herbicide tolerant crops. The first petition to be considered by APHIS is DAS-40278-9 Corn, developed by Dow AgroSciences, hereafter Dow 2,4-D Tolerant Corn. Dow 2,4-D Tolerant Corn is a corn crop genetically engineered with traits to make it tolerant to the herbicide 2,4-D. However, Dow 2,4-D Tolerant Corn is only the first of several synthetic auxin herbicide tolerant crops slated for review by APHIS. APHIS has two other 2,4-D tolerant crops from Dow AgroScience in its petition queue, DAS-68416-4, a 2,4-D tolerant soybean crop, DAS-44406-6, a 2,4-D and glyphosate tolerant soybean crop, and a dicamba tolerant soybean from Monsanto, MON-87708-9.¹

EPA has regulatory authority over the herbicides associated with these herbicide tolerant crop products under the Federal Insecticide Fungicide and Rodenticide Act (FIFRA).

Statutory and Regulatory Authority of EPA

The Federal Insecticide Fungicide and Rodenticide Act (FIFRA) requires EPA to regulate the sale and use of pesticides in the United States through registration and labeling of pesticide products.² The sale of any pesticide is prohibited in the United States unless it is registered and labeled.³ EPA is directed to restrict the use of pesticides as necessary to prevent unreasonable adverse effects on people and the environment, taking into account the costs and benefits of various pesticide uses.⁴

¹ *Petitions for Nonregulated Status Granted or Pending*, APHIS (Jan. 26, 2012) available at: http://www.aphis.usda.gov/biotechnology/not_reg.html

² 7 U.S.C. §136 *et seq.*

³ 7 U.S.C. §§136a(a),(c)(5)(B).

⁴ 7 U.S.C §136a(a).

The EPA will register the pesticide if it determines that the pesticide is efficacious,⁵ that it will not cause unreasonable adverse effects on humans and the environment,⁶ and that its label complies with the statute's prohibition on misbranding.⁷ The term 'unreasonable adverse effects on the environment' is defined by FIFRA to mean "any unreasonable risk to man or the environment, taking into account the economic, social, and environmental costs and benefits of the use of any pesticide."⁸ Under FIFRA, the term 'environment' includes "all plants."⁹

The regulations implementing the registration provisions of the FIFRA require EPA make a determination that "the product will perform its intended function without unreasonable adverse effects on the environment, and that, when used in accordance with widespread and commonly recognized practice, the product will not generally cause unreasonable adverse effects on the environment."¹⁰ The regulations require that applications for registration include certain data and information beneficial to EPA in making their regulatory judgments about the risk and benefits of pesticide products.¹¹ The regulations require submission of data concerning spray drift droplet size spectrum, and laboratory and field volatility test data for certain pesticide registration decisions.^{12,13}

The Administrator may solicit from the FIFRA Scientific Advisory Panel "comments, evaluations, and recommendations for opening guidelines to improve the effectiveness and quality of scientific analyses made by personnel of the Environmental Protection Agency."¹⁴

Petition

EPA Should Convene a SAP Meeting to Discuss Spray Drift and Volatilization Effects Associated with Synthetic Auxin Tolerant Crops

Given the projected increases in the use of 2,4-D and dicamba, the high relative volatility of these herbicides, and the yield losses associated with these herbicides at very low application rates, spray drift and volatilization effects on non-target plants associated with the introduction of synthetic auxin herbicide tolerant crops are

⁵ 7 U.S.C. § 136a(c)(5)(A)

⁶ 7 U.S.C. §§ 136a(c)(5)(C),(D),(bb)

⁷ 7 U.S.C. § 136a(c)(5)(B); 40 CFR § 152.112(f)

⁸ 7 U.S.C. §136(bb).

⁹ 40 C.F.R. §158.130(e)(1).

¹⁰ 40 C.F.R §152.112(e)

¹¹ 40 C.F.R. §§158.1(a), 158.5(a)(1),(b)

¹² 40 C.F.R. §§158.1300(d),(e)

¹³ 40 C.F.R. §§158.1100(d),(e)

¹⁴ 7 U.S.C. 136w(d)

likely to have substantial ‘unreasonable adverse environmental effects on the environment.’

In order to improve the effectiveness and quality of the scientific analyses made by EPA with respect to its authority over synthetic auxin herbicide tolerant crops and to support APHIS in its preparation of an environmental impact statement, the Save Our Crops Coalition respectfully requests the Administrator of the EPA solicit comments of the FIFRA Scientific Advisory Panel on the following questions:

1. What is the likely size of, in terms of pounds of active ingredient applied, and scope of, in terms of areas of application, the increase in synthetic auxin herbicide use upon the introduction of Dow 2,4-D Tolerant Corn?¹⁵
 - a. ... Upon the introduction of DAS-68416-4, a 2,4-D tolerant soybean crop?¹⁶
 - b. ... Upon the introduction of DAS-44406-6, a 2,4-D and glyphosate tolerant soybean crop?¹⁷
 - c. ... Upon the introduction of MON-87708-9, a dicamba tolerant soybean from Monsanto?¹⁸
2. Will these increases occur disproportionately during particular times of the year?
 - a. What modifications to the timing of applications have the registrants requested for 2,4-D and dicamba for synthetic auxin herbicide tolerant crops?
 - b. Would applications at certain times of the year pose greater volatilization risks?
 - c. Would increases during the times requested by the registrants have disproportionate adverse environmental effects?
3. What alternatives to synthetic auxin crops are available to growers that might mitigate the effects of glyphosate tolerant “superweeds”?
4. What are the probable spray drift and volatilization impacts on non-target broadleaf crops of the projected increases?
 - a. What are the probable impacts on the yields of major agronomic crops, like unmodified soybeans? What are the economic effects of such yield losses?
 - b. What are the probable impacts on the yields of specialty crops, like tomatoes? What are the economic effects of such yield losses?
5. What are the probable spray drift and volatilization impacts on pollinators and other organisms beneficial to agriculture of the projected increase?
6. Where will the spray drift and volatilization impacts of an increase in the use of synthetic auxin herbicides be most prominent?

¹⁵ *Petitions for Nonregulated Status Granted or Pending*, APHIS (Jan. 26, 2012) available at: http://www.aphis.usda.gov/biotechnology/not_reg.html

¹⁶ *Id.*

¹⁷ *Id.*

¹⁸ *Id.*

SOCC – Petition to EPA to Convene SAP Meeting

- a. What crops/regions/communities will bare a disproportionate share of the impact?
7. What are the current and historical levels of compliance with label restrictions on synthetic auxin herbicides? Glyphosate? All herbicides generally?
 - a. How often have professional applicators' licenses been revoked for applications not in compliance with spray drift management provisions compared to the rate of incidence of damage?
 - b. How often are applicators punished for applications not in compliance with spray drift management provisions compared to the rate of incidence of damage?
8. What is the current state of technology for the detection of synthetic auxin herbicide residues on non-target crops?
 - a. How long do spray drift and volatilization residues remain on non-target crops under the environmental conditions that will be encountered by these herbicides upon the introduction of synthetic auxin herbicide tolerant crops?
 - b. What methods are available to growers to detect crop damage even when it is not readily apparent upon initial visual inspection?
9. What monitoring systems are in place throughout the most effected regions and communities to detect synthetic auxin herbicide vapor levels?
10. What have been the social impacts observed by EPA in cases of pesticide pollution?

This is by no means an exhaustive list of questions. SOCC looks forward to the questions that EPA might itself submit to further aid its own analyses, and the questions EPA and APHIS might submit to aid the preparation of an environmental impact statement by APHIS.

Respectfully submitted,

_____/s/_____

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