

## **SUBMITTED ELECTRONICALLY**

Docket No. APHIS-2010-0103  
Regulatory Analysis and Development, PPD  
APHIS, Station 3A-03.8  
4700 River Road  
Unit 118  
Riverdale, MD 20737-1238

**Re: Docket No. APHIS-2010-0103** (Petitions, Plant Pest Risk Assessments, and Environmental Assessments; Availability: Dow AgroSciences, LLC, Corn Genetically Engineered for Herbicide Tolerance)

Dear Secretary Vilsack,

On behalf of the 144 undersigned farm, food, health, public interest, consumer, fisheries, and environmental organizations, we respectfully request that you deny Dow AgroSciences' petition to deregulate its genetically engineered, 2,4-D-resistant corn (DAS-40278-9).

American agriculture stands at a crossroads. One path leads to more intensive use of old and toxic pesticides, litigious disputes in farm country over drift-related crop injury, still less crop diversity, increasingly intractable weeds, and sharply rising farmer production costs. This is the path American agriculture will take with approval of Dow's 2,4-D corn, soybeans and the host of other new herbicide-resistant (HR) crops in the pipeline. Another path is possible, but embarking upon it will take enlightened leadership from USDA.

Agricultural biotechnology firms have long promised less dependence on toxic pesticides. Instead, hundreds of millions of dollars are being invested to engineer crops for resistance to multiple herbicides.<sup>1</sup> Herbicides represent two-thirds of overall pesticide use in American agriculture,<sup>2</sup> and two-thirds of genetically engineered (GE) crops pending deregulation by USDA are herbicide-resistant, including Monsanto's dicamba-resistant crops.<sup>3</sup> Dow officer John Jachetta welcomes these new crops as inaugurating "a new era" and "a very significant opportunity" for chemical companies.<sup>4</sup>

According to agricultural scientist Dr. Charles Benbrook, widespread planting of 2,4-D corn could trigger as much as a 30-fold increase in 2,4-D use on corn by the end of the decade, given 2,4-D's limited use on corn at present.<sup>5</sup> Overall 2,4-D use in American agriculture would rise from 27 million lbs. today to over 100 million lbs.<sup>6</sup> 2,4-D soybeans and cotton would boost usage still more. Yet USDA has provided no analysis of the serious harm to human health, the environment or neighboring farms that would result.

### **Farmers, workers, women and children at risk**

Farmers, farmworkers and their families are on the front line. While generally healthier and with less cancer *overall* than other Americans, farmers suffer higher rates of certain cancers, such as non-Hodgkin's lymphoma (NHL),<sup>7</sup> a cancer of the lymph nodes that kills 30 percent of those afflicted. Numerous epidemiology studies in Sweden,<sup>8</sup> Canada,<sup>9</sup> and by scientists at the U.S. National Cancer Institute<sup>10</sup> have found that farmers who use 2,4-D and related herbicides are more likely to contract deadly NHL. While Sweden, Norway and Denmark have banned 2,4-D<sup>11</sup> based on such studies, the U.S. Environmental Protection

Agency (EPA) refuses to act, insisting that these studies fail to “definitively” link 2,4-D to NHL.<sup>12</sup> Yet the National Academies’ Institute of Medicine has consistently found “sufficient evidence of an association between exposure” to Agent Orange chemicals, which include 2,4-D, and NHL.<sup>13</sup> One must wonder if the many-fold increase in 2,4-D use with 2,4-D crops will provide EPA with sufficient evidence to take action; and how many farmers may suffer in the interim. Other studies link farmer 2,4-D exposure to higher rates of Parkinson’s Disease.<sup>14</sup>

The rest of us may also be at risk. 2,4-D is known to be a hormone-disrupting chemical,<sup>15</sup> which can affect critical developmental processes in very small amounts. Lactating rats fed low doses of 2,4-D exhibit impaired maternal behavior<sup>16</sup> while their pups weigh less.<sup>17</sup> Children of pesticide applicators in areas of Minnesota with heavy use of chlorophenoxy herbicides like 2,4-D had a disproportionately higher incidence of birth anomalies than in non-crop regions or where these herbicides were less used.<sup>18</sup> 2,4-D is frequently detected at low levels in surface water,<sup>19</sup> levels certain to rise sharply with introduction of 2,4-D corn.

Meanwhile, the latest available data show that 2,4-D is still contaminated with low levels of extremely toxic dioxins,<sup>20</sup> which may or may not be the cause of 2,4-D’s toxicity.<sup>21</sup> EPA begins its registration review of 2,4-D next year,<sup>22</sup> which will involve a fresh look at the latest science on its toxicity; this review will take account of strict new dioxin exposure standards issued by EPA earlier this year as part of its ongoing reanalysis of dioxin toxicity.<sup>23</sup> USDA should refrain from any decision on 2,4-D corn, and the many-fold increase in 2,4-D use it would entail, until that review is complete. EPA should likewise refrain from registering any 2,4-D product on any 2,4-D crop pending completion of its review.

### **Crop damage and environmental impacts from herbicide drift**

2,4-D is a volatile herbicide that is prone to drift beyond the field of application to damage neighboring crops and wild plants. 2,4-D vapor injures most broadleaf (i.e. non-grass) plants at extremely low levels, as low as three-billionths of a gram per liter of air.<sup>24</sup> Particularly sensitive crops include grapes,<sup>25</sup> tomatoes, cotton,<sup>26</sup> soybeans, sunflower, and lettuce. Two surveys of state pesticide regulators establish that 2,4-D drift is already responsible for more episodes of crop injury than any other pesticide.<sup>27</sup> Introduction of 2,4-D crops will greatly increase drift injury to crops over already high levels by enabling higher rates, on much greater acreage, sprayed later in the season when neighboring crops and plants have leafed out and are thus more susceptible to drift injury.<sup>28</sup>

Although Dow claims to have a less drift-prone formulation of 2,4-D, its efficacy has not been independently validated; and in any case, neither EPA nor Dow will be able to prevent the use of cheaper, highly-drift prone formulations.

Conventional farmers are likely to lose crops while organic farmers will lose both crops and certification, resulting in an economic unraveling of already-stressed rural communities. In response, family farmers and processors have formed the Save Our Crops Coalition to oppose 2,4-D crops, which pose a threat to their very survival.<sup>29</sup> Growers of vegetables, fruits and other smaller-acreage crops are already sparse in corn-soybean country. The introduction of 2,4-D corn and successor HR crop systems would thin their ranks still further, decreasing what little crop diversity remains in the heartland. Growers of conventional and glyphosate-resistant soybeans would also be threatened by drift. There is

already substantial litigation over drift-related crop injury, pitting farmer against farmer, and it would escalate dramatically with 2,4-D crops.

The EPA and National Marine Fisheries Service have found that even existing agricultural uses of 2,4-D are likely to adversely impact several endangered species – including the California red-legged frog, the Alameda whipsnake, and Pacific salmon – via impacts on their habitats and prey.<sup>30</sup> These impacts will be greatly exacerbated by the sharp spike in 2,4-D use projected with introduction of 2,4-D crops. Since endangered species act as sentinels for the health of the ecosystems they inhabit, broader impacts are likely.

It is unclear whether such harms can be prevented or even mitigated, yet we see no evidence that either USDA or EPA has even begun to grapple with the issue. At the very least, no decision should be made on 2,4-D corn without serious assessment of drift-related crop injury and potential mitigation measures in the context of an Environmental Impact Statement.

### **Chemical Arms Race With Weeds**

Farmers would have no interest in 2,4-D crops if there weren't a raging epidemic of weeds resistant to glyphosate, the active ingredient in Monsanto's Roundup herbicide. Glyphosate-resistant weeds evolved to infest millions of acres of cropland<sup>31</sup> through massive, unregulated use of glyphosate on Monsanto's Roundup Ready® soybeans, corn and cotton.<sup>32</sup> This epidemic has alarmed agricultural scientists, triggering a substantial increase in herbicide use,<sup>33</sup> greater use of soil-eroding tillage operations,<sup>34</sup> and a return to weeding crews hoeing hundreds of thousands of acres,<sup>35</sup> dramatically increasing production costs. A National Academy of Sciences committee singled out glyphosate-resistant weeds as an issue demanding national attention.<sup>36</sup>

However, Dow's 2,4-D crops are no "solution" to glyphosate-resistant weeds. After at best temporary relief, they will trigger an outbreak of still more intractable weeds resistant to both glyphosate and 2,4-D.<sup>37</sup> Weeds resistant to multiple herbicides are already on the rise, prompting an Illinois weed scientist to warn that "we are running out of options" to confront what is rapidly becoming an "unmanageable problem."<sup>38</sup>

Weed resistance to 2,4-D will not be prevented or even slowed by the approaches that failed so spectacularly with Roundup Ready crops: voluntary "stewardship" plans and grower education. If these new HR crop systems are to be introduced at all, mandatory weed resistance management programs with strict limitations on frequency of use over time are absolutely necessary. USDA must also provide support to help farmers adopt integrated weed management approaches that prioritize non-chemical tactics.<sup>39</sup> These issues too must be seriously assessed in the context of an Environmental Impact Statement before any decision is taken.

### **Conservation tillage**

Contrary to conventional wisdom, herbicide-resistant crops have not promoted adoption of soil-saving conservation tillage to any significant degree. This myth rests on simple confusion of correlation with causation. While growers who previously adopted conservation tillage practices are more likely to then grow an herbicide-resistant crop, the choice to grow that crop does not spur adoption of conservation tillage.<sup>40</sup> Data from USDA's

soil erosion experts at the Natural Resources Conservation Service leave no room for debate on this point: the big reductions in soil erosion due to adoption of conservation tillage occurred from the 1970s to the mid-1990s, while soil erosion rates leveled out in the decade of Roundup Ready crop adoption.<sup>41</sup> Strong financial incentives to adopt soil-saving farming practices contained in the 1985 and 1990 Farm Bills are chiefly responsible for increased use of conservation tillage.<sup>42</sup>

Thus, Dow's claim that 2,4-D crops will "preserve" the soil-conserving benefits supposedly conferred by RR crop systems is fundamentally mistaken. Going forward, massive use of 2,4-D and other herbicides accompanying HR crops might partially substitute for tillage on some acres, but history demonstrates that such benefits would be fleeting at best. Indeed, glyphosate-resistant weeds spawned by RR crop systems have undeniably increased tillage,<sup>43</sup> leading to abandonment of soil-conserving practices on many infested acres.<sup>44</sup> With 2,4-D corn, the same cycle of weed resistance that plagued RR crops would recur with 2,4-D, driving use of tillage and soil erosion to new heights. The draft environmental assessment fails to assess increased tillage and soil erosion as foreseeable consequences of 2,4-D-resistant weeds fostered by 2,4-D corn, a subject that must be addressed in the context of an Environmental Impact Statement.

## **Conclusion**

While none of the significant threats discussed above are unique to HR crops, they are all ***significantly escalated*** by the intended use of these crop systems and the characteristic ways in which they are managed. Harms to human health, increased crop damage from drift, and rapid evolution of resistant weeds are reasonably foreseeable consequences of 2,4-D corn's approval. The broad purpose of the Plant Protection Act (PPA) is to protect all of agriculture, as well as the environment and the agricultural economy. Pursuant to the PPA, USDA has broad authority, the mandate and the means to protect farmers and the environment. The harms of this crop system plainly fall under USDA's purview. Ignoring them would violate the agency's statutory duties, as well as unnecessarily put farmers, businesses, the public and the environment at risk.

For all of the above reasons, we urge USDA to deny Dow's petition to deregulate 2,4-D-resistant corn. At the very least, USDA must conduct a comprehensive Environmental Impact Statement that addresses the serious issues discussed above, meaningfully considers restrictions on this crop system to prevent its foreseeable harms, and then use that EIS to inform its eventual decision, as required by the National Environmental Policy Act.

CC: Administrator Lisa Jackson, U.S. Environmental Protection Agency

## ***SIGNED:***

### **Organizations:**

Ad Hoc Committee for Clean Water  
Alaska Community Action on Toxics  
Allergy Kids Foundation  
Alliance for Natural Health USA  
Alternative Energy Resources Organization  
Berkshire Environmental Action Team (BEAT)

Beyond Pesticides  
California Rural Legal Assistance Foundation  
Californians for GE-Free Agriculture  
Californians for Pesticide Reform  
The Canary Party  
Carolina Farm Stewardship Association  
Center for Biological Diversity  
Center for Environmental Health  
Center for Food Safety  
Center for Technology Assessment  
Citizens for Sanity.Com  
Clean Production Action  
Community Alliance for Global Justice  
Community Alliance with Family Farmers  
The Cornucopia Institute  
CounterCorp  
Cumberland Countians for Peace & Justice  
Dakota Resource Council  
Dakota Rural Action  
Duluth Community Garden Program  
Earth Day Network  
Eco-Justice Class of Pleasant Hill Community Church/UCC  
Ecology Center  
Ecology Party of Florida  
EConsulting  
Empire State Consumer Project  
Environmental Health Fund  
Family Farm Defenders  
Farm and Ranch Freedom Alliance  
Farmworker Association of Florida  
Food and Water Watch  
Food Chain Workers Alliance  
Food Democracy Now!  
Food First  
Food Rights Network (Center for Media and Democracy)  
Friends of the Earth  
Grassroots International  
Greenpeace  
Healthy Child Healthy World  
Hoosier Environmental Council  
Idaho Rural Council  
Indigenous Environmental Network  
Institute for Agriculture and Trade Policy  
Institute for Responsible Technology  
Institute for Social Ecology  
Institute for a Sustainable Future  
Institute of Neurotoxicology & Neurological Disorders  
Iowa Citizens for Community Improvement  
Kentucky Environmental Foundation

Local to Global Advocates for Justice  
Los Jardines Institute (The Gardens Institute)  
Maine Organic Farmers and Gardeners Association  
Mangrove Action Project  
Medical Advocates for Healthy Air  
Midwest Organic and Sustainable Education Service (MOSES)  
Mississippi Association of Cooperatives  
Missouri Rural Crisis Center  
Moms Advocating Sustainability  
Montana Organic Association  
Morro Bay Commercial Fishermen's Organization  
Mvskoke Food Sovereignty Initiative  
National Family Farm Coalition  
National Farm Worker Ministry  
National Latino Farmers & Ranchers Trade Association  
National Lawyers Guild Environmental Justice Committee  
National Organic Coalition  
Natural Resources Defense Council  
Network for Environmental & Economic Responsibility, United Church of Christ  
New York Environmental Law and Justice Project  
The Non-GMO Project  
Northeast Organic Dairy Producers Alliance  
Northeast Organic Farming Association -- Interstate Council (NOFA-IC)  
Northeast Organic Farming Association, Massachusetts (NOFA-MA)  
Northeast Organic Farming Association, Vermont (NOFA-VT)  
Northern California Council, Federation of Fly Fishers  
Northwest Atlantic Marine Alliance  
Northwest Center for Alternatives to Pesticides  
Oakland Institute  
Oregon Physicians for Social Responsibility  
Oregon Tilth  
The Organic & Non-GMO Report  
Organic Consumers Association  
Organic Farming Research Foundation  
Organic Seed Alliance  
PLANT (Partners for the Land & Agricultural Needs of Traditional Peoples)  
Pesticide Action Network North America  
Pesticide Watch  
Physicians for Social Responsibility  
Physicians for Social Responsibility, Arizona  
Physicians for Social Responsibility, Maine  
Progressive Agriculture Organization  
Rodale Institute  
Rural Coalition/Coalición Rural  
Say No to GMOs!  
Science and Environmental Health Network  
Sierra Club  
Small Boat Commercial Salmon Fishermen's Association (SBCSFA)  
South Florida Cancer Association  
Student Action with Farmworkers

SumOfUs.org  
Sustainable Fairfax  
TEDX, The Endocrine Disruption Exchange  
Washington Biotechnology Action Council  
Western Organization of Resource Councils (WORC)  
Western Colorado Congress  
WhyHunger  
Women's Voices for the Earth

**Farms and Businesses:**

Agricultural Missions, Inc (AMI)  
Annie's, Inc.  
Ashland Food Co-op  
Central Co-op  
Clearlake Organic Farm  
Common Ground Food Co-op  
Clif Bar & Company  
CROPP Cooperative/Organic Valley Family of Farms  
Dr. Bronner's Magic Soaps  
Eden Foods  
Equal Exchange, Inc.  
Good Earth Natural Foods  
GreenTree Cooperative Grocery  
Hungry Hollow Co-op  
Independent Natural Food Retailers Association (INFRA)  
Jacobs Farm / Del Cabo, Inc.  
Kirschenmann Family Farms, Inc.  
Lundburg Family Farms  
Mercola.com  
Mississippi Market Co-op  
National Cooperative Grocers Association (NCGA)  
Nature's Path Foods  
Oregon Organic Coalition (OOC)  
Organically Grown Company (OGC)  
Organic Farming Works LLC  
PCC Natural Markets  
Putney Consumers Cooperative  
Thirteen Mile Lamb and Wool Co  
United Natural Foods, Inc.  
Veritable Vegetable  
Wood Prairie Farm

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<sup>1</sup> Kilman, S. (2010). "Superweed outbreak triggers arms race," The Wall Street Journal, June 4, 2010.  
<http://www.gmwatch.org/latest-listing/1-news-items/12263-superweed-outbreak-triggers-arms-race>

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- <sup>2</sup> EPA (2011). "Pesticide Industry Sales and Usage: 2006 and 2007 Market Estimates," U.S. Environmental Protection Agency, February 2011, Table 3.4. In 2007, agricultural herbicides (442 million lbs.) represented 65% of overall pesticide use in U.S. agriculture (684 million lbs.)
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- <sup>4</sup> As quoted in Kilman (2010), op. cit.
- <sup>5</sup> See <http://www.centerforfoodsafety.org/projected-increase-in-24-d-use-with-introduction-of-24-d-resistant-corn-through-2019-benbrook2012/>.
- <sup>6</sup> Based on EPA (2011), op. cit., Table 3.6, which shows 25-29 million lbs. 2,4-D used agriculturally in 2007, and projection cited in footnote 5.
- <sup>7</sup> Jacobs, M. & Clapp, D. (2008). "Agriculture and Cancer: A Need for Action," [http://www.sustainableproduction.org/downloads/AgricultureandCancer\\_001.pdf](http://www.sustainableproduction.org/downloads/AgricultureandCancer_001.pdf)
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- <sup>12</sup> EPA (2005). Reregistration Eligibility Decision for 2,4-D, Environmental Protection Agency, June 2005, pp. 19-20.
- <sup>13</sup> IOM (2012). *Veterans and Agent Orange: Update 2010*, Committee to Review the Health Effects in Vietnam Veterans of Exposure to Herbicides, Institute of Medicine of the National Academies, 466-489. The latest in an exhaustive, biennial review of evidence on the toxicology of Agent Orange compounds.
- <sup>14</sup> Tanner, C.M. et al (2009). "Occupation and risk of Parkinsonism," *Archives of Neurology* 66: 1106-1113.
- <sup>15</sup> <http://www.nrcd.org/living/chemicalindex/2-4-d.asp>
- <sup>16</sup> Sturtz N, Deis RP, Jahn GA, Duffard R, Evangelista de Duffard AM (2008). "Effect of 2,4-dichlorophenoxyacetic acid on rat maternal behavior," *Toxicology* 247(2-3): 73-79.
- <sup>17</sup> Sturtz N, Jahn GA, Deis RP, Rettori V, Duffard RO, Evangelista de Duffard AM (2010). "Effect of 2,4-dichlorophenoxyacetic acid on milk transfer to the litter and prolactin release in lactating rats," *Toxicology* 271(1-2): 13-20.
- <sup>18</sup> Garry VF, Schreinemachers D, Harkins ME, et al (1996). "Pesticide applicators, biocides, and birth defects in rural Minnesota," *Environ Health Perspect* 104:394-399.
- <sup>19</sup> "Pesticides in Surface Waters," Pesticide National Synthesis Project, US Geological Survey, Fact Sheet FS-039-97. <http://water.usgs.gov/nawqa/pnsp/pubs/fs97039//sw4.html>
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- <sup>41</sup> NRCS (2010). "2007 National Resources Inventory: Soil Erosion on Cropland," USDA NRCS, April 2010, p. 2. [http://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs143\\_012269.pdf](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs143_012269.pdf).
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- <sup>43</sup> NRC (2010), op. cit., p. 75.
- <sup>44</sup> Laws, F. (2006). "Glyphosate-resistant weeds more burden to growers' pocketbooks," Delta Farm Press, Nov. 27, 2006. <http://deltafarmpress.com/news/061127-glyphosate-weeds/>