**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 147 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.[1] Herbicides represent two-thirds of overall pesticide use in American agriculture,[2] and two-thirds of genetically engineered (GE) crops pending deregulation by USDA are herbicide-resistant, including Monsanto's dicamba-resistant crops.[3] Dow officer John Jachetta welcomes these new crops as inaugurating "a new era" and "a very significant opportunity" for chemical companies.[4]

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.[5] Overall 2,4-D use in American agriculture would rise from 27 million lbs. today to over 100 million lbs.[6] 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),[7] a cancer of the lymph nodes that kills 30 percent of those afflicted. Numerous epidemiology studies in Sweden,[8] Canada,[9] and by scientists at the U.S. National Cancer Institute[10] 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[11] 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.[12] 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.[13] 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.[14]

The rest of us may also be at risk. 2,4-D is known to be a hormone-disrupting chemical,[15] which can affect critical developmental processes in very small amounts. Lactating rats fed low doses of 2,4-D exhibit impaired maternal behavior[16] while their pups weigh less.[17] 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.[18] 2,4-D is frequently detected at low levels in surface water,[19] 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,[20] which may or may not be the cause of 2,4-D's toxicity.[21] EPA begins its registration review of 2,4-D next year,[22] 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.[23] 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.[24] Particularly sensitive crops include grapes,[25] tomatoes, cotton,[26] 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.[27] 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.[28]

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.[29] 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.[30] 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[31] through massive, unregulated use of glyphosate on Monsanto's Roundup Ready® soybeans, corn and cotton.[32] This epidemic has alarmed agricultural scientists, triggering a substantial increase in herbicide use,[33] greater use of soil-eroding tillage operations,[34] and a return to weeding crews hoeing hundreds of thousands of acres,[35] dramatically increasing production costs. A National Academy of Sciences committee singled out glyphosate-resistant weeds as an issue demanding national attention.[36]

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.[37] 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."[38]

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.[39] 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.[40] 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.[41] 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.[42]

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,[43] leading to abandonment of soil-conserving practices on many infested acres.[44] 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 Environmental Education
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, Massachusettes (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
Organic Seed Growers and Trade Association
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
Health Business Strategies
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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