

June 30, 2014

Administrator Gina McCarthy
U.S. Environmental Protection Agency
1200 Pennsylvania Ave NW
Washington, DC 20460

RE: Dow AgroSciences application to amend their 2,4-D choline salt herbicide for use on 2,4-D tolerant corn and soybeans. Docket EPA-HQ-OPP-2014-0195

Dear Administrator McCarthy:

We the undersigned scientists, medical professionals, and researchers are writing to urge the U.S. Environmental Protection Agency not to register a double herbicide mix of 2,4-D and glyphosate (the “Enlist DuoTM” weed killer) for farm field spraying in combination with a new breed of genetically engineered corn and soybeans.

This 2,4-Dichlorophenoxyacetic acid (2,4-D) and glyphosate herbicide system developed by Dow AgroSciences, a wholly owned subsidiary of the Dow Chemical Company, would put public health at risk if sprayed on millions of acres of cropland.

Dow Chemical Company promotes 2,4-D-resistant corn and soybeans to be used in conjunction with Enlist DuoTM because the widespread planting of the glyphosate-tolerant Roundup Ready corn and soybeans has resulted in accelerated herbicide resistance in numerous weed species.¹ Now, instead of re-evaluating the genetically engineered crop strategy in the United States, the U.S. Department of Agriculture and EPA are close to approving the 2,4-D-resistant corn and soybeans despite the risks that the increased use of 2,4-D would pose to human health and the environment.

2,4-D is a notorious herbicide that has been linked with adverse health effects to the thyroid² and an increased risk of non-Hodgkin’s lymphoma³ in human epidemiological studies. Although studies of pesticide exposure among farmers and their families are confounded by exposure to multiple pesticides, there is a large and compelling body of data that demonstrates the link between occupational exposure to herbicides and insecticides and non-Hodgkin’s lymphoma.⁴ Studies of farmers who worked with 2,4-D found a link between exposure to this herbicide and suppressed immune function,⁵ lower sperm count,⁶ and a greater risk of Parkinson’s disease.⁷

¹ Owen MD. Weed species shifts in glyphosate-resistant crops. *Pest Manag Sci.* 64(4): 377-87. and Owen MD, Young BG, Shaw DR, Wilson RG, Jordan DL, Dixon PM, Weller SC. 2011. Benchmark study on glyphosate-resistant crop systems in the United States. Part 2: Perspectives. *Pest Manag Sci.* 67(7): 747-57.

² Goldner WS, Sandler DP, Yu F, Shostrom V, Hoppin JA, Kamel F, LeVan TD. 2013. Hypothyroidism and pesticide use among male private pesticide applicators in the agricultural health study. *J Occup Environ Med.* 55(10): 1171-8.

³ Miligi L, Costantini AS, Veraldi A, Benvenuti A; WILL, Vineis P. Cancer and pesticides: an overview and some results of the Italian multicenter case-control study on hematolymphopoietic malignancies. *Ann N Y Acad Sci* 1076:366-77, 2006.

⁴ Schinasi L, Leon ME. 2014. Non-Hodgkin lymphoma and occupational exposure to agricultural pesticide chemical groups and active ingredients: a systematic review and meta-analysis. *Int J Environ Res Public Health* 11(4): 4449-527.

⁵ Faustini A, Settini L, Pacifici R, Fano V, Zuccaro P, Forastiere F. 1996. Immunological changes among farmers exposed to phenoxy herbicides: preliminary observations. *Occup Environ Med.* 53(9): 583-5.

⁶ Lerda D, Rizzi R. 1991. Study of reproductive function in persons occupationally exposed to 2,4-dichlorophenoxyacetic acid (2,4-D). *Mutat Res.* 262(1): 47-50.

These findings from human studies, whether small-scale, pilot studies or large cohort studies, point out significant risks from 2,4-D to human health even for the relatively healthy adults who work in agricultural jobs. Such risks would be much higher for young children, especially young children in residential communities, schools, and daycare centers near the 2,4-D-sprayed fields.

Also worrisome is the fact that the manufacturer did not conduct any toxicity tests for simultaneous exposure to the combination of 2,4-D and glyphosate, which could pose a much higher human and environmental toxicity risk than either herbicide alone. EPA acknowledges that, “there could be additional toxicological effects (synergistic or additive) because of the presence of two herbicides.”⁸ Yet, the Agency disregarded these data gaps and both human and environmental toxicity concerns in its proposal to register the Enlist Duo™ herbicide.

If the EPA were to approve Dow’s application for 2,4-D-glyphosate herbicide to be used on 2,4-D-resistant crops, USDA estimates at least a tripling of use of 2,4-D by 2020 compared to the present amounts used annually for agriculture in the United States.⁹ The increase in 2,4-D spraying on corn and soybean fields would lead to pollution of food and water and increased drift of 2,4-D from the fields into nearby residential areas. The Dow Chemical Company claims that their 2,4-D choline salt formulation has low volatility and low drift. However, the large-scale, blanket spraying that has become standard practice with genetically engineered crops would make herbicide drift from sprayed fields into nearby residential areas and ecosystem habitats highly likely to occur.

In addition to putting human health at risk, increased 2,4-D spraying would harm the already-vulnerable ecosystems in intensely farmed regions of the United States; affect dozens of endangered species; and potentially contribute to the decline of pollinators and honeybees. EPA itself has identified these likely outcomes of 2,4-D spraying in the agency’s ecological risk assessment for 2,4-D. Such direct and indirect effects of 2,4-D would have significant **negative** economic consequences.

Finally, increased 2,4-D application is likely to accelerate and exacerbate the evolution of yet more 2,4-D-resistant weeds.¹⁰ This pattern is known as the “pesticide treadmill” when farmers end up using larger amounts of increasingly toxic chemicals to control herbicide-resistant weeds eventually requiring the use of different pesticides.

Decades of research have continuously demonstrated the risks of using 2,4-D, a notoriously toxic herbicide. Allowing large-scale 2,4-D spraying in combination with 2,4-D-tolerant genetically engineered crops would worsen the problem. We urge the EPA to do the right thing and deny the approval of the new mixtures of 2,4-D and glyphosate in order to protect human and environmental health.

⁷ Tanner C, Ross G, Jewell S, Hauser R, Jankovic J, Factor S, Bressman S, Deligtisch A, Marras C, Lyons K, Bhudhikanok G, Roucoux D, Meng C, Abbot R, Langston W. 2009. Occupation and Risk of Parkinsonism. *Arch. Neurol.* 66(9): 1106-13.

⁸ EPA (U.S. Environmental Protection Agency). 2013. EFED (Environmental Fate and Effects Division) Environmental Risk Assessment of Proposed Label for Enlist (2,4-D Choline Salt), New Uses on Soybean with DAS 68416-4 (2,4-D Tolerant) and Enlist (2,4-D + Glyphosate Tolerant) Corn and Field Corn. Docket EPA-HQ-OPP-2014-0195.

⁹ USDA (U.S. Department of Agriculture). 2013. Dow AgroSciences Petitions (09-233-01p, 09-349-01p, and 11-234-01p) for Determinations of Nonregulated Status for 2,4-D-Resistant Corn and Soybean Varieties. Draft Environmental Impact Statement.

¹⁰ Mortensen, DA, JF Egan, BD Maxwell, MR Ryan, and RG Smith. 2012. Navigating a Critical Juncture for Sustainable Weed Management. *BioScience*, 62: 75-84.

Sincerely,

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