SUBMITTED ELECTRONICALLY

June 22, 2012

OPP Docket
Environmental Protection Agency Docket Center (EPA/DC)
Mail Code: 28221T
1200 Pennsylvania Ave. NW
Washington, DC 20460-0001

Re: 1. Docket EPA–HQ–OPP–2011–0835 (corn)

- Registration Number and File Symbol: 62719-640 and 62719-AUO: active ingredients – 2,4-D choline salt and glyphosate; proposed use – Enlist AAD-1 Corn (DAS-40278-9)
- Registration Number and File Symbol: 62719-AGO: active ingredient – 2,4-D choline salt; proposed use – Enlist AAD-1 Corn (DAS-40278-9)

2. Docket EPA–HQ–OPP–2012–0306 (soybeans)

- Registration Number and File Symbol: 62719-AUU: active ingredient – 2,4-D choline salt; proposed use – Enlist AAD-12 Soybeans (DAS-68416-4)

Dear Mr. Walsh,

We are 70 physicians, nurses, public health scientists and other health professionals who together respectfully request that EPA deny Dow AgroScience's new use applications for 2,4-D choline salt and glyphosate for use on DAS-40278-9 corn, 2,4-D choline salt for use on DAS-40278-9 corn, and 2,4-D choline salt for use on DAS-68416-4 soybeans.

Widespread planting of 2,4-D GE corn is projected to substantially increase the use of 2,4-D. Experts estimate that use of this herbicide in corn may rise from 3-4 million pounds today to over 100 million pounds over the next decade; 2,4-D soybeans and cotton would boost usage still more.[1]

Studies in humans have reported associations between exposure to 2,4-D and non-Hodgkin's lymphoma, a cancer of the lymphocytes (white blood cells).[2] This finding is consistent with other studies finding that 2,4-D increases lymphocyte replication in exposed farmworkers,[3] and that 2,4-D formulations are cytotoxic and mutagenic.[4 5] For example, in human lymphocytes, 2,4-D causes chromosome breakage and aberrant cells.[6] In 2010, according to the National Cancer Institute, approximately 65,540 people in the United States were diagnosed with non-Hodgkin's lymphoma. The incidence of this disease in the United States has increased to about double the rate seen in the 1970s, even when adjusted for population growth and aging.[7] 2,4-D is likely to be responsible for a fraction of cases of non-Hodgkin's lymphoma each year, although it is difficult to quantify the exact numbers.

Many animal studies show that 2,4-D exhibits hormone-disrupting activity and also affects the function of the neurotransmitters, dopamine and serotonin.[8] Interference with hormones and neurotransmitters can cause serious and lasting effects during fetal and infant development, including birth defects, neurological damage and interference with reproductive function. Human studies support the results of the animal studies. Male farm sprayers exposed to 2,4-D have lower sperm counts and more spermatic abnormalities compared to men who are not exposed to this

chemical. In Minnesota, higher rates of birth defects have been observed in wheat-growing areas of the state with the highest use of 2,4-D and other herbicides of the same class.[9] This increase was most pronounced among infants who were conceived in the spring, the time of greatest herbicide use. A larger study in agricultural counties in Minnesota, Montana, North Dakota and South Dakota found significant increases in malformations of the circulatory and respiratory systems, especially among infants conceived in April-June in wheat-growing counties.[10] In the same study, infant deaths from birth defects among males were significantly elevated.

2,4-D is classified by the EPA as a hazardous air pollutant and by the State of California as a toxic air contaminant. Human exposure to 2,4-D is widespread, including among children. Studies in Iowa, North Carolina and Ohio, for example, found 2,4-D in the carpet dust of 83-98 percent of homes sampled, despite the fact that most homeowners reported that they had not used the pesticide recently.[11] [12] These studies imply that 2,4-D is blowing in or being tracked into homes, and many studies have shown that chemicals – including 2,4-D – in house dust end up on children's hands and in their bodies.

EPA is scheduled to begin a registration review of 2,4-D late this year or early next year, the first such review since 2,4-D was last re-registered in 2005. This review will involve consideration of the latest science on 2,4-D's toxicity, and will also give EPA the opportunity to consider Dow's applications in the context of strict new dioxin exposure standards issued by the Agency earlier this year as part of its ongoing analysis of dioxin toxicity. In light of the massive projected increases in 2,4-D use and exposure that the registrations would enable, it would be highly imprudent of EPA to take any action at this time.

For all of the above reasons, we ask EPA to deny Dow AgroScience's new use applications for 2,4-D choline salt to be used with Dow's 2,4-D resistant corn and soybeans. At the least, we urge EPA to defer any decision on Dow's application until completion of its 2,4-D registration review.

SIGNED*:

Martha Arguello, Executive Director
Physicians for Social Responsibility–Los Angeles chapter

Toni Bark, MD MHEM LEEDap
School of Public Health-Healthcare Emergency Management, Boston University

Alison Bleaney, OBE MB ChB FACRRM
Tasmanian Public and Environmental Health Network

James Brophy, PhD
Adjunct Assistant Professor, University of Windsor, Windsor, Ontario Canada

David O. Carpenter, MD
Director, Institute for Health and the Environment, University at Albany, Rensselaer, New York
Margaret Christensen, MD FACOG
Christensen Center for Whole Life Health

Terry Clark, MD
Physicians for Social Responsibility–Western North Carolina Chapter

Associate Clinical Professor, Department of Psychiatry, James H. Quillen College of Medicine.

L. Stephen Coles, MD PhD
UCLA Department of Chemistry and Biochemistry

Theo Colborn, PhD
President, TEDX (The Endocrine Disruption Exchange)
Professor Emeritus, University of Florida, Gainesville
Honorary Professor of Science, University of Colorado

Karen A. D'Andrea
Executive Director, Physicians for Social Responsibility, Maine

Nathan Daley, MD MPH
Integrative Preventive Medicine, Ecological Medicine
Director of Medical Programs, Leonardi Institute

Rupali Das, MD MPH
Chief, Exposure Assessment Section, California Department of Public Health

Martin Donohoe, MD
Fellow, American College of Physicians (FACP)
Adjunct Associate Professor, School of Community Health, Portland State University
Member, Board of Advisors, Oregon Physicians for Social Responsibility
Senior Physician, Internal Medicine, Kaiser Sunnyside Medical Center

Gwen L. Dubois MD MPH
Chesapeake Physicians for Social Responsibility, Baltimore, MD.

Kathleen Diane Drum, RN AE-C
Multnomah County Environmental Health, Oregon

Lawrence D. Egbert, MD MPH
President Emeritus, Chesapeake Physicians for Social Responsibility

Elizabeth Frost, MD
Hennepin County Medical Center, Minneapolis, MI

Robert Gould, MD
President, Physicians for Social Responsibility, SF-Bay Area Chapter

Kevin D. Hamilton, RRT, RCP
Deputy Chief of Programs, Clinica Sierra Vista, Inc.; Medical Advocates for Healthy Air

Tyrone B. Hayes, PhD
Professor, University of California, Berkeley, CA

Julie Hohmeister, MS, APRN
Littleton, NH

Mark Houston MD
Vanderbilt Medical Center, St Thomas Hospital, Nashville, TN

Richard J Jackson, MD MPH
Professor and Chair, Dept. of Environmental Health Sciences, UCLA

Dave Johnson, MD
Cardiologist, private practice, Holland, MI

Margaret Keith, PhD
Adjunct Assistant Professor, University of Windsor, Windsor, Ontario Canada

Candace Kugel, FNP CNM MS
Migrant Clinicians Network. State College, PA

Matt Landos, BVSc (Hons I), MANZCVS
Director, Future Fisheries Veterinary Service Pty Ltd
Honorary lecturer, associate researcher, University of Sydney

Rick Liva, RPh ND
Chief Medical Officer & Director of Quality, Vital Nutrients, Middletown, CT

Robert Little MD,
Physicians for Social Responsibility–Harrisburg/Hershey Chapter, PA

James H. Maier, MD DLF APA
Vice-President Physicians for Social Responsibility
Maine Medical Association Public Health Committee

Emily Marquez, PhD
Staff Scientist, Pesticide Action Network North America

Jennie McLaurin, MD MPH
Migrant Clinicians Network

Rob McConnell, MD
Professor of Preventive Medicine, University of Southern California

Gerard E. Mullin, M.D.
Associate Professor of Medicine, Johns Hopkins Hospital, Baltimore MD

James Neal-Kababick
Director, Flora Research Laboratories, Fellow, AOAC International

Peter Orris, MD MPH
Professor and Chief of Service, Occupational and Environmental Medicine (MC684)
University of Illinois Hospital and Health Science System

Tom O'Bryan, DC CCN DACBN
Institute For Functional Medicine, WA

Lewis Patrie
Physicians for Social Responsibility–Western NC Chapter, member and past president emeritus

Raymond Richard Neutra, MD MPH
Retired Chief, Division of Environmental and Occupational Disease Control
California Department of Public Health

Cindy L. Parker, MD MPH
Co-Director, Program on Global Sustainability and Health, Bloomberg School of Public Health
Johns Hopkins University, Baltimore, MD

John A Patterson MD, MSPH
Fellow, American Academy of Family Physicians (FAAFP)
Associate Professor, Community-Based Faculty, Dept. of Family and Community Medicine
University of Kentucky College of Medicine, Lexington KY

David Pepper, MD
Board Certified Family Physician; Co-Founder, Medical Advocates for Healthy Air

Joanne Perron, MD
Program on Reproductive Health and the Environment, University of California at San Francisco

Warren Porter, MD PhD
University of Wisconsin, Madison

Beth Rosenberg, ScD MPH
Tufts University School of Medicine, Boston, MA

Lynn Ringenberg, MD
President, Physicians for Social Responsibility–Florida/Tampa
University of South Florida Emeritus Professor Pediatrics

Beth Rosenberg, ScD, MPH
Tufts University School of Medicine, Boston, MA

Henry W. Rosenberg, M.D.
Physicians for Social Responsibility–Pioneer Valley, MA

Kenneth D. Rosenman MD
Professor of Medicine and Chief, Division of Occupational and Environmental Medicine
Michigan State University

Mike Rowland, MD MPH
Vice President for Medical Affairs
Medical Director, Occupational Medicine, Franklin Memorial Hospital, Farmington, Maine

Salvador Sandoval, MD MPH
Staff Physician, Golden Valley Health Center

Jennifer Sass, PhD
Senior Scientist, Natural Resources Defense Council, Washington DC
Professorial Lecturer, George Washington University

Shilpa P. Saxena, MD
Board Certified Family Practice
Faculty for IFM, Guest Faculty for AzCIM; Voluntary Faculty, University of Miami

Ted Schettler, MD MPH
Science Director, Science and Environmental Health Network

Paulette Schreiber, CRNP
Elk Regional Health Center, Saint Marys, PA

Kathleen Schuler, MPH
Institute for Agriculture & Trade Policy

Rosemary Sokas, MD MOH
Professor and Chair, Department of Human Science School of Nursing and Health Studies
Georgetown University, Washington DC

Ana M. Soto, MD
Professor, Department of Anatomy and Cell Biology
Tufts University School of Medicine, Boston, MA

Sandra Steingraber, PhD
Scholar in Residence, Department of Environmental Studies, Ithaca College, Ithaca, New York

Kristen Stoimenoff, MPH
Deputy Director, Health Outreach Partners

Thomas A. Sult, MD
Physician in private practice
Faculty, Institute for Functional Medicine
Board Certified Family Medicine, Board Certified Holistic and Integrative Medicine

Patrice Sutton, MPH
Research Scientist, Program on Reproductive Health and the Environment
University of California San Francisco, Dept. Obstetrics, Gynecology & Reproductive Sciences

Tim K. Takaro, MD MPH MS
Professor, Faculty of Health Sciences
Simon Fraser University, Burnaby, BC Canada

Claudia Thomas, MD
Fellow, American Academy of Pediatrics (FAAP)
Fellow, American Academy of Emergency Physicians (FAAEP)

Catherine Thomasson, MD
Executive Director, Physicians for Social Responsibility, Washington DC

Harry Wang, MD
Physicians for Social Responsibility–Sacramento chapter

David Wallinga, MD
Institute for Agriculture & Trade Policy, Minneapolis MN

Barbara H. Warren, MD, MPH
Chair, Physicians for Social Responsibility–Arizona

David H. Wegman, MD, MSc
Professor Emeritus, Department of Work Environment, University of Massachusetts Lowell

Diana Zuckerman, PhD
President, Cancer Prevention and Treatment Fund, Washington, DC

Edward Zuroweste, MD
Assistant Professor of Medicine, Johns Hopkins School of Medicine
Chief Medical Officer, Migrant Clinicians Network, PA

Institutional affiliation provided for identification purposes only

---

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

2 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.

3 Figgs LW, Holland NT, Rothmann N, Zahm SH, et al. Increased lymphocyte replicative index following 2,4-dichlorophenoxyacetic acid herbicide exposure. Cancer Causes Control 11(4):373-80, 2000.

4 Zeljezic D, Garaj-Vrhovac V. Chromosomal aberrations, micronuclei and nuclear buds induced in human lymphocytes by 2,4-dichlorophenoxyacetic acid pesticide formulation. Toxicology 200:39-47, 2004.

5 Holland NT, et al., Micronucleus frequency and proliferation in human lymphocytes after exposure to herbicide 2,4-dichlorophenoxyacetic acid in vitro and in vivo. Mutat Res 521(1-2):165-78, 2002.

6 Zeljezic D, Garaj-Vrhovac V. Chromosomal aberrations, micronuclei and nuclear buds induced in human lymphocytes by 2,4-dichlorophenoxyacetic acid pesticide formulation. Toxicology 200:39-47, 2004.

7 Howlader N, Noone AM, Krapcho M, Neyman N, Aminou R, Waldron W, Altekruse SF, Kosary CL, Ruhl J, Tatalovich Z, Cho H, Mariotto A, Eisner MP, Lewis DR, Chen HS, Feuer EJ, Cronin KA, Edwards BK (eds). SEER Cancer Statistics Review, 1975-2008, National Cancer Institute. Bethesda, MD, http://seer.cancer.gov/csr/1975_2008/, based on November 2010 SEER data submission, posted to the SEER web site, 2011.

8 Pochettino AA, Bongiovanni B, Duffard RO, Evangelista de Duffard AM. Oxidative stress in ventral prostate, ovary, and breast by 2,4-dichlorophenoxyacetic acid in pre- and postnatal exposed rats. Environ Toxicol. 2011 Mar 3.

Stürtz N, Jahn GA, Deis RP, Rettori V, Duffard RO, Evangelista de Duffard AM. Effect of 2,4-dichlorophenoxyacetic acid on milk transfer to the litter and prolactin release in lactating rats. Toxicology. 2010 Apr 30;271(1-2):13-20.

Stürtz N, Deis RP, Jahn GA, Duffard R, Evangelista de Duffard AM. Effect of 2,4-dichlorophenoxyacetic acid on rat maternal behavior. Toxicology. 2008 May 21;247(2-3):73-9.

9 Garry VF, Schreinemachers D, Harkins ME, et al. Pesticide appliers, biocides, and birth defects in rural Minnesota. Environ Health Perspect 104:394-399, 1996.

10 Schreinemachers DM. Birth malformations and other adverse perinatal outcomes in four U.S. wheat-producing states. Environ Health Perspect 111(9):1259-1264, 2003.

11 Ward MH, Lubin J, Giglierano J, Colt JS, Wolter C, Bekiroglu N, Camann D, Hartge P, Nuckols JR. Proximity to crops and residential exposure to agricultural herbicides in Iowa. Environ Health Perspect 114(6):893-897, 2006.

12 Morgan MK, Sheldon LS, Thomas KW, Egeghy PP, Croghan CW, Jones PA, Chuang JC, Wilson NK. Adult and children's exposure to 2,4-D from multiple sources and pathways. J Expo Sci Environ Epidemiol 18(5):486-94, 2008.