May 4, 2020

Environmental Working Group Comments to the Environmental Protection Agency Docket ID: Acetamiprid, EPA-HQ-OPP-2012-0329; Clothianidin, EPA-HQ-OPP-2011-0865; Dinotefuran, EPA-HQ-OPP-2011-0920; Imidacloprid, EPA-HQ-OPP-2008-0844; Thiamethoxam, EPA-HQ-OPP-2011-0581

Environmental Working Group, or EWG, a nonprofit research and policy organization with offices in Washington, D.C., Minneapolis, Minn., San Francisco and Sacramento, Calif., objects to the Environmental Protection Agency's decision to allow continued use of neonicotinoid insecticides acetamiprid, clothianidin, dinotefuran, imidacloprid, and thiamethoxam.

Over two and half years ago EWG and over 120 thousand supporters submitted comments to EPA urging the agency to ban these pesticides in order to protect pollinators and environmental and public health. Adverse environmental effects of this class of insecticides are well established, especially harm to pollinators and other wildlife[1]. Additionally, chronic exposure to neonicotinoids poses a risk for human health, with adverse effects on the reproductive system and children's developing nervous systems[2].

The use of neonicotinoid pesticides has increased in the last 10 to 15 years as is evident through reporting by the U.S. Geological Survey and increased detection frequencies in water and food[3]. In the most recently published results of the USDA Pesticide Data Program (testing occurred in 2018, report published in 2019), imidacloprid was detected in over 83% of raisins, a popular children's food, and acetamiprid was detected on nearly 50% of frozen strawberries.

EWG disagrees with the EPA's position on neonicotinoids and children's health. We are concerned that the EPA's decision to allow continued use of these insecticides leaves children's health at risk. Neonicotinoid toxicity during pregnancy and early life has been

[1] Wood TJ, Goulson D. The environmental risks of neonicotinoid pesticides: a review of the evidence post 2013. *Environ Sci Pollut Res Int*. 2017 Jul;24(21):17285-17325. doi: 10.1007/s11356-017-9240-x.
[2] Thompson DA, Lehmler HJ, Kolpin DW, Hladik ML, Vargo JD, Schilling KE, LeFevre GH, Peeples TL, Poch MC, LaDuca LE, Cwiertny DM, Field RW. A critical review on the potential impacts of neonicotinoid insecticide use: current knowledge of environmental fate, toxicity, and implications for human health. *Environ Sci Process Impacts*. 2020 Apr 8. doi: 10.1039/c9em00586b
[3] Craddock HA, Huang D, Turner PC, Quirós-Alcalá L, Payne-Sturges DC3. Trends in neonicotinoid pesticide residues in food and water in the United States, 1999-2015. *Environmental Health*. 2019 Jan 11;18(1):7. doi: 10.1186/s12940-018-0441-7.

demonstrated in animal studies[4]. Furthermore, the adverse effects of chronic low-dose exposures to neonicotinoids are inadequately considered. EWG brings the EPA's attention to a recent study that highlighted a unique aspect of neonicotinoid toxicity, time-delayed toxicity, which must be considered to adequately assess chronic toxicity and protect environmental and public health[5]. Time-delayed toxicity suggests that toxicity increases with time and not just dose, meaning chronic low-dose exposure, which may occur through diet and the environment, can lead to critical adverse health effects.

In a systematic review of human health effects, epidemiological evidence suggests an association between neonicotinoid exposure and increased risk of adverse developmental and neurological effects including anencephaly and autism spectrum disorder[6]. More recently, ambient prenatal exposure to neonicotinoids has been associated with preterm birth and decrements in IQ in children[7,8]. This is particularly concerning considering that a recent national biomonitoring program administered by the US Centers for Disease Control involving 2533 adults and adolecents and 505 children from across the United States found that children experience higher exposure to neonicotinoids than adults and nearly half of all individuals sampled had detectable levels of at least one neonicotinoid[9]. These effects warrant the use of a full 10X Food Quality Protection Act (FQPA) children's health safety factor. Further, the EPA should have performed a cumulative risk assessment for the entire group of neonicotinoids

In closing, EWG urges the EPA to reconsider its decision to continue allowing the use of noenicitinoids, follow the lead of European and Canadian agencies and restrict the use of these harmful insecticides.

Thank you for the opportunity to comment.

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[4] Burke AP, Niibori Y, Terayama H, Ito M, Pidgeon C, Arsenault J, Camarero PR, Cummins CL, Mateo R, Sakabe K, Hampson DR. Mammalian Susceptibility to a Neonicotinoid Insecticide after Fetal and Early Postnatal Exposure. *Sci Rep*. 2018 Nov 9;8(1):16639. doi: 10.1038/s41598-018-35129-5

[5] Sanchez-Bayo F, and Tennekes HA. Time-Cumulative Toxicity of Neonicotinoids: Experimental Evidence and Implications for Environmental Risk Assessments. *Internaational Journal of Environmental Research and Public Health.* 2020.

[6] Cimino AM1, Boyles AL, Thayer KA, Perry MJ. Effects of Neonicotinoid Pesticide Exposure on Human Health: A Systematic Review. *Environ Health Perspectives*. 2017 Feb;125(2):155-162. doi: 10.1289/EHP515. Epub 2016 Jul 6.

[7] Ling C, Liew Z, von Ehrenstein OS, Heck JE, Park AS, Cui X, Cockburn M, Wu J, Ritz B. Prenatal Exposure to Ambient Pesticides and Preterm Birth and Term Low Birthweight in Agricultural Regions of California. *Toxics*. 2018 Jul 21;6(3). doi: 10.3390/toxics6030041

[8] Gunier RB, Bradman A, Harley KG, Kogut K1, Eskenazi B. Prenatal Residential Proximity to Agricultural Pesticide Use and IQ in 7-Year-Old Children. *Environmental Health Perspectives.* 2017 May 25;125(5):057002. doi: 10.1289/EHP504

[9] Ospina M, Wong LY, Baker SE, Serafim AB, Morales-Agudelo P, Calafat AM Exposure to neonicotinoid insecticides in the U.S. general population: Data from the 2015-2016 national health and nutrition examination survey. *Enivironmental Reseach*. 2019 Sep;176:108555. doi: 10.1016/j.envres.2019.108555

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