

March 2, 2015

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Re: Input to the White House Task Force on Pollinator Health regarding the use of neonicotinoids

Dear Directors Keigwin and Kunickis,

We the 128 undersigned organizations have closely followed the U.S. Environmental Protection Agency (EPA) and the broader White House Task Force's efforts to protect pollinators from pesticides including neonicotinoid insecticides. This letter outlines our concerns regarding the risks of neonicotinoids and the actions we recommend you take to mitigate these risks.

I. Native and Managed Bees, and other Beneficial Species Provide Important Services to the Agricultural Sector and the Environment

Honey bees and native bees jointly provide U.S. agriculture an estimated \$18 to \$27 billion in pollination service annually. Native bees play an often overlooked role in our agricultural systems. Researchers determined that native pollinators contribute more than \$3 billion to the U.S. agricultural economy.¹ More recently, in California, researchers estimated wild pollinators produce between \$937 million and \$2.4 billion per year in economic value in California alone.²

¹ Losey, J.E. and M. Vaughan. 2006. The economic value of ecological services provided by insects. *Bioscience*, 56(4): 311–323.

² Chaplin-Kramer, R., K. Tuxen-Bettman, and C. Kremen. 2011. Value of wildland habitat for supplying pollination services to Californian agriculture. *Rangelands*, 33(3): 33-41.

Other beneficial species are also often unnoticed, yet they are essential to healthy agricultural fields, landscapes, gardens and natural systems. Predatory and parasitic insects and other arthropods provide natural pest suppression to farms, as well as to natural areas and developed landscapes, an ecosystem service valued at more than \$4.5 billion per year.³ Birds provide insect and rodent control, plant pollination, and seed dispersal. For example, birds can destroy up to 98 percent of over-wintering codling moth larvae, a scourge of apple-growers worldwide. In eastern forests, birds eat up to 90 percent of budworms and 40 percent of non-outbreak insect species. These services have been valued at \$5,000 per square mile of forest every year—which amounts to billions of dollars in environmental services.⁴

Losey and Vaughan calculated the value of ecosystem services to humans from all wild insects in the United States to reach \$60 billion.⁵ EPA’s past assessment of neonicotinoid costs have not fully considered the known or potential impacts on these free services.

As the agency charged with regulating pesticides, it is EPA’s responsibility to protect pollinators and other beneficial wildlife from the pesticide products it approves for use. Neonicotinoids do not satisfy the terms set out in Section 3(c) of the Federal Insecticide Fungicide and Rodenticide Act (FIFRA), in that their registration poses “unreasonable adverse effects on the environment.”

II. Current Research Exemplifies the Significant Risk Neonicotinoids Pose

Neonicotinoids were recently evaluated by a large panel of experts chartered under the International Union for the Conservation of Nature (IUCN), known as the Task Force on Systemic Pesticides. This panel assessed effects of systemic insecticides on an ecosystem level, reviewing approximately 800 peer-reviewed articles on neonicotinoids, and another systemic insecticide fipronil.

Their report, entitled the “Worldwide Integrated Assessment on Systemic Pesticides,” is being published serially in *Environmental Science and Pollution Research*. Key findings include:⁶

- Neonicotinoids are present in the environment “at levels that are known to cause lethal and sublethal effects on a wide range of terrestrial (including soil) and aquatic microorganisms, invertebrates and vertebrates.”
- The active ingredients persist, particularly in soils, with half-lives of months and, in some cases, years.
- The metabolites of neonicotinoids can be as or more toxic than the active ingredients.

³ Losey, J.E. and M. Vaughan. 2006, *supra*.

⁴ North American Bird Conservation Initiative, U.S. Committee, 2009. *The State of the Birds, United States of America*, 2009. U.S. Department of Interior: Washington, DC.

⁵ Losey, J.E. and M. Vaughan. 2006, *supra*.

⁶ Van der Sluijs J.P., et al. 2014. Conclusions of the Worldwide Integrated Assessment on the risks of neonicotinoids and fipronil to biodiversity and ecosystem functioning. *Environ Sci Pollut Res*, doi:10.1007/s11356-014-3229-5.

- Standard methods used to assess the toxicity of a pesticide (e.g. short-term lab toxicity results) fail to identify the subtle, yet severe impacts of neonicotinoids.
- The most affected group of species include insect pollinators. Furthermore, harm to pollinators has been demonstrated at field relevant levels.

The impact of neonicotinoids also extends to aquatic ecosystems. A new scientific article provides an overview of the widespread neonicotinoid contamination worldwide and the associated impacts on aquatic life from observed levels of neonicotinoids. Researchers concluded that:

“Existing information presented here suggests that stricter regulations and use of neonicotinoid insecticides are warranted to protect aquatic ecosystems and the broader biodiversity they support.”⁷

The loss of invertebrates translates to economic loss. The free ecological services provided by invertebrates are highlighted by the IUCN Task Force’s article *Global collapse of the entomofauna*:

Overall, a compelling body of evidence has accumulated that clearly demonstrates that the wide-scale use of these persistent, water-soluble chemicals is having widespread, chronic impacts upon global biodiversity and is likely to be having major negative effects on ecosystem services such as pollination that are vital to food security and sustainable development. There is an urgent need to reduce the use of these chemicals and to switch to sustainable methods of food production and pest control that do not further reduce global biodiversity and that do not undermine the ecosystem services upon which we all depend.⁸

Recognizing that the weight of scientific evidence indicates that neonicotinoids pose significant risk to pollinators and other invertebrates as well as the broader ecosystems that depend upon them, we respectfully request that you consider the following recommendations.

III. Recommendations To Protect Pollinators From Neonicotinoids

A. Expedite the Neonicotinoid Risk Assessment Processes

⁷ Morrissey, C. et al. 2014. Neonicotinoid contamination of global surface waters and associated risk to aquatic invertebrates: A review. *Environment International* <http://dx.doi.org/10.1016/j.envint.2014.10.024>.

⁸ Bijleveld van Lexmond M., J.M. Bonmatin, et al. 2014. Worldwide integrated assessment on systemic pesticides - Global collapse of the entomofauna: exploring the role of systemic insecticides. *Environ Sci Pollut Res*, doi 10.1007/s11356-014-3220-1.

EPA's registration review schedule for the neonicotinoids continues through 2018.⁹ While we recognize the importance of a thorough evaluation of risk, in the case of neonicotinoids, EPA does not have the luxury of taking its time. The concerns outlined above demonstrate the need for immediate intervention to mitigate risks and for increased oversight for the long term.

B. Strengthen and Expand Risk Assessment Requirements

While the new guidance document on pollinator risk assessment recommends some improvements, the current risk assessment process at EPA still fails to consider numerous risk factors. The failings of the current risk assessment system have led to the underestimation of risk of neonicotinoids and ultimately product labels that do not protect pollinators from unreasonable adverse effects.

An abbreviated list of recommendations of how to expand and strengthen EPA's pesticide risk assessment process includes: evaluating all routes of exposure; accounting for the significant risk differences between honey bees and native bees; more thoroughly evaluating the hazards (e.g. oral LD50 and chronic NOEL for adult and larval bees); increasing the knowledge about and assessment of persistence and buildup of neonicotinoids; and adding an extensive review of both minor and major degradates.

Within the risk assessment process, EPA also must begin evaluating chemical mixtures. The differing risks between active ingredients alone and formulated products is well known and must be accounted for.¹⁰ Additionally, there is insufficient data on the synergistic effects between chemicals that might be found jointly in tank mixes, in the field or in a beehive.¹¹ For example, the combination of clothianidin and trifloxystrobin resulted in a 150-fold increase in kill rate to leaf beetle larvae over clothianidin alone.¹² Similarly, neonicotinoids are known to be additively or synergistically toxic when they occur together.¹³ EPA should take advantage of the federal Tox21 and ToxCast programs to rapidly screen individual chemicals and mixtures of co-formulated and co-applied chemicals for synergistic effects and regulate tank mixes accordingly to prevent application of bee-toxic mixtures. Finally, EPA should institute a cumulative risk assessment process for all nicotinic acetylcholine receptor agonists for their effects on both native and managed bees, and limit applications of these chemicals to minimize the risk to bees.

⁹ June 19, 2013, CEO/Executive Director-level letter to President Obama, with the subject line: "Urgent Appeal – neonicotinoid insecticides," available online at: http://www.centerforfoodsafety.org/files/final-neonic-letter-62013_43430.pdf. That letter stated: "Unfortunately, EPA's planned deadline of completing its Registration Reviews for the major neonicotinoids by 2018 is far too slow in view of their potentially calamitous risks". Nineteen months later, the risks appear in sharper proof than in the 2013 letter.

¹⁰ Mullin, C.A. et al. In Press. *The formulation makes the honey bee poison*. Pesticide Biochemistry and Physiology. doi: 10.1016/j.pestbp.2014.12.026.

¹¹ Johnson RM, Dahlgren L, Siegfried BD, Ellis MD. 2013. Acaricide, Fungicide and Drug Interactions in Honey Bees (*Apis mellifera*). PLoS ONE 8:e54092; doi:10.1371/journal.pone.0054092.

¹² Wachendorff-Neumann, U. et al. 2012. Synergistic mixture of trifloxystrobin and imidacloprid. Google patents United States Bayer CropScience AG.

¹³ Andersch, W. et al. 2010. Synergistic insecticide mixtures. US Patent US 7,745,375 B2. Bayer CropScience AG.

This more thorough risk assessment process should extend not just to new registrations but also be included in registration review.

C. Close Conditional Registration Loophole Allowing Pesticides to Enter the Market Prematurely

Conditional registration allows a new active ingredient to enter the market for an unspecified period of time while the registrant gathers safety data requested by EPA. EPA's and the Government Accountability Office's analyses of the program confirms that this process has been misused in the majority of cases.¹⁴ Approximately 65% of the 16,000 currently registered pesticide products—including neonicotinoids—have been put on the market through conditional registration before basic toxicity testing is completed.¹⁵

D. Fully Calculate the Externalized Costs Associated with Pesticide Use

The economic loss caused by harm to honey bees and other beneficial species that provide pollination and pest control service to agriculture must be calculated and included when determining the costs and benefits of registering or continuing registration of pesticide products.

E. Regulate the Planting of Neonicotinoid-coated Seed as a Pesticide Use

EPA has allowed millions of pounds of pesticide treated seeds to be planted annually on likely 200 million acres nationwide. Almost all of U.S. corn seeds and more than half of soybean seeds are coated with neonicotinoids.¹⁶ Many other seeds, including canola, are also coated.¹⁷ Yet, the use of treated seeds is not considered a pesticide use by EPA.

The lack of a pesticide designation provides little to no enforcement mechanism against the potential misuse of or harm from these seeds. EPA must bring these seeds under regulation, and mandate fully enforceable label warnings and use directions.

F. Suspend the Use of Neonicotinoids as Soybean Seed Coating Products

EPA's recent memorandum, *Benefits of Neonicotinoid Seed Treatments to Soybean Production*, highlights the lack of benefit associated with, and at times detrimental effects of coated soybean. Case in point, recent soybean yield research found that the use of coated soybean seeds reduced crop yields in a typical Mid-Atlantic soybean agriculture setting by 5 percent compared to the

¹⁴ U.S. Gov't Accountability Office. *Pesticides: EPA Should Take Steps to Improve Its Oversight of Conditional Registrations* 3 (Aug. 2013), available at <http://www.gao.gov/products/GAO-13-145>.

¹⁵ Sass, J. M. Wu. 2013. "Superficial Safeguards: Most Pesticides Are Approved by Flawed EPA Process." Natural Resource Defense Council. Available at: <http://www.nrdc.org/health/pesticides/files/flawed-epa-approval-process-IB.pdf>. (Accessed November 24, 2014).

¹⁶ Stokstad, E. 2013. How big a role should neonicotinoids play in food security? *Science*, 340: 675.

¹⁷ Soroka, JJ, et al. 2008. Impact of decreasing ratios of insecticide-treated seed on flea beetle feeding levels and canola seed yields. *J. Econ Entom*, 101(6): 1811-1820.

uncoated control seeds.¹⁸ EPA should act via Stop Sale, Use, or Removal Order to prohibit these products nationally, or at a minimum from the Mid-Atlantic Region market.

Furthermore, it would be irresponsible to delay needed regulatory action until completion of the planned Registration Review (now targeted vaguely between 2016-19). Instead, EPA should immediately impose registration suspensions or very strong label restrictions.

G. Complete Analyses on the Efficacy of the Use of Neonicotinoid-coated Seeds in Crops other than Soybeans

Similar analyses should be conducted for other crops that commonly use neonicotinoid-coated seeds. In particular, use of seed coating on corn should be analyzed as almost all of it is coated with clothianidin or thiamethoxam and it is planted on nearly 100 million acres, four times the area planted with coated soybean seeds. Corn seed is by far the largest single use of these damaging insecticides. It would be strongly in the public interest for EPA to engage in a comparable public comment process for that crop as it is engaged in for soybeans.

H. Upgrade EPA's Incident Reporting System for Dead Bees, Birds, and Other Wildlife

EPA needs to make incident reporting a priority, not just for bees but for birds, bats, and other wildlife as well. The agency needs to coordinate its own internal databases, sync its information with the newly developed Fish and Wildlife Service Injury and Mortality Reporting system, and fix the FIFRA 6(a)(2) incident reporting requirements. Furthermore, it needs to make these data-systems electronic. The current data-gathering deficit means that Registration Review decisions are rarely informed by incident data from the field.

Upgrading the EPA incident reporting system would be a relatively simple and low cost measure, with enormous benefits in our understanding of pesticide impacts on bees, birds, bats and other wildlife.

I. Require a National Pesticide Use Reporting System

A national pesticide use reporting system would provide realistic and comprehensive data on how and where pesticides are used across the United States. Said information would, among other things, significantly improve investigations into bee kills. Coated seeds must be included in the reporting system, as well as co-formulants used in pesticide products. The state of California Pesticide Use Reporting system is a working model for such a system, and with today's technology, a web-based system accessible to farmers for data upload and to others for data analysis would minimize cost and local efforts.

J. Strengthen and Clarify Pesticide Labels

¹⁸ Douglas MR, Rohr JR., Tooker JF. 2014. Neonicotinoid insecticide travels through a soil food chain, disrupting biological control of non-target pests and decreasing soybean yield. *Journal of Applied Ecology* doi: 10.1111/1365-2664.12372.

The recent changes to some neonicotinoid product labels are inadequate. Labels must be changed to fully protect pollinators and the broader environment from the toxic effects of systemic pesticides.

The Pollinator Stewardship Council recently submitted detailed analysis of the pollinator protection box now required on some foliar neonicotinoid product labels (see following page). Among other things, the Council's critique notes how not one of the five conditions in the new pollinator protection box takes into account the insecticide's systemic mode of action.

Similarly, the National Honey Bee Advisory Board has provided input on methods to mitigate some of the risks associated with the planting of neonicotinoid coated seed. For example, label requirements could stipulate coated seeds only be planted in accordance with Integrated Pest Management principles such as requiring scouting and field history information.

If the EPA is to successfully respond to the mounting concerns that neonicotinoids pose to native and managed bees as well as the broader environment, these recommendations must be heeded.

K. Implement Concrete Measures to Ensure Conservation Lands are Not Contaminated with Pesticides

The White House Task Force must take action to ensure that the lands and waters in pollinator habitat acquisition and conservation plans are not so contaminated with the neonicotinoids (or other pesticides) that the habitat becomes a sink rather than a source area for the species involved.

L. Comply with the Endangered Species Act

EPA acknowledges its failure to consult on the neonicotinoids with the U.S. Fish and Wildlife Service (FWS) or the National Marine Fisheries Service (NMFS), as required under Section 7(a)(2) of the Endangered Species Act (ESA). EPA admitted this in its 2014 "Response to Public comments" on its approval of a new, systemic, non-neonicotinoid insecticide, "cyantraniliprole."¹⁹

Despite this admission, EPA still has not initiated consultation on the potential effects of neonicotinoids on Federally-listed threatened and endangered species, including at least 41 listed pollinators.²⁰ It is unknown how many of the 880 ESA-listed plants require pollinators, but the

¹⁹ Response to Public Comments on EPA's "Proposed Registration of the New Active Ingredient Cyantraniliprole: An Insecticide for Use on Multiple Commodities, Ornamentals, Turfgrass, and in Commercial or Residential Buildings" at p. 40. Docket #: EPA-HQ-OPP-2011-0668-0058. 2014. At <http://www.regulations.gov/#!docketDetail;dct=FR+PR+N+O+SR;rpp=10;po=0;D=EPA-HQ-OPP-2011-0668> (last accessed, Aug. 21, 2014).

²⁰ FWS database. "Pollinators Federally-listed as Endangered or Threatened Species (updated 6/4/2012)"; online at: <http://www.fws.gov/pollinators/Programs/Endangered.html>.

number is no doubt substantial.²¹ The harm to species that pollinate these imperiled plants must be accounted for under the ESA.

M. This National Crisis Requires a Federal Response

While many states have initiated programs to address the crisis of pollinator declines, these local and statewide responses cannot take the place of a much needed federal regulatory structure. For example, many states have programs in place that facilitate communication between beekeepers and pesticide applicators. These programs have some ability to avoid acute bee-kill incidents. Yet, these programs fail to address the breadth of the problem. Most notably they do not respond to the systemic nature and long-term persistence of most neonicotinoids. Furthermore, they put a tremendous burden on beekeepers as in some cases, the pesticide applicator becomes free of any liability for damage done to either native or managed bees. Also with state specific solutions, beekeepers must be aware of and adapt to each individual state law as they move their bees through multiple states each year. Lastly, the state specific plans which emphasize increased communication between beekeepers and pesticide applicators does nothing to protect native bees that cannot be moved. One third of North America's native bumble bees are at risk of extinction.²²

Pesticide regulation is initiated at the federal level with states able to go beyond the federal baseline. However, states cannot institute regulation weaker than the Federal Insecticide Rodenticide and Fungicide Act. State pollinator plans must be in addition to a federal regulatory structure which provides consistency, oversight and clarity on methods to address the wide range of risks that neonicotinoids pose.

Also highlighting the need for a federal response to pollinator declines is the fact that current federal labels fail to avoid unreasonable harm to pollinators. That failing is outlined above in the section titled *Strengthen and Clarify Pesticide Labels*.

N. Best Management Practices are an Insufficient Response to the Magnitude of this Problem

While Best Management Practices (BMPs) are a valuable risk mitigation tool, alone they fail to respond to the grave concerns caused by neonicotinoids and other pesticides. BMP's are entirely voluntary, and significant bee kills could still occur even when the label is being followed. For example, last year the Almond Board of California came out with a set of BMP's.²³ The document notes that some insecticides are known to synergize with some fungicides and that tank mixes should be avoided. This language is likely in response to a devastating bee die off which occurred during 2014 almond pollination. The BMP document goes on to note that tank mixes are not a label violation, possibly deterring people from instituting these much needed

²¹ FWS database. "Listed plants" http://ecos.fws.gov/tess_public/pub/listedPlants.jsp.

²² R. Hatfield. Unpublished data. November 2014.

²³ Almond Board 2014. Bee BMPs. <http://www.almonds.com/growers/pollination#BeeBMPs>.

practices. Furthermore, the BMPs' quick guide for pesticide applicators does not even mention avoiding tank mixes, let alone their risk.

The only appropriate response to this and the many other concerns posed by pesticides is to improve, strengthen, and clarify the federal enforcement mechanisms of pesticide law.

IV. Conclusions

The preponderance of evidence shows that current registrations of persistent, systemic pesticides are causing unreasonable adverse effects on the environment and the economy. The Presidential Memorandum prompts EPA to take a comprehensive look at pesticides including neonicotinoids in order to identify the appropriate actions to protect pollinators. As the agency charged with registering pesticides, EPA has an opportunity to help protect our nation's pollinators and the biological diversity that they support.

If you have any questions, please do not hesitate to contact Lori Ann Burd, Environmental Health Director at the Center for Biological Diversity at 971-717-6405 or laburd@biologicaldiversity.org.

Thank you for your thoughtful response to this matter.

Sincerely,

Abanitu Organics
AFGE Local 3354
Alabama State Association of Cooperatives
American Bird Conservancy
Anne Arundel County Beekeepers
Appetite for Change
As You Sow
Atrisco Land Grant
Avaaz
Beyond Pesticides
Beyond Toxics
California Rural Legal Assistance Foundation
California State Grange
Californians for Alternatives to Toxics
Californians for Pesticide Reform
Catholic Rural Life
Center for Biological Diversity
Center for Environmental Health
Center for Food Safety

Center for Reflection, Education and Action
Central Iowa Beekeepers Assn
Central Maryland Beekeepers Association
Colorado State Beekeepers Association
Community Alliance with Family Farmers
Community Food & Justice Coalition
Consumers Union
Dignity Health
Doan Family Farms
Ecohermanas
Ecological Farming Association
Ecology Center
Ecumenical Eco-justice Network
Environment America
Environment Arizona
Environment California
Environment Colorado
Environment Connecticut
Environment Florida
Environment Georgia
Environment Illinois
Environment Iowa
Environment Maine
Environment Maryland
Environment Massachusetts
Environment Michigan
Environment Minnesota
Environment Missouri
Environment Montana
Environment Nevada
Environment New Hampshire
Environment New Jersey
Environment New Mexico
Environment New York
Environment North Carolina
Environment Ohio
Environment Oregon
Environment Rhode Island
Environment Texas
Environment Virginia

Environment Washington
Factory Farming Awareness Coalition
Farmworker Association of Florida
Florida Organic Growers
Food & Water Watch
Food Democracy Now!
Friends of the Earth - US
Georgia Organics
Global Bees
Green America
Green Century Capital Management
Greenpeace
Indigenous Environmental Network
Institute for Agriculture and Trade Policy
Kansas Rural Center
La Mujer Obrera
Land Stewardship Project
Maine Organic Farmers and Gardeners Association
Maryknoll Office for Global Concerns
Maryland Ornithological Society
Maryland Pesticide Network
Miller/Howard Investments, Inc.
Missionary Oblates
MOMS Advocating Sustainability (MOMAS)
National Family Farm Coalition
National Hmong American Farmers
National Latino Farmers and Ranchers Coalition
National Organic Coalition
National Organic Dairy Producers Alliance
Nebraska Sustainable Agriculture Society
North Carolina Association of Black Farmers Land Loss Prevention Project
Northeast Sustainable Agriculture Working Group
Northern Plains Sustainable Ag Society
Northwest Center for Alternatives to Pesticides
Northwest Coalition for Responsible Investment
Natural Resources Defense Council
Occidental Arts and Ecology Center
Oklahoma Black Historical Research Project
Old Mill Honey Co
Olympia Beekeepers Association

Operation Spring Plant
Orange County Food Access Coalition
Organic Consumers Association
Penn Environment
People and Pollinators Action Network
Pesticide Action Network North America
Pollinate Minnesota
Pollinator Friendly Alliance of Stillwater
Portfolio Advisory Board of the Adrian Dominican Sisters
Roots of Change
Rural Advancement Fund International - USA
Rural Coalition
Rural Development Leadership Network
Sierra Club
Sisters of Charity Health System
Sisters of St. Francis of Philadelphia
Slow Food USA
SumofUs
The Endocrine Disruption Exchange
The Farmers Guild
The Indian Nations Conservation Alliance
Toxic Free NC
Trillium Asset Management, LLC
United Methodist Caretakers of God's Creation
Washington State Beekeepers Association
Why Hunger
Wild Farm Alliance
Wisconsin Environment
Women, Food and Agriculture Network
World Farmers

c.c.

White House Pollinator Task Force c/o Michael Stebbins, Assistant Director, Biotechnology,
White House Office of Science and Technology Policy
Dan Ashe, Director, U.S. Fish and Wildlife Service
Tom Vilsack, Secretary, USDA
Gina McCarthy, Administrator EPA
Jim Jones, Assistant Administrator, EPA Office of Chemical Safety and Pollution Prevention
Jack Housenger, Director, EPA Office of Pesticide Programs