NORTHWEST CENTER FOR ALTERNATIVES TO PESTICIDES

May 7, 2019

House Rules Committee
Oregon Legislature
900 Court St. NE,
Salem Oregon 97301

Dear Members of the House Rules Committee,

Northwest Center for Alternatives to Pesticides (NCAP) submits this written testimony to urge your support and passage of House Bill 2619.

HB 2619 would prohibit the use and sale of an insecticide called chlorpyrifos in Oregon. As proponents of sustainable agriculture, healthy communities and clean water, we believe this ban is vital to the long-term health of our beautiful state.

Chlorpyrifos has detrimental effects on human and environmental health. While we know that this chemical is a tool upon which farmers in Oregon have relied, there are safe, viable alternatives and practices. We host educational events with farmers throughout the Northwest, and we have seen these alternatives demonstrated firsthand.

We know that legislators are reluctant to take tools out of farmers' hands. But in this case, the risk of leaving things as they are is too great. Additionally, many growers already recognize that harsh, broad-spectrum pesticides like chlorpyrifos result in resistance – the bugs evolve a tolerance to the pesticide and come back even stronger. As a result, many growers (who are not organic) know that it is their long-term best interest to move to more sustainable pest management practices.

Safe Alternative Strategies Exist to Reduce Insect Pressure in Many Crops
Instead of trading one chemical for another, many growers already utilize safe, alternative strategies to reduce insect pressure. Our extension services continue to work to develop new methods. Some that work include:

- Planting pest-resistant cultivars when available.
- Preventing or suppressing pests with cultural strategies to make the area less hospitable to the pest. For example, delaying planting dates can inhibit pests such as flea beetles and cabbage maggots. Certain crop rotations interrupt the life cycle for corn rootworm, wireworms, Colorado potato beetle, and symphylans.[1] Removing known alternate hosts reduces pest resources.

[1] Stoner, K. 2009. Management of insect pests with crop rotation and eld layout. http://www.sare.org/Learning-Center/Books/Crop-Rotation-on-Organic-Farms/Text-Version/Physical-and-Biological-Processes-In-Crop-Production/Management-of-Insect-Pests-with-Crop-Rotation-and-Field-Layout. Also see Umble J. [and others]. 2006. Symphylans: Soil Pest Management Options. https://attra.ncat.org/attra-pub/viewhtml.php?id=127ATTRA.

- Pheromones (chemicals produced by an insect to communicate) are used in many crops for mass trapping or mating disruption, suppressing insect populations. Mating disruption for codling moth is currently used on 90% of the apple and pears grown in Washington State and is an increasingly used option in Oregon crops like hazelnuts.
- Using exclusion or barrier techniques.
- Supporting biological pest control by natural enemies (predators or parasites that feed on the pest insect). Many biocontrols can be purchased from commercial providers. Conserving or creating on-farm or garden habitats (such as beetle banks, cover crops, alley cover crops or hedgerows) also supports native natural enemies.[2] As a bonus, such habitats also provide habitat for native pollinators, important to many Oregon crops.
- Mass-trapping pests using trap crops, pheromone technology or baits. Mass-trapping with the aid of a pheromone was found to significantly reduce western flower thrip in strawberries.[3] In Washington and Idaho, trap crop designs including mustard, rape, and pak choi were found to reduce populations of flea beetles on broccoli more effectively than trap crops with only one species.[4]

Why is Chlorpyrifos Dangerous?
Let's back up and talk about the dangers of chlorpyrifos. Aside from the issue of pest resistance, there are some serious and urgent reasons why we need to ban chlorpyrifos now.

Chlorpyrifos is Dangerous for Anyone Near an Application
Chlorpyrifos is so toxic that even a football field away from an application is not far enough to avoid risk. The EPA states in its 2016 risk assessment[5] that, in order to reduce human safety risks from drift and volatilization near an application, buffers greater than 300 feet are needed. But buffers of these widths are not currently mandated on labels, and in Oregon, farmworker housing, schools, and other farms are commonly located much closer to an application than 300 feet.

Chlorpyrifos in Our Food Exposes All of Us to Substantial Doses of a Neurotoxin
Chlorpyrifos is widely used and applied on a wide variety of crops, so perhaps it is not surprising that it is found in our food at dangerous levels. According to the EPA, in an average diet, Americans unknowingly consume high amounts of chlorpyifos, resulting in exposures

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[2] Mader, E., J. Hopwood [and others]. 2014. Farming with native beneficial insects.The Xerces Society: Storey Publishing.

[3] Sampson C, and W. Kirk. 2013. Can mass trapping reduce thrips damage and is it economically viable? Management of the Western ower thrips in strawberry. PLoS ONE 8(11): e80787. https://doi.org/10.1371/journal.pone.0080787.

[4] Parker, J., D. Crowder [and others]. 2016.Trap crop diversity enhances crop yield.Agriculture, Ecosystems and Environment 232:254-262. http://entomology.wsu.edu/david-crowder/ les/2016/09/2016_parker-et-al_ag-ecosyst-environ.pdf.

[5] U.S. Environmental Protection Agency. 2016. Chlorpyrifos: Revised Human Health Risk Assessment for Registration Review. https://www.regulations.gov/document?D=EPA-HQ-OPP-2015-0653-0454

many times levels EPA deems safe. Shockingly, children ages one to two consume chlorpyrifos in food at levels 140 times their "safe" level, according to EPA estimates.[6]

Chlorpyrifos is Harmful to Farmworkers and Their Children

While chlorpyrifos was deemed harmful enough to human health that it was banned years ago for most residential uses, those who grow our food are not protected, absorbing chlorpyrifos through the skin and inhalation as they pick and pack and tend the crops. Not only is this risky for the workers themselves – it is also bad news for the children of farmworkers.

Several longitudinal studies spanning two decades have allowed us to glimpse a fact that might seem amazing – when pregnant women are exposed to organophosphate pesticides like chlorpyrifos, their children suffer brain development disorders.[7] Studies have shown that of the children born to exposed mothers, infants tend to have slower reflexes,[8] toddlers exhibit autism-like disorders,[9] and seven-year-olds tested with IQs, on average, seven points behind their peers.[10]

And the children of farmworkers are often directly exposed to pesticides as well – by their proximity to the fields while living in substandard migrant housing, and by unknowingly coming into contact with the pesticide residues on the clothing or shoes of their parents when they return from the fields.

EPA's Own Scientists Recommended a Ban

All of the above-listed human health consequences are well known to the EPA and were documented in its 2016 human health risk assessment. EPA proposed to ban chlorpyrifos use on food crops in 2015, then reversed itself in 2017, keeping it on the market despite its known harms. The New York Times reports that the chemical's manufacturer (Dow Chemical Company) conducted heavy lobbying prior to EPA's 2017 decision, and contributed $1 million to President Trump's inaugural committee.[11]

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[6] Ibid.

[7] See studies at https://cerch.berkeley.edu/ for CHAMACOS studies, a longitudinal birth cohort study which investigates pesticide and other environmental exposures on the health and development of children living in agricultural communities in the Salinas Valley, California. Other longitudinal studies have found similar results. See studies conducted by Columbia University at https://ccceh.org/and at the Mount Sinai Children's Environmental Health Study (https://icahn.mssm.edu/about/departments/environmental-public-health/cehc).

[8] Young. J., B. Eskanazi [and others] 2005. Association between in utero organophosphate pesticide exposure and abnormal reflexes in neonates. Neurotoxicology 26(2):199-209. https://www.ncbi.nlm.nih.gov/pubmed/15713341

9 Sagiv, S., M. Harris [and others]2018. Prenatal Organophosphate Pesticide Exposure and Traits Related to Autism Spectrum Disorders in a Population Living in Proximity to Agriculture. Environ. Health Perspect. 126(4): 047012. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6071837/

10 Bouchard MF, Chevrier J, Harley KG, Kogut K, Vedar M, Calderon N, et al. 2011. Prenatal Exposure to Organophosphate Pesticides and IQ in 7-Year- Old Children. Env. Health Perspect. 119:1189-1195. doi:10.1289/ehp.1003185

[11] Lerner, S. 2017. Protect Our Children's Brains. New York Times, February 3, 2017. https://www.nytimes.com/2017/02/03/opinion/sunday/protect-our-childrens-brains.html?_r=0

Chlorpyrifos is Detected in Oregon's Streams and Rivers at Extremely High Levels
To cap it off, chlorpyrifos also gets into our streams, threatening our already diminished salmon and steelhead. Chlorpyrifos is regularly detected in Oregon streams at levels far above its Clean Water Act standard, sometimes at levels hundreds of times higher than this safety threshold.[12] And the trend is worsening in some areas, including in the Middle Deschutes, Yamhill, and Walla Walla watersheds. Concentrations similar to those found in Willamette Valley streams have been found to:

- Kill salmon prey, such as caddisflies, mayflies, stoneflies, and daphnids.[13]
- Affect fish ability to smell and swim, both critical salmonid behaviors.[14]
- Become more toxic as water warms. At 66°F, chlorpyrifos is seven times more toxic to trout than at 55°F.[15]

The country's premier fish agency has weighed in on chlorpyrifos and its effect to threatened and endangered salmon and steelhead, with a dire warning. In 2017, the National Marine Fisheries Service determined that chlorpyrifos jeopardizes the survival and recovery of all listed salmon and steelhead in Oregon, Washington and California. Orca whales in Washington are also jeopardized by chlorpyrifos.

We urge you to please support HB 2619, which will protect Oregon children, farm workers, farmers, and fish.

Thank you for the opportunity to express our support for this bill.

Sincerely,

Sharon Selvaggio
Northwest Center for Alternatives to Pesticides

[12] See monitoring studies under Oregon's Pesticide Stewardship Partnership Program at https://www.oregon.gov/ODA/shared/Documents/Publications/PesticidesPARC/GreaterYamhillSummary.pdf and https://www.oregon.gov/ODA/shared/Documents/Publications/PesticidesPARC/ClackamasSummary.pdf

[13] U.S.EPA. 2003. Chlorpyrifos Analysis of Risks to Endangered and Threatened Salmon and Steelhead. Office of Pesticide Programs. Cited in National Marine Fisheries Service. 2008. pp. 269-271. See also National Marine Fisheries Service. 2017. Endangered Species Act Section 7 Final Biological Opinion: Environmental Protection Agency's Registration of Pesticides Containing Chlorpyrifos, Diazinon and Malathion, p. B-16.

[14] Sandahl J., Baldwin D. [and others]. 2004. Odor-evoked field potentials as indicators of sublethal neurotoxicity in juvenile coho salmon (Oncorhynchus kisutch) exposed to copper, chlorpyrifos, or esfenvalerate. Canadian Journal of Fisheries Aquatic Sciences 64:404-413. See also Sandahl J., Baldwin D. [and others]. 2005. Comparative thresholds for acetylcholinesterase inhibition and behavioral impairment in coho salmon exposed to chlorpyrifos. Environmental Toxicology and Chemistry 24:136-145.

[15] National Marine Fisheries Service. 2008. Endangered Species Act Section 7 Consultation Biological Opinion. U.S.EPA Registration of Pesticides Containing Chlorpyrifos, Diazinon, and Malathion. See pages 269-270.