Senate Environment and Natural Resources
900 Court St. NE
Salem, Oregon 97301

2/20/2020

Dear Chair Dembrow, Vice-Chair Olsen and Members of the Senate Environment and Natural Resources,

Our organizations strongly recommend the passage of **HB 4109,** a bill to phase-out chlorpyrifos use in Oregon by 2022. As detailed below, the scientific evidence is clear that continued use of chlorpyrifos in Oregon presents unacceptable risks to the health of children and farmworkers and immediate action is needed to reduce, and eventually eliminate, this risk for these vulnerable populations. Furthermore, regarding endangered species, the EPA finds that the Agency's registration of chlorpyrifos is likely to adversely affect 97% of all threatened and endangered species.[1]

Beyond Toxics is Oregon's oldest environmental justice organization representing many thousands of members across Oregon who value environmental health, climate justice and protection for children, pregnant women and Oregon's hardworking, impacted communities of farm workers and their families.

The Western Environmental Law Center uses the power of the law to safeguard the public lands, wildlife, and communities of the American West in the face of a changing climate. Based in Eugene, Oregon, the Western Environmental Law Center also runs the Environmental Law Clinic at the University of Oregon School of Law.

Our organizations are part of a larger coalition who support the phase-out of chlorpyrifos accompanied by an immediate ban on aerial applications of chlorpyrifos, 300 ft. no-spray buffer zones and greater protections for farm workers who are assigned to re-enter areas previously sprayed with this insecticide.

HISTORY. Chlorpyrifos is a toxic pesticide derived from a nerve gas developed by Germany for use in WWII.[2] Today, chlorpyrifos has been repurposed as an organophosphate insecticide which in higher doses can cause acute, neurotoxic poisoning.[3] According to the 2008 Pesticide Use Report published by the Oregon Department of Agriculture, and the last time the Agency collected pesticide usage data, 184,265 pounds of chlorpyrifos were applied in our state.[4]

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[1] https://www.epa.gov/endangered-species/biological-evaluation-chapters-chlorpyrifos-esa-assessment#executivesummary
[2] Associated Press. (2017). Dow Chemical is pushing Trump administration to ignore studies of toxic pesticide. *Los Angeles Times*. Retrieved from http://www.latimes.com/business/la-fi-dow-pesticides-trump-20170420-story.html
[3] Environmental Protection Agency (2018, September 24). Chlorpyrifos. *Environmental Protection Agency.* Retrieved from https://www.epa.gov/ingredients-used-pesticide-products/chlorpyrifos
[4] Retrieved from https://www.oregon.gov/ODA/shared/Documents/Publications/PesticidesPARC/PesticideusereportingsystemAnnualreport2008.pdf

Oregonians regularly come into contact with chlorpyrifos through residue on food and contaminated drinking water and air. In 2015, a Food and Drug Administration study found that chlorpyrifos is the fourth most common pesticide found as a residue on human foods.[5]

CHLORPYRIFOS & CHILDREN'S HEALTH IMPACTS. For nearly two decades, the EPA has documented adverse effects of chlorpyrifos on the physical and mental development of infants and children.[6] In 2000, the registrants and EPA agreed to phase out almost all residential uses. In November 2016, the US EPA revised their human health risk assessment which included setting tolerances on the maximum residue of a pesticide that can be in or on food.[7] The Agency's revised analysis shows risks from residues of chlorpyrifos on food crops and drinking water. The Agency concluded that chlorpyrifos residues on foods present especially high risks for children, particularly ages 1-2, finding that exposures from food exceed the EPA's safety threshold by 140 times.[8] Due to the inability to make a safety finding, the EPA proposed revoking all chlorpyrifos tolerances for food and water residues.[9] Following action by one EPA director in 2017, the plan to revoke chlorpyrifos tolerances for food and water residues was reversed.[10]

Not only is the science data clear on the health risks from exposure to chlorpyrifos residue on food and in drinking water, the US EPA also researched pesticide drift from agricultural applications and found evidence of risk of exposure from the borders of the sprayed field. The US EPA conducted quantitative non-occupational spray drift (from treatment of agricultural fields) assessments. The Agency found that adult dermal and children's (1-2 year old) dermal and incidental oral risk estimates from indirect exposure to chlorpyrifos from spray drift result in risk estimates of concern. As a result, the Agency concluded that all scenarios require buffer distances of more than 300 feet to fall below the level of concern.[10] The State of California also determined that chlorpyrifos is a toxic air contaminant and found it necessary to phase-out chlorpyrifos due to the risk from inhalation from drift.[11]

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[5] Smart on Pesticides Maryland. (2019). The 2019 Maryland Chlorpyrifos Ban Bill, HB275/SB270. *Maryland Pesticide Network Maryland Pesticide Education Network*. Retrieved from http://www.mdpestnet.org/take-action/smart-on-pesticides-maryland/

[6] *League of United Latin Am. Citizens v. Wheeler*, 899 F.3d 814 (9th Cir. 2018).

[7] U.S. Environmental Protection Agency, Chlorpyrifos; Tolerance Revocations; Notice of Data Availability and Request for Comment, 81 Federal Register 81049, November 17, 2016; *see also* U.S. Environmental Protection Agency, Chlorpyrifos Revised Human Health Risk Assessment for Registration Review, Nov. 3, 2016 (available at https://www.regulations.gov/document?D=EPA-HQ-OPP-2015-0653-0454).

[8] U.S. Environmental Protection Agency, Chlorpyrifos Revised Human Health Risk Assessment for Registration Review, Nov. 3, 2016, at 6 (available at https://www.regulations.gov/document?D=EPA-HQ-OPP-2015-0653-0454).

[9] U.S. Environmental Protection Agency, Chlorpyrifos; Tolerance Revocations; Notice of Data Availability and Request for Comment, 81 Federal Register 81049, November 17, 2016

[10] This decision was challenged in court, and the Ninth Circuit Court of Appeals ultimately concluded that because the EPA's 2016 risk assessment concluded continued use of chlorpyrifos did not meet federal safety standards and that chlorpyrifos residues on food exceeded the "reasonable certainty of no harm" safety standard, there was no justification for EPA continuing to allow chlorpyrifos on food crops. *League of United Latin American Citizens v. Wheeler*, 899 F.3d 814, 829 (9th Cir. 2018). [10] U.S. Environmental Protection Agency, Chlorpyrifos Revised Human Health Risk Assessment for Registration Review, Nov. 3, 2016, at 6 (available at https://www.regulations.gov/document?D=EPA-HQ-OPP-2015-0653-0454).

[11] Found at https://www.cdpr.ca.gov/docs/pressrls/2018/111518.htm

The harmful effects of chlorpyrifos exposure to children are well documented and include health problems in children such as reduced IQ, loss of working memory and attention deficit disorder.[12] Evidence of neurotoxic effects of organophosphate exposures were carried out in Oregon. Studies by OHSU scientists regarding chlorpyrifos exposure in workers living nearby residential areas showed that children were more likely to develop measurable neurodevelopmental disorders.[13]

The American Academy of Pediatrics further found that *"studies suggested that prenatal chlorpyrifos exposure directly correlates with long-term adverse neurodevelopmental impacts."*[14] In addition, new peer-reviewed research is finding that chlorpyrifos exposure may be linked to cancer, including family members of pesticide applicators.[15]

UNUSUAL ENVIRONMENTAL EXPOSURES CAUSING HARM. Another reason to phase-out all uses of chlorpyrifos is its ability to adhere to or get absorbed by items that children are likely to touch.[16] This is especially important for exposure to pesticides such as chlorpyrifos that have an affinity to drift and be absorbed onto dust and soil particles and plastic toys and into the polyurethane foam that is used in many stuffed animals.[17] Thus, to achieve the goal to reduce bystander exposure and to eliminate the danger of chlorpyrifos exposure for children, not only near agricultural application sites, but also from contact with surfaces that may serve as sources for toxic constituent transfer, *chlorpyrifos is simply not safe for any uses*. The leading science on this issue concluded that "[r]outine reapplication of pesticides could lead to continued accumulation in toys and other absorbent surfaces, e.g., pillows, which can become a long-term source of exposure to a child."[18]

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[12] Raugh, V., Arunajadai, S. Horton, M. Perera, F., Hoepner, L., Barr, D.B., & Whyatt, R., *Seven-year Neurodevelopmental Scores and Prenatal Exposure to Chlorpyrifos, A Common Agricultural Pesticide*, Environmental Health Perspectives, 119(8), 1196 (2011); see also, Furlong, M.A., Engel, S.M., Barr, D.B., & Wolff, M.S., *Prenatal Exposure to Organosphate Pesticides and Reciprocal Social Behavior in Childhood*, Environment International, 70, 125-131 (2014); see also, Khan, K., Ismail, A.A., Rasoul, G.A., Bonner, M.R., Lasarev, M.R., Hendy, O.,…& Rohlman, D.S., *Longitudinal Assessment of Chlorpyrifos Exposure and Self-Reported Neurological Symptoms in Adolescent Pesticide Applicators*, BMJ open, March 4, 2014 (available at: http://bmjopen.bmj.com/content/4/3/e004177.short); see also, Qiao, D., Seidler, F.J., Tate, C.A., Cousins, M.M. & Slotkin, T.A., *Fetal Chlorpyrifos Exposure: Adverse effects on Brain Cell Development and Cholingeric Biomarkers Emerge Postnatally and Continue Into Adolescence and Adulthood*, Environmental Health Perspectives, 111(4), 5e36-544.

[13] Rothlein, J., Rohlman, D., Lasarev, M., Phillips, J., Muniz, J., and McCauley, L., *Organophosphate Pesticide Exposure and Neurobehavioral Performance in Agricultural and Nonagricultural Hispanic Workers.* Environmental Health Perspectives, 114(5), May 2006.

[14] Brief for the American Academy of Pediatrics as Amici Curiae, P. 18, *League of United Latin American Citizens v. Wheeler*, Case No. 19-71979 (9th Cir. 2019).

[15] C. Ventura et al., *Effects of the pesticide chlorpyrifos on breast cancer disease. Implication of epigenetic mechanisms,* Journal of Steroid Biochemistry and Molecular Biology 186 (2019) 96—104.

[16] Gurunathan, S., Robson,M., Freeman, N., Buckley, B., Roy, A., Meyer, R., Bukowski, J., and Lioy, P., *Accumulation of Chlorpyrifos on Residential Surfaces and Toys Accessible to Children.* Environmental Health Perspectives, Vol. 106, No 1, January 1998.

[17] Gurunathan, S., Robson,M., Freeman, N., Buckley, B., Roy, A., Meyer, R., Bukowski, J., and Lioy, P., *Accumulation of Chlorpyrifos on Residential Surfaces and Toys Accessible to Children.* Environmental Health Perspectives, Vol. 106, No 1, January 1998.

[18] Gurunathan, S., Robson,M., Freeman, N., Buckley, B., Roy, A., Meyer, R., Bukowski, J., and Lioy, P., *Accumulation of Chlorpyrifos on Residential Surfaces and Toys Accessible to Children.* Environmental Health Perspectives, Vol. 106, No 1, January 1998.

Chlorpyrifos use in Oregon has caused lasting harm to human health. A chlorpyrifos drift case investigated by the Oregon Department of Agriculture in 2019 (ODA Case #200201) was initiated after a young child became quite ill following a commercial chlorpyrifos application on an adjacent property. The pesticide application was made in July 2019 but the investigation was not initiated until November, four months later. The Agency took samples to test for evidence of chlorpyrifos residues that may have drifted onto the family's residential property. Lab results showed that chlorpyrifos had drifted offsite and its residues were detectable on the complainant's property in amounts exceeding health standards more than four months after the spray event. Thus, chlorpyrifos remains active in the environment for lengthy amounts of time, potentially available for dermal or oral exposure. Proof of environmental persistence exists here in Oregon with data gathered by Oregon's pesticide regulatory agency.

FARWORKER EXPOSURES. Farmworkers in Oregon are exposed to chlorpyrifos when mixing and applying pesticides containing chlorpyrifos, when working near areas where chlorpyrifos is sprayed or when working in farm fields that contain chlorpyrifos residue from previous applications. Farmworker families are exposed to chlorpyrifos through pesticide drift from spraying applications, from residues on work clothing, through contact with the hair and skin of farmworker family members, and from water contaminated by chlorpyrifos.[19] Even when using protective gear, farmworkers are exposed to unsafe levels of chlorpyrifos creating health risks for farmworkers and their families.[20]

Chlorpyrifos is often sprayed on Christmas trees just before they are harvested for sale. This poses a risk of exposure to Christmas tree workers and U-Cut customers and their families. There are safer alternatives that are just as effective as chlorpyrifos. These alternative pesticides and/or pest management practices can address challenging pests on farms, orchards, golf courses and general land care. According to the Pesticide Research Institute— an environmental consulting firm that provides research, analyzes, technical services and expert consulting on pesticide toxicology and chemistry— there are 67 safer insecticides available to treat Christmas tree or conifer pests, 178 safer insecticides for apple tree pests, and 98 safer insecticides for turf/lawn or grass seed pests.[21] With a significant amount of alternatives available to manage Oregon crop pests, workers and families should not be exposed to this neurotoxin.

OREGON IS ON RECORD SUPPORTING ENDING CHLORPYRIFOS USE. On August 7, 2019, the states of New York, California, Washington, Maryland, Vermont and Massachusetts petitioned the Ninth Circuit Court of Appeals for review of the EPA's July 2019 order permitting the

[19] Raymer JH, Studabaker WB, Gardner M, Talton J, Quandt SA, Chen H, Michael LC, McCombs M, Arcury TA, *Pesticide Exposures to Migrant Farmworkers in Eastern NC: detection of metabolites in farmworker urine associated with housing violations and camp characteristics,* AM. J. Ind. Med., 57(3), 323-337, March 2014.

[20] U.S. Environmental Protection Agency, *Chlorpyrifos: Revised Human Health Risk Assessment for Registration Review*, 36-37, November 3, 2016.

[21] Pesticide Research Institute. (2019). Pesticide Product Evaluator. *Pesticide Research Institute*. Retrieved from http://pesticideresearch.com/site/evaluator/

continued use of chlorpyrifos.[22] On September 6, 2019, Oregon Attorney General Ellen Rosenblum petitioned to intervene in the suit to join the coalition of states seeking to prevent continued use of chlorpyrifos.[23] A.G. Rosenblum's petition states Oregon's interest in discontinuing the use of chlorpyrifos as follows:

> *"Approximately five million pounds of chlorpyrifos are applied to food crops annually in the United States. It is used on a wide variety of foods that are eaten by Oregon's residents, including infants and children who are especially susceptible to its adverse health effects. Oregon's residents consume fruits and vegetables grown throughout the United States that contain chlorpyrifos residues at levels for which EPA has not issued a current finding of safety."*[24]

Furthermore, the Attorney General's office highlighted its basis of concern for adverse health impacts, stating:

> "*Oregon has an interest in ensuring that its residents are afforded the protection of federal pesticide safety standards and that the burden of health care and other costs on petitioners does not increase due to the adverse health effects of continued exposure to chlorpyrifos residues at levels for which EPA has not made a current finding of safety."*[25]

The Oregon Attorney General reasoned that intervening in the federal case would *"afford Oregon a voice on the continued use of chlorpyrifos, an issue of national significance to be sure but which specifically affects the daily lives of millions of Oregon residents."*[25]

FACTS ABOUT ALTERNATIVES. Some legislators have mentioned they were told that products with the active ingredient of pyrethrins and pyrethroids are more harmful to children than chlorpyrifos, with the assumption that therefore chlorpyrifos is the lesser of two evils. According to assessments by the US EPA, this is not true. As an initial matter, all pesticide products are harmful for children because their bodies are still developing and they play on the ground, put things in their mouths, breathe more air and eat more food per pound of body weight than adults. Products with pyrethrins and pyrethroids, such as bifenthrin are still labeled for use in homes and residential areas as well as commercial agricultural uses. Bifenthrin was first registered in the US in 1985, making it a newer pesticide than chlorpyrifos which was registered in the 1960's. Bifenthrin and other pyrethrin products are used to treat ants, termites and many other boring or biting insects. In comparison to *chlorpyrifos, which were banned from home and residential uses in 2000,* the US EPA continues to register the use of pyrethrins and pyrethroids in the home.

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[22] *New York et al. v. Wheeler*, Petition for Review, Case No. 19-71982 (9th Circuit Court of Appeals, August 7, 2019).
[23] *Oregon Sues EPA Over Toxic Pesticide in Food*, Oregon Department of Justice Media, September 6, 2019 (available at: https://www.doj.state.or.us/media-home/news-media-releases/oregon-sues-epa-over-toxic-pesticide-in-food/).
[24] Motion for Leave to Intervene and Join with the State Petitioners by the State of Oregon, Pg. 3, *League of United Latin American Citizens v. Wheeler*, Case No. 19-71982 (9th Cir. 2019). [25] See, *Id* at 3.
[25] See, *Id* at 4.

The US EPA published an assessment of the risks of bifenthrin, a commonly used pyrethrin product.[26] The EPA concluded: "Based on these risk assessments…there is a reasonable certainty that no harm will result to the general population and to infants and children from aggregate exposure to bifenthrin."[27] This is a much different conclusion than the one reached by the EPA on chlorpyrifos when it determined that there are no safe levels of chlorpyrifos exposures in food and drinking water for infants and children.

The argument that a compound ***not allowed*** to be used in the home is safer than one whose use is allowed in the home is fallacious. Such inaccurate arguments are simply a red herring aimed at distracting from the several uncontroverted and well-documented negative health effects associated with chlorpyrifos exposure.

IN CONCLUSION. Taking into account the history of the EPA's assessment of the health risks of chlorpyrifos, significant body of peer reviewed scientific studies concerning the health risks, particularly for children exposed in utero, as well as the official stance of the State of Oregon in federal litigation surrounding chlorpyrifos, we believe it is necessary for the State of Oregon to join the states of Hawaii, California and soon New York to phase out the sales and uses of chlorpyrifos. Oregon children and farmworkers deserve to be free to live in our great state without the risk of being exposed to an unquestionably harmful neurotoxin. Continued use of chlorpyrifos for the economic gain of a few does not justify the unacceptable health risks to our most vulnerable populations.

Under this Senate Committee's leadership, we have the opportunity to reduce adverse health impacts to vulnerable populations and some of Oregon's hardest working employees. HB 4109 would allow for a healthier future not only for current Oregonians, but future generations as well. Additionally it will protect the continued existence of dozens of threatened and endangered species, including numerous Oregon salmon species[28].

Thank you for your courage and leadership on this pressing public health and environmental justice issue. We urge you to support HB 4109 to phase-out chlorpyrifos in 2022, and immediately end aerial sprays, establish 300 ft. no-spray buffers zones for homes and schools, and increase re-entry intervals to protect farm workers.

Respectfully submitted by,
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[26] *See* Bifenthrin Pesticide Tolerance Final Rule, 65 Fed. Reg. 42863, July 12, 2000.
[27] Bifenthrin Pesticide Tolerance Final Rule, 65 Fed. Reg. 42863, 42864, July 12, 2000.
[28] See https://repository.library.noaa.gov/view/noaa/16997