

CHLORPYRIFOS

What you should know about this widely used pesticide in the U.S.

How am I exposed?

- Agricultural drift from nearby farms
- Residue on fruits and vegetables
- Contaminated drinking water (no safe levels)
- Household roach control
- Contact with soils²
- Especially harmful to fetuses and newborns as developing brains are most susceptible to harmful effects³

What are the health outcomes?

- Mild exposures: runny nose, headaches, nausea, dizziness
- Severe exposures: vomiting, convulsions, paralysis, death¹
- Prenatal exposures: lower birth weight, lower IQ, loss of working memory, higher likelihood of ADHD and autism⁴
- Suggested incidences of lung cancer⁵

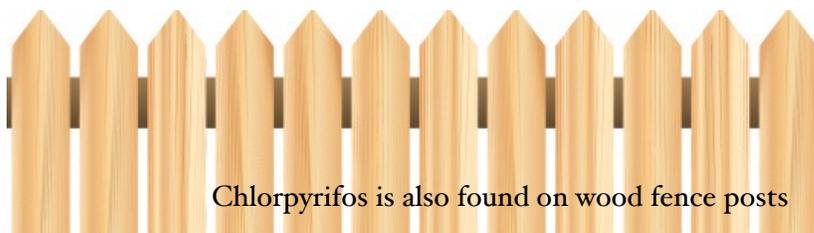
Uncertainties

- Uncertainties due to limited epidemiological studies and possible confounding variables (exposure to multiple pesticides)⁵



What is chlorpyrifos?

Chlorpyrifos is one of the most commonly used pesticides in the U.S., with over 10 million pounds applied annually to crops.¹ It is an organophosphate, a class of pesticides which inhibits the enzyme acetylcholinesterase, thereby reducing the function of neurotransmitters. Essentially, chlorpyrifos works well on pests by inhibiting their nervous systems, but works the same way on humans.



Chlorpyrifos is also found on wood fence posts

¹NRDC and PANNA. 2007. "Proposal to Revoke All Tolerances and Cancel All Registrations for the Pesticide Chlorpyrifos."

²NPIC. 2009. "Chlorpyrifos Technical Fact Sheet." Retrieved Nov. 29, 2017 (<http://npic.orst.edu/factsheets/archive/chlorpotech.html>).

³EarthJustice. 2017. "What You Should Know: Chlorpyrifos." Retrieved Nov. 29, 2017 (<https://earthjustics.org/features/what-you-need-to-know-about-chlorpyrifos>).

⁴Shelton, Janie F., et al. 2014. "Neurodevelopmental Disorders and Prenatal Residential Proximity to Agricultural Pesticides: The CHARGE Study." *Environmental Health Perspectives* 122:1103-09.

⁵Lee, Won J., et al. 2004. "Cancer Incidence Among Pesticide Applicators Exposed to Chlorpyrifos in the Agricultural Health Study." *Journal of the National Cancer Institute* 96(23):1781-89.



Regulations

- 2000: residential use banned, except for pest baiting
- 2007: petition by NRDC and PANNA to ban all use
- 2015: EPA proposes ban in response to petition, choosing precautionary approach
- 2017: Scott Pruitt takes over EPA administration, rejects proposal and continues use³

**“An apple a day
won’t keep the
doctor away if it
has pesticides in
it.”**

- Eveline

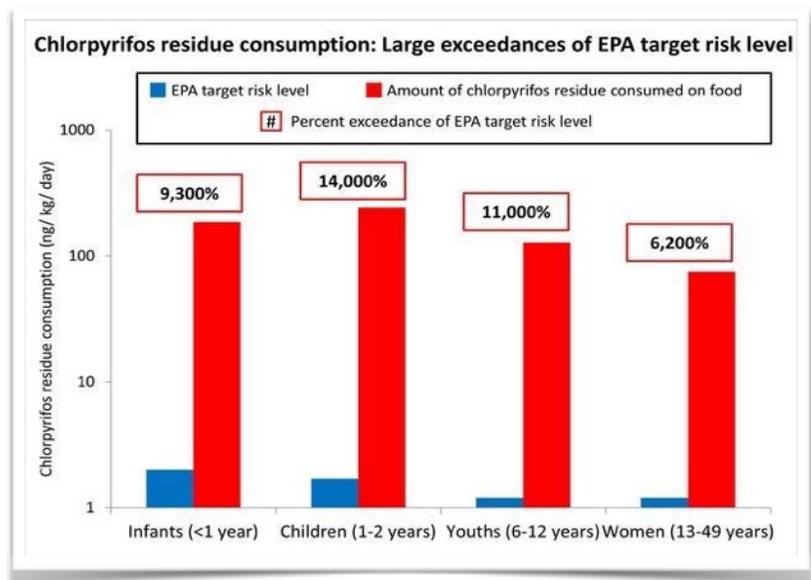
Ellicott City, MD³

Political biases

The current administrator of the EPA, Scott Pruitt, has actively prevented the banning of chlorpyrifos with claims of “returning to sound science in decision-making—rather than predetermined results.”⁶ Additionally, he dismissed several scientists and academics from advisory panels for the EPA under the guise of wanting to “ensure independence,”⁷ but has appointed representatives from chemical and energy industries in their places. Both Pruitt and Trump are friendly with Dow Chemical, the manufacturer of chlorpyrifos, giving them an incentive to continue use of the pesticide.

Are there alternatives?

Yes, there are farming practices, called integrated pest management, that focus on long-term pest prevention without pesticides. Strategies include biological control, habitat manipulation, crop rotation, and using natural enemies to out-compete pests.⁸ California has made strides in these areas, however, many farmers still resist a complete ban due to leaftooted plant bugs and stink bugs, which can’t be eliminated through alternative methods. The director of agricultural affairs for the Almond Board of California said, “We feel that if we can’t use chlorpyrifos for those two pests, it (the restriction) has definitely gone too far.”⁹



⁶ Food Safety News. 2017. “New EPA Administrator Refuses to Ban Pesticide Chlorpyrifos.” Retrieved Nov. 29, 2017 (<https://www.foodsafetynews.com/2017/03/new-epa-administrator-refuses-to-ban-pesticide-chlorpyrifos/#.Wh-sjq25CRv>).

⁷ Friedman, Lisa. 2017. “Pruitt Bars Some Scientists from advising E.P.A.” Retrieved Nov. 29, 2017 (https://www.nytimes.com/2017/10/31/climate/pruitt-epa-science-advisory-boards.html?_r=1).

⁸ PANNA. 2017. “Chlorpyrifos Alternatives in California.” Retrieved Nov. 29, 2017 (<http://www.pesticidereform.org/wp-content/uploads/2017/08/CPF-alternatives-2017-CA.pdf>).

⁹ Hearden, Tim. 2016. “No Alternatives to Chlorpyrifos for Two Almond Pests, Study Finds.” Retrieved Nov. 29, 2017 (<http://www.capitalpress.com/California/20160208/no-alternatives-to-chlorpyrifos-for-two-key-almond-pests-study-finds>).