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Honorable Andrea Salinas, Chair
House Committee on Health Care
900 Court St. NE
Salem, Oregon 97301

SUBJECT: Information About Chlorpyrifos and Pyrethroids

Dear Chair Salinas:

I am writing in response to your request for information regarding the pesticide chlorpyrifos and the class of pesticides known as pyrethroids.

Chlorpyrifos is one member of a class of pesticides called "organophosphates." Pyrethroids are another class of pesticides with many members of that class.

Organophosphates and pyrethroids have different mechanisms of toxicity, and are, therefore, difficult to compare directly. Generally pyrethroids (as a class) are less toxic to humans than organophosphates as a class. However, when comparing members of the two classes there is likely overlap in toxicity. For example, the more toxic members of the pyrethroid class may be more toxic than chlorpyrifos.

The primary human health concerns with chlorpyrifos involve acute exposure to relatively high amounts of the chemical resulting from occupational or accidental exposure that cause immediate (hours to days), intermediate (weeks to months) and long-term (a year or more) health effects, as well as lower level exposures to fetuses and young children that may cause adverse neurodevelopmental effects.

The acute exposure effects may include headaches, blurred vision, watering of the eyes, excessive salivation, runny nose, dizziness, confusion, muscle weakness or tremors, nausea, diarrhea, and sudden changes of heart rate. At the highest levels of exposure, people exposed to chlorpyrifos have experienced severe sweating, loss of bowel control, severe muscle tremors, seizures, loss of consciousness and death.[1]

Recent studies suggest low level exposures of fetuses and young children may cause adverse neurodevelopmental effects. In 2016, the EPA evaluated the research related to exposures of large groups of people to low levels of chlorpyrifos. EPA determined that three of these large epidemiological studies examining the question of neurodevelopmental effects were of high quality. These three studies examined human infant-mother pairs and looked for the relationship between exposure to chlorpyrifos and negative neurodevelopmental outcomes in

[1] Agency for Toxic Substances and Disease Registry, ToxFAQs 1997

the children. The three studies conducted by different research groups and in different populations and parts of the country found significant and consistent associations between exposure and adverse neurodevelopmental outcomes. These included mental delay, psychomotor delay, attention disorders, attention deficit hyperactivity disorder (ADHD), and pervasive developmental disorders. Several other epidemiological studies of lesser quality found consistent results.[2]

Please let us know if we can be of further assistance regarding these matters.

Sincerely,

Ali Hamade, PhD, DABT
Deputy State Epidemiologist

[2] EPA Chlorpyrifos: Revised Human Health Risk Assessment for Registration Review 2016 (pages 10-12)
https://www.regulations.gov/document?D=EPA-HQ-OPP-2015-0653-0454