



**Comments on CDPR Regulation 14-002: Proposal to amend section 6400(e) of Title 3, California Code of Regulations by designation of chlorpyrifos as a state restricted material when labeled for production of an agricultural commodity**

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Via Email: [dpr14002@cdpr.ca.gov](mailto:dpr14002@cdpr.ca.gov)

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Dear Director Leahy and Ms. Irokawa-Otani:

Californians for Pesticide Reform and organizations signing below are writing to support designation of chlorpyrifos as a restricted material and also to urge the California Department of Pesticide Regulation (DPR) to take more significant steps to reduce chlorpyrifos exposure in California. As acknowledged in the Notice of Proposed Regulatory Action, exposure to chlorpyrifos has been linked to long-term neurological effects. The scientific evidence of harm to California's children and farmworkers is unequivocal and demands far stronger action including prohibiting drift prone application methods and requiring large buffers around schools and other sensitive sites in the short-term and adopting a timeline for phasing out use of this highly hazardous pesticide.

**Evidence of Risk to California's Children is Substantial**

Multiple studies have shown that prenatal exposure to chlorpyrifos has negative impacts on neurodevelopment,<sup>i</sup> including poorer perceptual reasoning,<sup>ii</sup> working memory<sup>iii</sup> and intellectual development in seven-year-old children.<sup>iv</sup> Most recently, in June 2014, U.C. Davis released its "Childhood Autism Risks from Genetics and Environment (CHARGE)" study, documenting that children whose mothers lived within one mile of fields treated with organophosphate pesticides, including chlorpyrifos, during their pregnancies were 60 percent more likely to have autism than children whose mothers did not live close to treated fields.<sup>v</sup> The children of women who lived near fields treated with chlorpyrifos in their second trimester were 3.3 times more likely to have autism.<sup>vi</sup> Among other significant health impacts, studies have also shown chlorpyrifos is a suspected endocrine disruptor with profound impacts on neuro-endocrine systems.<sup>vii</sup>

**Chlorpyrifos Pollutes the State's Food, Air and Water**

Dietary intake represents the major source of exposure to organophosphate pesticides for most children;<sup>viii</sup> chlorpyrifos contributes measurably to children's overall pesticide exposure from foods.<sup>ix</sup> Children eating conventionally produced foods have higher levels of chlorpyrifos in their

bodies than children eating primarily an organic diet. A 2008 study reported that of the children tested, 91% had detectable levels of chlorpyrifos breakdown products in their bodies.<sup>x</sup> Chlorpyrifos had the highest level of detection among the five organophosphate pesticides tested.<sup>xi</sup> Organophosphate pesticide exposure through dietary sources, at levels common among US children, may contribute to Attention Deficit Hyperactivity Disorder (ADHD) prevalence.<sup>xii</sup>

Chlorpyrifos has been found in air at levels of concern across the state. DPR's 2011-2013 air monitoring data shows chlorpyrifos frequently moves off treated fields. Monitors detected chlorpyrifos in the air in a third of samples taken at three air monitoring sites, even though these sites were at the periphery of agricultural areas.<sup>xiii</sup> It was the pesticide with the highest number of detections (32%) in 2011 Air Monitoring Network data.<sup>xiv</sup> In 2013, chlorpyrifos was detected in 75% of air samples collected at a Shafter air monitoring site run by DPR.<sup>xv</sup> In both 2012 and 2013, the highest levels of chlorpyrifos and chlorpyrifos oxon monitored on a single day in Shafter exceeded the Acute Screening Level if it is adjusted to 120 ng/m<sup>3</sup> to incorporate the FQPA 10-fold safety factor for children.<sup>xvi</sup>

A study done in 2004 and 2005 in Lindsay, California found that of the over 100 air samples collected near homes in this agricultural community, three-quarters of the samples had detectable levels of chlorpyrifos.<sup>xvii</sup> Eleven percent of the samples were above the levels determined to be "acceptable" for a 24-hour exposure by children.<sup>xviii</sup> The highest concentration observed was nearly eight times the level of concern.<sup>xix</sup> As described in the rulemaking proposal, in air monitoring conducted by DPR and ARB in Parlier in 2006, chlorpyrifos or chlorpyrifos oxon were detected in 64% of air samples. Some detections exceeded screening levels, and cumulative exposures to chlorpyrifos and other organophosphates posed the highest sub-chronic, non-cancer risk among the pesticides monitored and detected.

Pesticide contamination of water is also a serious environmental concern. The Central Coast Regional Water Quality Control Board (CCRWQCB) acknowledged that pesticides, including chlorpyrifos, are "causing serious damage" to Central Coast water resources, with monitoring programs documenting "high levels of chemicals leaving agricultural areas and entering the waterways of our Region."<sup>xx</sup>

### **Reported Pesticide Illnesses represent the "Tip of the Iceberg"**

The rulemaking documents state that between 2001 and 2011, 35 separate pesticide drift incidents affecting 136 individuals that possibly, probably or definitely resulted from chlorpyrifos applications were identified by the California Pesticide Illness Surveillance Program. These comprise the reported pesticide illnesses but a recent pesticide illness review concluded that pesticide illness is severely under-reported. National Agricultural Workers Survey data suggest that among farmworkers the actual rate of pesticide illness may be 10 to 27 times higher than reported.<sup>xxi</sup>

In addition there have been several very concerning chlorpyrifos aerial drift or overspray incidents since 2011. On March 29<sup>th</sup>, 2012, children in a school bus heading to a Kern county elementary school were exposed to chlorpyrifos drift from an aerial application on a field adjacent to the highway. Fifteen children reported symptoms consistent with chlorpyrifos exposure and residues were found on some garments.<sup>xxii</sup> On July 22, 2014, a helicopter pilot applying a chlorpyrifos product to a walnut orchard in Live Oak oversprayed a levee where a construction crew was working. Ten of 12 construction workers were treated for pesticide illness

symptoms. Several suffered chemical pneumonia and one man had to take two weeks off of work. The investigation is still in process.<sup>xxiii</sup>

### **Environmental Injustice**

Continuing extensive use of this pesticide in agriculture over a decade after use in homes was prohibited is a profound environmental injustice. In April, the California Department of Public Health issued its report “Agricultural Pesticide Use Near Public Schools in California,” which found chlorpyrifos to be the eighth most common highly hazardous pesticide used within a quarter mile of public schools in the 15 California counties studied.<sup>xxiv</sup> This analysis found that, in one year, 7,769 pounds of chlorpyrifos were applied within a quarter mile of 438 schools, putting tens of thousands of students at risk.<sup>xxv</sup>

The study also showed troubling racial disparity. In the 15 counties assessed, Latino children were 46% more likely than White children to attend schools within a quarter mile of highly hazardous agricultural pesticide applications.<sup>xxvi</sup> This difference was more pronounced with increased pesticide use, as Latino children were 91% more likely than White children to attend schools near the highest use of highly hazardous pesticides.<sup>xxvii</sup>

### **Relying on the U.S. EPA’s Risk Assessment Will Result in Inadequate Protections for California’s Most Vulnerable Populations**

DPR should not scrap the California risk assessment in favor of relying on U.S. EPA’s risk assessment. We share concerns raised by DPR scientists and the Office of Environmental Health Hazard Assessment (OEHHA) that U.S. EPA’s Preliminary Risk Assessment did not adequately account for the increased vulnerability of the developing brain to chlorpyrifos.<sup>xxviii</sup> We concur with DPR and OEHHA recommendations that early-life vulnerability to chlorpyrifos must be accounted for in the risk assessment, and that risk assessments based on cholinesterase inhibition must at least include a 10X FQPA “safety” factor. Given the evidence of neurodevelopmental effects occurring as a result of exposure levels below those that result in cholinesterase inhibition, a 10x safety factor may not even be sufficient. In order to ensure protections for California’s children, DPR must follow through on its previous analysis and complete a California risk assessment. This is especially important given the unique nature of California agriculture, taking into consideration the state’s extensive ag-residential interface and concentration of labor-intensive crops.

### **Existing Law Compels DPR to Take Stronger Action**

The only significant action the California Department of Pesticide Regulation (DPR) has taken on chlorpyrifos in the fifteen years since it was banned for residential use is this proposal to make it a restricted material.<sup>xxix</sup> Although this is a small step in the right direction, listing chlorpyrifos as a restricted material is wholly insufficient for protecting California communities. Permits from county agricultural commissioners are little more than rubber stamps because the discretion to deny or revoke a permit or Notice of Intent is rarely used. In 2012 a total of 30,405 Agricultural Pesticide Use Permits were issued statewide and only 134 (0.4%) were denied and two revoked. A total of 124,036 Notices of Intent (NOIs) to apply restricted pesticides were reviewed and only 822 (0.6%) were denied.<sup>xxx</sup> Merely restricting use of other hazardous agricultural pesticides has not significantly reduced use or resulted in improved protections for children. This classification will not sufficiently mitigate the health threat for California’s farmworkers and rural, largely Latino communities.

DPR should be taking much stronger action than merely listing chlorpyrifos as a restricted material. Given the strong weight of evidence demonstrating reduced IQ, permanent neurodevelopmental impacts, reduced birth weight and compromised mental capacity in children associated with chlorpyrifos exposures, as well as the data on detection of chlorpyrifos in California's air and water, the California Birth Defects Prevention Act<sup>xxxii</sup> becomes applicable. Under this law if a pesticide product containing the active ingredient presents significant adverse health effects, including reproductive effects, birth defects, or infertility, the Department of Pesticide Regulation must take cancellation or suspension action against the product pursuant to Section 12825 or 12826 of the Act. We urge that this law be fully considered and actions taken in accordance with its requirements.

Moreover, DPR is required to abide by Government Code 11135, which prohibits disparate impact discrimination in state-funded programs. DPR must change current regulatory policies about chlorpyrifos to eliminate the disparate impact on communities of color living in proximity to fields where chlorpyrifos is applied.

### **Lack of Evaluation of Alternatives**

In justifications for merely listing chlorpyrifos as a restricted material, DPR cites potential economic harm as the sole reason for not evaluating more substantive controls on chlorpyrifos use, utterly failing to recognize the growing number of efficacious, safer alternatives.

Alternatives to chlorpyrifos exist, and can be employed with great success by farmers in California. Use of pheromones for insect-mating disruption, for example, has led to dramatically reduced chlorpyrifos use in some crops. However, it is essential that chlorpyrifos is not replaced with other chemical insecticides that have other adverse health and environmental effects such as, endocrine disruption, cancer, neurological damage, surface and groundwater contamination, toxicity to beneficial insects or persistence in the environment. For this reason it is essential that California invest in cutting edge research to develop and hone innovative agricultural practices to control pests on crops such as alfalfa, broccoli, citrus and cotton, where current alternatives may not be sufficient.

The use of Integrated Pest Management (IPM) as defined by the UC IPM Program and integrated into an agroecological approach to crop and farm management is the preferred agricultural approach to crop and pest management that will effectively replace the use of pesticides like chlorpyrifos. Agroecology is a highly productive and sustainable agricultural approach, endorsed by various key international bodies such as the Food and Agriculture Organization (FAO),<sup>xxxiii</sup> the International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD)<sup>xxxiii</sup> and the UN Special Rapporteur on the Right to Food.<sup>xxxiv</sup> Long-term successes with agroecological pest management have been documented here in the U.S. and on many innovative farms across California.

Agroecological pest management focuses on sustainable ecological solutions that prevent pest build up. It takes a holistic approach to crop management that recognizes pests as an integral part of the whole agroecosystem, forming a complex network with beneficial insects, weeds, diseases and crops. The self-regulatory mechanisms of a highly biodiverse farming system help keep pest species in balance. A healthy soil with a rich diversity of biota and a high content of organic matter is key to sustainable management of pests and diseases. California's farmers deserve strong support to transition from hazardous pesticides like chlorpyrifos towards agroecological

farming. The innovation and knowledge of farmers in California deserve support from the state government. We urge DPR to provide the necessary resources for development and implementation of safer solutions and help California farmers transition away from chlorpyrifos and other highly hazardous pesticides.

### **Recommendations for Action and Conclusion**

In light of the frequency with which chlorpyrifos has been found in California's air and water, its persistence in dust and as a residue on food, and its disproportionate impact on children of color in low-income agricultural communities, we call on DPR to fulfill its legal obligations to protect all of California's children. DPR must lay out a clear roadmap for strong and meaningful actions to reduce, and ultimately eliminate, exposures to this dangerous pesticide in California. This includes:

- Immediately completing a California risk assessment.
- Committing to a timeline for completing the re-evaluation, such that it is finalized by the end of 2015.
- Designating chlorpyrifos a restricted use pesticide while also recommending that County Agricultural Commissioners adopt the following permit conditions:
  - A ban on aerial and air blast applications of chlorpyrifos.
  - Creation of sufficiently large buffer zones of at least one mile, if not more, (based on the health effects the CHARGE study found just shy of one mile), to ensure protection of the most vulnerable populations, including children and pregnant women. We note that the buffer zones now required by label are only 25 feet for groundboom or chemigation applications, 50 feet for air-blast applications and 150 feet for aerial applications. These buffers were set by U.S. EPA to prevent acute illness in adults from cholinesterase depression and do not incorporate a FQPA 10 fold safety factor to protect children from exposures which could result in neurological effects.
- Working with the University of California Integrated Pest Management Program and other researchers to support growers' transition to effective agroecological pest management alternatives to chlorpyrifos, including non-chemical alternatives for crops such as citrus, broccoli, alfalfa, almonds and cotton, where such alternatives are not yet fully identified.
- Proposing regulations to replace recommended permit conditions.
- Setting a timeline by the end of 2015 for phase down and cancelation of all remaining uses of chlorpyrifos.

In this rulemaking packet, the Department clearly states that chlorpyrifos is a health risk:

“Based on DPR's and U.S. EPA's findings that chlorpyrifos has the propensity to move off-site in both air and surface water, and has caused illnesses and surface water contamination due to off-site movement, DPR proposes to designate chlorpyrifos as a California-restricted material when used for the production of an agricultural commodity, adding it to the listing in section 6400(e).<sup>xxxv</sup>”

CPR fully agrees with the justification for this proposal, but our member organizations conclude that listing chlorpyrifos as a restricted material falls far short of resolving the environmental health threat.

To summarize, chlorpyrifos is simply too toxic and too difficult to control, and thus too harmful to our children's future, to remain in use. Phasing it out, and implementing stronger health-protective measures for interim use, is the only appropriate action. Thank you for your full evaluation of this recommendation, and we look forward to your response.

Sincerely,



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