



November 10, 2014

Governor Jerry Brown
c/o State Capitol, Suite 1173
Sacramento, CA 95814

Dear Governor Brown,

Californians are asking: will anything change? A recent article in *The Nation* asked the same question when reporting on a groundbreaking longitudinal study conducted by CHAMACOS that “detected developmental problems in children born to mothers who toiled in California’s treated fields.”ⁱ There is ample evidence that use of organophosphate pesticides is harming the brains and development of our state’s children. How much more do we need to know before we act? The undersigned 102 organizations call on you to respond by ensuring California children are immediately protected from the widely-used organophosphate insecticide chlorpyrifos, a known neurotoxin and developmental toxicant.

According to the California Department of Pesticide Regulation (DPR) and California Department of Public Health (DPH), more than 1.1 million pounds of chlorpyrifos are applied every year in California, including near sensitive sites like public schools.ⁱⁱ Scientists have linked chlorpyrifos exposure to significant and long-lasting developmental harms for children, including increased likelihood of autism and lowered IQ.ⁱⁱⁱ In 2001, recognizing the dangers posed by chlorpyrifos, the U.S. EPA effectively banned its home use due to concerns about its impact on children’s neurodevelopment.^{iv}

Nearly fifteen years later, the science showing undue harm to children, particularly in Latino farmworker communities, is irrefutable: it’s time for California to show the leadership for which you’ve helped the state become famous. We ask that you commit California to immediate, strong, health-protective mitigations on chlorpyrifos while starting the process of phasing this dangerous chemical out of California altogether.

Overwhelming Scientific Evidence Against Chlorpyrifos Requires Strong Action

People are exposed to chlorpyrifos through direct skin contact, contact with treated surfaces, inhaling chlorpyrifos-contaminated dust, breathing air near treated fields, and eating food with chlorpyrifos residue.^{v,vi} Nationwide, for most children, dietary intake represents the major source of exposure to chlorpyrifos.^{vii} A 2008 study reported that of children tested for dietary exposure from conventionally-grown food, 91% had detectable levels of chlorpyrifos breakdown products in their bodies.^{viii} In fact, chlorpyrifos had the highest level of detection among the five organophosphate pesticides tested. Research suggests that organophosphate pesticide exposure through dietary sources, at levels common among US children, may contribute to the prevalence of Attention Deficit Hyperactivity Disorder (ADHD).^{ix} For children in California, exposures through food are supplemented with additional exposures resulting from living in close

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proximity to fields, and levels in children's bodies are associated with applications of the pesticide in the fields.^x

Exposure of any type is especially harmful for children and fetuses. Children are uniquely vulnerable to the impacts of pesticides since their developing brains are more susceptible to neurotoxicants and the dose of pesticides per body weight is likely higher than adults.^{xi} Children also have lower levels of enzymes that detoxify certain organophosphate (OP) pesticides like chlorpyrifos.^{xii} The 2001 withdrawal of chlorpyrifos for home use was based largely on the then-known harm to children's neurological systems. Continued chlorpyrifos use in agriculture is an environmental injustice.

Exposure to chlorpyrifos can have significant health impacts. Recent studies, several of them conducted in California, have shown:

- Chlorpyrifos is a suspected endocrine disruptor and has profound impacts on neuro-endocrine systems.^{xiii}
- OP pesticide exposure, including chlorpyrifos, is linked to low birth weights^{xiv} and reduced head circumference of newborns,^{xv} a factor associated with children's subsequent reduced cognitive abilities.
- Prenatal exposure to OP pesticides, including chlorpyrifos, has negative impacts on neurodevelopment,^{xvi} including poorer perceptual reasoning,^{xvii} working memory^{xviii} and intellectual development in 7-year-old children.^{xix} Higher blood chlorpyrifos concentrations during pregnancy were found to be associated with poorer mental and motor development at three years of age.^{xx}
- Expectant mothers who live within one mile of fields treated with organophosphate pesticides while pregnant are 60% more likely to bear a child with autism than pregnant women who do not live within a mile of treated fields. Children of women who lived within a mile of chlorpyrifos-treated fields in their second trimester are 3.3 times more likely to have autism.^{xxi}
- Heavy chronic exposure is associated with neurodegenerative diseases such as Alzheimer's and Parkinson's.^{xxii}

Chlorpyrifos in the State's Air and Water

Contrary to DPR's public relations efforts to downplay the problem, chlorpyrifos has been found in air at levels of concern across the state. DPR's own 2013 air monitoring data confirm that chlorpyrifos frequently moves far off treated fields. DPR's monitors detected chlorpyrifos in the air in a third of samples taken in three California communities, even though these sites are at the periphery of agricultural areas.^{xxiii} At the Shafter site, chlorpyrifos was detected in 75% of air samples collected.^{xxiv} A 2004-2005 study conducted in the agricultural community of Lindsay found that of more than 100 air samples collected near homes, three-quarters had detectable levels of chlorpyrifos. Eleven percent of the samples were above the levels determined to be "acceptable" for a 24-hour exposure by children. The highest concentration was nearly eight times the level of concern.^{xxv}

Pesticide contamination of water is also a serious public health and environmental concern. The Central Coast Regional Water Quality Control Board 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.^{xxvi} DPR's water monitoring data from 2011^{xxvii} showed that chlorpyrifos frequently moves off treated fields into water at levels that might harm aquatic life, as chlorpyrifos was detected in 17.7% of samples with 10% exceeding U.S. EPA's target level.

Environmental Injustice

In April 2014, the California Department of Public Health (DPH) released a report that found chlorpyrifos to be the eighth most common agricultural pesticide of public health concern used within a quarter mile of public schools in the 15 California counties studied.^{xxviii} DPH documented 7,769 pounds of chlorpyrifos applied within a quarter-mile of 438 schools in 2010, putting tens of thousands of students at risk.^{xxix}

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.^{xxx} This difference was more pronounced with increased pesticide use. Latino children were 91% more likely than White children to attend schools within a quarter mile of the highest use of highly hazardous pesticides.^{xxxi}

Existing Law Compels DPR to Take Stronger Action

The only significant action DPR has taken on chlorpyrifos was its recent proposal to make chlorpyrifos a state-restricted material. Although this is a small step in the right direction, listing chlorpyrifos as a restricted material is wholly insufficient for protecting California communities. Designating a pesticide a restricted material means growers must seek permits before use but leaves county agricultural commissioners with full discretion for approving, conditioning or denying permits, and the vast majority of permits are approved (approximately 99.5% in 2012).^{xxxii} Similar restrictions on other hazardous agricultural pesticides across the state have not significantly reduced use or resulted in improved protections for children.

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 (Food and Ag Code)^{xxxiii} 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 abnormalities, DPR 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.

With these requirements in mind, DPR must take some immediate steps. DPR was legally obligated to complete its 2004 chlorpyrifos re-evaluation within two years – by 2006. Ten years later, the department has allowed the re-evaluation process to languish and still has no timeline for completion. Considering the recently-released scientific studies documenting harm to California children and pregnant women from chlorpyrifos exposure under currently allowable conditions, continued delay is unacceptable. We call on you to ensure DPR completes its chlorpyrifos re-evaluation in 2015.

Moreover, DPR's decision not to finish its own, nearly complete California-focused human health risk assessment in favor of relying on U.S. EPA's risk assessment is not scientifically

sound. We share concerns raised by DPR scientists and the Office of Environmental Health Hazards Assessments that the U.S. EPA's Preliminary Risk Assessment did not adequately account for the increased vulnerability of children's developing brain to chlorpyrifos. Without accounting for early-life vulnerability and incorporating a 10X FQPA "safety" factor, health-protective levels prescribed by the U.S. EPA will be inadequate. To ensure protections for California's children, DPR must promptly complete its California-focused assessment, which reflects the unique nature of California agriculture, taking into consideration the state's extensive agricultural-residential interface and particularly labor-intensive crops. By delaying or abandoning its own risk assessment of chlorpyrifos, DPR will be doing a serious disservice to California's farmworkers, farmers, and rural communities facing the dual risks of exposure through water and air, as well as to consumers exposed through food residues. California has always been a leader in the field of protecting the environment and its people from hazardous chemical exposures, and we ask you to urge DPR to strive to higher standards of health protection.

Supporting Growers

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, persistence, etc. For this reason it is essential that California invest in cutting edge research to develop innovative agricultural practices to control pests on crops such as alfalfa, broccoli, citrus and cotton, where current alternatives may not be sufficient.

Many other synthetic chemical insecticides on the market that may be suggested as alternatives to chlorpyrifos have a range of adverse health and environmental effects, such as endocrine disruption, cancer, neurological damage, surface and groundwater contamination, toxicity to beneficial insects, persistence, etc. Hence, their use is not recommended to replace chlorpyrifos.

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 approach to crop and pest management that will effectively replace the use of pesticides like chlorpyrifos. Agroecology is endorsed by various key international bodies such as the Food and Agriculture Organization (FAO);^{xxxiv} the International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD)^{xxxv} and the UN Special Rapporteur on the Right to Food.^{xxxvi} 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, inter-related network that includes beneficial insects, weeds, diseases, crops and soils. 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, and even helps reduce greenhouse gases through carbon sequestration. California's farmers deserve strong support to transition from hazardous pesticides like chlorpyrifos toward agroecological farming. We ask you to instruct DPR to provide the necessary resources for development and

implementation of safer solutions that help California farmers transition away from chlorpyrifos and other highly hazardous pesticides.

In Conclusion

In light of chlorpyrifos' prevalence 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 you to ensure DPR fulfills 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 must include DPR:

- Designating chlorpyrifos a restricted use pesticide at the same time as implementing the following mitigation measures as permit conditions:
 - A ban on aerial and air blast applications of chlorpyrifos.
 - Creation of sufficiently large buffer zones of at least one mile or more (based on the pre-natal health effects found just shy of one mile), to ensure they're health protective for the most vulnerable populations, including children and pregnant women.
- Immediately completing its own human health risk assessment, incorporating the extra safety factor of 10 to ensure California children are adequately protected; and committing to a timeline for implementation of health-protective risk management measures in regulation.
- Committing to a timeline for completing the chlorpyrifos re-evaluation, such that DPR finalizes the re-evaluation by the end of 2015.
- 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 identified.
- Committing to a concrete plan, with timelines, by the end of 2015 for canceling all remaining uses of chlorpyrifos.

California is known for taking a leadership role in protecting the environment and the health of its residents. We call on you to affirm that legacy by ensuring significant steps are taken to provide immediate protections to California families while beginning to phase out this outdated pesticide that has had such devastating consequences for California children and their families.

We respectfully request a timely response to this letter.

Sincerely,

A handwritten signature in black ink, appearing to read "Tracey Brieger and Sarah Aird". The signature is stylized and cursive.

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In 2012 a total of 30,405 Agricultural Pesticide Use Permits were issued statewide, with only 134 (0.4%) denied and 2 revoked. A total of 124,036 Notices of Intent (NOIs) to apply restricted pesticides were reviewed and only 822 (0.6%) denied. California Department of Pesticide Regulation. California Pesticide Use Enforcement Statistical Profile. 2013. Available at

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