



March 14, 2017

Governor Jerry Brown
c/o State Capitol, Suite 1173
Sacramento, CA 95814
Via email: Jerry.Brown@gov.ca.gov

RE: California must protect children from brain-harming pesticide, chlorpyrifos

Dear Governor Brown,

On behalf of the Pesticide Action Network, California Rural Legal Assistance Foundation, Natural Resources Defense Council, Center for Environmental Health, and the rest of the 190+ member groups who make up our statewide coalition Californians for Pesticide Reform, we are writing to express our dismay at recent actions President Trump has taken to repress science and stymie the federal regulatory system designed to protect public health and safety. President Trump's drive to dismantle environmental and safety regulations threatens EPA's proposed action to protect the food supply, farmworkers, and agricultural communities from the neurotoxic organophosphate pesticide chlorpyrifos. We appeal to you to step in to protect Californians' health from this dangerous pesticide. *It is imperative that the California EPA implement U.S. EPA's proposed ban on chlorpyrifos in our state.*

More chlorpyrifos is used in California than in any other state in the nation, with more than 1 million pounds applied in California fields per year.¹ Lack of federal action directly threatens the safety of California's agricultural products and the health of farming communities. Given President Trump's efforts to restrict the U.S. EPA's regulatory capacity through Executive Orders, coupled with Congressional attacks on EPA's science and regulatory capacity, we believe it likely that EPA's proposal to revoke chlorpyrifos tolerances for food uses will at best be delayed if not completely rolled back. This will allow chlorpyrifos' continued use in U.S. agriculture – despite EPA's finding of widespread health risk from residues and drift.

¹ According to the California Department of Pesticide Regulation's Pesticide Use Report for 2014, more than 1,307,000 pounds of chlorpyrifos were used in California that year. Available at http://www.cdpr.ca.gov/docs/pur/pur14rep/top_100_ais_lbs14.pdf.

We have been heartened by the stand taken by you and the California legislature to “lead the resistance”² to the Trump administration’s predilection to rely on alternative facts, ignore science, and eliminate regulations intended to protect the public’s health, safety and environment, and we’re asking your administration now to live up to that promise and implement EPA’s proposed ban on food uses in California.³

The U.S. EPA and its own Scientific Advisory Panel have acknowledged that brain damage can occur at low levels of chlorpyrifos exposure⁴ and the EPA’s revised assessment finally accounts for this significant body of science.⁵ Ultimately, EPA’s assessment concludes that chlorpyrifos is simply unsafe to use on food crops.⁶ We now urge California to take up where the EPA left off and match EPA’s science to protect California’s children from Trump Administration rollbacks.

CalEPA must update the draft Chlorpyrifos Risk Characterization Document (RCD) to incorporate EPA’s revisions and finalize a risk assessment that reflects the recommendations made by EPA’s Scientific Advisory Panel to protect children’s health.

We urge California to take immediate steps to end use of this brain-damaging pesticide in order to:

- Protect children from learning and memory impairments,
- Protect communities from pesticide drift off crops and into nearby neighborhoods and schools,
- Prevent contamination of the food supply with these pesticides,
- Prevent contamination of drinking water with these pesticides, and
- Prevent worker poisonings and harm to their children.

We believe it is unconscionable, and in violation of civil rights laws, to allow the continued use of chlorpyrifos on California fields despite the overwhelming body of scientific literature proving its dangers to human health and the environment.

² January 24, 2017, State of the State speech: “California is not turning back. Not now, not ever.” “We have seen the bald assertion of ‘alternative facts,’ whatever those are,” and “We have heard the blatant attacks on science.” November 9, 2016 Joint Statement from California Legislative Leaders on Result of Presidential Election: “While Donald Trump may have won the presidency, he hasn’t changed our values. America is greater than any one man or party. We will not be dragged back into the past. We will lead the resistance to any effort that would shred our social fabric or our Constitution.”

³ Chlorpyrifos; Tolerance Revocations, 80 Fed. Reg. 215 (Nov. 6, 2015), p. 69080. *Federal Register: The Daily Journal of the United States*. Available at <https://www.gpo.gov/fdsys/pkg/FR-2015-11-06/pdf/2015-28083.pdf>.

⁴ Office of Chemical Safety and Pollution Prevention, U.S. EPA Memorandum, Chlorpyrifos: Revised Human Health Risk Assessment for Registration Review, p. 3 &10, November 3, 2016. Available at <https://www.regulations.gov/document?D=EPA-HQ-OPP-2015-0653-0454>.

⁵ *Ibid*.

⁶ *Ibid* at p.6.

Please see the attached memo and article for additional details.

Thank you for your consideration of this important issue, and we respectfully request a written response.

Sincerely,

Handwritten signatures of Mark Weller and Sarah C. Aird in blue ink.

Mark Weller and Sarah Aird
Co-Directors
Californians for Pesticide Reform

cc:

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Chlorpyrifos Threatens California's Children

For years, scientists and regulators have known about the health harms of chlorpyrifos, yet farmers are still allowed to use it extensively in California and around the country with more than 1,307,000 pounds of chlorpyrifos used on California fields in 2014 alone.⁷ And this use is having a real world impact on California families and communities. Further detailed in the attached *Intercept* article by Sharon Lerner, here are stories of just a few children and their families who've lived near fields and how they've been harmed by chlorpyrifos:

- Chlorpyrifos exposure likely contributed to the autism and attention deficit hyperactivity disorder (ADHD) suffered by twelve-year-old Eva Galindo. Chlorpyrifos was regularly sprayed near Eva's home when her mother Magda was pregnant in the small Central Valley town of Salida. Magda often smelled chlorpyrifos applications from the patio where she spent much of her pregnancy. According to the first and most comprehensive study of the environmental causes of autism and developmental delay, known as the CHARGE study, women like Magda who lived less than a mile from fields where chlorpyrifos was sprayed during their second trimester of pregnancy were three times more likely to give birth to an autistic child. Today, Eva struggles to make friends, needs help with reading and in social situations, and is the target of unkind behavior at school.
- Eight-year-old Alan Muñoz suffers from autism and ADHD. By the time he was 4, he was far less able to speak than his peers. He also had a hard time making friends, and his many frustrations led to sudden outbursts. When pregnant with Alan, his mother Zenaida had been exposed to chlorpyrifos while living in Woodlake in the Central Valley, but at even higher levels than Magda. During her pregnancy Zenaida lived about 30 feet from orange groves. When the groves were sprayed with chlorpyrifos, the fumes drifted in through the windows. She also took walks through the groves to relax, believing that pesticide applications were normal and that if pesticides were dangerous the government wouldn't allow farmers to use them. In addition to taking care of Alan's special needs, Zenaida belongs to a 20-member women's group that works on local health and justice issues. Of the 20 women, *seven* have children with neurodevelopmental problems, ADHD, and/or mental retardation and other cognitive problems.

California children like Eva and Alan and their families bear the brunt of continued chlorpyrifos use in the state. Tens -- if not hundreds -- of thousands of California school children in agricultural areas risk potential exposure to chlorpyrifos during school hours.⁸

Yet more than 15 years ago, in 2000, the U.S. EPA had already concluded that chlorpyrifos

⁷ California Department of Pesticide Regulation's Pesticide Use Report for 2014. Available at http://www.cdpr.ca.gov/docs/pur/pur14rep/top_100_ais_lbs14.pdf.

⁸ The 2014 California Department of Public Health Report "Agricultural Pesticide Use near Public Schools in California" found that chlorpyrifos was the eighth most highly used pesticide of public health concern applied within ¼ mile of public schools in the 15 agricultural counties studied. California Department of Public Health, "Agricultural Pesticide Use near Public Schools in California," California Environmental Health Tracking Program, April 2014.

exposure posed such significant and life-long health harms to children's development that the agency phased out nearly all household uses of chlorpyrifos.⁹ But few restrictions were placed on the *agricultural* use of chlorpyrifos.¹⁰

Since then scientists have found a connection between prenatal chlorpyrifos exposure and children lagging in terms of motor and mental development. Children at age three who experienced higher prenatal exposures are more than:

- twice as likely to be mentally delayed, with lower IQs and deficits in working memory at age 7¹¹,
- five times as likely to have symptoms of what is now recognized as an autism spectrum disorder¹²,
- six times as likely to have ADHD-type symptoms¹³, and
- 11 times as likely to have symptoms of other attention disorders.¹⁴

Scientists have also discovered that chlorpyrifos exposure can actually change the brain structure of children.¹⁵ Additional research in California has indicated an association between increased autism rates and exposure to organophosphate pesticides, with the link between autism and chlorpyrifos the strongest.¹⁶ While the nationwide autism rate is now one in 68, for women who

⁹ U.S. EPA. Chlorpyrifos Revised Risk Assessment and Agreement with Registrants. June 2000. Available at <http://www.epa.gov/pesticides/op/chlorpyrifos/agreement.pdf>.

¹⁰ U.S. EPA, Chlorpyrifos factsheet. <https://www.epa.gov/ingredients-used-pesticide-products/chlorpyrifos#actions>.

¹¹ Rauh VA, Garfinkel R, Perera FP, Andrews HF, Hoepner L, Barr DB, et al. 2006. Impact of prenatal chlorpyrifos exposure on neurodevelopment in the first 3 years of life among inner-city children. *Pediatrics* 118(6):e1845–e1859. Available at <http://pediatrics.aappublications.org/content/118/6/e1845>.

Rauh V, Arunajadai S, Horton M, Perera F, Hoepner L, Barr DB, Whyatt R. Seven-Year Neurodevelopmental Scores and Prenatal Exposure to Chlorpyrifos, a Common Agricultural Pesticide. *Environ Health Perspect* 119:1196-1201 (2011). Available at <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3237355/>.

¹² Lerner, S. "Poison Fruit: Dow Chemical Wants Farmers to Keep Using a Pesticide Linked to Autism and ADHD," *The Intercept*, January 14, 2017. Available at <https://theintercept.com/2017/01/14/dow-chemical-wants-farmers-to-keep-using-a-pesticide-linked-to-autism-and-adhd/>.

Rauh, VA. Discussion of analyses of prenatal chlorpyrifos exposure and neurodevelopmental outcomes. Columbia Center for Children's Health, Mailman School of Public Health, Columbia University. Available at <https://archive.epa.gov/scipoly/sap/meetings/web/pdf/rauh.pdf>.

¹³ *Ibid.*

¹⁴ *Ibid.*

¹⁵ Rauh VA, Perera FP, Horton MK, Whyatt, RM, Bansal, R, Hao X, Liu J, Barr, DB, Slotkin TA, Peterson BS. Brain anomalies in children exposed prenatally to a common organophosphate pesticide. *PNAS* 109 (20) 7871-7876 (2012). Available at <http://www.pnas.org/content/109/20/7871.full.pdf>.

¹⁶ Shelton JF, Geraghty EM, Tancredi DJ, Delwiche LD, Schmidt RJ, Ritz B, Hansen RL, Hertz-Picciotto I. Neurodevelopmental Disorders and Prenatal Residential Proximity to Agricultural Pesticides: the CHARGE Study. *Environ Health Perspect* 122:1103–1109 (2014). Available at <http://ehp.niehs.nih.gov/wp-content/uploads/122/10/ehp.1307044.alt.pdf>.

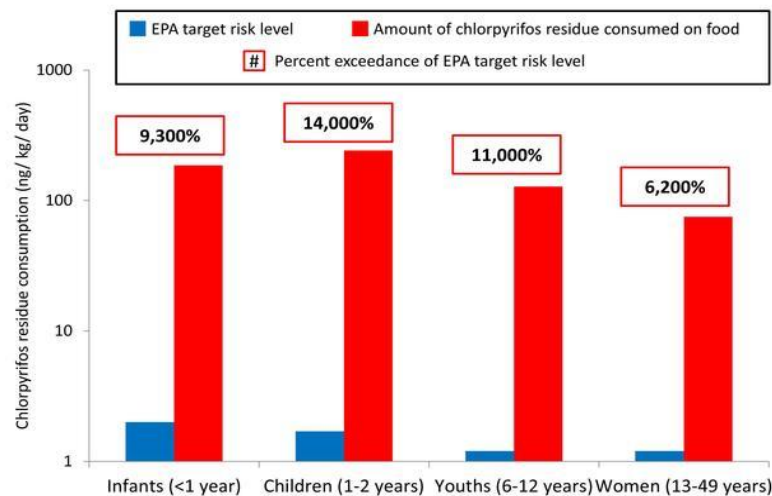
lived near fields where chlorpyrifos was applied during their second trimester, the chance of having a child with autism was closer to one in 21.¹⁷ California scientists also recently found that exposure to organophosphate pesticides, including chlorpyrifos, decreases lung function in children as much as being exposed to secondhand smoke in the home.¹⁸ Latino school children in California are particularly at risk, as they attend schools with disproportionate chlorpyrifos use nearby, in violation of civil rights laws.¹⁹

EPA's November 2016 revised human health risk assessment took much of this new science into consideration, recognizing that prenatal exposure to chlorpyrifos is correlated with lower IQ, loss of working memory, attention deficit disorders and developmental delays.²⁰

Some of the specific findings of the assessment include:

- *All* food exposures exceed safe levels, with the most over-exposed population being children between one and two years of age.²¹ On average, this vulnerable group is exposed to 140 times what EPA deems safe.²² The graph below illustrates this point, comparing the EPA target risk level for chlorpyrifos residue consumption (in blue) with the amounts of chlorpyrifos residue on food actually consumed (in red), in nanograms per kilogram of body weight per day for infants, children, youth, and women.

Chlorpyrifos residue consumption: Large exceedances of EPA target risk level



Source: USEPA 2014. Chlorpyrifos Acute and Steady State Dietary (Food Only) Exposure Analysis to Support Registration Review

¹⁷ *Op. cit.*, Lerner, 2017.

¹⁸ Raanan R, Balmes JR, Harley KG, et al. Decreased lung function in 7-year-old children with early-life organophosphate exposure. *Thorax* 71:148-153 (2016).

¹⁹ Title VI of the Civil Rights Act and California Government Code § 11135 prohibit such racial discrimination.

²⁰ Office of Chemical Safety and Pollution Prevention, U.S. EPA Memorandum, Chlorpyrifos: Revised Human Health Risk Assessment for Registration Review, November 3, 2016. Available at <https://www.regulations.gov/document?D=EPA-HQ-OPP-2015-0653-0454>.

²¹ *Ibid* at p.6.

²² *Ibid*.

- Pesticides drifting off of farm fields expose communities to unsafe levels of chlorpyrifos. Airborne levels measured near homes and schools in agricultural communities (many in California) were found to pose a risk to children and women of childbearing age.²³
- The use of chlorpyrifos can contaminate drinking water, and the U.S. EPA found that there is *no* safe amount of chlorpyrifos in drinking water because the food contamination alone presents risks of concern.²⁴
- All workers who mix and apply chlorpyrifos – including handlers, seed treatment and secondary seed treatment workers – are exposed to levels greater than what the EPA considers safe. That’s the case even with the maximum possible amount of protective clothing, equipment and engineering controls.²⁵
- Field workers are currently allowed to re-enter fields one to five days after pesticide spraying, but unsafe exposures continue, on average, for 18 days after application.²⁶
- Exposures from golf courses and mosquitocide applications exceed the level of concern for all scenarios considered.²⁷
- *No* uses met the safety standard and therefore the revised assessment supported the proposed ban on food uses.²⁸

²³ Office of Chemical Safety and Pollution Prevention, U.S. EPA Memorandum, Chlorpyrifos: Revised Human Health Risk Assessment for Registration Review, p. 7, November 3, 2016. Available at <https://www.regulations.gov/document?D=EPA-HQ-OPP-2015-0653-0454>.

²⁴ *Ibid* at p.6.

²⁵ *Ibid* at p.7.

²⁶ *Ibid*.

²⁷ *Ibid* at p.6.

²⁸ *Ibid*.