



October 21, 2016

CalEnviroScreen  
c/o Carolyn Flowers  
Office of Environmental Health Hazard Assessment  
P.O. Box 4010  
Sacramento, CA 95812-4010

**RE: Comments on the Draft CalEnviroScreen 3.0**

Dear Ms. Flowers,

The statewide coalition Californians for Pesticide Reform (CPR) respectfully submits the following comments and recommendations for the draft CalEnviroScreen 3.0. A coalition of over 190 member organizations, we work with communities on the frontlines of pesticide exposure across the state, especially in the San Joaquin Valley and along the Central Coast. Collectively, we represent hundreds of thousands of Californians dedicated to protecting public health and the environment from the dangers of pesticide use.

We thank the Office of Environmental Health Hazard Assessment (OEHHA) and CalEPA for the development, maintenance and continued refinement and improvement of CalEnviroScreen. We strongly support the use of CalEnviroScreen in the development of policies at the state, regional and local levels to help prioritize investments and protections for our state's most vulnerable communities.

**CPR's Recommendations for Additions and Changes to Draft CalEnviroScreen 3.0**

**1. Reinstate Age Indicator for Children and Infants Under 10 and Consider Including Pregnant Women as an Indicator in the Next CalEnviroScreen**

We urge OEHHA to reincorporate the age indicator for children and infants under ten years of age to take into account their special vulnerabilities. For decades, scientists have known that children are more vulnerable than adults to the effects of pesticide and other toxic exposures. Toxic chemicals have a stronger impact on developing brains and bodies, and children suffer disproportionate exposure since they have more skin surface relative to their size and inhale airborne pesticides at a faster rate (higher respiratory or breathing rate).

In recent years, a growing number of scientific studies have documented even greater vulnerabilities than previously recognized, including a number of studies conducted in California under real-world conditions of agricultural pesticide use. Many of these studies link pesticide exposure and application proximity to permanent harm to children's physical health and mental

abilities, including childhood cancers, respiratory ailments and developmental disorders. Studies from U.C. Berkeley and UCLA, for example, have found that chronic exposure to organophosphate (OP) pesticides can damage children's lung function by about as much as secondhand cigarette smoke<sup>1</sup> and that the carcinogenic pesticides most used near schools can act synergistically to increase cancer risk by more than just the sum of the individual pesticide's risks combined.<sup>2</sup> Children with higher levels of OP pesticide breakdown products in their urine are also more likely to have ADHD.<sup>3,4</sup>

CPR believes continuing to include an age indicator for children would more accurately convey the true vulnerability of populations to pesticide exposures around the state. Because of the potential challenges of the current age indicator approach for children, CPR supports the recommendation of the California Environmental Justice Alliance in calculating the population of children within each census tract and giving higher scores to the tracts with higher percentages of children.

In addition, CPR recommends that OEHHA consider including in the next iteration of CalEnviroScreen a similar calculation regarding the percentage of pregnant women within each census tract, if data is available. We believe this would be an important addition to the tool since many prenatal studies show dramatic impacts from pesticide (and other toxic) exposures in the womb. For example, a UC Berkeley study released this year indicates that combined organophosphate pesticide applications near pregnant women have a negative effect on the IQ of their children.<sup>5</sup> Every 522 pounds of OPs applied within a one-kilometer radius of a pregnant woman's home actually correlated with a two-point drop in her children's IQ compared to a control group.<sup>6</sup> A study of pre- and postnatal pesticide exposure and neurodevelopmental impairment found that greater urinary levels of OP breakdown products were associated with poorer performance on IQ and verbal comprehension tests.<sup>7</sup> And A UC Davis MIND Institute study documented significantly increased rates of autism in children of mothers who had lived up to one mile from pesticide-treated fields while pregnant.<sup>8</sup>

## **2. Expand CalEnviroScreen's Pesticide Indicator to Include Low Volatility But Highly Toxic Pesticides Often Tracked Indoors**

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<sup>1</sup> Raanan R et al. "Early life exposure to OP pesticides and pediatric respiratory symptoms in the CHAMACOS Cohort." *Environmental Health Perspectives*, 123:2 179-182. 2015.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4314248/>

<sup>2</sup> Zaunbrecher V et al. "EXPOSURE AND INTERACTION: The Potential Health Impacts of Using Multiple Pesticides." Sustainable Technology and Policy Program, UCLA School of Law and School of Public Health. 2015.

[http://stpp.ucla.edu/sites/default/files/Exposure\\_and\\_Interaction\\_2016\\_Web\\_0.pdf](http://stpp.ucla.edu/sites/default/files/Exposure_and_Interaction_2016_Web_0.pdf)

<sup>3</sup> Bouchard M et al. "Attention-Deficit/Hyperactivity Disorder and Urinary Metabolites of Organophosphate Pesticides." *Pediatrics* 2010 125(6): 1270-1277.

<http://pediatrics.aappublications.org/content/early/2010/05/17/peds.2009-3058>

<sup>4</sup> Kuehn B. "Increased Risk of ADHD Associated with Early Exposure to Pesticides, PCBs." *JAMA* July 2010, 304(1):27-28. <http://jamanetwork.com/journals/jama/article-abstract/186163>

<sup>5</sup> Gunier RB et al. "Prenatal Residential Proximity to Agricultural Pesticide Use and IQ in 7-Year-Old Children." *Environmental Health Perspectives*. June 2016. <http://ehp.niehs.nih.gov/ehp504/>

<sup>6</sup> Ibid.

<sup>7</sup> González-Alzaga B et al. "Pre- and postnatal exposures to pesticides and neurodevelopmental effects in children living in agricultural communities from South-Eastern Spain." *Environment International* 85 (2015) 229-237. <http://ehp.niehs.nih.gov/ehp504/>

<sup>8</sup> Shelton, J et al. "Neurodevelopmental Disorders and Prenatal Residential Proximity to Agricultural Pesticides: The CHARGE Study." *Environmental Health Perspectives*. 2014. <http://ehp.niehs.nih.gov/wp-content/uploads/122/10/ehp.1307044.alt.pdf>

CPR is pleased that the draft CalEnviroScreen 3.0 includes one additional pesticide, ethylene glycol, which met the current hazard and volatility criteria for the tool.

Nevertheless, while the list of pesticides in the tool appropriately includes those pesticides that are both highly toxic and higher volatility, we believe the list does not adequately account for exposure to highly toxic but low volatility pesticides, which adhere to soil particles, resulting in exposure through dust inhalation. Studies have shown that once pesticide dust is tracked into residences – which can be quite common in agricultural communities – it can be highly persistent.

Notable omissions of heavily used and highly toxic pesticides include:

1. The herbicide paraquat, which is classified by USEPA as “Highly Persistent” with a reported half-life in soil of 1,000 days and an extremely high soil sorption coefficient of 1,000,000 Koc.<sup>9</sup> Exposure to paraquat has been linked to Parkinson’s disease in both animal tests and epidemiological studies of pesticide handlers and residents of areas of high paraquat use.<sup>10,11</sup>

2. The fungicides maneb and mancozeb, which have a reported half-life in soil of 70 days and soil sorption coefficient of 2,000 Koc<sup>12</sup> and are listed as known carcinogens under Proposition 65 and elevated rates of Parkinson’s disease have been found in areas of high use.<sup>13</sup>

3. The miticide propargite which has a reported soil half-life of 56 days and soil sorption coefficient of 4,000 Koc<sup>14</sup> and is listed under Proposition 65 as a known carcinogen and reproductive toxin.

4. The fungicide iprodione, which has a soil half-life of 14 days and soil sorption coefficient of 700 Koc<sup>15</sup> and is listed under Proposition 65 as a known carcinogen.

5. The fungicide captan, which has an estimated soil half life of 1 to 10 days<sup>16</sup> and is listed under Proposition 65 as a known carcinogen.

At minimum all pesticides that are listed under Proposition 65 as known carcinogens or reproductive toxins or are associated with elevated rates of Parkinson’s disease in peer-reviewed, published epidemiology studies should be added to the tool.

### **3. Include a Mapping Layer That Shows Where DPR/ARB Pesticide Monitoring Sites Are Located**

CPR believes adding a mapping layer that indicates where pesticide monitoring is taking place around the state will be beneficial for showing the extent of pesticide monitoring in California and in helping to identify any significant gaps. Having a visual of this sort will make the pesticide monitoring process in California more transparent for the communities most affected by agricultural pesticide use and can lead to improvements and expansion of pesticide monitoring around California.

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<sup>9</sup> Oregon State University (OSU) Pesticide Properties Database <http://npic.orst.edu/ingred/ppdmove.htm>.

<sup>10</sup> Costello, S et al (2009) “Paraquat and Maneb exposure and Parkinson’s Disease in the California Central Valley.” *American Journal of Epidemiology*, 169(8) 919-26. <http://aje.oxfordjournals.org/content/169/8/919.full>

<sup>11</sup> Tanner, CM et al (2011) “Rotenone, Paraquat and Parkinson’s Disease.” *Environmental Health Perspectives*, 119: 866-872. <https://www.ncbi.nlm.nih.gov/pubmed/21269927>

<sup>12</sup> Oregon State University (OSU) Pesticide Properties Database <http://npic.orst.edu/ingred/ppdmove.htm>.

<sup>13</sup> Costello, S et al (2009) “Paraquat and Maneb exposure and Parkinson’s Disease in the California Central Valley.” *American Journal of Epidemiology*, 169(8) 919-26. <http://aje.oxfordjournals.org/content/169/8/919.full>

<sup>14</sup> Oregon State University (OSU) Pesticide Properties Database <http://npic.orst.edu/ingred/ppdmove.htm>.

<sup>15</sup> Ibid.

<sup>16</sup> Ibid.

#### **4. Adopt CalEnviroScreen 3.0 Proposal to Add 1,2,3-Trichloropropene as a Contaminant to the Drinking Water Indicator**

1,2,3-Trichloropropene (1,2,3-TCP) is a known human carcinogen, which has polluted groundwater throughout California and disproportionately impacts small, rural communities. Its significance as a contaminant is recognized by the State Water Resources Control Board, which is currently developing a Maximum Contaminant Level. CPR strongly supports the addition of 1,2,3-TCP as a contaminant to the CalEnviroScreen drinking water indicator.

#### **5. In Addition to Statewide Rankings, Publish Regional Rankings on the CalEnviroScreen Website to Analyze and Produce Data on the Top EJ Communities from a Regional Perspective**

CPR supports the California Environmental Justice Alliance's recommendation that OEHHA, in addition to the statewide rankings, develop an additional methodology for regional rankings and publish the dataset on its website. We believe that having regional rankings in addition to statewide rankings will help highlight more nuanced difference among communities at the regional level and would allow many of the underserved and vulnerable communities with whom we work greater capacity to use CalEnviroScreen to aid in the development of local and regional policies of critical importance to them.

#### **6. Indicators Should Be Weighted on Actual Impact on Populations**

CPR supports the recommendation made by Leadership Counsel for Justice and Accountability that, as much as possible, all indicators should be weighted based on their actual impact on populations rather than their impact on the geographical area within census tracts, as the strictly geographical approach does not always result in an accurate reflection of the likely true exposure levels.

#### **7. Give Environmental Effects Indicators a Full Weight Instead of a Half Weight for Calculating Overall Pollution Burden Scores in CalEnviroScreen**

CPR believes it is important to give full weight to the environmental effects indicators, as there is insufficient evidence to justify the half weight for all environmental effects indicators. Water bodies impaired as a result of agricultural pesticides, for example, give an important indication of additional pollution that may be affecting local populations and merits full inclusion.

Thank you for considering CPR's comments and recommendations. We appreciate the opportunity to weigh in on how to strengthen CalEnviroScreen and look forward to seeing its revised iteration.

Sincerely,

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