Hello,

We'd like to submit the attached "Californians for Pesticide Reform's Recommendations for Implementation of AB 617." I tried to submit it through the on-line public comment portal, but it keeps getting rejected.

Many thanks for your help!

Best,
Sarah Aird

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Working together for a just & sustainable food system since 1996

Californians For Pesticide Reform

July 23, 2018

Mss. Karen Magliano and Veronica Eady
California Air Resources Board
1001 I Street
Sacramento, CA 95814

RE: Californians for Pesticide Reform's Recommendations for Implementation of AB 617

Dear Ms. Magliano and Ms. Eady,

On behalf of the 190+ member organizations of the statewide coalition Californians for Pesticide Reform, I would like to thank CARB staff for their work on the Draft Community Air Protection Blueprint and for the opportunity to weigh in on said plan.

The current Blueprint does not go far enough in recognizing the contribution of agricultural emissions to greenhouse gases and the pollution of local communities. Despite their relevance to air quality in some of the most polluted communities in California and to greenhouse gas emissions, neither pesticides nor fertilizers are referenced in the Blueprint. It is critical that the Blueprint explicitly incorporate agricultural emissions, including pesticides and synthetic fertilizers, into CARB's statewide action emissions reduction plans as well as in local efforts to reduce emissions.

I. Regulatory Authority

CARB's authority to regulate pesticides listed as Toxic Air Contaminants (TACs) once they enter the ambient air is unimpeded by the Department of Pesticide Regulation (DPR) or any other agency, because a pesticide that is a TAC is no longer in DPR's exclusive jurisdiction once it enters the ambient air. The courts have ruled that while DPR has jurisdiction to regulate the application of pesticides that are TACs, CARB's regulatory authority to maintain jurisdiction of pesticides as TACs once they enter the ambient air is not divested.[1] Additionally, the California Supreme Court ruled that local Air Pollution Control Districts (APCDs) are not precluded from regulating emissions of a substance even before ARB lists the substance as a TAC.[2] The court pointed to lengthy legislative history and environmental laws as evidence that the California legislature intended to give CARB and APCDs unimpeded authority to regulate the ambient air. Thus, the legal authority of both CARB and APCDs to regulate pesticides once they enter the ambient air is clear.

II. Pesticide and Fertilizer Contributions to TACs and Criteria Pollutants

On the whole, the contribution of agriculture to GHG emissions and climate change is likely being underestimated in the state of California. The *International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD),* governed by the Intergovernmental Panel on

[1] *Harbor Fumigation, Inc. v. County of San Diego Air Pollution Control Dist.* (1996) 43 Cal. App. 4th 854, 870
[2] *W. Oil & Gas Assn. v. Monterey Bay Unified Air Pollution Control Dist.*, 49 Cal. 3d 408

Climate Change (IPCC) and the nongovernmental Millennium Ecosystem Assessment, finds that about 30% of global emissions leading to climate change are attributable to agricultural activities.[3] To date California has largely ignored the full GHG contributions of the state's chemically-based, industrial agricultural export model. These contributions include direct emissions from industrial agricultural practices like heavy pesticide and fertilizer use, as well as more indirect emissions resulting from industrial agriculture's focus on export, such as diesel emissions from trucks transporting goods far distances. California's predominant industrial agricultural model, which results in significant greenhouse gas emissions and a multitude of health problems in nearby low-income communities of color, is not possible without applications of hundreds of millions of pounds of toxic pesticides and vast quantities of fertilizers to California fields each year. Industrial agriculture also hampers the very soil management practices that have the greatest potential to sequester carbon dioxide.

These agricultural pollutants are also a significant source of the Toxic Air Contaminants and criteria pollutants that AB 617 is intended to reduce. For example, approximately 200 million pounds of agricultural pesticide active ingredients are applied to California fields *every year*,[4] with more than 40 million pounds being fumigants, which are amongst the most hazardous and GHG-producing pesticides.[5] Fumigants are carcinogenic and drift-prone, and are among the 46 pesticides classified as Toxic Air Contaminants (TACs) in California. In addition to putting communities' health at risk, a number of these fumigant TACs trigger the release of nitrous oxide (N_2O), a greenhouse gas nearly 300 times more potent than carbon dioxide.[6] One study alone reported a 700% increase in N_2O emissions following a chloropicrin fumigation.[7] The notorious organophosphate insecticide chlorpyrifos, a developmental neurotoxicant that damages children's brains, is likely to be listed as a TAC soon as well.

Many fumigant TACS are also ozone-contributing Volatile Organic Compounds (VOCs), among the top 10 VOC sources in the San Joaquin Valley, accounting for as much as 5-10% of all VOC emissions. Moreover, recent studies have documented fumigant TACs' contribution to secondary organic aerosols, a major component of PM2.5.[8] PM2.5 is the dominant cause of criteria air pollutant health impacts, including lung and heart problems, that disproportionately affect environmental justice communities. Recent lab tests from UC Riverside found that MITC, the main breakdown product of metam fumigants, increased secondary organic aerosol formation 12-fold.[9]

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[3] IAASTD. 2009. Agriculture at a Crossroads: International Assessment of Agricultural Knowledge, Science and Technology for Development Global Report. UNDP, FAO, UNEP, UNESCO, World Bank, WHO, GEF. Island Press, Washington, D.C. http://www.fao.org/fileadmin/templates/est/Investment/Agriculture_at_a_Crossroads_Global_Report_IAASTD.pdf

[4] California Dept. of Pesticide Regulation, Pesticide Use Reporting. http://www.cdpr.ca.gov/docs/pur/pur16rep/lbsby_co_16.pdf

[5] California Dept. of Pesticide Regulation, Pesticide Use Reporting. http://www.cdpr.ca.gov/docs/pur/pur16rep/chmrpt16.pdf

[6] Greenhouse Gas Emissions: Overview of Greenhouse Gases - Nitrous Oxide Emissions, *https://www.epa.gov/ghgemissions/overview-greenhouse-gases*.

[7] Spokas, K., Wang, D. "Stimulation of nitrous oxide production resulted from soil fumigation with chloropicrin." Atmospheric Environment 37 (2003) 3501-3507. *https://doi.org/10.1016/S1352-2310(03)00412-6*.

[8] Secondary Organic Aerosol (SOAs) Research, U.S. EPA, *https://www.epa.gov/air-research/secondary-organic-aerosol-soas-research*.

[9] Yee, L.D., Warren, B.A., Cocker III, D.R. "Secondary Organic Aerosol (SOA) and Ozone Formation from Agricultural Pesticides." University of California Riverside Undergraduate Research Journal, Volume II (2008) 67-74. *http://ssp.ucr.edu/files/V2-2008.pdf*.

In addition to pesticides, synthetic fertilizers cause a host of health problems in local rural communities and are a significant source of greenhouse gas emissions. Several of the United States' worst air quality districts are, in fact, in rural regions of California. According to a new study led by the University of California, Davis, agricultural fields contribute between 25 and 41 percent of the nitrogen oxide (NOx) emissions in California, a key component of ozone.[10] The peer-reviewed study traces the emissions to fertilized soils in the Central Valley region. Excess nitrogen from synthetic fertilizers can pollute groundwater and air, impacts human health and the environment, and contributes to climate change. Eleven percent of nitrogen from crop land and livestock is lost as air pollution, contributing to the formation of ozone and ammonia, a component of particulate matter.[11] Well-established scientific evidence links ozone and particulate matter to poor respiratory and heart health. The over-use of fertilizer, in turn, can be linked, in part, to the fact that soils exposed to pesticides show less ability to fix nitrogen in the soil for the benefit of plants.[12]

Despite their relevance to air quality in some of the most polluted communities in California and to greenhouse gas emissions, neither pesticides nor fertilizers are referenced in the Blueprint. The Statewide Actions as outlined in Appendix D, which describes the "broad suite of actions CARB and air districts are undertaking now to reduce criteria air pollutants and toxic air contaminants in impacted communities throughout the State," do not include any actions related to pesticides, including any action on the nitrous oxide-producing fumigant sulfuryl fluoride (a hydrofluorocarbon).[13] We urge CARB, as it adopts *additional* measures to reduce TACs and criteria air pollutants to include pesticides and fertilizers in this mix.

Following are our recommendations for the inclusion of pesticides and fertilizers in CARB's Blueprint.

III. Generally

- Require the establishment of baseline emissions data from agricultural sources at a facility or farm-level;
- Incorporate pesticide and fertilizer emissions in technical assessments by both Air District and CARB staff;
- Require Air Districts to monitor agricultural sources of air pollution;
- Include enforceable strategies in CERPs to ensure reductions and to prevent increases in any criteria air pollutant or TAC from agricultural sources; and
- Ensure agricultural sources are addressed by statewide action strategies.

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[10] Almaraz, M., Bai, E., Wang C., Trousdell, J., Conley, S., Faloona, I., Houlton, B., "Agriculture is a major source of NO_x pollution in California," Science Advances, Vol. 4, No. 1, January 2018. http://advances.sciencemag.org/content/4/1/eaao3477.full

[11] Kerlin, K. "California Nitrogen Assessment Shows the State of the Science on Nitrogen Use and Pollution California Paves the Way for Reconciling Agriculture and the Environment," *Food and Agriculture News*, August 9, 2016. https://www.ucdavis.edu/news/first-state-level-nitrogen-assessment-shows-state-science-nitrogen-use-and-pollution

[12] Martınez-Toledo MV, Salmeron V, Rodelas B, Pozo C, Gonzalez-Lopez J. 1998. Effects of the fungicide Captan on some functional groups of soil microflora. Applied Soil Ecology 7: 245–255; doi: https://doi.org/10.1016/S0929-1393(97)00026-7.

[13] In a comment letter submitted to CARB by the Californians for Pesticide Reform Coalition on January 17, 2017, we called on CARB to establish a plan and timeline to begin reducing sulfuryl fluoride emissions, which CARB notes comprise 20% of the state's F-gas emissions.

IV. Incentives

AB 617 includes air district and CARB incentive funding to support the "introduction and expedited deployment of the cleanest technologies beyond what is required by regulation. In many cases deploying these cleaner technologies can contribute to regional air quality goals while providing localized benefits." We urge CARB to ensure that farmers are included as businesses eligible for incentive funding, specifically funding to support farmers to reduce, and transition off of, their use of carcinogenic TAC fumigant pesticides.

V. Suggested Pesticide Emission Reductions Strategies

Agricultural emissions must be included in CARB's statewide emissions reductions strategies. With respect to pesticides, we recommend CARB consider taking the following actions:

A. Suspend permits for soon-to-be TAC chlorpyrifos

An organophosphate pesticide, chlorpyrifos is one of the most studied pesticides in existence. Among other impacts, exposure to chlorpyrifos has been shown to reduce children's IQ, change brain structure, reduce lung function, and make it more likely for a child to be born with autism or ADHD or other behavioral disorders. The TAC Scientific Review Panel (SRP) is currently working on formalizing its recommendation to DPR that the department list chlorpyrifos as a Toxic Air Contaminant. At the same meeting in which the TAC SRP found chlorpyrifos a TAC, they also reviewed DPR's most recent draft risk assessment, which confirms what U.S. EPA scientists had concluded back in 2016 – that there is no safe use of chlorpyrifos because children under the age of two risk an unsafe level of exposure from any one of three exposure routes: food residues, contaminated drinking water, and drift up to ½ mile away. Besides its pending designation as a TAC, chlorpyrifos products are already recognized as high-VOC products. VOCs are precursors to the development of ozone. Every year nearly 1 million pounds of chlorpyrifos is used in California, with most if it used in the San Joaquin Valley.

B. Set 6x6 mile township limits for all pesticides eligible for regulation under AB 617

Despite statutory and regulatory requirements, pesticides are rarely assessed for their cumulative impacts. Yet one recent study[14] of the San Joaquin Valley conducted by UC Santa Barbara scientists found that pregnant mothers who were exposed to extreme levels of pesticides[15] (top 5% of the pesticide exposure distribution), experienced between 5-9% increases in the probability of adverse birth outcomes (low birth weight, gestational length, preterm birth, birth abnormalities). The researchers looked at the combined results from all pesticides used in the region. This study highlights the across-the-board need to reduce use of pesticides to ensure children's health. Limiting AB 617 pesticides would help achieve this goal.

C. Reduce township caps for TAC 1,3-dichloropropene (1,3-d)

Approximately 14 million pounds of the carcinogenic fumigant TAC 1,3-dichloropropene were applied to California fields in 2016, with similar amounts applied in prior years. In addition to being a TAC, 1,3-d produces Volatile Organic Compounds, contributing to the development of ozone. Just this year, the Superior Court of Alameda County found that the Department of Pesticide Regulation

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[14] Larsen, A., Gaines, S., & Deschenes, O., "Agricultural pesticide use and adverse birth outcomes in the San Joaquin Valley of California," *Nature Communications*, Vol. 8, August 29, 2017 http://econ.ucsb.edu/~olivier/LGD_2017.pdf.

[15] 4,200 kilograms, or 9,259 pounds, of pesticides applied in the 1-square-mile regions encompassing their addresses during pregnancy.

had improperly adopted an underground regulation[16], which had resulted in a relaxed cancer risk level of 0.56 ppb, which is 4.4 times DPR's previous cancer risk level of 0.14 ppb and 5.6 times higher than OEHHA's recommended level of 0.1 ppb to protect children. This underground regulation raised township caps from 90,250 pounds of 1,3-d that could be used per township to now 136,000 pounds per township. It is vital that for the public's health, this township cap be reduced to coincide, at least, with OEHHA's recommended safety level of 0.1 ppb.

D. Ban all aerial applications of pesticides eligible for regulation under AB 617

E. Establish 24/7 buffer zones of 1 mile for all pesticides eligible for regulation under AB 617 for all sensitive sites, including homes, hospitals, labor camps and schools

VI. Statewide Tools and Resources, including on-line resource center and technology clearinghouse, best practices guidance, community air monitoring online resources and data portal, enhanced complaint reporting

The monitoring and measurement of pesticides and fertilizers should be included in any online resources created. In addition, holistic land management practices, such as regenerative, agroecological and organic farming, that offer alternatives to the extensive use of pesticides and fertilizers should be incorporated into best practices guidance to reduce emissions of AB 617 pollutants. CARB should work with sister agencies, including DPR and the California Department of Food and Agriculture to incorporate the alternative practices. Finally, enforcement around pesticide drift should be included in CARB's community enforcement program.

VII. Win-Win Solutions That Offer Co-Benefits

There are agricultural solutions that can bring health, environmental and productivity co-benefits to rural populations. The *International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD),* concludes that agricultural "business as usual is no longer an option" and "that the current energy-intensive industrial model of agriculture is outdated, unsustainable and exacerbates social inequality and that productivity per unit of land and per unit of energy use is much higher in small-scale and diversified farms than in large intensive farming systems."[17] The UN Special Rapporteur's report to the 16th Session of the UN Human Rights Council, Agroecology and the Right to Food, which is an extensive review of recent scientific literature, concludes that growing food using agroecological practices is highly productive and, if sufficiently supported, could double food production in entire regions within 10 years, at the same time mitigating climate change and alleviating rural poverty.[18]

Sincerely,

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[16] *Vasquez v. California Department of Pesticide Regulation* (Mar. 28, 2018, RG17-847563) __ Cal.App.4th __

[17] IAASTD. 2009. Agriculture at a Crossroads: International Assessment of Agricultural Knowledge, Science and Technology for Development Global Report. UNDP, FAO, UNEP, UNESCO, World Bank, WHO, GEF. Island Press, Washington, D.C. http://www.fao.org/fileadmin/templates/est/Investment/Agriculture_at_a_Crossroads_Global_Report_IAASTD.pdf

[18] De Schutter O. 2011. "Agroecology and the Right to Food." United Nations Special Rapporteur on the Right to Food. A/HRC/16/49. http://www.srfood.org/index.php/en/component/content/article/1174-report-agroecologyand-the- right-to-food

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