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Lauren Otani, Senior Environmental Scientist
California Department of Pesticide Regulation
Via email: dpr22005@cdpr.ca.gov

RE: Comments on proposed regulation #22-005 for 1,3 dichloropropene soil fumigation

Dear Director Henderson, Dr. Pham, and Ms. Otani,

These comments to are submitted on behalf of Beyond Pesticides. Founded in 1981 as a national, grassroots, membership organization that represents community-based organizations and a range of people seeking to bridge the interests of consumers, farmers, and farmworkers, Beyond Pesticides advances improved protections from pesticides and alternative pest management strategies that eliminate a reliance on pesticides. Our membership and network span the 50 states and the world.

Thank you for the opportunity to comment on the California Department of Pesticide Regulation's (DPR's) proposed regulation for the soil fumigant 1,3-dichloropropene (1,3-D). These comments also address the minor changes in the May 9 announcement. These changes do not address the serious issues raised herein.

Elimination of the use of the pesticide 1,3 dichloropropene (1,3-D) is urgently needed because this cancer-causing soil fumigant is highly drift prone, with long-term air levels greatly exceeding the Proposition 65 Safe Harbor level at all DPR's air monitoring network sites and short-term spikes in air levels posing dangers to infants and the elderly. Other fumigants pose similar health hazards, as well as threats to California's environment and the planet. All should be eliminated. Organic farmers in California do not require the use of such dangerous fumigants, demonstrating that the use of such extremely toxic chemicals is unnecessary.

DPR's proposal to remove existing limits on the use of 1,3-D, allowing Californians to breathe much more 1,3-D than state toxicologists at the California Office of Environmental Health Hazard Assessment—charged with establishing safe limits of exposure and enforcing

Prop 65—say is safe, highlights the dangers to which farmworkers are routinely exposed. It is outrageous that DPR and the U.S. Environmental Protection Agency (EPA) would allow farmworkers—whose labor was judged "essential" during the pandemic—to be routinely exposed to highly toxic pesticides, which could be replaced by organic practices.

1,3-D is the third most heavily used pesticide in California with over 12 million pounds of use reported annually. It is used as a pre-plant soil fumigant mainly for berry crops along the central coast; almonds, sweet potatoes, tree fruit, grapes, and nursery crops in the San Joaquin valley; and carrots in Imperial County. 1,3-D causes cancer. In addition, the National Institutes of Health's PubChem states, "Occupational exposure is likely to be through inhalation and via the skin. Irritation of the eyes and the upper respiratory mucosa appears promptly after exposure. Dermal exposure caused severe skin irritations. Inhalation may result in serious signs and symptoms of poisoning with lower exposures resulting in depression of the central nervous system and irritation of the respiratory system. Some poisoning incidents have occurred in which persons were hospitalized with signs and symptoms of irritation of the mucous membrane, chest discomfort, headache, nausea, vomiting, dizziness and, occasionally, loss of consciousness and decreased libido."[1]

1,3-D is often used with chloropicrin, another highly toxic fumigant, to increase its herbicidal and fungicidal properties. Chloropicrin is extremely irritating to lungs, eyes, and skin. Inhalation may lead to pulmonary edema, possibly resulting in death.

These and other soil fumigants not only pose severe health threats to farmworkers and bystanders,[2] but also threaten soil and water ecosystems.[3] In contrast, organic production seeks to build healthy soils that resist plant pathogens, making fumigation unnecessary. Thus, these fumigants pose unreasonable adverse effects on humans and the environment and should be banned.

1,3-D has been banned in 34 other countries. California should be working towards rapidly eliminating use of 1,3-D and accelerating the adoption of alternative practices, which are used successfully by organic producers.

We have grave concerns that these regulations, as proposed, will fall far short of protecting fieldworkers and other rural residents from harmful levels of exposure to this cancer-causing and highly drift prone soil fumigant because:

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[1] https://pubchem.ncbi.nlm.nih.gov/compound/E_-1_3-Dichloropropene.

[2] Reigart, J.R. and Roberts, J.R., 2013. Recognition and Management of Pesticide Poisonings, 6th edition. Pp. 161-172.

[3] See, for example: Guo M, Yates SR, Zheng W, Papiernik SK. Leaching potential of persistent soil fumigant residues. Environ Sci Technol. 2003 Nov 15;37(22):5181-5; Bin Huang, Dongdong Yan, Xiaoning Wang, Xianli Wang, Wensheng Fang, Daqi Zhang, Canbin Ouyang, Qiuxia Wang, Aocheng Cao, Soil fumigation alters adsorption and degradation behavior of pesticides in soil, Environmental Pollution, Volume 246, 2019, Pp. 264-273.

1) The rule is not designed to, and cannot, control 1,3-D use and emissions to the level recommended by the Office of Environmental Health Hazard Assessment (OEHHA) for cancer risk control;
2) Farmworkers and other outdoor workers are left unprotected and are allowed to work at the very edge of fumigated fields;
3) The proposed emissions reduction measures will be difficult to enforce.
4) The use cap, and the requirement to keep a running total of 1,3-D use and prohibit further applications when the use cap has been reached, have been eliminated.
5) There is no required timeline for completion of an annual report on 1,3-D use, air monitoring levels and potential need for increased mitigations.
6) 1,3-D and other fumigants cannot be controlled and threaten humans, water, and the ecosystem.

Soil fumigation must be eliminated.

1,3-D is a dangerous chemical that should not be released into the environment. However, it is not the only soil fumigant in use in California, and others also pose extreme hazards to humans and the environment. In 2018, 37,974,923 pounds of fumigants were used on 694,777 acres in California. Of the top 12 chemicals by pounds in total statewide pesticide use in California in 2018, five were fumigants—1,3-dichloropropene, potassium n-methyldithiocarbamate (metam-potassium), chloropicrin, metam-sodium, and sulfuryl fluoride.

Fumigant	2018 Rank	2018 pounds	Toxic Air Contaminant?[4]	Carcinogen?[5]	Reproductive Toxin?	Groundwater Contaminant?
1,3-D	3	12,569,270	Y	Y	?[6]	Y
Metam-potassium	4	8,527,736	Y	Y	Y	?
Chloropicrin	6	7,436,425	Y	N[7]	N	?
Metam-sodium	10	3,765,705	Y	Y	Y	?
Sulfuryl fluoride	12	2,991,914	Y	N	Y[8]	?

In addition, not only are some fumigants or their metabolites greenhouse gases, but by killing soil organisms, they reduce the ability of soils to sequester carbon, which increases the impact of agriculture on climate change.

The regulation must be redesigned to eliminate exposures to all people.

To be health protective, the regulation needs to be redesigned to eliminate 1,3-D in the air. Maximum average annual air levels under the Proposition 65 No Significant Risk Level

[4] https://www.cdpr.ca.gov/docs/pur/pur18rep/18_pur.htm.
[5] https://www.cdpr.ca.gov/docs/pur/pur18rep/18_pur.htm, https://www.pesticideinfo.org.
[6] "Insufficiently studied" according to https://www.pesticideinfo.org.
[7] "Not likely" according to https://www.pesticideinfo.org.
[8] https://pubchem.ncbi.nlm.nih.gov/compound/Sulfuryl-fluoride.

(NSRL) set by the Office of Environmental Health Hazard Assessment (OEHHA), which is 3.7 micrograms per day, equivalent to an average annual air concentration of 185 ng/m3 or 0.04 ppb are being exceeded from 2.5 to 29-fold at the Department's six air monitoring stations.

Currently the regulation is only designed to reduce annual air levels to 0.56 ppb, a level 14 times higher than the Prop 65 NSRL. In setting the NSRL, OEHHA obtained and reviewed additional data that led them to revise their 2015 recommendation of 0.1ppb. DPR must follow the latest science to ensure that all people are fully protected. It is not clear to us that exposure to 1,3-D and other soil fumigants can be eliminated by measures short of a ban.

Nor can hazards to the ecosystem or climate be eliminated without a ban. In view of the severe impacts that climate change is now inflicting on California's agriculture and residents, it is surprising that CDPR is not placing more emphasis on eliminating these hazards.

Farmworkers must not be excluded from this pesticide regulation.

Proposing a pesticide regulation that is expressly designed to protect residential bystanders only, and which excludes from its scope low-income Latinx people who work around treated fields, is an outrageous environmental injustice that must be corrected. In *Vasquez vs DPR and Dow*, the court ordered DPR to develop a regulation that protects farmworkers (occupational bystanders) and to work in concert with OEHHA on development of pesticide worker protection regulations in accordance with Food and Agriculture Code sections 12980 and 12981.

DPR's draft regulation is designed to reduce peak 1,3-D air levels by reducing maximum application plot size, a change that may reduce peak acute exposures but will result in a greater number of applications to smaller field areas. In turn, this can be expected to increase the number of days of possible work adjacent or very close to recently fumigated fields for fieldworkers, tractor drivers and irrigators preparing other field sections for fumigation, and other outdoor workers. By excluding worker bystanders from this regulation, the Department is callously ignoring their exposures to 1,3-D.

There is no legitimate basis for DPR to adopt setbacks between treated fields and occupied structures while at the same time allowing farmworkers and dairy workers to work for full days, even multiple workdays, up to the very edge of the treated field immediately after and even during the fumigation. DPR's omission of farmworkers in the draft regulation, enabling continued high levels of 1,3-D use, is unconscionable. Until a ban is in place, setbacks or buffer zones between treated fields and nearby fields where work could be taking place should be included in the regulation.

The requirements for keeping a running tally of 1,3-D applications at the local township level and enforcing a township cap lead to inconsistent enforcement.

In the face of the uncertainties in modeling and in extrapolating from results of small-scale studies of new application methods, the proposal to eliminate the use cap and the requirement for a running tally of 1,3-D applications is reckless.

Until a ban is in place, the Department should take over the duty for maintaining this real-time 1,3-D use inventory and enforcing a health protective use cap by reviewing all 1,3-D Notices of Intent to determine whether or not they should be granted. 1,3-D use reports should then be required to be submitted to both counties and DPR on the date of fumigant application.

Any business with the technical expertise to conduct fumigations is clearly capable of submitting both Notices of Intent and pesticide use reports online. DPR can then use spreadsheets to keep a running tally of adjusted total pounds and total pounds used per township and hot spots within townships.

Until a ban is in place, the township cap must be retained but reduced to a 1,3-D use level designed to protect to the Proposition 65 No Significant Risk Level (NSRL).

The draft regulation eliminates the township cap on 1,3-D use entirely, leaving no mechanism to prevent increased use. Instead, until a ban is in place, the township cap must be retained and reduced to a level designed to reduce average annual levels below the Proposition 65 NSRL of 0.04 ppb.

Enforcement Concerns

How will 50% moisture and 24" injection depth be monitored and enforced across large fumigation plots, especially given the scarcity of water and the presence of rocks and tree roots impeding 24" injection? How has the reliability of the three proposed methods for checking soil moisture been evaluated? How will injection depth be verified in inspections and investigations?

It is concerning that in 2020, according to DPR Enforcement Profile statistics, in the high use San Joaquin valley counties of Fresno, Kern, Merced and Stanislaus, an average of only 18 soil fumigations were inspected. Only 7 fumigation inspections were conducted in Kern County where some of the highest recent 1,3-D exceedances were measured.

We are also concerned rather than reassured to note that no violations were found in 98.7% of soil fumigation use inspections statewide. Such a high rate of compliance suggests that inspections may not be thorough enough and it stands in stark contrast to the poor enforcement record for TriCal, the state's largest fumigant application company. TriCal is facing licensing action by DPR due to past violations resulting in a total of 40 incidents in multiple counties and characterized by DPR Enforcement Deputy Ken Everett as "an unacceptable pattern of egregious and dangerous actions that place workers and the public in danger."

In view of these challenges to adequate enforcement, fumigant use in California should be discontinued as soon as possible.

Annual report requirement must include a due date

Requiring an annual report with a public comment period and including the fumigation method in pesticide use reporting will improve transparency but the regulation also needs to include a timeline or deadline for annual report release. The proposed wording “as soon as reasonably practicable” is inadequate. We propose that until a ban is in place, June 1st of the subsequent year as an appropriate deadline for issuing the Annual Report. The scope of the report also needs to be expanded beyond the 10 highest-use townships in the state. At minimum it must include all high use townships in each county and those spanning multiple counties. The regulation also needs to include clear requirements for timely tightening of use restrictions if 1,3-D levels documented in air monitoring or predicted by modeling exceed action levels, rather than the vague obligation to “determine if additional restrictions are needed” in the proposed regulation. Clear regulatory triggers have precedence in the field fumigation VOC emission limits (CCRT3 section 6452.2).

Conclusion

As currently drafted, this proposed regulation falls far short of protecting farmworkers and other rural bystander workers and residents from health-harming levels of exposure to 1,3 dichloropropene. We urge you to carefully consider the health and environmental threats posed by 1,3-D and other soil fumigants and eliminate their uses as soon as possible.

Thank you for your consideration of these comments.

Sincerely,

Terry Shistar, Ph.D.
Board of Directors