Attachment A – Summary and Response to Comments Received During the 60-Day Comment Period

Section 6448 (General Requirements)

No.	Comment/*Response*	Commenter
1	**The proposed winter month restrictions are inadequate. The economic analysis by the California Department of Food and Agriculture (CDFA) and the University of California, Davis (UCD) indicates a lower economic impact to growers and applicators with the seasonal setbacks compared to a December (or longer) prohibition and are concerned that minimizing economic impacts may have been prioritized over minimizing acute and cancer risks to residents from exposure to 1,3-Dichloropropene (1,3-D). In January 2018, a 24-hour level of 50.5 ppb was measured at the Shafter air monitoring station with the likely source an untarped 297.3 lb/ac application to a 25-acre field 650 feet from the air monitoring site. The Notice of Intent (NOI) for the application lists the injection depth as 36 inches rather than 18 inches. Air modeling predicted even higher levels, up to 220 ppb, closer to the treated field. Even if new application methods reduce emissions by 50%, levels above 110 ppb would be expected adjacent to a 30-acre field treated at the maximum application rate (332 lb/ac). The current proposal would allow winter applications under these conditions with farm work and other outdoor work allowed up to the field border.** ***The proposed regulations rely on four main measures to mitigate exposures to 1,3-D. Those four major aspects of the regulation are 1) Setbacks to occupied structures; 2) limits to application block sizes; 3) the introduction of new low-emission fumigation methods, including requiring 24-inch broadcast applications or TIF-tarp applications for tree and grape applications; and 4) more stringent soil moisture requirements (soil moisture needs to be at least 50% of field capacity). These mitigation measures were developed with the aid of computer modeling. Two computer models were used to develop the proposed mitigation measures and therefore develop the proposed regulations. The HYDRUS computer model was used to estimate emissions of 1,3-D from soil to the atmosphere. Those emission estimates were used by the Air Exposure and Risk model for Fumigants (AERFUM), which uses the American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) as a simulation engine to predict air concentrations of soil fumigants, along with pre- and post- processing functions. AERMOD is an air dispersion model. Emissions estimates generated by HYDRUS, along with weather data, were used by AERFUM to estimate air concentrations of 1,3-D based on the proposed mitigation measures. DPR's modeling methods have been peer-reviewed and validated by comparison to air monitoring data. The proposed regulations were not based on the outcome of the economic analysis.***	5

	The proposed regulations strengthen use restrictions over winter months by introducing winter setbacks for the months of November – February. These restrictions were further strengthened by modifications that were made to the originally proposed regulations to include regional setback tables, which provide setbacks based on historical weather data of both coastal and inland regions. Along with more stringent setbacks for both winter and nonwinter seasons, these regulations also introduce new field fumigation methods, establish more stringent soil moisture requirements, and establish restrictions on block size. These mitigation measures will result in decreased emissions and decreased ambient air concentrations of 1,3-D. ***In addition, the application scenario described in the comment, a January application of a 30-acre field in Shafter treated to the maximum application rate, will not be allowed under the proposed regulations. Under the proposed restrictions, the maximum block size for a January application using the maximum application rate would be a 5-acre field. In addition, as the mitigation in the proposed regulations will reduce concentrations to below the Risk Management Directive (RMD) target of 55 ppb as a 72-hour average, concentrations at the edge of the setback will be 55 ppb or lower as a 72-hour average. Because the air monitoring data provides 24-hour concentrations, this data alone should not be used to determine the adequacy of the proposed regulations.***	
2	**The proposed definition of "occupied structures" will help reduce interpretation discrepancies and confusion at the County enforcement level. We seek clarification that as long as non-residential agricultural buildings are not occupied for at least 24 consecutive hours that they are not to be considered occupied structures and are therefore not subject to the setback distance in effect.** ***DPR has clarified the definition of occupied structures in the document incorporated by reference, "1,3-Dichloropropene Field Fumigation Requirements, Est. January 1, 2024." Non-residential agricultural buildings, including barns, livestock facilities, sheds, and outhouses, are not by default considered to be an occupied structure. However, the document incorporated by reference allows for discretion by the county agricultural commissioner (CAC) to apply a setback to any indoor or outdoor site if occupied for more than 24 consecutive hours during and following the application. Therefore, in most cases, unless otherwise determined by the CAC, non-residential agricultural buildings will not be subject to setback requirements.***	6, 14

3	**Barns are not protected by any setback.** ***See response to comment number (no.) 2.***	P2
4	**We would like to offer our appreciation to DPR for clarifying that "non-residential agricultural buildings, including bars, livestock facilities, sheds and outhouses," are not by default considered an occupied structure and therefore subject to the specified setback requirements.** ***DPR acknowledges this comment.***	7, 12, 15, T15
5	**The soil moisture requirement is more challenging to achieve when compounded by the expanded seasonal restrictions. Extending the seasonal restriction from December to November through February means infrequent natural precipitation events are not likely able to be utilized to meet the soil moisture requirement. Some crops are best planted in late fall (November) with relatively mild weather, after typically late October rain events have subsided and soil is appropriately drained. As an alternative, DPR could expand their seasonal allowances, allowing soil moisture requirements to be better met by natural precipitation times, and allow growers to work with irrigation specialists to determine the appropriate soil moisture content within a more practical moisture range.** ***The winter months (November, December, January, and February) were grouped together due to modeling that shows higher predicted 1,3-D concentrations during these months due to long nights, low wind speeds, and stable atmospheric conditions. Higher 1,3-D concentrations are predicted for these months than predicted for March – October. Historical 1,3-D monitoring data affirms this. However, based on this comment, DPR considered a separate season for November and February. As described in an additional document relied upon ("Addendum: Modeling for mitigation measures to reduce acute exposures from 1,3-Dichloropropene, Revised Setback tables," Luo, 2023), the setback distances for November and February are only slightly better than for December and January and would only negligibly reduce the setback distances. Creating a separate season for November and February would increase the number of setback tables and complexity of the regulations, making compliance and enforcement more difficult. In addition, applications are currently prohibited during December. DPR initially considered the approach of keeping the December prohibition in place, which would result in larger setback distances for the entire year, as opposed to just larger setback distances the winter season (November - February). CDFA's economic analysis report indicates having setback tables for two seasons will have a lower economic impact than keeping the December prohibition in place. Therefore, DPR has determined that it is appropriate to keep the winter season (November - February), and***	7, 12

	associated setback tables, as proposed. In addition, the proposed regulations require an annual report to evaluate the effectiveness of the proposed mitigation measures. The annual report will include an evaluation of 1,3-D use and air concentration data in the winter months for the top township in each of the top ten highest use counties. See response to comment no. 38 for more information on the annual report.	
6	**DPR should continue to evaluate the proposed seasonal approach to allow for more flexibility in application months, which would increase opportunities for growers to rely on natural rainfall in lieu of irrigation, to meet the 50% field capacity soil moisture requirement. We encourage DPR to evaluate the inclusion of February with the "March-October" application seasons as California Irrigation Management Information System (CIMIS) hourly wind speed data suggests that extended low wind conditions and the potential for inversions and excessive concentration of 1,3-D in ambient air are significantly diminished by February.** ***See response to comment no. 5.***	8
7	**Including the months of November and February into the "winter season" causes a great deal of consternation in the industry due to the small number of acres that can be fumigated at the setbacks to occupied structures during this timeframe. February and November have historically been the highest-use months simply because of the availability of natural rainfall to meet labeled soil moisture requirements with a critical focus on conserving scarce water resources. With the most commonly used tree and vine rate of 332 lbs/acre, an applicator can only treat 5 acres with a 100 ft buffer zone to an occupied structure. This necessitates repeated trips to fumigate a field that could have been fumigated in one day, costing more in fuel and labor. We propose that DPR look at modeling November and February versus December and January to determine if a third application season would be warranted, allowing more acres to be treated with the current setbacks.** ***See response to comment no. 5.***	13
8	**We support DPR's recommendation that applications be allowed during December, but are concerned that the additional setbacks that are required based on applications made during the November – February winter season may need greater refinement. Increasingly, this period is when natural rainfall events are taking place, so farmers may be able to utilize naturally occurring increased soil moisture levels during this period, making the additional mandated setback unnecessary. We ask that DPR consider a January – December calendar where farmers can better evaluate and utilize tools available at that time to meet mitigation requirements.**	15

	See response to comment no. 5.	
9	**We would like for some flexibility in the calendar to be able to use more naturally occurring weather events to achieve the mitigations.** ***See response to comment no. 5.***	T47
10	**We would like to respectfully offer concern regarding the proposed setback distances, which will prove very impactful to farm operations. As is the case with setbacks or buffer zone requirements, implementing them will lead to untreated rows resulting in production loss or crop quality issues. It may also allow soil-borne pests to move freely in expanded setbacks and migrate to new areas or parcels requiring greater applications than otherwise anticipated. We would like to provide comments on multiple application circumstances. At a time when many California farms are at a watershed financial moment (managing input costs, lack of availability, resource scarcity, and supply chain challenges), these proposed setback requirements will contribute more pressure, pushing some out of business. This is especially true for small or mid-sized farms, those urban adjacent, or for cropping systems and crop types particular sensitive to pest pressures for which there are no alternatives to 1,3-D.** ***Current recommended 1,3-D permit conditions require a 100-foot setback distance for all applications. The proposed regulations will require 100 – 500-foot setback distances, with the proposed setback distances dependent on the field fumigation method, the application block size, application rate, season, and region. The intent is to provide growers the flexibility in selecting appropriate mitigation measures based on their choice of field fumigation method, application block size, and setback distance. DPR incorporated soil moisture requirements (soil moisture is required to be at least at 50% of field capacity). The soil moisture requirement was added to avoid larger than proposed setback distances which would otherwise have had significant economic impacts on small or mid-sized farms and those urban adjacent. Higher soil moisture will have less of an economic impact than increased setback distances, even under drought conditions. In response to comments received during the 60-day comment period, DPR also modified the originally proposed regulations to include 300-foot and 400-foot setback distance options to allow growers greater flexibility while still reducing emissions of 1,3-D in order to comply with the regulatory target of 55 ppb as a 72-hour average. Finally, as stated in the initial statement of reasons based on the economic analysis conducted by CDFA and UCD, DPR concluded that, while there is a statewide economic impact of this regulation, the impact will not be significant.***	7, 12

11	**Southern California timeframe is different than Northern California timeframe. We think Southern California should be changed from the 15th of February to February 1st. If you go down into the desert area, that's even different too. So, we need to look at the regions too. And to underscore the stability aspect, for application purposes, that instead of state-wide regulations, that might be best if it was applied regionally because your most stable time period is varied from southern latitude to northern latitude.** ***DPR did not include Northern and Southern California specific setback tables in the proposed regulations because historical weather data indicates that the differences between inland and coastal counties are more significant than differences between Northern and Southern California. The winter setback tables include the entire month of February and the inclusion of February in the winter season will remain unchanged. DPR modified the originally proposed regulations and added two sets of setback tables based on region: one for inland counties and one for coastal counties. These setbacks were determined based on historical weather data of both the coastal and inland regions. This is consistent with chloropicrin labeling (https://www.cdpr.ca.gov/chloropicrin.htm), facilitating compliance and enforcement for products that contain both 1,3-D and chloropicrin.***	C1
12	**We suggest that the modeled setbacks shown in Section 3 of the document incorporated by reference could be more granular and should include acceptable field sizes and application rates for 300- and 400-foot setbacks. This would allow greater flexibility for growers, while maintaining acceptable bystander exposure.** ***DPR modified the setback tables in the originally proposed regulations to include 300- and 400-foot setback options.***	8
13	**We do not support the Department's proposed regulations which forego the approach used to establish setback distances from single application block in instances where two or more applications would occur at different locations within 36 hours and the buffer zones for individual application blocks overlap or touch. In these instances, DPR is applying excessively conservative or worst-case assumptions for the data-driven inputs and modeling used to establish the setback distances for single application blocks. We request DPR to apply the same methodology it proposes for determining setback from single application blocks to determine setbacks from overlapping application blocks.**	7, 12, 15

	Extensive modeling using AERFUM, the same model used for single application modeling, showed that overlapping 1,3-D fumigations can result in 1,3-D concentrations over the regulatory target of 55 ppb, as a 72-hour average, if distance and/or time separation criteria are not met. Setbacks for overlapping field soil fumigations are required if the setbacks for two or more application blocks overlap within 36 hours from the time the earlier field soil fumigation is complete until the start of the later field soil fumigation, as described in "1,3-Dichloropropene Field Fumigation Requirements, Established January 1, 2024." The higher modeled concentrations (without the multiple application restrictions) show that individual field fumigation requirements do not provide sufficient mitigation for multiple applications, showcasing the need for additional restrictions. AERFUM was used to determine the appropriate distance and time separation requirements in order to ensure that ambient air concentrations will be below 55 ppb, as a 72-hour average. Therefore, multiple application requirements were developed using the same science-based approach as the single application requirements. The multiple application requirements will remain in place in order to achieve compliance with the regulatory targets of 55 ppb (as a 72-hour average) for acute risk and 0.56 ppb (as a 70-year average) for cancer risk to non-occupational bystanders. Similar requirements are in place for applications of chloropicrin (https://www.cdpr.ca.gov/chloropicrin.htm) that do not meet distance and/or time separation criteria.	
14	**The 36-hour separation may create issues for growers as growers may also have restrictions due to School Notification rules which require that they finish 36 hours before school is in session.** ***Extensive modeling conducted by DPR showed that overlapping 1,3-D fumigations can result in 1,3-D concentrations over the regulatory target of 55 ppb, as a 72-hour average, if distance and/or time separation criteria are not met. Setbacks for overlapping field soil fumigations are required if the setbacks for two or more application blocks overlap within 36 hours from the time the earlier field soil fumigation is complete until the start of the later field soil fumigation, as described in "1,3-Dichloropropene Field Fumigation Requirements, Established January 1, 2024." The higher modeled concentrations (without the multiple application restrictions) show that individual field fumigation requirements do not provide sufficient mitigation for multiple applications, showcasing the need for additional restrictions. DPR is required to mitigate all applications of 1,3-D to comply with the acute regulatory target, which is why the multiple application criteria are necessary. The regulations concerning pesticide use around schoolsites (California Code of Regulations, Title 3, Sections 6690 – 6692) require that a fumigation application end at least 36 hours before children are present at the schoolsite. DPR acknowledges the proposed regulations will require additional restrictions for growers around schoolsites. However, this is unavoidable as both regulations are designed to be health protective***	16, P3

	and DPR is required to mitigate acute 1,3-D exposures to the regulatory target concentration of 55 ppb as a 72-hour average. Finally, the 36-hour separation requirement for multiple applications is currently in place for chloropicrin applications (https://www.cdpr.ca.gov/chloropicrin.htm). Chloropicrin is commonly found in combination products with 1,3-D. Growers and applicators that use chloropicrin around schoolsites already comply with both the multiple application requirements and schoolsite restrictions, showing that compliance with both restrictions is achievable.	
15	**We request that DPR include guidance for growers that need to apply rates of 1,3-D that fall between the currently listed application rates. We suggest that the modeled application rates shown in Section 3 of the document incorporated by reference in the proposed regulation (100, 110, 125, 150, 200, 250, 300, 332 lbs/ac) could be more granular (e.g., application rates in 25 lbs/ac increments from 150-300 lbs/ac).** ***DPR modified the setback tables in the originally proposed regulations. The 25 lbs/acre intervals were amended to 10 lbs/acre intervals, and range from 80 lbs/acre to 332 lbs/acre for each field fumigation method.***	8
16	**We note that a 50% (strip) tarping requirement will not necessarily benefit the grower. If the added expense of strip tarping is assumed by some growers, it would be significantly more beneficial to these growers if the fumigated strips aligned with the intended tree rows of the pending orchard. Few, if any growers, will adopt this new application method if the tarped strips are out of alignment with the pending tree rows.** ***The intent of the proposed new application methods is to allow growers flexibility in achieving emissions reductions. The proposed 50% strip tarping methods (Field Fumigation Method (FFM) 1250 and FFM 1264) would not be in alignment with pending tree rows and therefore, it would be unlikely that this method would be used. Therefore, DPR modified the originally proposed regulations, changing FFM 1250 and FFM 1264 from a 50% totally impermeable film (TIF) method to a 40% TIF method. As described in an additional document relied upon ("Modeling broadcast-strip TIF applications with 40% tarp coverage" by Brown, 2023), DPR conducted HYDRUS simulations for FFMs 1250 and 1264 to include 40% TIF-tarp coverage (with 60% bare soil). Proposed setback distances and tables for the 40% TIF-tarp methods (FFM 1250 and FFM 1264) were determined using AERFUM as described in an additional document relied upon ("Addendum: Modeling for mitigation measures to reduce acute exposure from 1,3-Dichloropropene, Revised setback tables" by Luo, 2023).***	14

17	**The new 50% soil moisture content requirements could require hundreds of millions of additional gallons of water each year. Suggest the setback be based on soil moisture rather than on time of year, so farmers can utilize natural rainfall events without the penalty of additional setbacks, reducing the use of irrigation waters during the drought and saving the state much needed natural resources and farmer's economic costs.** ***The 50% soil moisture requirement is not a new practice and is required by labels for chloropicrin applications (https://www.cdpr.ca.gov/chloropicrin.htm). DPR's analysis of 21 fields for this rulemaking, including fields from registrant-submitted studies, showed that the average soil moisture was greater than 50% of the field capacity. These 21 fields are representative of most 1,3-D soil fumigations. More information on these soils can be found in "HYDRUS-simulated flux estimates of 1,3-dichloropropene maximum period-averaged flux and emission ratio for approved application methods" by Brown, 2019 and "Updates to HYDRUS-simulated flux estimates of 1,3-dichloropropene maximum period-averaged flux and emission ratios" by Brown, 2022. This shows that most 1,3-D soil fumigations already meet the proposed requirement. The proposed mitigation measure requiring the minimum soil moisture of 50% field capacity, in combination with other proposed mitigation measures, provides the necessary reduction in emissions to mitigate both the acute and cancer risk. Setbacks are already calculated based on emission rates consistent with soils at or above 50% of field capacity. The variation in setbacks with time of year relates to natural changes in meteorological conditions throughout the year, which increase the likelihood of high ground-level concentrations of emitted fumigants during the winter. Adverse meteorology is a different issue from soil moisture level and water source, and unfortunately periods of the year with high rainfall may overlap with periods of adverse meteorological conditions. Also, see response to comment no. 19.***	15
18	**We are concerned with the proposed setback distances as this will be very impactful to farm operations and could lead to untreated rows and other unintended consequences.** ***See response to comment no. 10.***	T15

Section 6448.2 (1,3-Dichloropropene Field Fumigation Methods)

No.	Comment/*Response*	Commenter
19	**We are concerned that the increased saturation requirement will result in inefficient use of scarce water supplies. The "Documents Relied Upon" for which the proposed regulations are based on**	6

	includes a few reports specific to soil moisture that we would like to highlight and ask for more clarity on how it was determined that all soil types can be successful at meeting the proposed regulations minimum soil moisture percentage. Success in this instance is defined as effective fumigation of the soil as well as sustainable water use. We seek clarity as to how 50% minimum soil moisture was determined to be applicable for all soil types. As farmers look to maintain compliance with Sustainable Groundwater Management Act, the proposed regulations would further constrain farmers' abilities to manage all required resources for sustainable farming practices. ***The increased minimum soil moisture requirement in the top 3-to-9 inches of soil was discussed with application specialists and determined to be a viable strategy to mitigate emissions prior to the inclusion of this approach in DPR's pilot field studies and proposed mitigation measures. Note that the requirement only applies to the top layer of soil. A minimum soil moisture requirement of 50% of field capacity for all soil types is consistent with the minimum soil moisture requirement for chloropicrin (https://www.cdpr.ca.gov/chloropicrin.htm), with which 1,3-D is frequently applied in combination, and therefore applicators are already experienced in applying 1,3-D under these field conditions. Lastly, pre-application soil sampling of real-world 1,3-D fumigations by DPR staff between the years of 2011 and 2019 (prior to consideration of the 50% field capacity rule) demonstrated that pre-application soil moisture conditions at the proposed depths (between 3 and 9 inches) often met or exceeded the 50% field capacity threshold, with observed soil moisture content at this depth ranging of 25% to over 90% of field capacity. Therefore, it was concluded by DPR staff that the proposed soil moisture requirement could reduce emissions while maintaining efficacious applications.*** ***We recognize that water scarcity is a major issue within California. The soil moisture requirement is a more cost-effective method of mitigating 1,3-D emissions than requiring TIF-tarps for all applications. As mentioned previously, between 2011 and 2019, DPR staff sampled soil in several fields within 24 hours prior to 1,3-D application and found that pre-application moisture conditions at the proposed depths in the regulations (between 3 and 9 inches) typically exceeded the proposed 50% field capacity threshold. Therefore, except for in the driest of soil conditions, the additional irrigation requirements are expected to be minimal in comparison to current practices. Because the soil water requirement falls well below the level at which water is gravitationally drained, water inputs may be partially available to subsequently planted crops or otherwise retained within the depth***	

	of the soil root zone; as noted on product labels, growers may take advantage of seasonal conditions, crop rotations, or irrigation schedules to satisfy the moisture requirement using residual soil moisture, discing or plowing shortly before fumigation to bring this moisture to the soil surface. In regards to soil type, growers may either measure the field capacity using a soil sensor-based method or rely on the USDA Feel & Appearance Method to estimate soil moisture conditions; in either case, soil type is intrinsically considered as part of these measurements. ***The documents relied upon include several reports regarding soil moisture, but they do not relate to efficacy or sustainability of water use. As indicated above, conclusions regarding the impact of the soil moisture requirement on fumigant efficacy were derived from conversations with application experts and pre-existing use patterns.*** ***Also, see response to comment no. 17.***	
20	**We would like also to offer our concern that increased saturation requirements will result in inefficient use of historically scarce water supplies. Confronting the impacts of the current extreme drought conditions and implementation of the Sustainable Groundwater Management Act (SGMA), the proposed regulations would further constrain farmers' decision-making and may, require them to choose between proper and appropriate pest management or irrigation.** ***See response to comment no. 19.***	7, 12, T15, T17
21	**It is not clear what effects the soil moisture requirement may have on efficacy. Most likely efficacy in suppressing nematodes will be reduced, as previous research has identified levels that are required for efficacious treatments.** ***In regards to the impact of the soil moisture requirement on product efficacy, note that the moisture requirement pertains only to the upper soil layer (3-to-9 inch depth), where this layer of soil moisture will restrict upward diffusion and retain fumigant within the soil profile. DPR considered an option for more stringent setback requirements with a 25% soil moisture requirement, but the setbacks were infeasible as described in an additional document relied upon ("Addendum: Modeling for mitigation measures to reduce acute exposure from 1,3-Dichloropropene, Applications with a minimum soil moisture of 25% of field capacity." By Luo, 2023a).***	7

	In addition, the 50% soil moisture requirement is not a new practice and is required by labels for chloropicrin applications (https://www.cdpr.ca.gov/chloropicrin.htm). DPR's analysis of 21 fields for this rulemaking, including fields from registrant-submitted studies, showed that the average soil moisture was greater than 50% of the field capacity. These 21 fields are representative of most 1,3-D soil fumigations. More information on these soils can be found in "HYDRUS-simulated flux estimates of 1,3-dichloropropene maximum period-averaged flux and emission ratio for approved application methods" by Brown, 2019 and "Updates to HYDRUS-simulated flux estimates of 1,3-dichloropropene maximum period-averaged flux and emission ratios" by Brown, 2022. This shows that most 1,3-D soil fumigations already meet the proposed soil moisture requirement.	
22	**The additional soil moisture requirement in these drought years may be difficult as the water is not free for some growers.** ***See response to comment no. 19.***	16, P3
23	**The 50 percent water issue makes no sense to us. You can't go or drive on 50 percent water in certain soil. The other thing is with the water restrictions that we now have and the water availability, there's some places that you can't make 50 percent water. The 50 percent needs to come down. We think it could go lower, but no more than 35 percent would be the maximum that should be required.** ***See response to comment no. 19.***	C1
24	**Well, one thing brought up was that your water measurement rather than using subjectivity, so it could be nice if they have an objectivity. You really establish what you think you need at that threshold for (INDISCERNIBLE). And that might be something that there's something doable to get the (INDISCERNIBLE) further than the subjective hand analysis. That would be very beneficial no matter what those (INDISCERNIBLE) said.** ***Property operators and applicators can select one of the three options for achieving the soil moisture requirement. This comment is concerned with the USDA Feel & Appearance Method to estimate soil moisture conditions. The exact methodology for using this method is described in a document relied upon ("Estimating Soil Moisture by Feel and Appearance" by USDA, 1998). While this method is subjective, detailed instructions on how to properly use this method are provided in the document incorporated by reference, "1,3-Dichloropropene Field Fumigation Requirements, Est. January 1, 2024." The third option for soil moisture compliance requires use of a soil moisture sensor. The***	C2

	methodology for the soil moisture sensor option is described in the documents relied upon ("Guideline to determine soil water content (moisture) at field capacity" by Tuli, et al., 2022).	
25	**The University of California, Cooperative Extension Farm Advisors have given no indication of efficacy of product with the proposed soil moisture requirements. Without solid data suggesting that 1,3-D is still effective at both the proposed depth and moisture requirements, what will growers use to mitigate nematodes?** ***See response to comment no. 21***	12
26	**The terminology "Available Water Capacity (AWC)" should be used instead of "field capacity" for consistency with USDA's Feel & Appearance Method and other USEPA and DPR-approved fumigant labels that are the basis for the proposed soil moisture text.** ***DPR selected the use of "field capacity" as it is a more easily measured quantity for those growers using soil sensor-based methods to characterize soil moisture conditions in a field, requiring two measurements to determine soil moisture status in the field (field capacity and current condition) rather than three (field capacity, wilting point, and current condition). Use of the USDA Feel & Appearance Method will also satisfy the 50% field capacity target.***	14, 15
27	**In the document incorporated by reference, "Option 1" for soil moisture compliance would not be practical for many (or most) soils in California since it would make the soil too wet to conduct fumigation activities and overapplication of irrigation water would be a misuse of a valuable natural resource. We suggest that Option 1 is removed from the regulations.** ***"Option 1" is intended for growers or applicators applying to very dry soil and who do not wish to pursue more involved methods of evaluating their field's existing soil moisture content and water holding capacity. The remaining two options provide growers with the flexibility of making decisions based on their own understanding of their field's unique soil properties, or to make decisions in consultation with an irrigation or soil specialist to determine the necessary irrigation volume.***	8
28	**Option 1 is excessive for many soil types in California and would result in soil that is too wet to fumigate. It would be more appropriate to require a "Irrigation to deliver a sufficient amount of water to achieve a minimum of 50% Available Water Capacity at a depth of three to nine inches below the soil surface when fumigation occurs." The amount of water needed to accomplish this will vary widely across soil type and textures. The growers and their irrigation specialists are the most qualified to determine the amount of water to meet the soil moisture requirements.**	13, 14

	See response to comment no. 27.	
29	**We request that DPR recommend a process where rather than establishing a mandatory application of three inches of water be applied, that the farmers be allowed to utilize an irrigation or soil specialist to determine how many inches of water should be applied to meet the 50% soil moisture content requirement. There may be soil conditions where more, or less, water applied may be appropriate to meet the 50% moisture content. Allowing farmers to utilize experts with written verification could allow for even more heightened mitigation performance.** ***See response to comment no. 27.***	15
30	**Dow agrees that the proposed methods in Options 2 and 3 would allow growers and their irrigation specialists to deliver the precise amount of water needed to meet the requirement of 50% of field capacity soil water content and would be more efficient use of the limited water supply in California than would Option 1.** ***DPR acknowledges this comment.***	8
31	**The proposed 24-inch injection requirement for tree and vine applications will prohibit tree and vine growers from using an 18-inch injection, yet a grower of another high/max use rate crop would be allowed to use the 18-inch injection method. Grower access to different application methods should be controlled by setback distances and application timing, and should not be based on the type of crop that will eventually be planted into the treated field.** ***DPR has proposed a requirement that applications for tree and grape crops use a 24-inch injection method or a TIF-tarp method. This requirement will result in lower air emissions from 1,3-D than under current requirements. The average application rate for tree and grape crops using the standard untarped 18-inch method (method 1206) was 323 lbs/acre during 2017 – 2021. In contrast, other crops had an average application rate of 109 lbs/acre using this method. Applications to tree and grape crops have a much higher contribution to 1,3-D air concentrations compared to other crops, particularly in inland areas where these crops are commonly grown. Without the requirement to shift to a 24-inch method or TIF-tarp method, estimated one-year average ambient air concentrations will be above 0.56 ppb for several townships. DPR identified that those exceedances were attributable to tree and grape crops that use 18-inch methods. DPR considered exceptions to the proposed requirement or additional setback distances, but these would cause changes in other requirements,***	14

	such as overlapping applications. These changes would complicate the proposed regulations and make some requirements inconsistent with chloropicrin (https://www.cdpr.ca.gov/chloropicrin.htm), making compliance and enforcement more difficult particularly for applications that use products containing both chloropicrin and 1,3-D, which is a common combination.	
32	**We support farmers being able to consider various injection options to meet fumigation and regulatory requirements, but we recommend DPR consider whether basing injection levels based on crop type is appropriate. Factors like setback distances and application timing may be more appropriate factors in determining injection depth rather than crop type.** ***See response to comment no. 31.***	15
33	**WPH supports DPR's establishing the utilization of TIF tarps in multiple-use scenarios to provide the protection levels reflected in the proposed regulations.** ***DPR acknowledges this comment.***	15
34	**We support DPR's willingness to allow the utilization of multiple types of mitigations to achieve regulatory endpoints identified in the proposed regulations. We also support inclusion in the regulation that the Director may approve additional application methods beyond what is included in these regulations if those methods meet the safety requirements established through this regulation.** ***DPR acknowledges this comment.***	15
35	**We would ask that DPR consider further modifications to the language, especially in the use of TIF tarps in orchard settings where strip tarping is needed. It may be very difficult for farmers to achieve the reduction levels identified in the regulations using only strip tarps in these settings. We would ask that DPR consider allowing farmers to utilize multiple systems, or combining mitigation processes like TIF strip tarps and water applications, to meet the requirements.** ***The purpose of the proposed regulations is to mitigate both acute and cancer risk to non-occupational bystanders, while simultaneously giving growers flexibility in ways to achieve emissions reductions. The proposed regulations provide growers with different options for 1,3-D fumigation applications in orchard settings. Orchards have four fumigation method options available, which include 24-inch injection, TIF-tarp methods (broadcast/strip), and 40% TIF-tarp methods (both 18-inch and 24-inch injections). In addition, there are multiple mitigation measures that will work***	15

	together to achieve emissions reductions of 1,3-D. The new mitigation measures include soil moisture requirements, limits on application block sizes, setback distances, deeper injection depths, seasonal restrictions, and multiple application restrictions. Therefore, growers have different methods available to them if TIF strip methods will not help them achieve the reductions necessary.	
36	**We support being able to use multiple mitigations, but are concerned about how they may not be effective as far as being able for growers to effectively reach the suppression thresholds that we're looking for.** ***See responses to comment nos. 10 and 21.***	T47

Section 6448.4 (Annual 1,3-Dichlorpropene Report)

No.	Comment/*Response*	Commenter
37	**The regulations need to include a timeline or deadline for the release of the annual report.** ***DPR amended the regulation text to specify that the Annual 1,3-D Report will be made available for each calendar year by October 1 of the next year or as soon as reasonably practicable. The Annual 1,3-D Report will include analyses of pesticide use data provided by applicators via County Agricultural Commissioners and laboratory results provided by the California Department of Food and Agriculture. DPR selected October 1 to provide sufficient time for DPR to receive and analyze the data. The actual date of publication will likely depend on the time needed to complete and report the laboratory analysis of air monitoring samples, which currently takes approximately six months. After receiving the laboratory data and pesticide use data, DPR will need approximately three months to review, analyze and prepare a report of the data.***	2, 10, 19
38	**The scope of the annual report must be expanded beyond the 10 highest-use townships in the state. It must include all high use townships in each county and those spanning multiple counties. As noted in rulemaking documents, over 90% of use is concentrated in 13 counties.** ***The purpose of the annual report is to evaluate use trends and the effectiveness of the proposed mitigation measures. The department proposed tracking the 10 highest use counties to both provide an accurate representative sample of areas of high use and balance time and resource needs for issuing a timely annual report. Historical 1,3-D use data shows there will be both coastal and inland***	2, 5, 19

	counties represented in the 10 highest-use townships. This representative data, along with monitoring data, will be sufficient to evaluate use trends and the potential need for increased mitigations.	
39	**There is no required timeline for the completion of an annual report on 1,3-D use and air monitoring levels or for implementing increased mitigations.** ***See responses to comment nos. 37 and 43.***	2, 5, 19, P2
40	**We strongly support requiring an annual report with a public comment period to improve transparency and accountability.** ***DPR acknowledges this comment.***	5
41	**Annual report requirements must include a due date. The regulation must include a timeline or deadline for annual report release to prevent long delays in report completion. We think June 1st of the subsequent year would be an appropriate deadline for issuing the Annual Report.** ***See response to comment no. 37.***	5, 19
42	**To enhance transparency, we request that DPR share the proposed modeling approach or protocol that will be used to conduct the annual review of mitigations in DPR's annual report. DPR should specify who will be responsible for collecting the information that DPR will be evaluating.** ***DPR has not yet developed the protocol to analyze the data for the annual report. As specified by the proposed regulations, the draft annual report will be available for public comment. This will provide the public with the opportunity to review and comment on DPR's evaluation and assessment of the information contained in the annual report.*** ***The proposed regulations specify that the Director of DPR will issue the annual report based on an analysis of the Pesticide Use Report (PUR) and 1,3-D ambient air monitoring data. Most, if not all, monitoring data used for the analysis will come from DPR's Air Monitoring Network and Study on Monitoring of 1,3-D in Merced and Fresno Counties.***	8
43	**The regulations must include clear requirements for timely tightening of use restrictions if 1,3-D levels exceed action levels rather that the vague obligation to "determine if additional restrictions are needed."**	2, 5, 19

	The purpose of the proposed regulations is to mitigate both acute and cancer risk to non-occupational bystanders. DPR continuously evaluates certain registered pesticides, such as 1,3-D, through ambient air monitoring. DPR currently conducts long-term air monitoring for 1,3-D at six locations across California, including in both Inland and Coastal regions. DPR will evaluate any exceedances of the acute or cancer regulatory targets of 1,3-D observed through ambient air monitoring to determine whether additional restrictions are needed through a subsequent rulemaking. If an exceedance results from a pesticide use violation, DPR and the CAC will take appropriate action through the agencies' respective enforcement programs outlined in the Food and Agricultural Code and California Code of Regulations.	

6626. (Pesticide Use Reports for Production Agriculture)

No.	Comment/*Response*	Commenter
44	**We strongly support requiring the inclusion of the fumigation method code in all soil fumigation use reports. This additional information should also be included in the online pesticide use reporting database going forward.** ***According to existing title 3, California Code of Regulations, section 6624(f), FFM codes, which provide a description of the method of application, are required for all fumigant applications for ozone nonattainment areas during the ozone season. Currently, about 98% of 1,3-D PUR records report a FFM. The proposed regulations will require each 1,3-D PUR record to report the FFM used. DPR plans to share FFM codes in the quarterly PUR updates.***	5

Documents Relied Upon

No.	Comment/*Response*	Commenter
45	**The Department's conclusion that the new field fumigation methods are expected to reduce ambient levels of 1,3-D and therefore allow more use in adjusted total pounds is not reassuring in light of the fact that multiple peer reviewers have concluded that the models DPR uses to estimate air levels at different distances from fumigations substantially underestimate peak 1,3-D soil fumigation emissions. In external peer review of DPR's use of the HYDRUS and AERFUM/AERMOD models to model 1,3-D emissions from field fumigations14, Dr. Stephen Hanna observed that the AERFUM model underpredicted the observed annual average air**	5

	concentrations from year-round monitoring in Merced in 2011 by about a factor of 2. Dr. Acula Venkatram concluded that the model consistently underestimates concentrations and misses high concentrations. The underestimation of air concentrations is very concerning since AERFUM is utilized in determining required setbacks from fumigations. It does not appear that sufficient modifications have been made to the model to address these concerns, so an additional uncertainty factor should be used to increase setbacks needed to protect public health. In reviewing this proposed regulation, OEHHA also observed "Considering that the models used to estimate air concentration (i.e. HYDRUS and AERMOD) have been shown to underestimate peak air concentrations detected by the Air Monitoring Network, similar uncertainties may exist when predicting long-term 1,3-D exposure." We are also concerned to note that the new modeling excludes receptors within the setback zone around modeled applications from emissions estimates for the setback duration of 7 days, without quantifying how this approach affects the revised estimate for the township cap. ***When the proposed non-occupational bystander regulations take effect, the township cap will no longer be necessary to address cancer risks for non-occupational bystanders, as the proposed non-occupational bystander regulations will mitigate both 1,3-D acute and cancer risks. This determination was based on analysis of 1,3-D use data from 2013 – 2017, when use was historically high. Even assuming use consistent with the highest worst-case scenario use from that time period, DPR estimates that the implementation of the proposed regulations would result in an estimated highest 1-year average concentration of 0.35 ppb (see "Analysis of the Sufficiency of Acute Measures to Mitigate Cancer Risk to Non-Occupational Bystanders from 1,3-Dichloropropene" by Luo and Segawa, 2022). DPR does not expect use to increase beyond the highest worst-case historic use. For the majority of townships, adjusted total pounds will not increase beyond the current township cap.*** ***The AERFUM model can run two different types of simulations: unit (single application) simulations and regional (multiple applications) simulations. The unit simulation function evaluates a single application event for concentrations at a field scale. The unit simulation function was used to develop setback tables for these proposed regulations. The regional simulation function models reported 1,3-D uses at a regional or sub-regional scale and the results can be compared to measured concentrations from monitoring locations. The commenter is referring to the regional simulation modeling in this comment. DPR has developed more refined computer modeling procedures that address the underestimation of the earlier regional simulation modeling (see additional document***	

	relied upon "Modeling the high detections of 1,3-Dichloropropene in DPR's Air Monitoring Network" by Luo and Uyeda, 2023). The observed high detection monitoring data was recreated using the more refined AERFUM modeling procedures. With the updated modeling procedures, all of the high detection modeling results are within the acceptable range and underestimation is no longer occurring. ***That updated version of AERFUM was used to develop setback tables for the proposed regulations. The unit simulations at a monitoring site are associated with uncertainties from meteorological input data especially wind directions. However, this can be resolved by including a grid of receptors surrounding the monitoring site. Therefore, receptor grids have been used in all 1,3-D modeling studies for regulatory and mitigation purposes, including application factors, setback distances, and township caps. By predicting the ambient concentrations of 1,3-D at multiple receptors around the area of interest, together with using conservative modeling scenarios (e.g., the worst-case meteorological conditions, the 95th percentile for exposure assessment), the model generates conservative results and thus, additional uncertainty factors to increase setbacks are not needed.*** ***In regard to the comment, "We are also concerned to note that the new modeling excludes receptors within the setback zone around modeled applications from emissions estimates for the setback duration of 7 days, without quantifying how this approach affects the revised estimate for the township cap," the setbacks surround occupied structures, not applications. Additionally, because a township cap is not included in the proposed regulations, alternative methods to calculate the cap are not needed. See response to comment no. 79 regarding the township cap and to comment no. 71 regarding DPR's plans to address cancer risk to occupational bystanders.***	
46	**The setbacks and proposed application restrictions designed to control acute exposures to 55 ppb over 72 hours cannot be relied on to control annual exposure levels or lifetime average exposure levels even to DPR's cancer regulatory target of 0.56 ppb. Exposure for 72 hours at 55 ppb will come close to reaching an annual average level of 0.56 ppb. Combined additional exposures during the year totaling only 40 ppb from off-gassing from the same or other nearby fumigations will result in an annual average exposure level exceeding 0.56 ppb.** ***DPR has determined that the proposed acute mitigation measures will also mitigate cancer risk to non-occupational bystanders to 1,3-D. DPR used air dispersion modeling to calculate one-year average concentrations of 1,3-D for the highest use townships across California. The highest***	5, T12

	estimated one-year average concentration was 0.35 ppb showing that the proposed acute mitigation measures will also mitigate cancer risk. DPR considered data from 2013 – 2017 when use of 1,3-D was historically high, and higher than the currently in-place township cap, due to DPR granting use waivers. DPR estimated air concentrations based on the high historical use in the context of implementation of the acute mitigation measures. For example, DPR modeled that all tree and grape fumigations will shift to 24-inch (i.e., a low emission) or TIF-tarp methods (as will be required by the proposed regulations). The modeling results showed that air concentrations will be well-below the cancer risk regulatory target of 0.56 ppb, as the highest one-year modeled 1,3-D concentration is 0.35 ppb. This shows that the acute mitigation measures can be relied on to prevent lifetime exposures above 0.56 ppb. ***In addition, DPR's computer modeling of the proposed regulations indicates that air concentrations at the setback distance have no more than a five percent probability of exceeding 55 ppb as a 72-hour average for any 1,3-D application. DPR's cancer risk target concentration for non-occupational bystanders of 0.56 ppb is a 70-year average, not a 1-year average. Air concentrations exceeding 55 ppb would need to occur from many applications for the 70-year average to exceed 0.56 ppb, and this probability is exceedingly low. The historical 1,3-D AMN data (including the 1,3-D air concentrations detected at the Parlier site in 2018) do not reflect emissions reductions associated with the restrictions required by the proposed regulations.***	
47	**The analysis conducted by DPR which predicts maximum average lifetime exposure levels of 0.35 ppb is designed to model high use levels. However, it does not appear to model worst case conditions where a residence is at or near the setback border for multiple fumigations. The restrictions on overlapping blocks will not prevent this scenario.** ***DPR used computer modeling and pesticide use report data to estimate the 1,3-D air concentrations at multiple residence locations and for multiple applications over several years for the townships with highest 1,3-D use. The modeled residence locations included those at or near the setback distances and include multiple nearby fumigations. The estimated air concentration of 0.35 ppb represents the highest one-year air concentration for the highest township, which is well below the regulatory target concentration of 0.56 ppb as a 70-year average. The highest one-year air concentration overestimates lifetime exposure, as DPR anticipates annual variation in air concentration over the course of many years, as indicated by the highest estimated 5-year air concentration of 0.25 ppb.***	5

48	**We fail to see how the proposed restrictions can prevent replication of documented air concentration levels that have exceeded the 0.56 ppb target level, much less worst-case exposure scenarios, from recurring.** ***See response to comment no. 46.***	5
49	**Dow has previously provided DPR with scientific opinion, supporting white papers, and peer-reviewed publications to substantiate that there is limited scientific support for utilization of body weight (BW) decrement as an endpoint for establishing either acute or short-term human equivalent concentrations (HECs). There is sound scientific evidence that BW decrements are threshold-based, adaptive, reversible, and secondary effects attributable to impacts on physiology, pharmacokinetics and metabolism (Juberg et al., 2020). Moreover, the minimal decrements in BW used for HEC derivation occurred at repeat dose concentrations related to, approaching or above the Kinetically Derived Maximum Tolerated Dose (KMD) for 1,3-D, exposure levels that are not comparable or directly relevant to intermittent, low-level exposures potentially experienced by human bystanders (Bartels et al., 2019).** ***While DPR's 2015 Risk Characterization Document (RCD) for 1,3-D provides some of the scientific basis for the department's Risk Management Directive, and therefore the proposed regulations, other scientific and risk management factors were taken into consideration. To Dow's comment about body weight decrements as an appropriate toxicological endpoint specifically in the RCD, DPR regards decreases in body weight over several days to be a toxicological effect indicative of a short-term response, which is similar to an acute response in a regulatory context. For 1,3-D, comparable concentrations in nine short-term inhalation studies with three different species elicited comparable decrements in total body weight or body weight gain. Given the available database, DPR considered the body weight decrements to be a relevant and appropriate critical acute endpoint. Following external scientific peer review of the 2015 RCD, there was consensus that DPR's selection of body weight decrement as the critical acute endpoint was based on sound scientific knowledge, methods, and practices. While new studies became available after the completion of the DPR's 2015 RCD, including the publications cited by Dow, none provide data on which revised critical acute point of departure (POD) for 1,3-D can be based. It is important to note that in their 2007 and 2019 human health risk assessments for 1,3-D, the USEPA also used body weight decreases as a critical acute endpoint, although basing it on results from lethality (LD50) studies and, therefore, establishing a higher acute POD for this effect.***	8

	Dow also contends that body weight decreases are not relevant to low exposure level scenarios for humans because they occurred at concentrations at or above the Kinetically Derived Maximum Tolerated Dose (KMD) for 1,3-D. In response, DPR has concerns with the KMD approach specifically with its application in acute human exposures, which could realistically be in the KMD range (e.g., after accidents). In addition, the KMD for 1,3-D for mice calculated after repeated exposures (6 hr/day for 15 days) cannot be directly compared to the concentrations causing body weight decrements in rats after acute exposures. DPR maintains that the numerical proximity of the critical acute POD for 1,3-D to the KMD does not invalidate or negate the acute effect.	
50	**Dow maintains there is undue conservatism embedded in the risk assessments for 1,3-D, specifically, there is a scientific basis for concluding that a 1X (versus 2X) pharmacokinetic uncertainty factor (PK UF) is both appropriate and health protective (see Juberg et al., 2019a) and that there is no need for an age-sensitivity factor (ASF) of 3X based on numerous scientific bases (see Juberg et al., 2019b).** ***As a clarification, the 2015 RCD used an interspecies pharmacokinetic uncertainty factor (PK UFA) of 1X (not 2X) consistent with the 1994 USEPA Reference Concentration (RfC) guidance for dosimetric adjustments. The above mentioned UF PK of 2X was recommended by Office of Environmental Health Hazard Assessment (OEHHA) and used to calculate the regulatory acute RfC in the DPR's 2021 Risk Management Directive. In response to Dow's comments on the additional age-sensitivity factor (ASF), DPR did not apply an ASF for potential increased cancer susceptibility due to early childhood exposure to carcinogens. Rather, DPR applied an additional 3-fold database factor to protect vulnerable young human populations due to lack of reproductive or developmental inhalation toxicity studies with 1,3-D.***	8
51	**The excessive degree of conservatism employed by DPR in its approach to regulating non-occupational bystander exposure leads to significantly different regulatory outcomes compared to Federal and Global regulatory agencies that have conducted modern, comprehensive evaluations of 1,3-D. These uneven regulatory outcomes place California growers that rely on 1,3-D for pre-plant nematode control at a serious competitive disadvantage to growers in other states and countries. The net effect of the proposed regulations means loss of agricultural output from California and higher food costs to residents of California.** ***See response to comment no. 50.***	14

52	**We are concerned that the concentration limits for non-occupational bystanders cited as the basis for the Department's proposed mitigation measures are predicated on an outdated risk assessment that does not consider more recent scientific evidence and data. The U.S. Environmental Protection Agency is conducting a pesticide registration review for 1,3-D using a weight of evidence (WOE) analysis peer-reviewed by a panel of subject matter experts. This analysis concludes that the currently manufactured form of 1,3-D is not mutagenic or carcinogenic below certain doses. We request that the department update its 1,3-D risk assessment using a current WOE analysis before completing this rulemaking.** ***The values referenced in the proposed regulations were established in DPR's 2016 and 2021 Risk Management Directive documents following consultation with other state agencies. While some of the scientific basis came from DPR's 2015 RCD, the values reflect additional scientific input given by partner state agencies as well as additional risk management considerations. The new studies that became available after the completion of the DPR's 2015 RCD, do not provide robust scientific data to update the acute or cancer critical values for 1,3-D. Also, see responses to comment nos. 49 and 54.***	7, 12, T15
53	**We strongly encourage DPR to revisit and reconsider these peer-reviewed publications and the multiple sets of comments submitted by Dow as they represent new and compelling scientific evidence that Dow believes are critical to an objective and accurate risk assessment for 1,3-D.** ***See response to comment no. 52.***	8
54	**DPR evaluation of cancer risk fails to recognize or include updated scientific information which undermine its cancer risk assessment for 1,3-D. Badding et al. (2020) evaluated the mutagenic potential of 1,3-D in a state-of-the-art study and the results support the conclusion that 1,3-D does not pose a mutagenic hazard or risk. In an extensive review of both genotoxicity and carcinogenicity data for 1,3-D, Yan et al (2020) demonstrated that 1,3-D is a threshold carcinogen for both oral and inhalation routes of exposure and as such, a threshold approach for cancer risk assessment is scientifically appropriate (which EPA agrees with and DPR opposes). Additionally, an independent panel of experts concluded that a cancer weight of evidence classification of "not likely to be carcinogenic to humans" is best supported for 1,3-D. (Hays et al., 2021).** ***Regarding the ongoing scientific evaluation of 1,3-D, DPR continues to review all new studies, including Badding et al. (2020) and Yan et al. (2020). Department scientists found that data from***	8

	recent studies do not provide compelling scientific evidence to support either a threshold cancer risk assessment or a change to DPR's conclusion that 1,3-D is a mutagenic carcinogen in mice via the inhalation route. The main evidence used by USEPA in 2019 to dismiss the lung tumors in mice was that the relationship between the concentration of 1,3-D in mice blood and the external exposures was non-linear at exposure concentrations above the KMD (40 ppm). However, for surface acting chemical chemicals like 1,3-D, the internal dose at the critical site of toxicity (lung) might not be directly related to the area under the curve (AUC) measured in blood. DPR based its cancer assessment on the assumption that 1,3-D acts via a portal of entry mode of action, for which the KMD approach is not applicable.	
55	**DPR's proposed special regulation, unique to California, is only necessary because DPR has chosen to be significantly more conservative than the global regulatory community (e.g., USEPA; the European Food Safety Authority, the Australian Pesticides and Veterinary Medicines Authority, the Japanese Ministry of Agriculture Forestry, and Fisheries, and others) regarding the subjects of 1,3-D acute and long-term inhalation toxicity. Importantly, this is particularly true when comparing the regulatory approaches taken by the United States Environmental Protection Agency's Office of Pesticide Programs (USEPA-OPP) for this product to that proposed in the DPR draft regulation. Compared to USEPA-OPP's current (2019-2022), comprehensive evaluation, DPR's approach to regulating exposure potential encountered by non-occupational bystanders to 1,3-D exaggerates acute inhalation toxicity by 45-fold (USEPA-OPP acute inhalation endpoint 2,519 ppb vs. Cal-DPR endpoint of 55 ppb). Similarly, DPR's approach exaggerates long-term/lifetime inhalation toxicity by 54-fold (USEPA-OPP long-term exposure endpoint is 30.2 ppb vs. Cal-DPR endpoint of 0.56 ppb). In stark contrast with DPR, USEPA-OPP, in its 2019-2022 comprehensive evaluation, found the potential risks associated with acute and long-term, non-occupational bystander inhalation exposures to 1,3-D to be acceptable, with no need for additional regulation beyond the current federal label.** ***The DPR risk assessment underwent extensive peer-review which concluded that the evaluation was scientifically sound and consistent with current regulatory practices. Accordingly, DPR maintains that its toxicity endpoints and exposure estimates, and thus the estimated risks, are appropriate given their stronger scientific support than those recommended in this comment.***	14
56	**DPR should consider the dramatic differences in regional weather patterns encountered in California when developing the setbacks for each FFM. Given the variability of geography and microclimates across California, DPR should refine the setback modeling using weather data that**	8

	is more relevant to the local county/geography where the 1,3-D is being applied. DPR's modeling approach contains many areas of conservativism. Dow suggests that DPR evaluate opportunities to refine the modeling by using more representative local or county-based weather data rather than developing regulations for all fumigations across the state based on the worst-case weather data in the entire state. ***For air dispersion modeling, the commenters' suggestions on the use of regional weather data are incorporated in the revised modeling studies for 1,3-D setbacks as described in an additional document relied upon ("Addendum: Modeling for mitigation measures to reduce acute exposure from 1,3-Dichloropropene, Revised setback tables" by Luo, 2023). Available weather data in the counties with high uses of 1,3-D are compared with their frequencies of low wind speed. Representative weather stations are selected at Parlier for the inland region and Watsonville for the coastal region of California. The new setbacks and allowed application block sizes are determined separately for the two regions. This approach is consistent with that previously used by DPR for the buffer distances of chloropicrin (https://www.cdpr.ca.gov/chloropicrin.htm), making compliance and enforcement easier for products containing both chloropicrin and 1,3-D.*** ***The addition of county-specific setback tables would add complexity that would make implementation and enforcement of the proposed regulation difficult. As there are setback tables for both winter and non-winter seasons, this would require the development of 116 setback tables for the 58 counties in California, which is not practical. In addition, the use of county-specific setback tables would add implementation and enforcement complexities to cases where a field spans over two or more counties.***	
57	**The setbacks for some application methods are excessively large and present a significant burden for growers. This is especially true for applications that do not utilize TIF tarps and need to occur in the Nov-Dec-Jan-Feb "winter season" due to cropping cycles or a historical reliance on natural rainfall to meet the current and pending soil moisture requirements. We request that DPR consider revising the proposed setbacks by using county-level meteorological data to account for subregional differences, instead of the currently proposed "one size fits all" statewide approach.** ***See response to comment no. 56.***	14
58	**Further, the modeling report by Luo, Yuzhou (2022c) states the following "When the GIS data for field boundaries become available, the actual coordinates of treated fields can be modeled by AERFUM and the results for township cap modeling are expected to be similar to these with**	8

	source randomization". Currently the 1,3-D source randomization in DPR's AERFUM modeling is based on the Public Land Survey System (PLSS) Section (1x1 mile area) where the application was made, as reported in the PUR. Clearly DPR assumes that in the future, 'actual coordinates' of treated fields will be available. Is it stated clearly in the new regulations to require growers to report GPS coordinates for each fumigated field? ***The proposed regulation will not require growers to report GPS coordinates for each fumigated field. Instead, DPR will use the PUR and field boundary data provided by County Agricultural Commissioners to identify treated fields in the townships specified by the proposed regulations for DPR's annual report. When a field match is not identified in the dataset, then randomization within a 1x1 square mile section will be used for AERFUM modeling.***	
59	**For the economic assessment, if there's some way to bring that down to level to where a grower could understand the impact per acre, field basis and stuff just a gross number over years. That way we know what the impact is on individuals.** ***CDFA and UCD conducted an economic assessment to determine the statewide economic impact of the proposed regulations. That economic assessment does not provide an exact number for the estimated cost per acre, field, or individual business. However, estimated costs per business, for the first 5 years of this regulation range from $531 - $1,833 per year. These numbers are derived from CDFA and UCD's economic assessment and found in the Economic and Fiscal Impact Statement (STD. 399).***	C3
60	**We generally support the current methodology used to establish setback distances from single application blocks appears grounded in risk-based principles and applies available localized data to models capable of accounting for important variables that can influence emission rates (for example, chemical properties, soil characteristics, and application methods) and dispersion of emissions to predict airborne concentrations of 1,3-D at adjacent occupied structures.** ***DPR acknowledges this comment.***	7, 12
61	**We appreciate the transparency of DPR by including communication between OEHHA and DPR under "Documents Relied Upon." These letters help clarify each Agency's role in the development of this rulemaking.** ***DPR acknowledges this comment.***	8

62	**We agree with DPR's modeling approach for setting an allowable annual "township cap" for 1,3-D that relies on the simulation of 1,3-D concentrations in ambient air in lieu of simulating exposure, thus obviating the need for demographic and age and gender specific parameters to assess risk. Dow also agrees that the target concentration based approach allows DPR to more readily evaluate the effectiveness of the numerous mitigations in the proposed regulations using the ambient air samples collected in DPR's Air Monitoring Network (AMN) and by conducting air dispersion modeling using the actual 1,3-D application information collected in Pesticide Use Reports (PURs) through the county agriculture commissioner's permitting process.** ***DPR acknowledges this comment.***	8
63	**How does the 24-hr 55 ppb target also address the lifetime risk when only four days at 55 ppb would put the annual average 0.56 ppm even if all other days of the year are zero ppb?** ***The commenter is correct that if someone is exposed to a 1,3-D concentration of 55 ppb on four days in a year, the one-year average concentration would exceed 0.56 ppb even if the concentration on the remaining 361 days is zero. However, the probability of this occurring is less than one percent. The proposed setbacks and other mitigation measures are based on a 1,3-D target concentration of 55 ppb as a three-day average, not a one-day average. With this target, concentrations from two 1,3-D applications could exceed a one-year average of 0.56 ppb at the setback distance. However, the probability of exceeding 55 ppb as a three-day average for a single 1,3-D application is five percent or less at the setback distance. The probability of two 1,3-D applications exceeding 55 ppb in one year is 0.25 percent. Additionally, the 1,3-D target concentration for cancer risk to non-occupational bystanders is 0.56 ppb as a 70-year average, not a one-year average. To exceed this target concentration, two or more 1,3-D applications would need to exceed 55 ppb per year for several years. The probability of this occurring is less than 0.25 percent. The information for how the probabilities were calculated are described in "Modeling for mitigation measures to reduce acute exposure from 1,3-Dichloropropene from agricultural fields" by Luo, 2022a.***	P1
64	**Pilot studies on two-acre field found up to 150 ppb measured at the field edge. How much higher are the levels predicted to be with the modeling on a 40- or 80-acre field? We are very concerned about farm workers and dairy workers who may be on site everyday.** ***Samples from pilot studies represented either a 6-hour or a 12-hour concentration and were collected near the edge of the field. This is not representative of non-occupational bystander acute exposures.***	P2

	These proposed regulations are designed to mitigate acute and cancer risks to non-occupational bystanders. These mitigation measures include setbacks, acreage limits on applications, making the switch to lower emission fumigation methods, and the soil moisture requirement that states that the soil moisture must be at 50% of field capacity. Setbacks are calculated based on the acreage and application rate (among other factors, such as, but not limited to region, season, and soil moisture content) which have a direct effect on 1,3-D concentrations at the edge of the field. This is reflected in the regulations, as larger setback distances are required for applications on larger acreages. ***The Alameda County Superior Court in Vasquez v. California Department of Pesticide Regulation (Case No. RG17847563) issued an order on March 9, 2023 directing DPR to develop regulations to address cancer risks to residential and occupational bystanders. The currently proposed regulations address potential acute and cancer risks to residential bystanders. DPR is currently developing separate regulations jointly and mutually with OEHHA to address cancer risk to occupational bystanders in accordance with California Food and Agricultural Code (FAC) sections 12980 and 12981. See response to comment no. 71 regarding DPR's plans to address cancer risk to occupational bystanders.***	
65	**Why did DPR fail to cite both the OEHHA NSRL and the Vasquez judgment in their list of documents relied upon for the development of this draft rule?** ***These two documents were not listed in the documents relied upon because DPR did not rely upon them when proposing this rulemaking action. See response to comment no. 68.***	P5
66	**[Pilot studies] Your department's exposure modeling is based on measurements of emissions from small, un-replicated applications of 1,3-D made with several different techniques designed to reduce emissions. There is not yet data to show whether the results of these small studies are valid in all of the soil types and weather conditions where 1,3-D applications are made. At this point, the results should be considered suggestive and in need of additional verification.** **Recommend DPR keep continuous real-time records of 1,3-D use while evaluating whether the pilot studies adequately predict real-world emissions.** ***This comment incorrectly asserts that the exposure modeling conducted for this regulation was solely based on emissions measurements from the 1,3-D pilot studies. Setback tables for field fumigation methods were developed using emissions estimates from HYDRUS, a physics-based computer model.***	3

	Previous validation work and an external peer review have shown that the HYDRUS model produces flux estimates that are comparable to those reported across a range of field studies. HYDRUS has shown that it can accurately simulate the fundamental processes of heat, water, and solute transport throughout the soil profile. This increases confidence in the ability of this model to simulate flux under new scenarios. Emission profiles determined from HYDRUS for the 22 field fumigation methods proposed in this regulation were determined from soil characteristics from 21 fields, including soil characteristics from fields in the pilot studies. The 21 soils represent a range of conditions in California; including eight soil texture classes, three coastal counties, and six inland counties. See "HYDRUS-simulated flux estimates of 1,3-dichloropropene maximum period-averaged flux and emission ration for approved application methods" by Brown, 2019 and "Updates to HYDRUS-simulated flux estimates of 1,3-dichloropropene maximum period-averaged flux and emission ratios" by Brown, 2022 for more detail on HYDRUS modeling. See "Modeling for mitigation measures to reduce acute exposure from 1,3-Dichloropropene, modeling approach #2" by Luo, 2022 for how emission profiles determined from HYDRUS were used in the development of setback tables. Therefore, DPR is confident in the accuracy and representativeness of the emission profiles used to develop setback tables for this regulation. It is currently required that records of 1,3-D use be reported to the CACs and DPR (FAC section 12979), and this requirement will continue after the promulgation of these regulations.	

General

No.	Comment/*Response*	Commenter
67	**The proposed regulations remove existing limits on use; relies on small, unproven, and unlimited pilot methods for reducing emissions instead of restricting use; relies on measures that will be difficult or impossible to verify and enforce; and removes the running use tally, replacing it with an annual report with no deadline.** ***See responses to comment nos. 37, 66, 74, 75, and 79.***	T24
68	**We believe that the proposed regulation will reduce emissions and health risks. However, we suggest that DPR clarify the basis of the target concentration and whether there is any need for modification of the proposed regulation in light of OEHHA's Prop. 65 safe harbor level.**	1

	The requirements of Proposition 65 specified by the Health and Safety Code are separate from the above-described requirements in the Food and Agricultural Code which govern DPR. The Proposition 65 No Significant Risk Level (NSRL) set by OEHHA is a warning level that requires a warning for exposures over a certain value, as opposed to a regulatory target level, which drives control measures and use restrictions. DPR will continue to use both the acute and cancer risk regulatory targets determined from the December 2015 RCD and implemented by the RMDs in this rulemaking procedure. ***DPR's evaluation of the 1,3-D health risk is described in its December 2015 RCD which was peer-reviewed, including a review by OEHHA. Based on the RCD, and in consultation with OEHHA and other agencies, DPR issued the 2021 RMD that specified an acute regulatory target concentration of 55 parts per billion (ppb) over 72 hours for non-occupational bystanders, as required by FAC section 14023(f). DPR previously issued an RMD to mitigate cancer risk to non-occupational bystanders. The RMD set a regulatory target concentration of 0.56 ppb over a 70-year lifetime. The proposed regulations are expected to reduce emissions below the RMD target level of 55 ppb ("Analysis of the applicability of Food and Agricultural Code sections 12980 and 12981 to proposed 1,3-dichloropropene regulations addressing acute and cancer risk to non-occupational bystanders, by Rubin, 2022).*** ***The proposed regulations are designed to mitigate acute and cancer risks from 1,3-D to non-occupational bystanders and, as a result, are not governed by Food and Agricultural Code sections 12980 and 12981, which require that worker safety regulations relating to health effects shall be based upon the recommendation of OEHHA ("Request for OEHHA Agreement Regarding DPR's Development of a Regulation to Mitigate Risks to Non-Occupational Bystanders from 1,3-D Use" by Morrison, 2022 and "OEHHA's Response to DPR's Request for Agreement Regarding DPR's Development of a Regulation to Mitigate Risks to Non-Occupational Bystanders from 1,3-D Use" by Edwards, 2022).***	
69	**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. The regulation must be redesigned to eliminate 1,3-D in the air. Maximum average annual air levels under the Proposition 65 No Significant Risk Level (NSRL) set by the Office of Environmental Health Hazard Assessment (OEHHA), which is 3.7 micrograms per day, equivalent to an average**	2

	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. ***See response to comment no. 68.***	
70	**The rule is not designed to control 1,3-D use and emissions to the Safe Harbor Level set in June 2022 under Proposition 65 or even to the regulatory target level of 0.1ppb recommended by OEHHA in 2016. The proposed acute exposure controls are not designed to prevent high annual air levels and cancer risks. The regulation needs to be redesigned to control maximum average annual air levels to the Proposition 65 NSRL set by OEHHA which is 3.7 micrograms per day, equivalent to an average annual air concentration of 185 ng/m3 or 0.04 ppb.** ***See response to comment no. 68.***	3, 5, 9, 11, 18, 19, 22, 25, 26, 36-49, 53, 60, 23-35, 37, 38, 42, 44, 73, D1-D85, E1-E4, P1, P5, T1, T5, T6, T7, T9, T11, T12, T16, T18, T19, T23, T24, T25, T27, T29, T31, T33, T38, T42, T43, T49, T50, T57
71	**Farmworkers and other outdoor workers are left unprotected and are allowed to work at the very edge of fumigated fields. 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 farm workers in the draft regulation, enabling continued high levels of 1,3-D use, is unscientific and unprotective.** ***The Alameda County Superior Court in Vasquez v. California Department of Pesticide Regulation (Case No. RG17847563) issued an order on March 9, 2023 directing DPR to develop regulations to address cancer risk to residential and occupational bystanders. The currently proposed regulations address potential acute and cancer risks to residential bystanders. DPR is currently developing separate regulations jointly and mutually with OEHHA to address cancer risk to occupational bystanders in accordance with California Food and Agricultural Code sections 12980 and 12981.***	2, 5, 10, 11, 19, 20, 22, 36, 39, 41, 49, 51, A1-A3570, B1-B4, B9-B12, D1-D85, E1-E4, T5, T6, T8, T11, T12, T24, T25, T27, T30, T43
72	**Setbacks or buffer zones between treated fields and nearby fields where work could be taking place should be included in this regulation.**	5, 19

	See response to comment no. 71.	
73	**This regulation is designed to reduce peak 1,3-D air levels in part 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, irrigators preparing other field sections for fumigation, and other outdoor workers. By excluding worker bystanders from this regulation, DPR is ignoring their exposures to 1,3-D.** ***See response to comment no. 71.***	5, 19
74	**The proposed emissions reduction measures will be difficult to enforce. How will 50% moisture (only 10% higher than the existing requirement for some methods) 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 will injection depth be verified in inspections and investigations?** ***Pesticide laws and regulations, including the proposed 1,3-D regulations, are enforced by CACs and DPR pursuant to the Food and Agricultural Code and Title 3 of the California Code of Regulations. There are four major aspects of the regulation that will result in decreases in emissions and ambient air concentrations of 1,3-D. See response to comment no. 1 for details on the four main mitigation measures. Setback and application block size information will be provided on the notice of intent that is required to be submitted to CACs before application. Current 1,3-D requirements include minimum injection depth and minimum soil moisture requirements. DPR's proposed regulations make these requirements more stringent. Additionally, labels for products containing both 1,3-D and chloropicrin (https://www.cdpr.ca.gov/chloropicrin.htm) currently require a minimum soil moisture of 50% of field capacity. Therefore, current enforcement procedures for chloropicrin can be followed for 1,3-D. The injection depth is enforced by measuring the injection shank with a tape measure.*** ***Similar to all the existing regulations, the success of these regulations (i.e., the decrease in emissions and ambient air concentrations of 1,3-D) is of high importance to both DPR and the CACs. DPR and the CACs will take the necessary steps to ensure enforcement of the mitigation measures specified in the regulation.***	2, 5, 19

75	**How has the reliability of the three proposed methods for checking soil moisture been evaluated?** ***The USDA Feel and Appearance method is an established method to quickly and practically approximate soil moisture under field conditions. The method has long been the standard method for soil moisture assessment on soil fumigant labels and use of the method is endorsed by the University of California Agriculture and Natural Resources' and other agricultural extensions' programs for assessment of field irrigation requirements. As a long-established method, farm advisors, growers, applicators, and county enforcement staff are expected to have the experience necessary to make reasonable assessments of field moisture status using this approach.*** ***The use of a fixed irrigation volume to meet the revised soil moisture requirements was evaluated by simulating different irrigation volumes applied at the soil surface prior to a 48-hour drainage period. It was assumed the initial soil water content was very dry, close to the residual water content of the soil (i.e., near wilting point). An irrigation volume of 3 inches was found to meet or exceed the soil moisture requirement (at least 50% of field capacity at a depth of 3-9 inches) in a range of soil textures. The method yields a conservative estimate of the required soil moisture addition and exceeds the irrigation requirement (i.e., inches depleted) estimates provided by the USDA Feel and Appearance Method.*** ***The use of soil moisture sensors was evaluated experimentally by DPR staff on land prepared for fumigation and occurring adjacent to fumigation field study locations. The experimental design used the protocol included in the proposed rulemaking package, entitled "1,3-Dichloropropene Fumigation Requirements Established January 1, 2024". This method establishes a benchmark based on the definition of field capacity by saturating a microplot of soil, allowing 48-hours of drainage, and measuring the water content at a 3-9 inch depth with a high-accuracy soil moisture sensor. The experimentally determined field capacity is then used as the reference point for comparison to water content measured elsewhere in the same field to determine whether the 50% field capacity target is met. DPR staff anticipate that this protocol provides applicators with a quantitative and robust tool to determine soil moisture with an increased confidence, due to recreating soil conditions that satisfy the definition of field capacity, and reliable soil moisture sensors.***	2, 5, 19
76	**Weak enforcement will undermine the implementation of these complex regulations.**	5

	See response to comment no. 74.	
77	**The proposed emissions reduction measures will be difficult to enforce. This will be difficult to enforce especially in the county of Fresno.** ***See response to comment no. 74.***	10
78	**There is no realistic way that enforcement can be completed when it comes to verifying the depth of injection.** ***See response to comment no. 74.***	10
79	**Until a ban is in place, DPR should take over the duty for maintaining the real-time 1,3-D use inventory and enforcing a health protective use cap by reviewing all 1,3-D NOIs to determine whether they should be granted. Reports should be required to be submitted to both counties and DPR on the date of the application. DPR can use spreadsheets to keep a running tally of adjusted total pounds and total pounds used per township and hot spots within townships. 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.** ***When the proposed non-occupational bystander regulations take effect, the township cap will no longer be necessary to address cancer risk for non-occupational bystanders, as the proposed non-occupational bystander regulations will mitigate both 1,3-D acute and cancer risks. However, the court has directed DPR to develop a regulation to address cancer risk to occupational bystanders, and during that development and until the formal rulemaking is complete, to temporarily maintain the annual township cap of a maximum of 136,000 adjusted total pounds and the prohibition on December applications. DPR is currently developing regulations jointly and mutually with OEHHA to address cancer risk to occupational bystanders in accordance with California Food and Agricultural Code sections 12980 and 12981.*** ***Recognizing the value and public interest in tracking and evaluating 1,3-D use at the township level, the proposed regulations provide for DPR's annual reporting on use at that level. This report will evaluate high-use townships (specifically the highest use township within each of the 10 counties***	2, 19

	with the highest use of 1,3-D). DPR will utilize reported 1,3-D use, available emissions data, and local weather conditions to determine the highest modeled 1,3-D concentrations for a 24-hour period, a 72-hour period, and the year. DPR's annual evaluation of 1.3-D use in the highest use townships in 10 different counties (which will have different use patterns and weather conditions), along with monitoring data, will enable the department to evaluate the effectiveness of the proposed regulation in mitigating cancer risk to non-occupational bystanders. ***The proposed regulations also establish a system for expedited, quarterly 1,3-D use reporting. DPR will require electronic submission of 1,3-D use reports to the County Agricultural Commissioners (CACs) to enable monthly CAC reporting to DPR, and DPR will publish 1,3-D use information on a quarterly basis on the department's website.*** ***The quarterly use reporting and annual report evaluating 1,3-D use provide an alternative tracking function to the Township Cap and add to that tracking a formal annual analysis of the effectiveness of the proposed regulations' mitigation measures.***	
80	**Until a ban is in place, the township cap must be retained and reduced to a 1,3-D use level designed to reduce average annual levels below the Proposition 65 NSRL of 0.04 ppb.** ***See responses to comment nos. 45, 65, 68 and 79.***	2, 11, 19, 22, 36, 41, 49, D1-D85, E1-E4
81	**It is reckless to eliminate the existing township use cap given that the estimated emission reductions rely on modeling that has been shown to underestimate peak exposures; on predicted emission levels from new fumigation methods that have only been evaluated on tiny test plots; and on increased soil moisture in the face of ever-scarcer water supplies. The requirements for keeping a running tally of 1,3-D applications at the township level and enforcing a township cap must be retained and taken over by the Department.** ***See response to comment no. 79.***	5, T12
82	**We need to reinstate the use of the township cap and eliminate the use once it is met.** ***See response to comment no. 79.***	10
83	**Litigation challenged the way the township cap was set and not the concept of having geographic use caps. We think the existing use cap should be maintained for at least a year to check that the regulation is functioning as intended.**	P2

	See response to comment no. 79.	
84	**A total application cap must be included in these regulations.** ***See response to comment no. 79.***	T6
85	**These fumigants pose unreasonable adverse effects on humans and the environment. Their registrations should be cancelled.** ***The comments about other pesticides and fumigants are outside the scope of the proposed regulations.***	2, 20, A1-A3570, B5-B12
86	**Please ban 1,3-D.** ***The proposed regulations will reduce emissions and ambient air concentrations of 1,3-D to below the acute-risk regulatory target of 55 ppb as a 72-hour average and the cancer-risk regulatory target of 0.56 ppb as a 70-year average. The proposed regulations will mitigate both acute and cancer risks to non-occupational bystanders, as well as reduce volatile organic compound (VOC) emissions. Therefore, cancellation is not necessary at this time. DPR will continue to monitor for 1,3-D and evaluate average 1,3-D concentrations for top use townships in California to determine if additional mitigation, up to and including cancellation of certain uses, is necessary.***	45, 46, 50, 56, 57, 61-72, E3, E4, T1-T3, T7, T10-T14, T16, T20, T23, T25, T30-T32, T48, T51, T57, T59, T64
87	**California should be working towards rapidly reducing and eliminating use [of 1,3-D], and accelerating the research and adoption of alternative practices.** ***DPR funds both Alliance and Research Grants. DPR has funded Integrated Pest Management (IPM) research grants to support the development of alternatives. Alliance Grants promote or increase the implementation, expansion, and/or adoption of effective, proven, and affordable IPM systems and practices. Since 2007, DPR has awarded more than $8.7 million in Alliance Grants. This year DPR awarded a grant for a project that will provide sustainable pest management training to pest control professionals to address pest pressures on California crops including almonds, mixed vegetables, strawberries, walnuts, and wine grapes. The project will also build an online peer network where participants can share and access resources on effective, sustainable pest management. Research Grants are used to fund research that contribute to the advancement of IPM systems and practices. This year, DPR awarded grants for research projects supporting alternatives to fumigant use. One grant was awarded to Dr. Cassandra Swett who will advance understanding of the emerging fungal***	2, 5, 19, T6, T45

	pathogen Fusarium falciforme, which affects a range of California crops and drives high-risk fumigant usage. Dr. Swett's project will seek to evaluate a variety of potential reduced-risk control strategies for this pathogen in lieu of fumigation. A second grant was awarded to Dr. Andreas Westphal who will research soils that suppress root lesion nematode in almonds. These efforts will ideally offer alternatives to the current usage of soil fumigants to control these microscopic worms and other soilborne pests and pathogens. DPR also received funding in the 2023-2024 budget to study alternatives to fumigants, including 1,3-D. See responses to comment nos. 86 and 92.	
88	**Ban all pesticides.** ***See response to comment no. 85.***	T4, T34, T36, T55, T56
89	**The proposed regulations do not sufficiently limit the use of 1,3-D.** ***The proposed regulations will reduce emissions and ambient air concentrations of 1,3-D. While the proposed regulations do not directly limit the use of 1,3-D (for example, through limiting application rates), the proposed regulations introduce mitigation measures that will both reduce emissions and ambient air concentrations of 1,3-D to below 55 ppb as a 72-hour average. The mitigation measures that will reduce emissions and ambient air concentrations of 1,3-D include requirements on soil moisture, limits on application block sizes, setbacks, new low-emission field fumigation methods, requiring that all tree and grape fumigations use 24-inch or TIF-tarp fumigation methods, seasonal restrictions, and multiple application restrictions. Therefore, the proposed regulations will mitigate both acute and cancer risks to non-occupational bystanders, as well as reduce VOC emissions.***	T26, T40
90	**Another fundamental flaw in DPR's approach: is the focus on mitigation only. Tweaking application methods aims to allow for continued use, not phase-out. We want an end to un-tarped applications. Without consideration of the least harmful alternatives, risk assessment and risk management default to cost/benefit analysis.** ***See responses to comment nos. 86, 89, and 92.***	17
91	**DPR's approach to Telone regulation is inherently flawed. Watsonville's pilot study exposed that these fumigants, and ag chemicals overall, are not found in isolation. Both DPR's and OEHHA's numbers for safe levels of Telone are based on lab studies of the chemical in isolation.** ***This comment is not specifically directed at the proposed regulations, and therefore is outside the scope of the proposed rulemaking.***	17

92	**This regulation takes the assumption that 1,3-D is necessary for California agriculture to be successful. I ask you to reconsider this assumption. The growth of organic agriculture shows that California farmers are successful and profitable without 1,3-D. Organic farmers across the state are using regenerative, sustainable, and fumigant-free management techniques to grow their crops. Organic fruit, nut, grain, and vegetable acreage in California grew rapidly between 2013 and 2020 (from almost 250,000 acres to over 400,000 acres) The techniques used by these growers include mulching, use of appropriate varieties, crop rotations, solarization, and anaerobic soil disinfestation as well as cover crops, resistant rootstocks, and botanical nematicides. The University of California researchers have done extensive research regarding the efficacy and profitability of non-fumigant and/or organic strawberry production. These studies have shown that broccoli rotations are profitable and can suppress soilborne diseases. Anaerobic soil disinfestation is another successful non-fumigant technique. Costs and efficacy of anaerobic soil infestation can be improved by using wheat as a carbon source and by combining it with a cover crop. In addition, strawberry growers now have a source of organic starts. Moving towards a comprehensive Integrated Soil Health Management approach (similar to integrated pest management) will make non-fumigant strawberry production in California even more successful than it currently is.** ***In January 2023, DPR released the Sustainable Pest Management Roadmap (SPM Roadmap), which outlines recommendations for adopting safer, sustainable pest management practices. The SPM Roadmap builds on work done in California toward adopting various IPM strategies that reduce pesticidal impacts. The SPM Roadmap cites prioritizing prevention, bringing alternatives to market, investing in building sustainable pest management knowledge, improving California's pesticide registration and evaluation processes, coordinating state leadership, and enhancing monitoring and detection as key actions to accelerating a systemwide transition to sustainable pest management. While DPR is responsible for fostering the use of IPM, the department does not have the authority to mandate specific pest management practices, nor does it have the legal authority to mandate organic and/or regenerative farming. For broader work done by DPR in this area, see response to comment no. 87.***	4
93	**The same outcome can be reached using alternative materials that are safer to the humans working and living around these infected fields.** ***See response to comment no. 92.***	43

94	**The focus of your rulemaking must be on reducing use and supporting growers to change their practices so that soil fumigation is no longer needed.** ***See response to comment no. 92.***	T27
95	**We need much stricter regulations of 1,3-D. There are effective alternatives, such as diversifying our agricultural systems so we don't have buildups of soil-borne pests and diseases, and other practices like anaerobic soil disinfestations.** ***See response to comment no. 92.***	T6