PESTICIDE REGISTRATION AND EVALUATION COMMITTEE (PREC)
Meeting Minutes – May 16, 2025

Committee Members/Alternates in Attendance:
Elizabeth Marder – Department of Public Health (CDPH)
Fabiola Estrada – U.S. Environmental Protection Agency (EPA), Region 9
Garrett Keating – Department of Industrial Relations (DIR)
Kristen Pidcock – Department of Resources Recycling and Recovery (CalRecycle)
Ryan Bourbour – Department of Fish and Wildlife (DFW)
Katherine Sutherland-Ashley – Office of Environmental Health Hazard Assessment (OEHHA)
Fatemeh Ganjisaffar – California Department of Food and Agriculture (CDFA)
Wendy Linck – State Water Resources Control Board (SWRCB)
Jonathan Williams (alternate) – SWRCB
David Fairman (alternate) – SWRCB
Stanley Armstrong – Air Resources Board (ARB)
Mai Ngo – Department of Toxic Substances Control (DTSC)
Matt Hengel – University of California (UC), Davis, IR-4 Program and Environmental Toxicology
Tom Ineichen – Structural Pest Control Board (SPCB)
Kathleen Boyle (alternate) – SPCB
Nan Singhasemanon – Department of Pesticide Regulation (DPR)

Visitors in Attendance:
Note: Only attendees who identified themselves using their full name are listed below

Amanda Albers – Bayer
Ana Sanchez – Gowan
Ann Grottveit
Anna Larson – California Climate & Agriculture Network (CalCAN)
Andrew Kieniksman – Bayer CropScience
Anne Katten – California Rural Legal Assistance Foundation
Barzin Moradi – California Department of Food and Agriculture (CDFA)
Bill Turechek – California Strawberry Commission
Bruce Houtman
Cesar Martinez
Dave Anderson
Davis Daiker
Emily Saad – Exponent
Erin Morrow
Frida Mendez
Hillary Thomas – Naturipe Berry Growers
James Nakashima – Office of Environment Health Hazard Assessment (OEHHA)
Jing Tao – OEHHA

Karen Da Silva
Kathleen Kilpatrick
Lori Miyasato
Marcia Trostle – Nutrien
Margaret Reeves
Mark Weller – Californians for Pesticide Reform
Michael Barber
Michael Gross – California Department of Food and Agriculture (CDFA)
Mike Zeiss
Renee Pinell – Western Plant Health
Ryan Pessah
Sajleen Phagura
Sarah Aird – Californians for Pesticide Reform
Steve Weiss
Susan Morales – U.S. EPA Region 9
Tammy Qualls

DPR Staff in Attendance:

Aisha Iqbal – Pesticide Registration Branch
Ajay Kumar – Pesticide Registration Branch
Anna Maddison – Pesticide Registration Branch
Aniela Burant – Environmental Monitoring Branch
Andrew Hawkins – Environmental Monitoring Branch
Andrew Rubin – Human Health Assessment Branch
Andrew Turcotte – Pesticide Registration Branch
Atefeh Nik – Pesticide Evaluation Branch
Brandon Brown – Human Health Assessment Branch
Brendan Darsie – Human Health Assessment Branch
Brenna McNabb – Pesticide Registration Branch
Chunbo Zhang – Human Health Assessment Branch
David Bonnar – Human Health Assessment Branch
David Mauss – Pesticide Programs Division
Elana Varner – Pesticide Registration Branch
Eric Kwok – Human Health Assessment Branch
Francie Bishop – Pesticide Registration Branch
Gayatri Sankaran – Human Health Assessment Branch
Jacki Coburn – Human Health Assessment Branch
Jazmin Johnson – Environmental Monitoring Branch
Jolynn Mahmoudi-Haeri – Pesticide Registration Branch
Laurie Brajkovich – Pesticide Programs Division
Maziar Kandelous – Environmental Monitoring Branch
Peter Lohstroh – Human Health Assessment Branch
Rick Bergin – Environmental Monitoring Branch
Sergy El-Morshedy – Office of Communications & Outreach

Shelley DuTeaux – Human Health Assessment Branch
Svetlana Koshlukova – Human Health Assessment Branch
Vince Aguirre – Pesticide Registration Branch
Xin Deng – Environmental Monitoring Branch

1. **Introductions and Committee Business – Nan Singhasemanon, Chair, DPR**

   a. Approximately one hundred ten (110) people attended the meeting.
   b. Nan Singhasemanon introduced himself as the new DPR Chair for the Pesticide Registration and Evaluation Committee (PREC) and thanked Tulio Macedo for his years of chairing the committee. Nan has been with DPR for more than 30 years, beginning as an environmental scientist in the DPR Environmental Monitoring Branch. Was previously a Deputy Director over Monitoring and Mitigation for the past five years and is currently a special advisor within DPR's Pesticide Programs Division.
   c. Draft 2023 VOC Emission Inventory Report: Now available at DPR's Reports Directory on its website. The document has been posted online since early May to solicit public comments. DPR is still accepting comments through the online public Comment Portal SmartComment through June 13th. Presentations on the findings from the 2023 VOC report will be made at an upcoming PREC meeting.
   d. Groundwater Protection List Rulemaking: DPR also published on May 16th, a notice of proposed regulatory action for regulations concerning the groundwater protection list. The proposed action would update the list of pesticides that have the potential to pollute groundwater, remove pesticides unlikely to pollute groundwater and replace a specific numerical values for determining what pesticides have the potential to pollute groundwater with a new multivariate statistical method. The rulemaking documents are available on DPR's website. The comment period begins today and will close on June 30th. Comments may be submitted through SmartComment, U.S. mail, or FAX.

2. **Fumigant Use in California and an Assessment of Available Alternatives: Phase 1 Report on 1,3-D and Chloropicrin – Jenny Broome, Gerald Holmes, and Rhianna Hohbein, California Council on Science and Technology**

The California Council on Science and Technology (CCST) was contracted by the Department of Pesticide Regulation (DPR) to conduct this study on fumigants and fumigant alternatives. CCST is a non-partisan, non-profit organization established by the California state legislature in 1988 to engage experts in science and technology to advise state policy makers. In order to carry out this study, CCST used their rigorous study process which combines a balanced team of experts to carry out the project. All study team members undergo a conflict-of-interest evaluation and the report undergoes external peer review to ensure that the report and its findings conclusions and recommendations are credible, relevant, as well as, useful to state decision makers. This is a consensus-based report, which means that everything that makes it into the final report has been approved by all steering committee members

This presentation will go over the findings, conclusions, and recommendations which CCST defines as follows. Findings are facts that the study team found that can be documented or

referenced. Conclusions are reasoned statements that the team makes based on those findings, while recommendations suggest an action or consideration given the report's findings and conclusions.

The report is broken into two phases, Phase 1 is what today's presentation is on. Phase 2 is forthcoming – sometime later this summer to fall. The report covers fumigant use and available alternatives. Phase 1 is on the preplant soil fumigants 1,3-D and chloropicrin and the report was released in March 2025.

1,3-D and chloropicrin have been around a very long time; 1,3-D for as long as 77 years and chloropicrin for 177 years. They are both used to control soil-borne pests and pathogens, such as fungi, bacteria, nematodes, and weeds that all cause harm to crops. The concern is both acute and chronic exposure to workers and to communities near agricultural areas where the fumigants are used.

The purpose of the study is broken into six areas. Number 1 presents the current state of fumigant use in California. What are the currently available alternatives and the extent of their use? What past and ongoing research is dedicated to fumigation alternatives? What's the viability of adopting those fumigants or those alternatives in California? What would be the barriers to adoption and areas where research may be needed?

Ten alternatives were identified. None of these alternatives were new, and there were no drop-in replacements for the fumigants. Barriers to adoption: having an effective currently used fumigant then adopting an alternative would be more difficult and riskier; availability, the performance, and the economic constraints of the alternatives. Regarding exposure effects: acute exposures [from fumigants] are well described, but the health effects of chronic exposure (longer term exposures) are much less certain. Other takeaways: Nursery production is also very different from commercial production of crops. When you are producing nursery stock, that stock can be shipped all over the world, but it's very important that it be free of diseases. A need for longitudinal studies was also identified. Most of these items would take longer than five years to evaluate. Looking at combinations of alternatives would be another important thing to look at, and assessing human health and environmental impacts is also very important.

In any complex system, there's the potential for unintended consequences and that goes for beneficial consequences, as well as negative consequences. There are also increasing incentives for adopting alternatives, that could involve things like state and federal cost share subsidies, market-based solutions, public procurement programs, and using a higher proportion of the mill assessment to fund research into these alternatives.

Chapter 1 of the report goes into detail on the history of these fumigants, including the pest control, the crops where they're used, the timing in the year, and summarizes human health and environmental concerns. It also compares their use in other parts of the U.S. and other countries. Fumigant use is quite dynamic and influenced by regulations, crops, geography, pests, pathogens, and seasons. Growers need tools to manage these complex dynamics.

In Chapter 1 there are 24 findings, 10 conclusions, and three recommendations. In 2020, for example, about 23% of these fumigants were applied as tarped shallow, broadcast injections. Then 30% of both active ingredients were applied as non-tarped, deep broadcast injections and then another 30% were tarped bed chemigation.

What are growers in the industry trying to control? Soil-borne pathogens which damage crops reducing yield and quality. Weeds also compete with crops for water, nutrients, and sunlight and reduce yields and quality. Nematodes, which are a principal target of 1,3-D, and there's a range of different nematodes that will reduce yields in walnut, such as root lesion nematode, or citrus nematodes. Sweet potatoes or carrots can also be directly damaged. In addition to these specific crop pests, there are complex disorders where you may have multiple organisms involved. These also need to be controlled and often fumigants yield dramatic increases even if we don't fully understand which organisms are causing the problems.

Nursery stock is unique. We have within the state, national and international phytosanitary regulations that require nursery plants to be fumigated or tested and shown to be free of regulated pests prior to movement. If nematodes are found, a nursery can experience 100% crop loss through non-saleable stock. More research is needed targeting the specific alternatives for nursery fumigation.

For certain specialty crops, there are a couple of findings. We have relied on fumigants for certain crops, such as strawberries, and just remember how dynamic fumigant use is and how challenging it can be. According to the 2022 Pesticide Use Reporting (PUR) data, strawberries make up almost 50% of these two materials in pounds applied in California. After strawberry, comes almonds at 10%, and then a general category that includes nursery uses, as well as sweet potato, grapes, carrots, etcetera. This gives us a snapshot of the industries that are impacted. In terms of across the US, California used about 34% to 42% of all 1,3-D according to USGS Survey in 2018, and California used 20% to 37% of all chloropicrin used in the country.

Trends over time for these two materials, show that chloropicrin use continues to increase and likely that's related to the methyl bromide phase-out, where it was originally just a warning agent for methyl bromide and then more recently is a key fumigant used with 1,3-D for a more broad-spectrum pest control. 1,3-D use has gone more up and down, both related to certain regulatory restrictions that were put on it. Also, the housing market crash, as 1,3-D is a byproduct of epoxy used in building houses, and then the complete phase out of methyl bromide in 2005 through the critical use exemptions into 2016. There has also been reductions in 1,3-D that are believed to be related to some of the challenges with low pricing of crops like walnuts and almonds and subsequent reductions in acreage.

In terms of an example of mitigation strategies for reducing emissions and offsite movement, the totally impermeable films (TIFs) are a real success story. They significantly reduced fumigation emissions and risk. Another recent success story is research on deeper injections without tarps (24-inch injection). Those are some success stories in terms of mitigating fumigant drift.

There are studies about acute and chronic health concerns with both materials. There is also a

lack of information about the actual modes of action of these materials and there is disagreement between some of the regulatory agencies such as DPR and OEHHA compared to U.S. EPA on carcinogenicity for 1,3-D. It would be good if some of that could be resolved to provide greater clarity on how to proceed with regulation of the products.

Rural farm communities are where fumigants are used and those communities are more exposed, and there is value in doing more comprehensive exposure science where there is incorporation of: toxicology from rodent models, epidemiological studies of toxins, environmental science in terms of movement of chemicals in the environment, risk assessments, and social science studies using testimonials and documenting the experience of exposure.

Moving on to fumigation alternatives, in Chapter 2, it introduces them and goes quite in depth. There really is not any one drop-in solution as an alternative to 1,3-D and chloropicrin in terms of efficacy, broad spectrum disease control across the range of crops and regions where these fumigants are used.

Ten fumigant alternatives (broadly described as non-biological chemical, or non-chemical biological interventions) were evaluated. The different approaches either inactivate or avoid pathogens that are currently controlled by 1,3-D or chloropicrin. Some chemical methods such as existing alternative fumigants or non-fumigant pesticides are available, as well as, thermal biological or avoidance strategies. These methods have the potential for broad spectrum activity like 1,3-D. Some of them do have broad spectrum activity, others have a narrower scope.

In Chapter 2 there are 32 findings, 20 conclusions, and 5 recommendations. 1,3-D and chloropicrin alternatives range from very familiar methods that use similar kinds of application technology as these two fumigants, or can be integrated into the current farming systems like cover cropping, crop rotations, solarization, and anaerobic soil disinfestation, but are different from fumigation, but work in similar farming operations. Others such as soilless cultivation or steam soil treatments really require unique equipment or infrastructure.

To summarize the state of emerging alternatives, the key word is variable, there are a variety of options. They've been tested using different designs, sometimes compared to fumigation, and sometimes compared to an untreated control, and they are used in a different crops and regions against specific pests and pathogens. Unfortunately, there's no systematic tracking of the use of alternatives so it's hard to know where they are being used and to what extent. The PUR data is highly valuable for tracking those materials that are chemical pest control materials, but it’s hard to determine the amount of adoption of these non-chemical methods. They have been adopted, some a fair amount and others not so much.

For any of the alternatives studied, it was found that there were some cases where yield increased. In particular conditions or environments, sometimes they achieved parity and even exceeded yields of the fumigant treatments. But there were also examples where they were ineffective or even promoted pathogen growth. There needs to be clear evidence-based guidance regarding where each alternative can be effective, and whether efficacy is broad or narrow spectrum. The report focused on yield, but there are other parameters such as environmental

impacts of the fumigant alternatives and also beneficial soil health benefits and risks. Those all need to be considered with use of the alternatives.

To match the rate and fumigant alternative with the system, there are gaps which need to be addressed, and more studies are needed that include positive controls like 1,3-D and chloropicrin and direct comparisons. So, when it comes to what is the best fumigant alternative, it depends. Each alternative has conditions where it can deliver partial or complete inactivation of certain pests and pathogens. And non-chemical methods appear to be inherently safer for humans. However, most alternatives are untested across the full range of conditions where fumigation is currently used. It is recommended to support more basic science, translational and comparative studies, that would allow direct comparison of the disease control and safety effects of these alternatives as compared to the conventional fumigants.

Chapter 3 was on research and looking to the future, recommending a focus on pest mortality, disease reduction, and yield improvements. The area of emerging research focus that we would want to see more of, is combination approaches, where there are integrated systems including host resistance, pre-plant soil treatments, greater use of more diversified farming systems including crop rotations, cover crops, intercrops, using agroecology to design these systems, etcetera.

The scientific literature shows a wide range of scales of how this work is done. Sometimes in a lab and then it may move out to a greenhouse, and then out to the field. Generally, it's done at a much smaller scale than how fumigants are currently deployed today. There is a need for greater scaling up and understanding. There's work being done in Europe, Japan, China, and Australia that is relevant to California. There is also variability over time in terms of how long pest control efficacy is observed and that needs to be thought through.

There are few studies that look at the cost and efficacy of fumigant alternatives. One that was looked at was research with pre-plant soil steam disinfestation where there was a researcher paired up with an economist who did some very good analysis. More studies like that on combination alternative methods would be great.

Chapter 4 looked at the barriers to adoption of alternatives. What might be some of the social and economic policy tools available, as well as a call out for continued need for greater research and extension.

We had seven findings and conclusions. An example, land and labor costs and access to credit and market pressures greatly restrain a grower’s ability to adopt alternatives. Given these challenges, there are a variety of policy tools that we discuss such as federal and state financial incentives and subsidies, as well as the State mill assessment, which could use used to provide greater funding for research and extension, there are loans, public procurement opportunities, and market incentives such as transitioning to organics or other certified systems which might increase grower adoption to within what the market will bear - the market limits.

In conclusion, DPR is well set up with its Sustainable Pest Management (SPM) Roadmap to

move us forward with some of these policies.

Committee Comment

Garrett Keating (DIR): Could you characterize the difference about the carcinogenicity? Is it qualitative? Carcinogen? Not carcinogen? Threshold? Non- threshold? Or is it a quantitative question? I seem to recall DPR and OEHHA may be using different slope factors? So just broadly, so I understand, and to the extent that that you could speak about exposure research. I think that's an important point going forward here.

PREC Staff (via e-mail): Thank you for your question. We have sent your question to the CCST staff and technical experts responsible for the presentation. They are happy to provide further clarification on this and any future questions on CCST's report findings and conclusions. Please direct inquiries to CCST's Rhianna Hohbein.

Tom Ineichen (SPCB): You're talking about Phase 2, and you're probably already working toward the structural side of Phase 2 and I'm wondering how you are trying to determine the alternatives in that phase and efficacy on those alternatives, or is that something that should be more discussed when you get closer to that?

Rhianna Hohbein (CCST): Phase 2 is actually underway. CCST is currently recruiting peer reviewers for the Phase 2 reports. As far as considering the alternatives, there are a couple of experts, both on the study team as well as the steering committee who have been engaged for the structural report and are familiar with the different alternatives that are used in structural applications. We're also doing outreach to other folks beyond the study team to make sure that we're not missing anything.

Tom Ineichen: Yeah, I was just wondering where I could find that information, or how I might be able to reach out and either offer services or get involved in trying to understand what's happening with it?

Rhianna: On CCST's website (www.ccst.us) there's a form where you can nominate yourself or others who you think CCST should engage with to get more information for the study.

Public Comment

Anne Katten (via e-mail): I appreciate the thoughtful and hard work on the study overall and especially the recommendation to consider additive and synergistic effects of fumigant exposure. However, I am concerned that OEHHA's analysis and conclusions on chloropicrin toxicity and toxicity of the fumigant AITC which is not yet registered in California aren't fully disclosed in the study.

PREC Staff: Thank you for your question. We have sent your question to the CCST staff and technical experts responsible for the presentation. They are happy to provide further clarification on this and any future questions on CCST's report findings and conclusions. Please direct inquiries to CCST's Rhianna Hohbein.

Mike Zeiss (via e-mail): Slide #23 reported that 1,3-D is a by-product of housing manufacture. Can you explain the connection?

CCST: 1,3-Dichloropropene is a synthetic chemical originally produced by Dow AgroSciences, later by DowDuPont and then sold off with Corteva, and as of 2020 has been licensed to Telos Ag Solutions (Martin, 2003; VGN, 2020).

The chemical is a byproduct of the chlorination of propene to make allyl chloride which is an organic compound with the formula CH_2=$CHCH_2Cl$. It is mainly converted to epichlorohydrin which is an organochlorine compound and an epoxide which is used in the production of epoxy glues and resins, epoxy diluents and elastomers (rubber-like solids with elastic properties), glycerol, and plastics (Pham et al 2012).

Additionally, the Trical Inc. Chief Science Officer conveyed that it is in fact a by-product of epoxy manufacturing for use in housing construction (pers. comm. M. Stanghellini, 11/2024).

References:

*Martin, Frank N. (2003). Development of Alternative Strategies for Management of Soilborne Pathogens Currently Controlled with Methyl Bromide. Annual Review of Phytopathology. **41** (1). Annual Reviews: 325-350. doi:10.1146/annurev.phyto.41.052002.095514.*

Vegetable Growers News, 2020. "Telone soil fumigant to be distributed by Telos Ag Solutions". 17 November 2020. Retrieved 5/20/2025

Pham, Ha Q.; Marks, Maurice J. (2012). "Epoxy Resins". Ullmann's Encyclopedia of Industrial Chemistry. Weinheim: Wiley-VCH. doi:10.1002/14356007.a09_547.pub2. ISBN 978-3-527-30673-2.

Mike Zeiss (via e-mail): Several speakers correctly stated that experts disagree about the degree of chronic health risk from 1,3-D. Nonetheless, is it correct to say that 1,3-D is the most highly carcinogenic of any active ingredient currently registered by DPR?

PREC Staff: Thank you for your interest in DPR work on the pesticide chemical 1,3-D, particularly with interest in protection of human health. While this question was not on a presentation by DPR staff at the May 16th PREC meeting, it is timely given recent efforts by OEHHA and DPR staff to jointly and mutually develop regulations on the chemical 1,3-D (see DPR 24-001 - Health Risk Mitigation for 1,3-Dichloropropene). We would encourage you to consider some of the listed scientific reviews provided in the "Attachments" on this page. Most recently, OEHHA and DPR opened a public comment period on modifications to the proposed regulations.

If you continue to have questions on 1,3-D and DPR work on this pesticide active ingredient, we recommend contacting our Ombudsperson at <Registration.Ombudsperson@cdpr.ca.gov>.

Tammy Qualls (via e-mail): I wanted to see if the team could follow up on the carcinogenicity uncertainty with 1,3-D, and what DPR will be using w.r.t. carcinogenicity of this pesticide going forward.

PREC Staff: Thank you for your interest in Department of Pesticide Regulation (DPR) work on the pesticide chemical 1,3-D, particularly with interest in protection of human health. While this question was not on a presentation by DPR staff at the May 16th PREC meeting, it is timely given recent efforts by OEHHA and DPR staff to jointly and mutually develop regulations on the chemical 1,3-D (see DPR 24-001 - Health Risk Mitigation for 1,3-Dichloropropene). We would encourage you to consider some of the listed scientific reviews provided in the "Attachments" on this page. Most recently, OEHHA and DPR opened a public comment period on modifications to the proposed regulations.

If you continue to have questions on 1,3-D and DPR work on this pesticide active ingredient, we recommend contacting our Ombudsperson at <Registration.Ombudsperson@cdpr.ca.gov>.

3. **What is CDFA's Office of Pesticide Consultation and Analysis (OPCA)? – Kevi Mace, CDFA**

Kevi Mace is currently the California Department of Food and Agriculture's (CDFA) alternate representative on the PREC committee and was CDFA's main representative on PREC from 2017 to 2023. The Office of Pesticide Consultation Analysis (OPCA) has been around since 1992 and was formed in conjunction with the process that removed the pesticide regulatory functions from CDFA and put them with the newly created Department of Pesticide Regulation (DPR). CDFA still has a formal voice and role in the process of pesticide work. Section 11454.2 of the Food and Ag Code was added, which states DPR shall consult with CDFA in any action relating to special local needs registrations, emergency exemptions, denial of new active ingredient registrations, suspensions, or cancellations of pesticide registrations or uses, and other measures adopted to mitigate unacceptable adverse pesticidal effects.

There are five scientists in the office that Kevi supervises. They also work closely with the UC Cooperative Extension specialists and the UC Davis Ag Econ team led by Dr. Rachel Goodhue. OPCA's work can be grouped into three categories. This presentation is a high-level summary, so if there are questions or you would like more information, please reach out to Kevi.

The first category covers the majority of OPCA's work and the foundation of the Food and Ag code section mentioned previously. Formed in 1992 and is funded by a supplemental portion ($0.07) of the pesticide mill assessment that also funds DPR. A memorandum of understanding (MOU) between CDFA and DPR outlines the details of the relationship between the two. The first MOU was signed in 1992, but it's been updated periodically with the most recent one being signed in 2019.

OPCA provides information to DPR on pest management and economic impacts of proposed regulations and actions. It covers economics, but does not cover environmental or human health aspects, that's outside of CDFA's purview.

CDFA can provide DPR input related to specific sections of the Food and Ag code sections, including cancellation of pesticide registrations, measures to adopt mitigation for unacceptable adverse risks, and worker safety stuff, and a bunch more. Special local needs registrations that are denied, exemptions to emergency registration that are denied, denial of new active ingredients, these are all examples of projects they might be consulted on. Some recent projects include the economic impact of the proposed updates to the school site regs from AB 1864, and impacts of notice of intent filings, and 1,3-D, and neonicotinoids.

OPCA uses a variety of methods to do these analyses, but they do have a standard baseline methodology they use when possible, that's been developed over the years and has some solid publications backing it. For an overview of the methodology, a baseline scenario is created, which is the estimated cost of pest management in the three most recent years of data and then a regulated scenario is created, which is the estimated cost of pest management in those same years if the proposed regulation had been in place at that time. Then the regulated scenario minus the baseline scenario is the estimated change in costs.

For more information, there are published papers about this method. One of them is a book chapter from the American Chemical Society book that was entirely about using the Pesticide Use Reporting (PUR) database. The other one is a Journal of Economic Entomology article that was published in the reports about the new neonic regulations.

As an example, looking at fresh market tomato, it's estimated to increase from $1.2 million to $1.5 million. That's the increase in the millions per year statewide under the new regulations scenario that was analyzed in this report. The results include: materials cost, applications cost, and yield losses. In the future it may include the potential cost of resistance, when you lose the ability to do proper resistance management by rotating modes of action. It does not include jobs, wider economic impact, environmental benefits, or human health benefits.

In 2020 with the withdrawal of chlorpyriphos, an original analysis covered what was the role of chlorpyriphos in pest management? What alternatives existed? What were the costs and risks of losing that product? Now that there are enough years post withdrawal, it can be evaluated using an update to our baseline methodology. How did the original estimates align with what it looks like now? How accurate were OPCA's predictions? For alfalfa, all the alternatives and their costs were collected and then the proportional use of the alternatives in the scenario that includes chlorpyriphos was calculated. The chlorpyriphos uses are then reassigned to the alternatives in proportion to their historical use. In this example, the use of these alternatives is increasing. Then the price of chlorpyriphos is calculated. Then the change in cost per acre is calculated and applied that across all acres for the focal crop in the study year. The end result is a total estimated change in cost for that focal crop. In this example, alfalfa is depicted with a change in cost between $1.3 and $2.1 million per year.

OPCA also evaluated how accurate and informative their predictions were. How has the industry adapted after use was withdrawn and what were the primary drivers of change?

Kevi showed a graph with the differences between the projected costs and the realized costs. Some of them are over, some of them are under, overall average was a 19% underestimate of the total change in crops for these focal crops. Note that this was kind of a historic inflationary

period, and it does help pinpoint ways for improvement. The graph is just about the total costs which were tied to the acreage of the focal crops, but when per acre costs are looked at, it was within $10 between projected costs and realized costs for all but one of the focal crops.

OPCA wanted to look at the details of what was driving the differences and broke down the drivers into the alternative AI choice, price changes, and acreage changes. The alternative AI choice scaled proportionally to the historical use was actually pretty accurate. Deviations were pretty explainable by new products that had come onto the market that didn't have a lot of historical use, but were very used in this new timeframe.

One of the major ones, is price changes. From 2021 to 2023, there was a lot of inflation happening, pesticide prices were going up and that was definitely a driver of under predicting. Acreage changes were all over the place – things going up and things going down affect the total numbers, but not the per acre costs, per acre change, and changing cost estimates. These may be incorporated into future analyses, some sensitivity analysis on inflation and acreage changes, so that they are hopefully more accurate in the future.

Moving into category 2 of the work OPCA does, is the grant programs. There are currently six: Biologically Integrated Farming Systems, Proactive Integrated Pest Management Solutions (that one's been updated to Adaptive IPM Solutions for Invasive Agricultural Pests), IR-4 support for California projects, pesticide or sustainable pest management pilot projects, Pollinator Habitat Program, and the Organic Transition Program.

The third category of work OPCA does is serving as internal and external agricultural pest management experts and policy experts for CDFA’s executive team, other parts of the department, and stakeholders upon request.

Some recent projects include the preliminary estimate of rat damage to almonds in an outbreak area in 2024, pesticide use after the invasion of an agricultural pest, biodiversity and agricultural literature review for CDFA’s Climate Resiliency Report, and a white paper on potential conflicts between food safety rules and sustainable pest management practices. OPCA also did a big analysis that was published, the insecticide impacts of Ag Order 4.0, and various other projects.

OPCA also worked on a project for another team at CDFA and quantified the pesticide use after the invasion of specific agricultural pests. European Grapevine Moth, which another CDFA program effectively eradicated. Kevis showed a chart with pesticide use increasing and going way up during the active invasion period and then way back down again after the pest was controlled. This can be contrasted to other pests like olive fruit fly that were never controlled and do not show this drop in pesticide use because there was never a period after the invasion. They're just still here and they have a lot of pesticide use. CDFA will release a comprehensive Pest Prevention Plan Analysis, hopefully this summer.

OPCA works also with the Organic Ag Institute at looking at different ways to assess the organic acreage in the state and one of them is using the PUR database to look at organic acreage to see how it compares to the NASS data.

OPCA staff also sit on a bunch of agricultural, environmental and pesticide focused committees.

Committee Comments

No questions from the committee.

Public Comments

Mike Zeiss (Pesticide Reform): Why do OPCA's economic studies never include analyses of externalities such as human health? The previous presentation by CCST the explicitly stated that externalities should be included in economic studies of pesticides and alternatives.

Kevi Mace: It's outside of CDFA's purview and it's outside of the memorandum of understanding, CDFA is not the correct department to be doing those. OEHHA and DPR are much more appropriate place for the ecotox and human health work.

Hillary Thomas (Naturipe Berry Growers): The presentation references documents that are not accessible to the general public, the book is out of stock, public references should be accessible.

Kevi Mace: If you want to email me (Kevi Mace), we're happy to send a PDF copy of the of the chapter of the book. I also have a physical copy, but that would be harder to lend out. When things are published in peer reviewed settings, we don't always control access the way that we would do with something that is published as a white paper on our website since it's not hosted with us. But I definitely want people to have access to that, so please email me and we'll send you a PDF of it.

Mike Zeiss (via e-mail): Cost of pests developing resistance is an externality (i.e., it affects many people other than the individual grower who chooses a pest control tactic). Nonetheless, you stated that OPCA would soon begin including that cost within your analyses. *Why is that particular externality within the purview of CDFA, whereas other equally-important externalities are not?* In particular, as CCST stated in its presentation, economic studies of pesticides and alternatives should include analyses of <u>costs</u> to human health. No, this doesn't mean that OPCA would be expected to do basic research in toxicology! It just means that OPCA should use DPR's *existing conclusions* about health impacts to analyze health <u>costs</u>.

Kevi Mace: OPCA appreciates your interest in quality economic analyses. Our analyses related to DPR regulations and actions are specifically about the changes in pest management costs and pest management options for California growers. Ecotoxicology and human health are covered by other departments, including DPR, OEHHA, and CDFW but are outside CDFA's scope of work with DPR.

4. **<u>Human Health Findings from the Draft Assessments of the Non-Agricultural Uses of the Neonicotinoids Acetamiprid, Clothianidin, Dinotefuran, and Thiamethoxam – Dr. Scott Tiscione, Dr. Ian Reeve, and Dr. John Adragna, DPR Human Health Assessment Branch</u>**

Scott Tiscione began by presenting a health assessment and regulatory timeline for the four neonics that were evaluated, including some of the key efforts from both U.S. EPA and DPR. Notably in 2017, U.S. EPA published their preliminary pollinator risk assessment. From 2019 to 2022, U.S. EPA published Human Health Risk Assessments (HHRAs) for these pesticide active ingredients classified as neonicotinoids (hence forth neonics), dinotefuran in 2019, acetamiprid in 2020, and thiamethoxam and clothianidin in 2022. They published their cumulative new screening analysis in 2021. In 2023, California Assembly Bill 363 was signed, and in 2024 DPR had their pollinator protection regulations for agricultural use of neonics go into effect January 1st. In 2025, license and certification requirements for neonic sale and use for non-agricultural uses went into effect January 1st.

Assembly Bill 363 was signed in October 2023 by Governor Newsom, and directs the Department of Pesticide Regulation to evaluate the impacts of neonic pesticide use in non-agricultural settings and adopt control measures as needed. In 2024, DPR began its evaluation and interpreted the scope of the assessments. DPR's interpretation of the bill is further outlined in enforcement letter ENF 24-12, which was submitted in October 2024 and requires the evaluation of potential dietary exposures from consumption of fruit from non-production fruit and nut trees grown around homes and residences, among other sources of exposure. In January of 2025, DPR completed its drafts of the four neonic assessments, and by January 2026, DPR will release its final draft of these assessments.

The scope of these assessments is primarily for professional or licensed applicator uses in residential or recreational areas with outdoor applications on ornamental plants, trees, and turf; post-application exposures to non-applicators (which are children and adult bystanders who may enter these treated areas); and dietary exposure from residues on non-production fruits and nuts from trees grown around homes and residences; and both aggregated exposures, which combine all these pathways, as well as cumulative exposure. Outside of the scope are all indoor uses, consumer products used by homeowners and residents, pet product uses, agricultural use, outdoor structural applications, applications under California Department of Food and Agriculture’s program to control invasive species, and dietary exposure from all other foods and drinking water that are not already mentioned.

The four neonics being evaluated are classified as such due to their chemical structure being based upon nicotine. Notably absent from evaluation is another neonic, imidacloprid, which was evaluated separately, and the comprehensive human health risk characterization was approved and completed in December 2024 for non-agricultural use, and was evaluated under a wider scope that included all dietary exposures as well as consumer products.

Neonic human health effects are primarily derived from incident reports. The primary routes of exposure for humans are dermal, dietary, incidental oral, and inhalation. The poisoning

symptoms for exposure to these mechanics can vary, but some commonalities between the four include fatigue, nausea, vomiting, localized irritation and swelling, difficulty swallowing, gastrointestinal effects, aches, and difficulty breathing. In terms of long-term exposure, U.S. EPA has classified all four neonics as not likely to be carcinogenic to humans.

Incidents reports are the primary sources that DPR relies on to assess health effects. The first source of these is the Pesticide Illness Surveillance Program, or PISP, which tracks pesticide related illness and injuries in California. Available data varies between individual neonics but all were tracked from 1990 to 2020. Cases are physician graded and ranked into definite, probable, and possible in terms of exposure, but does not preclude the presence of other pesticides including non-neonics. Notably, while most cases were within probable, there were less than five definite cases for each neonic over the last 20 years. The second source are the adverse health effect reports submitted to DPR and U.S.EPA between 2011 and 2023. These are not California specific, and are individual or self-reported and are not verified by a physician. Most cases fall within the minor category, but there were four cases with reported death in the last 18 years. Again, the specific details or the circumstances are unknown and it might be an intentional ingestion or incidental exposure. These summary cases are a powerful tool by which DPR can monitor exposure and adverse health outcomes in the public and help characterize the burden of exposure for these pesticides.

DPR also performed a systematic open literature review for human biomarker and epidemiology studies. 3,338 studies were screened and 183 were deemed relevant for a risk assessment. The studies overall were often contradictory, only had weak correlations, or failed to find statistically meaningful results. However, the exceptions to this were reduced birth weight, which was consistently correlated with maternal exposure to acetamiprid, and oxidative stress which was consistently correlated with biomarkers of exposure to acetamiprid and thiamethoxam.

Nicotinic acetylcholine receptors are present at certain neuronal synaptic junctions in the central nervous system of both insects and mammals. They are also present at the neuromuscular junctions of mammals. These are essentially ion channels and are activated by this excitatory neurotransmitter called acetylcholine, which is naturally found in the body. Acetylcholine binds to the channel, activates it, and opens it, allowing ions to flow across the membrane ultimately resulting in transduction of a neuronal signal. Neonics mimic the action of acetylcholine and themselves bind to these channels to activate them. This can lead to incoordination, tremors, decreased activity, reduced body temperature, and in sufficiently high doses can lead to death. This pathway is more sensitive in insects than it is in humans, which is why neonics are used in pest control.

The DPR Toxicity Database contains all of the studies submitted by the registrant, in compliance with requirements outlined under FIFRA and SB 950, the California Birth Defect Prevention Act.

These required studies are submitted for registration in California for each neonic. These studies are comprehensive and cover several aspects such as developmental toxicity, mutagenicity, immunotoxicity, and toxicokinetic studies among others. DPR has reviewed all of these studies as part of the pesticide registration process, however within the scope of this bill and these assessments, this review is restricted to the critical studies corresponding to the toxicological endpoints and critical points of departures (PODs) established by U.S. EPA in their most recent human health risk assessments. These, alongside the toxicokinetic studies submitted by the registrants and DPR's systematic review of the literature for human biomarker and epidemiology studies, encompass the scope of DPR's assessment and review of the toxicology. DPR independently reviewed and evaluated the studies from U.S. EPA and agreed with their selection of the critical points of departure.

To summarize the toxicity, acute exposure primarily sees developmental and neurodevelopmental effects, sub-chronic exposure more clinical and blood effects, chronic exposure is more organ level, eg liver, kidney, and testes. Overall these compounds are not genotoxic nor mutagenic. From these critical effects, points of departures or PODs, were derived. The critical POD is essentially the highest dose at which no effects are expected in an organism, based on animal studies. U.S. EPA classified all four neonics as not likely to be carcinogenic to humans, and these risk characterizations do not include a cancer risk estimate.

Dietary exposure can be thought of by the equation Residue x Consumption Rate = Dietary Exposure. The residue, which is the amount of pesticide on a given piece of food, multiplied by the consumption rate or how much that food is being eaten by an individual or a population, and that equals the dietary exposure, which is how much that person or population is being exposed to that pesticide. The scope of this dietary assessment was restricted to all foods from fruit and nut bearing trees with applicable tolerances. Tolerances are the maximum legal level of a pesticide on a food commodity and are typically established for foods such as apples or pairs, and then breaking that down further these groups are comprised of food forms that fall into that category. For example, for an apple there's apple peel, juice, sauce, etc. that all fall under "apple." All foods from fruit and nut bearing trees with applicable tolerances were analyzed across all four neonics, ranging from 7 for dinotefuran to 89 for acetamiprid. Acute and chronic dietary exposures were evaluated in multiple populations, specifically subpopulations based on age gender and ethnicity that may be more sensitive based on the foods that they're consuming or differences in average body weight. The populations of specific concern that came up are infants (which is less than one year old), children 1 to 4 years old, and females of childbearing age.

This dietary exposure assessment was a deterministic threat assessment, which means that refinements were made to make the exposure scenarios more realistic. But we're still overestimating exposure. Under this assessment, data was preferred from the Pesticide Data Program (PDP) database. This is a U.S. Department of Agriculture national pesticide residue

monitoring program database, and as such are real pesticide residue data values from actual food commodities that were measured. The maximum residue value was used if available. If there was insufficient data, then the tolerance level was used instead. That was broken down to 4 to 46 food forms for from the PDP database, and then 1 to 43 food forms using the tolerance level for the across the four neonics. The consumption rate is from the CDCs' National Health and Nutrition Examination Survey or NHANES. This survey was conducted from 2005 to 2010 and collected data on the different foods that subpopulations are eating and the relative rates. This was combined into the dietary exposure evaluation model, which is a model from U.S. EPA, and applied to the applicable residue data to get dietary exposure.

Dr. Ian Reeve continued the presentation. The handler exposure scenarios encompassed situations where occupational handlers were treating ornamental plants, trees, and turf. The post application scenarios consisted of residents contacting these treated use sites. The data source for the handler exposure scenarios was the pesticide handlers exposure database from U.S. EPA. For the post application exposure scenarios, there is a dislodgeable foliar residue study, an exposure monitoring study for residents contacting treated turf, and U.S. EPA's 2012 Standard Operating Procedures for Assessing Residential Exposure.

The exposure estimate durations were based on 4 definitions. The short-term absorbed daily dosage (STADD), that represent daily exposures up to one week. The seasonal average daily dosage (SADD) represents daily exposures beyond one week and less one year. Annual average daily dosage (AADD) amortizes seasonal average over the entire year, and the lifetime average daily dosage (LADD) looks at exposure over the course of a lifetime assuming 40 years of work and a 75 year lifespan.

The Pesticide Use Report Database is a record of all pesticide use in California, and was used to determine if enough active ingredient was handled in the highest use county to justify generating the SADD, AADD, and LADD exposure estimates. A season was classified as the number of months where use was greater than 5% of the annual total usage.

For acetamiprid, the occupational handler scenarios were associated with ground boom, chemigation, airblast, various handwand or hand sprayer methods, and right-of-way sprayer applications. The formulations used are liquid, soluble granules, and water soluble packet. The highest exposure estimate was for the chemigation mixer/loader at 0.35 mg/kg/day. The work clothing and PPE requirements were incorporated into the exposure estimate. The post application exposure scenarios looked at pruning trees and retail plants, and gardening, for the adult and 6-11-year-old age groups. The highest exposure estimates for the adult that was gardening was 0.0333 mg/kg/day.

Regarding clothianidin, the handler scenarios assessed were associated with ground boom, and various handwand methods, There's also handler scenarios for the granular formulation that is

applied in a dry granular form using broadcast spreaders and push-type spreaders. The highest exposure estimate is for the high-pressure wand mixer loader applicator at 0.0303 mg/kg/day. The post application exposure scenarios are for adults (dermal route of exposure) and children (dermal or incidental non-dietary routes of exposure) contacting treated turf, pruning shrubs and trees, or harvesting apples and pears. The highest exposure estimate was for incidental non-dietary ingestion for the 1 to 2 year-old child (episodic granular ingestion), amounting to 0.0702 mg/kg/day.

The next active ingredient is a dinotefuran. Handler exposure comes in the form of liquid, soluble granules, and the water-soluble packet across a wide variety of application methods. The highest exposure estimates are for the high pressure handwand mixer applicator at 5.90 mg/kg/day. The post application exposure scenarios again are looking at dermal and non-dietary ingestion exposures. The highest exposure estimate is for incidental non-dietary ingestion for the 1-2-year-old on treated turf at 0.00801 mg/kg/day.

The final neonic analyzed was thiamethoxam. Handler exposure scenarios were associated with ground boom and other liquid applications. There's also a granular formulation product formulation. The highest exposure again came from high pressure handwand mixer/loader/applicator at 0.735 mg/kg/day. The post application exposure scenarios came from exposure to treated turf (dermal exposure route and incidental non-dietary ingestion), and pruning treated shrubs and trees. The highest exposure estimate was for physical activities on treated turf plus incidental non-dietary ingestion for 1 to 2-year-old at 0.195 mg/kg/day.

In summary for the handler exposure scenarios, the highest exposure estimate was 5.90 mg/kg/day for the high-pressure handwand mixer/loader/applicator handling dinotefuran. For the post application exposure scenarios, the highest exposure estimate was 0.195 mg/kg/day for physical activities on thiamethoxam treated turf plus the non-dietary ingestion for the 1-2-year-old.

Dr. John Adragna continued the presentation. DPR is using margin of exposure as a quantitative tool to decide if any particular exposure scenario is going to pose a health risk to humans. The margin of exposure is the point of departure divided by the estimate for human exposure, giving a unit-less number to compare with a target, which has been decided as 100, to protect human health for each of the neonic pesticides. This is derived from the 10x intra species and then 10x inter species default uncertainty factors. If the calculated margin of exposure (MOE) is less than the target of 100, this indicates a risk to human health. If the MOE is above the target may of 100 there is no risk.

DPR looked at risk to occupational handlers for neonic pesticides in a non-agricultural setting as well as risk posed by post-application exposure for bystanders. Examples of these exposure scenarios are contact with grass or turf while golfing or mowing the lawn, or for a child playing

on the lawn, or contact with plants and trees while gardening and pruning. Routes of exposure were dermal for both adults and children, with the addition of incidental oral ingestion as a special exposure for children between 1 and 2 years of age, including hand to mouth transfer of pesticide residue from the lawn or eating granules of pesticide. Post application exposures by themselves were found not to be a risk to human health for any of the four neonics.

For dietary exposure, the MOE value reported for the population with the lowest acute and chronic is 1400, which exceeds the target threshold of 100 indicating no risk to human health. A total of 23 subpopulations were evaluated, and all dietary values exceeded the threshold of 100 indicating that no dietary risk could be identified.

Risk was identified to professional handlers for non-agricultural scenarios for three of the four neonic pesticides (acetamiprid, dinotefuran, and thiamethoxam). No risks were found for bystander exposures to either adults or children or from dietary exposure or the aggregated exposures.

Cumulative analysis examines the impact of being exposed to more than one of these pesticides at the same time. Assembly Bill 363 directs DPR to consider the cumulative impact of exposure to two or more pesticides at the same time, provided they share a common mechanism of toxicity and that the scenario is likely to occur. A Common Mechanism group is a group of chemicals which share a common mechanism of toxicity and induce a common toxic effect. The U.S. EPA determined that the neonics form a candidate common mechanism group, given that they share a common mechanism of toxicity for acute neurotoxic effects. DPR identified that there are overlapping uses of two or more neonic pesticides on non-production fruit and nut trees and, it's likely to have co-occurring short term acute bystander exposures. Therefore, DPR was required to perform a cumulative risk assessment according to the language of the bill.

Cumulative assessment used different critical endpoints for the risk assessment than used for the single pesticide assessments. Relative potency factor was used to convert potency of amounts of pesticide between each other. It's a ratio of the lowest effect levels from these critical endpoints studies. In order to perform the analysis, exposure is being normalized to units of acetamiprid-equivalent exposure. This calculation was performed for all routes of interest and was used to calculate an MOE which is compared with the target MOE

Looking at cumulative exposure scenarios for children between 1 and 2 years of age, the lowest cumulative MOE was 306, which exceeds the threshold indicating no risk. Combining all pathways of cumulative exposure (Dermal, Hand to Mouth, Granular Ingestion, Soil Ingestion, Object to Mouth, and Dietary) led to an MOE of 154, still above the target of 100. Even assuming complete co-occurrence of all neonic pesticides for all scenarios, and choosing children between 1 to 2, who are assumed to be exposed to the highest measured residues in fruits and nuts, and with the highest estimated post application dermal and incidental oral

exposures, no risks were found for adults or children from post application exposure, dietary exposure, or any combination of the two for multiple pesticide exposures.

Some risks were identified for occupational handlers exposed to acetamiprid, dinotefuran, and thiamethoxam. No risk was identified for clothianidin. No risks were identified for a child or adult bystanders. There were no risks for any dietary exposures. There were no aggregate risks for exposures to single pesticides. There were no acute cumulative risks for exposure to multiple pesticides

Committee Comments

Mai Ngo, DTSC - I think that I had two general questions. One is, I noticed that a tier two evaluation was performed with the dietary assessment, and I was curious if that's like the default tier that you start out assessing, or what your reasons were for starting with a tier two?

Scott Tiscione, DPR - Oh, sure. That's a great question. So going some into that system a bit more. We have three levels of assessment. We start at tier one and work our way down to tier three based on the exposure parameters. So for a tier one, we're entirely doing the maximum tolerance for all of our pesticide residues, so that is like the worst case scenario. It's the least reasonable exposure, the worst case and very unlikely to happen, to have the highest tolerance level for all the foods at the same time. Then we'll work our way down to tier two to then add in more reasonable data, like actual real world data such as the PDP data. Tier three then goes on to doing more statistical analysis instead of using maximum values, looking at percentiles and 95th percentiles things like that. That's the order in which we kind of go in and then we stop along the way when we see that there's no risks as we're going from most health protective and least likely to happen to more reasonable exposure scenarios, then reducing uncertainty essentially.

Mai Ngo, DTSC- My second question is pretty general, I was curious if at any point there was an ecological assessment. I know you guys were talking about human health, various human receptors, but I was wondering if DPR assesses the ecological risks from the use of these products?

Shelley DuTeaux, DPR, HHA Branch Chief - The neonics are in reevaluation within the department. I believe there are aspects of ecotoxicology and pollinator protection that might be covered with reevaluation. But I would need to defer to Nan or other staff from our evaluation branch to answer that question.

Nan Singhasemanon, DPR - Yeah, I can answer a little bit of that. We do as part of the evaluations for the neonics overall. We're certainly doing analysis but with the surface water impacts. That's part of the work, and I don't remember if also there's been work that's being done by our Evaluation Branch on the non-aquatic wildlife as well. Sometimes depending on the active ingredients we're evaluating, there's a need to evaluate the wildlife impacts, and also the

aquatic impacts as well. So we only presented the human health aspects today, parts of DPR do evaluate the ecological risks from these.

Public Comments

Anne Katten - In evaluating past data, do you include incidents where there was exposure to other pesticides along with these new pesticides?

Scott Tiscione, DPR - For the PISP data, we are looking at cases where either it was the exposure to that pesticide alone or co-exposures with other pesticides. I believe with that database we don't always have the granularity of which pesticides were present, which is why we categorize them with the definite, possible, or probable and possible with terms related to that pesticide specifically. But we don't always know if there are other pesticides involved. I believe in our risk characterization we do breakdown when we do have the pesticide exposure alone or when it was with others that were present, both are included in our assessment.

Anne Katten - Did you look at exposure and risks for farm workers working in treated fields right after the REIs have expired?

Shelley DuTeaux - The scope for these assessments for these for neonic insecticides were limited by Assembly Bill 363 which specifically asks us to look at non agricultural outdoor uses of those for neonics within outdoor applications to landscape areas, so the limit of the risk assessment was specifically to that.

Kathleen Kilpatrick - Neurotoxic effects at the acute level were described long term and developmental effects from perinatal exposures, including pregnant women were or were not part of your analysis?

John Adragna - For the single pesticide risk analysis, we took the most sensitive endpoints which did include the neurotoxic effects for the cumulative pesticide analysis. We could not use anything other than the acute neurotoxic effects because that is the common toxic effect for the common mechanism group as defined by U.S. EPA.

Anne Katten (via e-mail): Were the dietary exposures mentioned limited to exposures from consuming fruit raised in home yards?

DPR HHA: Yes, for all four neonicotinoid insecticides, the Department of Pesticide Regulation (DPR) evaluated the dietary exposure that could result from consumption of fruit from non-production fruit and nut trees grown around homes and residences. This aligns with the scope of these assessments pursuant to AB 363 and DPR's interpretation of the law as outlined in the DPR Enforcement Letter ENF 24-12 (https://www.cdpr.ca.gov/cac-letter/neonicotinoid-pesticides-for-non-agricultural-outdoor-use-new-law-and-questions-and-answers/). These focused dietary exposure assessments, either for a single chemical or when all four

neonicotinoids were considered cumulatively, included all fruit-bearing trees with established tolerances for acetamiprid, clothianidin, dinotefuran and thiamethoxam.

5. **Agenda Items for Next Meeting**

None to report.

The next PREC meeting is scheduled for July 18, 2025, at 10:00 am. This meeting will be held virtually on the Zoom platform and broadcast live on the CalEPA webcast page

6. **Adjourn**