GOVERNANCE ON THE GROUND:

Evaluating the Role of County Agricultural Commissioners in Reducing Toxic Pesticide Exposures

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Highly volatile and toxic pesticides are widely used in California agriculture to control soil pests for numerous high-value crops such as strawberries, almonds and citrus.[1] The annual number of pounds applied to California fields in both 2015 and 2016 was higher than for any year since 1998. See Figure 1. These pesticides present substantial health risks to farm workers, bystanders and nearby residents, as well as significant ecological impacts.

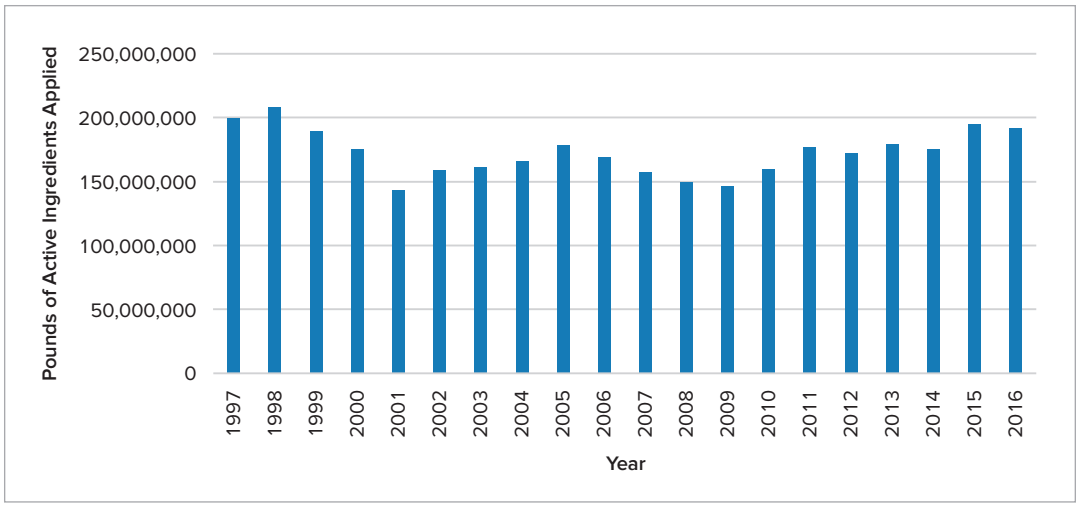

FIGURE 1
Pounds of active ingredients of pesticides applied to fields in California over the past 20 years[3]

Primary responsibility for ensuring the safety of pesticides is split between state and county regulators.[2] At the state level, before a pesticide can be sold or used in California, it must obtain registration from the California Department of Pesticide Regulation (DPR). As part of the registration process, DPR must evaluate the potential risks associated with the pesticide, including cumulative risks. The agency must also consider mitigation measures and safer alternatives, if any, needed to protect the health of agricultural workers and of other individuals who live, work or engage in activities nearby. Safer alternatives include alternative farming practices (such as integrated pest management or organic farming methods) as well as safer alternative pesticides.

In two prior reports, we assessed the DPR pesticide registration program, focusing on best practices and deficiencies in how the agency deals with safer alternatives and cumulative exposures.[4,5] This report shifts focus to the county level.

"On the ground" implementation of the pesticide regulations is performed by the 56 County Agricultural Commissioners (CACs). Farmers (or their representatives) planning to use a restricted pesticide must obtain a restricted material permit from the CAC. The CAC must deny the application where feasible safer alternatives or mitigation measures are available. The CAC is responsible for knowing local conditions and utilizing such knowledge in making these determinations.

This report concludes that the CACs' permitting processes do not include meaningful evaluation of safer alternatives nor consideration of cumulative exposures. (In this report, "cumulative exposure" refers to exposures associated with simultaneous or sequential application of two or more materials at the same field or at adjacent fields.) The report offers proposals for change at the county and state level.

ALTERNATIVES EVALUATION

The study used a mixed-method approach to evaluate the CACs' evaluation of potentially safer alternatives. We first performed a broad, statewide assessment of existing permit evaluation policies of all CACs followed by a focused case study.

The broad assessment involved the review of documents and information gathered through extensive online searches of relevant government websites. The gathered information, which included county work plans and pesticide use reports, was used to characterize permitting practices by each of the 56 CACs in California.

The case study delved more deeply into the practices of a smaller, representative subset of CACs. The case study focused on permitting of chlorpyrifos, an organophosphate pesticide used on oranges,

almonds, walnuts and other crops. Chlorpyrifos was selected because of its demonstrated health risks, its extensive yet decreasing use in California, and the availability of alternatives. Taken together, these factors create a situation that clearly calls for alternatives evaluation. To determine the type and depth of alternatives evaluation conducted by the selected CACs in our chlorpyrifos case study, we examined existing formal and informal guidance and specific permitting decisions using documents obtained through Public Record Act (PRA) requests. We also conducted a limited set of interviews of CAC personnel and pest control advisors.

Although our statewide review showed that almost 60% of the CACs profess varying levels of commitment to alternatives evaluation, the permit files and records provided by the selected CACs contradict the expressed level of commitment. None of the responding CACs reported having office-specific written guidance relevant to alternatives evaluation. CACs typically delegate the responsibility to identify and evaluate potentially feasible alternatives to the applicant (or, more specifically, to the applicant's pest control advisor (PCA)). In addition, there was no evidence that the CACs engage in oversight of the private parties' alternatives evaluation activities.

CUMULATIVE EXPOSURE EVALUATION

A similar mixed-method approach was used to evaluate the permitting practices of the CACs regarding the issues of cumulative exposure. The broad, statewide assessment was used to generally characterize permitting practices regarding cumulative exposure consideration by each of the CACs.

The case study focused on permitting of chloropicrin, 1,3-dichloropropene (Telone), and metam sodium in a smaller, representative set of counties. These pesticides were selected for the cumulative exposure case study because of their significant toxicity, as well as their frequent concurrent application and history of drift. See Table 1. To determine the type and depth of cumulative exposure consideration in the selected CAC permitting processes for our case study, we examined written CAC policy or guidance regarding cumulative exposure and documents submitted to or generated by the CACs in the course of issuing permits for chloropicrin, Telone, and metam sodium application. Again, we also considered information from the limited interviews.

TABLE 1: Ranking of top pesticides used on crops in California by pounds in 2016, showing the top three fumigants[6]

Pesticide	Pounds Used	Rank	Top Five Crops/Sites Pesticide is Used On (descending order)
Telone	14.1 million	3	Almonds, soil fumigation/preplant (unspecified), strawberries, carrots, sweet potatoes
Chloropicrin	8.6 million	6	Strawberries, soil fumigation/preplant (unspecified), raspberries, almonds, peppers
Metam sodium	3.3 million	11	Carrots, potatoes, peppers, processing tomatoes, strawberries

The statewide review indicated that CACs do not consider cumulative exposure during the county restricted material permitting process. Additionally, the PRA documents and the interviews provided no evidence of cumulative exposure evaluation by CAC personnel. There are no records memorializing discussions with applicants or their representatives regarding potential concerns about cumulative exposures. From our analysis of the documents provided in response to the PRA requests, when multiple fumigants are applied to the same or adjacent fields no special mitigation measures are imposed.

RECOMMENDATIONS

State law and best practices in environmental and public health policy require meaningful consideration of alternatives.[7] Recommendations to improve alternatives analysis include:

- Aligning formal guidance by DPR and practice at the local level (either by CACs or PCAs) with the applicable law to ensure evaluation of potentially feasible and safer alternatives to the proposed restricted material in addition to consideration of mitigation measures at the state and county level
- Developing guidance by DPR setting out rigorous, systematic, yet tractable methods for identification and evaluation of potential alternatives
- Developing and supporting capacity at the CAC level for identifying and evaluating alternatives

State law also mandates that the pesticide program address cumulative impacts.[8] Recommendations to improve consideration of cumulative exposures include:

- Adopting practices for timely identification of cumulative exposure scenarios at the registration and permitting stages
- Establishing principles for testing of mixtures during pesticide registration
- Establishing methods for assessing risks associated with cumulative exposures during registration through a task force
- Developing default standards at the state level for likely cumulative exposure scenarios at the registration stage
- Establishing a process for developing standards for cumulative exposures identified by CACs during the permitting process

ADDITIONAL INFORMATION

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