

**SUMMARY OF RESULTS FROM THE
CALIFORNIA PESTICIDE ILLNESS
SURVEILLANCE PROGRAM
- 2006 -**

HS-1872

California Environmental Protection Agency
Department of Pesticide Regulation
Worker Health and Safety Branch
1001 I Street
Sacramento, California 95814

February 29, 2008

Executive Summary

The California Department of Pesticide Regulation's Pesticide Illness Surveillance Program (PISP) summary for 2006 reflects a sharp decline in the number of pesticide-related illness reports. In response, DPR scrutinized its illness reporting process to determine if data was overlooked in 2006. While no specific problem could be identified, DPR took action to improve data collection methods while redirecting outreach efforts to maximize compliance with statutorily mandated reporting requirements. Those efforts have already shown results. Lower statistics notwithstanding, the 2006 summary continued to capture a wide range of pesticide illnesses.

Some 680 cases were identified in 2006, the lowest number since PISP records were computerized in 1982. That compares to more than 1,300 cases in 2005 and more than 1,200 in 2004. The overall decline is related to a reduction in cases identified through workers' compensation documents, which historically provided DPR with most referrals for occupational cases. In response, DPR staff and Department of Public Health partners revisited workers' compensation case review procedures, and identified more cases among 2007 records.

The Department has made strong efforts to enhance reporting: In 2006, DPR restarted a project that was a major contributor to PISP statistics before it lapsed in 2002 when federal funding ran out. Under that project, the California Poison Control System contracted to report pesticide-related illnesses to DPR on behalf of physicians who consulted the system. Several hundred case referrals came through this mechanism annually. In October 2006, the collaborative effort was renewed with DPR funding. An increase in reports from the poison control system is expected in the 2007 summary.

DPR is also expanding direct outreach efforts to Spanish-speaking workers. A current project focuses on working with specially trained peer educators known as "promotoras de la salud" ("promoters of health") to improve pesticide safety among farm workers and their families.

Pesticide Illness Surveillance Program – 2006

Promotoras act as liaisons between residents and health and social services providers.

Promotoras have great credibility in the disadvantaged communities they serve, since they are members of these communities themselves. Eventually, DPR hopes to coordinate with promotora programs throughout the State to provide pesticide safety information to farm workers and their families.

Other recent outreach efforts by DPR include a statewide toll free phone number (1-87-PestLine) to help direct pesticide illness complaints to County Agricultural Commissioners more quickly.

Despite the one-year downturn, PISP data continue to provide valuable support for DPR initiatives aimed at preventing pesticide injuries, particularly in the occupational sector. Strong demand for the data also continues from both industry and environmental advocates, as well as from state agencies and the federal government.

Pesticide Illness Surveillance Program – 2006

Background on the Reporting System

The California pesticide safety program, which the Department of Pesticide Regulation (DPR) administers, is widely regarded as the most stringent in the nation. Mandatory reporting of pesticide¹ illnesses has been part of this comprehensive program since 1971. It is the oldest and largest program of its kind in the nation, and provides data to regulators, advocates, industry, and individual citizens.

The U.S. Environmental Protection Agency (U.S. EPA) and the National Institute for Occupational Safety and Health (NIOSH) have encouraged other states to develop programs similar to California's. Through NIOSH's Sentinel Event Notification System for Occupational Risk (SENSOR), they now partially support programs in the states of Iowa, Michigan, New York, Texas, and Washington. SENSOR also provides technical assistance to the states of Arizona, Florida, Louisiana, New Mexico, North Carolina, and Oregon. In addition, it supports pesticide-related work by the Occupational Health Branch of the California Department of Public Health, which coordinates with DPR's Worker Health & Safety (WHS) Branch. U.S. EPA continues to rely heavily on California data for evidence of pesticide adverse effects because of the large size and long historical perspective of the database.

DPR scientists participate in the national working group on pesticide illness surveillance that NIOSH convened to develop standards for information collection. DPR's 1998 expansion of the Pesticide Illness Surveillance Program (PISP) database incorporated several features from the NIOSH standards. These upgrades have been applied to all data collected from 1992 through the

¹ "Pesticide" is used to describe many substances that control pests. Pests may be insects, fungi, weeds, rodents, nematodes, algae, viruses, or bacteria -- almost any living organisms that cause damage or economic loss, or transmit or produce disease. Therefore, pesticides include herbicides, fungicides, insecticides, rodenticides, and disinfectants, as well as insect growth regulators. In California, adjuvants are also subject to the regulations that control pesticides. Adjuvants are substances added to enhance the efficacy of a pesticide, and include emulsifiers, spreaders, and wetting and dispersing agents.

present. Data earlier than 1992 have not been revised to incorporate the 1998 database upgrades, and will be presented only when historical perspective is important.

Excessive exposure to pesticides may cause illness by various mechanisms, and the surveillance program attempts to monitor all of them. Every pesticide active ingredient has a mechanism of action by which it controls its target pests. Pesticide products may have other potentially harmful properties in addition to the qualities designed to control pests. PISP collects information on any adverse effects from any component of pesticide products, including the active ingredients, inert ingredients, impurities, and breakdown products. DPR has a mission to mitigate any pesticide exposure that compromises health or safety. This responsibility applies to health effects from products that act as irritants or as allergens, through their smells or by causing fires or explosions, as well to classical toxic effects.

Sources of Illness Information

Under a statute enacted in 1971 and amended in 1977 (now codified as Health and Safety Code section 105200), California physicians are required to report any suspected case of pesticide-related illness or injury (whether it occurred on a farm, in a home, or in any other situation) by telephone to the local health officer within 24 hours of examining the patient. Each California county has a health officer with broad responsibility for safeguarding public health, and a few cities have chosen to have their own health officers. These officials may investigate pesticide incidents to whatever extent they find useful. The law only requires them to inform the county agricultural commissioner (CAC), to complete a pesticide illness report (PIR), and to distribute copies of the PIR to the Office of Environmental Health Hazard Assessment (OEHHA), the Department of Industrial Relations (DIR), and DPR.

DPR strives to ensure that the PISP captures the majority of significant illness incidents and records them in its database. To identify pesticide cases that may go unreported by doctors, DPR has negotiated a memorandum of understanding with DIR and the California Department of Public Health, under which scientists review Doctor's First Reports of Occupational Illness and Injury (DFROIs), documents that California's Labor Code requires workers' compensation claims

Pesticide Illness Surveillance Program – 2006

payers to forward to DIR). Scientists select for investigation any DFROII that mentions a pesticide, or pesticides in general, as a possible cause of injury. Reports that mention unspecified chemicals are also investigated if the setting is one in which pesticide use is likely. From 1983 through 1998, DFROII review identified the majority of the cases investigated.

From 1999 through 2002, the California Poison Control System (CPCS) facilitated pesticide illness reporting. Funds from U.S. EPA supported development of an enhanced system of poison control facilitation, which operated from mid-2001 through November 2002. Cooperation with CPCS identified hundreds of symptomatic exposures that otherwise would have escaped detection, but the State's fiscal crisis prevented continuation of the contract after federal funding ended. Improved financial status allowed DPR to renew its contract with CPCS in 2006. Poison control facilitation of illness reporting resumed in October 2006. DPR also continues to cooperate with OEHHA in efforts to provide the public and the health care community with information on pesticide safety and public health surveillance.

The agricultural commissioners of the counties where exposures occurred investigate all identified incidents, whether or not they involved agriculture. They attempt to locate and interview all the people with knowledge of the pesticide exposure event, and also review relevant records. Their investigations determine how exposure occurred, characterize the subsequent illnesses, and determine whether pesticide users complied fully with safety requirements. DPR provides instructions, training, and technical support for conducting investigations. These instructions include directions for when and how to collect samples of foliage, clothing, or surface residues to document environmental exposures. As part of the technical support, DPR contracts with a specialized laboratory to analyze the samples.

WHS worked with DPR's Enforcement Branch to develop and present training for CACs in 2006. The training covered DPR's expectations of the CACs in conducting pesticide episode investigations, including pesticide illness investigations. Sessions were presented in ten locations throughout California. Training content was designed to feature updates to the Pesticide Use

Enforcement Program Standards, Volume 5, Investigation Procedures Manual, a revised edition of which was distributed late in 2005.

The CACs prepare reports describing the circumstances in which pesticide exposure may have occurred and any other relevant aspects of the case. When appropriate, they request authorization from the affected people to include relevant portions of their medical records with the report. Medical record authorizations comply with the Health Insurance Portability and Accountability Act (HIPAA) and always include commitments to maintain confidentiality. When investigations identify affected people not previously reported by other mechanisms, those people are identified in the investigation report and recorded in the PISP database. DPR scientists evaluate the physicians' reports and all the information the CACs have gathered. They then classify incidents according to the circumstances of pesticide exposure.

DPR evaluators undertake a complex evaluation of medical records and investigation reports to determine the likelihood that a pesticide exposure caused the incident. Standards for the determination are described in the PISP program brochure, "Preventing Pesticide Illness," which can be viewed or downloaded from the DPR Web site at <http://www.cdpr.ca.gov/docs/whs/pisp/brochure.pdf>.

Purpose of Pesticide Illness Surveillance

DPR maintains its surveillance of human health effects of pesticide exposure in order to evaluate the circumstances of pesticide exposures that result in illness. DPR scientists regularly consult the PISP database to evaluate the effectiveness of DPR's pesticide safety regulatory programs and assess the need for changes. In high-risk situations, DPR may implement additional California restrictions on pesticide use. For example, taking illness data into consideration, DPR may adjust the restricted entry interval following pesticide application, specify buffer zones or other application conditions, or require pesticide handlers to use protective equipment that meets certain standards.

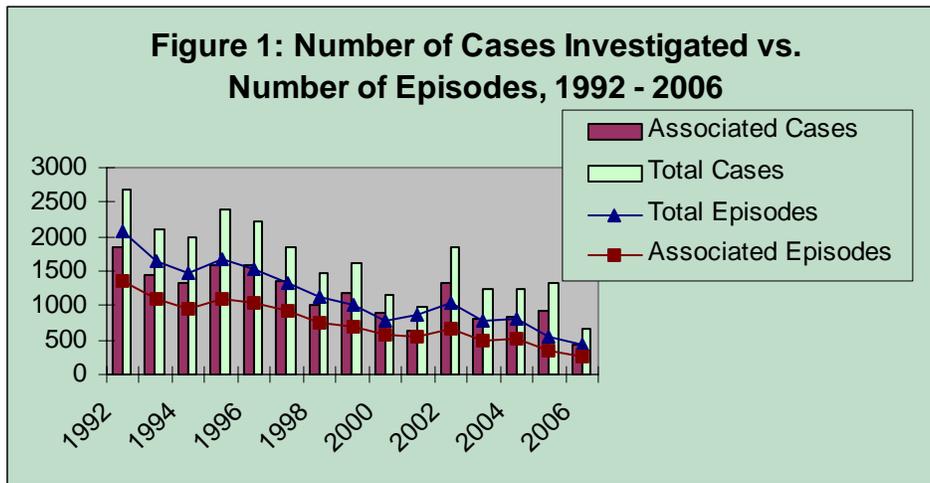
During 2006, WHS finalized a review of PISP data on illnesses attributed to exposure to pesticide residue in treated structures (Verder-Carlos, 2006) and published a review of pyrethroid effects recorded in PISP illness investigations (Spencer and O'Malley, 2006). Illness data were also incorporated into finalized exposure assessments for carbofuran and sulfuryl fluoride.

In some instances, changes to pesticide labels provide the most appropriate mitigation measures. DPR cooperates with U.S. EPA to develop appropriate instructions for users throughout the country. If an illness incident results from illegal practices, state and county enforcement staff take appropriate action to deter future incidents.

2006 Numeric Results – Totals

In 2006, DPR and CACs investigated 681 cases (see Figure 1). This is the smallest number of cases identified by the PISP since records were computerized in 1982. Although reasons for the drop are not all obvious, DPR scientists have identified areas for potential improvement and have taken action. Staff scientists continue to explore potential explanations and supplementary sources of case identification.

Compared to usual year-to-year variation, this year's drop is substantial: The 2006 case total falls two standard deviations below the average annual total of the previous six years (2000 – 2005 mean = 1296, S.D. = 300). In most years, the several case identification paths have compensated for one another. In 2006, all of the sources provided fewer cases than average. DFROII retrievals showed the largest drop (see Figure 2). The other sources, though reduced in volume, identified case totals within one standard deviation of their averages.



A case is the Pesticide Illness Surveillance Program representation of a person whose health problems may relate to pesticide exposure.

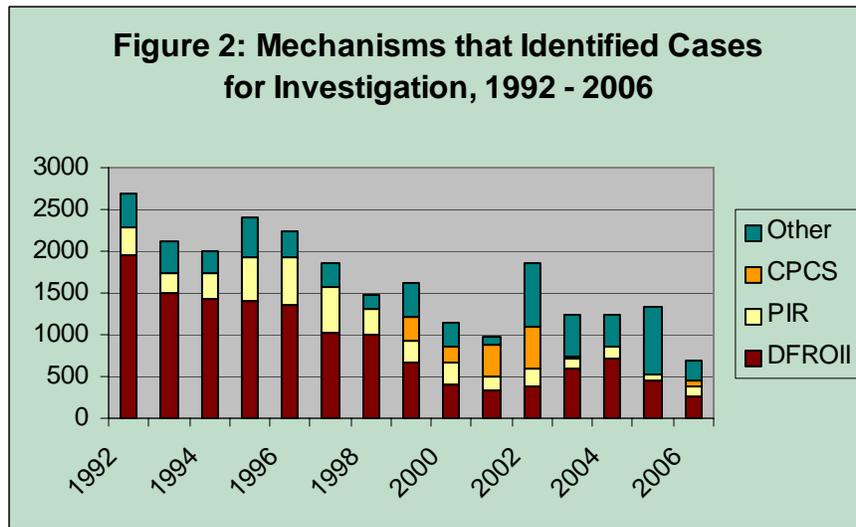
An episode is an event in which a single source appears to have exposed one or more people (cases) to pesticides.

Associated cases are those evaluated as definitely, probably, or possibly related to pesticide exposure. A definite relationship indicates that both physical and medical evidence document exposure and consequent health effects. A probable relationship indicates that limited or circumstantial evidence supports a relationship to pesticide exposure. A possible relationship indicates that evidence neither supports nor contradicts a relationship.

Associated episodes are those in which at least one case was evaluated as associated.

The reduction in volume was more pronounced for non-agricultural than agricultural cases, for cases related to herbicides and antimicrobials than for those related to other types of pesticides, and for cases that affected mixer/loaders and applicators (both agricultural and non-agricultural) than for those that affected people who did not handle pesticides.

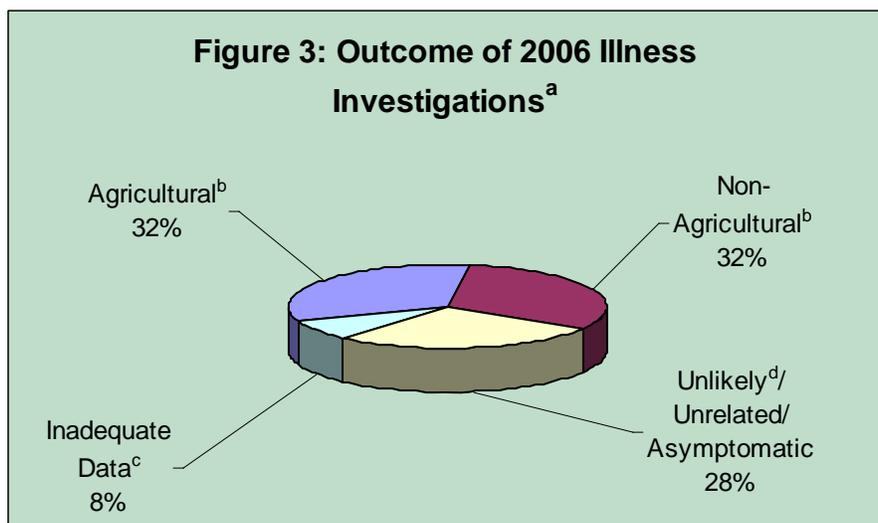
Although case findings for 2007 appear to have returned to pre-2006 levels, in response to the unexpected drop in 2006 case reports, DPR is pursuing the possibility of obtaining direct access to electronic workers' compensation data. Direct access to this data will significantly improve the reliability and consistency of information relative to occupational exposures. To implement this data exchange, DPR must first pursue legislative approval.



DFROII – Doctor’s First Report of Occupational Illnesses and Injury (Workers’ Compensation document).
PIR – Pesticide Illness Report (physician reporting in compliance with Health and Safety Code 105200).
CPCS – California Poison Control System (facilitated physician reporting).
Other – All other methods of case identification. Including citizen complaints, contacts by emergency responders, and news reports.

Figure 2 also shows increasing case identification outside of the usual PIR and DFROII-based pathways in recent years. Since PIRs and DFROIIs come only from medical care providers, they cannot be filed unless the affected people consult doctors. In recent years, episodes in which pesticides escape into populated areas have become more prominent. Many people may incur low-level exposures in such events, but few may seek medical care. Such episodes come to the CACs’ attention via emergency response contacts, news reports, or direct citizen complaints. CACs also locate some additional cases in the course of investigating reported illnesses.

Of the 681 cases investigated, DPR found that pesticide exposure had been at least a possible contributing factor to 438 (64 %). Evidence established an unlikely or unrelated relationship to pesticide exposure for 187 (28 %) of the 681 cases assigned for investigation, including 75 individuals (11 %) who denied experiencing health effects. Lack of information prevented evaluation of 56 (8 %) (Figure 3).



^a Total cases investigated = 681.

^b *Agricultural* and *Nonagricultural* refer to the intended use of the pesticide.

^c *Inadequate* means that there was not enough data available or reported to determine if pesticides were involved in the case.

^d *Unlikely/Unrelated/Asymptomatic* refers to cases determined as unlikely related or unrelated to pesticide exposure or the exposed person did not develop symptoms.

Occupational exposures (those that occurred while the affected people were at work) accounted for 332 (76 %) of the 438 pesticide-associated cases from 2006. Occupational exposures typically predominate among the cases PISP collects, reflecting the importance of DFROIs (workers' compensation documents) for identifying cases.

Of the 438 cases recognized as definitely, probably, or possibly related to pesticide exposure, 222 (51 %) involved use of pesticides for agricultural purposes (i.e., intended to contribute to production of an agricultural commodity, including livestock) and the remaining 216 (49 %) involved pesticide exposure in other situations, such as structural, sanitation, or home garden use, in the manufacturing process, or during storage.

Evidence established a definite relationship to pesticide exposure for 49 (11 %) of the 438 definite, probable, and possible cases. Another 305 (69 %) were classified as probable, with 84 (19 %) entered as possible (Table 1). Tabular summaries presenting different aspects of the data

are available through DPR's Web site at <http://www.cdpr.ca.gov/docs/whs/currpisp.htm>, or by contacting the WHS Branch.

Table 1: Relationship Evaluation of 2006 Illness Investigations

Relationship	Agricultural ^a	Non-Agricultural	Relation to Agriculture Unknown or Not Applicable	Total
--------------	---------------------------	------------------	---	-------

Definite ^b	7	42	0	49
Probable ^c	167	138	0	305
Possible ^d	48	36	0	84
subtotal	222	216	0	438
Unlikely ^e	8	15	1	24
Asymptomatic ^f	63	12	0	75
Unrelated ^g	0	0	88	88
Not Applicable ^h	6	44	6	56
Total	299	287	95	681

^a Agricultural cases are those that implicate exposure to pesticides intended to contribute to the production of agricultural commodities.

^b High degree of correlation between pattern of exposure and resulting symptomatology. Requires both physical evidence of exposure and medical evidence of consequent ill health to support the conclusions.

^c Relatively high degree of correlation exists between the pattern of exposure and the resulting symptomatology. Either medical or physical evidence is inconclusive or unavailable.

^d Some degree of correlation evident. Medical and physical evidence are inconclusive or unavailable.

^e A correlation cannot be ruled out absolutely. Medical and/or physical evidence suggest a cause other than pesticide exposure.

^f Exposure occurred, but did not result in illness/injury.

^g Definite evidence of cause other than pesticide exposure, including exposures to chemicals other than pesticides.

^h Relationship cannot be established because the necessary information is either unavailable or not provided.

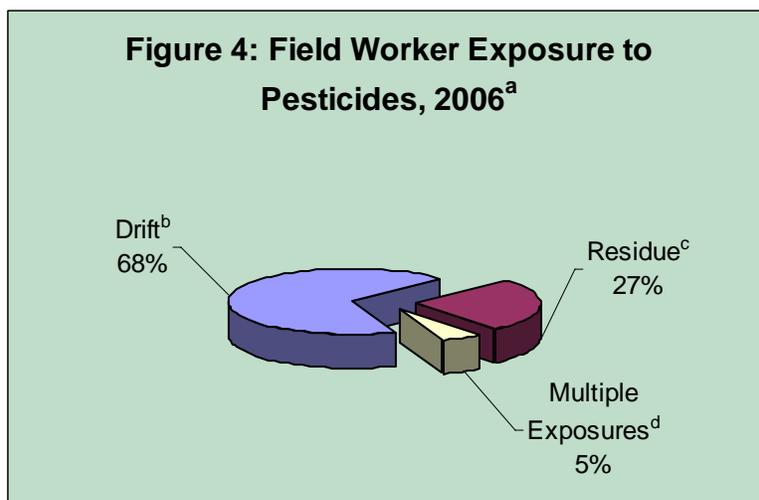
When DPR receives the illness investigative reports, staffers seek to determine whether compliance violations are involved, but this can be difficult. Enforcement actions are often still under consideration when illness reports are prepared. Based on the information available at the time of evaluation, WHS scientists concluded that factors already prohibited by pesticide labels and safety regulations contributed to 197 (45 %) of the 438 cases evaluated as definitely, probably, or possibly related to pesticide exposure. This is typical of recent years, although in 2005 a massive drift episode raised the percentage of cases with violations to 68%. The 2006

total includes 108 people affected by apparent violations during or following agricultural uses of pesticides. In the other 114 cases connected to agricultural pesticide use (51 %), WH&S scientists did not identify violations that contributed to exposure. Further evaluation of these cases will determine if additional safety requirements are needed. In circumstances other than agricultural use, evaluators determined that violations contributed to 89 (41 %) of the 216 definite, probable or possible cases.

Agricultural Field Worker Incidents

In 2006, 94 cases of field worker illness or injury were evaluated as definitely, probably or possibly related to pesticide exposure (Figure 4). Twenty-five of them (27 %) were exposed to pesticide residue in 20 separate episodes, and 64 (68 %) were exposed to drift in nine distinct episodes. The other five affected field workers were involved in three episodes in which they may have been exposed to residue, drift, or both.

Three of the 25 residue exposures were evaluated as probably related to reported health effects; the other 22 field worker residue exposures were evaluated as possibly related. WHS helped to investigate a Kern County residue episode (Spencer, 2006): Two crew members reported rashes when they arrived for their second day pruning a young almond orchard. Two other members of the crew then reported other symptoms, and five crew members requested precautionary evaluation. The day before pruning began, the trees had been treated with abamectin (a miticide with a 12-hour reentry interval); and the ground had been sprayed with herbicides (glufosinate, glyphosate, and oxyfluorfen) the previous month. Herbicide-treated plants would have died before the crew entered the orchard, so leaf samples were tested only for abamectin and propargite. Records did not indicate that the orchard had been treated with propargite (another miticide); but propargite has been associated repeatedly with skin irritation, while skin irritation has not been a prominent feature of abamectin exposure. Analysis of the samples detected no propargite, however; and abamectin residue levels were comparable to those found in previous studies on other crops. The symptomatic workers were recorded as possibly having been affected by abamectin exposure.



^a Total field worker cases associated with pesticide exposure = 94.

^b Drift refers to field worker cases associated with exposure to drift from a pesticide application.

^c Residue refers to field worker cases associated with exposure to residue of previously applied pesticides.

^d Multiple Exposures refers to contact with pesticides through two or more mechanism.

Restricted entry interval violations contributed to five field workers' exposure to residue. Three of the five, including two evaluated as probably affected by pesticide residue, were exposed in a Monterey County episode in which premature removal of posting signs also contributed to their exposure. Non-contributory violations such as delay in submitting use reports were identified in nine other cases of field worker residue exposure.

Drift exposure probably caused or contributed to symptoms experienced by 58 field workers, and was a possible factor in six field worker cases. The largest episode occurred in Sacramento County, where 23 apple harvesters developed symptoms when they smelled the odor of an aerial disulfoton application to asparagus one-quarter to one-half mile away. The workers were taken to a hospital for evaluation. WHS scientists took a dozen samples of apple foliage and arranged with the hospital to collect urine samples from the four most severely affected workers (Yanga and Hernandez, 2006). Analysis of the leaf samples detected no disulfoton, but found trace amounts of a breakdown product, disulfoton sulfone, in half the samples. No disulfoton metabolites were detected in any of the four urine samples. The workers reported primarily

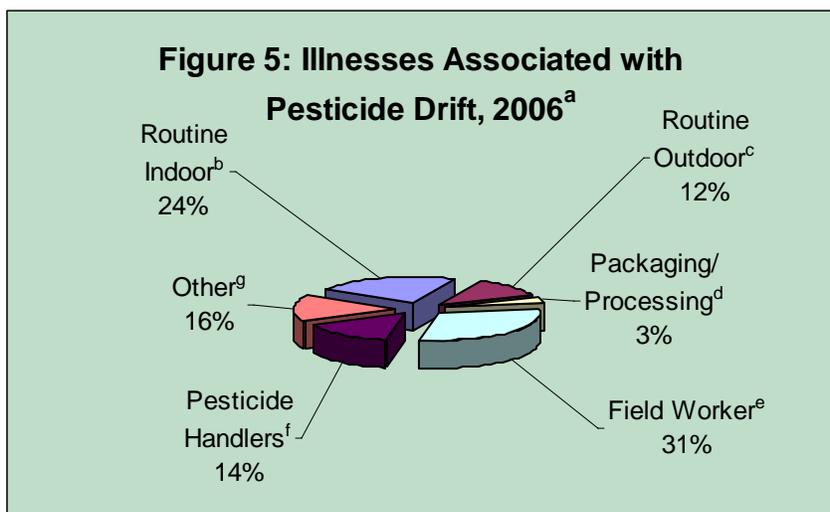
nausea, headaches, and eye and respiratory irritation. These are credible reactions to the odor of disulfoton, so 21 of the 23 cases were evaluated as probably related and two as possibly related. Another 25 workers denied experiencing any symptoms. Investigators cited the applicator for insufficient caution in applying the pesticide, and the CAC proposed a penalty of \$9,000. As of February 29, 2008 a hearing on the penalty is pending.

In a Kern County episode, a cloud of pesticide dust enveloped 19 of 44 grape harvesters. Investigators took samples of foliage and clothing, which confirmed pesticide drift. The CAC fined the applicator \$14,000 for applying the pesticide in conflict with its label directions. Pesticide exposure was evaluated as probably related to the symptoms of 18 of the 19 symptomatic workers. One worker's symptoms were evaluated as possibly related.

Seven other drift episodes each affected one to seven field workers. Investigators identified violations in each of the episodes, but found that they had not contributed to exposure in three drift episodes.

Drift Exposure

The PISP defines drift exposure as exposure to pesticide “spray, mist, fumes, or odor carried from the target site by air.” This definition differs from the definition used for enforcement of regulations in that the PISP definition includes the offsite movement of pesticides after they have been deposited at the target site, so long as the application remains in progress. It also includes exposures of pesticide handlers in which air movement carried the pesticide and caused exposure. In 2006, DPR recorded a total of 208 individuals who reported symptoms evaluated as definitely, probably, or possibly related to exposure to drift (Figure 5) in 62 separate episodes, including nine episodes that affected 64 field workers. Agricultural pesticide use was found responsible for 52 % of the episodes and 79 % of the affected people (32 episodes, 164 cases). Non-agricultural exposure situations accounted for 30 episodes in which 44 people (including 20 pesticide handlers) experienced effects evaluated as definitely, probably, or possibly related to airborne pesticide exposure.



^a Total drift cases for 2006 = 208.

^b Routine Indoor includes people in offices and businesses, residential structures, etc. (occupational and non-occupational) who were not handling pesticides.

^c Routine Outdoor includes people outdoors (occupational and non-occupational) with little expectation of contacting pesticides (e.g., gardeners not handling pesticides, residents).

^d Packaging/Processing includes people involved in processing harvested crops.

^e Field Workers are people working in agricultural fields at the time of drift exposure.

^f Handlers include people mixing, loading and applying pesticides, repairing pesticide equipment and flagging for aerial application.

^g Other/Unknown – Any other type of activity or unknown activity.

In three episodes, field fumigants moved off site and apparently elicited symptoms in two applicators, six emergency responders, and 53 nearby residents and business occupants. These 61 cases were all evaluated as probably related to the exposure. Three other agricultural fumigant drift episodes affected a total of four people, including three agricultural inspectors present during the fumigations. Chloropicrin was implicated in all the agricultural fumigant episodes, some of which involved methyl bromide or 1,3-dichloropropene in addition. Overall, drift exposure was evaluated as definitely, probably, or possibly related to health effects reported by 64 field workers, seven workers processing harvested produce, 49 people engaged in routine indoor activities when exposed, 25 people engaged in routine outdoor activities, six emergency responders, and 27 people involved in activities not adequately described by any of the defined categories. Additionally, 30 pesticide handlers were definitely, probably, or possibly affected by

airborne exposure to the pesticides they handled. Such exposures are recorded as drift. Of the 30 pesticide handlers exposed via drift, 10 worked in agriculture.

Morbidity and Mortality

Among the 354 cases evaluated as definitely or probably related to pesticide exposure, 11 people were admitted to hospitals and 66 lost time from work. Of the 84 possible cases, two reported hospitalization and 20 lost work time. Six of the hospitalized people apparently ingested pesticide intentionally. Three other people were hospitalized for unintentional pesticide ingestion. Those cases (and two others) are described in the final segment of this report.

DPR and CACs investigated three deaths in 2006. Pesticides were identified in each, although in each case substantial uncertainty remains about the pesticides' significance.

In one case, an aerial applicator died in a crash while applying methomyl, a carbamate insecticide capable of causing acute toxicity and impairing performance. He had made routine voice contact with a co-worker, however, just seconds before the crash. PISP scientists concluded that pesticide toxicity was unlikely to have contributed to the fatal accident.

Another fatal case was that of an abused child who arrived at a hospital not breathing and with no pulse. He was said to have drunk some pine oil sanitizer. Laboratory test results were consistent with such an ingestion, but indicated a smaller amount than would ordinarily be expected to kill. Under the circumstances, PISP scientists could not determine whether pesticide ingestion was likely to have contributed to the child's death.

The third fatality was that of a man found unconscious and unresponsive in the quarters he occupied on the property of relatives. His condition was first noticed by a family friend and property caretaker who was applying an insecticide to the grounds. After his death, investigators found bromethalin-containing rat bait in his room. Toxicity of some sort was suspected throughout his 17-day hospitalization, but no toxicant was identified. The coroner could not

assign a cause of death, and PISP scientists could not classify this case with respect to pesticide exposure.

Examples of the Importance of Safe Pesticide Practices

DPR learned of two children and three adults who unintentionally ingested pesticides in 2006. Such episodes could easily be avoided if people would store pesticides securely. The following case reports illustrate inappropriate storage practices:

In one Orange County case, a grandfather stored a red colored insecticide concentrate in a drinking bottle. He left the bottle in a tool chest, planning to dilute it later to spray for ants. His four-year-old grandson found the bottle and drank from it. Family members suggested that the child may have mistaken the red liquid for a flavored drink. The child recovered after three days of hospital treatment. The investigator retrieved the pesticide from the hospital. Laboratory analysis detected 0.37 % sulfotep and 44.28 % chlorpyrifos, both organophosphate insecticides. A teaspoonful of the mixture could have been a lethal dose for a child.

Another Orange County family had done missionary work in Africa, and maintained contact with African friends. When they complained of a raccoon problem, one of those friends sent them a black, granular pesticide. The wife mixed it with meat as a bait for the raccoons. The raccoons did not eat it, so she labeled it and froze it. Some time later, her husband unthinkingly cooked and ate the poisoned meat. He became seriously ill, and drove himself to the hospital. He received treatment for three days, and told the investigator that he felt well after discharge. This case illustrates a second error in judgment, as the man could have caused a collision by driving while intoxicated. For that reason, DPR requires employers to provide transportation to a medical facility for employees who may have symptoms of pesticide poisoning. Fortunately, this man survived both his mistakes. The investigator took the remaining pesticide and had it analyzed. It proved to consist of nine percent aldicarb, a highly toxic carbamate insecticide that is sometimes misused as a rodenticide. One teaspoonful of those black granules contains enough pesticide to kill five healthy adults.

Pesticide Illness Surveillance Program – 2006

In Los Angeles County, a woman put some insecticide into a soft drink bottle and gave it to her sister to take home. The sister left the bottle on a table, where her husband and four-year-old daughter shared a drink from it. They recognized their mistake and made themselves vomit before going to an emergency room. The specific pesticide involved was not identified. Some liquid pesticides pose a risk to the lungs if removed from the stomach by vomiting. Pesticide labels provide instructions that let people know whether they can safely rid themselves of ingested contents by vomiting. These people did not have a labeled container. They took a chance; but fortunately, they had no further problems from their pesticide exposure.

Another Los Angeles County case occurred on the job: A restaurant employee set his water bottle on a table next to a bottle of sanitizer. After mopping floors for a while, he took a drink and swallowed several ounces before realizing he was drinking sanitizer. He followed company policy for first aid, and was taken to a hospital where he spent four days for treatment of burns to his mouth and throat. He told the investigator that he recovered fully. The restaurant management assured the investigator that they had changed storage procedures to avoid any reoccurrence.

Mistakes like these can occur any time pesticides are not stored securely. People who decide to use and keep pesticides must also take responsibility for safe storage.

References

Spencer, J. 2006. Summary of WHS Involvement in 16-KER-06. California Environmental Protection Agency, Department of Pesticide Regulation, Worker Health and Safety Branch. Memo No. HSM-06009

Spencer, J. and O'Malley, M. 2006. Pyrethroid Illnesses in California, 1996 – 2002. Reviews of Environmental Contamination and Toxicology 186:57 – 72.

Verder-Carlos, M. 2006. A Review of Non-Handler Illnesses Associated with Structural Pesticide Applications, 1996-2001. California Environmental Protection Agency, Department of Pesticide Regulation, Worker Health and Safety Branch. Report No. HS-1854

Yanga, N. and B. Hernandez 2006. Project 0605 (Priority Investigation 25-SAC-06), Possible Drift, Disulfoton. California Environmental Protection Agency, Department of Pesticide Regulation, Worker Health and Safety Branch. Memo No. HSM-06012