A faint, light gray illustration of a person wearing a hat and operating a tractor is visible in the background, centered behind the title text.

**July 2008- June 2009
Legislative Report**

PESTICIDE ANALYTICAL AND RESPONSE CENTER

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Acronym Definitions

CROET	Center for Research on Occupational and Environmental Toxicology, Oregon Health & Science University
DEQ	Oregon Department of Environmental Quality
FIFRA	Federal Insecticide, Fungicide and Rodenticide Act
HIPAA	The Health Insurance and Portability and Accounting Act of 1996
LRAPA	Lane County Regional Air Protection Agency
MSDS	Material Safety Data Sheet
NIOSH	National Institute of Occupational Safety and Health
NPIC	National Pesticide Information Center
ODA	Oregon Department of Agriculture
ODF	Oregon Department of Forestry
ODFW	Oregon Department of Fish and Wildlife
ODOT	Oregon Department of Transportation
OHA	Oregon Health Authority
OERS	Oregon Emergency Response System
OHSU	Oregon Health and Sciences University
OPC	Oregon Poison Center, Oregon Health & Science University
OR-OSHA	Oregon Occupational Safety and Health Division, Oregon Department of Consumer and Business Services
ORS	Oregon Revised Statutes
OSFM	Office of State Fire Marshal
OSDP	Oregon State Department of Police
OSU	Oregon State University
PARC	Pesticide Analytical and Response Center
PEST	Pesticide Exposure, Safety and Tracking, Oregon Health Authority
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service

Executive Summary

The Pesticide Analytical and Response Center (PARC) is mandated to coordinate the response of eight state agencies to pesticide related incidents. It also has a responsibility to collect incident information, report investigation results, and evaluate mitigation measures or trends that may affect public health. This legislative report is a description of PARC activities from July 2008 through June 2009.

The eight state agencies are:

- Department of Agriculture (ODA)
- Department of Environmental Quality (DEQ)
- Department of Fish and Wildlife (ODFW)
- Department of Forestry (ODF)
- Oregon Health Authority, Public Health Division (OHA)
- Oregon Occupational Safety and Health Administration (OR-OSHA)
- Oregon Office of State Fire Marshal (OSFM)
- Oregon Poison Center (OPC)

The last PARC legislative report was produced for fiscal year 2007-2008. This report was released in July, 2011. It is available by request from the PARC program or from the website: <http://www.oregon.gov/ODA/PEST/parc.shtml>

All health, environmental or animal calls referred to PARC that are pesticide related are identified as "incidents" and reviewed based on the PARC criteria. An incident becomes a case and is assigned a case number when investigative findings show that the incident meets the case criteria. PARC elevates incidents to cases if it has sufficient information and meets certain standards.

During fiscal year 2008-2009, fifty-five reported pesticide effects were evaluated based upon the PARC case definition. Of these fifty-five incidents, twenty-four met the PARC case definition and were given certainty and severity indices by the Board. Along with classifying the cases, the Board looked at each case to determine factors that led to the actual pesticide exposure. From these factors the Board looked at trends in each of these cases to see what recommendations could be made to mitigate future exposures. The PARC Board identified six case themes or trends when the board reviewed the cases. The case themes identified were:

- The intended target was agriculture
- The residential – agriculture interface
- Neighbor to neighbor conflicts
- Misapplication by applicators
- Inadvertent Animal Exposures
- Notification prior to pesticide applications

There were nineteen human cases and five animal cases.

The nineteen cases are divided into two designations. These are:

- 1) Non-occupational, meaning that the person or persons were not working as employees when the event occurred.
- 2) Occupational, meaning that the person or persons were conducting work activities as employees when the event occurred.

There were sixteen non-occupational cases and three occupational cases investigated from July 2008 – June 2009.

Six human PARC incidents were determined to be not pesticide related.

Five cases involved domesticated animals and/or wildlife. Two cases involved domestic dogs that were allegedly poisoned by pesticide applications. Three of these cases were identified as poisonings of Canada geese who ingested zinc phosphide.

How the Pesticide Analytical and Response Center Functions

PARC's History

Increasing use of pesticides in Oregon in 1978 led to a rising concern regarding possible detrimental effects of these materials on the environment and health concerns of the toxicity of pesticides to individuals within the State of Oregon. Also there was a need to improve interagency coordination in investigating incidents involving possible adverse effects of pesticides on human health and the environment. Appendix I defines what a pesticide is and the different types of pesticides.

In an effort to respond to these concerns, Executive Order No. 78-23 issued in July 1978, to form a Task Force to report to the Governor recommendations for budgetary provisions and legislative changes needed to increase capabilities of the State to investigate environmental and human health concerns relating to pesticides.

In 1979, PARC was incorporated into statute (ORS 634.02) with responsibilities to centralize the receiving of information relating to actual or alleged health and environmental incidents involving pesticides and to mobilize the expertise necessary for timely and accurate investigations of pesticide incidents and analysis of associated samples. And finally to report in a standardized format the results of investigations of pesticide reports.

Funding for PARC during the 2001-2003 and 2003-2005 bienniums were withdrawn due to the financial situation of Oregon government. Funding was restored to PARC in 2005. Reorganization of PARC began in July 2005 and has included the development of a database and standardized procedure for the collection, evaluation and report of pesticide incident information.

Since July 1, 2005, the primary responsibility for the administrative functions of the Pesticide Analytical and Response Center (PARC) has resided with the Oregon Department of Agriculture. The PARC Coordinator with ODA collects and disseminates information to and from different agencies relating to pesticide related incidents. Major funding is provided to OHA to collect health related information from doctor visits and conducts interviews with the affected party.

In 2011, the PARC Board is working to de-emphasize the classification process of evaluating PARC cases and working to stress factors that may have led to human, animal and environmental pesticide exposure. The new report is more in line with PARC's statutory requirement of identifying trends and patterns of problems relating to pesticide use. Previously PARC's role did not delve into identifying trends or patterns of contributing factors, but was primarily identifying the severity and certainty of specific incidents of exposure. This old classification process did not examine what may have led to the exposure or whether this incident could be prevented in the future with training, education or outreach.

This report addresses how PARC gathers information and is intended to make PARC transparent to the citizens of Oregon. This report defines PARC cases and identifies whether pesticides have adversely affected humans, pets, wildlife or the environment. The following report meets the legislative requirement as stated in OAR 634.550.

This report addresses incidents and cases from July 1, 2008 to June 30, 2009.

Mandates

PARC is mandated by statute to perform the following activities when pesticide-related incidents result in suspected health or environmental effects:

- Collect incident information
- Mobilize expertise for investigations
- Identify trends and patterns of problems
- Develop policy or other recommendations for action
- Report results of investigations
- Prepare activity reports for legislative sessions

Membership

Membership of the governing board consists of representatives of eight state agencies and one citizen of the state at large appointed jointly by the Director of Agriculture and the Director of Human Services.

The eight state agencies are:

- Oregon Department of Agriculture (ODA)
- Oregon Department of Environmental Quality (DEQ)
- Oregon Department of Fish and Wildlife (ODFW)
- Oregon Department of Forestry (ODF)
- Oregon Health Authority, Public Health Division (OHA)
- Oregon Occupational Safety and Health Administration (OR-OSHA)
- Oregon Office of State Fire Marshal (OSFM)
- Oregon Poison Center (OPC)

Several other organizations provide expertise to the PARC Board as contracted consultants:

- The Center for Research on Occupational and Environmental Toxicology (CROET), Oregon Health & Science University
- The Environmental and Molecular Toxicology Department from Oregon State University (OSU)
- Oregon Department of Transportation (ODOT)

Representatives from ODA and OHA alternate as PARC Board chair each calendar year, with ODA conducting chairperson activities during odd numbered years and OHA during even numbered years. The Board meets every other month, beginning each year with a January meeting, to discuss incidents, cases, and pesticide related topics.

Investigation Coordination

The primary statutory function of PARC is to coordinate investigations and to collect and analyze information about reported incidents of health or environmental effects from possible pesticide exposure. PARC does not have regulatory or investigative authority. PARC individual member agencies do have regulatory and investigative authority and PARC relies on these agencies to collect pertinent information. PARC cases address suspected pesticide effects to humans, pets, wildlife and the general environment as incidents to be tracked and investigated for possible pesticide involvement and for necessary changes to policies or interpretations of law.

PARC member agencies conduct most of the investigations and take necessary enforcement actions (Appendix V – Member Agencies and Consultant Jurisdictions).

Investigation coordination includes:

- Collecting information from callers and distributing the information to member agencies and other organizations as necessary.
- Assigning a numerical incident tracking number for possible pesticide incidents where adverse health or environmental effects are claimed.
- Requesting investigation or collaboration by member agencies or partner agencies.
- Assigning a numerical case number if the incident meets specific case criteria.
- Coordinating health information with OHA.
- Consulting with a medical toxicologist from Oregon State University (OSU) and Oregon Health and Science University (OHSU) if a case has a human impact.
- Consulting with a doctor of veterinary medicine from Oregon Health and Science University (OHSU), if a case has an animal impact.
- Consulting with Oregon State University (OSU) Environmental and Molecular Toxicology if a case has an environmental impact.
- Collecting investigative reports and enforcement actions from other agencies.

Participants in incident or case investigations may include other government agencies that are not specifically mentioned in the PARC mandate. Some examples of those agencies are:

- Oregon Department of Transportation
- Oregon State University Extension Service
- United States Environmental Protection Agency
- United States Fish and Wildlife Service

Incident & Case Reports

Incidents are reported to PARC in a variety of ways. These include reporting through PARC member agencies, as well as other federal, state and local agencies. Other sources for reporting incidents include individuals who think they have been affected by pesticides, the general public, and the news media. PARC maintains a direct telephone line and email address for the public to report impacts to health and/or the environment. PARC follows up on any allegations to confirm which agency should take the lead in the investigation and which agencies should be involved or notified.

When an incident is reported to PARC, an incident number is assigned. This incident number is used to track the incident from start to finish. Each incident is entered into a database and summarized for presentation to the PARC Board at each bimonthly meeting.

Incident reports represent urban (indoor and outdoor) and rural situations, agricultural and forestry pesticide applications, pesticide spills, accidents, odor complaints, homeowner applications, and neighbor complaints. Included are incidents that cannot be substantiated, anonymous calls, and odor concerns that may or may not have been associated with pesticides.

If the incident meets specific criteria, it is issued a case number (Appendix II). The PARC Board classifies each case when the investigation is complete. Each case is classified based on the probability that the case was pesticide related. A set of criteria has been developed to classify each case as to causality (Appendix II). Each case is also examined by the Board to determine factors that may have led to the actual exposure (Appendix III). From these factors the Board looked at trends in each of these cases to see what recommendations could be made to mitigate these exposures.

During fiscal year 2008-2009, PARC recorded and investigated fifty-five incidents that involved possible human health, pet or wildlife illnesses, or environmental damage by pesticides.

Investigation into the fifty-five incidents determined which ones met the PARC criteria as a case. Generally, case criteria involve identifying one or more pesticide product(s) as the cause of concern, and observed or documented symptoms associated with those products. Of the fifty-five incidents reported in this period, twenty-four of these were made cases. A complete list of all PARC cases for 2008-2009 are located in Appendix IV. An exception to this criterion is when an exposure is known to have occurred but no symptoms develop. Of the fifty-five incidents, six incidents were determined to be due to non-pesticidal uses after further investigation.

Member agencies submit final case investigation reports to the PARC coordinator. These reports include any violations and/or enforcement actions and are routinely shared among agencies and with the PARC Board when cases are classified.

The data developed from incidents and case investigations are analyzed and presented to the Oregon Legislature. Information collected by PARC is used to:

- 1) Identify the appropriate agencies to gain assistance during crisis.
- 2) Conduct training of other agencies to assure that critical information collection is accomplished.
- 3) Develop educational materials aimed at reducing exposures.
- 4) Make recommendations to state and federal agencies regarding products and application practices with the aim of reducing acute pesticide poisonings.

Information collected by the PARC program is available and provided to the public, other agencies, and business interests. Information is also provided to the U. S. Environmental Protection Agency and the U. S. Fish and Wildlife Service when appropriate. These federal agencies combine PARC data with information from other states to identify possible national trends regarding pesticide products or uses. Upon request, pesticide product manufacturers, industry organizations, and public interest groups are also provided the information developed by PARC agencies and any conclusions that PARC has drawn from that information.

Information is disseminated to targeted groups through presentations at training seminars and meetings and through pesticide safety literature. The PARC program anticipates expanding public and professional educational efforts as the program moves forward.

Education is identified as a key component to collecting and substantiating exposure scenarios. Reporting delay of pesticide exposures inhibits the ability of PARC and individual member agencies to gather adequate information, identify rule violations, and evaluate the relationship between reported exposures or environmental impacts.

Funding

For the biennial fiscal period 2005 – 2007 (July 1, 2005 – June 30, 2007), General Funds were provided to ODA for operation of PARC. For the biennial fiscal period 2007 – 2009 (July 1, 2007 – June 30, 2009), the Oregon Legislature again authorized General Funds. Because General Funds, rather than Other Funds, were authorized, PARC expenditures were not subject to ODA indirect costs. The PARC budget for 2007 – 2009 was as follows:

ODA	\$133,708.00
OHA	127,285.00
OSU	52,279.00
Total Approved Budget	\$313,272.00

ODA expenses included salary and support costs for one-half technical position as the PARC Coordinator. Activities of this position included receiving information from the public and other

agencies regarding incidents, communicating information to staff of other agencies, coordinating investigations, tracking the actions of responding agencies, compiling gathered information, interacting with OSU toxicologists and reporting to the PARC Board. PARC was not charged for the time provided by ODA management staff acting as the PARC Administrator and as the PARC Co-Chair.

OHA expenses included salary and support costs for a portion of one technical position. Activities of this position included communicating with individuals regarding pesticide related health concerns, gathering incident information from individuals, obtaining medical information from individuals and health care providers, and interacting with OSU toxicologists.

OSU expenses included providing human and environmental toxicology consultations. Activities of participating staff included receiving, evaluating and reporting information provided on specific incidents referred by the PARC Coordinator.

The expenses of other agencies participating in PARC were not charged to PARC, but absorbed by individual agencies.

Annual Report

This annual report covers the period from July 1, 2008 to June 30, 2009. Some of the 2008-2009 cases during this period were not classified until November, 2010. This delay was caused by a number of factors.

- There was a change in the PARC coordinator position within ODA. This change caused a delay of cases being forwarded to the appropriate agency for investigation and forwarding case information to PARC's toxicologists for case classification.
- There were resource issues at OHA as PARC funding is enough to support a portion of a part-time staff member over the biennium. This affects OHA's ability to investigate PARC cases in a timely fashion and obtain medical human health information from individuals who seek medical care.
- OHA had concern regarding the handling of medical records by PARC's consultants and the safeguard of such information as required by HIPAA. A new memorandum of agreement was written to address these issues to protect health related information. These agreements were written and signed in 2009 and 2010 by the individual agencies involved.
 - PARC/OSU Interagency Agreement Amendment #4 signed 11/2009
written 10/2009
 - PARC/OHSU Interagency Agreement signed 01/2010
written 01/2010
 - PARC/OHA Interagency Agreement Amendment #4 signed 11/2009
written 10/2009
- The schedule of PARC meetings makes the board availability to classify cases limited. This meeting schedule adversely affects PARC's ability to work through the backlog of PARC cases. The PARC board meets every other month to address PARC related issues and to classify PARC cases.
- This annual report was prepared in November, 2010, and a finalized draft report was presented to the Board in March, 2011. During the March 16, 2011 PARC meeting the PARC Board agreed to re-write this report to de-emphasized the classification process in this report and stress the factors that may have led to the human, animal and environmental exposure. This rewrite led to the further delay in the release of the 2008-2009 PARC report.

Data Analysis

Case Reports

Twenty-four of the fifty-five incidents (44%) were issued case numbers.

- Nineteen cases involved people.
- Five cases involved animals (wildlife and domestic animals).
- Of those five animal cases, three cases involve wildlife and two cases involved pets.

Human Cases

Nineteen cases (79%) were reported as human illnesses. Forty people were the focus of these nineteen cases. Three cases (16%) were occupational, with twenty-two people involved or affected. Sixteen cases (84%) were non-occupational, with eighteen people involved or affected.

One case involved a large number of adults who were adversely affected by a pesticide application. This case involved a personal coaching firm that was having problems with mice and bugs in their kitchen and two conference rooms. A pest control company applied within the firm and about 20 staffers became ill with headaches and nausea.

Domestic Animal Cases

The two domestic animal cases (8%) affected three dogs. Both of these cases were unintentional poisonings by insecticides and rodenticides.

Wildlife Animal Cases

Three cases (13%) involved the death of Canada geese. Of these cases, all involved the poisoning of the geese by zinc phosphide applications. All the poisonings were confirmed by laboratory results.

Case Classification

Case classification is a conclusion based upon investigations by authorized agencies and toxicological determinations, based on available evidence of the correlation between known pesticides and symptoms exhibited by people or domestic animals or the wildlife/environmental effects. Classification includes two parameters:

- **Certainty index:** The certainty index is a gauge used to measure how closely symptoms and exposure scenario match the expected symptoms or effects of exposure to the known pesticide symptoms.
- **Severity index:** The severity index is a gauge for measurement of the severity reported illness or environmental effects.

Since PARC lacks the resources to collect all pertinent information, the classification system is not as valuable as it could be because of the lack of pertinent information. Case classification is limited to the information collected by PARC's member agencies. In many cases there are gaps in the information needed to accurately classify a PARC case. Reasons for this are many, including the fact that PARC member agencies perform investigations not for PARC, but in order to carry out their agency to enforce their regulatory requirements. The information collected is meant to see if any applicable laws were violated and at times this information is lacking to conclusively classify a PARC case.

Appendix II contains the incident and case criteria upon which the following certainty and severity classifications are based.

Appendix VI contains graphs and tables relating to the PARC cases certainty, severity and a breakdown of the number of cases.

Case Factors

Themes

PARC's case classification system was changed by the Board to address a new approach to assess pesticide-related incident in 2011. During the March 16, 2011 PARC Board meeting the Board agreed to re-write this report to shift the emphasis from the classification process to one that stresses the factors that may have led to the human, animal and environmental pesticide exposure. On April 13, 2011, the PARC Board met and reviewed all cases for the period of July 1, 2008 to June 29, 2009. Factors were assigned to each case, which would allow the PARC Board to identify trends or patterns of pesticide exposures in the State of Oregon.

The new report is more in line with PARC's statutory requirement of identifying trends and patterns relating to pesticide exposures. The previous reports did not identify trends or patterns, but were primarily identifying numbers of pesticide related incidents and examined the severity and certainty of those specific incidents. The severity and certainty classification process did not examine what may have led to the exposure or whether this incident could be prevented in the future with training, education or outreach. The emphasis on contributing factors is intended to make PARC's analysis more useful to the PARC Board and interested parties.

Appendix III lists the checklist utilized by the PARC Board to determine specific factors observed for each PARC case. The Board's review process revealed six themes from the check list from all the 2008-2009 PARC cases. Many cases may fall into more than one theme and show up in multiple themes below. This does not mean these cases are all different, but because of the circumstances of the event they fall into multiple themes. For example geese kill cases fall into "Intended Target was Agriculture", "Misapplication of Pesticides" and "Inadvertent Animal Exposures" themes. The intent of PARC Board reviewing these themes is to recognize these relationships of cases showing up in multiple themes. The following themes were noted and explained more in more detail below:

1. The intended target was agriculture
2. Residential – agriculture interface
3. Neighbor to neighbor conflict
4. Misapplication of pesticides
5. Inadvertent animal exposures
 - a. Wildlife incidents
 - b. Domestic animal
6. Notification
 - a. Forestry, agriculture, occupational and residential

Intended Target was Agriculture

The first theme noted during the PARC Board's analysis of the cases was that the intended target was agriculture, meaning that the location where the application was made was an agricultural site. Of the twenty-four PARC cases, eight cases involved an agricultural site. This is one third of the total cases involve the application site of where agriculture operations are located.

Two PARC cases were associated with an aerial application. These two cases involved drift onto a neighboring property confirmed by ODA environmental sampling. The two cases resulted in an enforcement action taken by ODA.

Three of the cases involved zinc phosphide and geese fatalities. Zinc phosphide is used for rodent control in grass grown for seed and in wheat fields. All three cases were investigated by ODA and in two cases an enforcement action was taken. These individuals were using zinc phosphide in conflict with the registered pesticide label.

Two of the cases involved ground applications that resulted in drift. ODA investigated both of these incidents, but found insufficient information to take an enforcement action in both of these incidents.

The last case involved a tarped fumigation of an agricultural field. The tarps ended up ripping in very strong winds and a neighbor felt he was exposed. An ODA investigator was on site during the application and there was insufficient information for ODA to document a violation.

In five of the eight cases above, the PARC board identified in addition to the link between the agricultural practices, an underlying conflict with the neighboring residential neighborhoods.

Residential-Agriculture Interface

As described above, agriculture was involved in one third of all PARC cases. Just short of one third of the cases involve where the application site where agriculture operations are located adjacent to residential communities.

The PARC Board also found an association of PARC cases where agriculture is in close proximity of a residential community. In many cases these two areas in close proximity to one another lead to conflict between the two parties. Most of the conflicts observed during the 2008-2009 fiscal year resulted from alleged drift from the agricultural fields to the neighboring communities.

Of the twenty-four PARC cases, seven cases involved the agricultural – residential interface.

Three PARC cases were associated with an aerial application. Two of the cases involved drift onto a neighboring property confirmed by ODA environmental sampling. The two cases resulted in an enforcement action taken by ODA. One of the cases involved the allegation of drift from a neighboring forestry site where ODA could not substantiate the allegation that drift occurred.

One case involved zinc phosphide and the death of a pet dog. The case was investigated by ODA and an enforcement action was taken. The individuals were using zinc phosphide in conflict with the registered label.

Two of the cases involved ground applications that resulted in drift. ODA investigated both of these incidents, but found insufficient information to take an enforcement action.

The last case involved a tarped fumigation of an agricultural field. The tarps ended up ripping in very strong winds and a neighbor felt he was exposed. An ODA investigator was on site during the application, but there was insufficient information for ODA to document a violation.

Neighbor to Neighbor Conflict

Many complaints investigated by ODA are associated with an underlying conflict between two neighbors. Whether the conflict begins as the result of a pesticide application or is pre-existing, the conflict may escalate when there are allegations of drift from pesticide applications. Neighbor to neighbor conflict is usually seen when there is a residential neighborhood nearby where active agricultural practices are going on.

Of the twenty-four PARC cases, four cases involved some type of neighbor to neighbor conflict.

Two cases involved animal deaths. One case involved zinc phosphide and the death of a pet dog. The case was investigated by ODA and an enforcement action was taken. The individual was using zinc phosphide in conflict with the registered label. The other case involved puppies who drank run-off water from a lawn that was earlier treated with an insecticide. Two puppies from the same litter died from seizures. ODA was unable to substantiate that a violation had occurred.

Two cases involved ground applications that resulted in drift. ODA investigated both of these incidents, but found insufficient information for ODA to take an enforcement action.

Misapplication of pesticides

Misapplication of a pesticide occurs when a pesticide is used in a manner inconsistent with the label or labeling. In the State of Oregon, ODA's statute states that no one shall make an application of a pesticide inconsistent with its labeling or perform a pesticide application in a faulty, careless or negligent manner. Examples of pesticide misuse would be drift or overspray, exceeding the maximum labeled rate, application to a crop not on the label, failure to follow application instructions on the pesticides registered label.

Of the twenty-four PARC cases, seven cases involved the misapplication of a pesticide. That's a little less than one third of the cases involve where the applicator used a pesticide either inconsistent with its label or in a careless or negligent manner. ODA took an enforcement action in six of the seven PARC cases.

Three of the cases involved zinc phosphide and animal kills. All three cases were investigated by ODA and an enforcement action was taken in each case. These individuals were using zinc phosphide in conflict with the registered label. Two of the cases resulted in the death of geese and one case involved the death of a pet dog.

Three of the cases involved aerial applications that resulted in drift. ODA investigated all of these incidents, and in each case an enforcement action was taken. In each of the cases environmental sampling was taken by ODA.

The last case involved a fogger and an application by a homeowner. The application was performed underneath the house in the crawl space where the individual ended up getting exposed from not exiting the treated area soon enough. No investigation was performed by ODA.

Inadvertent Animal Exposures

The PARC Board identified a trend of animal deaths related to the use of zinc phosphide for vole control in grass grown for seed in the Willamette Valley during the period of 2008-2009. The use of rodenticides inconsistent with the pesticide label is putting wildlife (especially geese) at risk.

In 2008, in response to the geese deaths, ODA sent out advisories to licensed applicators advising them of the new requirements of the use of zinc phosphide for vole control in grass grown for seed. ODA held meetings with growers, pesticide registrants, OSU, USFW, ODFW and EPA to review incidents, research and non-chemical control options and restrictions.

In 2009, ODA continued to consult with USFWS and ODFW regarding zinc phosphide restrictions. The use of above ground applications of zinc phosphide (allowed May 1-August 31) was delayed until May 8th to allow geese to move out of the Willamette Valley. ODA's automated

phone call system called 2700 private applicators to advise them of the date change. There was other outreach conducted to advise growers of the date change.

ODA continued to provide outreach efforts regarding the use of zinc phosphide with growers, dealers, consultants, commissions, councils and industrial organizations during meetings with these individuals throughout the year.

Four of the cases involved zinc phosphide and animal kills. All four cases were investigated by ODA and an enforcement action was taken in three of the cases. These individuals were using zinc phosphide in conflict with the registered pesticide label. One case involving geese deaths was investigated by ODA, but no link was found between the bird kills and any particular uses of zinc phosphide.

One of the cases resulted in the death of a pet dog. ODA investigated this incident and an enforcement action was taken for violating the zinc phosphide label. This case was also identified in the neighbor to neighbor conflict section above.

The last case involved puppies who drank run-off water from a lawn that was earlier treated with an insecticide. Two puppies from the same litter died from seizures. This case was also identified in the neighbor to neighbor conflict section above.

Prior Notification

Notification prior to any pesticide application is not a requirement in the State of Oregon. There has been a number of incidents where the complainant stated that if they had known about the application beforehand they could have taken precautions to prevent themselves from being exposed. As such, the PARC Board deemed it necessary to make this a theme in this years report. Notification of pesticide application will be tracked into the future to see if changes to Oregon Statutes may be necessary.

Notification is grounded in the belief that people have the basic right to know if they may be affected by pesticide use. Notifying people about upcoming pesticide use means that they can make informed decisions about their contact with pesticides. The aim of notification is to let people choose to reduce their exposure to pesticide use if they wish.

Notification could play a role in a wide variety of settings from forestry, agricultural, occupational and residential. OR-OSHA has rules regarding notification of pesticide use in the occupational setting. However, this notification does not inform neighbors of upcoming pesticide applications. Under ODF rules, forest pesticide users must notify ODF before conducting forest pesticide applications. For a fee to cover administrative costs, any person may receive copies of the notices ODF receives.

The PARC Board plans to continue to monitor issues regarding notice and see if there needs to be a recommendation by the Board on the notice issue.

Related themes

The themes that were noticed the most in the 2008-2009 PARC report where the intended target was agriculture and residential-agricultural interface. This is not surprising as more and more agricultural lands continue to be developed. This places residences close by where ongoing agricultural practices are in operation. In many cases most homeowners are unaware or not knowledgeable about farming operations. These themes will continue into the future as

development grows in the State of Oregon and may affect the need to consider prior notification – statutes in the future.

The PARC Board plans to continue to monitor these issues in the future and may recommend outreach to growers to develop a relationship with their neighbors about farming practices. In many instances the complainants have stated that had they known about the pesticide application they would have made other plans to not be around the day of the application. Some issues could be alleviated through improved communication between the farming community to neighboring residents. To reinforce this, PARC staff regularly refer aggrieved reporters of pesticide incidents to free/low-cost non-binding dispute mediation programs available to Oregonians.

Another theme noticed during the 2008-2009 period was the intended target was agriculture and inadvertent animal exposures. Four out of the five animal exposures to pesticides were agriculturally related. Three of the cases involved zinc phosphide and the death of geese. One case involved a pet dog and zinc phosphide.

The PARC Board plans to monitor future incidents involving zinc phosphide and recommend education and outreach to growers regarding the use of zinc phosphide. The PARC Board should recommend ODA continue to provide updates regarding the use of zinc phosphide during outreach talks in the Willamette Valley.

FY 2008-2009 PARC Accomplishments:

- *Concerns about Gypsy moth eradication in 2009 in Lane County was addressed by PARC*
ODA's Plant Division held a public meeting in Eugene, OR to address community concerns about its gypsy moth eradication efforts in the area. The Plant Division requested assistance from OHA to answer health-related questions. A Pesticide Exposure Safety & Tracking (PEST) staff member attended the meeting, and responded to a variety of questions about human health and the biological insecticide Foray® 48B.
- *PARC in coordination with Oregon Health Authority added a link to the PARC website for mediation services.*
For certain reported pesticide incidents, PARC agencies may determine that there has not been a violation of their regulations or that reported disputes fall outside of PARC's purview. At the behest of the (PEST) Program at Oregon Health Authority, PARC placed a link to 18 free/low-cost non-binding dispute mediation programs, which are available to Oregonians, on its website.
- *Pesticide fogger data from information collected from PARC shared with national study.*
The PEST Program, which is supported by PARC, contributed de-identified Oregon incidents involving total release foggers (TRF), sometimes called "bug bombs," to a multi-state study by the Centers for Disease Control & Prevention (CDC). The study appeared in the October 17, 2008 edition of Morbidity & Mortality Weekly Report, CDC premier publication for disease and injury trends. The study, "Illnesses and Injuries Related to Total Release Foggers --- Eight States, 2001--2006", was the first in the scientific literature to detail the range of exposure circumstances and acute health problems associated with TRF usage.
The study can be found at:
<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5741a3.htm/>

Additional Trends observed by PARC include:

- *Incidents and cases dropped significantly during the reporting period 2008-2009 from previous years.*
Incidents dropped by 29 and cases dropped by more than half from the previous reporting period. The reason for this drop is unknown.
- *PARC saw an increase in the number of individuals in occupational settings being exposed to pesticide applications, who were not associated with the actual application.* The reason for this jump can be attributed to one incident where 20 individuals experienced symptoms after a pesticide application at a personal coaching firm.
- *PARC saw an increase in the number of individuals not seeking medical care.* Out of the 19 cases involving human exposures, 14 cases did not seek medical care. The lack of medical care sought may be attributed to the economy and the lack of medical care for a number of individuals exposed.
- *Many occupational cases or incidents are the result of applications in or near by the workplace and do not involve employees directly using pesticides.*
PARC encourages the educational training of commercial applicators include these scenarios so that pesticide applicators are aware of the possibilities of exposure of others during applications.

- *Many non-occupational incidents result from personal disregard of general safety measures by people not involved in pesticide applications. Example: two individuals who trespassed into an orchard to look at an agricultural application and complained of drift onto themselves. PARC recommends as many presentations as possible to raise awareness of the general public's personal safety when applications are occurring.*
- *Public visibility of PARC is quite low. Most calls and complaints are logged through the OPC and ODA.
PARC plans to increase public awareness of the unique capabilities of this program through outreach and education using existing educational venues. Examples of these venues are Oregon Department of Human Services, PARC Coordinator talks, and public educational opportunities provided by other state agencies.*

Appendices

Appendix I - What is a pesticide?

A pesticide is any substance or mixture of substances intended for:

- preventing
- destroying
- repelling
- mitigating any pest.

Though often misunderstood to refer only to insecticides, the term pesticide also applies to herbicides, fungicides, and various other substances used to control pests.

Under United States law, a pesticide is also any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant (from US EPA definition found online).

Types of Pesticides

Algaecides	Control algae in lakes, canals, swimming pools, water tanks, and other sites
Antifouling agents	Kill or repel organisms that attach to underwater surfaces, such as boat bottoms
Antimicrobials	Kill microorganisms (such as bacteria and viruses)
Attractants	Attract pests for example, to lure an insect or rodent to a trap; food is not considered a pesticide when used as an attractant
Biopesticides	Derived from natural materials such as animals, plants, bacteria, and certain minerals
Biocides	Kill microorganisms
Disinfectants/sanitizers	Kill or inactivate disease-producing microorganisms on inanimate objects
Fungicides	Kill fungi (including blights, mildews, molds, and rusts)
Fumigants	Produce gas or vapor intended to destroy pests in buildings or soil
Herbicides	Kill weeds and other plants that grow where they are not wanted
Insecticides	Kill insects and other arthropods
Miticides	Kill mites that feed on plants and animals
Molluscicides	Kill snails and slugs
Nematicides	Kill nematodes
Ovicides	Kill eggs of insects and mites
Pheromones	Biochemicals used to disrupt the mating behavior of insects
Repellents	Repel pests, including insects (such as mosquitoes) and birds
Rodenticides	Control mice and other rodents
Defoliants	Cause leaves or other foliage to drop from a plant, usually to facilitate harvest
Desiccants	Promote drying of living tissues, such as unwanted plant tops
Insect growth regulators	Disrupt the molting and maturity from pupal stage to adult, or other life processes of insects
Plant growth regulators	Alter the expected growth, flowering, or reproduction rate of plants (excludes fertilizers or other plant nutrients)

Appendix II - Incident and Case Criteria

In order for PARC to coordinate the investigation of a pesticide related incident, it must meet one of the following criteria and sufficient information for coordination of investigations must be available:

Human Health Complaint:

- 1) A suspected or confirmed pesticide poisoning reported by a health care provider,
OR
- 2) An illness related to a recent pesticide exposure reported by an individual, where sufficient information is provided to suspect pesticides as a possible cause.

Animal Health Complaint (Includes companion animals and wildlife):

- 1) A suspected or confirmed pesticide poisoning reported by a health care provider,
OR
- 2) A recent pesticide exposure event reported by an individual, where veterinary assistance was sought and sufficient information is supplied to suspect pesticides as a possible cause,
OR
- 3) Multiple animal deaths where pesticides are a suspected cause.

Environmental Contamination:

- 1) Documented or potential environmental damage from a pesticide fire, spill, or incident, of sufficient magnitude to cause animal effects, or potential public health impacts.

When PARC is not provided with sufficient information to coordinate an investigation, the information is tracked as an incident report. Incidents are tracked if any allegations are made that a pesticide may be involved in the illness of a human or pet, causing harm to the environment, or spilled or released into the environment. This includes odor complaints, concerns about the environment in general, container issues or any time it is initially felt that pesticides are causing harm.

Additionally, when PARC acts as a consultant for public agencies or the public, the call may be tracked as an incident. This is done when, in the opinion of the PARC Coordinator, it may be an issue the Board might want to consider.

Each pesticide related incident that meets the criteria for investigation coordination is assigned an incident number AND a case number.

A case number may be issued to an incident that, upon further investigation, does not meet case criteria. These cases may be classified with the designation "Insufficient information to classify".

The PARC Coordinator and representatives of relevant PARC agencies investigate all incidents to determine if they meet PARC Case criteria. When an incident does not meet case criteria, the findings are logged and the incident closed. Important incident findings are tracked and reviewed for valuable information on trends or patterns of problems associated with pesticide use.

Case Classification Criteria

Every case is subject to review and classification by the PARC Board. Two indices are used during this classification review: Certainty and Severity.

Certainty Index (CI): A human or domestic animal case requires a reported pesticide active ingredient and a reported exposure or possible exposure. The facts of the case must answer the question "Were the reported impacts caused by the reported exposure to pesticides?"

Definitions of the certainty indices for **humans and domestic animals** (companion animals, pets) are below.

CI = 1 Definite: Measured concentration(s), with a highly plausible exposure pathway and specific health effects that are consistent with exposure to the active ingredient(s).

CI = 2 Probable: A clearly documented and highly plausible exposure pathway with health effects that is consistent with exposure to the active ingredient(s). A single, non-specific symptom (headache, nausea) is generally insufficient to classify with this certainty index.

CI = 3 Possible: There is uncertainty with respect to the likelihood of exposure, the circumstances surrounding the exposure, or the consistency of the reported symptoms based upon the reported active ingredient(s). Inconsistent symptoms with the known toxicology of the active ingredient are sufficient to move a classification to CI 4.

CI = 4 Unlikely: The primary complaint or the majority of the reported symptom(s) are not consistent with the toxicology of the active ingredient(s) or the time between exposure and onset or duration of symptoms is not consistent with the toxicology of the active ingredient(s) or there is no plausible exposure pathway.

CI = 5 Unrelated: Not pesticide related – requires corroboration of “Unrelated” classification from a qualified health care professional involved in the case.

CI = 0 Exposure, No symptoms: There is verifiable exposure, but no symptoms.

An environmental PARC Case requires reported active ingredients and reported exposure or possible exposure. Definitions of the certainty indices for **wildlife and other non-target organisms** (bees, fish, invertebrates, etc.) are below.

CI = 1 Definite: Pesticide was confirmed as the cause through residue analysis or other reliable evidence, or the circumstances of the incident along with knowledge of the pesticide’s toxicity or history of previous incidents give strong indication that this pesticide was the cause.

CI = 2 Probable: Circumstances of the incident and properties of the pesticide indicate that this pesticide was the cause, but confirming evidence is lacking.

CI = 3 Possible: The pesticide possibly could have caused the incident, but there are possible explanations that are at least as plausible. Often used when organisms may have been exposed to more than one pesticide.

CI = 4 Unlikely: Evidence exists that a stressor other than exposure to a pesticide caused the incident, but that evidence is not conclusive.

CI = 5 Unrelated: Conclusive evidence exists that a stressor other than exposure to a pesticide caused the incident.

CI = 0 Exposure, no symptoms: A potentially significant exposure was documented, though no symptoms were reported due to mitigating circumstances, efficient clean up or rescue.

Detection indices for **groundwater, surface water, and drinking water** are below.

CI = Major: A pesticide is detected at levels greater than the maximum contaminant level (MCL), health advisory level (HAL), or another applicable criterion for ambient water quality.

CI = Moderate: A pesticide is detected at levels greater than 10 percent but does not exceed the MCL, HAL, or another established criterion for ambient water quality.

CI = Minor: A pesticide is detected at levels less than 10 percent of the MCL, HAL, or another established criterion OR a pesticide is detected but there is no established level of concern.

Of the nineteen cases in the current PARC report that involved people, there were no cases that were classified as definite; seven cases were classified as probable, six cases were classified as possible, five cases were classified as unlikely, one case was classified as unrelated and no cases were classified as “exposure, no symptoms”.

Of the five animal cases, four of the cases were classified as definite; no cases were classified as probable or possible and one case was classified as unlikely. No animal cases were classified as “exposure, no symptoms”.

Severity Index (SI): The severity index was designed only for humans, though PARC applies this index to domestic animals and wildlife as well. For domestic animals and wildlife the symptoms indicated in the definitions guide the selection of the severity index for each case.

This index provides standardized criteria to ensure uniformity, with the recognition that it cannot address all situations. It is a flexible standard needing the user to employ judgment and experience when assigning severity.

SI = 1 Death: This category describes a human fatality resulting from exposure to one or more pesticides.

SI = 2 High severity illness or injury: The illness or injury is severe enough to be considered life threatening and typically requires treatment. This level of effect commonly involves hospitalization to prevent death. Signs and symptoms include, but are not limited to coma, cardiac arrest, renal failure and/or respiratory depression. The individual sustains substantial loss of time (greater than five days) from regular work or normal activities. This level of severity may include the need for continued health care following the exposure event, prolonged time off of work, and the limitations or modification of work or normal activities.

SI = 3 Moderate severity illness or injury: This category includes cases of less severe illness or injury often involving systemic manifestations. Generally, treatment is provided. The individual is unable to return to normal functioning without any residual disability. Usually, less time is lost from work or normal activities (greater than three and less than five days). Effects may persist but no residual impairment is present.

SI = 4 Low severity illness or injury: This is the category of lowest severity. It is often manifested by skin, eye or upper respiratory irritation. It may also include fever, headache, fatigue or dizziness. Typically the illness or injury resolves without treatment. There is minimal lost time (less than three days) from work or normal activities.

SI = 5 No symptoms reported: This category is used for cases that the PARC Board or staff chooses to designate as a case for tracking purposes. They may highlight a risk or potential risk for future review.

Of the nineteen cases that involved people, none fit the definition of a death or high severity illness; one case was classified as moderate severity illness, eighteen cases were classified as low severity illness or injury.

Of the five animal cases all five cases involved death. No cases were classified as high severity illness, moderate severity illnesses or low severity illness or injury.

For assessing 2008-2009 cases, the PARC Classification criteria were in transition. Incidents that fit the case criteria were assigned a case number and investigated, as resources allowed, collecting all investigative findings. These investigative findings were then used to assign a set of indices for each case, or to determine that there was insufficient illness information to classify it.

Appendix III – Checklist of Factors* Frequently Contributing to PARC Cases

Each PARC case is examined by the Board for factors that may have led to the exposure. These factors are not meant to definitively categorize the reason for the exposure, but allows the Board to see if there are trends that need to be scrutinized.

- 01 = Notification/posting lacking or ineffective
- 02 = People were in the treated area during application
- 03 = Inadequate ventilation of treated area before re-entry
- 04 = Early re-entry
- 05 = Required eye protection not worn or required eye protection inadequate
- 06 = Required gloves not worn or required gloves inadequate
- 07 = Required respirator not worn or required respirator inadequate
- 08 = Other required PPE not worn or inadequate
- 09 = Spill/splash of liquid or dust (not involving application equipment failure)
- 10 = Application equipment failure
- 11 = Pesticide stored within reach of child or other improper storage
- 12 = Decontamination not adequate or timely
- 13 = Intentional harm
- 14 = Excessive application of pesticide
- 15 = Label violations NOS (Not otherwise specified) i.e. other regulatory issues like spraying in windy conditions.
- 16 = No label violation identified but person still exposed/ill
- 17 = Off-site movement (drift) – commercial/vector control
- 18 = Licensed applicator not properly trained or supervised
- 19 = Illegal pesticide used/illegal dumping of pesticide
- 20 = Mixing of incompatible products
- 21 = Misapplication – homeowner, outdoors
- 22 = Misapplication – homeowner, indoors
- 23 = Misapplication – vector control operator
- 24 = Misapplication – pest control operator, indoors
- 25 = Misapplication – pest control operator, outdoors
- 26 = Misapplication – forestry operator
- 27 = Misapplication – agricultural operator
- 28 = Industrial accident
- 29 = Occupational exposure
- 30 = Intended Target (bed bugs)
- 31 = Intended Target (other household insect pests)
- 32 = Intended Target (unwanted residential vegetation)
- 33 = Intended Target (residential vegetation e.g. lawn/garden)
- 34 = Intended Target (human e.g. DEET application)
- 35 = Intended Target (forestry)
- 36 = Intended Target (agricultural)
- 37 = Intended Target (other insect pests)
- 38 = Residential- Ag Interface
- 39 = Faulty & Careless Manner (Cited by Department of Agriculture)
- 40 = Access to inert confidential business information (CBI) pesticide ingredients
- 41 = Intended target community application (Gypsy Moth, Japanese Beetle, etc. control measures)
- 42 = Off-site movement (drift) – residential
- 43 = Impaired applicator (applicator exposure to pesticides led to impairment)
- 44 = Group exposure (3 or more)
- 45 = Label insufficient to protect public or non-target pest
- 46 = Improper storage
- 47 = Neighbor to neighbor conflict

48 = Insufficient environmental data (Drift)
49 = Veterinary product exposure
50 = Application by minor
51 = Unlicensed applicator (when required)
52 = Inadvertent animal exposure
97 = Other (consider new code if sufficient in number)

*Factors sourced from NPIC, NIOSH & PEST

Appendix IV - Case Summaries by County

Classification of the Certainty Index and the Severity Index are completed as separate evaluations. The evaluations are based on medical records, if available, personal communication with affected parties, symptoms, investigative findings from each member agency involved, application records, and technical information on the pesticides applied. All verifiable information is used to come to a reasonable estimate for each classification index. This classification is based on the information available at the time of review. This classification may be limited due to the lack of medical records, environmental sampling data, a member agency did not conduct a thorough investigation or lack of resources available from each member agency. During the course of an investigation by a member agency PARC's needs may not be addressed. This is because each member agency is enforcing it's own laws and statutes, which may not be what PARC requires to classify a PARC case thoroughly.

Each case is also examined by the Board for contributing factors that may have led to the exposure. These factors are not meant to definitively categorize the reason for the exposure, but gives the Board a starting point to see if there are trends that need to be scrutinized. For the list of definitions of each number code listed in Contributing Factors see Appendix IV.

Benton County

Case # 090017

Non-Occupational

One person

Type of Care: None

Certainty Index: 4 (Unlikely)

Severity Index: 4 (Low severity illness or injury)

Agencies Involved: ODA, OHA

Pesticide Type: Herbicide

Pesticide: Chlorsulfuron, Triclopyr, 2,4-D, Glyphosate, Hexazinone and Sulfometuron Methyl

Contributing Factors: 47

A caller to ODA reported a problem with a pesticide application that occurred to the fence line shared with her neighbor's property. The caller reported she used to perform cat rescue, but still maintains about ten cats in a shed along the fence line. She went out to the shed and the food and bedding "smelled" of Roundup and that it gave her a bad headache and burned her eyes. ODA investigated and could not substantiate a violation occurred.

Clackamas County

Case # 090028

Non-Occupational

Two adults

Type of Care: None

Certainty Index: 2 (Probable)

Severity Index: 4 (Low severity illness or injury)

Agencies Involved: ODA/OHA

Pesticide Type: Herbicide

Pesticide: Glyphosate

Contributing Factors: 2, 17 & 51

A complainant called ODA about an exposure he and his wife experienced at the gym. The complainant noticed someone spraying outside the gym. He experienced a sore throat and his wife experienced a headache. ODA investigated and determined that the landscaping company was unlicensed. A letter of advisement along with a Cease and Desist was issued to the unlicensed company.

Josephine County

Case # 090016

Non-Occupational

One person

Type of Care: None
Certainty Index: 2 (Probable)
Severity Index: 4 (Low severity)
Agencies Involved: ODA/OHA
Pesticide Type: Insecticide
Pesticide: Cyfluthrin
Contributing Factors: 17, 27, 36, 38 & 39

A caller to ODA reported there was an aerial application to a neighboring alfalfa field. She went outside to take care of her animals, which she worried would be sprayed. The helicopter was applying to the adjacent alfalfa field, and "soaked" her. ODA investigated and took samples from the complainant's property. The environmental samples came back positive for cyfluthrin. ODA cited the applicator and the commercial aerial applicator.

Lane County

Case # 090013

Non-Occupational

One person

Type of Care: None
Certainty Index: 4 (Unlikely)
Severity Index: 4 (Low severity illness or injury)
Agencies Involved: OHA
Pesticide Type: Insecticide
Pesticide: Bacillus thuringiensis
Contributing Factors: 40 & 41

A person contacted ODA after a gypsy moth spraying in her neighborhood. The complainant was outside the treatment area, but still exhibited symptoms. She went outside in the middle of the day, later that night she experienced extreme burning sensation in her nasal passages as well as her throat. The next morning she woke up with these symptoms and a 103 fever.

Case # 090014

Non-Occupational

One person

Type of Care: Health care provider (doctor's office)
Certainty Index: 4 (Unlikely)
Severity Index: 4 (Low severity illness or injury)
Agencies Involved: OHA
Pesticide Type: Insecticide

Pesticide: Bacillus thuringiensis
Contributing Factors: 40 & 41

A person who identified herself as chemically sensitive contacted ODA after a gypsy moth spraying in her neighborhood. The complainant was outside the treatment area, but still exhibited symptoms after leaving her house in the afternoon. She reports onset of a headache as well as swelling and severe pain in her left leg, ear, and jaw later that evening. She also had onset of runny nose and sore throat. She reports that her bones (specifically bone marrow) were swollen and in pain, too.

Case # 090022

Non-Occupational
One person

Type of Care: None
Certainty Index: 2 (Probable)
Severity Index: 4 (Low severity illness or injury)
Agencies Involved: OHA
Pesticide Type: Mossicide
Pesticide: Zinc Sulfate Monhydrate
Contributing Factors: 6, 21 & 50

A report from OPC regarding a phone call made by a concerned mother pertaining to symptoms her 16 year old son reported after applying "Moss-B-Ware". The mother explained that her son drove to a home improvement store and upon advice obtained from an employee at the store purchased the product. She explained her son was told by the staff he could apply the product with his bare hands. After applying the granular dust by hand the son complained his hands felt hot and irritated. Following the exposure, he experienced nausea, diarrhea and vomiting.

Lincoln County

Case #090018

Non-Occupational
One person

Type of Care: None
Certainty Index: 4 (Unlikely)
Severity Index: 4 (Low severity illness or injury)
Agencies Involved: ODA/OHA
Pesticide Type: Fungicide and other
Pesticide: Glysphosate
Contributing Factors: 1, 33 & 47

A caller to ODA reported a concern about recent application by a landscaping company hired by her HOA board, the complainant stayed indoors with her windows and doors closed. She reported seeing the applicator in her yard and in the neighbor's yards. She reported feeling symptoms that began immediately after the application, including: a bad taste, dizziness, light-headedness, nausea and a loss of appetite. ODA could not substantiate a violation had occurred.

Linn County

Case #090021

**Non-Occupational
One Child**

Type of Care: ER
Certainty Index: 3 (Possible)
Severity Index: 4 (Low severity illness or injury)
Agencies Involved: OHA
Pesticide Type: Insecticide
Pesticide: Cyphenothrin & Pyriproxyfen
Contributing Factors: 16 & 49

A caller reported her daughter was exposed to a flea and tick product shortly after it was applied to the family dog. She reported that within an hour she noticed her daughter's left cheek and left eye were red. She was so concerned about what she described as a "rash" that she brought her daughter to the Emergency Room.

Malheur County

Case #080044

**Non-Occupational
One person**

Type of Care: None
Certainty Index: 2 (Probable)
Severity Index: 4 (Low severity illness or injury)
Agencies Involved: ODA/OHA
Pesticide Type: Fungicide
Pesticide: Pyraclostrobin and Sulfur
Contributing Factors: 17, 27, 36 & 38

The complainant was outside on his property when he noted an aerial application to the adjacent agricultural property to the west. He saw that the chopper was flying 400 yards from property line, and that the wind was blowing toward the complainant. He immediately felt a burning sensation in his eyes that lasted for several hours. ODA investigated and environmental samples were taken. The aerial applicator and the commercial aerial pest control company were cited for performing an application in a faulty and careless manner.

Case #090037

**Non-Occupational
One person**

Type of Care: None
Certainty Index: 2 (Probable)
Severity Index: 4 (Low severity illness or injury)
Agencies Involved: ODA
Pesticide Type: Insecticide
Pesticide: Chlorpyrifos and Gamma-cyhalothrin
Contributing Factors: 27 & 39

A caller to ODA indicated that an aerial applicator had accidentally sprayed his organic farm. In the process of trying to get the applicator to stop spraying, his adult son, the son's wife and three children drove out into the field in his truck with the windows down. The son got out of the truck to "wave" the applicator down. The son was exposed and experienced a sore throat. The wife and three kids in the truck did not exhibit any symptoms. ODA investigated and environmental samples were taken. The aerial

applicator and the commercial aerial pest control company were cited for faulty and careless manner.

Marion County

Case #080047

Animal – 2 Dogs

Certainty Index: 4 (Unlikely)
Severity Index: 1 (Death)
Agencies Involved: ODA
Pesticide Type: Insecticide
Pesticide: Bifenthrin
Contributing Factors: 33, 42, 47 & 52

Two puppies from the same litter died from seizures on the same day. The only thing that the owners could think of, as there were other puppies still alive, was that the two puppies drank run-off water from the next-door neighbor's lawn. The lawn was recently treated with an insecticide. ODA investigated the pet deaths and pesticide residue samples were taken from the treated area. The samples came back positive for bifenthrin, but ODA could not substantiate a violation occurred.

Case #080055

Non-Occupational

One adult and one child

Type of Care: None
Certainty Index: 3 (Possible)
Severity Index: 4 (Low severity illness or injury)
Agencies Involved: ODA/OHA
Pesticide Type: Fumigant
Pesticide: Methyl Bromide, Chloropicrin and Dimethyl Disulfide
Contributing Factors: 17, 36 & 38

A complainant called ODA about an application and tarping of a field across from his home. He stated that about a week and one half after the field was tarped, a windstorm had ripped open the tarps. He and his son had exhibited symptoms of malaise, headache, sinus pressure and increased asthma symptoms during this time. He was concerned because over the last three weeks he has continued to have these same symptoms. An ODA staff person was onsite during the application.

Case # 080061

Animal – Geese

Certainty Index: 1 (Definite)
Severity Index: 1 (Death)
Agencies Involved: ODA/ODFW/USFWS
Pesticide Type: Rodenticide
Pesticide: Zinc Phosphide
Contributing Factors: 36 & 52

ODA and ODF&W followed up near Staats Lake on reports of dead geese and found a dead Canada "cackler" goose on multiple visits. These geese were held for necropsy and the reports were returned showing one of the geese was positive for zinc phosphide metabolites. One of the geese was negative for zinc phosphide or metabolites. No link was found between the bird deaths and any particular use of zinc phosphide.

Multnomah County

Case #080045

Occupational

20 Adults

Type of Care: None
Certainty Index: 3 (Possible)
Severity Index: 4 (Low severity illness or injury)
Agencies Involved: ODA/OHA
Pesticide Type: Insecticide
Pesticide: Cyfluthrin
Contributing Factors: 02, 03, 16 & 44

A personal coaching firm was having problems with mice and bugs in their kitchen and two conference rooms. A pest control company was contracted to control the pests. The pest control firm applied around the baseboards of the three rooms as well as along the baseboards of the building corridor leading to the front door. As people were congregating for lunchtime, about 20 staffers became ill with headaches and nausea. ODA investigated, but could not substantiate a violation had occurred.

Case #080048

Non-Occupational

One person

Type of Care: None
Certainty Index: 2 (Possible)
Severity Index: 4 (Low severity illness or injury)
Agencies Involved: ODA
Pesticide Type: Insecticides
Pesticide: Permethrin
Contributing Factors: 46

A media article about home insect foggers exploding inside a car was investigated by ODA. ODA found that the foggers had sustained multiple hot days in the car before the bottom of the cans burst. ODA informed EPA of this incident about possible container failure.

Case #090006

Animal – Geese

Certainty Index: 1 (Definite)
Severity Index: 1 (Death)
Agencies Involved: ODA/USFWS/ODFW
Pesticide Type: Rodenticide
Pesticide: Zinc Phosphide
Contributing Factors: 15, 27, 36, 39, & 52

Dead Canada geese were collected from Sauvie Island. The geese were sent to the laboratory for necropsy with results showing zinc phosphide as the toxicant. During investigation of this incident, investigators found a grass field treated illegally with zinc phosphide. A grower and his applicator were cited for applying a pesticide in a faulty and careless manner by ODA.

Case #090027

Non-Occupational

One person

Type of Care: Physician
Certainty Index: 3 (Possible)
Severity Index: 3 (Moderate severity)
Agencies Involved: ODA/OHA
Pesticide Type: Insecticides
Pesticide: Phosmet
Contributing Factors: 16, 26, 38, 48

A resident contacted ODA regarding drift from a neighboring property. The person stated he was out mowing his lawn when an application was taking place about 50 to 60 feet away using a tractor boom sprayer to spruce trees. The complainant stated he experienced his lungs were on fire, salivating and watering eyes.

Tillamook County

Case #080054

Non-Occupational

One person

Type of Care: Health care provider (doctor's office)
Certainty Index: 4 (Unlikely)
Severity Index: 3 (Moderate)
Agencies Involved: OHA
Pesticide Type: Herbicide
Pesticide: Glyphosate and Sulfometuron Methyl
Contributing Factors: 1, 35, 38

A caller became ill after the application of herbicides to a nearby forest. She had been notified of the application and left the area, but had gone back into the area to check on her elderly mother. She experienced droopy eyelids, dizziness, and drowsiness.

Umatilla County

Case #090029

Occupational

One person

Type of Care: Health care provider (doctor's office)
Certainty Index: 5 (Unrelated)
Severity Index: 4 (Low severity illness or injury)
Agencies Involved: ODA/OHA
Pesticide Type: Fumigant
Pesticide: Oxamyl
Contributing Factors: 29

An applicator was "injecting" a pesticide into the ground and thinks he may have gotten some on his hands from handling the soil he was working with and from contact from his hands resting outside his truck where the product may have gotten on the truck from driving in wet soil. This case was referred to ODA from the pesticide manufacturer who learned of the applicator's exposure. His alleged only symptom was a fever.

Washington County

Case #090001

Occupational

One person

Type of Care: None

Certainty Index: 3 (Possible)

Severity Index: 4 (Low severity illness or injury)

Agencies Involved: OHA/OR-OSHA

Pesticide Type: Insecticide

Pesticide: Naphthalene

Contributing Factors: 29

A worker at a Costco Warehouse arrived early in the morning to unpack a shipment of swimsuit when she realized that the swimsuits smelled of a "strong mothball odor". The complainant stated she did not see any visible mothballs in the shipping container.

Case #090003

Animal – Geese

Certainty Index: 1 (Definite)

Severity Index: 1 (Death)

Agencies Involved: ODA/USFWS/ODFW

Pesticide Type: Rodenticide

Pesticide: Zinc Phosphide

Contributing Factors: 15, 27, 36, 39, & 52

Dead Canada geese were found at Dawson Creek in Washington County. The geese were sent for necropsy and found to have ingested zinc phosphide. A grower and his applicator were cited by ODA for applying a pesticide in a faulty and careless manner.

Case #090019

Non-Occupational

One person

Type of Care: None

Certainty Index: 2 (Probable)

Severity Index: 4 (Low Severity illness or injury)

Agencies Involved: OHA

Pesticide Type: Insecticides

Pesticide: Cypermethrin

Contributing Factors: 2, 16, 21 & 45

A caller reported using a long board to slide a can of Raid Concentrated Deep Reach Fogger to the interior of his house underneath a closet that had an ant problem. The individual was on his belly in the crawl space on the other end of the plank and after setting off the fogger, was unable to wiggle his way out of the crawl space fast enough to escape the fog. He immediately began coughing and had shortness of breath.

Yamhill County

Case #090007

Animal – Pet Dog
Certainty Index: 1 (Definite)
Severity Index: 1 (Death)
Agencies Involved: ODA
Pesticide Type: Rodenticide
Pesticide: Zinc Phosphide
Contributing Factors: 15, 27, 38, 47, & 52

A pet dog died after ingesting zinc phosphide while loose on neighboring farm property. Necropsy results showed that zinc phosphide was the toxicant. ODA investigation found the farm had violated several labeling requirements and was cited.

Case #090024

Non-Occupational
One person
Type of Care: None
Certainty Index: 3 (Possible)
Severity Index: 4 (Low severity illness or injury)
Agencies Involved: ODA/OHA
Pesticide Type: Fungicide and Insecticide
Pesticide: Propiconazole, Trifloxystrobin and Beta-cyfluthrin
Contributing Factors: 16, 36 & 38

A caller to ODA reported that while he was taking his garbage out in the morning he noticed someone spraying the field next to his house. He estimated the application was about 200-300 meters away. He said he had a funny taste, his mouth was tingling, and his eyes were watery. He stated 45 minutes later he experienced chest tightness and palpitations. Pesticide residue samples were taken by ODA from a windowpane facing the treated field. The results of the samples were negative. ODA could not determine a violation occurred.

Appendix V - Member Agencies and Consultant Jurisdictions

Pesticide Analytical & Response Center (PARC)

Resources/Programs: By referral and coordination, PARC requests investigations or resources from each of its member agencies.

Oregon Department of Agriculture (ODA) - PESTICIDES DIVISION

Resources/Programs: ODA has field staff positioned around the state with experience in pesticide application technology and regulation. As part of an investigation, ODA has access to laboratory services. ODA maintains a label for each pesticide registered in Oregon and a database of information about those products. ODA also maintains a database of information about pesticide-related licenses and licensees.

Oregon Health Authority, Public Health Division, (OHA) Office of Environmental Public Health, Research & Education Services, Pesticide Exposure Safety & Tracking (PEST) Program

Resources/Program: The expertise within OEPH is diverse, and there are epidemiologists and occupational/environmental public health specialists, as well as environmental health specialists, toxicologist, physicians, environmental engineers, health physicists, research analysts.

Additional potential resources at the Office of Environmental Public Health include Drinking Water Program, Research & Education, Radiation Protection Services and Food, Pools and Lodging.

Oregon Department of Fish & Wildlife (ODF&W)

Resources/Programs: ODF&W district biologists handle issues with pesticide poisoning or spills that affect fish and wildlife. ODF&W biologists assist to identify potential fish and wildlife receptors and resources that are at risk; assess extent of damage to the resource(s); collect samples for analysis and to identify laboratories for analysis.

Oregon Department of Forestry (ODF)

Resources/Programs: ODF has field offices across the state. ODF field foresters administer forest practice pesticide rules, which deal with natural resource protection. ODF investigates incidents that may involve violations of the forest practices rules. ODF maintains a database of information on planned forest pesticide applications.

Oregon Department of Environmental Quality (DEQ)

Resources/Programs: DEQ has field staff available in district offices and a dedicated laboratory facility. DEQ regulates water quality, air quality, and environmental quality.

Oregon Occupational Safety & Health Administration (OR-OSHA)

Resources/Programs: OR-OSHA has field staff available to investigate occupational incidents, and a library of educational materials relevant to pesticide handling, storage, and application in agriculture.

Office of the State Fire Marshal (OSFM)

Resources/Programs: The OSFM offers information about hazardous materials that are stored at facilities around the state. This can include pesticide storage, location, quantities, and hazard type. Expertise is also available regarding application of the Oregon fire code to pesticide storage.

Oregon Poison Center (OPC)

Resources/Programs: OPC staff is available for emergency consultation and advice regarding clinical toxicology issues 24 hours a day.

Center for Research on Occupational & Environmental Toxicology (CROET)

Resources/Programs: The Toxicology Information Center houses a special-use library with access to a variety of occupational safety and health and environmental information resources, including those related to the use of pesticides. CROET also has on staff a toxicologist, epidemiologist, and industrial hygienist who are prepared to answer questions related to the use of chemicals (including pesticides) in the home and workplace. Additionally, CROET can address animal-poisoning issues.

Oregon State University - ENVIRONMENTAL & MOLECULAR TOXICOLOGY DEPARTMENT (OSU)

Resources/Programs: OSU medical and environmental toxicologists evaluate case information using investigations and reports from member agencies, illness symptoms, and pesticides identified during investigations. The Board uses these evaluations to classify the likelihood of pesticide effects using the PARC Classification Criteria.

Appendix VI – Charts and Graphs

Cases are classified in four categories. These are occupational, non-occupational, environmental and pets/wildlife. There were three occupational cases, sixteen non-occupational cases, five cases where pets and or wildlife were involved (Fig.1).

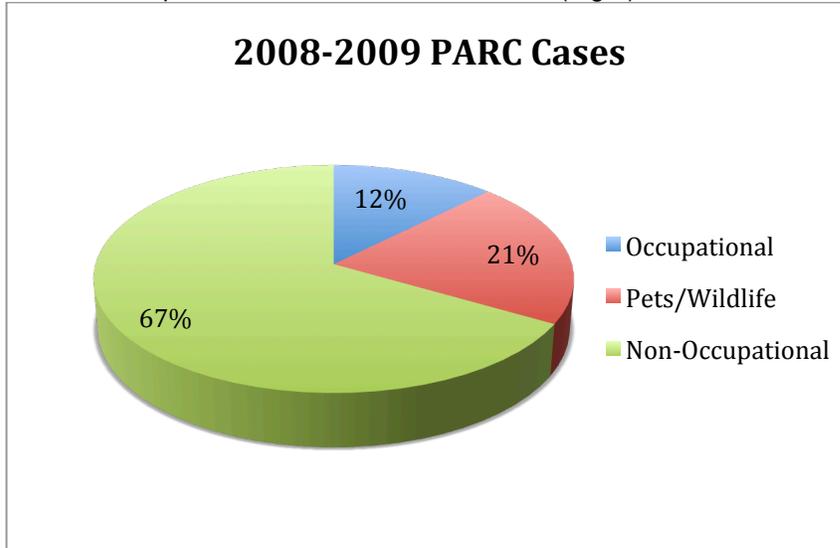


Figure 1: All Cases

CERTAINTY INDEX -All PARC Cases

Four (17%) were classified with a definite certainty of pesticide exposure. Three of these cases involved geese that were adversely affected by the misapplication of rodenticides. One of these definite cases was poisoning of a dog with zinc phosphide.

Seven cases (29%) were classified with a probable certainty of pesticide exposure leading to specific effects. Six cases (25%) were classified as having a possible certainty of pesticide exposure leading to specific effects. Five cases (21%) were classified with a certainty of unlikely to have been caused by pesticides. One case (4%) was classified as unrelated to pesticide exposure (Fig. 2).

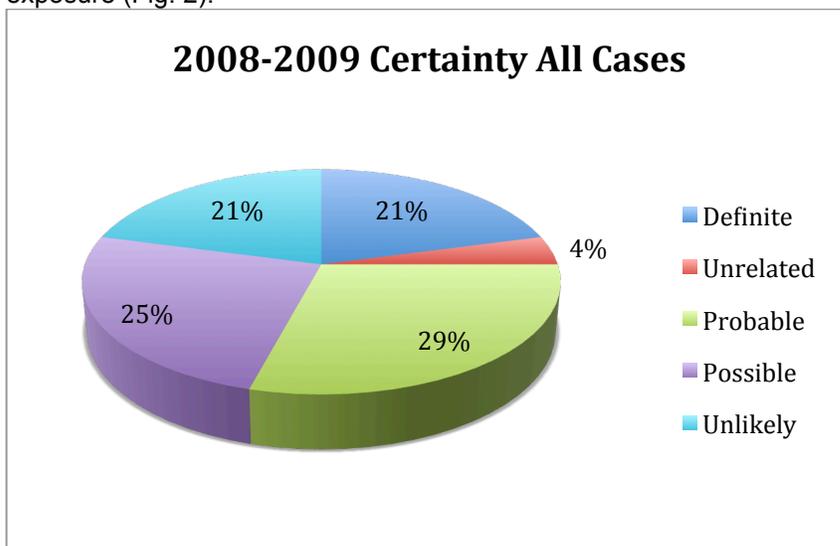


Figure 2: All Cases – Certainty Index

CERTAINTY INDEX - Human PARC Cases

There were no human cases in 2008-2009 where the certainty could be assigned as definite. Seven cases (37%) were classified as probable. Six cases (32%) were classified as possible. Five cases (26%) were classified as unlikely. One case (5%) was classified as unrelated (Fig. 3).

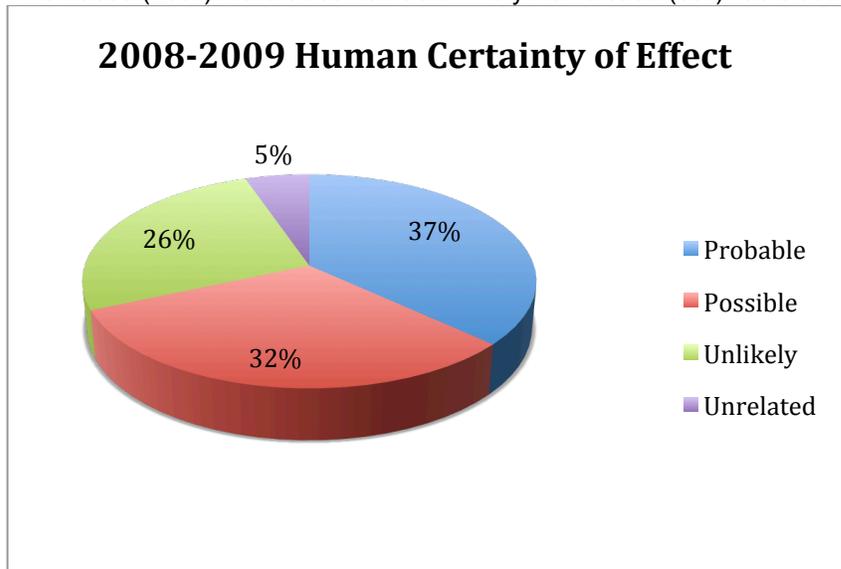


Figure 3: Human Cases – Certainty Index

SEVERITY INDEX – All PARC Cases

Five cases (21%) involved the death of animals, wildlife or domestic animals relating to pesticide applications. One case (4%) was considered to be of moderate severity, eighteen cases (75%) were of low severity and no cases were classified as no symptoms exhibited (Fig. 4).

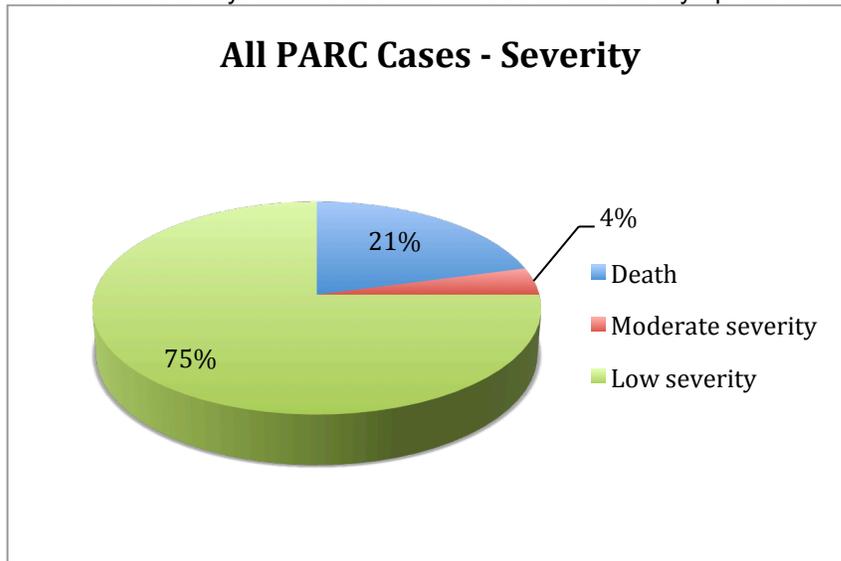


Figure 4: All PARC Cases – Severity Index

SEVERITY INDEX – Human PARC Cases

No cases involved the death of an individual; no cases were classified as high severity illnesses; one case (28%) was considered to be of moderate severity; eighteen cases (63%) were of low severity and no cases were no symptoms exhibited. It is important to note that the severity classification is not tied to the certainty classification; the severity is specifically based upon the illness symptoms exhibited. For example, in a case where a person clearly exhibited moderately severe symptoms, the certainty of the symptoms being caused by a pesticide exposure might be “unlikely” if it appeared that the symptoms had some other cause (Fig. 5).

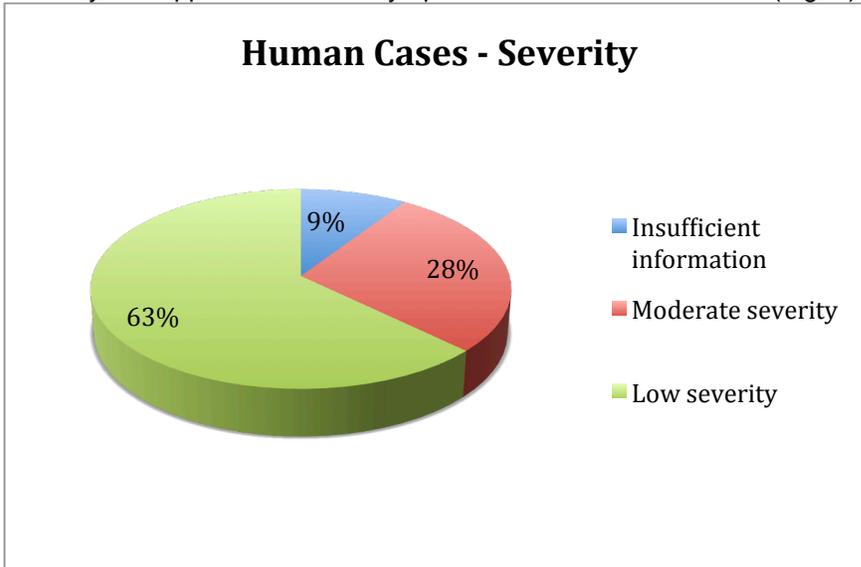


Figure 5: Human Cases – Severity Index

Comparison with Previous Years

Table 1 on page 38 compares the pesticide-related incidents reported in the previous three PARC reporting periods with the 2008-2009 data. Prior to this reporting period, PARC was not funded from 2002-2005.

The new PARC criteria, initially used in 2005-2006, requires investigation or medical records to confirm pesticide applications, type of pesticide and symptoms. In addition, some incidents are not evaluated by PARC because of lack of staffing resources at PARC agencies, the individuals involved did not consent to being referred to PARC where the incident might be investigated, and because some incidents were found not to be pesticide related.

PARC incidents dropped by 29 and cases dropped by more than half from the previous reporting period. This decrease may have been a cyclical decline in the number of calls to PARC. Table 2 shows that the total number of calls received by reporting agencies also fell during this reporting period.

Table 1. Pesticide-Related Incidents Reported to PARC

Calls	2002- June 05	July 05 – July 06	July 06 – July 07	July 07 – July 08	July 08 – July 09
Total suspected incidents reported	PARC activities not funded	230	240	170	135
Incidents reviewed		84	89	84	55
Cases		35	36	51	24
No. people involved		62	35	67	40
Children (< 18)			19	18	3
Animals		6	11	7	6
Environment		2	0	2	0

Table 2 is an account of reported incidents to individual agencies where pesticide-related human illness or effects on animals or the environment were alleged.

Table 2. Pesticide-Related Incidents by Reporting Source

Agency	2002- June05	July 05 – June 06	July 06 – June 07	July 07 – June 08	July 08 – June 09
	PARC activities not funded				
OPC		152	136	89	81
PARC		9	5	16	7
ODA		40	80	42	33
OERS		3	3	1	3
Worker's comp.				2	
ODF		1	3	1	1
ODFW		1			
Local health dept.				3	
Health care provider					
OR-OSHA		4	5	5	
DEQ		3	2	1	
OHA		6	2	4	6
USFWS		8	3	4	3
State police		1			
Other		2	1	2	1
Total		230	240	170	134

Some differences in data collection between years are apparent in Tables 1 and 2. However, the data is essentially the same for incident reporting by agencies. Starting in 2005, all claims are reviewed to identify whether there was enough information to evaluate them based on PARC criterion.

OR-OSHA's numbers fluctuate according to exposures of employees—and the notification of these occurrences to OR-OSHA's.

ODA's numbers fluctuate according to exposures of individuals and the departments notification of such occurrences.

Table 3 documents the type of health care sought by individuals captured during reporting years. The information collected in 2005-06 did not regularly include the type of health care obtained. The current years report had a significant number drop in the number of cases who sought health care. This drop in the number of individuals seeking health care could be attributed to decline in the economy and the lack of resources available for individuals to seek medical care.

Table 3. Type of Health Care Sought

Type	2002 – June 05	July 05 – June 06	July 06 – June 07	July 07 – June 08	July 08 – June 09
None	PARC not funded	11	8	19	14
Consult(Telephone)			9	0	0
Office visit		7	10	18	3
ER			17	3	1
Hospital		1	6	2	0
Onsite care		4	4	0	0
Unknown		8	2	0	0
Other				2	1

Table 4 shows that in occupational cases far more incidents occurred with individuals conducting routine work not related to the application than work related to application of pesticides. Numbers of individuals affected vary per year due to numbers affected in each incident that given year. In 2005-2006, a number of individuals were affected due to one incident.

For 2008-2009, twenty-one individuals who were not associated with the actual pesticide application were reported to be affected while at the workplace. One applicator reported symptoms while applying. Like the reported cases in 2007-2008, many of the individuals who were subjects of investigations were not associated with the application, but were bystanders. One case led to the largest number of individuals exposed. The case involved the treatment inside of a personal coaching firm where 20 individuals became ill with headaches and nausea after a pesticide application was made to the interior of the building.

Table 4. Occupational by Activity/Number of Individuals

Activity	2002 – June 05	July 05 – June 06	July 06 – June 07	July 07 – June 08	July 08 – June 09
Individuals not associated with application	PARC not funded	44 (98%)	11(48%)	10(71%)	21 (95%)
Pesticide Applicators			12(52%)	4(29%)	1 (5%)
Emergency response					
Other		1 (2%)			
TOTAL		45	23	14	22

Table 5 shows the site where occupational cases occurred for the reporting period 2008-2009. Most individuals were exposed at a place of business. One case involved 20 employees who exhibited symptoms following a pesticide application to their place of employment.

Table 5. Occupational by Site/ Number of Individuals

Site	2002 – June 05	July 05 – June 06	July 06 – June 07	July 07 – June 08	July 08 – June 09
Place of Business	PARC not funded	3(7%)	7(30%)	2 (14%)	21 (95%)
School		1 (2%)	2(9%)		
Construction			3(13%)		
Road (Right-of-Way)				5(20%)	
Golf Course					
Farm/nursery		30 (67%)	7(30%)	9(36%)	
Institution		6 (13%)	1(4.5%)	1(4%)	
Industrial		2 (4%)	1(4.5%)	8(32%)	
Forestry					
Other		3 (7%)	2(9%)		1 (5%)
TOTAL		45	23	25	22

Table 6 shows that the greatest number of people reported to have been affected in non-occupational cases were associated with outdoor applications. These exposures were associated with one or two individuals per PARC case.

Table 6. Non-Occupational by Activity/ Number of Individuals

Activity	2002 – June 05	July 05 – June 06	July 06 – June 07	July 07 – June 08	July 08 – June 09
Intentional	PARC not funded	1 (1%)		0 (0%)	0 (0%)
Application			9(28%)	6 (14%)	0 (0%)
Outdoors		12 (70%)	5(15%)	33 (79%)	13 (72%)
Indoor		4 (23%)	6(18%)	2 (5%)	4 (22%)
Spill/dispose		1 (6%)	13(39%)	1 (2%)	1 (6%)
TOTAL		18	33	42	18

Table 7 shows that in this period the largest number of persons reporting being affected in non-occupational cases was in residential neighborhoods. There was no one PARC case that led to a large number of individuals affected in one case.

Table 7. Non-Occupational by Site/ Number of Individuals

Sites	2002 – June 05	2005-06	2006-2007	2007-2008	2008-2009
Residence	PARC not funded	15 (88%)	9(28%)	20(48%)	11 (61%)
Road/trail		1 (6%)			
School		1 (6%)	6(18%)	1 (2%)	
Service					
Farm			5(15%)	10 (24%)	5 (28%)
Forest				8 (19%)	
Institution					1 (6%)
Hotel/motel			13(39%)	1 (2%)	
Other				2 (5%)	1 (6%)
TOTAL		17	33	28	18

Table 8 shows that Multnomah was the county with the largest number of cases in 2008 – 2009, with Washington, Marion and Lane counties tied at three cases each for this reporting period.

Table 8. Counties Where Cases Originated

County	2008-2009	Total
Multnomah	4	17%
Washington	3	13%
Marion	3	13%
Lane	3	13%
Malheur	2	8%
Yamhill	2	8%
Linn	1	4%
Umatilla	1	4%
Lincoln	1	4%
Tillamook	1	4%
Josephine	1	4%
Benton	1	4%
Clackamas	1	4%
Total cases	24	

Appendix VII - Memoranda of Understanding and Consultant Contracts

These documents are available in hard copy or electronic form from the Oregon Department of Agriculture at parc@oda.state.or.us or 503-986-6470. Each document specifies the duties and responsibilities of each contractor.