MEMBER AGENCIES

Oregon Health Authority

Oregon Department of Fish and Wildlife

Oregon Department of Environmental Quality

Oregon Department of Forestry

Oregon Occupational Safety and Health Administration

Oregon Office of State Fire Marshal

Oregon Poison Center

Oregon Department of Agriculture

PESTICIDE ANALYTICAL AND RESPONSE CENTER

2011-2013 Biennial Legislative Report

www.oregon.gov/ODA/programs/Pesticides/Pages/PARC.aspx

This report appears in a slightly different format than prior PARC Legislative Reports

PARC 2011-2013 Biennial Legislative Report

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Executive Summary

Issued in July 1978, Executive Order No. 78-23 directed five state agencies to form a task force to improve Oregon's ability to identify, investigate, report, and take appropriate actions to actual or alleged incidents involving pesticides. The order was issued due to citizen's rising concerns about the increasing use of pesticides. Pesticide incidents may affect people, animals, and/or the environment. The five state agencies involved were the Oregon Department of Agriculture, the Oregon Department of Environmental Quality, the Oregon Department of Fish and Wildlife, the Oregon Department of Forestry, and the Health Division of the Oregon Department of Human Resources.

The task force recommended that a Pesticide Analytical and Response Center (PARC) be established, and during the 1979 Legislative Session, House Bill 2324 was introduced to establish the center. A citizen-at-large position was added to the task force's initial recommendations regarding the makeup of PARC's governing board.

PARC has been funded every biennium since its inception with the exception of two, 2001-03 and 2003-05. Since 2005, the primary responsibility for administration of the Center has resided with the Oregon Department of Agriculture.

PARC's membership has expanded to consist of the following eight state agencies:

- 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)

Other organizations provide expertise to the PARC Board as contracted consultants:

- Oregon Institute of Occupational Health Sciences, Oregon Health & Science University
- The Department of Environmental and Molecular Toxicology at Oregon State University
- Oregon Department of Transportation

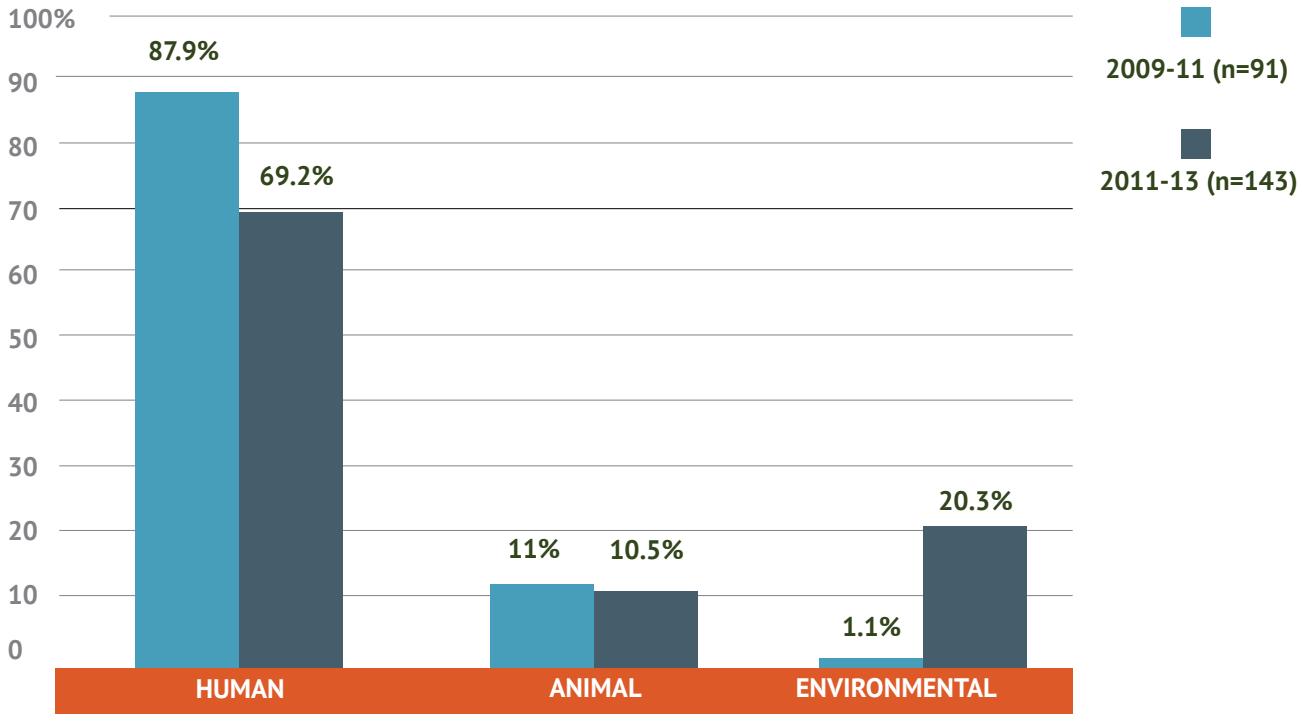
Visit PARC's website (http://www.oregon.gov/oda/programs/pesticides/pages/PARC.aspx) for a list of current PARC Board members.

Pesticide Analytical and Response Center (PARC) Summary

July 1, 2011 – June 30, 2013

During the reporting period from July 1, 2011 through June 30, 2013, there were 143 PARC incidents. PARC classifies incidents as human, animal, or environmental. A single PARC pesticide-related incident may fall into multiple classifications. Ninety-nine incidents were classified as human, 15 incidents were classified as animal, and 29 incidents were classified as environmental. Compared with the previous biennium, this represents a 57 percent increase in total pesticide-related incidents reported to PARC. In 2011, PARC began to track pesticide-related spills. This contributed significantly to the increase in environmental incidents observed between fiscal years (FYs) 2009-11 and FYs 2011-13.

Percent of PARC Incidents, by class



In order for PARC to work effectively and efficiently, communication and coordination between PARC member agencies is paramount. PARC itself does not conduct investigations of pesticide-related incidents. However, PARC member agencies either conduct investigations or provide support to those agencies that conduct investigations. More than one PARC member agency may be involved in investigating an incident. PARC member agencies provided the data contained within this report.

Data Sources For PARC Pesticide-related Incidents

	JULY 2011-JUNE 2012	JULY 2012-JUNE 2013
* DEQ	6 (7.8%)	6 (9%)
Insufficient environmental data (ODA)	3 (3.9%)	3 (3%)
** Medical record (PEST)	3 (3.9%)	1 (1.5%)
ODA	52 (67.5%)	33 (50%)
ODF	0	0
ODFW	0	1 (1.5%)
* OERS (Oregon Emergency Response System)	8 (10.4%)	15 (22.7%)
OPC fax	8 (10.4%)	3 (3%)
OR OSHA	9 (11.7%)	9 (13.6%)
*** Reporter interview with PEST	44 (57.1%)	27 (40.9%)
SFM	4 (5.2%)	1 (1.5%)
Sufficient environmental data (ODA)	11 (14.3%)	7 (10.6%)
TOTAL NUMBER PARC INCIDENTS	77	66

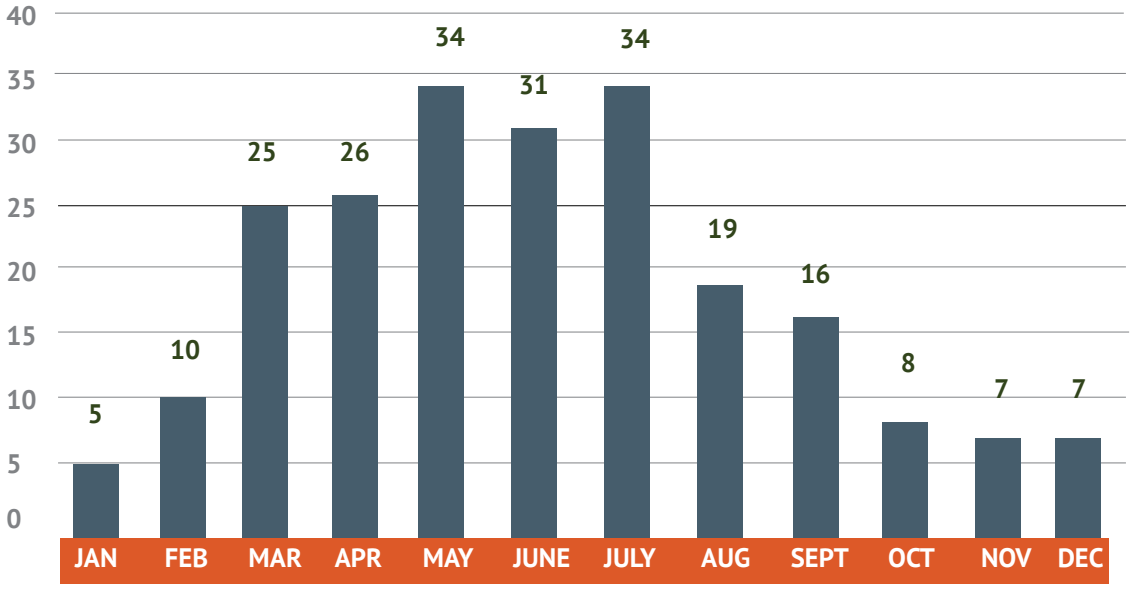
The percent by which a PARC member agency participates in all PARC pesticide-related incidents. More than one agency may be involved in a PARC incident thus, the percentages add up to greater than 100 percent.

- * When the PARC Coordinator receives a pesticide-related report from the Oregon Emergency Response System (OERS), a request is made to DEQ for any corresponding report.
- ** Medical records are requested by OHA's Pesticide Exposure Safety and Tracking (PEST) program when a health care provider has diagnosed a patient with having a pesticide-related illness/injury or when the complainant reported having sought medical treatment.
- *** Multiple individuals may be affected in a single PARC incident. OHA's Pesticide Exposure Safety and Tracking (PEST) program attempts to conduct exposure pathway interviews with individuals reporting symptoms they associate with a pesticide exposure.
- Environmental sampling results, usually obtained by ODA, may be sufficient for enforcement actions.
- ODA is the main source of PARC's pesticide-related incident information.

PARC Incidents

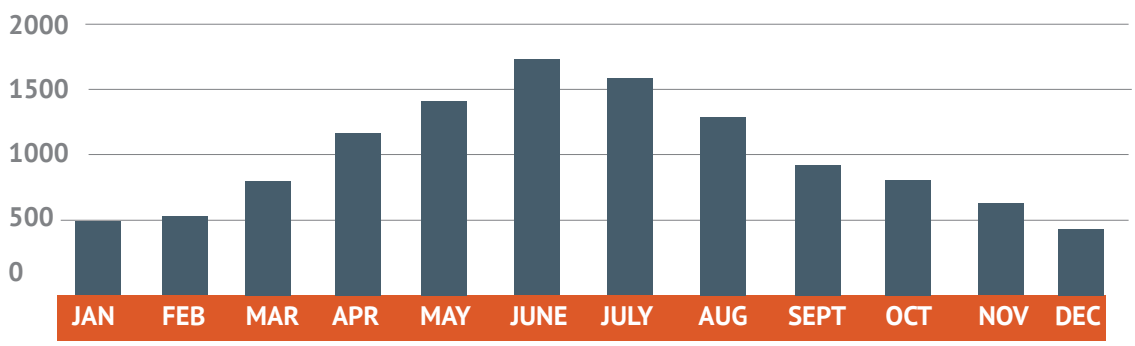
PARC may receive information about pesticide-related incidents from a variety of sources including PARC member agencies, the news media, or directly from the public. As one might expect, reports of pesticide-related incidents PARC receives vary by month. More pesticide-related incidents are reported to PARC in the spring and summer, when compared with the fall and winter.

PARC Pesticide Incidents by Month, 2009-13



Pesticide incidents reported to PARC follow a national trend in regard to pesticide incident reporting. The National Pesticide Information Center (NPIC), a cooperative agreement between Oregon State University and the U.S. Environmental Protection Agency, uses data gathered from telephone inquiries to track pesticide incidents nationally.

Pesticide Incidents by Month Reported to the National Pesticide Information Center, 2009-13



Incident Location

PARC tracks the locations, by county, for all pesticide-related incidents. No PARC incidents occurred in Gilliam, Grant, Harney, Jefferson, Sherman, or Wallowa counties from July 2009 through June 2013.

COUNTY	FY '09	TOTAL %	FY '10	TOTAL %	FY '11	TOTAL %	FY '12	TOTAL %	FY '13	TOTAL %
Baker			2	6.1			1	1.3	1	1.6
Benton	1	4.2			3	5.4	1	1.3	2	3.2
Clackamas	1	4.2	3	9.1	4	7.3	2	2.6	8	12.5
Clatsop							1	1.3		
Columbia							1	1.3	1	1.6
Coos			2	6.1						
Crook							1	1.3		
Curry			1	3			1	1.3		
Deschutes					2	3.6	2	2.6	1	1.6
Douglas							2	2.6		
Gilliam										
Grant										
Harney										
Hood River					1	1.8	4	5.3	1	1.6
Jackson					1	1.8	3	4		
Jefferson										
Josephine	1	4.2			2	3.6	3	4	1	1.6
Klamath					2	3.6	2	2.6	1	1.6
Lake			2	6.1						
Lane	3	12.5	3	9.1	9	16.4	4	5.3	3	4.7
Lincoln	1	4.2	1	3			1	1.3	1	1.6
Linn	1	4.2			1	1.8	4	5.3	3	4.7
Malheur	2	8.4							2	3.2
Marion	3	12.5	7	21.2	5	9.1	11	14.7	8	12.5
Morrow							1	1.3		
Multnomah	4	16.7	4	12.1	7	12.7	9	12	15	23.4
Polk			2	6.1	4	7.3	1	1.3	1	1.6
Sherman										
Tillamook	1	4.2			2	3.6			1	1.6
Umatilla	1	4.2	1	3	2	3.6	5	6.7	2	3.2
Union					1	1.8	3	4		
Wallowa										
Wasco			1	3	1	1.8	2	2.7		
Washington	3	12.5	2	6.1	5	9.1	4	5.3	6	9.4
Wheeler			2	6.1						
Yamhill	2	8.4			3	5.5	6	8	6	9.4
TOTALS	24		33		55		75		64*	

- 2008-09 top counties were Multnomah, Lane, Marion, and Washington.
- 2009-10 top counties were Marion, Multnomah, Lane, and Clackamas.
- 2010-11 top counties were Lane, Multnomah, Marion, and Washington.
- 2011-12 top counties were Marion, Multnomah, Yamhill, and Umatilla.
- 2012-13 top counties were Multnomah, Marion, and Clackamas.
- * PARC was unable to identify the county location for two PARC incidents.

Oregon counties with the largest populations (in order) are: Multnomah, Washington, Clackamas, Lane, and Marion. It stands to reason that the highest populated counties would have the highest number of pesticide-related incidents.

Incident Sites

Once PARC classifies pesticide-related incidents as human, animal, or environmental, the PARC Board assigns contributing factors. For a list of PARC's contributing factors, see the 2009-11 legislative report at: www.oregon.gov/oda/programs/pesticides/pages/PARC.aspx. Currently, there are approximately 100 contributing factors that may be assigned to a PARC incident. These factors are divided into eight broad categories: incident sites (where did the incident happen); exposure sites (where did the exposure happen and only assigned when the incident and exposure sites differ); data sources for the incident; what was the intended target of the application; application factors; exposure factors; other factors; and remedial actions taken by a PARC member agency.

Incident Sites for PARC Incidents

INCIDENT SITE	2009-11 INCIDENTS (n=91)	2011-13 INCIDENTS (n=144)
Agricultural	38	40
Commercial	5	6
Forestry	4	5
Golf course	1	0
Hospital	1	0
Hotel	0	1
Housing authority building	1	0
Industrial, i.e. manufacturing	3	5
Mobile home/trailer	0	6
Multi-unit housing	3	9
Nursing home	2	1
Other	4	13
Road, right-of-way, trail, non-ag	5	17
School	0	2
Single-family housing	24	32
TOTALS	91	137

PARC is unable to identify incident sites for six of 143 incidents

For the second-consecutive biennia, an agricultural site is the primary location for PARC incidents, with single-family housing being the second-most common location for PARC incidents.

Application Targets

PARC tracks the intended target of pesticide applications in pesticide-related incidents. Concomitant with an agriculture site being the primary location for PARC incidents, an agricultural pest was the main target in PARC's pesticide-related incidents. A target is defined as what is the pesticide product's intended use, for example: weeds, insects, fungi, etc. Since single-family housing was the second-most prevalent location for PARC incidents, one might imagine that residential pest were the second-most prevalent target.

TARGET	2009-11	2011-13
Agriculture	39	38
Bed bugs	5	0
Community application	0	1
Forestry	4	6
Human	1	0
Non-Ag, non-crop	5	10
Other pests	10	10
Residential pests	11	14
Residential vegetation	3	7
Turf/ornamental	1	4
Unwanted residential vegetation	11	11
TOTALS	90*	101**

*** 90 of 91 intended targets identified; **101 of 143 intended targets identified**

Application Factors

Application factors are those factors that may have led to a pesticide incident and are determined by PARC member agencies.

The most common application contributing factor associated with PARC incidents during the reporting period was "spill/splash of a liquid or dust (not involving application equipment failure)." Many of these were transportation-related spills. The second most common contributing factor associated with PARC incidents is "misapplication by a homeowner indoors." Misapplications occur when a product is not applied according to labeled instructions. Misapplications include applying a product indoors and when a product is not labeled for indoor use; applying a product above labeled rate; or applying a product to sites not listed on the label, e.g., applying product to baseboards when 'crack and crevice' is listed on the product label. Drift or off-site movement and industrial accidents were tied for third, as application factors assigned to PARC incidents.

Exposure Factors

Exposure factors are those factors that may have led to people or animals being exposed to pesticides. These factors are not verified by PARC member agencies. PARC was unable to assign exposure factors in six of 143 PARC incidents.

REPORTED EXPOSURE FACTORS	2009-11 n=91(%)	2011-13 n=137(%)
Chemical sensitivity is reported	6 (6.6%)	7 (4.9%)
Contact with treated article	5 (5.5%)	3 (2.1%)
Decontamination not adequate or timely	1 (1.1%)	1 (0.7%)
Early re-entry	5 (5.5%)	3 (2.1%)
Exposure/ symptoms reported	58 (63.7%)	80 (55.5%)
Inadequate ventilation	2 (2.2%)	1 (0.7%)
Inadvertent animal exposure	4 (4.4%)	4 (2.8%)
Label insufficient to protect or non-target health	2 (2.2%)	1 (0.7%)
Mixing and loading antecedents	4 (4.4%)	2 (1.4%)
Occupational exposure	18 (19.8%)	12 (8.3%)
Off-site movement/ odor reported	20 (22%)	31 (21.5%)
Pediatric exposure (children >6)	2 (2.2%)	2 (1.4%)
People were in the treated area during application	13 (14.3%)	11 (7.6%)
Performing unauthorized activity	0 (0%)	2 (1.4%)
PPE eye (required protection not worn/ inadequate)	2 (2.2%)	2 (1.4%)
PPE gloves (required but not worn/inadequate)	5 (5.5%)	4 (2.8%)
PPE other (required protection not worn/ inadequate)	6 (6.6%)	2 (1.4%)
PPE respirator (required protection not worn/ inadequate)	1 (1.1%)	2 (1.4%)
Required notification/ posting lacking or ineffective	6 (6.6%)	4 (2.8%)
Vegetation symptom consistent with formulation	0	1 (0.7%)
Veterinary product exposure	0	1 (0.7%)

PPE: Personal Protective Equipment

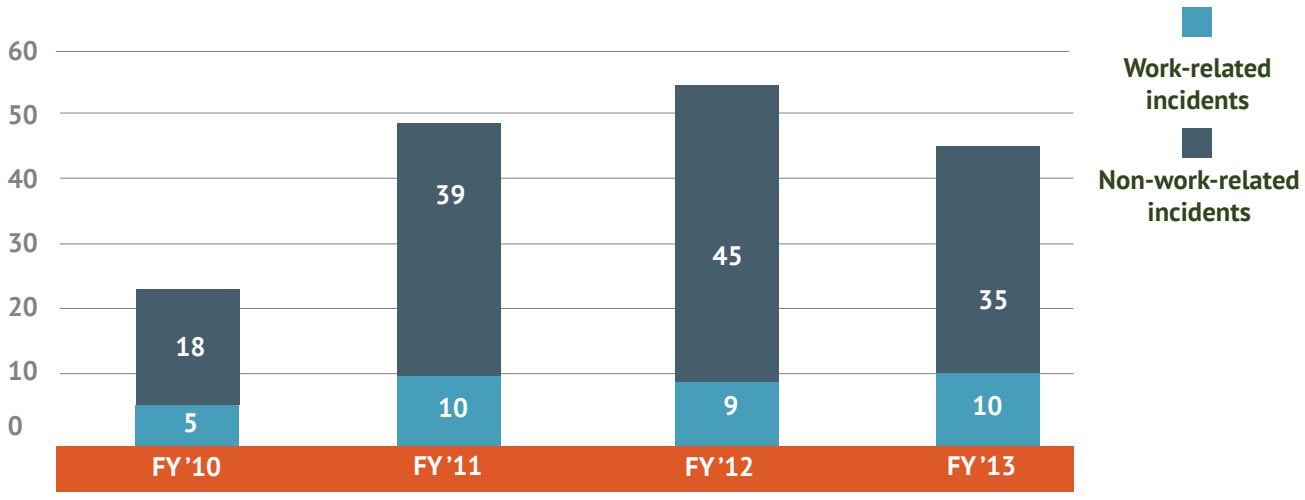
In the 2011-13 biennium, exposure/symptoms were reported in 55.5 percent of PARC pesticide-related incidents. Compared with 2009-11, this represents a significant reduction when compared with the percent of PARC's pesticide-related incidents in which exposure/symptoms were reported (63.7 percent). Off-site movement or odor continues to be reported in approximately 20 percent of all PARC incidents.

The number of occupational exposures in the 2011-13 biennium (12) was reduced by nearly one-third when compared with the 2009-11 biennium (19).

Occupational Incidents

A number of PARC's pesticide-related incidents happened in the workplace. An occupational pesticide-related incident is defined as an individual involved in an on-the-job activity when the exposure to pesticides took place. The Oregon Occupational Safety and Health Administration (OR-OSHA), a subdivision of the Oregon Department of Consumer and Business Services, is the state agency responsible for investigating pesticide incidents that take place in the workplace. OR-OSHA investigated 19 PARC occupational incidents from July 1, 2011, through June 30, 2013. The average number of workplace pesticide-related incidents has remained relatively stable over the three-year time period (fiscal years 2011, 2012, and 2013).

Percent PARC Incidents, by work status, fiscal years 2010-13



Ten of the 19 occupational pesticide-related incidents that occurred from July 1, 2011, through June 30, 2013, occurred in occupational settings and an agricultural pest was the primary target. In 12 of these 19 incidents, exposure and/or symptoms were reported. In seven of 19 incidents, medical treatment was sought.

Over a two-year time period ending June 30, 2013, OR-OSHA found 76 violations associated with these 19 occupational PARC incidents. OR-OSHA Violations and Penalties are established in Oregon Administrative Rules (OAR) Div. 1, General Admin, 437-001-0135 through 437-001-0203.

Pesticide Products in PARC Incidents

PARC tracks pesticides that are involved in pesticide-related incidents to examine for use trends. The U.S. Environmental Protection Agency (EPA) registers pesticide products (with the exception of products that do not require registration, such as 25(b) products) and assigns EPA registration numbers. Registration numbers allow one to uniquely identify a specific pesticide product. Data for the types of pesticides, e.g., insecticide, fungicide, insecticide, etc., is listed below.

	2009-11	2011-13
Algaecide	0	1
Animal repellant	0	1
Bactericide	1	0
Fungicide	39	24
Herbicide	42	46
Insecticide	39	37
Miticide	1	0
Molluscicide	1	0
Plant growth regulator	3	2
Rodenticide	5	3
Wood preserver	2	0
TOTAL	107	114

Restricted Use Pesticides

Restricted use pesticide products (RUP) are those products that may only be used by a certified pesticide applicator or under the direct supervision of a certified applicator. From July 1, 2011, through June 30, 2013, PARC identified 16 restricted use products. During this period, RUPs represented 11 percent of all pesticide products involved in PARC incidents.

PRODUCT NAME	EPA REG. NO.	ACTIVE INGREDIENT	SIGNAL WORD	TYPE	SITE USED
Asana XL	352-515	Esfenvalerate	Warning	Insecticide	Agricultural
Atrazine 4L	35915-4-60063	Atrazine	Caution	Herbicide	Forestry
Baythroid	264-840	beta-Cyfluthrin	Warning	Insecticide	Agricultural
Diazinon AG 500	66222-9	Diazinon	Caution	Insecticide	Agricultural
Epi-Mek	100-1154	Abamectin	Warning	Insecticide	Agricultural
Fumitoxin	72959-3	Aluminum phosphide	Danger	Insecticide	Single-family home
Gramoxone	100-1217	Paraquat dichloride	Danger	Herbicide	Industrial
Lorsban	62719-591	Chlorpyrifos	Warning	Insecticide	Agricultural
Pocket gopher bait	4271-17	Strychnine	Danger	Rodenticide	Road, right-of-way
Profume	62719-376	Sulfuryl fluoride	Danger	Insecticide	Industrial
Telone II	62719-32	1,3-dichloropropene	Warning	Fungicide	Road
Terr-O-Gas	5785-28	Methyl bromide, chloropicrin	Danger	Fungicide	Agricultural
Tordon	62719-6	Picloran potassium	Caution	Herbicide	Single-family home
Tri-Con	58266-1-11220	Methyl bromide, chloropicrin	Danger	Fungicide	Agricultural
Warrior II	100-1295	Lambda-cyhalothrin	Warning	Insecticide	Agricultural
Weevil-cide	70506-14	Aluminum phosphide	Danger	Insecticide	Industrial

Animal Incidents

During the reporting period, there were 15 animal incidents involving pesticides. ODA investigated all 15 animal pesticide-related incidents and issued no violations.

There were three separate incidents in which complainants reported the death of fish in their fishponds. All of the fish are thought to be Koi goldfish. There was one incident involving the death of 17 geese. Based upon a necropsy performed, at least one goose was exposed to zinc phosphide. ODA could not determine the source of the zinc phosphide.

ODA continues to issue yearly pesticide advisories to prohibit above-ground applications of zinc phosphide on grass grown for seed when migratory birds are present in the Willamette Valley. These advisories are issued in collaboration with ODFW and U.S. Fish and Wildlife Service.

There were two animal incidents involving bumblebees. In Wilsonville, a pest control company applied the active ingredient dinotefuran to linden trees that were in full bloom. This resulted in the death of a large number of bumblebees. ODA determined that both the operator and applicator performed pesticide application activities in a faulty, careless, or negligent manner and assessed civil penalties. In Hillsboro, a large number of dead bumblebees were found underneath a linden tree that was also in full bloom. However, ODA determined that the application, performed months earlier, was done correctly and according to label directions.

In response to these bee incidents, ODA restricted the use of dinotefuran and imidacloprid on linden trees.

Environmental Incidents

During the reporting period, there were 29 environmental incidents involving pesticides. PARC was notified of 23 of 29 environmental incidents through the Oregon Emergency Response System (OERS). Many of the environmental incidents involved the transportation of pesticides. There were two accidents involving motor vehicles carrying pesticides.

Highway 36/Triangle Lake Exposure Investigation

In spring 2011, several residents of the Highway 36/Triangle Lake area expressed concern about pesticide exposure from aerial pesticide applications to forestry sites in the area. They cited an independent analysis of urine samples from community members, which were positive for the pesticide active ingredients 2,4-D and atrazine. The analysis was presented at an Oregon Department of Forestry meeting in April 2011. ODF referred the information to PARC member agencies that had authority for protection of public health. The Exposure Investigation (EI) commenced in August 2011.

Subsequent events and findings for the EI during this 2011-13 reporting period, including a timeline of the EI, OHA's interim Public Health Assessment (PHA), and public comment on that PHA, may be found by visiting healthoregon.org/ehap and clicking on "Highway 36/Triangle Lake Exposure Investigation."

PARC Board Recommendations

Under ORS 634.550, PARC is mandated to "make recommendations for action to a state agency when a majority of the board considers that such action may be warranted on the basis of the findings of an incident investigation or on the basis of identification of a trend or pattern of problems. Recommended actions may include, but not be limited to, regulatory action, modification of administrative rules, proposal of new legislation, public education and consultation to industry."

- As a result of the Highway 36 Public Health Assessment/Exposure Investigation (PHA/EI), the PARC Board makes the following recommendations:
- PARC member agencies should develop, review, and update agency procedures and processes as necessary to be able to respond to pesticide-related incidents affecting humans, animals, or the environment. Increased cooperation and communication between PARC member agencies should be emphasized.
- PARC member agencies will ascertain and assess new tools for collecting relevant data to determine adverse effects to humans, animals, or the environment, from pesticide use.
- The PARC Board recommends that the US EPA continue to investigate the feasibility of performing air monitoring in the Triangle Lake study area, whether passively or following a known pesticide application. Areas outside of Triangle Lake should also be considered. PARC member agencies request the opportunity to review and comment on the proposed study design prior to its initiation/implementation.
- The PARC Board recommends that the Oregon Department of Agriculture, the Oregon Department of Forestry, and the Oregon Health Authority develop standard operating procedures (SOPs) to assist the Oregon Health Authority in conducting a PHA or EI. The SOPs should address what type of data should be gathered.
- The PARC Board recommends that each PARC member agency become more familiar with every other PARC member's regulatory authorities. This information should be communicated to each PARC member agency.

Notifications

Concerned citizens have expressed an interest in being notified of planned pesticide applications for a variety of reasons. State agencies should explore the feasibility/possibility of implementing a system that would provide more information in a timelier manner to interested citizens. Open communication between applicators and concerned citizens should be promoted.

Pollinator Protection

The PARC Board recommends that the Oregon State Legislature consider taking steps to protect Oregon's pollinators from the potential effects of pesticides. The PARC Board also recommends that the Oregon Department of Agriculture consider taking steps to protect Oregon's pollinators from the potential effects of pesticides.

Pesticide Transportation Spills

PARC will provide information about transportation-related spills to ODOT.

Notable Events

Below are the notable events that were submitted by PARC member agencies. These events cover the reporting period from July 1, 2011, through June 30, 2013.

Oregon Department of Agriculture

The Pesticides Program carries out compliance and enforcement of Oregon's pesticide laws and regulations guided by Oregon Revised Statute (ORS) 634 and Oregon Administrative Rule (OAR) 603. Investigators conduct routine compliance monitoring and investigation of complaints of alleged pesticide misuse. Based on enforcement findings, the Pesticides Program will administer enforcement action when appropriate. Enforcement actions, including civil penalties, play a vital role in deterring unlawful use of pesticides and help the Pesticides Program communicate laws and regulations to pesticide applicators and the public.

During the reporting period, the Pesticides Program was involved with the following pesticide-related activities:

- Ensured pesticide products used in Oregon were registered and labeled correctly, and that people were applying pesticides in a lawful manner. Keeping track of pesticide products and licensed users helps to safeguard human health and the environment. Oregon presently registers approximately 12,000 pesticide products annually.
- Processed applications and issued licenses to businesses and pesticide applicators. Those licensees include private, public, and commercial pesticide applicators, trainees, operators, dealers, and consultants. Approximately 12,600 licenses are processed and issued annually.
- Administered approximately 4,400 pesticide certification or re-certification examinations annually throughout the state in order to ensure a base level of competency of certified applicators and to meet federal requirements. Certification is required prior to licensing as a pesticide applicator, pesticide consultant, or private pesticide applicator. For commercial and public applicators, pesticide certification in specific use categories is required for the type of applications conducted and is contingent upon taking, and passing, computer-based or written examinations.
- Conducted routine compliance monitoring and responded to pesticide-related complaints and use concerns dealing with pesticide application activities. ODA initiates 400 to 500 pesticide-related investigations annually and issues an average of 111 enforcement responses for violations of the Pesticide Control Law (ORS 634). Enforcement responses include issuance of stop sale, use, or removal orders, notices of violations, civil penalties, license actions, and referrals to EPA.
- Responded to pesticide incidents and concerns affecting pollinators by adopting restrictions on dinotefuran and imidicloprid, two pesticide active ingredients implicated in the Oregon bee die-off incidents, including prohibiting use on linden trees or other species of *Tilia*. For commercial applicators, pollinator protection has been emphasized in presentations, recertification classes, and exams. The Pesticides Program also created website resource information for industry and the public.

- Collaborated with other key state agencies and EPA through the Water Quality Pesticide Management Team (WQPMT) to evaluate the effect of pesticides on groundwater and surface water in Oregon.
- Collaborated with key state lead agencies and EPA to evaluate and provide feedback associated with Biological Opinions developed by the U.S. National Marine Fisheries Service. Oregon also serves an important role in communication and education to the regulated community.
- Implemented licensing, recordkeeping, and use requirements for public and private school employees established by legislation creating Integrated Pest Management (IPM) in schools.
- Collaborated with Oregon Department of Environmental Quality, Oregon Department of Forestry, and Oregon Health Authority through a memorandum of understanding to implement the Pesticide Management Plan to address pesticides found in surface and ground water.

What did the Oregon Health Authority do?

Identify trends in pesticide exposures

Oregon Health Authority's (OHA) Pesticide Exposure Safety and Tracking (PEST) Program (healthoregon.org/pesticide) is the only state entity that seeks to determine the burden of acute human pesticide-related illness and injury (APII) on Oregonians. This identification of trends in reported exposures is in keeping with the Pesticide Analytical and Response Center's statutory mandate (see ORS 634.550). PEST is funded under a memorandum of agreement between PARC and OHA.

Members of PEST's staff classify the available evidence for each pesticide exposure reported that meet the PEST case definition. Staff members then assign one of seven classification categories from a nationally used system from the SENSOR-Pesticides program (http://1.usa.gov/1EY28Jw) at the Centers for Disease Control and Prevention (CDC). Details on the case definition and classification process can be found in PEST's most recent analysis of reported APII: "Cases of Acute Pesticide Poisoning Reported to OHA – 2009-2011" (healthoregon.org/pesticide).

As resources allow, PEST sends Oregon's cases to CDC after removing information identifying a particular person or address. In the reporting period, CDC published reports on APII that included Oregon cases in two important, peer-reviewed health journals:

- Lee SJ, et al. "Acute Pesticide Illnesses Associated with Off-Target Pesticide Drift from Agricultural Applications: 11 States, 1998-2006" (http://1.usa.gov/1L7zAmm) in Health Perspectives (http://1.usa.gov/1Kk9sqN).
- Kasner EJ, et al. "Gender Differences in Acute Pesticide-Related Illnesses and Injuries Among Farmworkers in the United States, 1998-2007" (http://1.usa.gov/1FdkJ7H) in American Journal of Industrial Medicine (http://bit.ly/1GcTbS5).

Why is this important?

Even if the directions and rules on a pesticide's label are followed, it may still adversely affect human health. That is why, within 15 years of a pesticide product's release onto the market, the U.S. Environmental Protection Agency gathers any new evidence about the pesticide, including reports of adverse impacts on human health. A central source of this that is regularly used by EPA is CDC's database on APII cases from 12 states, including Oregon. This is the primary way that cases of acute pesticide poisoning in Oregon are brought to the attention of national pesticide policymakers.

Investigate Highway 36/Triangle Lake exposure concerns

Starting July 2011 (and throughout the reporting period), OHA investigated health concerns of residents in the Highway 36 corridor relating to alleged pesticide drift from applications on adjacent forestlands. OHA co-authored a Health Consultation that analyzed biological samples for exposure to herbicides and authored a Public Health Assessment that reported on the analysis of all data related to the exposure investigation. Additional information can be found at healthoregon.org/ehap.

Received reports of APII through PEST

In the reporting period, PEST received 239 reports of APII from 207 pesticide incidents. (A single pesticide release can result in acute pesticide-related illnesses in multiple people.)

Department of Environmental Quality

The Oregon Department of Environmental Quality (DEQ) was involved in approximately 11 Pesticide Analytical and Response Center referral cases during the 2011-13 biennium. The majority of the cases reported were from Oregon Emergency Response System and involved spills of pesticides during loading or transport. The following are notable pesticide-related activities:

- DEQ, along with other state and federal agencies, were involved in an exposure investigation in Triangle Lake/Highway 36. This investigation lead to a human exposure study that included environmental sampling and analysis by DEQ. In addition, DEQ provided technical assistance to Oregon Health Authority in review of citizen-collected air samples.
- In January 2013, DEQ, along with ODA, investigated a large pesticide storage and spill incident in Umatilla County. The investigation identified 200 pounds of "acute hazardous waste" and 14,000 pounds of "characteristic hazardous waste" that was not being properly managed according to Oregon Administrative Rule 340, Divisions 100-102 and 109.

Oregon Department of Forestry

Oregon Department of Forestry (ODF) administers the Oregon Forest Practices Act (FPA), which regulates forest management activities, including forest pesticide applications. Operators must file a notification of operations before starting activities to allow ODF field foresters to review planned activities for the presence of resources such as fish-use streams, to work with operators to help ensure that those resources are protected, and to monitor ongoing activities. Rules adopted under the FPA require applicators to protect natural resources on forestlands during forest pesticide applications. These requirements are additive and complementary to regulations administered by the U.S. Environmental Protection Agency, the Oregon Department of Agriculture (ODA), and other agencies.

Notable events in 2011-2013 include the following:

- Reviewed more than 3,000 notifications of operations for pesticide applications for natural resource protection.
- Worked with the Oregon Health Authority and other PARC member agencies in the Highway 36/Triangle Lake Exposure Investigation, including assisting in contacts with forest landowners, and obtaining application records for pesticide applications that took place in the study area during the study period.
- In collaboration with other PARC agencies, investigated forest pesticide applications in the Rockaway Beach area. The investigation was prompted by complaints from local residents.
- Assisted Oregon Department of Environmental Quality and ODA in development of Permit 2300A, General Permit, National Pollution Discharge Elimination System Waste Discharge Permit.

Oregon Department of Fish and Wildlife

The Oregon Department of Fish and Wildlife (ODFW) was involved in the following pesticide-related activities during the reporting period:

- ORS 452.140 and ORS 452.245 require ODFW to annually review and approve planned applications of insecticides by a vector control district for the purposes of vector control. During 2011-2013, ODFW annually collaborated with vector control districts and counties to protect biologically sensitive areas while allowing effective vector control and mosquito abatement. ODFW identified biologically sensitive areas across the state and recommended treatment protocols in pesticide-use plans submitted by the vector control districts. In addition, ODFW convened a workshop made up of biologists, vector control representatives, and an expert panel to discuss development of a statewide guidance document for vector control practices. The draft document was released in late 2013 and subsequently finalized in early 2014.
- In April 2013, ODFW received one concern for past impacts to non-target species (dragonflies) from a proposed vector control application. The City of La Pine had contracted with Terminix for adult mosquito abatement. Although ODFW has no statutory authority to require or review a pesticide-use plan under this circumstance, ODFW did follow up with city management concerning the applications and recommended integrated pest management techniques.
- ODFW also responded to or provided technical expertise for any fish- or wildlife-related pesticide event. Although ODFW was involved in discussions of numerous incidents, only one notable event involving pesticides occurred during the reporting period.

  The notable event involved the death of 14-plus Western Canada Geese on approximately Aug. 31, 2012, in Marion County. ODFW visited the site and submitted four specimens to the Oregon State University Veterinary Diagnostic Laboratory for necropsy and diagnostic analysis. The diagnosis was phosphide toxicosis resulting from the ingestion of one of the phosphide reagents (zinc or aluminum phosphide). An ODFW and Oregon Department of Agriculture investigation yielded no indication that a zinc phosphide product had been used in the general vicinity.

As a trend in zinc phosphide poisoning was being realized, ODFW veterinary staff collaborated on an article published Jan. 4, 2013, titled "A review of episodes of zinc phosphide toxicosis in wild geese (Branta spp.) in Oregon (2004-2011)" in the Journal of Veterinary Diagnostic Investigation. In an effort to protect migratory geese, an annual pesticide advisory from ODA continues to disallow above-ground applications of zinc phosphide on grass grown for seed during the presence of migratory geese in the Willamette Valley. Staff members from ODFW and the U.S. Fish and Wildlife Service are consulted annually to establish the allowable season of use.

These activities are relevant to PARC's mandate for the following reason(s):

ODFW's interest was in minimizing environmental effects from insecticide applications for the specific purpose of vector control through a collaborative planning process. In addition, ODFW was involved in the investigation of a pesticide event that may have harmed wildlife.

Oregon Occupational Safety and Health Administration

During the reporting period, Oregon Occupational Safety and Health Administration was involved with the following pesticide-related activities:

- Produced additional annual reports on Oregon OSHA's Pesticide Emphasis Program for 2011, 2012, and 2013 tabulating agency-wide pesticide activities on enforcement violation characteristics, numbers and types; consultative visits, resource distribution and outreach activities. These reports include summaries of the PARC cases investigated by Oregon OSHA. These are posted online and can be selected by year: http://www.orosha.org/pdf/reports/pep-ffy-reports.html.
- Conducted outreach to organic growers through Oregon Tilth to increase awareness that pesticides used by organic growers are regulated as pesticides and the pesticide regulations do apply to them.
- Agriculture and pesticides were featured topics in Oregon OSHA's Resource publication.
- Capital Press interviewed Oregon OSHA staff members regarding the hazards of aluminum phosphide.
- Conducted outreach with forestry stakeholders regarding the Worker Protection Standard (WPS) with the major concern being the logistics of notifying contractors.
- Continued partnering with the National Institute of Occupational Safety and Health's National Personal Protective Testing Laboratory on its Barriers to Personal Protective Equipment for Pesticide Handlers project.
- The Pesticide Inspectors' Forum, an annual multi-agency event, continued to be well attended and transitioned into the Oregon Pesticide Symposium.
- External-related speaking requests on a variety of pesticide related topics continued to be popular, reaching 2,881 attendees in 2013, an all-time high.
- Oregon OSHA presented a track of pesticide-related topics at the Governor's Occupational Safety and Health Conference.

These are relevant to PARC's mandate for the following reasons:

- Oregon OSHA's regulatory and voluntary services related to pesticide safety are reported annually.
- Worked with other PARC Board members on joint inspections and training to collaborate on pesticide safety issues.
- Used the outcomes of the occupational exposure cases in the development and presentation of pesticide safety training courses to highlight prevention strategies.

Oregon Department of Transportation

Oregon Department of Transportation is in the process of reducing the use of herbicides in order to meet the Director's goal of a five-year, 25 percent statewide reduction in the use of herbicides to treat non-noxious vegetation along Oregon highways. Three years into the herbicide reduction strategy, ODOT has reduced the pounds of active ingredient used (compared to 2010) by approximately 48 percent. Improving equipment, improving application practices, and standardizing bare-shoulder widths helped achieve the reduction.

Oregon Poison Center

The Oregon Poison Center is a well recognized and widely used resource for the public and health care providers throughout Oregon. Each year, the OPC receives more than 42,000 calls from throughout Oregon regarding poisonings and toxic exposures to a wide variety of substances, including pesticides, pharmaceuticals, envenomations, industrial chemicals, plants, and household products. The OPC staff collects detailed substance exposure data on each case, but utilizes careful assessment and evaluation to determine the significance of that particular exposure to the actual medical condition of the patient. As a result, OPC data reflect large numbers of potential exposures to substances with varying levels of causality.

The OPC received 2,702 calls regarding potential human exposures to pesticides from July 2011 through June 2013. The vast majority of these cases involved minor exposures with no or minimal anticipated health effects. Of the pesticide related cases, 2,270 were safely managed at home, with the OPC nurses and physicians providing careful assessment and follow-up through telephone consultation. Three hundred and eighty one cases received care in a health care facility. While a potential pesticide exposure was identified in the medical history of these patients, it was not necessarily the primary reason for their medical condition.

To assist in meeting the requirements of ORS 413.042, 433.004 and 433.006 (that pesticide poisonings diagnosed or suspected by a health care provider be reported to local or state public health authorities), the OPC reports significant symptomatic pesticide exposures to the PEST staff of the OHA. PEST staff evaluate each case to determine whether it meets the PEST case definition. PEST reports appropriate cases, if staff gain permission from the person reporting symptoms (or their parent/guardian, if a minor), to PARC for subsequent review.

Oregon Office of State Fire Marshal

The Oregon Office of State Fire Marshal is a division of the Oregon State Police. The community Right to Know Unit (CR2K) resides within the Office of State Fire Marshal. Under Oregon Revised Statute and Oregon Administrative Rule, CR2K is charged with implementing and managing the Oregon Hazardous Substance Survey Program. Since 1986, this program also satisfies Federal Emergency Planning and Community Right to Know (EPCRA) for reporting the storage of hazardous substances. The CR2K program requires Oregon facilities to report any hazardous substance(s) stored onsite that meets or exceeds minimum reportable quantities established under Oregon Administrative Rule and/or specific EPA threshold minimums.

Another aspect of managing the CR2K program involves coordinating activities with other programs, such as the Pesticide Analytical and Response Center (PARC). In light of conducting each agency's respective duties, CR2K has shared records and information gathered from ongoing investigations, onsite audits, or databases. The benefits of such interagency cooperation are twofold: first, through an increased accountability by Oregon facilities utilizing hazardous chemicals in their daily operation; and secondly, because the threshold of safety benefiting the citizens of Oregon has been increased.

During the reporting period, OSFM was involved with the following pesticide-related activities:

In September 2012, there was an incident involving the release of a pesticide at a fixed facility. OSFM was one of the PARC member agencies involved in the investigation. As part of that investigation, CR2K conducted an onsite inspection of the facility and issued a Notice and Order of Noncompliance with specific OARs pertaining to the CR2K program.

This is relevant to PARC's mandate in that it shows OSFM participation, cooperation, and coordination of multi-agency investigations and sharing of information.

In 2013, CR2K changed the reportable quantities for the Upper Reporting Level for all hazardous substances. PARC was notified of this change. Solids remained the same at 500 pounds. Liquids and liquefied gases increased to 500 gallons. Non-liquefied gases went to 500 ft^3.