Pesticide Analytical and Response Center Biennial Report FY 19-21

OREGON DEPARTMENT OF AGRICULTURE

Pesticide Analytical and Response Center Biennial Report

July 1, 2019 to June 30, 2021

Executive Summary

The primary statutory function of the Pesticide Analytical and Response Center (PARC) is to coordinate pesticide-related investigations (ORS 634.550). PARC collects and analyzes information about reported incidents of possible pesticide exposure affecting health or the environment. PARC does not have regulatory authority - instead, it relies on member agencies to investigate and take necessary enforcement actions.

During the July 1, 2019 – June 30, 2021 biennium, there were **445 cases** reported to PARC. Case numbers reflect a combination of calls received and categorized as either pesticide concerns or pesticide incidents.

"Concerns" (**61% of PARC cases in the biennium**) are cases where somebody has general or unspecified concerns about:

- a nearby pesticide treatment;
- notification requirements relating to pesticide treatments;
- claims of an incident without a known pesticide application;
- questions about risk after seeing an application;
- among many others.

"Incidents" (**39% of PARC cases in the biennium**) are:

- reports of an exposure of people or animals to pesticides;
- pesticides released into the environment;
- pesticide drift; or
- spills/leaks from stored pesticides.

Main points from the FY 19-21 biennium for PARC

- Responded to 100% of reviewed cases within one business day.
- Organized 7 case coordination calls between PARC agencies.
- Created 10 outreach documents which included: advisories, fact sheets, and letters.
- Made 358 pesticide incident referrals to other state agencies or organizations.
- 56% of all incidents involved at least one herbicide.
- Herbicides made up 8 of the top 10 active ingredients involved in PARC cases (concerns + incidents).
- The most common location for a pesticide exposure was at a residence (combined indoor and outdoor exposures).

Of these incidents, **54% involved people, 17% involved animals, and 27% were related to the environment**. Pesticide spills composed the remaining 2% of cases. Case classification as "Incident" or "Concern" can change as additional information is received.

Community members often call PARC to request general pesticide information about human or animal health, pesticide application instructions, or for regulatory guidance. Community members may also call to express general concerns about pesticide use or have a complaint about a specific suspected pesticide application. These calls are not reflected in the overall case numbers for PARC.

This report summarizes PARC pesticide cases documented during the FY 19-21 biennium and highlights the responses by member agencies on selected incidents. Not all investigations that were opened during this biennium have been completed, but the figures and data in this report are current as of 2/24/2023.

About the Pesticide Analytical and Response Center

There are eight member state agencies that comprise PARC. Each agency selects a representative to sit on the PARC Board and function as the main contact for the PARC coordinator. The PARC coordinator is housed at the Oregon Department of Agriculture, and the eight member agencies are:

Oregon Department of Forestry

OSHA | Oregon OSHA
Department of Consumer and Business Services

Oregon Fish & Wildlife

State of Oregon Department of Environmental Quality

Oregon Department of Agriculture

Oregon Health Authority

Oregon State Fire Marshal — Prevention, Education, Investigation, Hazmat — Premier Public Safety Services

Poison Help 1-800-222-1222 | Oregon Poison Center

Several other organizations may provide expertise to the PARC board as consultants. In addition, there is a citizen representative from the state at large on the PARC governing board.

Oregon State University

npic National Pesticide Information Center

Oregon Department of Transportation

OHSU

Participants or expert contributors in incident investigations may include other government agencies that are not specifically mentioned in the PARC mandate. Examples include:

United States Environmental Protection Agency

U.S. Fish & Wildlife Service

WSDA

Metro

How Does PARC Work?

PARC is mandated by statute (ORS 634.550) to perform specific activities when pesticide-related incidents result in suspected health or environmental effects. PARC regularly engages in the following activities:

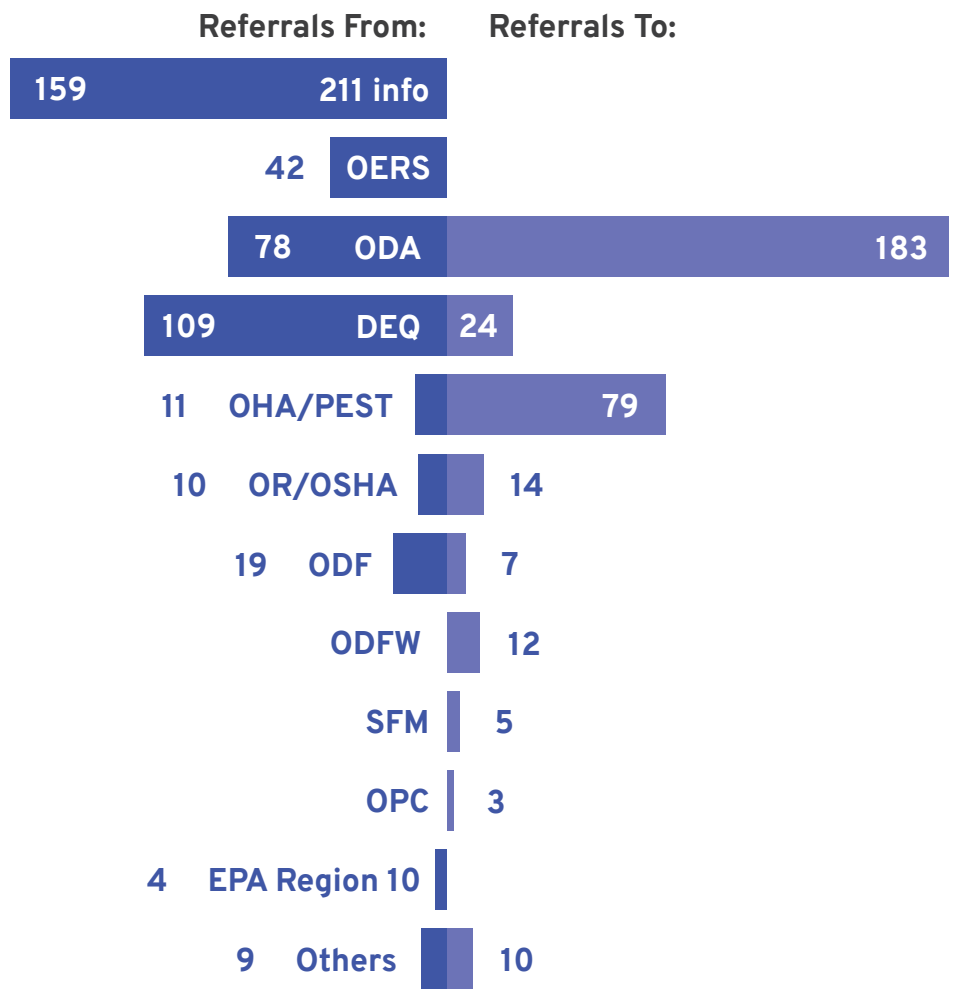
- Collect incident information
- Make referrals to other agencies, or call complainants for more information
- Mobilize expertise for investigations
- Setup coordination calls with agencies
- Report results of investigations
- Send testing results, product information, case updates to relevant agencies
- Analyze data
- Identify relevant trends and patterns
- Make recommendations for action, including regulatory and public education
    - such as outreach materials, propose changes to existing regulations, etc.
- Prepare activity reports for legislative session

What are pesticides?

Pesticides are "any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest." Some examples include:

- disinfectants
- moss control products
- insecticides
- mosquito repellents
- weed control products

Figure 1: Referrals Received and Made by PARC (FY 19-21)



Part of PARC's mandate is to receive and provide referrals to other Oregon agencies. Referrals are made to agencies depending on the situation, location, and entities involved. Figure 1 shows the referrals received and made by PARC during the July 1, 2019 – June 30, 2021 biennium.

What types of incidents occurred and what led to those incidents?

From July 1, 2019 - June 30, 2021, there were 174 PARC incidents in Oregon. Of these incidents, 54% involved people, 17% involved animals, and 27% were related to the environment (Figure 2). PARC incidents may involve more than one type of entity (people, animals, environment). Animals in PARC cases may include bees, pets, domesticated animals, and wildlife. Environmental entities could include rivers, lakes, gardens, ornamental plants, among others. Pesticide spills are recorded and tracked, but unless there are health/environmental concerns, it is rarely investigated or referred to other agencies. Individual agencies may still elect to investigate pesticide spills.

The most common types of pesticides involved in PARC incidents varied for people, animals, and the environment. Figure 3 shows the most common pesticides involved in PARC incidents.

Figure 2: Entities Involved in PARC Incidents (FY 19-21)

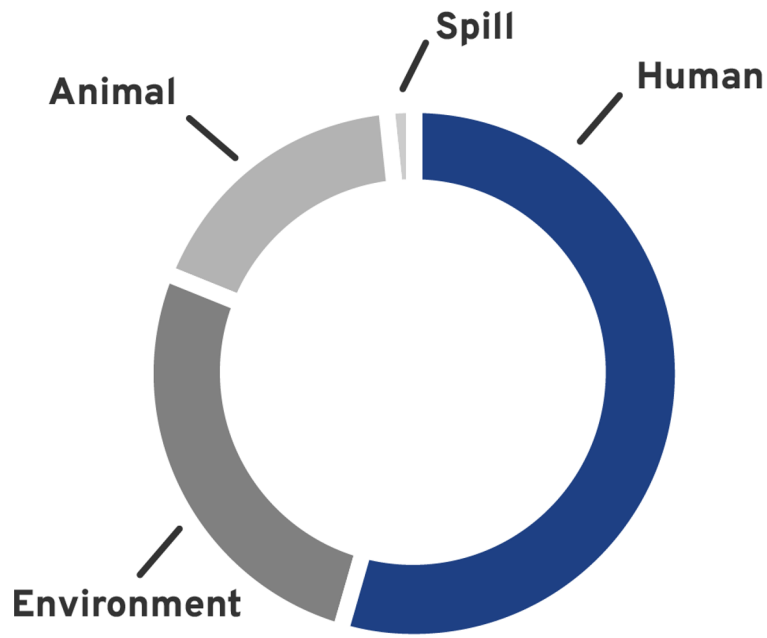


Figure 3: Types of Pesticides Involved in PARC Incidents (FY 19-21)

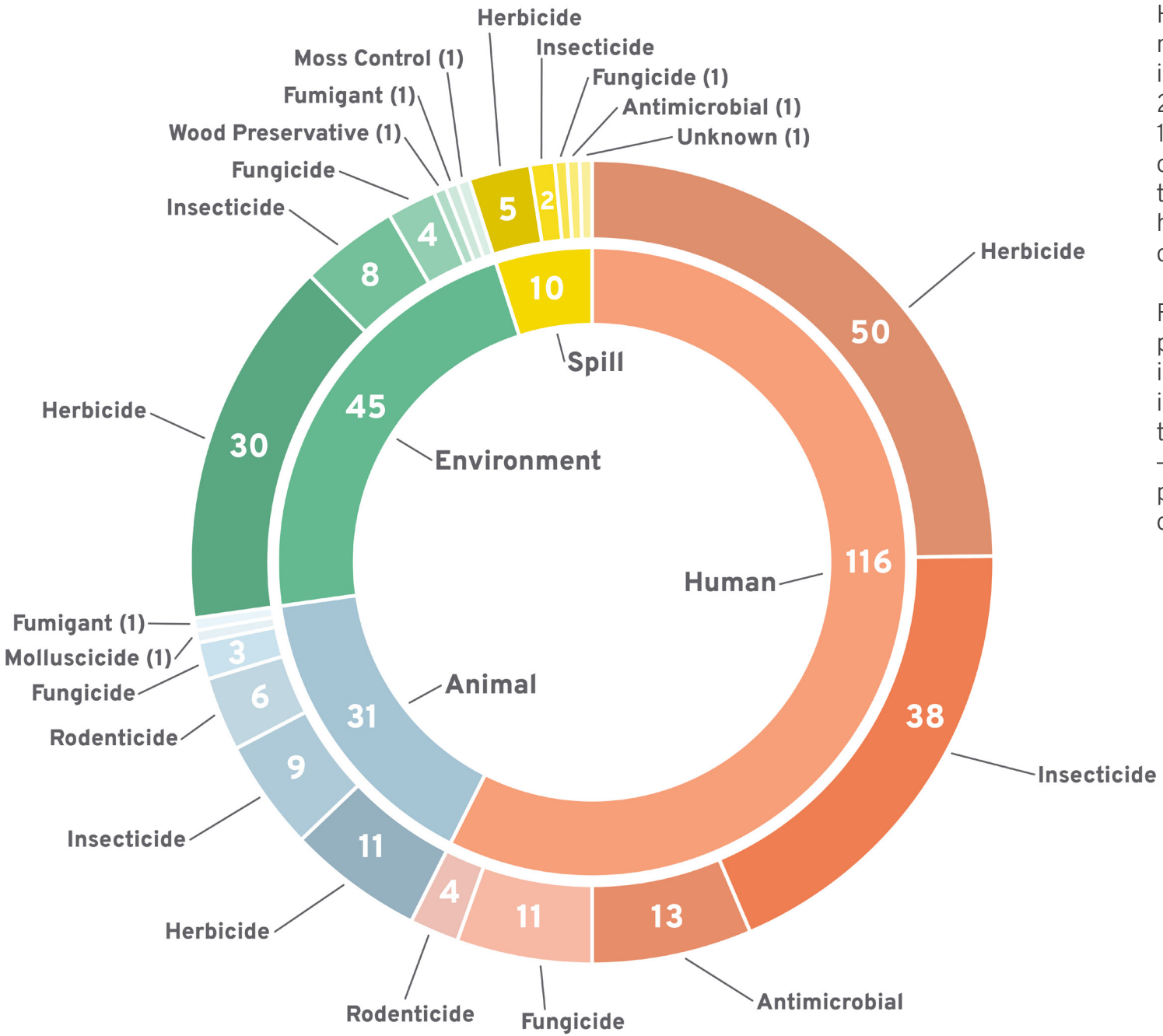
The main topics that Oregonians had questions or concerns about when contacting PARC were:

- **general pesticide information,**
- **Roundup (or glyphosate),**
- **bee deaths,**
- **applications at multi-unit housing complexes,**
- **water quality concerns,**
- **environmental impacts,**
- **drift from aerial applications.**

These topics were derived from PARC cases classified "concern," were informational in nature, and were not related to a specific incident. For example, a report of a bee death that was not tied to any specific pesticide application may be considered a concern with the cause of the death unknown.

What types of pesticides were most frequently involved?

Figure 4: PARC Incidents by Entity and the Type of Pesticide Involved (FY 19-21)



Herbicides and insecticides were the most common pesticide types involved in PARC-related incidents for the July 1, 2019 – June 30, 2021 biennium. Of the 174 incidents that occurred during this time, 56% of these incidents involved at least one herbicide, while 23% involved at least one insecticide.

Figure 4 provides a full breakdown of pesticide types and incidents. The inner circle shows the number of incidents involving humans, animals, the environment, and pesticide spills — the outer circle details the type of pesticides involved in each of the types of incidents from the inner circle.

Figure 5: Active Ingredients Most Commonly Involved in PARC Cases (FY 19-21)

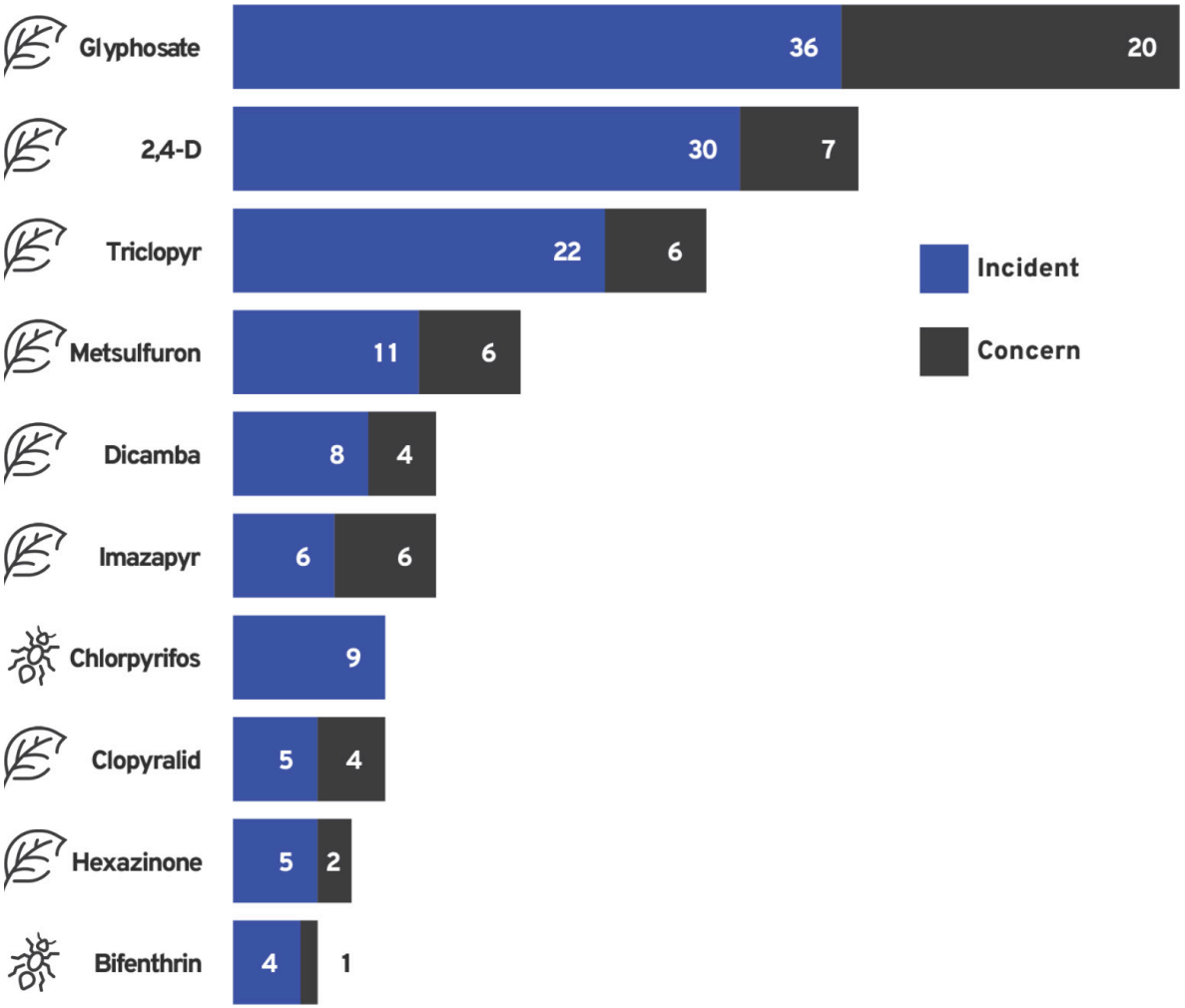


Figure 5 shows the most common active ingredients involved in PARC related cases and includes the number of times each active ingredient was involved in PARC-related pesticide incidents or concerns. When there were multiple versions of the same active ingredient, such as 2,4-D salts/esters, glyphosate acids, or monoammonium salts, they were combined. With any incident/concern, there could be multiple products or types of pesticides used or involved.

Note: The icon directly next to the active ingredient name corresponds to the class of pesticide it belongs to.

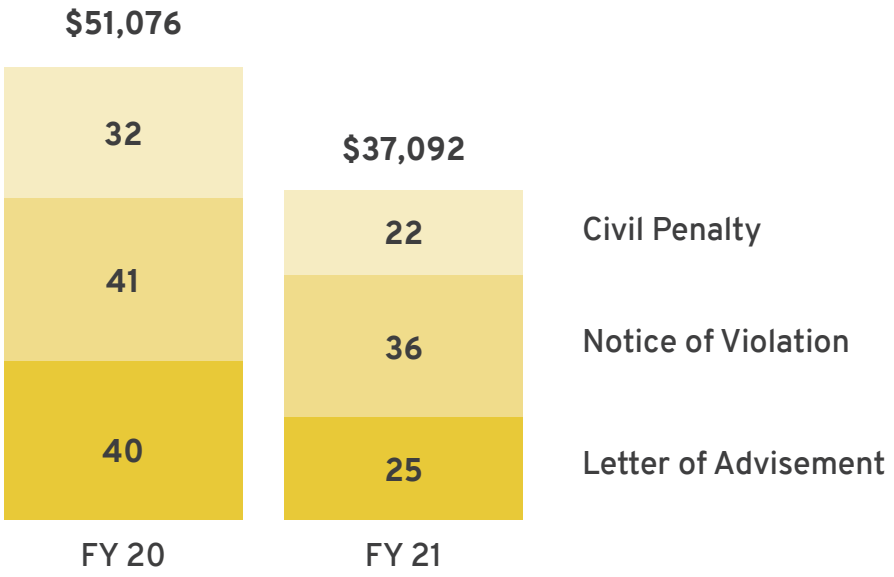
Restricted use pesticide (RUP) products are pesticides that may only be purchased and applied by a certified pesticide applicator or applied under the direct supervision of a certified applicator. From July 1, 2019 - June 30, 2021, PARC identified 11 RUP products involved in PARC incidents and a total of 24 cases involving at least one RUP. Lorsban Advanced (EPA Reg. No. 62791-591, active ingredient: chlorpyrifos) was the most common RUP involved in a PARC incident, with 9 occurrences. To protect human health and aquatic life, ODA increased restrictions on chlorpyrifos in 2020, and EPA imposed additional restriction on food and feed uses in 2022.

What is ODA doing about pesticide incidents in Oregon?

Following investigations into pesticide incidents during the July 1, 2019 – June 30, 2021 biennium, ODA issued 65 Letters of Advisement to licensed commercial or public applicators, operators, or to unlicensed resident applicators. These letters help provide corrective actions to incidents affecting human or animal health, or the environment. In some situations, ODA may issue Notices of Violation which may include an Imposition of Civil Penalties.

See Figure 6 for more information about enforcement actions taken by the agency, including fines (Civil Penalties) levied by the agency. Fines levied against applicators or companies go directly toward pesticide education materials and projects at ODA. PARC member agencies may also issue citations, depending on the situation. For PARC-related cases during the July 1, 2019 – June 30, 2021 biennium, Oregon OSHA issued ten citations and seven hazard letters, while Oregon DEQ issued two citations.

Figure 6: Enforcement Actions Taken by ODA on PARC cases



Of the 174 incidents that occurred during the July 1, 2019 – June 30, 2021 biennium, 51 of those cases (29.3%) involved sampling that provided data sufficient to make a regulatory decision. In only 22 (12.6%) cases, laboratory results did not support a regulatory decision. The remaining cases did not require sampling for the investigator to complete their case. The reasons sampling was not necessary may include: pesticide residue was not relevant to the situation; samples could not be taken; or there was no specific pesticide application; among other reasons.

In response to incidents, PARC created ten outreach documents, which included advisories, factsheets, and letters. These helped provide relevant information to the public and pesticide applicators, with the goal of preventing future incidents. In addition, PARC coordinated and set up seven coordination calls with PARC board agencies. These coordination calls help organize investigations into PARC-related cases, provide testing results, and ensure that the latest information is available for all agencies involved.

During the November 2021 PARC board meeting, the PARC board conducted an after-incident analysis of a large-scale case involving herbicide contaminated compost. This analysis is used to review the response of the agencies to find improvements in process and communication for future incidents. In addition, ODA collaborated with NPIC and DEQ to compose a factsheet about Herbicide Residues in Compost.

Where are these incidents occurring?

The most common location for pesticide exposures was at a place of residence. Single-family homes and multi-unit housing accounted for 59% of PARC-related pesticide incidents from July 1, 2019 – June 30, 2021. Public areas such as roads, trails, commercial area, and parks made up 23% of incidents in Oregon during the same period. See Figure 7 for more information about the locations involved in PARC incidents. For the incidents that occurred at a place of residence, the most frequent source of exposure came from a nearby agricultural site (41%).

Figure 7: Most Common Locations for Pesticide Exposures (FY19-21)

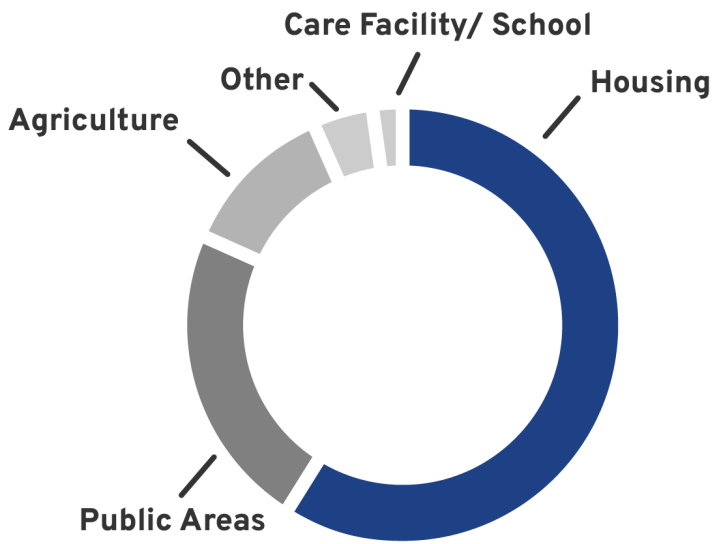
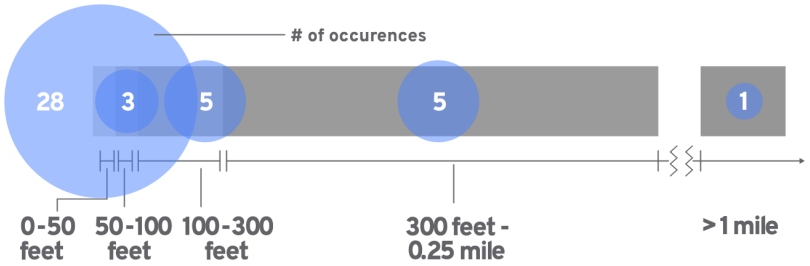


Table 1: Most Common Application Factors That Led to Incidents (FY19-21)

Misapplication	55
Drift	42
Licensing Issues	10
Repeat Offenders	10
Other	10
Accidents	4

Following a pesticide incident, PARC assigns contributing factors. These contributing factors are the elements that help describe the incident or are attributed to causing the situation. Contributing factors are broken into three categories: application factors, exposure factors, and other factors. A single incident can have multiple contributing factors in any, or all, of the three categories. During the biennium, the most common factors which contributed to an incident were the "application" factors, and the most common individual factor was the misapplication of a product, which occurred 55 times. See Table 1 to see the most common "application" factors associated with PARC incidents.

Figure 8: Entity Distance from Application at Time of Exposure (FY 19-21)



Entities (people, animals, environment) were most likely to be located close to the pesticide treatment. The most common distance that an entity was from the application site was 50 feet or less. Figure 8 shows the distances (when known) from pesticide applications at the time of exposure.

Specific Case Studies

Below are four examples of PARC multi-agency investigations involving a pesticide incident. The first case came from an adult in custody with claims of adverse health effects after making multiple herbicide applications; another was related to the unintentional aerial release of a rodenticide over property which resulted in livestock mortality; the third involves herbicide contaminated compost which damaged home gardens; and the fourth relates to the deliberate poisoning of gray wolves.

PARC Case # 20-0064 / ODA Case # 200114

What happened?

A male adult in custody (AIC) at the Oregon State Correctional Institute reported several pesticide-related concerns to ODA. While housed at the facility, he used several herbicides, including:

- Roundup (EPA # 524-529, active ingredient: glyphosate)
- Trimek (EPA # 2217-543, active ingredients: 2,4-D, dicamba, mecoprop)
- Casaron 4G (EPA # 400-168, active ingredient: dichlobenil)
- Diuron 4L (EPA # 66222-54, active ingredient: diuron)

He used the products to kill weeds at onsite vegetable gardens, greenhouses, and landscaping sites. After approximately ten applications to the various sites, he made claims of adverse health effects, including a worsening of irritable bowel syndrome symptoms. He also claimed that he was not provided proper training or protective equipment before the applications. The correctional institute asserted that protective equipment was provided to the AIC.

Why are the sites of application important?

People who receive "any type of compensation" from an agricultural establishment are covered under the Worker Protection Standard (WPS). WPS provides workers at agricultural establishments (farms, nurseries, greenhouses, forestry) with protection from pesticide poisoning and injuries. It also ensures that workers have access to protective equipment, emergency medical supplies, safety training, and information about pesticides used on-site. Because AICs do not receive a traditional type of pay for their work, it was initially unknown whether the WPS applied to AICs using pesticides within the facility.

What was done by the involved agencies?
In the state of Oregon, Oregon OSHA administers the WPS at the state level. Generally, their WPS mirror those of the federal WPS. However, OR-OSHA operates based on the state's workers' compensation law which "does not include any person whose services are performed as an inmate or ward of a state institution" (ORS656.005(30)). However, the guards who work in these areas are covered by WPS, as they do meet the state requirements.

ODA consulted with the EPA to determine if AICs are covered by the federal WPS. The EPA determined that AICs are covered by the WPS when making applications to garden areas, greenhouses, and orchards. This was due to AICs receiving "Performance Recognition and Award System (PRAS) points" in exchange for working in an agricultural establishment, which can be used to purchase goods.

PARC Case # 20-0095 / ODA Case # 200194

What happened?
A resident of Milton-Freewater called the ODA on November 8, 2019 to make a complaint about an aerial applicator who released pellets over her property and other properties in her area. The concerned citizen felt the pellets fall on her and her property and she wanted to report the situation. One of her chickens died following the incident. A neighbor south of her had seven chickens and two turkeys die shortly after the release (spill). Another neighbor to the east had seven of his chickens die. Two other witnesses made claims of adverse health effects to a total of three dogs. There were two other claims of adverse health effects to people in the area.

What was done by the involved agencies?
ODA investigated the situation and spoke with the four complainants. Environmental and tissue samples were collected and analyzed for the active ingredient/metabolite. Samples collected from each of the properties found the presence of zinc phosphide in the pellets. Phosphine gas (16 ppm) was detected in a gastro-intestinal sample collected from one of the deceased chickens. It was determined that the aerial applicator was carrying the rodenticide, ZP Ag Pellets (EPA Reg # 12455-17-3240, active ingredient: zinc phosphide), and the helicopter's intended site was 811 acres of apple orchards northwest of Milton-Freewater.

ODA's Citizen Advocate drafted four letters to be posted on the Current Issues, Newsletters and Advisories section of PARC's website for more information about the situation.

Regulatory actions:
ODA found that that the Operator and Applicator violated ORS 634.372(4) for allowing the product to move from the treatment site. Based on the enforcement matrix in statute, a civil penalty of $814 was imposed on both the Certified Pesticide Operator and the Pilot/Applicator.

PARC Case # 20-0181 / ODA Case # 200405

What happened?
ODA received complaints from hundreds of individuals around the Portland area relating to damages to vegetable gardens and ornamental plants following the use of soil and compost from a local company. Citizens on a local Facebook gardening group shared information about the situation with each other. These citizens noted they were finding damage to garden plants including potatoes, blueberries, apples, strawberries, tomatoes, peas, and squash. Each person who noted damage to their plants had received a delivery from a landscaping business.

Compost is often a mixture of several types of organic matter such as: leaves, straw, and manure, which has been encouraged to decay and breakdown. Finished compost is used to enrich garden soil.

The compost delivered to the home gardeners was one of four products that came from one supplier. These products were often mixes of products from other vendors. The vendors provided straw, chicken and cattle manure, and mushroom compost for use in the products in question. ODA worked with compost vendors to identify the sources of clopyralid contamination as two compost suppliers and one manure supplier.

The plants showed characteristic symptoms and damage throughout each case and indicated the presence of an herbicide in the soil/compost. ODA selected four herbicides to screen for residues: aminopyralid, clopyralid, aminocyclopyrachlor, and picloram. These four herbicides were selected due to their potential to remain active in composted soils throughout the composting process. Following testing, only clopyralid was found above detection limits.

What was done by the involved agencies?

- 24 soil/compost or vegetation samples were collected for analytical testing.
- ODA's Citizen Advocate sent out five informational letters to interested parties providing updates about the case.
- Seven conference calls were held to share sampling results and case details.
- An after-incident analysis was conducted after the case was closed to review and find improvements in each agency's response.
- ODA coordinated with the National Pesticide Information Center to create a fact sheet about clopyralid and soils.
- ODA, DEQ, and Portland Metro coordinated on outreach and education efforts.

Regulatory actions:
Clopyralid residue was found in samples of residential soil and compost. The residue was at a high enough level to cause damage to several plant species. Despite this, clopyralid residues were below established Environmental Protection Agency tolerance levels. Therefore, there was not a public health concern, despite several highly sensitive plant species exhibiting damage. The involved agencies were unable to definitively show a violation of ORS Chapter 634.

Important Takeaways/Improvements:

- ODA and WSDA submitted joint comments to EPA for the clopyralid Proposed Interim Registration Review Decision, Case number 7212.

- Outreach efforts will continue in educating users about the appropriate use of the active ingredient, including restrictions. In addition, education will continue about the disposal of crop residues from crops treated with clopyralid; and manure from animals grazing on clopyralid treated areas or consuming clopyralid treated harvested crops.

- DEQ and Portland metro will continue to provide outreach and education to composters. ODA is currently working with OSU to develop education materials.

PARC Case # 21-0114 / ODA Case # 210346

What happened?
OSP contacted ODA about the registration status of aldicarb, a highly toxic insecticide, first registered with the US EPA in 1970. The inquiring officer spoke with an ODA Registration and Certification Specialist about a case where poisoning was suspected. The officer noted that six wolves, a magpie, and a racoon had been found dead in Union County. After a necropsy, residue of aldicarb, aluminum phosphide, and zinc phosphide were found in the animals. It was determined by then ODA Lead Pesticide Investigator, that it would be unlikely that each of the active ingredients would be used together during an application and may have been an intentional poisoning.

The active ingredient was used as a bait application with a food source (not a labeled use pattern), but the identity of the person or persons who poisoned the animals remains unknown. OSP has requested help from the public for more information about the situation. Conservation groups have offered a reward for information leading to an arrest of those responsible.

Oregon Public Broadcast article: **https://oda.fyi/WolfPoisonings**

What was done by the involved agencies?
An ODA Pesticide Investigator contacted 224 of 239 statewide dealers. The remaining dealers were unable to be contacted through multiple means of communication. None of the contacted dealers had had any sales of the active ingredient. Contact and communication were made with the Idaho State Department of Agriculture Pesticide Program, as the situation occurred near the state border.

Conclusion

To fulfill its statutory activities, PARC spoke with Oregon residents, made referrals to other agencies to initiate investigations, and coordinated/facilitated communication between state agencies. In addition, PARC helped to develop outreach materials to provide information to the public. This combination of activities ensured that when incidents involving pesticides occur, the correct agencies were aware of the situation and could respond accordingly. In addition, conversations with the public and outreach materials help limit incidents in the future and empower the public to make informed decisions.

Coordination

- During the FY 19-21 biennium, PARC made 358 referrals to other state agencies or organizations on pesticide-related incidents involving adverse effects to the environment or human and animal health.
- PARC initiated 7 conference calls to share case details and sampling results, coordinate investigations, or suggest further steps for involved agencies.
- Coordinated with WSDA to respond to Clopyralid Proposed Interim Registration Review Decision Case Number 7212 (Document ID EPA-HQ-OPP-2014-0167-0046).

Outreach Materials

- Advisory: clopyralid in compost/manure
- 5 public information letters about clopyralid in compost
- ODA worked with NPIC and DEQ to develop a fact sheet about clopyralid in compost
- 4 public information letters about the aerial use of zinc phosphide

Customer Service

- Starting in 2021, ODA's Natural Resources Program Area (NRPA) implemented a process improvement strategy for improving customer service. During the first two quarters of 2021, PARC responded to 100% of reviewed cases within one business day.
- The PARC board conducted an after-incident analysis of the clopyralid contaminated compost case to review the response of involved agencies and implemented improvements.

OREGON DEPARTMENT OF AGRICULTURE