

npic

NATIONAL
PESTICIDE ● INFORMATION
CENTER

-2017-

Environmental & Molecular Toxicology



Oregon State
University

The National Pesticide Information Center (NPIC) is a service that provides a variety of pesticide and related information to the general public and professionals across the United States and its territories. NPIC is a cooperative agreement between Oregon State University and the US Environmental Protection Agency. The 2017 Annual Report covers the period of February 15, 2017 - February 14, 2018.

DISCLAIMER

Material presented in this report is based on information as provided to NPIC by individuals who have contacted NPIC for information or to report a pesticide incident. None of the information reported to NPIC has been verified or substantiated by independent investigation by NPIC staff, laboratory analysis, or any other means. Based on the information provided, NPIC qualifies the information by assigning a certainty index (CI) and a severity index (SI). NPIC makes no claims or guarantees as to the accuracy of the CI, SI, or other information presented in its reports, other than that NPIC has done its best to accurately document and report the information provided to NPIC.

A note from the Director



After more than two decades as an NPIC@OSU founding principle investigator, and Director for the last two years, I am genuinely heartened by how far we have come in serving our audience. This annual report describes a very ambitious year at NPIC, to the credit of a staff that have reached an unparalleled level of professionalism, while constantly striving to be greater. Collaborating

with our federal partner, NPIC's mission is the delivery of objective, science-based information about a variety of pesticide-related issues to the public and professionals, with a goal of promoting informed decision making. We are singularly focused on sustaining our status as an accessible and trusted resource. With this report we direct our energy to the final year of the current grant cycle. I look forward to providing a workplace conducive to building on our success, and continued development of new and innovative ways to assist the public in making informed decisions that are protective of human health and the environment.

Submitted To:

US Environmental Protection Agency
Office of Pesticide Programs

Submitted By:

A handwritten signature in black ink, appearing to read "Jeff Jenkins". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Jeff Jenkins, Ph.D.
Project Director

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NPIC 2017 Annual Report

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New NPIC Publications

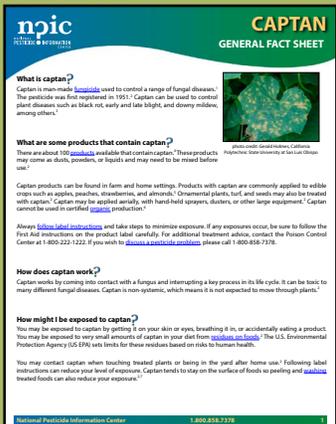


NPIC developed:

- 4 new fact sheets
- 19 new web pages
- 2 FAQs: How can I protect my pets when using pesticides around them? (English & Spanish)
- 4 FAQ Comics



- NPIC developed 8 videos this year including 3 webinars.
- NPIC's video about roaches in Spanish was one of the most popular, with 21,600 views in 2017.



Collaborations and Outreach

NPIC fostered meaningful collaborations through projects with the National Poisoning Prevention Council, the TPPC Bed Bug Workgroup, the Oregon Department of Agriculture, and ongoing partnerships with the American Association of Poison Control Centers (AAPCC) and Oregon Health & Science University (OHSU).

These images accompanied NPIC and AAPCC's annual educational piece for 2017, the **Daycare & School Poison Safety webpage**.

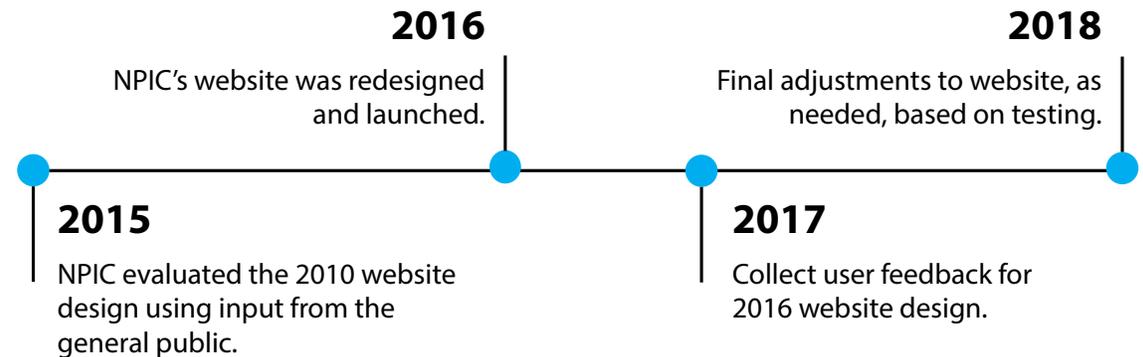


NPIC spoke to attendees about pesticide risk and IPM at the International Master Gardener Conference in Portland, OR. NPIC will present an upcoming webinar to Master Gardeners, titled:

People, Pesticides, and Pollinators: Tricky Questions About Pesticides for Master Gardeners

Website Usability Testing

As part of a multi-year project, NPIC conducted user testing to gauge the navigability and clarity of its website. Users were able to complete tasks on-time and all participants stated the website seemed trustworthy.



What are people saying about the NPIC website?

"The website provides a "wealth of information" and is a "valuable resource."

One user noted his favorite part of the website is that it's "geared towards safe pesticide use and keeping your pets, family and other species safe."

Participants felt that the fact sheets were a great resource where common questions were "directly addressed" with useful answers.



INTRODUCTION / DELIVERING OBJECTIVES

NPIC provides objective, science-based information about pesticides and related topics to enable people to make informed decisions about pesticides and their use. In this, the fourth year of the project period under cooperative agreement #X8-83560101, Oregon State University provided information to millions of people by phone, email, social media, data-sharing, mobile web apps, and/or web content.

NPIC supports the US Environmental Protection Agency (US EPA)'s Strategic Goal 4: Ensuring the Safety of Chemicals and Preventing Pollution. NPIC also supports the mission of the Oregon State University (OSU) Extension System, conveying research-based knowledge in a way that is useful for people to improve their lives, their homes, and their communities.

The complete record of NPIC accomplishments for the operational year includes this annual report, four quarterly reports, and a quality assurance report. Quarterly and supplemental reports were submitted to the Project Officer within 30 days of the reporting period's closure.

The 12-month reporting period began on February 15, 2017, and ended February 14, 2018.
This period will be referenced as "2017" in this report.

The cooperative agreement between Oregon State University and the US EPA includes five strategic project objectives. Those objectives are listed below with a summary of measures taken to meet or exceed the goals in our work-plan.

1. To serve as a factual source of information for diverse professional and public audiences on pesticide-related issues.

- In conversations with the public and professionals, NPIC discussed ways to minimize exposure 2,801 times, following the label 2,623 times, IPM concepts 845 times, and environmental protection 187 times.
- NPIC posted new items in social media venues promoting safe use practices, IPM, and pesticide label comprehension. NPIC developed 194 unique posts, averaging four posts per week. NPIC engaged with many organizations through social media. Some examples include poison control centers, state pesticide regulatory agencies, state pesticide safety education programs, Cooperative Extension offices, the Entomological Society of America, the Soil Science Society of America, the National Pest Management Association, and the Association of Farmworker Opportunity Programs. See page 16.
- In order to stay current, NPIC staff members participated in 46 events for continuing education, including 22 webinars, nine off-campus events, nine on-campus events, and six in-house presentations.
- NPIC performed chemical-specific literature searches in order to open 16 new active ingredient files and update nine more. Additionally, NPIC added more than 615 new documents to the AI file collection through routine monitoring of the regulatory and scientific literature. On average, NPIC staff invested more than 10 hours per week monitoring Federal Register Notices, affiliated dockets, newsletters, and selected journals of relevance.
- NPIC maintains current contact lists for many organizations in order to provide the best local referrals. NPIC staff performed quality assurance to verify/update more than 1,600 contacts this year, including state extension, state health agencies, state environmental agencies, master gardener contacts, WPS state contacts, and household and hazardous waste. In preparation for a 2018 spring bulk mail-out, NPIC also updated more than 1,000 mosquito/vector control contacts. NPIC maintains **nationwide contact lists** for the following:
 - State Pesticide Regulatory Agencies
 - State Environmental Agencies
 - County Extension Offices
 - State Health Departments
 - Mosquito/Vector Control Districts
 - Regional EPA Contacts
 - Master Gardener Coordinators
 - Contacts for Information about the Worker Protection Standard in Agriculture and Forestry
 - Household and Hazardous Waste
 - Soil and Water Conservation Districts

DELIVERING OBJECTIVES

2. To operate a toll-free, bilingual telephone information service for all callers in the United States and its territories, Monday through Friday at least 4 hours per day, with accessibility to voicemail during closed hours, and ability to address inquiries through email and social media.

- NPIC operated a toll-free telephone service, including voicemail for off-hour inquiries. The toll-free service was operated Monday through Friday, 8:00-12:00 PT, with bilingual capability maintained throughout.
- NPIC responded immediately to 95% of calls received during open hours. Occasionally, a caller in the queue chose to leave a message.
- NPIC responded to 95% of inquiries within one business day when they were received through voicemail, email, and/or social media.
- NPIC recruited and hired three highly qualified Pesticide Specialists this year. Their backgrounds include Biology, Anthropology, Journalism, Environmental Science, Toxicology, Geoscience, and Soil Science. They participated in a rigorous, updated training program this year, emphasizing risk communication and pesticide regulation/science.

3. To develop and maintain English and Spanish websites accessible to broad audiences and host NPIC original content, state-of-the-art information technology tools and links to unbiased and authoritative sources of information about pesticides.

- NPIC maintained frequent communication with OPP about proposed projects and priorities for publication development. Examples include:
 - NPIC's site visit to OPP on March 9, 2017
 - Three quarterly coordination meetings (QCM) with OPP staff
 - Communication and prioritization of materials related to Integrated Vector Management (IVM) and nationwide outreach to state and vector control offices that highlight NPIC's services and encourage offices to request relevant printed materials.
 - Two **webinars** developed and delivered in collaboration with OPP titled, "More Mosquito Control, More Questions: Communicating with the Public About Pesticides and Risk" and "Using NPIC's Ecological Pesticide Incident Reporting Portal."
 - NPIC also communicated with OPP about upcoming materials related to disinfectant wipes, as well as school and daycare poison prevention tips.
- NPIC created or significantly updated 23 web pages this year. See page 14. Some examples include:
 - **Zika Virus**
 - **Stinging Insects**
 - **Japanese Beetles**
 - **Clothes Moths**
 - **Pesticide Neighbor Notification**
 - **Data Requirements for Pesticide Registration**
 - **Legacy Pesticides**
 - **Preharvest Interval**
- Quarterly, NPIC identified 100% of broken links on its website and removed or replaced each one (200). NPIC added 56 new links to its website when high-quality science and regulatory items were identified. Three existing web pages were significantly updated with new content, including "**Treated Wood and Wood Preservatives**", "**Home and Garden Use of Treated Wood**", and "**Moisture Control and Mold**."
- NPIC developed five new videos this year. NPIC's most popular videos are "Mothballs - How do they work?" in English and Spanish and "Why do I have cockroaches in my home?" in Spanish. See page 15.
 - "How can I remove pesticides from fruits and vegetables?" (**English** and **Spanish**)
 - "Slug & Snail Bait: Can it hurt my pets?" (**English** and **Spanish**)
 - "Should I use food grade diatomaceous earth (DE) to kill bugs?" (**Spanish**).
- NPIC developed four new fact sheets. See page 15.
 - "**Captan**"
 - "**Naled**"
 - "**Sulfur**"
 - "**Pesticide Binding Affinity**" (topic fact sheet)

DELIVERING OBJECTIVES

3. To develop and maintain English and Spanish websites accessible to broad audiences and host NPIC original content, state-of-the-art information technology tools and links to unbiased and authoritative sources of information about pesticides (cont'd).

- NPIC developed two new FAQs, four new FAQ comics, and one new infographic this year. See pages 16-18.
 - “How can I protect my pets when using pesticides around them?” (FAQ in [English](#) and [Spanish](#))
 - “Are bug sprays okay for my kids?” (FAQ comic in [English](#) and [Spanish](#))
 - “Are spot-on flea & tick products okay for my pets?” (FAQ comic in [English](#) and [Spanish](#))
 - “Using Disinfecting Wipes at Home & School” ([Infographic](#))
- As part of a multi-year project, NPIC conducted in-person user testing to gauge the navigability and clarity of its website after updates were made in 2016. A final report was produced to incorporate user feedback in the future.

4. To collect robust pesticide incident data through systematic protocols and to disseminate the information through scheduled reporting and by request from the US EPA and partner agencies.

- NPIC updated and executed a rigorous training program for three new Pesticide Specialists, emphasizing risk communication skills and the collection of essential data related to pesticide incidents.
- NPIC used standard operating procedures and rigorous quality control to classify reported signs/symptoms. NPIC assigned a severity index 100% of the time when signs/symptoms were described (1,776 times). NPIC assigned a certainty index 100% of the time when signs/symptoms were described, and they could be compared to published reports about the active ingredient(s) involved (727 times).
- NPIC discussed inquiry trends/data with OPP at least quarterly, and sent noteworthy cases to the Project Officer, including a case involving the potential dumping of 500 gallons of Termidor (fipronil). Examples of trends/data include an increase in summer drift incidents reported to NPIC, an increase in calls related to pesticide neighbor notification, and a decrease in inquiries possibly coinciding with major hurricanes in the southern US. NPIC also provided reports of all bee inquiries, as well as those related to flea and tick spot-on products.
- NPIC monitored data quality and held routine staff development exercises to ensure high standards were met. Every pesticide incident was reviewed by a QA/QC specialist to ensure coding consistency and compliance with applicable protocols. The QA/QC specialist collaborated with Dr. Berman to evaluate human and animal incidents.
- Each specialist received feedback about their strengths/weaknesses in documenting inquiries. Their performance was scored on 25 measures, such as narrative quality, judgment in characterizing symptoms, and coding accuracy.
- NPIC documented demographic information for 99.6% of people that may have been exposed to pesticides, product information for 93.5% of reported incidents, and the location for 96.6% of incidents.
- NPIC specialists were able to capture the exposure route for 87% of exposed humans/animals, and symptom/ scenario information in 93% of cases.
- NPIC provided 16 special reports about incidents and inquiries upon request, including 14 reports for EPA, and two reports for other state agencies and/or universities. Reports were provided within 10 business days. Examples:
 - Atrazine, simazine, and propazine incidents 2012 to 2016 — US EPA
 - Bee incidents in Oregon, Washington, and California 2012 to 2016 — Oregon State University Extension
 - Inquiries for six minimum risk (25b) active ingredients and 25(b) insect repellents 2012 to 2016 — US EPA
 - Inquiries related to difficulty reading pesticide labels 2012 to 2016 — EPA Region 10
 - Incidents related to pesticide container defects 2012 to 2016 — EPA Region 10
 - Paraquat incidents for humans 2008 to 2017 — US EPA
- Quarterly reports were submitted within 30 days of each quarter’s closure, accompanied by all NPIC reports received through its veterinary and ecological reporting portals.
- NPIC delivered three webinars. The webinars were recorded and posted to the website.
 - “More Mosquito Control, More Questions: Communicating with the Public About Pesticides and Risk”
 - “Using NPIC’s Ecological Pesticide Incident Reporting Portal”
 - “Glyphosate and Communicating Risk”

5. To conduct our service professionally, with an emphasis on teamwork, integrity and accountability, and a strong commitment to collaboration and exceptional customer service.

- NPIC evaluated each staff member in the fall, including quantified measures of data collection skills, customer service skills, and continuing education measures.
- Key personnel visited OPP on March 9, 2017. Subawards with OHSU and AAPCC were monitored at least quarterly.
- NPIC conducted in-person user testing to gauge the navigability and clarity of its website, including a final report.

Trends in NPIC Data

- During this period, NPIC received 10,626 inquiries.
- About 75% of the total inquiries were addressed over the telephone.
- About 16% of NPIC inquiries in 2017 were incidents. A pesticide incident is defined as: 1) any unintended pesticide exposure, 2) a pesticide exposure with an adverse effect, 3) a spill, and/or 4) a misapplication.
- No human deaths and 49 animal deaths were reported to NPIC. See pages 36 and 38.
- The top active ingredients involved with incidents were naphthalene (320), permethrin (148), bifenthrin (132), paradichlorobenzene (124), and boric acid (94). See page 31.
- There were 2,848 entities involved in incidents reported to NPIC: 49.8% were human, 17.5% were animals and 32.4% were structural or environmental. See page 37.
- Among the 974 single humans involved in pesticide incidents for which the age was captured, 9.8% were children (ages 4 and under) and 25.2% were seniors (ages 65 and over). About 37% of all people reported no symptoms.
- Questions related to health/risk (3,817) and pest control (1,523) were most common.
- The NPIC website received 6,409,531 page views during this period. There were more than 3.1 million unique visitors, and 154,413 visitors stayed for more than 15 minutes.

Foreign Language Capabilities

NPIC employs two Spanish-speaking Pesticide Specialists capable of responding to inquiries and translating publications. The NPIC website is also available in Spanish. Under an agreement with LanguageLine Solutions, NPIC is capable of responding to inquiries in more than 240 languages. Translation services are provided immediately during calls, at no cost to NPIC customers, and language identification is available through this service.

NPIC responded to 174 inquiries in Spanish, three in Mandarin, one in American Sign Language, one in French, one in Arabic, and one in Vietnamese.

Noteworthy Inquiries

Mothball Products – NPIC received 812 inquiries about mothballs, flakes, and bars. Of these, 51 (56%) were incidents. Many reports involved off-label use of mothballs to repel animals in and around the home.

Bed Bugs – NPIC received 509 inquiries related to bed bugs this year. About 11% of these (58) were pesticide incidents. Many of these inquiries were related to the difficulty of pest control and the potential health effects of pesticides.

Bees - NPIC received 191 questions about bees or reports of bee deaths. The majority of bee calls were informational only (89%). NPIC Specialists have experience discussing pollinator protection, including ways to prevent pesticide exposure for beneficial insects and how to compare pesticide products for bee toxicity. NPIC immediately notifies the EPA Project Officer when bee deaths are reported.

Zika - NPIC received 25 inquiries where callers discussed the Zika virus specifically. All inquiries related to Zika were informational in nature and were often related to insect repellent use and safety.

What are people saying about NPIC?

"They're very understanding, helpful, and sympathetic."

"My conversation with you affirms your extreme competence, thank you for the information and its extensiveness."

The website provides a "wealth of information" and is a "valuable resource."

-NPIC callers and web users

Resources & Facilities

NPIC maintains an extensive collection of hard copy and electronic information. NPIC specialists have access to the full resources of OSU's Valley Library, which includes electronic access to hundreds of academic journals, databases, and indexing services. NPIC's library includes a comprehensive Active Ingredient (AI) file collection with detailed scientific and regulatory information for more than 1,100 active ingredients. This collection has been scanned/saved and indexed for desktop access, using software developed by NPIC.

NPIC is housed on the third floor of Weniger Hall in the Department of Environmental and Molecular Toxicology at Oregon State University. Allocated spaces include six rooms, six individual offices, and a storage unit.

Funding & Compliance

Funding for NPIC is provided by the US Environmental Protection Agency (US EPA) and Oregon State University.

Throughout the reporting period, NPIC has complied with the requirements of the US EPA regarding Title VI of the Civil Rights Act of 1964 and Section 13 of the FWPCA Amendments of 1972. NPIC has complied with the US EPA Guidelines regarding procurement requirements stipulated in 40 CFR Part 33. NPIC has complied with all requirements specified by the US EPA as part of the funding authorization of this project.

Personnel Update

The NPIC Executive Committee includes the director, Dr. Jeff Jenkins, as well as three co-investigators: Kaci Buhl, MS; Dr. Fred Berman; and Dr. Craig Marcus. Dr. Jenkins, Ms. Buhl, and Dr. Marcus hold faculty appointments at OSU, while Dr. Berman, DVM, serves NPIC through a subaward with the Oregon Health & Science University.

Three Pesticide Specialists were hired this year, and four were retained. As of February 14, 2017, NPIC staff included seven Pesticide Specialists, three supporting staff members, and the Executive Committee.

Standard Operating Procedures

NPIC staff use a variety of standard operating procedures (SOPs) and policies to guide their work and some decision making. This year, two new SOPs were created and nine were updated. In addition, two policies were updated instructing staff about scheduling, personnel matters, and copyright uses.

Environmental & Molecular Toxicology

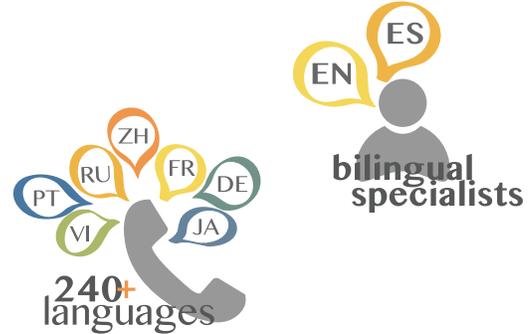


Oregon State
University

ABOUT US

Who is NPIC?

NPIC is a team of well-trained, approachable scientists and talented support staff. We have the knowledge and skill needed to effectively communicate scientific information to anyone who contacts us. If we can't directly answer the question, we'll try to figure out who most likely can.



10,600+
pesticide conversations
this year

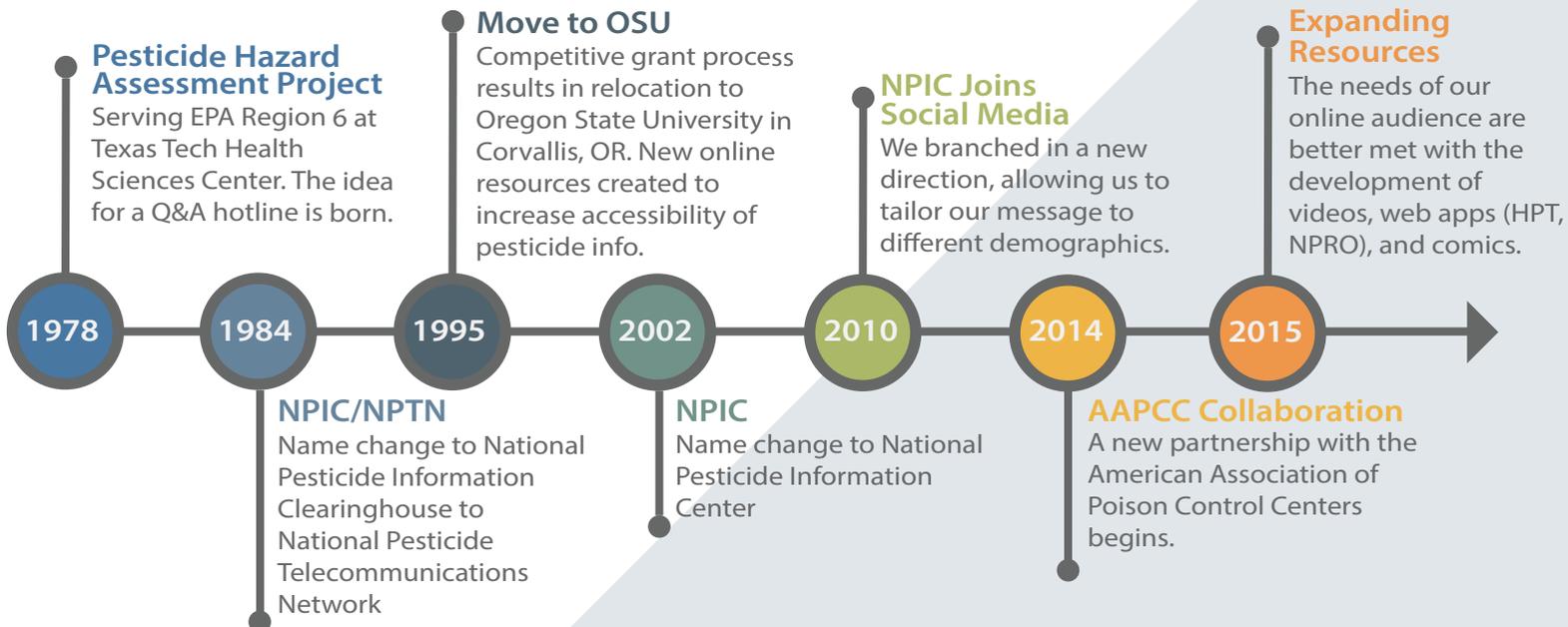
including: **174** Spanish, **3** Mandarin, and **1** each in American Sign Language, French, Arabic, and Vietnamese

millions
people served since **1995**

Our number one goal is to provide objective, science-based information about pesticides and related topics to enable people to make informed decisions about pesticides and their use.

We reliably create accessible, up-to-date, factual materials to communicate complex pesticide information to both the public and professionals.

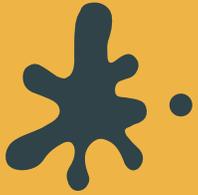
NPIC: A History



HIGHLIGHTS & TRENDS



What did people ask us in 2017?



FLOODING/MOLD

During the past year, multiple natural disasters hit the US, from flooding and hurricanes in southern states to the devastation in Puerto Rico. NPIC responded by updating relevant disaster and pest prevention resources.

2017

NEIGHBOR NOTIFICATIONS

Questions about upcoming pesticide treatments aren't new to NPIC. However, this year we noticed a significant increase in the amount of questions over last year.

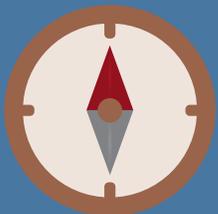


BED BUGS

We had 509 conversations related to bed bugs this year, including 58 reported pesticide incidents. We've added tabs on pest pages to improve navigability.

MOTHBALLS

Mothballs continue to be one of our most popular topics. Questions to NPIC range from "is the odor harmful?" to "is it legal to spread them across the property?"



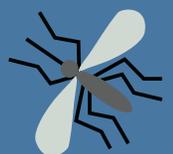
FUTURE DIRECTIONS

We keep up with these trends by constantly monitoring the news and questions from the public. We respond by creating informative fact sheets, videos, webpages, and more.

ZIKA/NALED

Last year, mosquito related questions were all over the news, but we noticed quite a drop in the number of questions related to Zika, mosquitoes, and treatments in 2017.

98 questions about Zika in 2016, compared to 25 this year



COLLABORATIONS | OUTREACH

NPIC teams up with national, state, and local groups to increase awareness about pesticide health and safety across the nation. This year, NPIC also attended the Oregon Small Farms and International Master Gardener conferences to answer questions from pest management educators and pesticide users.

Selected NPIC Collaborations

TPPC Tribal Pesticide Program
Council's Bed Bug Workgroup
Bed Bug Core Package

ODA Oregon Department of
Agriculture
**Oregon IPM in Schools:
A Checklist for Commercial
Applicators**

AAPCC American Association of
Poison Control Centers
**Daycare and School
Poison Safety webpage**

American Association of Poison Control Centers

Starting in 2014, NPIC partnered with AAPCC to raise awareness about pesticide poisoning. Together, we create annual outreach materials and use social media to increase the public's awareness of pesticide risks.

"Disinfectants in Schools"
2015 infographic

"Read the Label"
2016 infographic

Back-to-School
2017 poison prevention
webpage

NPIC Presentations

NPIC has **over 20 years** of experience engaging the public in science-based conversations. We're excited to share our pesticide and science communication expertise at public and professional events.



9 Speaking events in 2017

Professional Webinar

How to submit ecological pesticide incidents (NPIC)

Invited Speaker

Communicating risk for professional applicators (WA State Weed Association)

Invited Speaker

How NPIC communicates pesticide risk (American Chemical Society)

Invited Speaker

Herbicide and surfactant toxicity (Oregon 4-county Cooperative Weed Management Area)



WEBSITE

APPS



Website

The NPIC website, available in **both English and Spanish**, is the culmination of years of work from every member on our team. We conducted website usability tests from 2015-2017. This helped us better understand how people find information on our site and guides future updates.

To refresh the look of our website, we've added more pictures and created new ways to find information, like adding topic tabs to improve navigability of our **FAQs** and **pest-related pages**.

Web Apps

We've developed **web apps** for the public and professionals. Available on any browser, apps are **mobile- and desktop-**compatible for easy access wherever you might be. Because they are web-based, you always get the most up-to-date information. Apps range from our **My Repellent Finder** to help simplify repellent options, to our newest addition, the **Herbicide Properties Tool**. This tool helps professionals select low-impact herbicides for targeted plant eradication in the field.



In 2017, NPIC created or significantly updated 23 web pages. Selected examples are listed below.

Web Topics

- Human/animal health and safety
- Environmental protection
- Food safety
- Integrated Pest Management
- How to report pesticide incidents
- Safe use practices
- Local pesticide-related contacts

Web Apps

- Pesticide and Local Services (PALS)
- Insect Repellent Locator (IRL)
- Pesticide Education & Search Tool (PEST)
- NPIC's Product Research Online (NPRO), updated 2017
- Herbicide Properties Tool (HPT)

2017 Web Pages

- Zika Virus
- Pesticide Neighbor Notification
- Data Requirements for Pesticide Registration
- Legacy Pesticides
- Preharvest Interval
- Japanese Beetles
- Clothes Moths
- Home and Garden Use of Treated Wood

VIDEOS | FACT SHEETS

Videos

One way NPIC meets the needs of our audience online is by creating short, science-based videos about pesticides. These videos help make challenging topics more approachable to both the public and professionals. Our team creates these videos based on our most common questions and the needs of our stakeholders.



In 2017, NPIC created new FAQ videos titled “How can I remove pesticides from fruits and vegetables?” (English and Spanish), “Slug & Snail Bait: Can it hurt my pets?” (English and Spanish), and “Should I use food grade diatomaceous earth (DE) to kill bugs?” (Spanish).

While providing answers to questions, NPIC videos also encourage the viewer to dig deeper into a topic or to connect with us in other ways.

Fact Sheets

As part of our mission to encourage informed decision making, NPIC publishes scientific information in the form of fact sheets. These summarize information about pesticides and related topics like “Is it Safe?”, “What’s my Risk?”, “Antimicrobials” and “Pesticide Binding Affinity”.

50 pesticide **chemical** fact sheets

18 pesticide **topic** fact sheets

Our pesticide chemical (active ingredient) fact sheets answer common questions asked by the public. They allow people to “dig deeper” for answers. In 2017, NPIC created four fact sheets titled “Captan”, “Naled”, “Pesticide Binding Affinity” and “Sulfur”.

food grade diatomaceous earth & pest control



available in **English & Spanish**

slug & snail bait



available in **English & Spanish**

storing pesticides in smaller containers



available in **English & Spanish**

washing pesticides from produce



available in **English & Spanish**



SOCIAL MEDIA | FAQs

Social Media

At NPIC, we understand that we have to meet people on familiar ground. By staying active on various social media platforms, NPIC is able to further expand our reach to make science-based pesticide information available.

We try to keep our followers in the loop about seasonal pest and pesticide issues, health and safety topics, as well as the latest resources from NPIC and other reputable organizations.



129 posts
this year



105,392 video views
this year



259 posts, 127 retweets
this year



Our reach has continued to grow through a collaboration with the American Association of Poison Control Centers (AAPCC). Together, we work to raise awareness about pesticide poison prevention and best use practices, through social media and annual publications.

Frequently Asked Questions (FAQs)

36
and counting

New FAQs are developed and updated in response to increased interest. This year, NPIC continued to modernize common pesticide questions and answers by expanding the FAQs available through our website.

Current FAQ topics include questions about pesticide risk to people, animals, the environment, and more. All of our FAQs are based on real questions received by our team, available in English and Spanish.

"Why do I have roaches
in my home?"

"How can I protect my pets
when using pesticides
around them?"
(2017 FAQ)

"Can I use mothballs to
repel insects or animals?"

COMICS | INFOGRAPHICS

Pesticide Comics

Comics are convenient, one-page publications that address tough questions about pesticide health and safety. They are easily shared on social media and elsewhere on the web.

Available in both English and Spanish, NPIC continues to create comics based on pesticide FAQs.

The friendly, familiar format allows us to present these topics in a more exciting way. In 2017, we created four new comics.

2017 Comics

- “Are bug sprays okay for my kids?”
- “¿Pueden los niños usar repelentes de insectos?”
- “Are spot-on flea & tick products okay for my pets?”
- “¿Esta bien aplicar productos contra pulgas y garrapatas a mis mascotas?”



Infographic Creation

In our continued search for the most effective ways to communicate complex topics, the creation of infographics was an obvious choice.

We are excited to have moved in this new direction! Our introduction into the world of infographics began this year with “Using Disinfecting Wipes at Home and School”, highlighted on the next page.



Using DISINFECTING WIPES

at home & school

Types of Antimicrobials

Sanitizers
Reduce bacterial numbers on surfaces to a safe level.

Disinfectants
Kill bacteria, fungi, and some viruses on surfaces.

Antiseptics/Drugs
Antiseptics like hand sanitizers treat or prevent diseases on living things. They are not pesticides.

Microbes

Bacteria

Viruses

Fungi

Spores*

*Most wipes do not kill spores



What are they?

- Antimicrobials are intended to kill or slow the growth of microbes
- Disinfectant wipes are disposable for hard surfaces like counters and tables
- Surface cleaners like wipes are not intended for use on skin
- Disinfectant wipes may LOOK similar to hand wipes. Read the label! Look for phrases like "disinfecting", "antibacterial", or "kills germs, viruses, and bacteria". When in doubt, call NPIC! 800-858-7378

Where can they be used?

- Specific locations listed only on the label
- Use sites and dwell time vary by location and purpose



Household surfaces



Medical
Public Health



What is dwell time?

- The contact time (seconds or minutes) the product needs to stay on a surface to kill microbes
- The surface should be visibly wet for the entire dwell time
- Time may change based on the microbe and purpose (sanitize vs. disinfect)



Using in schools and daycares

- Only adults should use cleaning wipes – children should NOT use wipes
- Keep out of reach of children
- Follow the dwell time listed on the label
- Leave wipes in the original container
- Use the right product for each situation
- Parents: ask how children are involved in classroom cleaning

These wipes are NOT for:



Food contact



Produce



Hand wipes



Baby wipes

How do I minimize risk?

- Always follow the label, including use sites and dwell times
- Never mix antimicrobial or cleaning products
- You can wear gloves if you prefer, always check the label first
- Wash hands after use
- Avoid touching wet surfaces after use
- Follow first aid instructions
- Open windows or use fans
- Store wipes out of reach of children
- Removing dirt and food from surfaces before helps wipes work
- Misuse or overuse of wipes can lead to antimicrobial resistance



What is antimicrobial resistance?

If similar products are used repeatedly, they may not be as effective over time. This resistance can occur naturally, but overuse or misuse of antimicrobial products increases the chances. Follow the label and dwell time to reduce the risk of resistance.



Where can I get more information?

npic npic.orst.edu
NATIONAL PESTICIDE INFORMATION CENTER npic@ace.orst.edu
800.858.7378

Sources

Antimicrobials Topic Fact Sheet - NPIC
Daycare and School Poison Safety – NPIC and AAPCC

CONTINUING ED | AI FILES

Continuing Education

Our Pesticide Specialists and staff make it a priority to keep up with current events, regulatory decisions, and relevant findings in science research. Each year, we devote up to **25%** of our time to NPIC's **Continuing Education** program.

We attend a diverse array of educational events, including webinars, regional professional conferences, expert speaker seminars, and guest lectures. Specialists also regularly monitor scientific journals, daily news articles, social media, and other relevant publications.

In 2017:

22 web-based events
webinars·webcasts·recorded lectures

24 in-person events
seminars·invited speakers·
regional conferences



Active Ingredient Files

We answer questions as we get them, with limited time for research. To do this, our team needs to have the best resources at our fingertips. We continually monitor and evaluate a wide variety of peer-reviewed sources for the latest research on toxicology, regulatory information, ecological impacts, and pest management science.

Documents are uploaded in our searchable collection of Active Ingredient (AI) files for quick reference. All of these documents are available for Specialists during pesticide conversations.

This year, NPIC added **881** new documents to AI files. The collection now includes more than **16,000** documents in **1,108** AI files.

In fact, we invested more than **10 hours per week** monitoring Federal Register Notices, affiliated dockets, newsletters, and selected journals of relevance.

NPIC DATA | STAFF

NPIC's Pesticide Inquiry Database (PID)

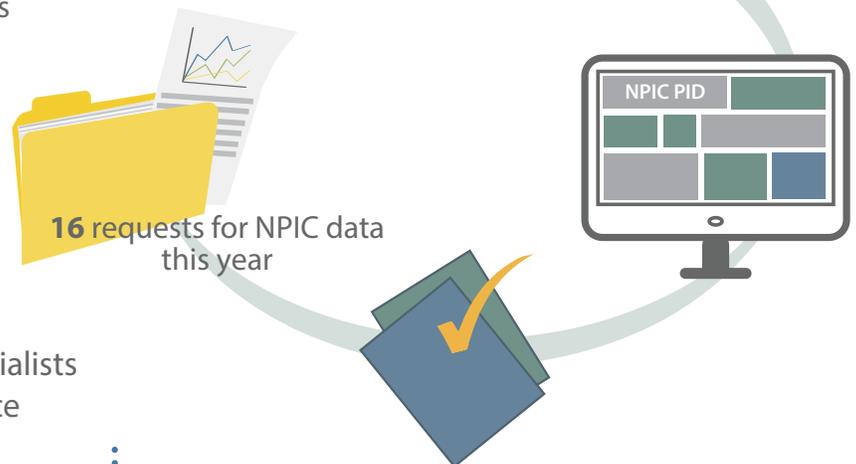
When our Specialists get questions over the phone, through email, social media, or other methods, we collect certain pieces of information about the inquiry. We don't collect personally identifiable information, but we do ask questions to paint a better picture of each unique situation. This helps us tailor our resources to each person, making the conversation valuable to individuals, and our data valuable to other organizations, including:

- Researchers
- Pesticide Regulators and Policy Makers
 - EPA
 - Federal and State Agencies
- Universities



2017 Inquiry Types

8,644 Informational
1,740 Pesticide Incidents
26% with unknown Active Ingredient
242 Other (nonpesticide)



Staff Training & Experience

Our team of highly qualified Pesticide Specialists has nearly **30 years** of combined experience answering questions at NPIC.

Thanks to our rigorous training program, people can be confident they are speaking with an experienced Specialist. The rigorous training process exposes new team members to a variety of topics, scenarios, and challenges.

3 new Specialists trained **this year**

During training, we take an “all hands on deck” approach, where every team member is invested in training new Specialists.

Our Pesticide Specialists have unique scientific backgrounds, from pollinator health to toxicology, soil, and environmental science. This scientific diversity strengthens our ability to answer diverse questions about pesticides and related topics.

chemistry biology soil science
environmental science botany
anthropology geoscience
food science & technology
microbiology zoology

Introduction to Inquiry Data

Pesticide specialists create a record for every inquiry, which is entered into the NPIC Pesticide Inquiry Database (PID). PID is a relational database, designed and built by NPIC. Custom reports may be available based on many of the items listed below.

There are three types of inquiries received by NPIC:

- Requests for information about pesticides and related issues
- Inquiries or reports about pesticide incidents
- Issues that are not related to pesticides

The type and amount of information entered into the PID depends on the type of inquiry.

NPIC aims to collect the following information for all pesticide-related inquiries:

- The inquirer's zip code or state
- The type of person (general public, government, or medical personnel, etc.)
- The type of question (health risk, regulatory compliance, label clarity, etc.)
- The EPA registration number, product name and/or active ingredient name(s)
- The actions performed (verbal information, referrals, transfers, etc.)
- The way the person found NPIC (web, referrals, etc.)

For pesticide incidents, NPIC makes every effort to collect these additional data:

- The type of incident (exposure route, misapplication, spill, etc.)
- The type of exposed entity (person, animal, building, etc.)
- The location of the incident (inside the home, outside the home, retail store, school, etc.)

If a person or animal was exposed to a pesticide, NPIC specialists attempt to collect additional information. However, they may not ask for all of these items during emergency medical events.

- A timeline describing the exposure duration, symptom onset, and resolution
- The person or animal's age, symptoms, and gender
- The species, breed, and weight of animals

When symptoms are reported and the active ingredient(s) are known, specialists evaluate the relationship between them to assign a **certainty** index. The certainty index is an estimate by NPIC as to whether the reported symptoms were consistent or inconsistent with published reports/materials for the identified active ingredients, in the context of the reported pesticide exposure. Specialists use the following tools when assigning the certainty index:

- A standard set of criteria, defined in NPIC training and procedures
- Published exposure reports and case studies
- Input from Dr. Fred Berman for human and animal exposure incidents
- Input from the PID QA/QC specialist

Symptoms are also characterized in terms of their **severity** in the PID. The criteria for defining major, moderate, and minor symptoms were adapted from similar mechanisms used by poison control centers in the National Poison Data System, and by the US EPA in the Incident Data System.

The following pages include details about the incidents and inquiries documented by NPIC from February 15, 2017 to February 14, 2018.

Disclaimers and Explanatory Information:

- Material presented in this report is based on information provided to NPIC by individuals who contacted NPIC, primarily by phone or email.
- None of the information has been verified or substantiated through independent investigation by NPIC staff, laboratory analyses, or by any other means. This is similar to other self-reported public-health-monitoring programs, including the incident data recorded by poison control centers.
- If a person alleges/reports a pesticide incident, it will likely be recorded as an incident by NPIC. To meet the criteria, the person must have sufficient knowledge about the scenario, and it must be reported within two years of its occurrence.
- NPIC defines an incident in terms of public health. The NPIC definition includes any unintended exposure (i.e., child ate a mothball), intended exposures with adverse effects (i.e., illness in pets treated with flea/tick products), spills, and potential misapplications (i.e., a product intended for ornamental plants was applied to vegetables in the home garden.)
- Less than 2% of the time, callers indicate their main purpose for contacting NPIC was to report a pesticide incident. More often, they indicate their main purpose for contacting NPIC is to obtain technical information. See page 28. Regardless, NPIC specialists make every effort to collect complete information about scenarios that meet the NPIC incident definition. Approximately 16% of inquiries to NPIC are coded as incidents.
- NPIC specialists are trained to recognize scenarios that could potentially lead to enforcement actions. In these cases, the standard operating procedure requires a referral to the appropriate State Lead Agency, provided to the inquirer. See page 29.
- NPIC qualifies the information received by assigning a certainty index (CI). The CI is an estimate by NPIC as to the likelihood that the reported signs and symptoms were consistent or inconsistent with published reports/materials for the identified active ingredients, in the context of the reported pesticide exposure. See page 35.
- NPIC makes no claims or guarantees as to the accuracy of the CI or other information presented in its reports, other than that NPIC has done its best to accurately document the information provided to NPIC.
- It is occasionally necessary to collect personally identifiable information (PII) in order to respond to inquiries, for example, by voicemail, email, or mail. Users of web-based incident reporting portals may have the option to submit PII as part of their reports. In all other cases, it is NPIC policy to refrain from collecting/documenting PII from people who contact NPIC through public channels.
- Through its cooperative agreement with EPA, NPIC provides special reports upon request. Special reports may also be provided to other cooperative agreement holders with EPA, such as state-level agriculture and environmental protection agencies. Other entities with interest in special reports should contact NPIC to inquire about the procedure and possible costs.

MONTHLY INQUIRIES

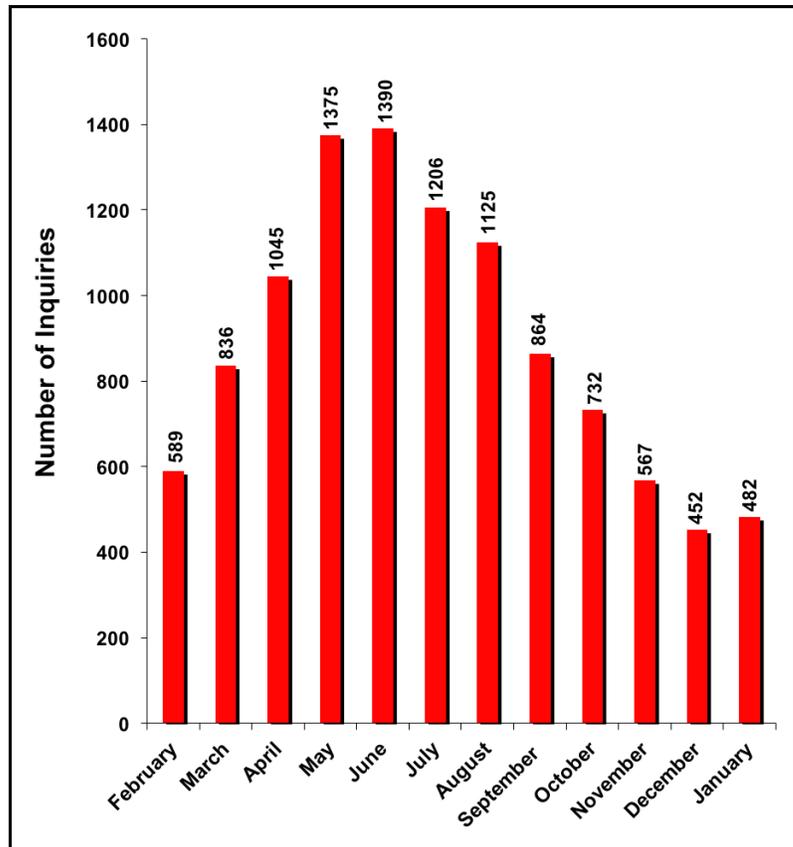
1. Monthly Inquiries

NPIC received 10,626 inquiries during this grant year. Graph 1 shows the number of inquiries received for each month. Seventy-three percent (73%) of the inquiries were received between April and October, concurrent with the part of the year when pest pressures are highest.

Table 1. Monthly inquiries

Month	Total
February	589
March	836
April	1045
May	1375
June	1390
July	1206
August	1125
September	864
October	732
November	567
December	452
January	482

Graph 1. Monthly inquiries



TYPE OF INQUIRY / ORIGIN OF INQUIRY

2. Type of Inquiry

NPIC classifies inquiries as information, incident, or other (non-pesticide) inquiries. A pesticide spill, misapplication, contamination of a non-target entity, or any purported exposure to a pesticide, regardless of injury, is classified as an incident.

The types of inquiries are summarized in Table 2 and Chart 2.

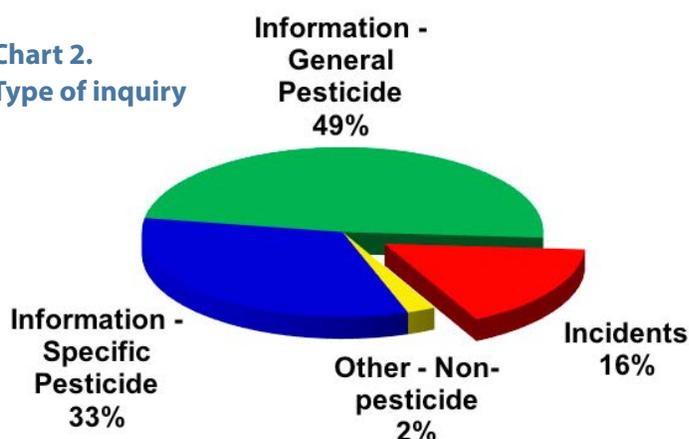
The majority of inquiries (8,644 or 82%) were informational inquiries about pesticides or related topics (Chart 2). NPIC responded to 3,497 (33%) information inquiries about pesticides in general. NPIC responded to 5,147 (48%) information inquiries relating to specific pesticides.

NPIC documented 1,740 incidents involving pesticides (16%). Pesticide Specialists routinely provide requested information, evaluated the need for any referrals, and asked several scoping questions to document the circumstances surrounding the reported incidents.

Table 2. Type of inquiry

Type of Inquiry	Total
Information - General Pesticide	3497
Information - Specific Pesticide	5147
Incidents	1740
Other - Non-Pesticide	242
Total =	10626

Chart 2. Type of inquiry



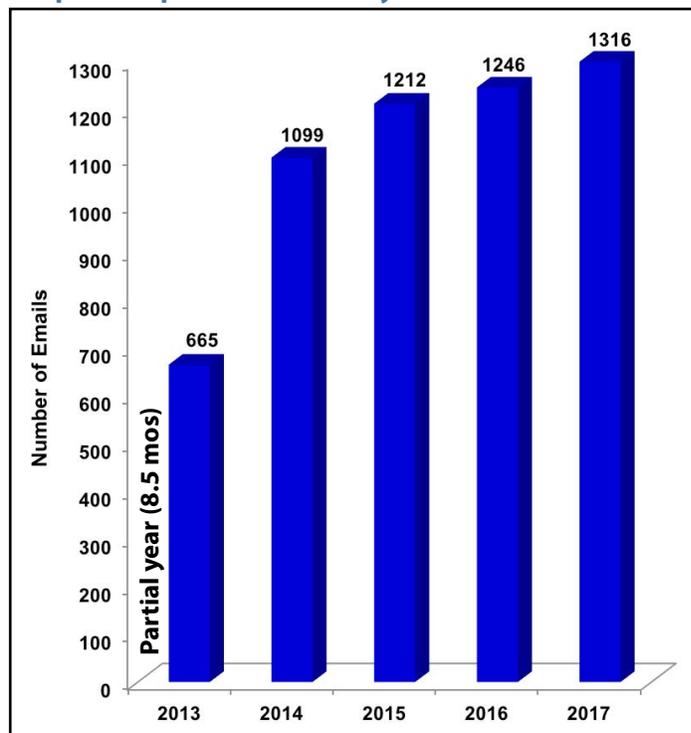
3. Origin of Inquiry

Table 3 summarizes the origin of inquiries received by NPIC. About 75% of inquiries were received by telephone.

Table 3. Origin of inquiry

Origin of Inquiry	Total
Telephone	7963
Voicemail	1339
Email	1316
Mail	8
Total =	10626

Graph 3. Inquiries received by email



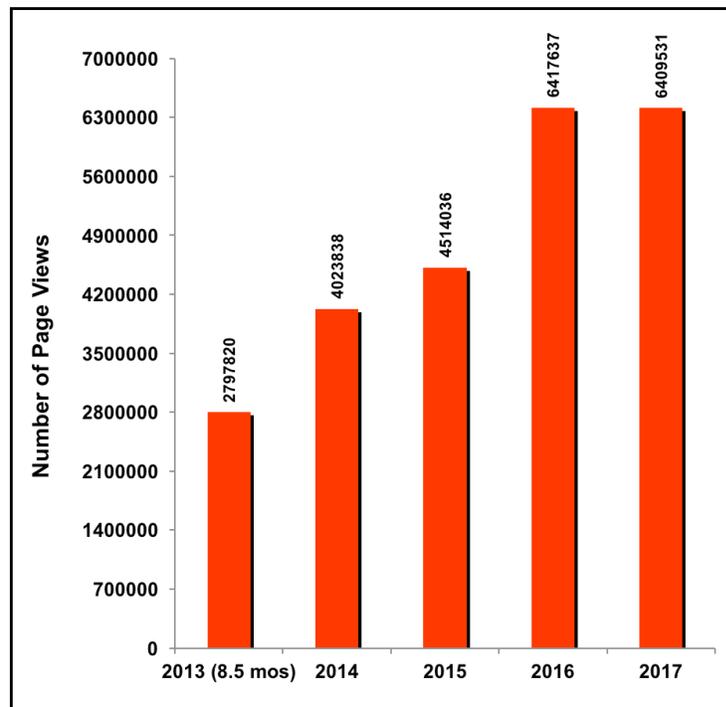
4. Website Access

The NPIC website attracted more than 3.1 million unique visitors viewing 6,409,531 pages during this period.

Almost all of the page views originated from queries on popular search sites (52.3%), or were connected with NPIC from a bookmark (38.1%) or other direct link (i.e., shared via email). The most popular search terms used to reach NPIC were “pesticides,” “ARS,” and “glyphosate.” “ARS” likely refers to the USDA’s Agricultural Research Service.

Visits to the website varied greatly in duration, with 154,413 visits lasting longer than 15 minutes. The average visit duration was approximately 2 minutes.

Graph 4.1. Page views



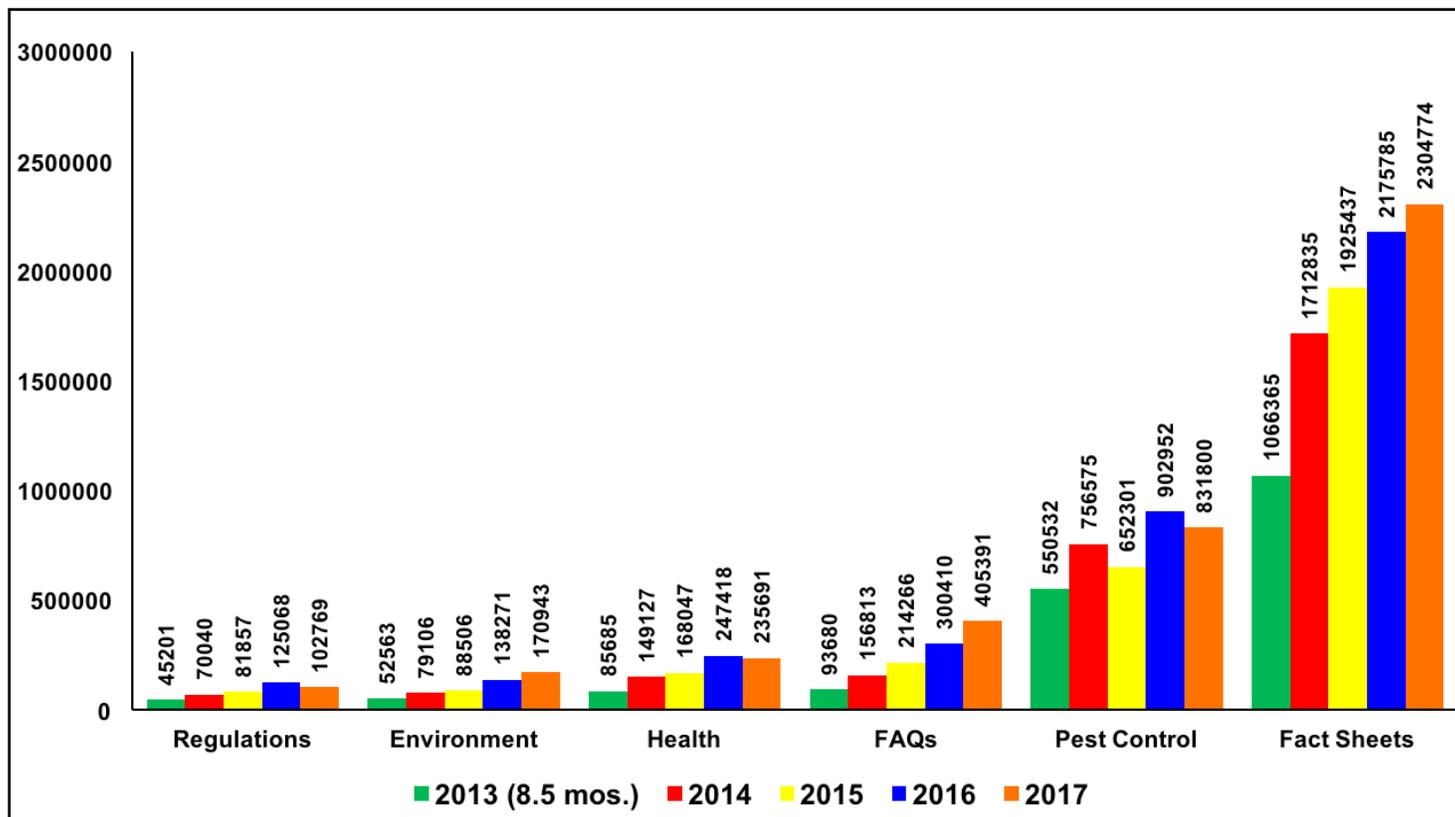
The most popular pages viewed were the NPIC home page (531,621 views), the diatomaceous earth general fact sheet (232,229 views), and the glyphosate general fact sheet (213,543 views).

Table 4. Selected page views

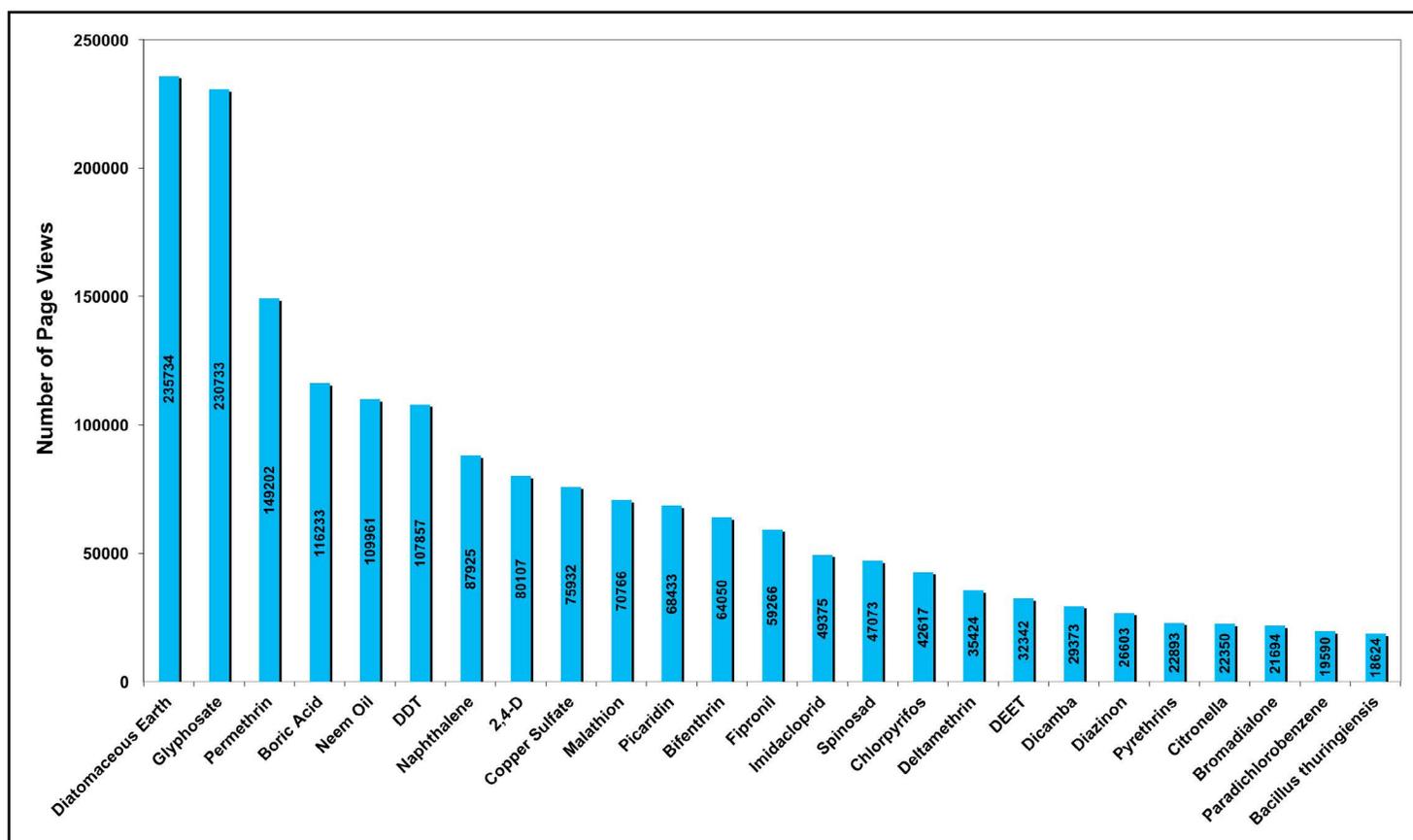
Page Accessed	English page views	Number of pages available	Spanish page views	Number of pages available
Fact Sheets	2,279,865	202	24,909	6
Pest Control	831,800	63	201,169	37
Health and Safety	235,691	30	39,409	21
Frequently Asked Questions (FAQs)	204,081	85	201,310	82
Environment	128,349	28	42,594	7
Regulations	94,732	27	8,037	6

NPIC WEBSITE

Graph 4.2. Top 6 web pages viewed by topic



Graph 4.3. Top 25 active ingredient fact sheet pages viewed



TYPE OF INQUIRER

5. Type of Inquirer

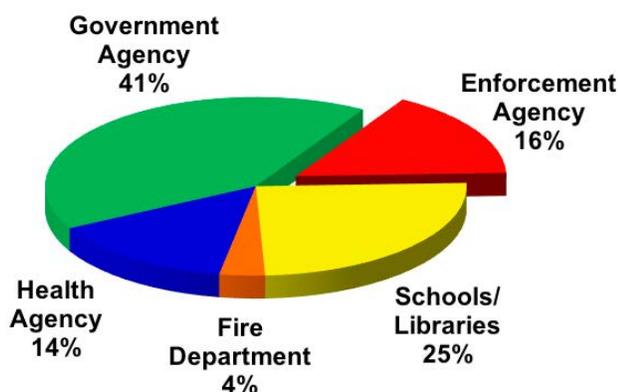
Table 5 summarizes the profession/occupation of individuals contacting NPIC. The majority of inquiries to NPIC are from the general public. Of the 10,626 inquiries received, there were 9,532 (89.7%) from the general public, 201 (1.9%) from federal, state, local government agencies, or schools, 148 (1.4%) from pesticide manufacturers, and 108 (1.0%) from human and animal medical personnel.

Chart 5 summarizes the 201 governmental entities that contacted NPIC during the grant year. Health agencies include health departments and WIC personnel. Government agencies include city, county, and other government entities without enforcement roles. Enforcement agencies include the US EPA, state pesticide regulatory agencies, and police, among others.

Table 5. Type of inquirer

Type of Inquirer	Total
General Public	9532
Federal/State/Local Agencies	
Government Agencies	83
Schools/Libraries	50
Enforcement Agencies	32
Health Agencies	29
Fire Department	7
Medical Personnel	
Human Medical	61
Animal Vet./Clinic	46
Migrant Clinic	1
Other	
Pesticide Mfg./Mktg. Co.	148
Pest Control	102
Farm	75
Lab./Consulting	65
Retail Store	44
Media	42
Unions/Info. Service	37
Beekeepers	17
Non-migrant Ag. Worker	10
Master Gardener	10
Lawyer/Insurance	7
Environmental Org.	7
Other	221
Grant Year Total =	10626

Chart 5. Inquiries from federal / state / local agencies (Total: 201)



TYPE OF QUESTION

6. Type of Question

The questions received at NPIC are most often related to health (e.g., effects, risk, etc.), pest control (e.g., how to control a pest, pest habits, etc.), and application (e.g., methods, label clarity, etc.). "Other" questions (1,471) include all wrong numbers and people seeking their pest control companies, among others.

Questions about regulations (957) range from "How do I get a new product registered?" to "Can the authorities make my neighbor stop spraying?" Questions about how to follow pesticide label directions were coded as "Application" questions (1,485).

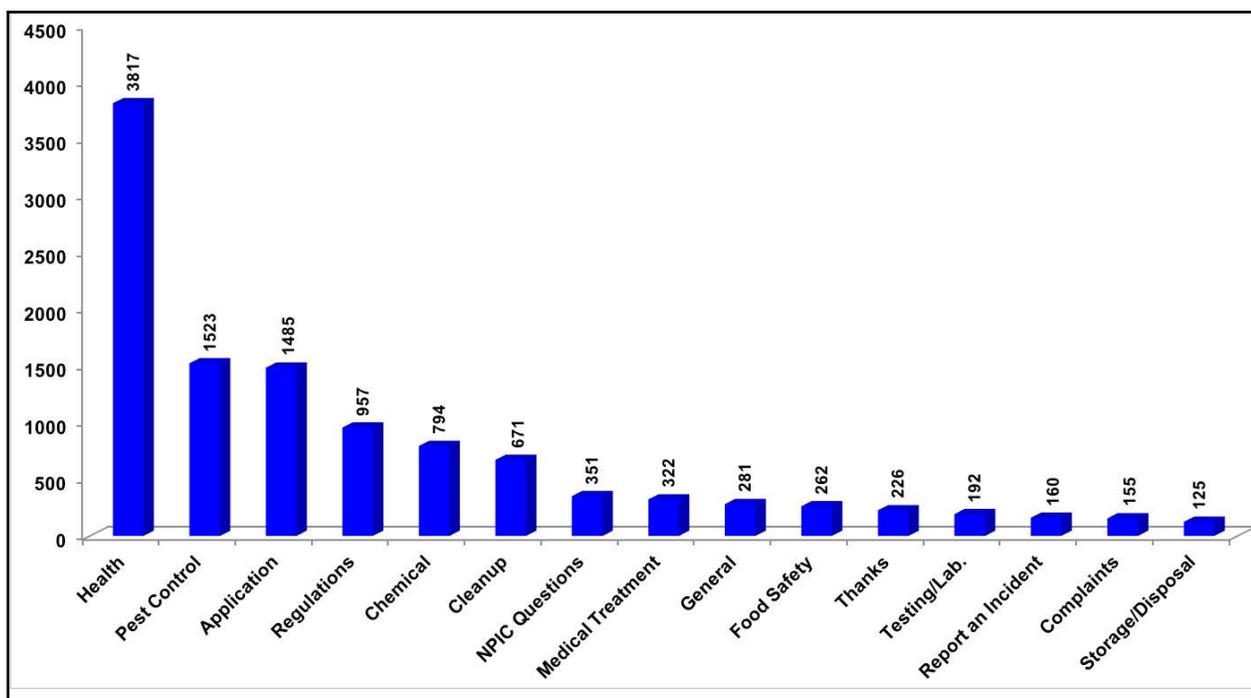
People contacted NPIC in order to report a pesticide incident 160 times. In these cases, NPIC provides people with appropriate local referrals for enforcement, as needed.

Inquiries may involve more than one type of question. Inquirers asked 13,168 questions during this grant year in the course of 10,626 inquiries.

Table 6. Type of question

Type of Question	Total
Health	3817
Pest Control	1523
Application	1485
Other	1471
Regulations	957
Chemical	794
Cleanup	671
NPIC Questions	351
Medical Treatment	322
General	281
Food Safety	262
Thanks	226
Testing/Lab.	192
Report an Incident	160
Complaints	155
Storage/Disposal	125
Harvest Intervals	106
Pros and Cons	80
Inert Ingredients	64
Financial Assistance	60
Tenant/Landlord Rights	50
WPS	16

Graph 6. Type of question



ACTIONS TAKEN

7. Actions Taken

Primary actions:

NPIC Specialists respond to inquiries in a variety of ways. The primary actions are summarized in Table 7.1. Most inquiries (9,223) were answered by providing verbal communication. Information was also sent via email in 1,420 cases, and by mail in 85 cases. Upon request, NPIC brochures and other promotional materials were mailed to people 12 times in this period.

Table 7.1. Primary action taken

Primary Action Taken	Number of Inquiries
	2017
Verbal Info	9223
Emailed Info	1420
Handled Inquiry in Spanish	134
Transferred to Specialist / Voicemail	105
Mailed Info	85
Transferred to EC / PC	24
Interpreted via LanguageLine Solutions	15
Sent NPIC Outreach Material(s)	12

Risk reduction actions:

NPIC keeps track of certain conversation topics aimed at reducing pesticide risk. Specialists documented 6,456 risk reduction actions, detailed in Table 7.2.

Table 7.2. Risk reduction actions

Risk Reduction Action Taken	Number of Inquiries
	2017
Discussed Ways to Minimize Exp.	2801
Discussed Following the Label	2623
Discussed IPM Concepts	845
Discussed Environmental Protection	187

Referrals to other organizations:

The number of referrals to various organizations is presented in Table 7.3. Specialists use their training and SOPs to evaluate the need for referrals, providing them only when the requested information is outside NPIC boundaries and there is an appropriate resource available to provide the information. Examples include "manufacturer/distributor" for detailed application instructions and product complaints, "county extension" for pest control advice, and "state pesticide regulatory agencies" for enforcement.

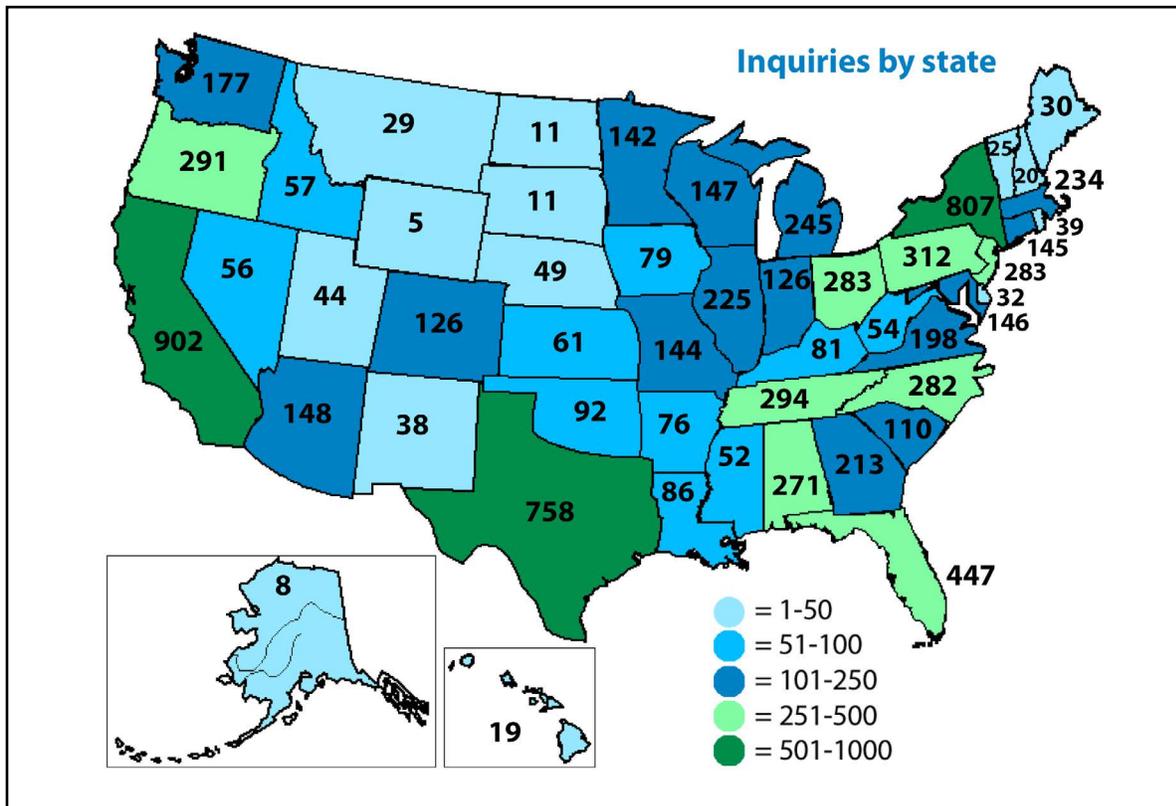
Table 7.3. Referrals to other organizations

Organization Name	Number of Inquiries
	2017
Manuf. / Distributor Contact	2394
NPIC Website	1214
County Extension Contact	1206
State Pesticide Regulatory Contact	837
Other Organization Contact	764
Poison Control Contact	442
Dept of Health Contact	254
EPA Website	252
EPA Region Contact	232
EPA HQ / OPP Contact	229
Hazardous Waste Contact	107
Other State Agency Contact	104
Other Federal Agency Contact	103
Animal Poison Contact	72
OSHA Contact	29

INQUIRIES BY STATE

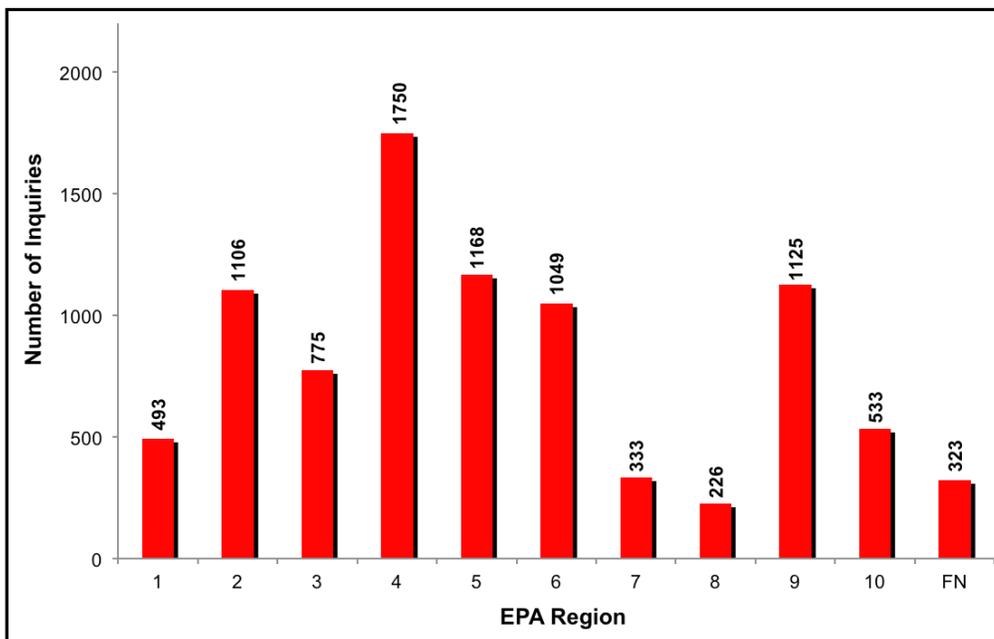
8. Inquiries by State

The map below shows the number of inquiries received by NPIC from each state. The largest number of inquiries came from California, New York, and Texas. In addition to the states, NPIC received inquiries from US Virgin Islands (1), Puerto Rico (15), District of Columbia (33), Canada (101), and other countries (222). Sometimes a state cannot be identified during the inquiry.



Graph 8 summarizes inquiries by EPA region. Of inquiries with a known state, 19.7% were from Region 4, 13.1% were from Region 5, 12.7% were from Region 9, 12.5% were from Region 2, and 11.8% were from Region 6. "FN" refers to calls from foreign nations.

Graph 8. Inquiries by EPA region



TOP 25 AIs FOR ALL INQUIRIES

9. Top 25 Active Ingredients for All Inquiries

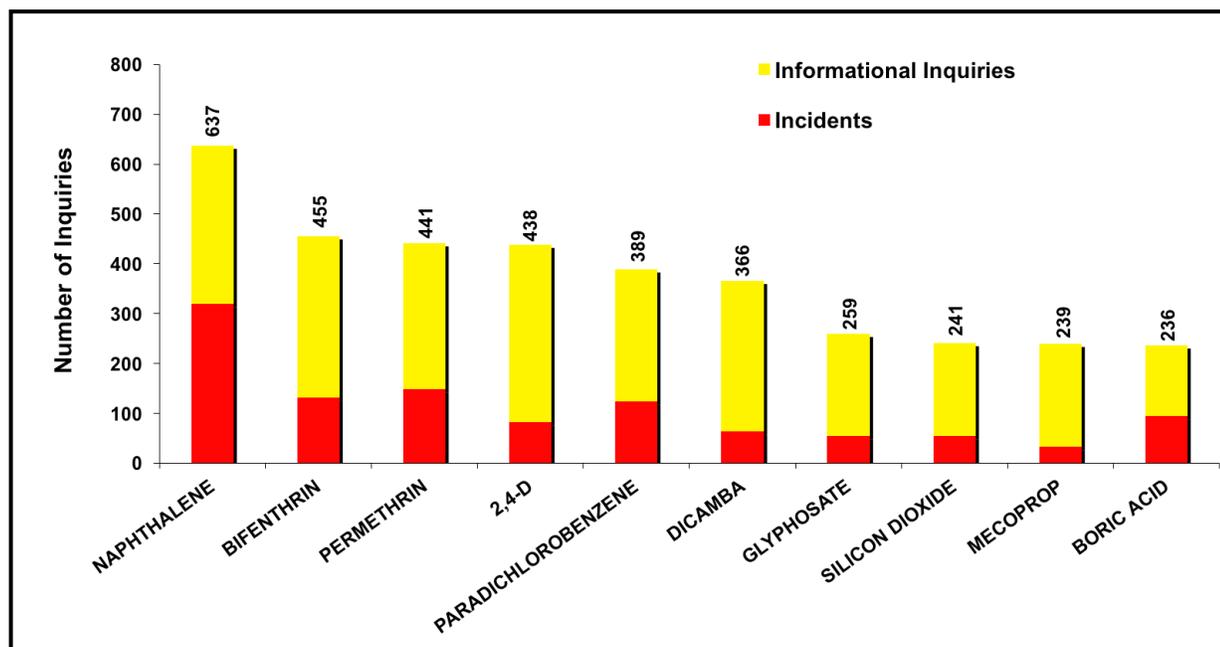
When inquiries to NPIC involve discussion of a specific product or active ingredient, Specialists record the product and the active ingredient in the PID. Naphthalene was discussed in more inquiries than any other single active ingredient this year (Table 9, Graph 9). Of the 637 inquiries involving naphthalene, 320 (50.2%) were incidents. Note that an inquiry may involve discussion of several active ingredients.

Graph 9 illustrates the number of informational and incident inquiries for the top active ingredients discussed during the grant year.

Table 9. Top 25 active ingredients for all inquiries

Active Ingredient	Total Inquiries	Incidents	Information Inquiries
NAPHTHALENE	637	320	317
BIFENTHRIN	455	132	323
PERMETHRIN	441	148	293
2,4-D	438	82	356
PARADICHLOROBENZENE	389	124	265
DICAMBA	366	63	303
GLYPHOSATE	259	55	204
SILICON DIOXIDE	241	54	187
MECOPROP	239	33	206
BORIC ACID	236	94	142
IMIDACLOPRID	232	77	155
MALATHION	200	83	117
PYRETHRINS	200	65	135
PIPERONYL BUTOXIDE	179	66	113
FIPRONIL	169	37	132
DELTAMETHRIN	146	46	100
TRICLOPYR	140	27	113
NEEM OIL	135	36	99
PRODIAMINE	129	6	123
LAMBDA-CYHALOTHRIN	123	66	57
CYPERMETHRIN	123	58	65
CARBARYL	121	34	87
CYFLUTHRIN	104	39	65
PYRIPROXYFEN	95	48	47
CAPTAN	95	24	71

Graph 9. Top 10 pesticide active ingredients for all inquiries



INCIDENT TYPE

10. Incident Type

An incident may involve a spill, misapplication, exposure, adverse effects, or any combination of these events.

There were 2,472 pesticide exposures and 981 accidents. Charts 10.1 and 10.2 provide further details. Among reported exposures, inhalation was the most common route of exposure (48.1%), followed by dermal contact (20.7%) and ingestion (12.9%). When a specific exposure route could not be identified, specialists documented an "Unknown" exposure route (5.8%).

Indoor spills (93) were reported more often than outdoor spills (39). Among reported misapplications (724), 78% were misapplications by the homeowner or resident. Misapplications by the homeowner decreased in 2017 (564) compared to 2016 (622), and the number of incidents involving drift increased from 2016 (71) to 2017 (124).

Chart 10.1. Pesticide exposures (Total: 2,472)

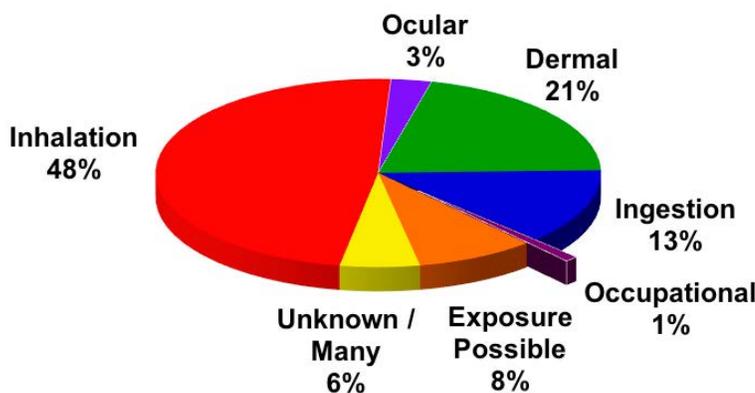


Chart 10.2. Pesticide accidents (Total: 981)

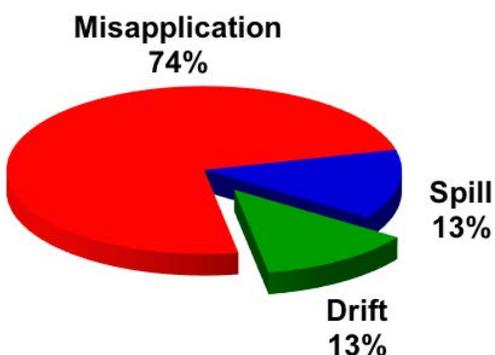


Table 10. Incident Type

Type of Incident	Total
Exposures	
Inhalation	1190
Dermal	511
Ingestion	319
Exposure Possible	212
Unknown	143
Ocular	73
Occupational	24
Accidents	
Misapp. - Homeowner	564
Drift	124
Misapp. - Other	94
Spill - Indoor	93
Misapp. - PCO	66
Spill - Outdoor	39
Fire	1
Industrial Accident	0
Other	111
Total =	3564

TOP 25 AIs FOR INCIDENTS

11. Top 25 Active Ingredients for Incidents

The most common active ingredients reported during incident inquiries are listed in Table 11. The table identifies the number of exposures or accidents involving humans, animals, and other entities, such as environmental entities and property. Naphthalene and paradichlorobenzene were involved in more reported exposures/accidents than any other active ingredients, which are both commonly found in mothballs and similar products.

In Table 11, the top three active ingredients for human and animal exposures are highlighted below. Naphthalene, paradichlorobenzene, and permethrin were involved in the highest number of exposures for human and animal incidents.

Table 11. Top 25 active ingredients for incidents reported to NPIC¹

Active Ingredient	Total	Human Exposures	Animal Exposures	Other Accidents
NAPHTHALENE	1011	471	62	395
PARADICHLOROBENZENE	792	376	47	306
PERMETHRIN	225	72	46	43
BIFENTHRIN	199	59	42	43
BORIC ACID	169	54	35	12
IMIDACLOPRID	134	30	37	25
2,4-D	129	40	22	31
GLYPHOSATE	110	44	14	25
DICAMBA	105	33	17	24
MALATHION	100	45	5	34
LAMBDA-CYHALOTHRIN	94	32	10	31
PIPERONYL BUTOXIDE	90	44	9	22
PYRETHRINS	88	50	8	17
SILICON DIOXIDE	81	53	4	12
CYPERMETHRIN	79	35	5	22
PYRIPROXYFEN	74	22	26	6
DELTAMETHRIN	72	28	11	12
CYFLUTHRIN	68	38	9	15
FIPRONIL	60	17	16	11
MECOPROP	60	17	18	7
IRON PHOSPHATE	58	0	27	4
SULFUR	52	25	5	16
CARBARYL	51	16	0	20
NEEM OIL	47	29	2	5
TETRAMETHRIN	46	15	3	14

¹ Note that incidents may include multiple humans, animals, and other entities. See Table 9 for a count of incident inquiries by active ingredient.

LOCATION & ENVIRONMENTAL IMPACT

12. Locations of Exposure or Accident

For incidents, specialists record the location of exposure or accident. Of the 3,174 locations where exposures or accidents were documented, 89.9% occurred in the home or yard, and 2.2% occurred in an agricultural setting. Table 12 identifies the number of exposures or accidents reported to NPIC in a variety of other locations.

NPIC saw an increase in incidents occurring at natural (e.g., ponds, lakes, streams) and treated water locations in 2017 (87) compared to 2016 (13).

Table 12. Location of exposure/accident

Location	Total
Home or Yard	2854
Agriculturally Related	71
Pond, Lake, Stream Related	67
Office Building, School	59
Other	33
Retail Store/Business	25
Roadside/Right-of-Way	23
Treated Water	20
Nursery, Greenhouse	13
Park/Golf Course	6
Health Care Facility	2
Industrially Related	1
Total =	3174

13. Environmental Impact

Table 13 presents the type of incidents reported for each kind of environmental entity. The most common environmental incidents reported to NPIC involve pesticide misapplications to buildings by residents (321). Many of these are related to mothballs and similar products.

Table 13. Reported environmental impacts

	Misapplication by Resident	Misapplication by PCO	Misapplication by Other	Misapplication by Unknown	Spill - Indoor	Spill - Outdoor	Drift	Plant Exposure	Other
Agricultural Crop	3	2	5	0	0	0	17	10	0
Building - Home/Office	321	26	45	7	63	12	9	0	3
Home Garden	66	11	6	1	0	1	41	40	0
Home Lawn	34	5	7	1	1	3	9	20	1
Natural Water	0	0	2	0	0	0	3	0	0
Property	40	11	6	0	15	5	6	0	0
Soil/Plants/Trees	50	4	5	0	0	8	31	36	0
Treated Water	6	1	0	0	1	5	2	0	0
Vehicle	25	3	6	1	9	0	3	0	2

CERTAINTY INDEX

14. Certainty Index

Table 14 and Graphs 14.1 and 14.2 summarize the certainty index (CI) assignments for all incidents that were eligible to be classified. An incident is eligible to be classified if there was an exposed person or animal with reported signs/symptoms and at least one active ingredient was known.

Of the total number of entities assigned a CI (2,848), 18.0% of the cases were assigned an index of “consistent,” 7.5% were assigned an index of “inconsistent,” and 74.5% were considered “unclassifiable.” Because none of the information reported to NPIC has been verified or substantiated by independent investigation, uncertainty is common. This is the case with many forms of self-reported data, which are often used for monitoring public health. As a result, the certainty index assignment for “definite” is rarely assigned.

All certainty index assignments are reviewed by a quality assurance specialist. Dr. Berman provides additional consultation for human and animal incidents.

What is the Certainty Index?

The certainty index is an estimate by NPIC as to the likelihood that the reported signs and symptoms were “**consistent**” or “**inconsistent**” with published reports/materials for the identified active ingredients, in the context of the reported pesticide exposure.

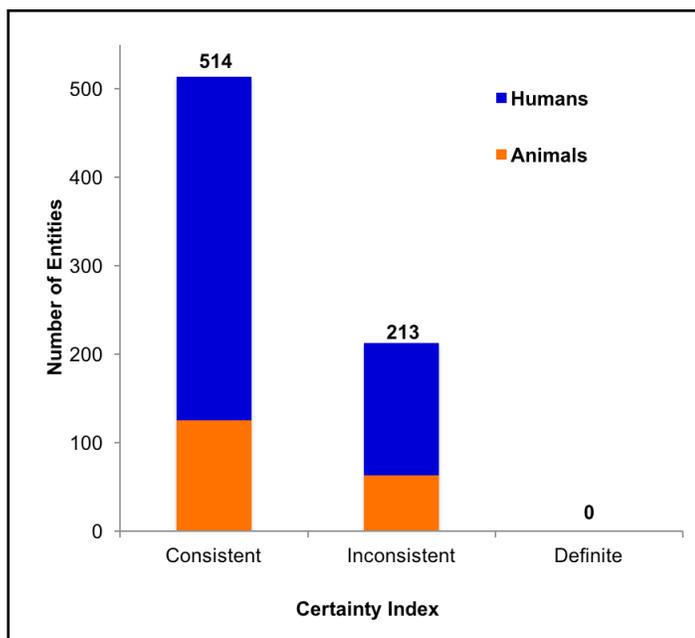
The certainty index is “**unclassifiable**” when one or more of the following criteria apply:

- An exposure occurred, but no symptoms were reported.
- No active ingredient could be identified.
- The presence or absence of symptoms was unknown.

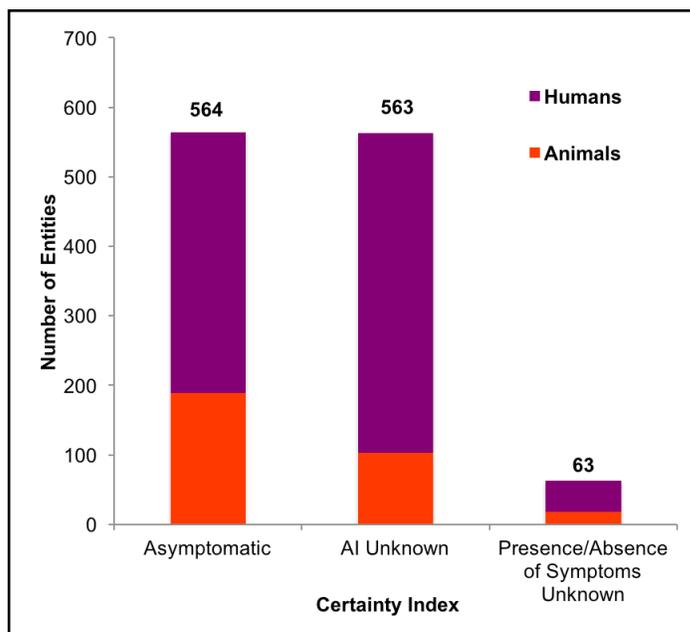
Table 14. Incident inquiries by certainty index (CI)

CI for All Categories of Entities					Breakdown of Human-Entity Incident Inquiries			
Certainty Index (CI)	Humans	Animals	Other	Total	Male	Female	Groups	Gender Not Stated
Unclassifiable	880	310	931	2121	286	412	177	5
Definite	0	0	0	0	0	0	0	0
Consistent	389	125	0	514	129	227	32	1
Inconsistent	150	63	0	213	53	87	9	1

Graph 14.1. Certainty index for incidents



Graph 14.2. Unclassifiable CI categories



SEVERITY INDEX

15. Severity Index

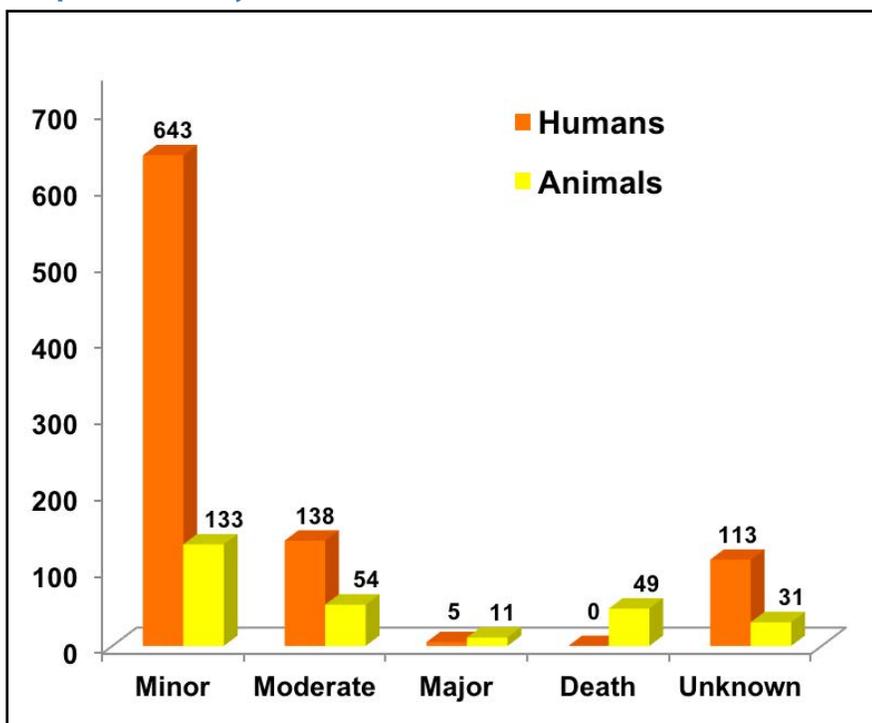
Table and Graph 15 summarize the severity of symptoms for all human and animal incidents reported to NPIC.

For all human pesticide incidents with reported exposures, 45.3% had minor symptoms, 9.7% had moderate symptoms, and 0.4% had major symptoms. Symptoms were unknown in 8.0% of human incidents. In 36.6% of human exposure incidents, the person reported that they did not experience any symptoms.

Table 15. Human and animal incidents by severity index (SI)

SI for All Categories of Entities				Breakdown of Human-Entity Incident Inquiries			
Severity Index (SI)	Humans	Animals	Total	Male	Female	Groups	Gender Not Stated
Minor	643	133	776	207	381	51	4
Moderate	138	54	192	44	85	7	2
Major	5	11	16	2	3	0	0
Death	0	49	49	0	0	0	0
Unknown	113	31	144	35	52	25	1
Asymptomatic	519	220	739	180	204	135	0

Graph 15. Severity index for human and animal incidents



What is the Severity Index?

The severity index is an estimate by NPIC as to the severity of signs/symptoms reported for incidents. The severity of signs/symptoms can be categorized as minor, moderate, major, death, unknown, or asymptomatic. The NPIC severity index is based on criteria used by poison control centers in their National Poison Data System (NPDS).

DESCRIPTION OF ENTITIES

16. Description of Entities

The chart and graphs below provide a summary of entities involved in pesticide incidents. Of the 2,848 entities involved in incidents reported to NPIC during this period, 49.8% were human, 17.5% were animals, and 32.2% were environmental nontarget entities. Other entities (14) are miscellaneous items (i.e., sidewalk, food). Pesticide incidents may involve multiple entities.

Graph 16.1. Humans

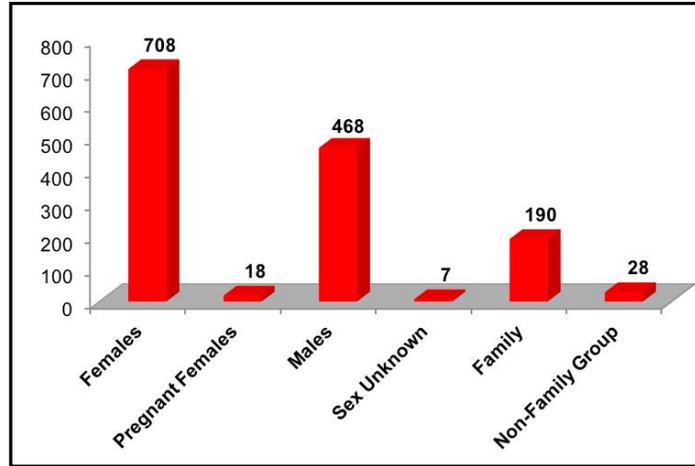
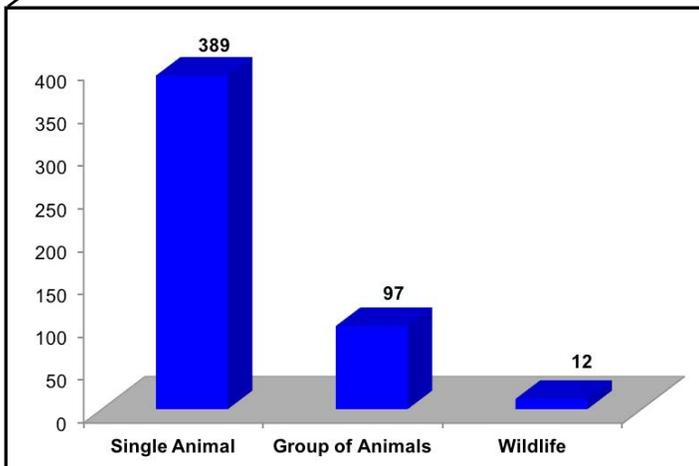
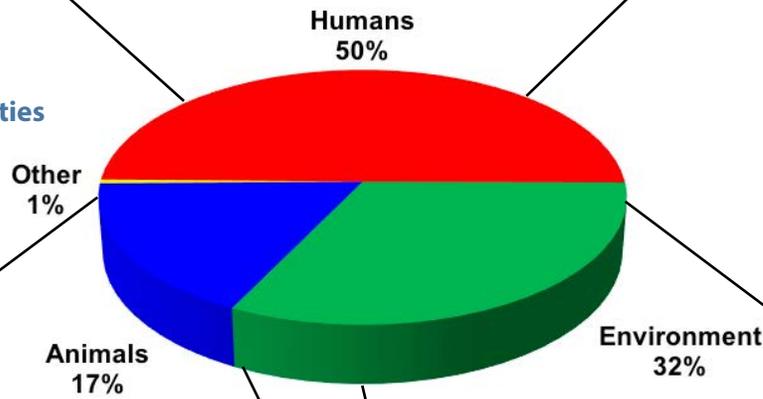
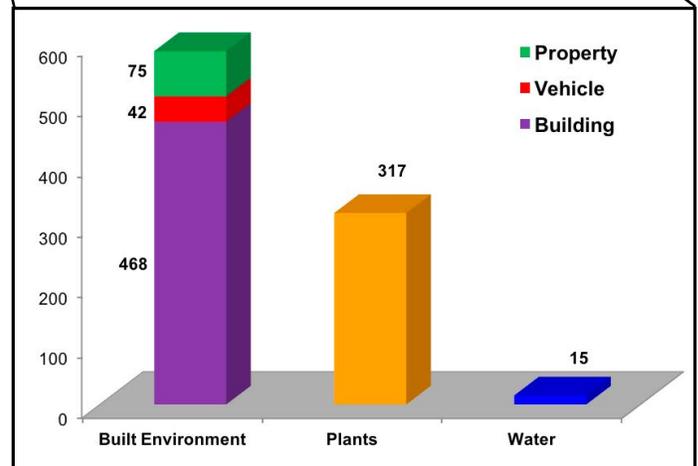


Chart 16. Description of entities



Graph 16.2. Animals



Graph 16.3. Environmental entities

DEATHS WITH KNOWN ACTIVE INGREDIENT

17. Reported Deaths

During this period, no human deaths were reported (Table 17.1). Of the 498 animal entities involved in pesticide incidents, there were 29 reported deaths where the active ingredients were known. Bifenthrin, copper sulfate, imidacloprid, and permethrin were the most commonly reported active ingredients in animal deaths (Table 17.2).

Table 17.2. Active ingredients involved in three or more animal deaths

Active Ingredient ¹	Number of Deaths
BIFENTHRIN	4
COPPER SULFATE	4
IMIDACLOPRID	4
PERMETHRIN	4
CYPROCONAZOLE	3
ESFENVALERATE	3
PICOXYSTROBIN	3
PYRIPROXYFEN	3

¹ Note that a pesticide product may contain more than one active ingredient.

Table 17.1. Reported deaths with known active ingredient

Reported Deaths	Total
Human Deaths	
Male	0
Female	0
Total Human Deaths =	0
Animal Deaths	
Single Animal	16
Group of Animals	10
Wildlife	3
Total Animal Deaths =	29
Total =	29

18. Entity Age

Table 18 and Graph 18 summarize the ages of people involved in incidents reported to NPIC. Among 1,201 single human entities, NPIC was able to collect the person's age 81.1% of the time. NPIC aims to capture the age for all human entities; occasionally callers decline to provide that information. NPIC was able to collect the person's gender 99.4% of the time.

Among the 974 humans with known age, 9.8% were children (ages 4 and under), and 25.2% were seniors (ages 65 and over).

Graph 18. Age of people involved in reported incidents

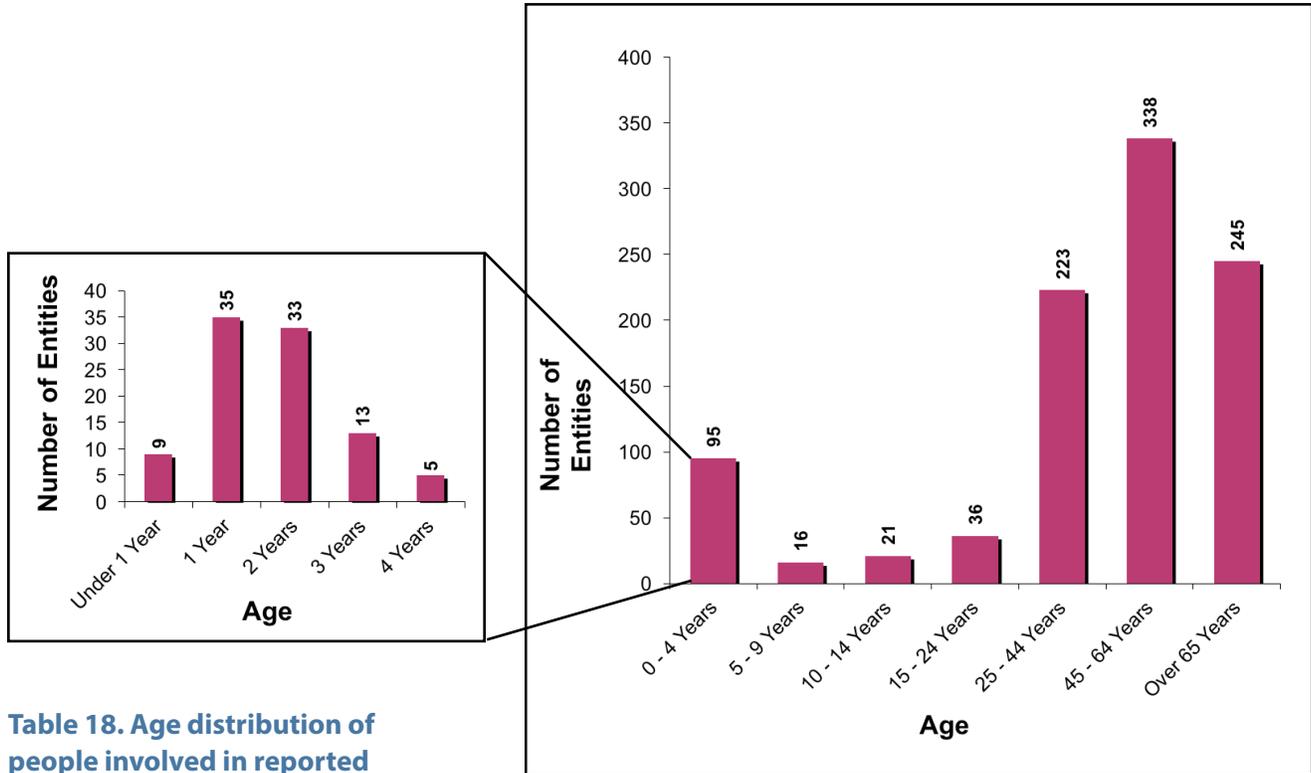


Table 18. Age distribution of people involved in reported incidents

Age Category	Total
Under 1 Year	9
1 Year	35
2 Years	33
3 Years	13
4 Years	5
Total (0 - 4 Years) =	95
5 - 9 Years	16
10 - 14 Years	21
15 - 24 Years	36
25 - 44 Years	223
45 - 64 Years	338
Over 65 years	245

NOTABLE EXPOSURES

19. Notable Exposures

There were 2,848 entities potentially exposed to pesticides in 1,740 reported incidents.

Figure 19.1

There were 1,740 pesticide incidents reported, involving 2,848 exposed entities (people, animals, buildings, plants, soil, and water).

Total = 2,848 entities

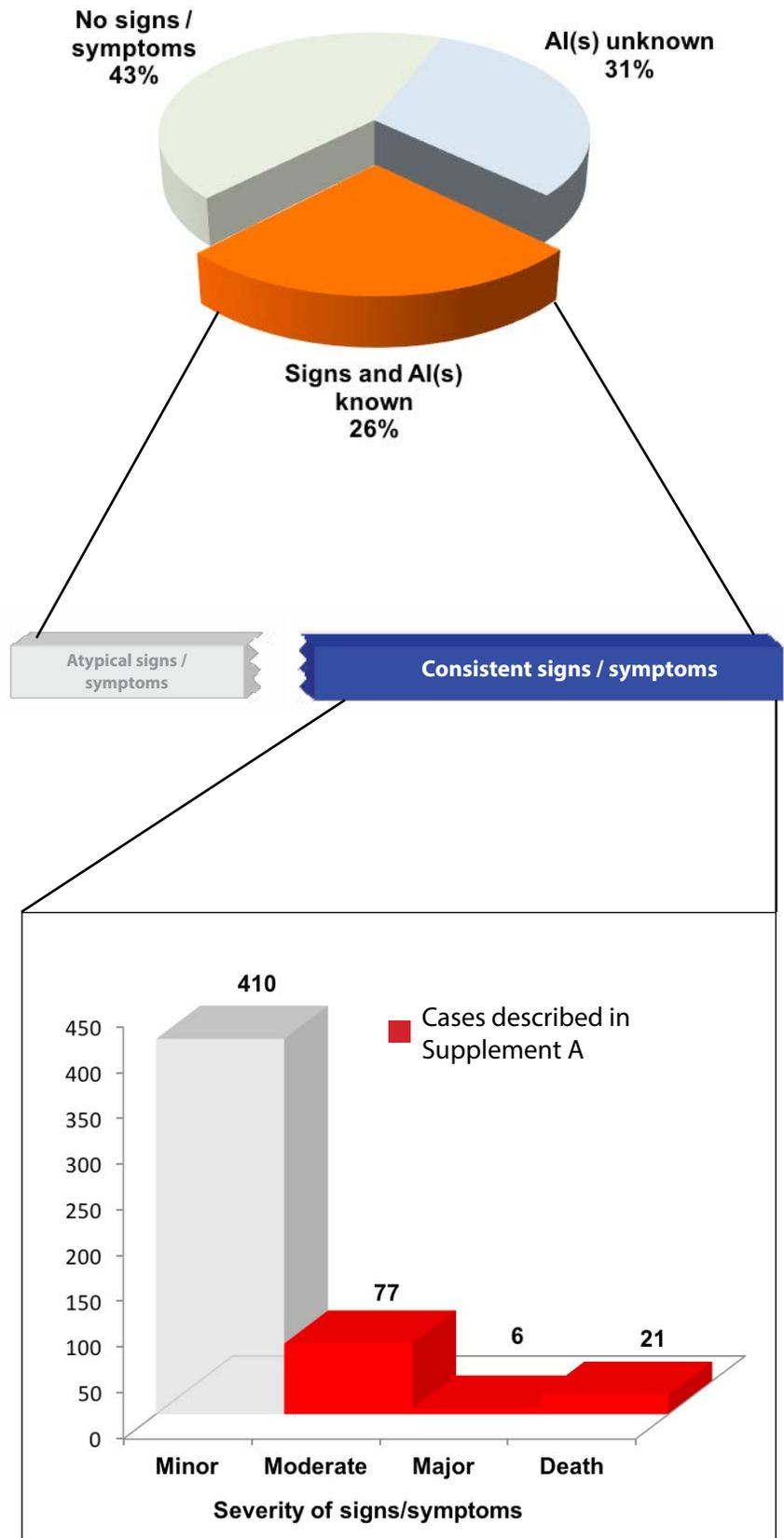


Figure 19.2

Human and animal entities potentially exposed to a known pesticide, with reported signs/symptoms.

Total = 727 entities

Figure 19.3

Human and animal entities potentially exposed to a known pesticide with reported signs/symptoms that were **consistent** with reports in the literature for that pesticide.

Total = 514 entities

Signs and symptoms are compared to the open literature, including fact sheets, case reports, textbooks, and articles. Furthermore, the timing of onset and duration are considered.

A supplemental report describes the 104 entities represented by the red bars in Figure 19.3.

VETERINARY REPORTING

NPIC developed a web-based portal for veterinarians to report adverse reactions to pesticides among animals. NPIC does not verify or conduct quality assurance of the information submitted into the Veterinary Incident Reporting Portal (VIRP).

Veterinarians submitted 34 incident reports to the VIRP involving 36 animals (31 dogs and 5 cats). All VIRP reports are forwarded to EPA quarterly, in their entirety.

Table 20.1 and Chart 20.1 summarize the formulation of products that were involved in the incidents reported by veterinarians. One-third of products were spot-on treatments for pets (32%).

Table 20.2 and Chart 20.2 summarize the pesticide types that were involved in the incidents reported by veterinarians. More than half (61%) of the products were insecticides and 24% were herbicides.

Table 20.1. Product formulations as reported in VIRP

Formulation	Number of Products
	2017
Spot-on	10
Liquid	9
Pellet	7
Other	4
Powder	1
Total =	31

Chart 20.1. Product formulations reported in VIRP

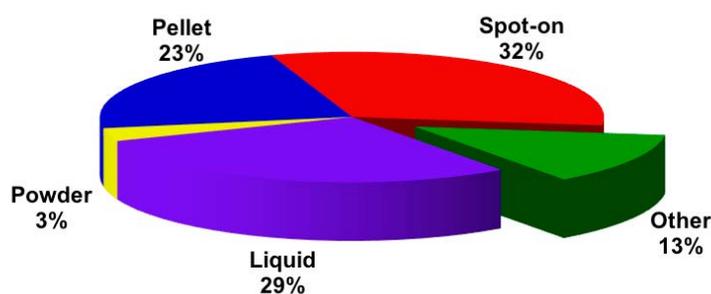
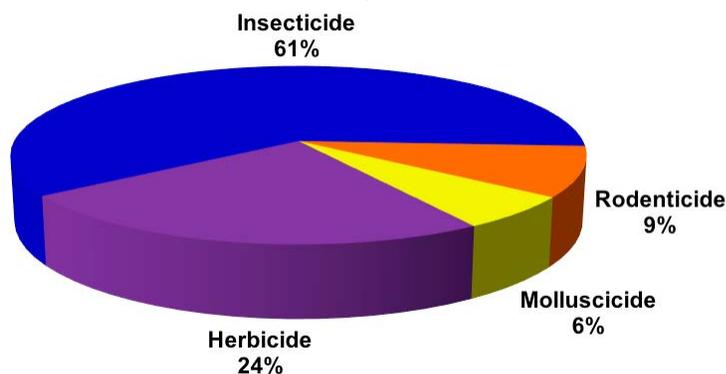


Table 20.2. Product types as reported in VIRP

Type	Number of Products
	2017
Insecticide	20
Herbicide	8
Rodenticide	3
Molluscicide	2
Total =	33

Chart 20.2. Product types reported in VIRP



VETERINARY REPORTING

Table 20.3 and Chart 20.3 show the types of animal symptoms reported to the VIRP. Symptoms are classified as dermatological (e.g., irritant, sloughing, ulcer), gastrointestinal (e.g., diarrhea, vomiting), neurological (e.g., depression, excited state, seizures, tremors), none, or other. Multiple symptoms may be reported for each animal. Of the reported symptoms, 32% were classified as neurological. Twenty-five percent (25%) were classified as gastrointestinal, 19% as dermatological, 10% as none, and 14% as other.

Table 20.4 and Chart 20.4 summarize the outcomes associated with each animal incident reported in the VIRP. Multiple animals may be involved in each VIRP report; thus totals reflect the number of animals, as opposed to the number of reports.

Of the total number of animals involved in VIRP incident reports, 67% of the cases were ongoing. The affected animals had recovered at the time of the report in 19% of cases. Eight percent (8%) of the animals experienced continuing illness.

Table 20.3. Animal symptoms as reported in VIRP

Symptom	Number of Animals
	2017
Dermatological: Irritant	11
Dermatological: Ulcer	2
Dermatological: Sloughing	1
Dermatological Total	14
Gastrointestinal: Diarrhea	10
Gastrointestinal: Vomiting	8
Gastrointestinal total	18
Neurological: Tremor	7
Neurological: Excited	7
Neurological: Depression	5
Neurological: Seizure	4
Neurological Total	23
Other	10
None	7
Total =	72

Chart 20.3. Animal symptoms as reported in VIRP

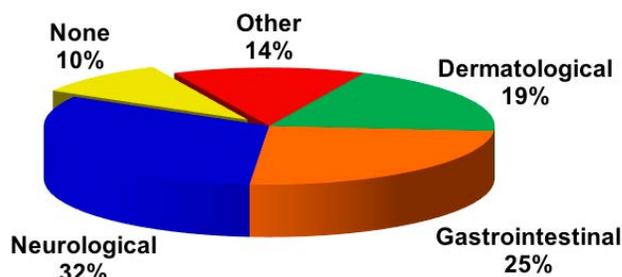
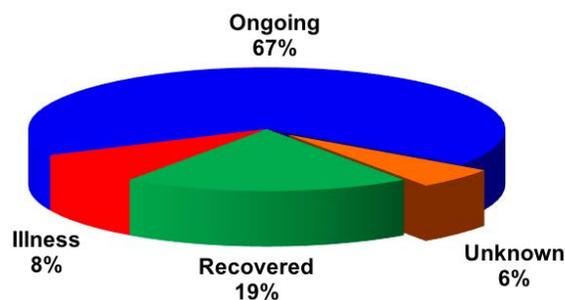


Table 20.4. Incident outcomes as reported in VIRP

Outcome	Number of Animals
	2017
Ongoing	24
Recovered	7
Illness	3
Unknown	2
Death	0
Total:	36

Chart 20.4. Incident outcomes as reported in VIRP



ECOLOGICAL REPORTING

In 2009, NPIC developed a web-based portal to facilitate reporting of ecological incidents. It was designed by the US EPA Office of Pesticide Programs (OPP), built and hosted by Oregon State University.

NPIC does not verify reports through independent investigation, nor does NPIC conduct quality assurance of the information submitted into the Eco-portal. NPIC provides each report, without modification, to OPP quarterly, in their entirety. More recently, NPIC developed programming to make that delivery automatic and immediate.

Table 21.1 and Chart 21.1 summarize the entities submitted to the Eco-portal. Table 21.2 summarizes the active ingredients potentially involved in the Eco-reports.

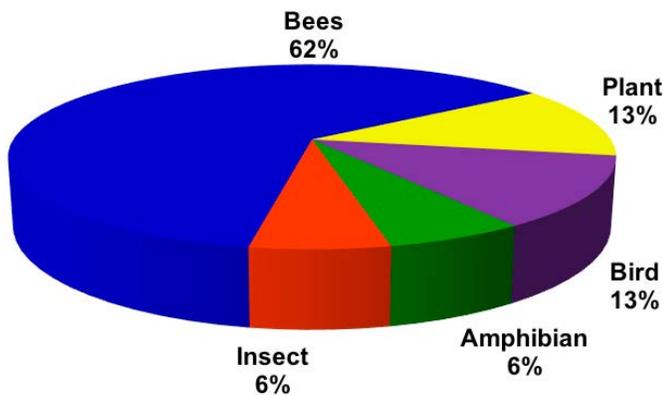
Table 21.1. Entities involved in the Eco-reports

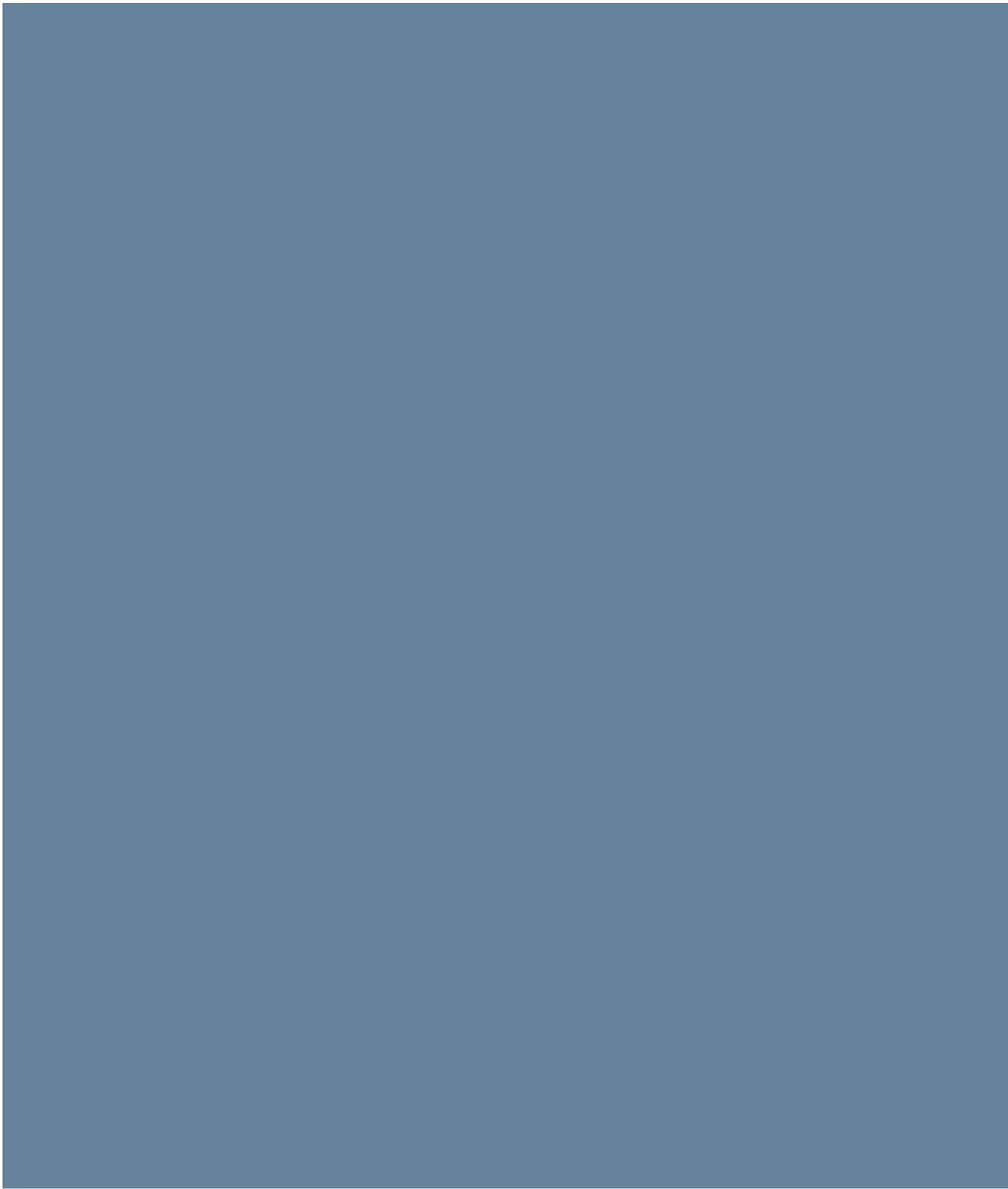
Entity	Number of Reports 2017
Bees	10
Plant	2
Bird	2
Amphibian	1
Insect	1
Total =	16

Table 21.2. Active ingredients involved in the Eco-reports

Active Ingredient	Quantity
UNKNOWN	3
CARBARYL	1
PERMETHRIN	1
BORIC ACID DISODIUM	1
DDE	1
ORTHOBORIC ACID	1

Chart 21.1. Entities involved in the Eco-reports





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