npic

NATIONAL PESTICIDE INFORMATION CENTER

-2024-

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 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 2024 Annual Report covers the period of March 01, 2024 - February 28, 2025.

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 consistency 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.

Submitted To:

U.S. Environmental Protection Agency
Office of Pesticide Programs

Submitted By:
Serhan Mermer, Ph.D.
Project Director

Cooperative Agreement #X8-84067801
Environmental and Molecular Toxicology
Oregon State University
310 Weniger Hall
Corvallis, OR 97331-6502
800-858-7378
npic@oregonstate.edu

NPIC 2024 Annual Report

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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 first year of the project period under cooperative agreement #X8-84067801, Oregon State University (OSU) provided information to millions of people by phone, email, social media, data-sharing, mobile web apps, and/or web content.

NPIC supports the U.S. Environmental Protection Agency's (U.S. EPA) 2022-2026 Strategic Plan Objective 7.1, to "Ensure Chemical and Pesticide Safety" by protecting "the health of families, communities, and ecosystems from the risks posed by pesticides." NPIC also supports the mission of the 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 March 01, 2024 and ended February 28, 2025. This period will be referenced as "2024" in this report.

The cooperative agreement between OSU and the U.S. EPA includes seven 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. Serve as a source of factual, unbiased information for diverse audiences.

- NPIC maintained open hours with multilingual capabilities from 8:00am to 12:00pm Pacific Time, Monday-Friday, excluding holidays, with no closures due to technical or staffing issues.
- NPIC responded immediately to 99% of calls received during open hours and when inquiries were received via voicemail, email, social media, and/or live chat. Occasionally when call volume is high, people may choose to leave a message.
- NPIC contracted with LiveChat as an additional means to reach the public and professionals. The chat feature was limited to a selection of NPIC webpages while testing occurred. NPIC received its first chat inquiries in February and continued to test chat functionality and develop procedures.

2. Provide information on a wide variety of pesticide-related subjects including, but not limited to, pesticide products, toxicology, environmental chemistry, safety practices, pesticide regulation, enforcement, risk assessment, risk management and communication, environmental effects, clean-up and disposal, understanding the label, recognition and management of pesticide poisonings, and integrated pest management (IPM).

- In order to stay current, NPIC staff members monitored 31 relevant publications and publication indexing services, including federal register notices, affiliated dockets, newsletters, listervs, and selected journals of relevance.
- NPIC exceeded this year's goal of evaluating 1,000 articles, documents, and websites in order to maintain and expand up-to-date, reputable, immediately accessible, and optimized information about pesticide science and regulation. This year NPIC evaluated 2,568 relevant articles, documents, and websites.
- NPIC updated four active ingredient (AI) files and created nine new AI files. NPIC also added 706 new documents to AI files.

New/Updated AI files

- Abamectin
- Alphachloralose (new)
- *Bacillus paralichenformis* (new)
- Bis (3-aminopropyl) dodecylamine
- Fipronil
- Flg22-Bt Peptide (new)
- *Hanseniaspora uvarum* (new)
- Iplufenoquin (new)
- *Kosakonia cowanii* (new)
- *Methylorubrum extorquens* (new)
- Naphthalene
- Sheep fat (new)
- *Willaertia magna* (new)

2. Provide information on a wide variety of pesticide-related subjects (continued).

- NPIC vetted 19 existing AI files, removing old or outdated documents to improve the usability of the AI files:
  - 2,4-D
  - abamectin
  - bifenthrin
  - boric acid
  - bromethalin
  - deltamethrin
  - dicamba
  - dinotefuran
  - fipronil
  - glyphosate
  - iron phosphate
  - naphthalene
  - neem oil
  - paradichlorobenzene
  - permethrin
  - piperonyl butoxide
  - pyrethrins
  - silicon dioxide
  - tetrachlorvinphos
- To provide the best referrals when appropriate, NPIC actively verifies/updates local contact lists (e.g., county extension, vector control, manufacturers) on a routine basis. In 2024, NPIC updated 1,786 contacts for Community Agencies that Manage Public Health Pests, EPA Regional Offices, Soil and Water Districts, State Pesticide Regulatory Agencies, State University Extension & Publications, and Worker Protection Standard State Offices.
- NPIC maintained storage capacity in order to ensure continuous access to NPIC resources by stakeholders, documenting and reporting milestones to inform future efforts for secure, long term data storage and hosting capacity.

3. Support education and outreach efforts by federal, state, tribal, and local governments.

- NPIC collaborated with organizations 23 times this grant year to provide outreach and expert risk communication instruction to multilingual communities, agricultural communities, pest control communities, educators, regulators, and the public to increase awareness of the NPIC program:
  - NPIC virtually delivered two presentations at the Structural Pesticide Inspector Residential Training (PIRT): *The Intersection of pests, pesticides, and public health* and *Risk Communication*.
  - NPIC presented to the Pollinator Issues PIRT on common bee concerns reported to NPIC.
  - NPIC presented to pesticide regulators on risk communication at the EPA Region 6 PIRT.
  - NPIC worked with the California Department of Pesticide Regulation (CDPR) to promote NPIC hotline services and web materials as a resource for agricultural communities and other users of their SprayDays notification app and web pages. CDPR advised NPIC on selecting active ingredients for new NPIC fact sheets.
  - NPIC provided expert consultation to EPA Region 5 on pre-written email templates for common inquiries.
  - NPIC presented to regulators and industry groups on NPIC services and the availability of NPIC data at the Association of American Pesticide Control Officials (AAPCO) annual meeting.
  - NPIC and America's Poison Centers coordinated promotion of their collaborative outreach infographic, Summer Safety: Chemical Hazards Around the Home.
  - NPIC delivered a continuing education training on best practices for risk communication to over 120 pest control operators and other staff of Cook's Pest Control.
  - NPIC attended meetings of the Rodenticide Task Force to keep up to date on rodenticide regulations and registrant perspectives, as well as provide expert consultation.
  - EPA Region 10 promoted NPIC disinfectant safety web materials during a cold/flu season social media ad campaign.
  - NPIC presented *What is NPIC?* to the Idaho State Department of Agriculture Division of Agricultural Resources.
  - University of California's IPM program Home and Garden Pest Newsletter published NPIC's FAQ "Can I use vinegar to control weeds?" in their July issue.
  - NPIC provided expert consultation to the Weed Science Society of America on proposed changes to herbicide labels.
  - NPIC distributed Spanish language pesticide safety education materials at a STEM event for families called Día del Niño in Woodburn, Oregon.
  - NPIC consulted with Oregon Health and Science University's Knight Cancer Institute on cancer prevention outreach materials for farmworkers in English and Spanish.
  - NPIC presented about NPIC services at the Entomological Society of America annual meeting.
  - NPIC conducted outreach at Oregon State University by hosting an open house for students and faculty.
  - NPIC conducted pesticide safety outreach to pet owners and veterinary clinics in Corvallis, Oregon with an informational table at Oregon State University, Carlson College of Veterinary Medicine's Pet Day.
  - NPIC presented to the Pacific Northwest Center for Translational Environmental Health.

3. Support education and outreach efforts by federal, state, tribal, and local governments (continued).

- NPIC met with Catherine LeProvost of NC State University and Joseph Lee of East Carolina University to discuss pesticide incident surveillance in North Carolina farmworkers, including the possibility of NPIC personnel training their researchers in incident intake protocol.
- NPIC conducted outreach to Spanish-speaking workers with an informational booth at the Oregon OSHA Spanish language conference: *Safety, health, and your rights at work*.
- NPIC met with Oregon OSHA to discuss NPIC attendance and outreach at upcoming worker trainings.

- NPIC shared 94 noteworthy cases with the Project Officer during the 2024 grant year period.
- NPIC provided 10 special reports about incidents and inquiries upon request. Reports were provided within 10 business days, unless otherwise negotiated. NPIC fulfilled data requests for:
  - Alaska Pesticide Control Program: Incidents in Alaska, 2019-2023
  - Environmental Working Group: Incidents involving paraquat, 2014-2023
  - EPA Region 5:
    - Inquiries and incidents related to "cleanup" excluding mothballs, 2016-2023
    - Counts of top 50 AIs for incidents and inquiries related to "cleanup", 2016-2023
  - Massachusetts Department of Agricultural Services: Incidents in Massachusetts, 2021-2023
  - Office of Pesticide Programs (OPP):
    - Incidents involving sulfuryl fluoride, 2023-2024
    - Sulfuryl fluoride incidents, 2020-present
    - Dicamba incidents, 2020-present
  - OPP's Pesticide Re-Evaluation Division: Incidents Involving Prodiamine, 2019-2023
  - Pennsylvania Department of Agriculture: Inquiries from Pennsylvania, 2022-2023
- NPIC discussed potential trends and data with EPA's Office of Pesticide Programs (OPP) at two Quarterly Coordination Meetings.
- NPIC visited OPP Headquarters in Washington, DC on March 6, 2024 for an annual site visit. Topics of focus during these meetings included:
  - Incidents related to all pet products
  - Types of bee reports sent by NPIC to OPP
  - Collaborating with CDC on antimicrobial outreach materials
  - NPIC's criteria for noteworthy cases, including pollinator deaths
  - Disinfectant safety advertising conducted by NPIC with supplemental funding
  - Introducing new OPP personnel to NPIC
- NPIC specialists were polled about trends and discussed 100% of cases flagged as "important and interesting" as a team. Specialists discussed 156 cases during the year.
- NPIC ensured continuous access to NPIC apps by stakeholders, maintaining software applications, tools, and mobile apps.
- During the 2024 grant period, NPIC attended and/or presented at the following events:
  - Association of American Pesticide Control Officials (AAPCO) annual meeting in Alexandria, Virginia (presentation)
  - EPA Region 6 Pesticide Inspector Residential Training (virtual presentation)
  - Pesticide Inspector Residential Training (PIRT) Pollinator Issues in North Carolina (presentation)
  - Entomological Society of America annual meeting in Phoenix, Arizona (presentation)
  - Oregon Pesticide Symposium in Salem, Oregon (attended)
  - Oregon OSHA Spanish language conference: Safety, health, and your rights at work in Hillsboro, Oregon (informational outreach booth)
  - Cook's Pest Control continuing education for applicators (virtual presentation)
  - Structural Pesticide Inspector Residential Training (PIRT) (virtual, two presentations)
  - Idaho Department of Agriculture meeting (virtual presentation)

4. Provide education and outreach to the public and professionals.

- NPIC coordinated and communicated with EPA Office of Pesticide Programs (OPP) frequently throughout the grant period, including:
  - A discussion with EFED on bee inquiry documentation and reporting methods

4. Provide education and outreach to the public and professionals (continued).

- Annual site visit to OPP Headquarters on March 7th, including meetings with the Consumer and Worker Protection Branch (CWPB), Pesticide Re-evaluation Division (PRD), Health Effects Division (HED), Environmental Fate and Effects Division (EFED), Antimicrobials Division (AD), Registration Division (RD), a briefing for OPP division directors, and a presentation for all OPP employees
- To discuss a chlorpyrifos incident data report with HED
- To discuss EPA review of NPIC's Paraquat Fact Sheet
- To discuss potential incorporation of WhatsApp into NPIC inquiries, collaboration with CDPR SprayDays app, and NPIC's Instagram account
- To discuss NPIC data and the Incident Data System
- During Quarterly Coordination Meetings on July 7, 2024 and December 13, 2024 (see Objective 3)
- Several meetings with the Project Officer to discuss the Year 2 budget and a proposal for supplemental funding from EPA Region 10 on December 16, 2024 and January 16, 2025

- NPIC promoted its services and pesticide safety concepts to underserved audiences including rural, agricultural, and multilingual communities. Activities include participating in conferences or forums, targeted advertising or outreach, etc.
  - NPIC met with California Department of Pesticide Regulation (CDPR) to discuss promoting NPIC services in their SprayDays agricultural pesticide application notification tool.
  - NPIC provided Spanish language outreach materials for distribution at Día del Niño, a STEM event for families in Woodburn, Oregon.
  - NPIC began discussions with NC State University and East Carolina University on how NPIC can assist with farmworker incident research.
  - NPIC consulted with OHSU's Knight Cancer Institute on their creation of cancer prevention outreach materials for farmworkers.
  - NPIC hosted an informational booth at the Oregon OSHA Spanish language conference: Safety, health, and your rights at work.

- NPIC created 11 new web pages and updated four web pages this year:

New/updated web pages

- NPIC homepage (update)
- Can I eat garden plants that may have been drifted on?
- Can I use vinegar to control weeds?
- How do I keep pesticides out of my well water?
- Flies pest page
- Spotted Lanternflies pest page
- Natural Disasters and Pesticides (update)
- Wildfire and Pesticides
- Paraquat Fact Sheet
- Información sobre el ácido bórico (main page | fact sheet) (boric acid)
- Información sobre la tierra de diatomeas (diatomaceous earth)
- Información sobre el aceite de neem (neem oil)
- Pesticide Regulations (update)
- EPA Pesticide Regulation (update)

- NPIC developed two new infographics, titled:
  - Aceite de neem (PDF | PNG) (neem oil)
  - Control de vectores en su comunidad (PDF | JPG) (vector control in your community)

- NPIC developed/translated four fact sheets titled:
  - Paraquat
  - Aceite de neem hoja informativa (neem oil)
  - Ácido bórico hoja informativa (boric acid)
  - Tierra de diatomeas hoja informativa (diatomaceous earth)

- NPIC posts new items on social media platforms (Facebook, Instagram, and X) promoting safe use practices including environmental protection, IPM, and pesticide label comprehension. In 2024, NPIC uploaded 285 posts, averaging 5.5 per week.
- NPIC reviewed 100% of its web content this grant year. NPIC removed/replaced 659 broken links and added 72 new links.
- NPIC shared updates with its subscribers in quarterly newsletters highlighting new NPIC resources and featuring existing, relevant resources. Interested parties can subscribe to NPIC's notification list to receive quarterly updates.

5. Provide accurate, unbiased, scientific information in a manner understandable to a lay audience to help people make informed decisions.

- NPIC hired one new pesticide specialist during the grant period. All training materials, exercises, and the training manual were updated.
- NPIC staff members cumulatively attended 55 events for continuing education (CE) this year, including 36 webinars, nine events hosted by Oregon State University, six conferences or workshops hosted by other organizations, and four in-house guest speakers.
- Annually, specialists made timely and appropriate referrals with less than a 5% margin of error. This standard was evaluated as part of annual staff evaluations.

6. Collect and disseminate quality pesticide incident data via a rigorous and well-defined data collection system.

- NPIC tracked certain elements to quantify risk-reduction activities. In conversation with callers, pesticide specialists discussed following the label 1,475 times, ways to minimize exposure 1,188 times, IPM concepts 370 times, and environmental protection (including pollinator protection) 97 times.
- NPIC specialists were able to document demographic information for 98.4% of human incidents, including age and/or gender. Callers occasionally decline to provide personal information such as age.
- "Incident information" includes details such as symptoms, time to onset of symptoms, and circumstances surrounding reported exposures. Among 1,003 reported incidents involving humans or animals, NPIC specialists were able to capture the symptom/scenario information in 91.1% of cases.
- NPIC specialists were able to collect product information for 85.5% of reported incidents.
- NPIC specialists were able to document the location for 88.9% of reported pesticide incidents.
- Among the 1,003 reported incidents involving humans or animals, NPIC specialists were able to capture the exposure route in 81.1% of cases.
- NPIC used standard operating procedures and rigorous quality control to classify reported signs/symptoms in terms of severity (severity index) and in terms of their relationship to the reported exposures (consistency index). NPIC assigned a severity index 100% of the time when signs/symptoms were described (1,233 times). NPIC assigned a consistency index 100% of the time when signs/symptoms were described, and they could be compared to published reports about the active ingredient(s) involved (457 times).
- The QA/QC facilitator led seven training exercise(s) during staff meetings to facilitate consistency in data quality.
- Log Assessment Reviews (LARs) were conducted as part of regularly scheduled annual staff evaluations (see Objective 7: Evaluate staff members), including quantifiable measures of data completeness and coding consistency. Upon hiring new staff, formally graded LARs were completed for one new specialist, in order to establish consistent habits in coding and data entry, including timely and appropriate referrals with less than a 5% margin of error.
- Veterinary professionals submitted three incident reports using NPIC's Veterinary Incident Reporting Portal (VIRP). Thirty-two (32) incident reports were submitted using NPIC's Ecological Incident Reporting Portal (Eco-Portal).
- NPIC compiles summary statistics about inquiries received on a quarterly and annual basis. All quarterly reports were submitted within 30 days of the quarter's closure, along with this annual report and a quality assurance report.
- Key personnel from NPIC visited EPA HQ and met with the EPA Project Officer and various OPP divisions (CWPB, PRD, HED, EFED, AD, RD) on March 7, 2024.
- NPIC produced internally routed human and animal incident reports in coordination with OHSU for all human and animal incidents through 6/7/2024, highlighting any changes in coding that were made in the QA process. Additional quality assurance for incidents after 6/7/2024 were not available due to a change in the subaward with OHSU.

7. Provide exceptional customer service by integrating professionalism, teamwork, integrity, accountability, and a strong commitment to the public, as well as to the professional and medical communities.

- NPIC comprehensively evaluated each staff member this quarter, including quantified measures of data collection skills (see Objective 6), customer service skills, and continuing education measures.
- NPIC retained five highly qualified pesticide specialists this grant period.

SUMMARY

Trends in NPIC Data

- During this period, NPIC received 5,901 inquiries.
- About 85% of the total inquiries were addressed over the phone.
- About 20% of NPIC inquiries in 2024 were incidents. A pesticide incident is defined as: 1) any unintended exposure to humans or animals, 2) an exposure with an adverse effect, 3) a spill, and/or 4) a misapplication. See page 21.
- No human deaths and 48 animal deaths were reported to NPIC. See pages 35 and 37.
- The following active ingredients were involved in the most incident reports: naphthalene, paradichlorobenzene, and boric acid. See page 30.
- There were 1,621 entities involved in incidents reported to NPIC during this period: 50% were human, 26% were animals, and 24% were environmental non-target entities. See page 34.
- Among the 549 humans with known age, 13% were children (ages 4 and under) and 27% were seniors (ages 65 and over). See page 36.
- Questions related to health/risk (1,655) and pest control (812) were most common. See page 25.
- The NPIC website received 3,779,737 page views during this period. There were more than 2.7 million "new" visitors with an average visit duration of approximately 57 seconds. See pages 22 and 23.

Foreign Language Capabilities

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 retained one bilingual Specialist with Spanish fluency during 2024. Most Spanish language inquiries were handled with in-house translation.

NPIC responded to 167 inquiries in languages other than English, including Spanish (160), Hindi (2), Azerbaijani (1), French (1), German (1), Malay (1), and Tagalog (1).

Noteworthy Inquiries

Bed Bugs – NPIC received 206 inquiries related to bed bugs this year. About 8% of these (16) 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 76 questions about bees or reports of bee deaths. The majority of bee calls were informational only (87%). 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 notifies the EPA Project Officer when bee deaths are reported.

Mothball Products – NPIC received 272 inquiries about mothballs, flakes, and bars. Of these, 143 (53%) were incidents. Many reports involved off-label use of mothballs to repel animals or insects in and around the home.

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 thousands 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 1,170 active ingredients. This collection has been scanned, saved, and indexed for desktop access using software developed by NPIC.

Funding & Compliance

Funding for NPIC is provided by the U.S. Environmental Protection Agency and Oregon State University.

Throughout the reporting period, NPIC has complied with the requirements of the U.S. 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 U.S. EPA Guidelines regarding procurement requirements stipulated in 40 CFR Part 33. NPIC has complied with all requirements specified by the U.S. EPA as part of the funding authorization of this project.

Personnel Update

The NPIC Executive Committee includes the director and two co-investigators. Six Pesticide Specialists were retained during the grant year. As of February 28, 2025, NPIC staff included six Pesticide Specialists, three supporting staff members, and the Executive Committee.

Standard Operating Procedures (SOPs)

NPIC staff use a variety of SOPs and policies to guide their work and decision making. This year, eight SOPs were updated.

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 scienfic information to anyone who contacts us. If we can't directly answer the question, we'll try to figure out who most likely can.

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

1978 — Pesticide Hazard Assessment Project

Serving EPA Region 6 at Texas Tech Health Sciences Center. The idea for a Q&A hotline is born.

1984 — NPIC/NPTN

Name change to National Pesticide Information Clearinghouse, then to National Pesticide Telecommunications Network.

1995 — Move to OSU

Competitive grant process results in relocation to Oregon State University in Corvallis, OR. New online resources created to increase accessibility of pesticide information.

2000 — NPIC

Name change to National Pesticide Information Center.

2010 — NPIC joins Social Media

We branched in a new direction, allowing us to tailor our message to different demographics.

2015 — Expanding Resources

The needs of our online audience are better met with diverse digital content from videos and infographics to new web apps (HPT, NPRO).

2023 — New Modern Website

NPIC made adjustments to its website to improve overall usability and enhancements for mobile device compatibility.

2025 — New LiveChat Feature

NPIC introduces a live chat feature on the website to capture additional inquiries from web users.

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 testing to help us better understand how people find information on our site which will guide future updates.

Working from user suggestions gathered from web usability testing in 2016, 2018, 2021 and 2024, NPIC made adjustments to its website to improve overall usability and enhancements for mobile device compatibility.

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 NPIC's Product Research Online (NPRO) for product information to our Herbicide Properties Tool. This tool helps people select low-impact herbicides for targeted plant irradiation in the field.

In 2024, NPIC created or significantly updated 15 web pages in English and Spanish. 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

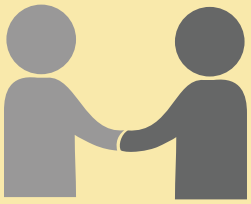
Web Pages

- Wildfire and Pesticides
- FAQ: Can I use vinegar to control weeds?
- FAQ: How do I keep pesticides out of my well water?
- FAQ: Can I eat garden plants that may have been drifted on?
- Flies pest page
- Spotted lanternflies pest page

Fact Sheets

- Paraquat
- Boric acid (Spanish)
- Diatomaceous earth (Spanish)
- Neem oil (Spanish)

COLLABORATIONS | OUTREACH



NPIC teams up with national, state, and local groups to increase awareness about pesticide health and safety across the nation. In 2024, NPIC promoted the availability of its inquiry data to state lead agencies and tribes at the Association of American Pesticide Control Officials (AAPCO) annual meeting.

Partnering with NPIC

NPIC partners with several organizations to raise awareness about pesticide poisoning. Our annual outreach materials focus on topics for the public and professionals. Some highlights include:

CDPR SprayDays notification app and web pages

UC IPM Can I Use Vinegar to Control Weeds? excerpt from blog post

Are there health risks of using vinegar/acetic acid?

Acetic acid is irritating to the eyes and skin. At concentrations above those usually found in household vinegar, it can be extremely irritating or corrosive. Acetic acid can permanently damage the corneas if it gets into your eyes. It can burn skin and the tissues of your mouth and throat if you accidentally swallow it. People have had irritation in their nose, throat, and in their lungs if they breathed in enough of the vapor.

The potential health hazards of concentrated vinegar. Photo from the National Pesticide Information Center (NPIC).

OHSU Cancer Prevention for Agricultural Workers

NPIC Presentations

NPIC has more than 25 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.

10 Speaking events in 2024, some examples include:

Outreach to States

Idaho State Department of Agriculture, Division of Agricultural Resources

Invited Speaking Event

Pacific Northwest Center for Translational Environmental Health

Three Training Courses

Structural Pesticide Inspector Residential Training (PIRT)

INFOGRAPHICS

Infographics

We concentrated our efforts on visual projects in 2024, including our infographics. Easy to follow, these colorful graphics are perfect for printing or sharing for outreach opportunities.

In 2024, we introduced two new Spanish infographics

- **Aceite de neem (neem oil)**
- **Control de vectores en su comunidad (Vector Control in Your Community)**

Control de vectores en su comunidad

Las plagas que propagan enfermedades se conocen como "vectores" de enfermedades. El control de vectores a través de aplicaciones públicas ayuda a reducir el número de plagas y el riesgo de infección.

Las agencias comunitarias que controlan estas plagas compara el riesgo de enfermedades humanas frente a los riesgos del control de plagas. **Vigilan** los brotes, proporcionan consejos para el control de plagas, **educar** al público, y pueden **aplicar** pesticidas. Los pesticidas se pueden aplicar a mano, en avión o en camiones.

Principales vectores de enfermedades

Garrapatas

Enfermedad de lyme, Encefalitis por garrapatas

Mosquitos

Malaria, Dengue, Chikungunya, Zika, Fiebre Amarilla, Nilo Occidental

Otros vectores

Mosca negra

Chinche besadora

Raton/rata

Mosca de arenas

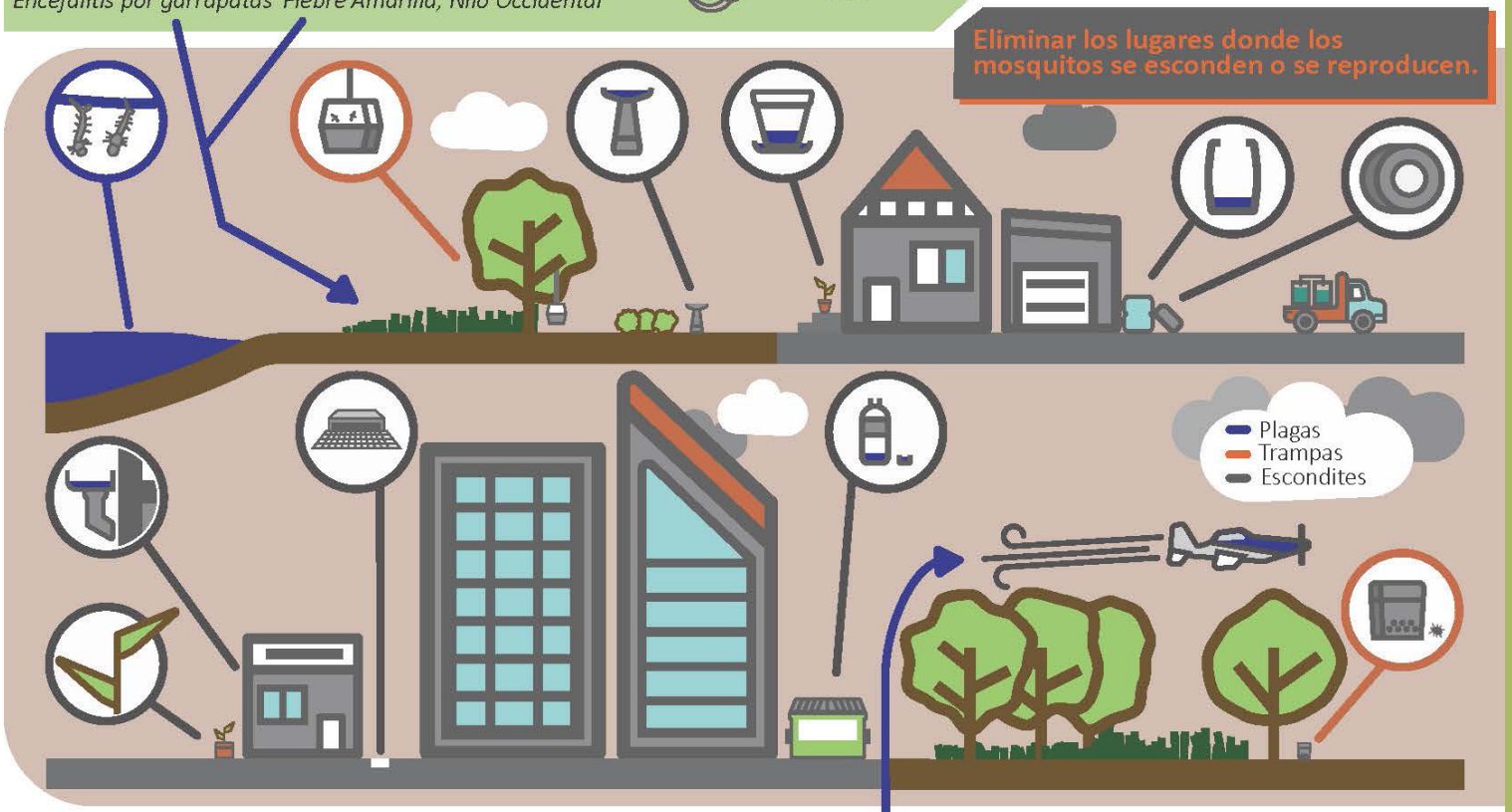
Que tipo de pesticidas se puede usar?

Los larvicidas impiden que los jóvenes se conviertan en adultos.

Los tipos incluyen bacterias, reguladores del crecimiento de insectos, aceites minerales y otras películas.

Los adulticidas matan insectos al contacto.

Los distritos de control de vectores pueden utilizar nebulizadores o pulverizadores de volumen ultra-bajo (ULV).

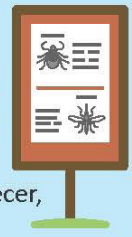


¿Qué puedo esperar que pase?

Los pulverizadores de volumen ultra-bajo (ULV) utilizan una pequeña cantidad de pequeñas gotas sobre un área grande.

Generalmente menos de 3 onzas por acre.

Algunas aplicaciones aéreas pueden requerir notificación, antes de que ocurren.



Las aplicaciones aéreas generalmente ocurren cerca del amanecer o al anochecer, cuando hay menos gente afuera.

¿Qué precauciones puedo tomar?

Considere quitar juguetes y tazones para mascotas y cubrir muebles de exterior, plantas comestibles, comederos para pájaros y baños.

Permanezca adentro durante y poco después de la aplicación, cierre puertas y ventanas y apague los sistemas de aire.

¿Por qué pulverizar grandes superficies?

Muchos lugares pueden ser criaderos o escondites para mosquitos y otros vectores. Es difícil encontrarlos todos a pie. **Los aviones** pueden fumigar áreas a las que los camiones no pueden llegar y pueden ser más efectivos.

¿Dónde puedo obtener más información?

npic NATIONAL PESTICIDE INFORMATION CENTER
800-858-7378

Control de Departamento

Vector de salud

npic.orst.edu/pest/vector_agencies.es.html
npic.orst.edu/mlr.es.htm

FACT SHEETS | SOCIAL MEDIA

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.

Our pesticide chemical (active ingredient) fact sheets answer common questions asked by the public about specific pesticides. They allow people to "dig deeper" for answers.

In 2024, NPIC created/updated four fact sheets:

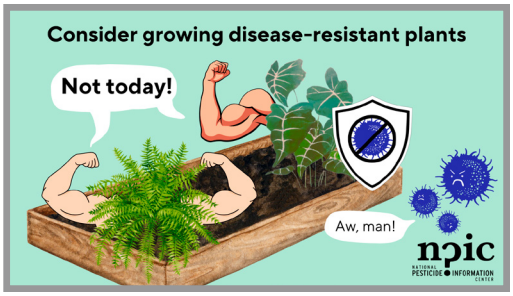
- **El aceite de neem** (neem oil)
- **El ácido bórico** (boric acid)
- **La tierra de diatomeas** (diatomaceous earth)
- **Paraquat**

Social Media

At NPIC, we understand that we have to meet people on familiar ground. By staying active on various social media platforms, NPIC can 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, along with the latest resources from NPIC and other reputable organizations.

285 posts this year



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 significant 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 2024

42 web-based events

webinars | recorded events

in-person events 13

seminars | invited speakers

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.

706 new documents added in 2024

Documents are uploaded in our searchable collection of Active Ingredient (AI) files for quick reference. The collection now includes more than 21,500 documents in 1,171 AI files. All of these documents are available for Specialists during conversations with the public and professionals.

We invested more than four 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, email, chat, 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:

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

5,901 inquiries

2024 Inquiry Types

4,570 informational
1,175 pesticide incidents
70% with known active ingredient
156 other (not pesticide related)

Staff Training & Experience

Our team of highly qualified Pesticide Specialists have 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 training process exposes new team members to a variety of topics, scenarios, and challenges.

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.

ecology and evolutionary biology
chemistry biology public health
environmental and occupational health
toxicology environmental science
entomology

PESTICIDE INQUIRY DATA

The following pages include details about the incidents and inquiries documented by NPIC from March 01, 2024 to February 28, 2025.

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 (e.g., child ate a mothball), intended exposures with adverse effects (e.g., illness in pets treated with flea/tick products), spills, and potential misapplications (e.g., a product intended for ornamental plants was applied to vegetables in the home garden).
- About 3% of the time, callers' main purpose for contacting NPIC was to report a pesticide incident. More often, they contacted NPIC to obtain technical information. See page 25. Regardless, NPIC specialists make every effort to collect complete information about scenarios that meet the NPIC incident definition. Approximately 20% 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 providing the inquirer a referral to the appropriate State Pesticide Regulatory Agency. See page 26.
- NPIC qualifies the information received by assigning a consistency 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 32.
- 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.

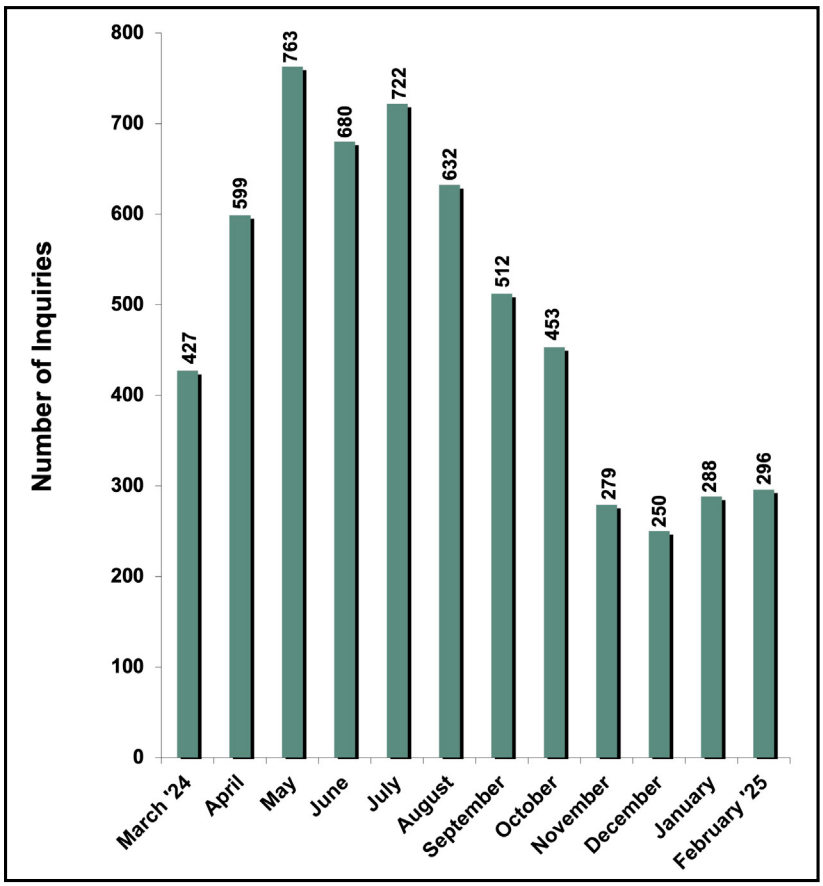
1. Monthly Inquiries

NPIC received 5,901 inquiries during this grant year. Graph 1 shows the number of inquiries received for each month. Seventy-four percent (74%) 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
March 2024	427
April	599
May	763
June	680
July	722
August	632
September	512
October	453
November	279
December	250
January	288
February 2025	296

Graph 1. Monthly inquiries



2. Type of Inquiry

NPIC classifies inquiries as information, incident, or other (not pesticide related) 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.

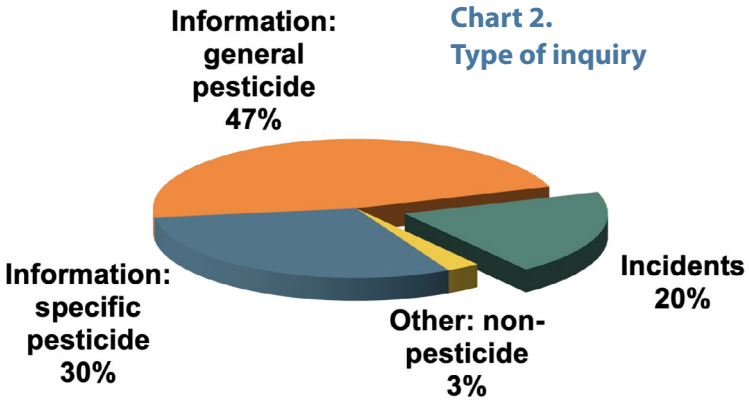
The majority of inquiries (4,570 or 77%) were informational inquiries about pesticides or related topics. NPIC responded to 2,776 (47%) information inquiries about pesticides in general. NPIC responded to 1,794 (30%) information inquiries relating to specific pesticides or active ingredients.

NPIC documented 1,175 incidents involving pesticides (20%). Pesticide specialists routinely provided 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	2776
Information - Specific Pesticide	1794
Incidents	1175
Other (nonpesticide)	156
Total =	5901

Chart 2. Type of inquiry



3. Origin of Inquiry

Table 3 summarizes the origin of inquiries received by NPIC. About 85% of inquiries were received by phone. In Quarter 4, NPIC introduced a new method of inquiry response using LiveChat software. LiveChat was launched for a limited selection of NPIC web pages on February 24th, 2025. NPIC responded to 10 inquiries via chat in Quarter 4.

Table 3. Origin of inquiry

Origin of Inquiry	Total
Phone	4248
Email/Social Media	883
Voicemail	759
LiveChat	10
Mail	1
Total =	5901

4. Website Access

The NPIC website attracted more than 2.7 million "new" visitors viewing 3,779,737 pages during this period. The average visit duration was approximately 57 seconds.

Most page views originated from queries on popular search sites (70%). Others were connected with NPIC from a bookmark (29%) or direct link (i.e., shared via email).

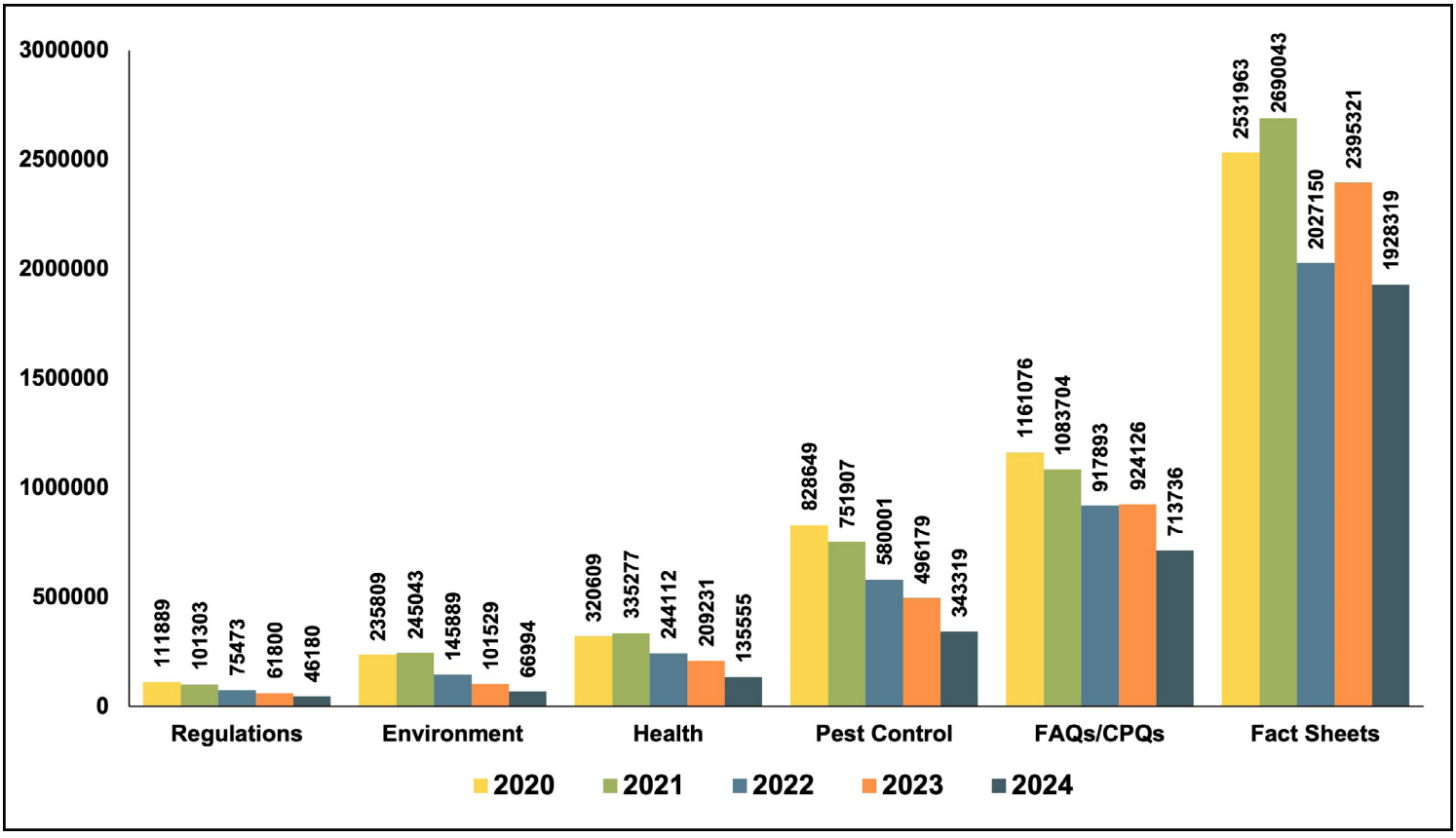
The most popular pages viewed were:

- Diatomaceous Earth Fact Sheet (382,265)
- Neem Oil Fact Sheet (154,083)
- ¿El veneno para ratas (rodenticidas) puede dañar a los niños y las mascotas? (126,790) (Can rat poison (rodenticides) hurt kids and pets?)
- ¿Por qué tengo cucarachas en mi casa? (81,736) (Why do I have cockroaches in my home?)
- Glyphosate Fact Sheet (80,060)

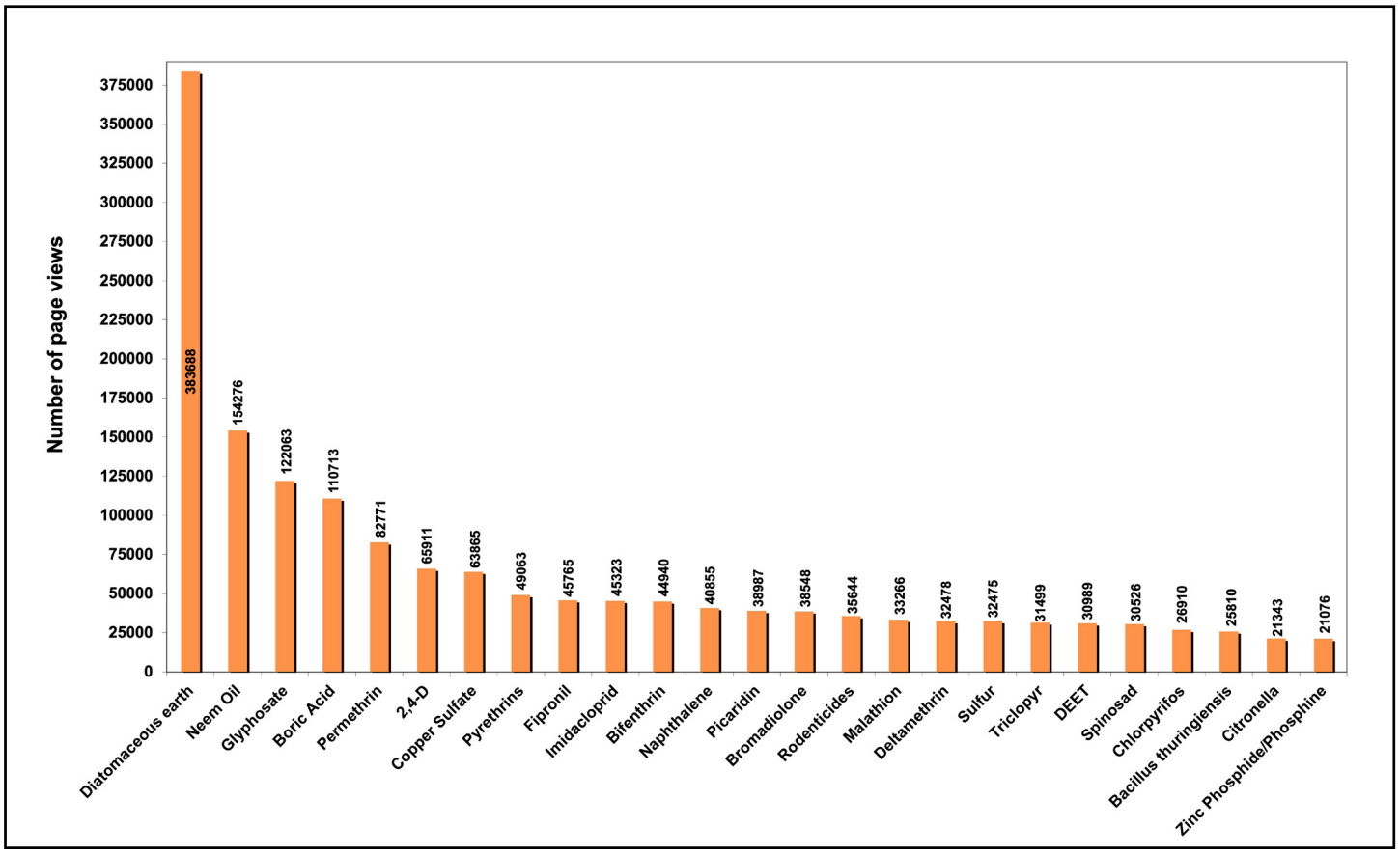
Table 4. Selected page views by category

Page accessed	English page views	Spanish page views
Fact Sheets	1,887,125	41,194
FAQs	276,960	436,776
Pest Control	165,131	178,188
Health and Safety	67,842	67,713
Environment	45,641	21,353
Regulations	42,734	3,446

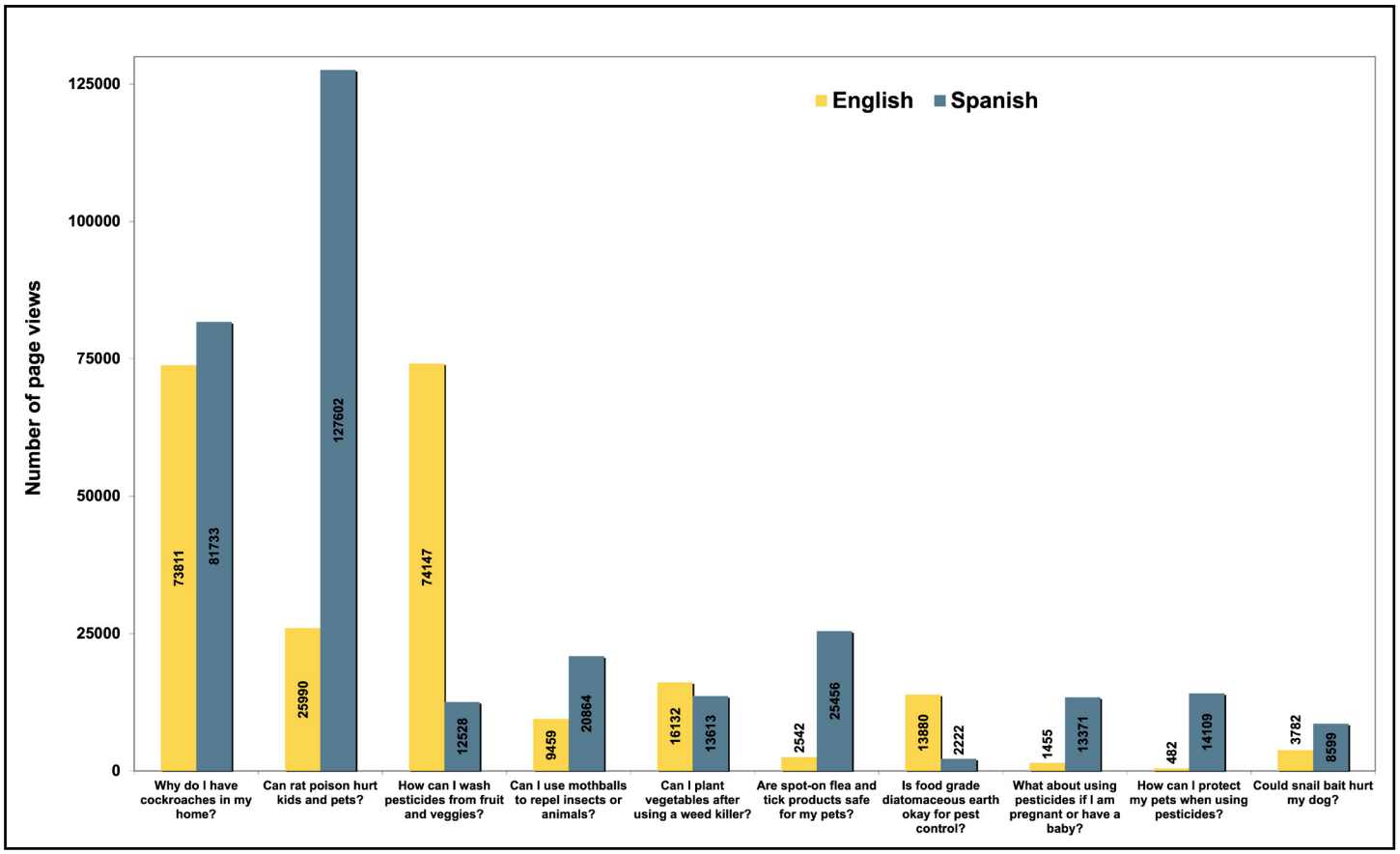
Graph 4.1. Category of web pages viewed by year



Graph 4.2. Top 25 active ingredient fact sheet pages viewed



Graph 4.3. Top 10 pages viewed about frequently asked questions



5. Type of Inquirer

Table 5 summarizes the profession/occupation of individuals contacting NPIC. The majority of inquiries to NPIC are from the public. Of the 5,901 inquiries received, there were 5,307 (90%) from the public, 110 from pesticide manufacturers, 92 from federal, state, local government agencies or schools, and 44 from human or animal medical personnel.

Chart 5 summarizes the 92 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 U.S. EPA, state pesticide regulatory agencies, and police, among others.

Chart 5. Inquiries from federal / state / local agencies

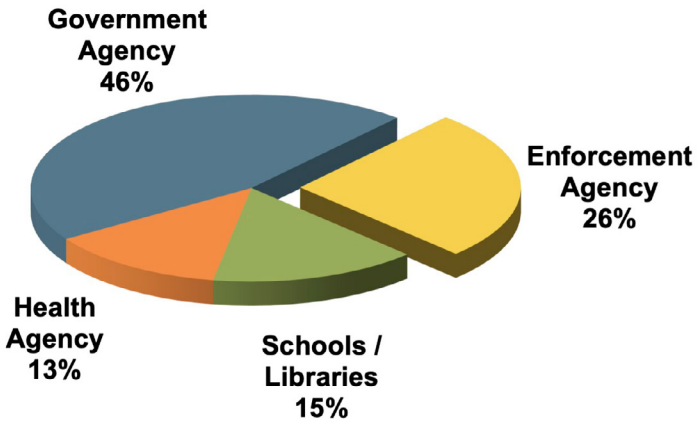


Table 5. Type of inquirer

Type of Inquirer	Total
General Public	5307
Federal/State/Local Agencies	
Government Agency	42
Enforcement Agency	24
Schools / Libraries	14
Health Agency	12
Medical Personnel	
Human Medical	29
Animal / Vet / Clinic	15
Agencies or Organizations	
Pesticide Mfg. or Mktg. Co.	110
Pest Control	65
Farm(er)/Fertilizer	29
Labs/Consulting	23
Media/Authors	20
Environmental Organizations	19
Retail Store/Nursery	17
Info Service/Unions	15
Master Gardener	10
Lawyers/Insurance	5
Vector Control	5
Beekeeper	4
Migrant Ag Worker	4
Non-migrant Ag Worker	3
Other	129
Grant Year Total =	5901

6. Type of Question

The questions received at NPIC are most often related to health (e.g., effects to humans and animals, risk, etc.), pest control (e.g., how to control a pest, pest habits, etc.), and application (e.g., methods, label clarity, etc.). "Other" questions (750) include all wrong numbers and people seeking their pest control companies, among others.

Questions about how to follow pesticide label directions are coded as "application" (736). Questions about regulations (581) range from "How do I get a new product registered?" to "Can the authorities make my neighbor stop spraying?"

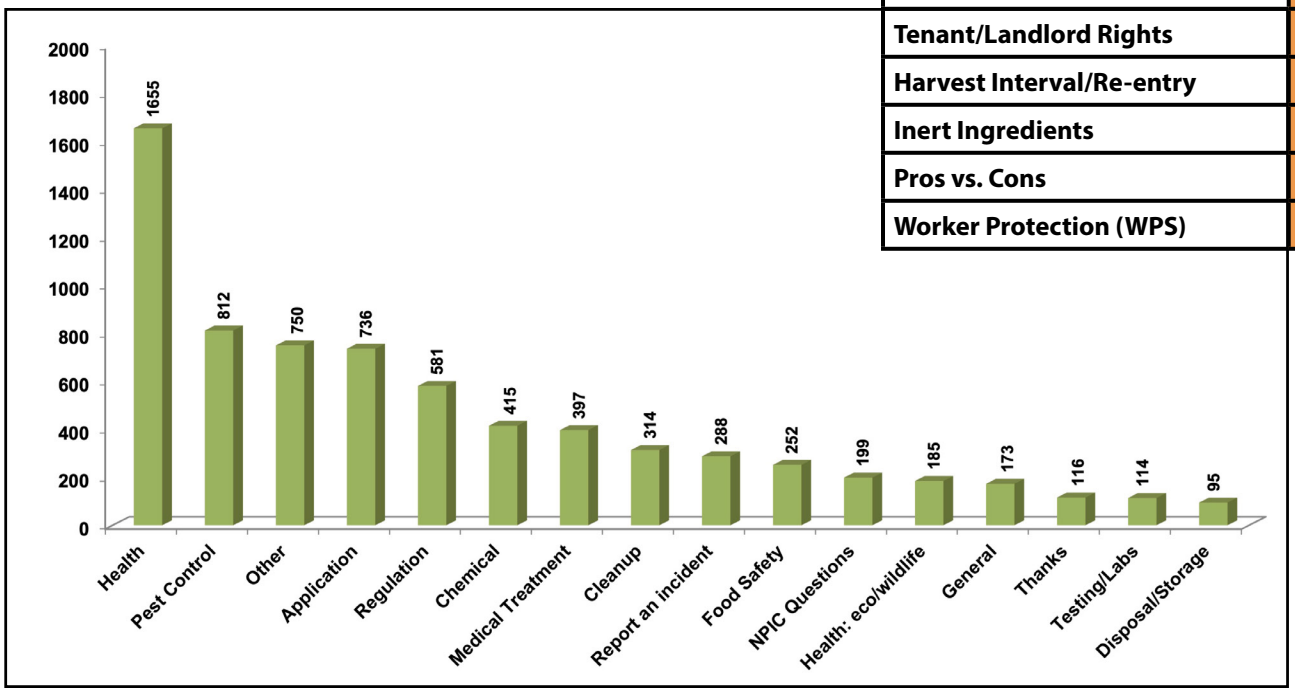
People contacted NPIC specifically to report a pesticide incident 288 times. In these cases, NPIC provided people with appropriate local referrals for enforcement as needed. NPIC standard operating procedure is to refer all inquiries with regulatory or compliance concerns to enforcement agencies, regardless of their primary reason for contacting NPIC.

Inquiries may involve more than one type of question. Inquirers asked 7,309 questions during this grant year in the course of 5,901 inquiries.

Table 6. Type of question

Type of Question	Total
Health: human/domestic	1655
Pest Control	812
Other	750
Application	736
Regulation	581
Chemical	415
Medical Treatment	397
Cleanup	314
Report an incident	288
Food Safety	252
NPIC Questions	199
Health: eco/wildlife	185
General	173
Thanks	116
Testing/Labs	114
Disposal/Storage	95
Just Wants Another Contact	49
Where to Buy a Product	42
Financial Assistance	40
Tenant/Landlord Rights	27
Harvest Interval/Re-entry	22
Inert Ingredients	19
Pros vs. Cons	19
Worker Protection (WPS)	9

Graph 6. Type of question



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 (4,988) were answered by providing information over the phone. Information was also sent via email in 931 cases. Upon request, materials were mailed to people contacting NPIC 25 times during the grant year.

Table 7.1. Primary action taken

Primary Action Taken	Number of Inquiries
	2024
Verbal Info	4988
Emailed Info	931
Handled Inquiry in Spanish	130
Transferred to EC / PC	118
Transferred to Specialist / Voicemail	58
Mailed Info	25
Interpreted via Language Line Svs	20
Sent NPIC Outreach Material(s)	13

Risk reduction actions:

NPIC keeps track of certain conversation topics aimed at reducing pesticide risk. Specialists documented 3,130 risk reduction actions, detailed in Table 7.2.

Table 7.2. Risk reduction actions

Risk Reduction Action Taken	Number of Inquiries
	2024
Discussed Following the Label	1475
Discussed Ways to Minimize Exp.	1188
Discussed IPM Concepts	370
Discussed Environmental Protection	97

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. NPIC follows standard operating procedures to provide contact information for appropriate enforcement agencies any time callers share compliance or regulatory concerns.

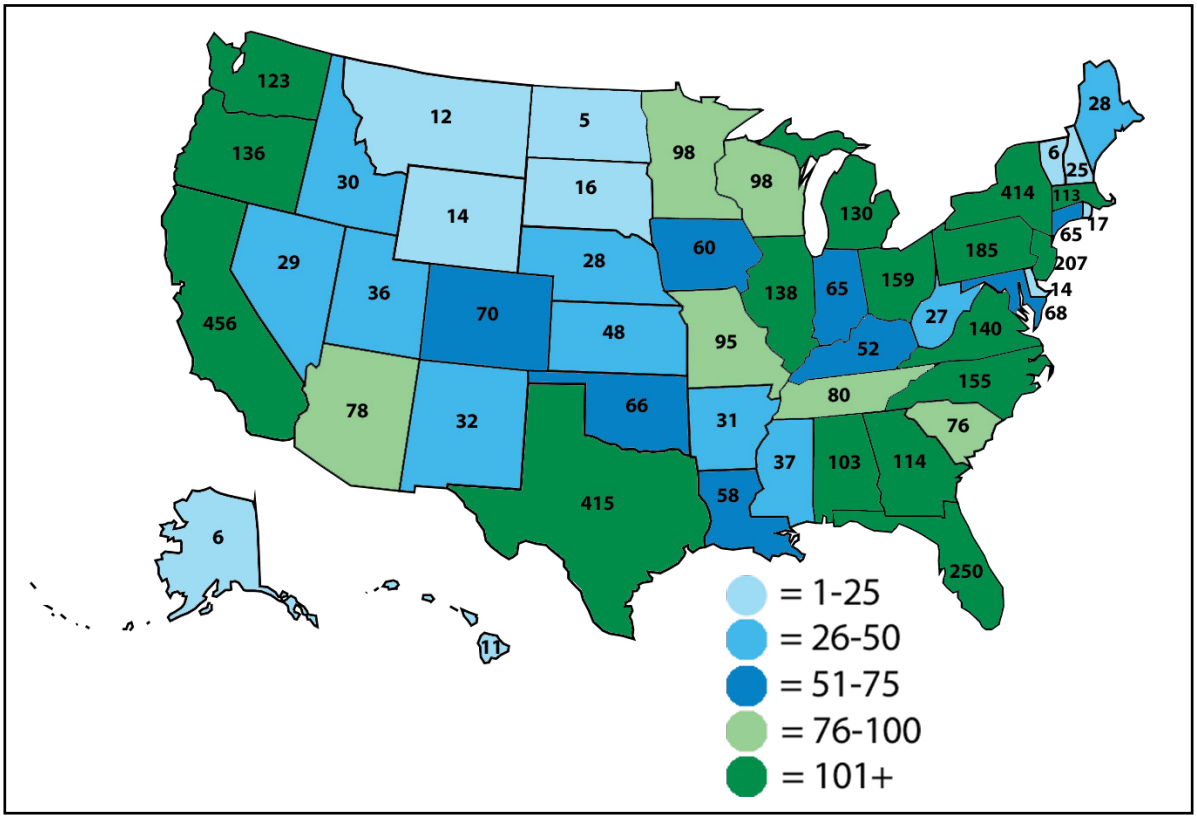
Table 7.3. Referrals to other organizations

Organization Name	Number of Inquiries
	2024
Manufacturer / Distributor contact	1117
NPIC Website	832
County Extension contact	716
State Lead contact	611
Other Org. contact	490
Poison Control contact	375
EPA HQ / OPP contact	180
Animal Poison contact	179
EPA Website	128
Other State Agency contact	106
Dept of Health contact	99
Hazardous Waste contact	87
EPA Region contact	71
Other Fed Agency contact	34
OSHA contact	5

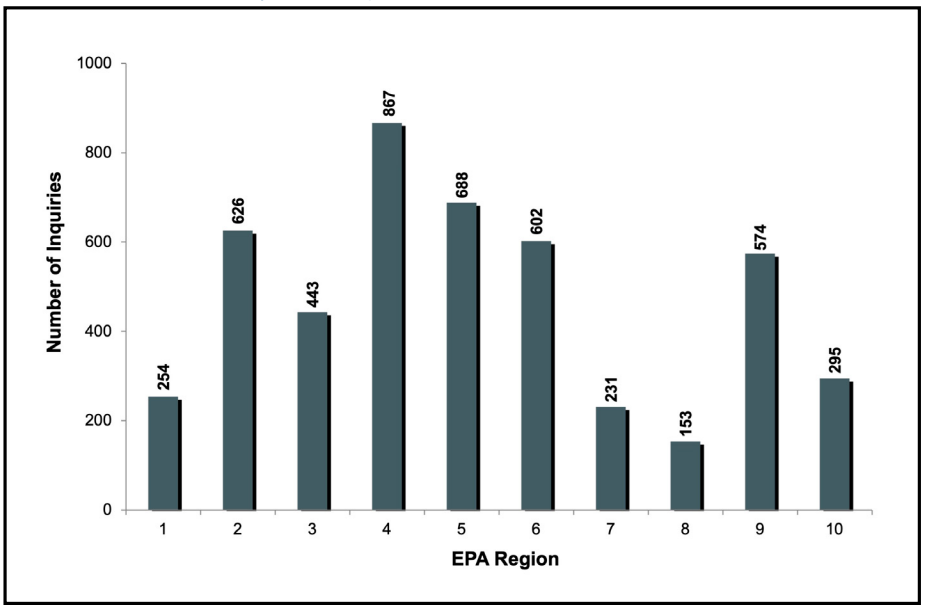
8. Inquiries by State

The map below shows the number of inquiries received by NPIC from each state. The largest number of inquiries came from California (456), Texas (415), New York (414), and Florida (250). In addition to the states, NPIC received inquiries from the District of Columbia (9), Canada (7), Puerto Rico (5), and other countries (115). Sometimes a state cannot be identified during the inquiry.

Graph 8 summarizes inquiries by EPA region.



Graph 8. Inquiries by EPA region



The top 5 regions with a known state were:

- Region 4 (18.3%)
- Region 5 (14.5%)
- Region 2 (13.2%)
- Region 6 (12.7%)
- Region 9 (12.1%)

9. Top 25 Active Ingredients for All Inquiries

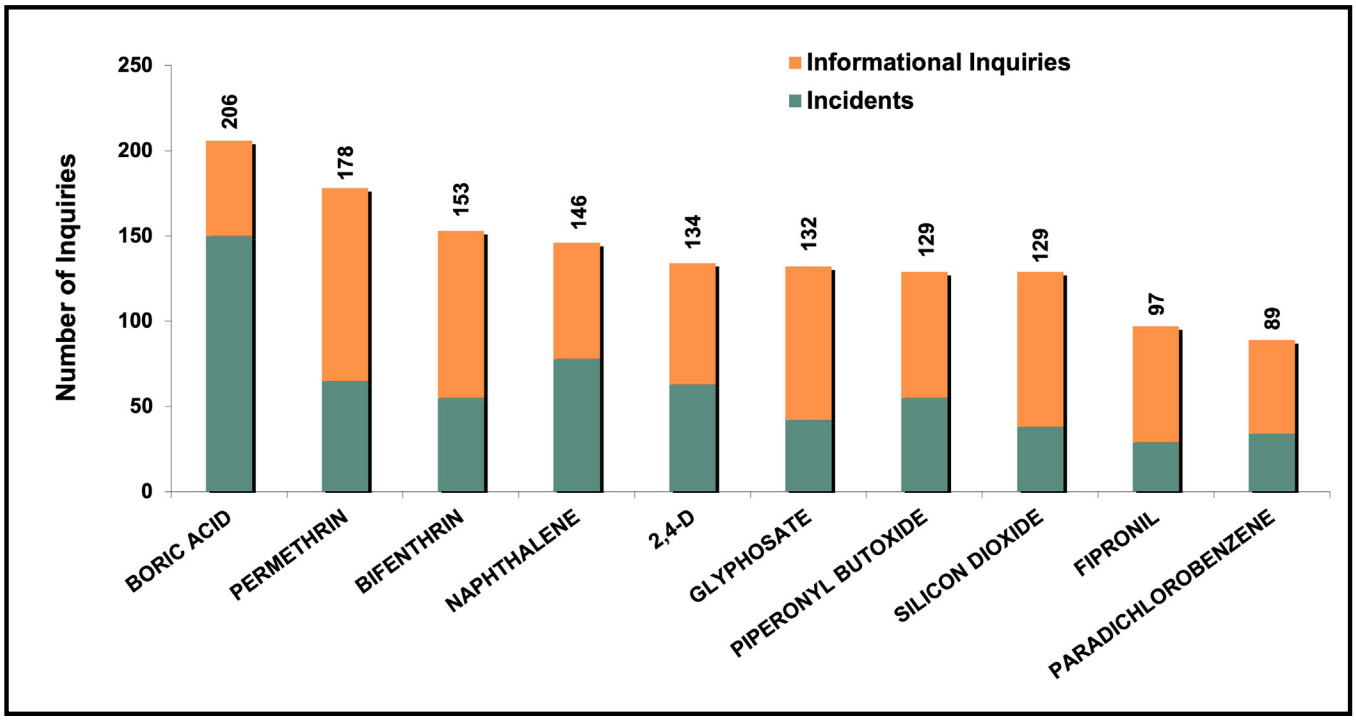
When inquiries to NPIC involve discussion of a specific product or active ingredient, specialists record the product and the active ingredient in the PID. Boric acid was discussed in more inquiries than any other single active ingredient this year (Table 9, Graph 9). Of the 206 inquiries involving boric acid, 150 (73%) 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 10 active ingredients discussed during the grant year.

Table 9. Top 25 active ingredients for all inquiries

Active Ingredient	Total Inquiries	Incident Inquiries	Information Inquiries
BORIC ACID	206	150	56
PERMETHRIN	178	65	113
BIFENTHRIN	153	55	98
NAPHTHALENE	146	78	68
2,4-D	134	63	71
GLYPHOSATE	132	42	90
PIPERONYL BUTOXIDE	129	55	74
SILICON DIOXIDE	129	38	91
FIPRONIL	97	29	68
PARADICHLOROBENZENE	89	34	55
PYRETHRINS	89	34	55
DICAMBA	83	29	54
DELTAMETHRIN	77	19	58
NEEM OIL	73	24	49
TRICLOPYR	69	22	47
CYPERMETHRIN	67	23	44
IMIDACLOPRID	58	30	28
ADBAC	57	16	41
CAPSAICIN	56	28	28
LAMBDA-CYHALOTHRIN	55	30	25
BACILLUS THURINGIENSIS	51	26	25
IMAZAPYR	48	19	29
IRON PHOSPHATE	45	36	9
PRODIAMINE	45	9	36
PYRIPROXYFEN	42	25	17

Graph 9. Top 10 pesticide active ingredients for all inquiries



10. Incident Type

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

There were 1,483 pesticide exposures and 465 accidents. Charts 10.1 and 10.2 provide further details. Among reported exposures, inhalation was the most common route of exposure (34%), followed by dermal contact (22%) and ingestion (19%). When an exposure occurred but could not be verified (e.g., a pet is found next to an open container), specialists documented "possible" exposure (11%). When a specific exposure route could not be identified, specialists documented an "unknown" exposure route (9%).

Indoor spills (50) were reported more often than outdoor spills (32). Among reported misapplications (262), 69% were misapplications by the homeowner or resident.

Chart 10.1. Pesticide exposures (Total: 1,483)

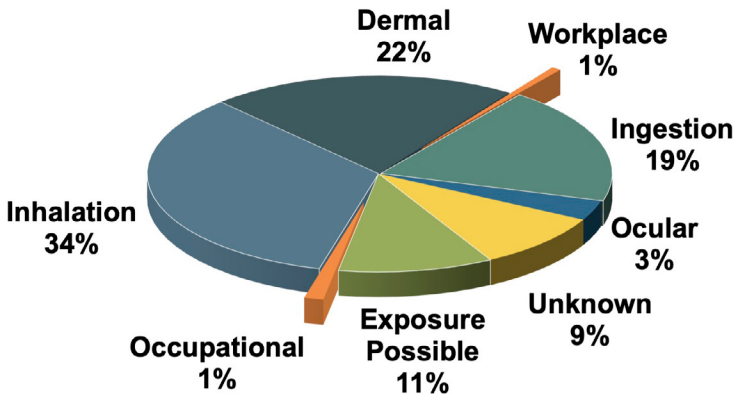


Chart 10.2. Pesticide accidents (Total: 465)

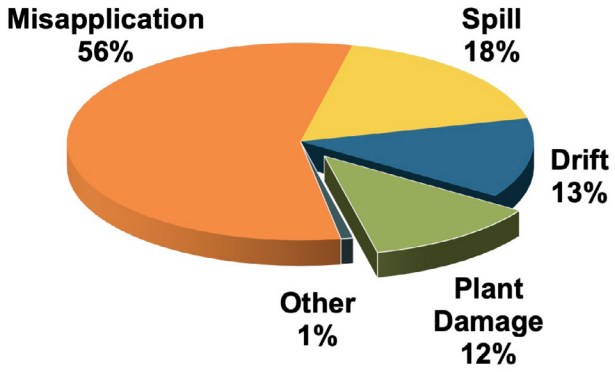


Table 10. Incident Type

Type of Incident	Total
Exposures	
Inhalation	503
Dermal	319
Ingestion	286
Exposure Possible	160
Unknown	137
Ocular	48
Occupational	20
Workplace	10
Accidents	
Misapp - Homeowner	181
Drift	61
Plant Damage	56
Spill - Indoor	50
Misapp - PCO	45
Spill - Outdoor	32
Misapp - Other	29
Missapp - Unknown	7
Other	4
Total =	1948

11. Top 25 Active Ingredients for Incidents

The 25 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 boric acid were involved in more reported exposures/accidents than any other active ingredients.

In Table 11, the top three active ingredients for human and animal exposures are highlighted below. Naphthalene, paradichlorobenzene, and boric acid were involved in the highest number of exposures for human incidents. The top three active ingredients with the highest number of exposures involving animals were boric acid, iron phosphate, and naphthalene.

Table 11. Top 25 active ingredients for incidents reported to NPIC[1]

Active Ingredient	Human Exposures	Animal Exposures	Other Accidents
NAPHTHALENE	115	25	113
PARADICHLOROBENZENE	103	14	91
BORIC ACID	65	77	17
PERMETHRIN	43	11	12
2,4-D	36	9	19
BIFENTHRIN	24	13	19
PIPERONYL BUTOXIDE	37	15	7
GLYPHOSATE	27	9	15
IRON PHOSPHATE	2	31	3
ABAMECTIN	2	24	1
SILICON DIOXIDE	28	3	7
PYRETHRINS	29	6	3
IMIDACLOPRID	9	16	5
DICAMBA	16	4	11
FIPRONIL	12	9	9
LAMBDA-CYHALOTHRIN	18	6	7
BROMETHALIN	2	17	3
BACILLUS THURINGIENSIS	11	10	5
CAPSAICIN	26	1	1
IMAZAPYR	14	1	11
PYRIPROXYFEN	10	10	6
DELTAMETHRIN	15	3	7
TRICLOPYR	12	1	10
NEEM OIL	20	1	3
CYPERMETHRIN	12	6	5

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

12. Locations of Exposure or Accident

For incidents, specialists record the location of an exposure or accident. Of the 1,774 locations where exposures or accidents were documented, 81% occurred in the home or yard, 6% occurred at the intersection of home and agricultural property, and 4% occurred in an agricultural setting. Table 12 identifies the number of exposures or accidents reported to NPIC in a variety of other locations.

Based on inquiries, NPIC saw an increase in incidents occurring at natural (e.g., ponds, lakes, streams) and treated water locations in 2024 (50) compared to 2023 (11).

Table 12. Location of exposure/accident

Location	Total
Home - Inside	842
Home - Outside	588
Ag/urban interface	104
Agricultural	72
Pond/Lake/ Stream	32
Nursery/Greenhouse	26
Vehicle	20
Treated Water	18
Other	15
Roadside/Right-of-Way	15
School/Day Care	13
Health Care Facility	8
Park/Golf Course	8
Office Building	6
Food Service/Restaurant	4
Industrially Related	3
Total =	1774

13. Environmental Impact

Table 13 presents the type of incidents reported for each kind of environmental or built entity. The most common environmental incidents reported to NPIC involve pesticide misapplications to buildings by residents (83).

Table 13. Reported environmental impacts

	Drift	Misapplication: Resident	Misapplication: Other	Misapplication: PCO	Misapplication: Unknown	Other	Plant Damage	Spill: Indoor	Spill: Outdoor
Agricultural Crop	12	2	3	0	1	0	7	0	0
Building - Home/Office	1	83	12	12	4	2	0	45	6
Home Garden	34	27	3	21	1	0	32	0	1
Home Lawn	0	15	2	1	0	0	3	0	3
Natural Water	1	1	0	3	0	0	0	0	2
Other[1]	0	0	1	1	0	0	0	0	4
Property	1	9	4	1	0	0	0	2	2
Soil/Plants/Trees	9	28	2	5	1	1	14	0	9
Treated Water	1	4	0	0	0	0	0	0	5
Vehicle	0	2	1	0	0	0	0	3	0

[1] "Other" refers to miscellaneous items not included in previous categories (e.g., sidewalk, food).

14. Consistency Index

Table 14 and Graphs 14.1 and 14.2 summarize the consistency 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 (1,621), 21% of the cases were assigned a consistency index of "consistent," 7% were assigned an index of "inconsistent," and 72% 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 consistency index assignment for "definite" is rarely assigned.

Consistency index assignments for all human and animal incidents through June 7, 2024 were reviewed by a quality assurance specialist and Dr. Berman, DVM, who provided additional consultation for human and animal incidents. Additional quality assurance for incidents after June 7, 2024 were not available due to a change in the subaward supporting Dr. Berman.

What is the consistency index?

The consistency 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.

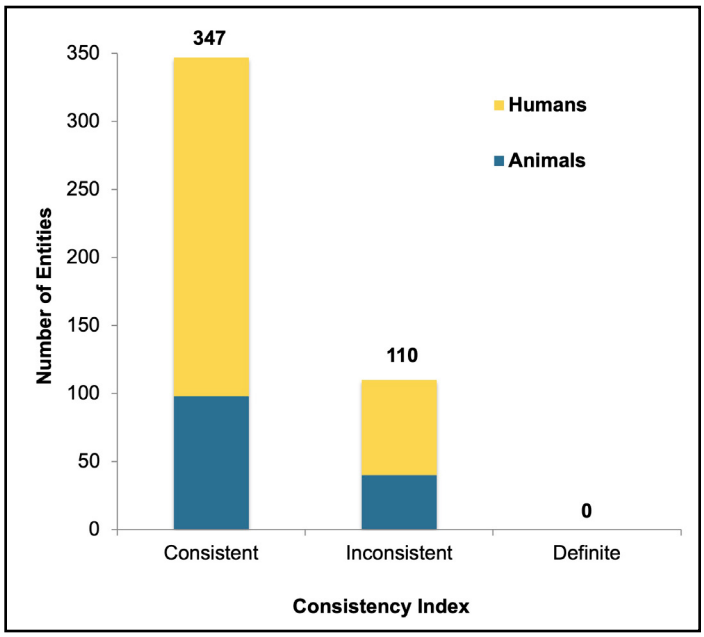
The consistency index is "**unclassifiable**" when one or more of the following criteria apply:

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

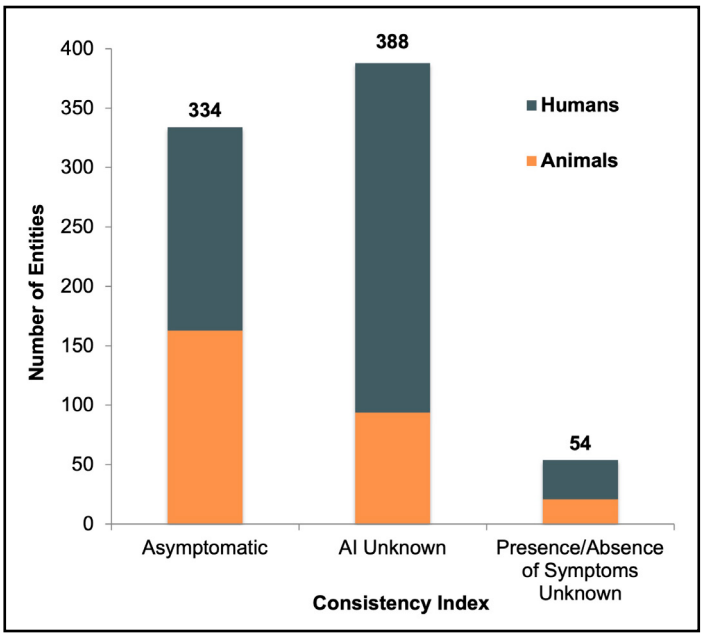
Table 14. Incident inquiries by consistency index (CI)

CI for All Categories of Entities					Breakdown of Human-Entity Incident Inquiries			
Consistency Index (CI)	Humans	Animals	Other	Total	Male	Female	Groups	Gender Not Stated
Unclassifiable	498	278	388	1164	154	241	84	19
Definite	0	0	0	0	0	0	0	0
Consistent	249	98	0	347	100	129	17	3
Inconsistent	70	40	0	110	28	39	3	0

Graph 14.1. Consistency index for incidents



Graph 14.2. Unclassifiable CI categories



15. Severity Index

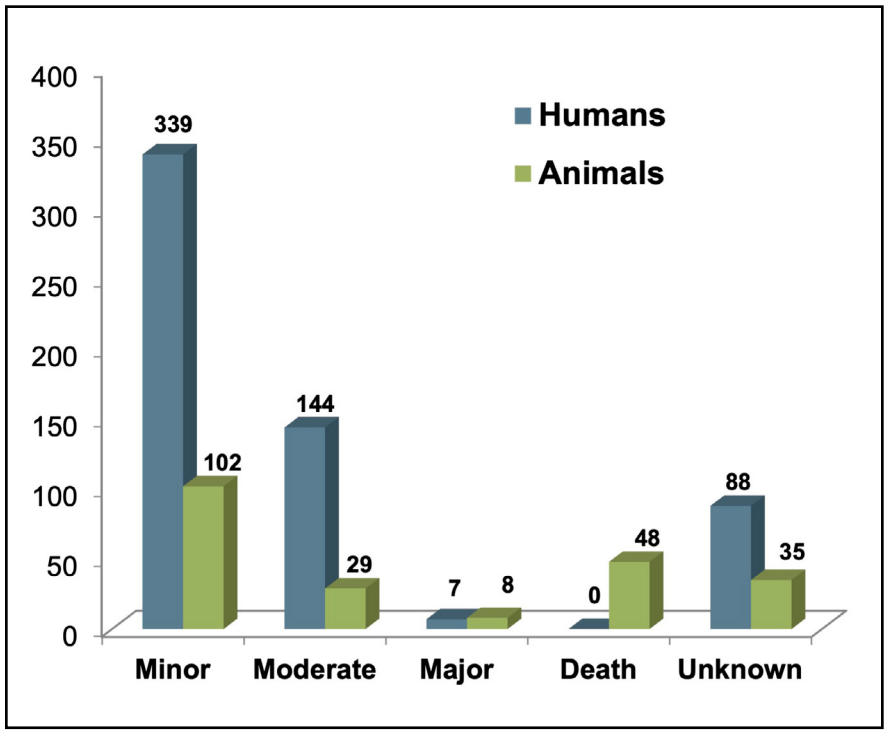
Table and Graph 15 summarize the severity of symptoms for all human and animal incidents reported to NPIC.

For all human pesticide incidents with reported exposures, 41% had minor symptoms, 18% had moderate symptoms, and 1% had major symptoms. Symptoms were unknown in 11% of human incidents. In 29% 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	339	102	441	117	191	23	8
Moderate	144	29	173	52	78	12	2
Major	7	8	15	4	3	0	0
Death	0	48	48	0	0	0	0
Unknown	88	35	123	23	34	22	9
Asymptomatic	239	194	433	86	103	47	3

Graph 15. Severity index for human and animal incidents



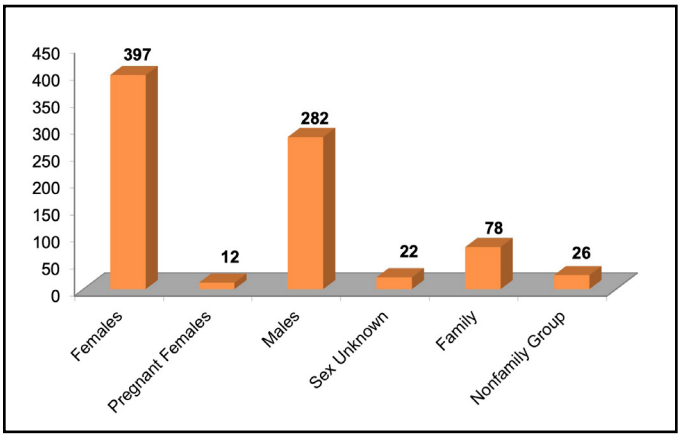
What is the severity index?

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).

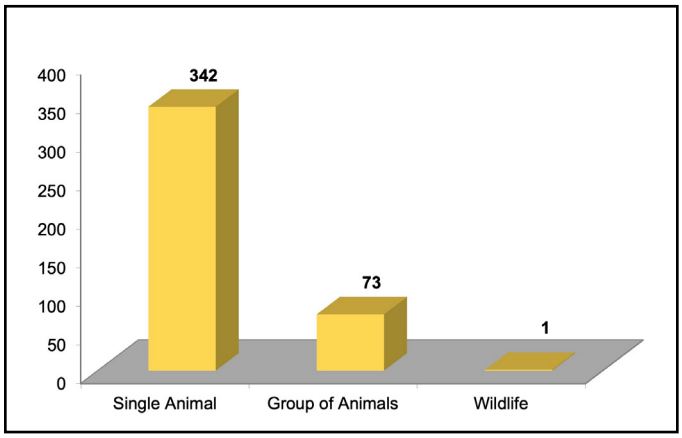
16. Description of Entities

The chart and graphs below provide a summary of entities involved in pesticide incidents. Of the 1,621 entities, 50.4% were human, 25.7% were animals, 11.5% were natural environmental entities (cultivated and wild plants, soil, water bodies) and 12.4% were part of the built environment (buildings, vehicles, or other manmade property). Pesticide incidents may involve multiple entities.

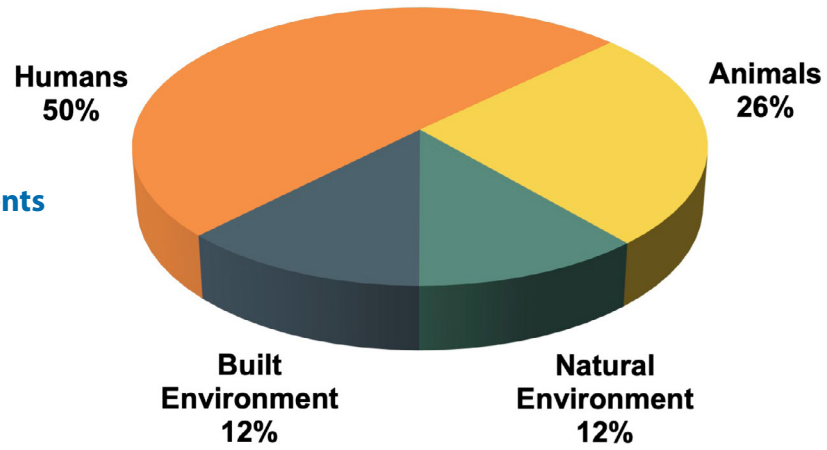
Humans Involved in Incidents

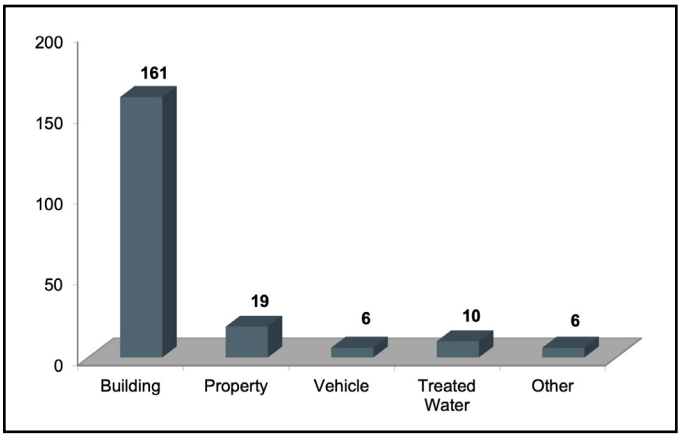


Animals Involved in Incidents

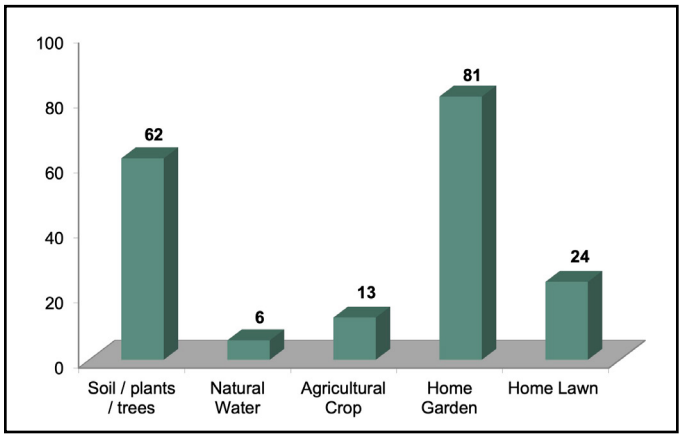


Entities Involved in Incidents





Built Environment Involved in Incidents



Natural Environment Involved in Incidents

17. Reported Deaths

Of the 817 human entities and 416 animal entities involved in pesticide incidents, 48 deaths were reported. Of those, there were 33 animal deaths where the active ingredients were known (Table 17.1).

Table 17.2 describes reported deaths with known active ingredient(s) where signs and/or symptoms were consistent with literature, in the context of the reported exposure scenario.

Table 17.1. Reported deaths with known active ingredient

Reported Deaths	Total
Animal Deaths	
Single Animal	19
Group of Animals	13
Wildlife	1
Total =	33

Table 17.2. Reported animal deaths with compatible signs/symptoms

PESTICIDE PRODUCT	ACTIVE INGREDIENT	INCIDENT TYPE	ENTITY	STATE
SPEER REPELLENT TOWELETTE II	PIPERONYL BUTOXIDE | N-OCTYL BICYCLOHEPTENE DICARBOXIMIDE | PYRETHRINS	Exposure: Dermal	Single Animal	PA
N/A	BIFENTHRIN	Exposure: Ingestion | Exposure: Inhalation | Exposure: Ocular | Exposure: Dermal	Group of Animals	MI
POISONED GRAIN FOR GOPHERS	STRYCHNINE	Exposure: Ingestion	Single Animal	CA
FRONTLINE PLUS FOR DOGS	FIPRONIL | METHOPRENE	Exposure: Dermal	Single Animal	CA
SERGEANT'S SILVER SQUEEZE-ON FOR CATS & KITTENS	ETOFENPROX	Exposure: Dermal	Single Animal	CA
N/A	METHOMYL	Exposure: Ingestion	Single Animal	KY
CYPER WSP	CYPERMETHRIN	Exposure: Unknown	Group of Animals	MN
FRONTLINE PLUS	FIPRONIL | METHOPRENE	Exposure: Dermal	Single Animal	CA
SERGEANT'S SILVER SQUEEZE-ON FOR CATS & KITTENS	ETOFENPROX	Exposure: Dermal	Single Animal	CA
ADVANTAGE II CATS 9+ POUNDS	PYRIPROXYFEN | IMIDACLOPRID	Exposure: Dermal	Single Animal	CA
BIFENTHRIN TC INSECTICIDE/ TERMITICIDE	BIFENTHRIN	Exposure: Possible	Single Animal	NH
N/A	BIFENTHRIN	Exposure: Ingestion | Exposure: Inhalation | Exposure: Ocular | Exposure: Dermal	Group of Animals	MI
N/A	SPINOSAD	Exposure: Possible	Group of Animals	CA
SERGEANT'S SILVER SQUEEZE-ON FOR CATS & KITTENS	ETOFENPROX	Exposure: Dermal	Single Animal	CA
N/A	ALPHACHLORALOSE	Exposure: Ingestion	Group of Animals	UT
SUSPEND POLYZONE	DELTAMETHRIN	Exposure: Possible	Single Animal	CA
ENOZ OLD FASHIONED MOTHBALLS	NAPHTHALENE	Exposure: Ingestion | Exposure: Inhalation | Exposure: Ocular | Exposure: Dermal	Group of Animals	TX
STRYCHNINE MILO	STRYCHNINE	Exposure: Ingestion	Group of Animals	WY
HARTZ 2 IN 1 PLUS SEVEN MONTH COLLAR FOR CATS	TETRACHLORVINPHOS	Exposure: Dermal	Single Animal	MA
CRYSTAL BLUE COPPER SULFATE SMART CRYSTALS	COPPER SULFATE	Exposure: Ingestion | Exposure: Inhalation | Exposure: Dermal	Group of Animals	TX
FRONTLINE SHIELD FOR DOGS	PERMETHRIN | FIPRONIL | PYRIPROXYFEN	Exposure: Dermal	Single Animal	FL

18. Entity Age

Table 18 and Graph 18 summarize the ages of people involved in incidents reported to NPIC. Among 713 single human entities, NPIC was able to collect the person's age 77% of the time. NPIC aims to capture the age for all human entities; occasionally callers decline to provide that information.

Among the 549 humans with known age, 13% were children (ages 4 and under), and 27% were seniors (ages 65 and over).

Graph 18. Age of people involved in reported incidents

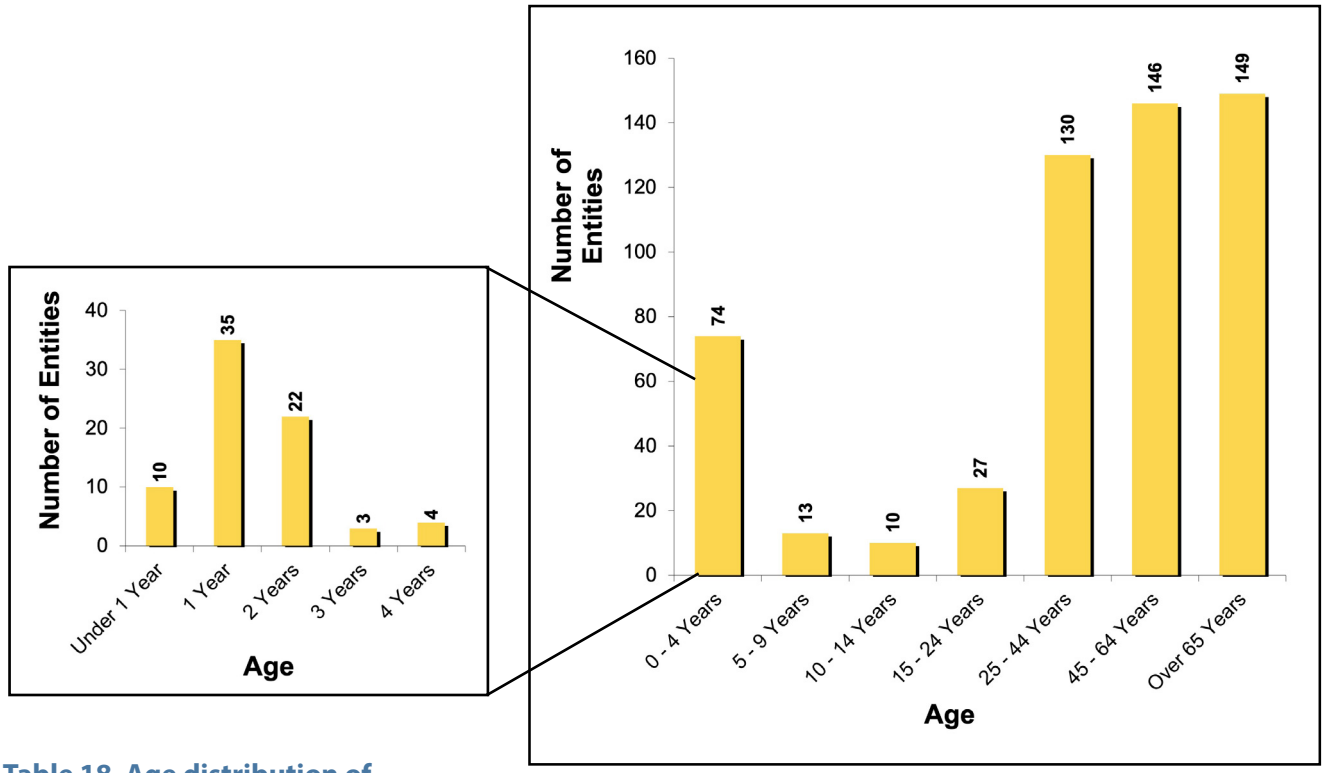


Table 18. Age distribution of people involved in reported incidents

Age Category	Total
Under 1 year	10
1 year	35
2 years	22
3 years	3
4 years	4
Total (0 - 4 years) =	74
5 - 9 years	13
10 - 14 years	10
15 - 24 years	27
25 - 44 years	130
45 - 64 years	146
Over 65 years	149

19. Notable Exposures

Figure 19.1

Of 1,233 human and animal entities, 845 involved reported exposure to one or more known active ingredients.

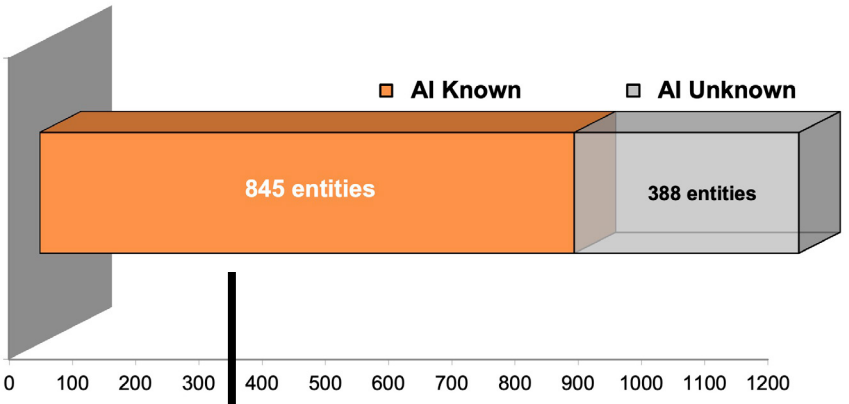


Figure 19.2

Human and animal entities exposed to a pesticide with at least one known active ingredient, with reported signs/symptoms.

Total = 457 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.

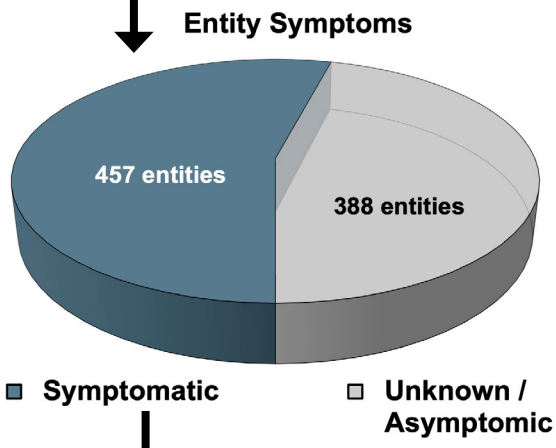


Figure 19.3

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

Total = 347 entities

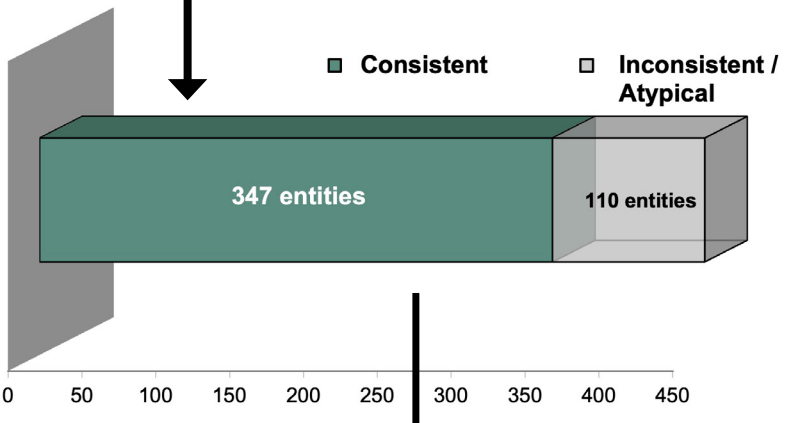
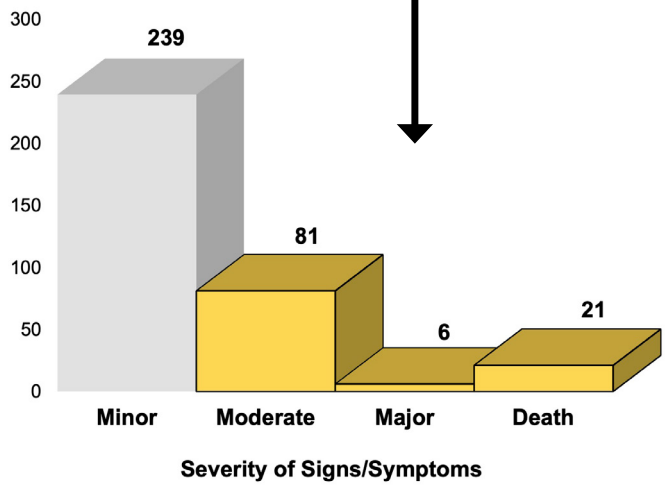


Figure 19.4

Human and animal entities with consistent signs or symptoms greater than minor in severity (108) are represented by the yellow bars.



20. Veterinary Incident Report Portal

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).

In 2024, veterinarians submitted three incident reports to the VIRP involving three animals (two canines, one feline). All VIRP reports are forwarded to EPA quarterly in their entirety.

Of the three reports with a known product type, all were insecticide products (two spot-on, one liquid bait).

Symptoms reported to the VIRP 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, 60% were classified as neurological and 40% were classified as gastrointestinal.

Incident outcomes as reported may involve multiple animals in each VIRP report. Thus, totals reflect the number of animals, as opposed to the number of reports. Of the total number of animals (3) involved in VIRP incident reports, 67% of the cases were ongoing and 33% reported illness.

21. Ecological Incident Reporting

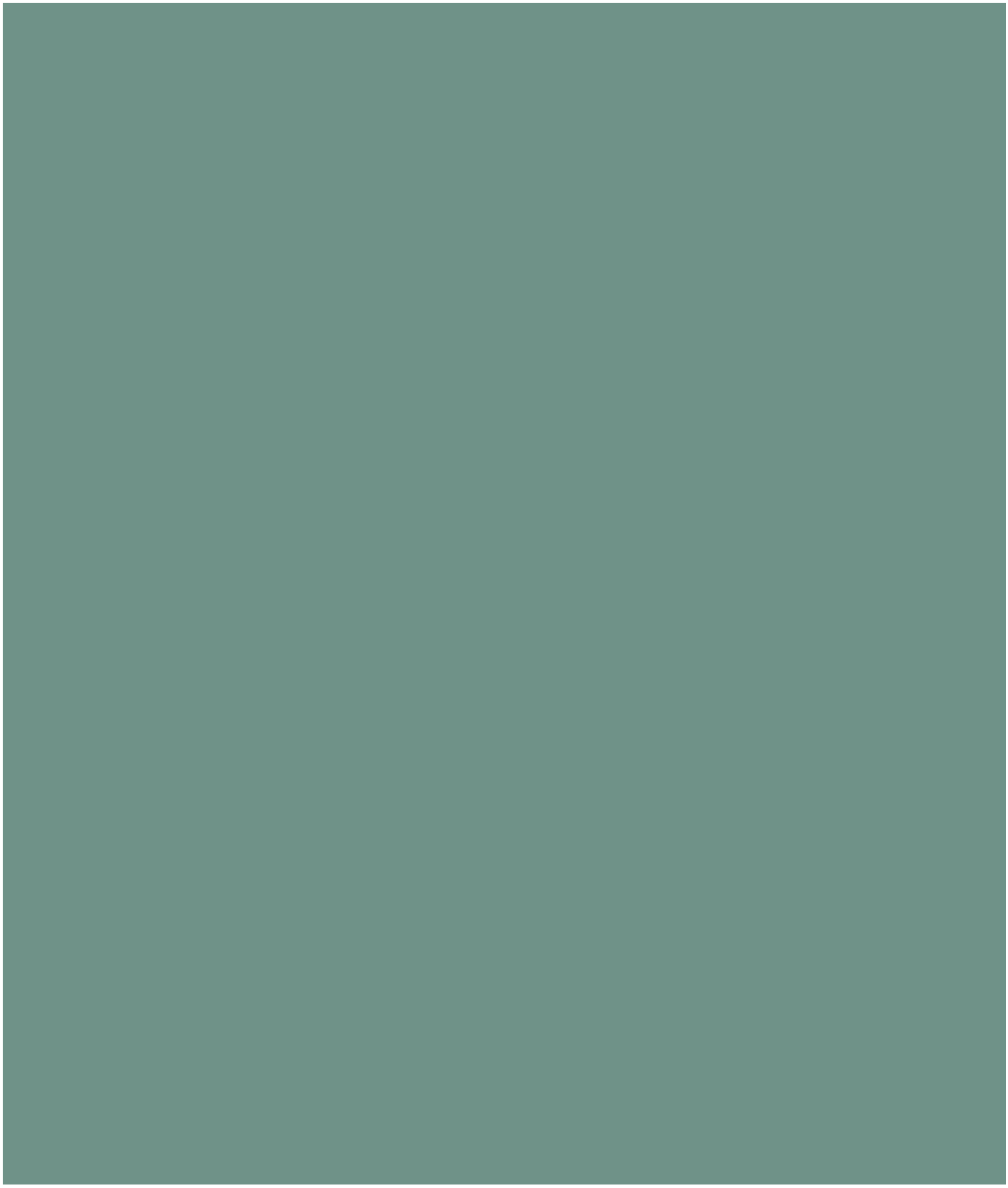
In 2009, NPIC developed a web-based portal to facilitate reporting of ecological incidents. It was designed by the U.S. EPA Office of Pesticide Programs (OPP), then built and hosted by Oregon State University.

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. More recently, NPIC developed programming to make that delivery automatic and immediate.

Reports submitted to the Eco-portal in 2024 involved possible exposures to bees (24), terrestrial plants (3), terrestrial insects (2), fish (2), mammals (1). Table 21.1 summarizes the active ingredients involved in the 32 reports submitted to the Eco-portal.

Table 21.1. Reported active ingredients involved in the Eco-reports

Active Ingredient	Quantity
UNKNOWN	27
CYPERMETHRIN	4
BIFENTHRIN	3
PERMETHRIN	2
NITROGEN	1
NAPHTHALENE	1
PARADICHLOROBENZENE	1
SULFURYL FLUORIDE	1
PRALLETHRIN	1
LAMBDA-CYHALOTHRIN	1
NALED	1
DIBROM	1
HYDROPENE	1
HONEY	1



Cooperative Agreement #X8-84067801
Environmental & Molecular Toxicology
Oregon State University
310 Weniger Hall
Corvallis, OR 97331-6502
npic.orst.edu