

# npic

NATIONAL  
PESTICIDE ● INFORMATION  
CENTER

-2007-

Environmental & Molecular Toxicology

Oregon State  
UNIVERSITY

**OSU**

*This is the thirteenth annual report for the National Pesticide Information Center (NPIC) since it began operation at Oregon State University in April, 1995. NPIC, a service providing a variety of pesticide and pesticide-related information to the general public and professionals across the United States, Puerto Rico and the Virgin Islands, is a cooperative project between Oregon State University and the U.S. Environmental Protection Agency. This report, the 2007 Annual Report, covers the period April 1, 2007 - March 31, 2008, corresponding to NPIC's thirteenth grant year.*

#### **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. Thus, if a person alleges/reports a pesticide incident, it likely will be recorded as an incident by NPIC. Based on the information provided, NPIC qualifies the information by assigning a Certainty Index (CI; an indication of the degree of certainty that the purported incident was related to pesticide exposure) ranging from 1 = "definite" to 5 = "unrelated." 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 and report the information provided to NPIC.

Submitted To:

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NPIC Project Officer  
Pesticide Incident Response Officer  
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Submitted By:

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# NPIC 2007 Annual Report

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# EXECUTIVE SUMMARY

## Operations

- NPIC's thirteenth operational year at Oregon State University was from April 1, 2007 – March 31, 2008. During this period, NPIC received 23,787 inquiries (Graph 1.1). Eighty-two percent of these inquiries were received between March and October, occurring when pest pressures are at their highest. Approximately 93% of the total inquiries were addressed over the telephone. The NPIC web site continues to be an important source of objective information on pesticides. During the thirteenth operational year, the site received 1,471,883 hits (Graph 4.1), an increase of more than 325,000 hits compared to the previous year.

## Notable Items

- On July 1, 2007, Dr. Dave Stone became the director of NPIC with the resignation of Dr. Terry Miller.
- NPIC began to offer service in multiple languages in August 2007 through a new contract with Language Line Services, Inc. NPIC addressed 68 inquiries in Spanish, Russian, Chinese and Farsi in the 2007-08 grant year. NPIC also addressed numerous Spanish calls through its Spanish Resource Specialist.
- In November 2007, NPIC launched a redesigned web site to promote new services, provide updated content and to improve usability. The new web site conforms to established guidelines for access to users with disabilities.
- NPIC prepared special reports for incident data for 13 active ingredients or products. This included butoxypolypropylene glycol, methyl bromide, metam sodium, dazomet, 1,3-dichloropropene, metam potassium and chloropicrin, methyl eugenol, lime sulfur, Grant's Ant Control, acrolein, sodium cyanide and sodium fluoroacetate.
- NPIC developed an insect repellent efficacy web site and search tool with EPA-OPP. NPIC also continued development on a veterinary adverse effects reporting portal and database with EPA-OPP and the American Veterinary Medical Association.

## Trends in Data

- NPIC received 302 inquiries related to rodenticides containing zinc phosphide, of which approximately half were incidents (156).
- NPIC received 1,183 inquiries regarding the use of mothballs, including 693 mothball-related incidents and 433 reports of misapplication.
- NPIC received 388 inquiries related to bed bugs, up from 217 inquiries in the previous year.
- NPIC received 57 incident reports about Hartz Pet Products.

## Inquiries

- Most of the inquiries to NPIC came from the general public (88.0%), followed by government organizations (3.3%) and human and animal medical personnel (2.0%).
- While most of NPIC inquiries were informational (78.1%), there were 3,326 (14.0%) reports of pesticide incidents in 2007-08 (Table 2.1).
- The top active ingredients involved with incidents were: naphthalene (539), permethrin (225), metaldehyde (189), paradichlorobenzene (177) and zinc phosphide (156) (Table 11.1).
- For the top 25 active ingredients involved in incident inquiries, 9.2% were assigned a certainty index of 1 or 2, which designates a definite or probable association with the pesticide in question (Table 11.1).
- There were 3,847 entities involved in incidents reported to NPIC: 49.0% were human, 30.4% were animals and 20.6% were classified as other (structural or environment) (Chart 15.1).
- Of the 1,886 humans involved with incident inquiries, information about symptoms was provided for 1,649 reports. Of these, 55.0% were asymptomatic, 29.0% were symptomatic and 16.0% reported atypical symptoms (Chart 16.1).

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Note: The complete record of NPIC accomplishments for the current operational year includes the 12 monthly reports and 4 quarterly reports (submitted earlier), in addition to this "2007 Annual Report." This report covers the NPIC grant year April 1, 2007 through March 31, 2008.

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# EXECUTIVE SUMMARY

## Organization

- Among the 1,886 human entities involved in pesticide incident inquiries, one death was reported. Of the animal inquiries, 46 deaths were reported, with 12 of the incidents assigned a certainty index of 1 or 2 (Table 17.1, Chart 17.1).
- For human incidents, 25.8% involved children less than 5 years of age. Approximately 14% of incidents involved adults that were 65 years or older (Graph 18.1).
- For informational inquiries, pesticide use (34.6%) and health-related inquiries (31.6%) were the most commonly asked questions. Regulatory compliance consisted of 9.0% of questions (Chart 6.1).
- The highest number of inquiries to NPIC came from California, Texas and New York (Graph 9.1). Of the EPA regions, NPIC received the most inquiries from EPA Region 4, followed by EPA Region 5 and Region 9 (Graph 9.2).
- Examples of “health-related” inquiries include:

**Caller wants to apply an herbicide to their back yard. Caller has a well, used for drinking water, and wants to know if certain active ingredients can migrate through the soil and contaminate their well water.**

**Caller reported he has bed bugs and has purchased a product to apply to his mattresses but is concerned because he has a newborn baby at home. Caller asking if it is safe to use the product on the crib mattress.**

- Examples of pesticide incident inquiries include:

**Caller applied a flea and tick product containing ethofenprox to her dog this morning. Caller says now her dog is vomiting, drooling, and having tremors. Caller asked what should she do.**

**Caller applied a fruit tree spray and some of the liquid dripped onto his bare hands. Caller said the skin is “red and irritated” where he was exposed. Caller asked what to do next.**

- Seven specialists completed the training program during this grant year. NPIC’s current staff includes the Director and two co-investigators (executive committee), Dr. Miller, a project coordinator, an information resource supervisor, an administrative assistant, 12 pesticide specialists, a part-time fiscal/personnel manager, and two part-time undergraduate students.
- NPIC purchased 14 CS55™ Wireless Office Headset Systems from Plantronics® to enable specialists to answer pesticide inquiries while accessing NPIC’s hard-copy resources in several locations. In order to replace aging/malfunctioning equipment, fourteen Dell Precision T3400 Workstations and an Epson Powerlite 822P multimedia projector were purchased by NPIC. NPIC also renewed necessary software maintenance agreements and acquired a Xerox Phaser 4510DX laser printer for additional printing capacity.

## Web Corner

NPIC’s web site received over 1.47 million hits in this grant year, with a dramatic increase in traffic since the redesigned web site was launched (Graph 4.1).

The five top countries that accessed NPIC’s web site in 2007-08 were: 1) United States, 2) Canada, 3) United Kingdom, 4) China and 5) India.

NPIC case profiles received 15,669 hits last year. “Mothballs” was the most accessed profile (Graph 4.5). NPIC medical case profiles received 10,383 hits, with “Organophosphate Biomarkers” as the most accessed profile (Graph 4.6).

NPIC received 197,496 hits to their active ingredient fact sheets (Graph 4.7). Permethrin was the most accessed fact sheet, followed by boric acid, fipronil and pyrethrins.

NPIC received 23,371 hits to their topic fact sheets (Graph 4.8). “Drinking Water” was the most accessed topic.

# HISTORY AND INQUIRIES

## History

The pesticide information service began in 1978 with Texas Tech University Health Sciences Center associated Pesticide Hazard Assessment Project (PHAP) in San Benito, Texas. This service, offered via telephone, was originally used to report pesticide incidents in EPA Region VI through the Pesticide Incident Monitoring System (PIMS). Later, callers from across the U.S. began using the service to obtain information on pesticides. In 1980, the network was designated as the National Pesticide Information Clearinghouse (NPIC). In 1984, NPIC added the 24 hour responsibilities of South Carolina's National Pesticide Telecommunications Network (NPTN) and changed its name to NPTN.

The NPTN system remained in San Benito until April 1986, when it moved to the Department of Preventative Medicine and Community Health of the Texas Tech University Health Sciences Center in Lubbock, Texas. NPTN remained at Texas Tech through March 1995. Following a competitive renewal process for the grant supporting the Cooperative Agreement between the U.S. Environmental Protection Agency and the co-sponsoring university, NPTN moved to Oregon State University on April 1, 1995.

In addition to the telephone, NPTN began to place major emphasis on the internet and e-mail as means of disseminating pesticide information, and as alternate routes of contact with NPTN. To more accurately reflect the nature of its service, NPTN was renamed National Pesticide Information Center (NPIC) in 2001. In March 2006, NPIC assumed responsibility for responding to inquiries about antimicrobial products.

On July 1, 2007, Dr. Terry Miller stepped down as the Director of NPIC. Dr. David Stone, an Assistant Professor in the Department of Environmental & Molecular Toxicology at Oregon State University, assumed the role of NPIC Director.

In Fall 2007, NPIC added multi-lingual capabilities through a contract with Language Line Services, Inc. This service enables NPIC specialists to provide risk communication in over 170 different languages. In November 2007, NPIC launched a redesigned web site to provide an updated and user-friendly interface for the public and professionals.

## Inquiries and Resources

NPIC receives inquiries from across the U.S. and from Puerto Rico, the Virgin Islands, Canada, Mexico and numerous other countries. Approximately 90% of the inquiries to NPIC are from the general public. NPIC receives requests for information about: the health implications of pesticide use, pesticide toxicology, environmental chemistry, regulations, use practices, product information, environmental effects of pesticides, pesticide safety, protective equipment, cleanup and disposal, and current pesticide-related issues in the news.

NPIC maintains an extensive collection of hard-copy and electronic resources. NPIC specialists have access to the full resources of the Oregon State University Library, which includes electronic access to hundreds of academic journals, databases, and indexing services. NPIC created InfoBase, a custom search engine that spiders selected web sites and databases for archival and searching capabilities. InfoBase is available to the public, facilitating the search of EPA dockets, the CFR, and the EPA and NPIC web sites.

NPIC's library includes: a comprehensive Active Ingredient (AI) file collection containing detailed scientific and regulatory information on over 950 active ingredients; 306 General Files that contain topic information such as "drift" and "IPM"; numerous compendia of pesticide information (e.g., *Code of Federal Regulations - 40 CFR Parts 150-189: Common Sense Pest Control; Crop Protection Handbook; Disinfection, Sterilization and Preservation; Herbicide Handbook; Metabolic Pathways of Agrochemicals; Pest Control Operations; The Pesticide Manual; Toxicology - The Science of Poisons; and the WHO Environmental Health Criteria series*); electronic access to EXTOWNET (EXTention TOXicology NETWORK), CHEMBANK (HSDB, RTECS, IRIS), and PESTBANK; and on-line literature-searching capabilities (e.g. Medline, TOXNET, PubMed).

## Funding

Funding for NPIC is provided by the U.S. Environmental Protection Agency, Office of Pesticide Programs, with substantial support by Oregon State University in the form of cost-sharing, salary support, and facilities.

# OBJECTIVES

The primary mission of the National Pesticide Information Center is to serve as a source of objective, science-based information on a wide variety of pesticide-related subjects, including:

- recognition and management of pesticide poisonings
- health and environmental effects
- toxicology
- environmental chemistry
- pesticide products.

In addition, NPIC provides referrals for:

- safety practices
- clean-up and disposal
- emergency treatment
- investigation of pesticide incidents
- laboratory analysis.

A major goal of NPIC is to promote informed decision-making on the part of the inquirer.

Service provided by NPIC is available 10 hours/day from 6:30 am - 4:30 pm Pacific Time, 7 days per week (excluding holidays), via a toll-free telephone number, and 24 hours/day via e-mail and the internet, to anyone in the United States and its territories. NPIC is sponsored cooperatively by Oregon State University and the U.S. Environmental Protection Agency.

NPIC is open to questions from the public and professionals. It is staffed by highly qualified and trained specialists who have the toxicology and environmental chemistry training needed to provide knowledgeable answers to questions about pesticides. NPIC special-

ists deliver information in a user-friendly manner, and are adept at communicating scientific information to the lay public. Specialists can help inquirers interpret and understand toxicology and environmental chemistry information about pesticides. The services provided by NPIC are strictly informational and NPIC has no regulatory or enforcement capability or authority.

## Objectives

The objectives of NPIC are:

- 1) To operate a toll-free telephone service to inquirers in the United States, Puerto Rico, and the Virgin Islands, including a recording device to capture off-hour inquiries.
- 2) To provide access to NPIC and pesticide-related information via the internet and e-mail.
- 3) To serve as a source of factual, unbiased information on pesticide chemistry, toxicology, and environmental fate to all who inquire, including industry, government, medical, and agricultural personnel, in addition to general public.
- 4) To provide the medical community with diagnostic and crisis management assistance involving pesticide incidents in situations pertaining to both human and animal patients.
- 5) To acquire accurate and complete information on all inquiries considered to be pesticide incidents.
- 6) To computerize all inquiry information as well as pesticide incident data for easy retrieval.



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# ACHIEVEMENTS

## **Administrative and Operational Infrastructure**

**NPIC Policies** - With new direction provided by Dr. Stone, NPIC reviewed and revised its Policies, addressing personnel issues, such as annual evaluations, vacation leave and sick leave.



Kaci - Project Coordinator

## **Standard Operating Procedures (SOP)-**

NPIC maintained and improved its collection of SOPs, making changes to dozens of procedures throughout the course of the grant year. Several processes were streamlined and/or updated to reflect new language capabilities and new leadership priorities. Three SOPs were significantly updated, including "Media Requests," "Transferring Limited English Speaking Callers," and "Reporting Human Deaths, Group Illnesses, or Group Deaths."

## **Of Special Interest**

**Change in Leadership** - After 12.5 years at the helm as the Director of NPIC, Dr. Terry Miller stepped down on July 1, 2007. He continues to be employed at NPIC to work on database development and as a consultant for various issues. Dr. Stone, an Assistant Professor in the Department of Environmental & Molecular Toxicology at Oregon State University, assumed the role of NPIC Director. As a graduate student, Dr. Stone worked as a part-time pesticide specialist at NPTN. More recently, Dr. Stone served the state of Oregon as a Public Health Toxicologist in the Oregon Department of Human Services.

**Project Officer Visit** - Frank Davido, Project Officer for NPIC, visited OSU on July 16-17, 2007 to meet with NPIC to discuss the transition in leadership. Additional meetings were held with the interim Department Head of Environmental and Molecular Toxicology and the Associate Dean of the College of Agricultural Sciences. Mr. Davido also had the opportunity to attend the appreciation lunch in honor of Dr. Miller's service at the helm of NPIC.

**EPA-OPP Site Visit** - NPIC traveled to Washington, DC on March 3-5, 2008 to meet with staff from the Office of Pesticide Programs (OPP) and to attend portions of the AAPCO (American Association of Pesticide Control Officials) annual meeting. Dr. Dave Stone, Dr. Jeff Jenkins, Dr. Daniel Sudakin, Kaci Agle, Sean Ross, Suzanne Phillips, Melody Johnson and Bryan Harper shared information and gathered ideas during three days of meetings at OPP. The visit was coordinated and attended by NPIC's Project Officer, Frank Davido. NPIC met with the Oversight & Monitoring Committee, the Communication Services Branch, ITRMD Director Oscar Morales, Ann Lindsay and additional division managers and staff from HED including Director Tina Levine. NPIC staff met with other EPA staff to work on collaborative projects related to insect repellents and veterinary incident reporting. NPIC held an "Open Dialogue Meeting," which was widely attended by staff from various divisions of OPP.

**Special Reports Provided to EPA** - NPIC provided several special reports from its Pesticide Inquiry Database (PID) to EPA personnel. This year, NPIC developed and delivered the following reports:

- All incidents involving pets, horses and/or other animals related to butoxypolypropylene glycol
- All incidents since 1999 related to the fumigants methyl bromide, metam sodium, dazomet, 1,3-dichloropropene, metam potassium and chloropicrin
- All inquiries (incidents and informational inquiries) related to methyl eugenol
- All incidents reporting adverse effects resulting from exposure to lime sulfur
- All incidents and inquiries related to Grant's Ant Control© in the last ten years
- All incidents and informational inquiries related to occupational and/or bystander exposures to acrolein
- All incidents and informational inquiries related to sodium cyanide and/or sodium fluoroacetate (compound 1080)

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**Multi-Lingual Capabilities** - NPIC entered into a contract with Language Line Services, Inc. that provides real-time access to over-the-phone interpretation services, seven days per week. This service is available in over 170 different languages, including Spanish, Vietnamese, Chinese, Russian and Korean. NPIC made arrangements to work with interpreters familiar with medical terminology, capable of translating technical information about the potential health effects of pesticides. Service started on August 10, 2007. By March 31, 2008, NPIC had utilized the service to provide risk communication to sixty-eight clients in Spanish, Russian, Mandarin and Farsi.

During this grant year, NPIC hired Rachelle Travers. Ms. Travers speaks Spanish fluently and has prior experience explaining pesticide-related risks to migrant farm workers in Oregon and Washington. Since joining NPIC, Ms. Travers communicated with eighty Spanish-speakers during the grant year, and contributed toward new outreach materials in Spanish. See the "Publicity" section for more information about NPIC's efforts to promote its new, multi-lingual capabilities.



Rachelle - Spanish Resource Specialist

## Inquiry Update

NPIC responded to 23,787 inquiries, 3,326 of which were classified as pesticide incidents (14.0%). A pesticide spill, a misapplication, a contamination of a non-target entity, or any purported exposure to a pesticide (regardless of injury) is classified as an incident. On the basis of information provided by the inquirer, and with reference to established criteria, all incident inquiries are assigned a certainty index (CI). This is NPIC's assessment as to whether the effects were

definitely (1), probably (2), possibly (3), or unlikely (4) to have been caused by exposure to a pesticide, or whether the effects were unrelated (5) to pesticide exposure. A certainty index of zero (0) reflects those inquiries where the inquirer reported being exposed to a pesticide, but no symptoms were present. In addition, a certainty index of zero (0) would be assigned if an exposure and symptoms were reported, but no active ingredient could be identified. Pesticide specialists assign a certainty index to each incident inquiry. Certainty index assignments are reviewed by Melody Johnson and/or by Dr. Daniel Sudakin.

A flyer with a blue and green background. At the top, it asks '¿Tiene Preguntas Sobre Pesticidas?' and '¡Tenemos Respuestas!'. It lists three questions in Spanish: '¿Tiene usted preguntas sobre el uso seguro de los pesticidas en su casa or trabajo?', '¿Está usted embarazada y pensando en usar un pesticida adentro de su casa?', and '¿Desea usted saber como reducir la exposición del pesticidas a usted y a su familia?'. It includes illustrations of a woman with a child, and several beetles. At the bottom, it says 'llame gratis 1.800.858.7378' and '6:30 am to 4:30 pm Hora del Pacifico, 7 días a la semana'. The phone number is repeated in a stylized, vertical format at the very bottom.

Topics of interest in this grant period included questions or concerns related to mothball products (1,183), metaldehyde products (297), zinc phosphide (302), Hartz Pet Care products (114), chromated copper arsenate (CCA) treated wood (145), and bed bugs (388).

**Mothball Products** - During the year, NPIC received 1,183 inquiries regarding the use of mothballs. Of these inquiries, 693 were mothball-related incidents, including 433 reports of misapplication. Inquiries primarily involved off-label use of mothballs to repel cats, rats, squirrels and snakes in and around the home. Two hundred and six inquiries were coded as "incident prevention," whereby the inquirer described

# ACHIEVEMENTS

the intent to use mothballs for an off-label use and NPIC provided information in an attempt to avert the inappropriate application.

Naphthalene and paradichlorobenzene, the active ingredients currently found in mothballs, were among the top 25 active ingredients for both inquiries and incidents.

**Metalddehyde** - NPIC received 297 inquiries related to slug and snail baits containing metalddehyde, compared to 402 inquiries last year. One hundred eighty-nine of these inquiries were incidents, with four requiring a transfer to the Animal Poison Control Center (APCC). Twenty-three incidents (12%) were assigned a certainty index of 2 (probable). Metalddehyde was the third most common active ingredient for incident inquiries to NPIC.

**Zinc Phosphide** – NPIC received 302 inquiries related to rodenticides containing zinc phosphide, over half of which were designated as incidents (156). About 10% of the incidents reported to NPIC were assigned a certainty index of 2 (probable), and six required a transfer to the APCC. Zinc Phosphide was fifth for incident inquiries to NPIC.

**Hartz Pet Care Products** - During the grant period, NPIC continued to receive incident reports about the use of Hartz flea and tick control products. Fifty seven incident reports were taken during this year related to Hartz products, down from 88 during the 2006-07 grant year.

**CCA** - NPIC received 145 inquiries related to chromated copper arsenate (CCA) treated wood, down from 173 during the previous year. Questions included safety of existing wood structures, current permissible uses of CCA treated wood, and potential sources of information on alternative wood preservatives.

**Bed Bugs** - NPIC has been tracking a steady increase in the number of inquiries related to bed bugs, which are increasing in national significance. The number of bed bug-related inquiries to NPIC rose from 217 (grant year 06-07) to 388 (grant year 07-08). Many of these inquiries were related to control measures and the health effects of pesticides.

## Project and Information Review

**Pesticide Incident Database (PID)** - Melody Johnson received substantial training from Kelly Bahns and assumed the role of Pesticide Inquiry Da-

tabase (PID) Facilitator in 2007. NPIC continued to prioritize the quality of data collection, coding, and archiving of inquiry data. This was achieved by updates and training exercises focused on coding logs, sharing Human Incident Reports with staff to generate discussion, and by facilitating coding exercises with staff. Human Incident Reports were generated regularly, reviewed by the PID Facilitator and Dr. Sudakin, and posted to the NPIC Inet (internal web site) for review by the staff. This provides specialists with the opportunity to continue good coding practices and informs future decisions. In addition, log reports for trainees and new specialists were generated with additional feedback from the trainer and/or Project Coordinator.

The following SOPs (standard operating procedures) describing QA/QC (quality assurance/quality control) processes were developed or improved during this grant year: *Applying Log Coding Guidelines; Generating Human Incident Reports; Backing up the NPIC Database; NPIC Monthly report; Cases of Interest Monthly Report; NPIC Quarterly Report; Deaths Quarterly Report and NPIC Facilitator Duties Overview.*



Melody - PID Facilitator

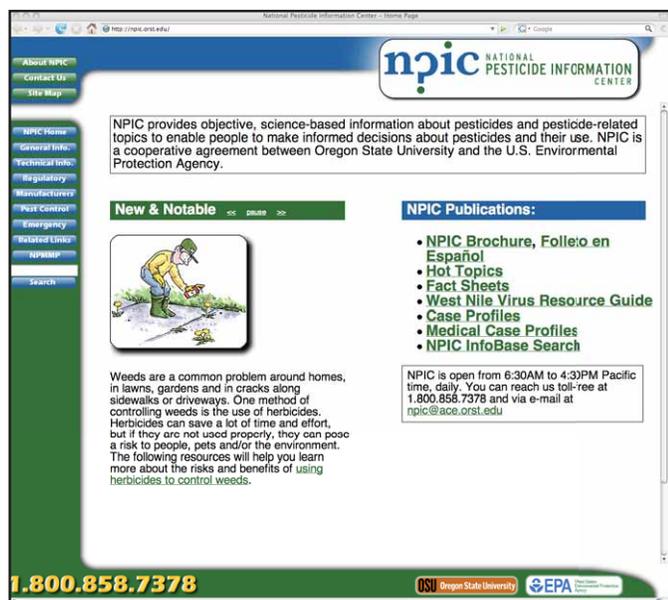
**NPIC Web Site** - NPIC received 1,471,883 total web hits this grant year, compared to 1,146,050 hits last year, which represents a 28% increase in web traffic. NPIC launched a new web site this year, adding content, organization, and features that provide an updated and modern interface, improve accessibility and usability and reduce maintenance for NPIC. Sean Ross, the Supervisor of NPIC Information Resources & Capability (SNIRC), trained Bryan Harper

# ACHIEVEMENTS

to maintain and develop the NPIC web site as its new Facilitator. Also, NPIC created “gateway” pages to make navigation easier for users. NPIC’s new home page features a “New & Notable” section, which highlights timely topics through a rotating image and text box. The first topics to be highlighted were the new Spanish brochure and the National Poison Prevention Week.

The Pest Control page on the NPIC web site was completely reorganized and expanded in response to the needs of NPIC clientele. Resources were added for ticks, avian flu, mold, germs and ants. A new feature was developed, which serves as a gateway to state-specific university extension fact sheets, aimed specifically at “home” pests.

See <http://npic.orst.edu/pestA.html>



NPIC added a new feature to the State Pesticide Regulatory Agencies web page that allows visitors to search each state’s database of registered pesticide products (if available).

A new web page was designed and posted to the NPIC web site about the difference(s) between organically-grown and conventionally-grown foods. It features a collection of scientific articles and fact sheets. Inquiries to NPIC about organic foods have increased over time. NPIC also created and posted a new Spanish Pesticide Resources page, and began work on a Spanish-language version of its entire web site.

In order to make NPIC resources more accessible by search engines, NPIC began converting its “Hot Topic” collections from PDF to HTML format. NPIC also

added links to dozens of Wikipedia® pages, leading users to relevant NPIC content. Once the new web site was launched, NPIC submitted their site map to Google®.

**InfoBase** - NPIC further developed the InfoBase, an electronic repository of pesticide-related information. NPIC continues to retrieve and catalogue the pesticide-related dockets housed at [www.regulations.gov](http://www.regulations.gov). Specialists, and the general public, use a user-friendly interface to browse and search those dockets.

NPIC continued scanning hard-copy files for inclusion in the InfoBase. These pages were converted to electronic files (PDF) using PrimeOCR (Prime Recognition Systems) optical character recognition software. The resulting files were indexed by RetrievalWare. Using a system designed by NPIC, these resources were associated with relevant metadata and indexed for efficient access by NPIC staff.



Jennifer - Fact Sheet Co-Editor/Reviewer

Before each file was scanned for inclusion in the InfoBase, NPIC evaluated each document to ensure that it was reputable, appropriately referenced and its “metadata” were correctly reflected in a corresponding database. Scanning was initiated in June 2006. By March 2008, all of Active Ingredient files (975) and the majority of the General files had been evaluated, scanned, indexed and made available to staff. During this grant year, NPIC scanned 1,789 documents for inclusion in the InfoBase.

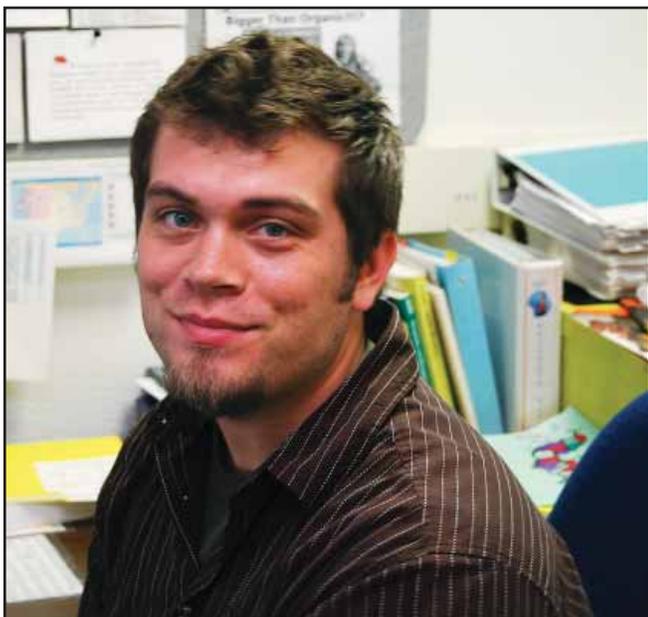
# ACHIEVEMENTS

**Fact Sheets** – NPIC evaluated and streamlined its fact sheet development process throughout the year, making structural changes in the review process to facilitate development and review of fact sheets. The content and format were updated and reorganized. Technical fact sheets were restructured under headings as opposed to a question and answer format. The updated fact sheets include new sections on medical monitoring, reference values and ecotoxicology. General fact sheets were shortened, and frequently asked questions were incorporated into the template. Illustrations to depict exposure and environmental fate will be added to the general fact sheets. Staff received training to utilize EndNote® to manage references efficiently and consistently.

Every specialist participated as a fact sheet author. Bryan Luukinen assumed the fact sheet facilitator role with the departure of Clayton Cornell in December 2007. Dr. Jennifer Gervais joined Bryan as co-editor and senior reviewer. Dr. Gervais has considerable experience in reviewing technical literature.

During this grant year, NPIC completed and posted new technical fact sheets on DEET and fipronil. The following technical fact sheets are in the final internal review stages: 2,4-D, capsaicin, resmethrin, and permethrin.

The following general fact sheets were begun during this grant year: 2,4-D, acephate, capsaicin, carbaryl, chlorpyrifos, diazinon, glyphosate, malathion, picaridin, permethrin, deltamethrin and resmethrin.



Bryan L. - Fact Sheet Facilitator

**Active Ingredient (AI) Files** – The complete AI file collection was scanned in 2007 and is now available electronically to all staff. Each document was reviewed by a team member, entered into a database, scanned using Prime OCR (Optical Character Recognition) and indexed with its metadata. The collection includes tens of thousands of documents contained in nearly 1000 files; the scanning project was completed in less than 16 months.



Suzanne - AI / GF Facilitator

NPIC added 25 new active ingredient (AI) files to its collection, totaling 975 files at the conclusion of the grant year. The AI committee updated 19 AI files (including methyl nonyl ketone, brodifacoum, methyl eugenol, NEEM, zinc phosphide, permethrin and 2,4-D) by adding new and relevant data obtained from literature searches. NPIC acquired 648 new documents for inclusion in the AI file collection this year, including all relevant FQPA Risk Assessments, EPA Fact Sheets, and Reregistration Eligibility Decisions (RED/TRED). NPIC added 25 REDs to its collection this year.

Andrea Christiansen joined the AI committee and cross-trained on AI maintenance activities. Bryan Harper and Miller Henderson were both trained to monitor the Federal Register (epa-pest), and to monitor associated dockets for the most up-to-date science and regulatory information. Student assistants were trained to perform routine data entry functions to support the project. Standard operating procedures were updated and modified to reflect a series of changes intended to streamline the process. Specialists performed a comprehensive inventory of the

collection to ensure that all files were present and appropriately filed. Team members also added several cross-references for AI synonyms.

**General Files** - NPIC maintains 60 general files that contain 306 topic sub-files of specific information about pesticide-related topics. Suzanne Phillips provided leadership, and two others joined the general file committee: Andrea Christiansen and Miller Henderson.

NPIC scanned 54 files this year, representing over 600 documents. Prior to scanning a general file, a member of the general file team performed quality assurance/quality control steps to ensure that the documents were not duplicated or missing, and the bibliographic data were accurately represented in NPIC's general file database. Many files were also updated as part of the pre-scanning process, which includes a literature- and web-search for new information. At the conclusion of the grant year, NPIC had restructured and updated 60 general topic sub-files.



Andrea - AI / GF Team Member

**“Other” Ingredient Files** - NPIC continues to update its inert or other ingredient files by addition of NTP, ATSDR, WHO and other relevant scientific hard-copy documents.

**Intranet (Inet)** - NPIC's internal web pages, referred to as the Inet, continued to receive updates on a weekly basis, including updated schedules, standard operating procedures, meeting notes and quick-reference guides. Human incident reports were also posted to the Inet regularly.

**Desktop Resources** - NPIC enhanced and updated the “Resource Book” throughout the year. This hard-copy resource provides specialists with quick access to frequently requested information, including contact information for health departments, educational resources, local, state, and federal agencies, prior notification contacts, state contacts for WPS questions, healthy homes-state program coordinators, organic certifiers, household hazardous waste contacts, occupational and wildlife agencies. Polly Wegner led this project for most of the year, and she supervised a thorough update of the Resource Book. The team verified contact information, web sites and mailing addresses for thousands of resources including local OSHA offices, state wildlife agencies, California Agricultural Commissioners, university extension resources and more. Databases generated for this project were also used by NPIC's Outreach team for a bulk mail-out in March.

NPIC maintained and added to its manufacturer database containing contact information for 420 manufacturers with current addresses, telephone numbers and web sites. This database is also available on the NPIC web site. Rachelle Travers assumed responsibility for maintaining this database, and Andrea Christiansen took over as Facilitator of this project.

**Monthly and Quarterly Reports** - NPIC provides regular updates to the Office of Pesticide Programs through its Project Officer, Frank Davido. NPIC publishes monthly, quarterly and annual reports, which include updates on project activity and a detailed summary of data to describe the number and type of inquiries to NPIC. Monthly reports include strange and/or interesting inquiries; quarterly reports include details for any reported deaths (human or animal) that may or may not have been related to pesticides. During this grant year, and with new leadership, NPIC substantially revised its monthly and quarterly reports to include more visual representations of the data, and to make the reports easier to navigate.

# ACHIEVEMENTS

**Case Profiles** - NPIC publishes general and medical case profiles on its web site to provide an educational opportunity to the public. NPIC published one new medical case profile this year, "*Pesticides: Testing for Exposure Using the Clinical Laboratory*", and four new general case profiles this year, including, "*Aren't All Pesticides the Same?*," "*To Stay or Not to Stay?*," "*What to do? There's Residue!*" and "*The Sky is Falling: Mosquito Spraying!*"



## CASE PROFILE

Real answers to real questions from real people in real time!

### Case Profile

#### Suds and Spuds: What About Fruit and Vegetable Washing?

Kaye was at the grocery store buying fruit for a salad when she noticed a bottle of fruit-washing soap on display next to the produce. Her fruit salad was going to be part of a potluck lunch, so Kaye wanted to clean the fruit thoroughly from germs or pesticide residues. She then wondered if she needed to purchase such an expensive fruit cleaner, or if water-rinsing was enough. Kaye thought perhaps her antimicrobial dish soap would work just as well as any fruit wash. After all, dish soaps are used on items used for eating. While searching the internet for more information about washing fruit with soap, Kaye stumbled upon the National Pesticide Information Center (NPIC) website and decided to call for more information.

[Click here](#) to read what Kaye learned from NPIC about using water, fruit washes, and/or other soaps on fruits and vegetables ...



## Training and Continuing Education

**Training** - The NPIC trainers updated two chapters of the NPIC Training Manual, and modernized one of the facilitated exercises to better reflect the most frequently used products and resources. They also overhauled the NPIC training manual to provide updates, and to facilitate electronic navigation.

**Trainer** - Kaci Agle became NPIC's trainer of new pesticide specialists with the departure of Clayton Cornell, and she began training Bryan Harper to assume this role. His training will continue in the 2008-2009 grant year.

**Specialists** - Six pesticide specialists completed the training program during this grant year. Each new specialist who has not been formally trained in toxicology attended university lecture courses as part

of a three-term series in graduate-level toxicology, within the Environmental & Molecular Toxicology Department at OSU. Five specialists attended all three courses this year, including Fundamentals of Toxicology (TOX 511), Target Organ Toxicology (TOX 512) and Environmental Toxicology and Risk Assessment (TOX 513).

**Student Assistants** - One student completed the student assistant training program, as NPIC prepared for the graduation of two seasoned student workers. Student assistants provide administrative/clerical support to NPIC. In preparation for the transition, NPIC updated its collection of student SOPs (Standard Operating Procedures), and its training manual for student workers.

**Continuing Education** - Melody Johnson facilitated the Continuing Education project. NPIC hosted a record number of continuing education events this year including seminars, events, and venues in which NPIC presented information to the public or professionals. Continuing education events are summarized on page 15.

Each week the NPIC staff meets to further their knowledge of pesticide-related topics, to discuss coding consistency and QA/QC activities, and to discuss trends in inquiries. Continuing education events were scheduled during most of those weekly meetings. Oregon State University also provided diverse opportunities for continued learning, including seminars, lectures, and conferences.

In order to stay current with new Re-registration Eligibility Decisions (REDs), specialists were assigned to read, summarize and present REDs to the group.

## Biomarker of Organophosphate Exposure, Effect, and Genetic Susceptibility

Daniel L. Sudakin, MD, MPH, FACMT, FACOEM  
Associate Professor, Department of  
Environmental and Molecular Toxicology Oregon  
State University  
[sudakind@ace.orst.edu](mailto:sudakind@ace.orst.edu)

OSU Oregon State University  
Open minds. Open doors.™

# ACHIEVEMENTS

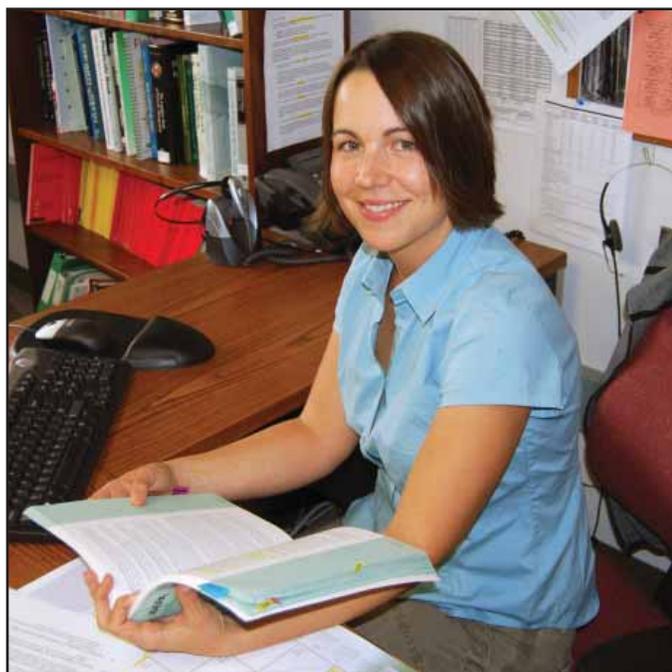
## Continuing Education Events (April 1, 2007 - March 31, 2008)

Date	Speaker/Source	Speaker's Affiliation	Event Title
4/5/2007	n/a	Dow Agrosiences	Whole Structure Fumigation
5/16/2007	Several	Academic, regulatory, etc.	Western Regional Pesticide Meeting
6/7/2007	Renee Kessecker	Good Earth Pest Control	Good Earth Pest Control
6/29/2007	Roger Nasci	CDC - Vector-borne diseases	How Public Health Confronts the Mosquito
7/12/2007	Dr. Dan Sudakin	NPIC, OSU	Food Poisoning - Are Pesticides Invading our Diet?
7/12/2007	Kelly Bahns	NPIC, OSU	Japanese Beetles "101"
8/9/2007	M. Johnson, K. Agle	NPIC, OSU	Bacillus thuringiensis - Introduction & Files
8/23/2007	Dale Mitchell	Oregon Department of Agriculture	State Lead Pesticide Agencies
9/6/2007	Carrie Foss	Washington State University	Protection From Exposure - WSU
9/13/2007	Masa Youngblood	NPIC, OSU	RED Summary - Piperonyl butoxide
9/17/2007	Katherine Johnson	Toxicology Department, OSU	Effects of Esfenvalerate on Invertebrates
9/17/2007	Rachelle Travers	NPIC, OSU	RED Summary - Copper Compounds II
9/27/2007	n/a	Discovery Channel	Termite Controller - Dirty Jobs
10/4/2007	Bryan Harper	NPIC, OSU	RED Summary - ADBAC
10/11/2007	Dr. Dave Stone	NPIC, OSU	Boundaries & Interpretation
10/25/2007	Dr. Dave Stone	Toxicology Department, OSU	Risk Communication: 3 Oregon Case Studies
10/25/2007	CROET	Oregon Health Science University	A Safe Place for Children
11/1/2007	Rachelle Travers	NPIC, OSU	RED Summary - MGK 264
11/8/2007	Dr. Stacey Harper	Toxicology Department, OSU	Impacts of Nanotechnology
11/29/2007	Andrea Christiansen	NPIC, OSU	RED Summary - Dicamba
12/6/2007	Bryan Luukinen	NPIC, OSU	EndNote Tutorial
12/6/2007	Suzanne Phillips	NPIC, OSU	Organic vs. Conventional Food - Hot Topic
12/11/2007	Jill E. Schrlau	Toxicology Department, OSU	Sampling Methods for VOCs
12/20/2007	Dr. Dan Sudakin	NPIC, OSU	Biomarkers of OP Exposure
1/3/2008	Bryan Luukinen	NPIC, OSU	RED Summary - Aliphatic Solvents
1/8/2008	Several	Academic, regulatory, etc.	Chemical Applicator Short Course
1/17/2008	Dr. Andrew Hulting	Crop & Soil Sciences, OSU	Herbicide Mode of Action
1/24/2008	Several	Academic, regulatory, etc.	Western Stream Migrant Forum
1/31/2008	Bryan Luukinen	NPIC, OSU	RED Summary - Inorganic Polysulfides
2/13/2008	Alice Bergman	Cascade Centers, Inc.	Dealing with Difficult People
2/14/2008	Fred Kirschenmann	Iowa State University	Public Sector Response to Sustainable Ag. Community
2/18/2008	Dr. Ashley Bush	Harvard Medical School	Zinc and Alzheimer Disease
2/26/2008	Dr. A. Regulapathy	Agricultural College, India	NEEM: the Push-Pull Strategy
3/3/2008	Several	Academic, regulatory, etc.	AAPCO Annual Meeting
3/20/2008	Melody Johnson	NPIC, OSU	Busy Season Prep
3/20/2008	Dr. Jennifer Gervais	NPIC, OSU	Pyrethroids in Aquatic Sediments
3/28/2008	Several	Academic, regulatory, etc.	SETAC Annual Meeting of Northwest Chapter

# ACHIEVEMENTS

These are summarized through a slide presentation and a “cheat sheet” with the major highlights of each RED. This grant year, specialists summarized and presented seven REDs, including ADBAC, piperonyl butoxide, dicamba, copper compounds, aliphatic solvents, inorganic polysulfides, and MGK-264 (n-octyl bicycloheptene dicarboximide).

Specialists stay current with the scientific, regulatory and industrial aspects of pesticides through journal articles, magazines and newsletters. Each day, a designated specialist monitors online media sources to identify pesticide-related events or issues and distributes the most relevant materials to the rest of the team.



Kari - Outreach Team Member

## Publicity

**Outreach Overview** - NPIC achieved major milestones this year in outreach. They included a new Spanish language brochure, two new flyers and the completion of the largest bulk mail-out to date. NPIC also developed and disseminated magnets and fly-swatters in English and in Spanish.

NPIC monitors the open literature to track the number and type of references to NPIC in the media. This year, NPIC was mentioned in 19 newspaper articles, one book, two radio programs, 15 magazines/newsletters and 25 miscellaneous media releases. NPIC's web site was selected as “web site of the week” by the international radio show, “Voice of America.”

## Audience Definitions and Codes

### **Animal Caretakers (ANI)**

a) Animal hospitals, zoos, retail outlets, publications, organizations, and rescue facilities which assist, educate, or have the ability to reach those who care for animals.

b) Examples: Veterinarians, American Animal Hospital Association, PetCo Stores, Humane Society, National Zoo, Veterinary Medical Association.

### **Emergency Services (EMS)**

a) Public safety organizations, publications, coordinated groups, agencies, or local governments with the mission of assisting the public during an emergency situation.

b) Examples: Fire departments, hazardous waste management personnel, and public safety officers.

### **Environmental Agencies and Municipal Offices (ENV)**

a) State, county, and municipal offices with jurisdiction over environmental regulations.

b) Examples: USDA and state EPA/DEQ's (not pesticide regulatory agencies).

### **EPA (EPA)**

a) All officials employed by the U.S. Environmental Protection Agency on a regional level or at EPA headquarters.

### **Farmers, Workers, and Applicators (FAR)**

a) Organizations, publications, businesses, and farming programs who provide employment, education, support, or assistance to agriculture professionals, farm workers, and structural and landscape pest control operators.

b) Examples: Pesticide Safety Education Programs, Pest Control Operators, and Future Farmers of America programs.

### **Gardeners (GAR)**

a) Organizations, nurseries, retail outlets, coordinated groups, publications, and University Extension Service programs who provide information, assistance, or education to the non-professional gardening community.

b) Examples: Master Gardeners; American Rose Society; Garden editors; Clubs.

### **General Public/Non-targeted Audience (GEN)**

a) Organizations, agencies, general retail, and media who provide a means of reaching a large diverse group of public without classification.

b) Examples: Readers of newspapers, customers of retail stores that cater to homeowners.

### **Industry (IND)**

a) Manufacturers and distributors of pesticide products who reach the public through distribution of products and/or company literature. Organizations representing industry.

b) Examples: Manufacturers, Distributors, CropLife America, American Wood Preservative Institute.

### **Parents and Children (PAR)**

a) Organizations, associations, publications, and school, church, or extension programs whose mission is to reach out to children and/or their parents.

b) Examples: Children's Foundation, National Childcare Foundation, parenting magazines.

### **Physicians (PHY)**

a) Organizations, associations, educational programs, medical facilities, and media targeting human health care practitioners who may be interested in NPIC as an additional pesticide resource for themselves, their staff, or their patients.

b) Examples: American Academy of Pediatrics, hospitals.

### **Public Health Information Services (PHI)**

a) Organizations, associations, and state, county, or local health agencies providing public health information to diverse communities.

b) Examples: Organization of Teratology Information Services, health departments.

### **State Pesticide Agencies (SPA)**

a) State regulatory agencies involved in the registration, regulation, and/or enforcement of pesticide use within the state.

b) Examples: Department of Agriculture (DOA), CA county agricultural commissioners.

### **Tribes (TRI)**

a) Organizations, programs, and national, regional, state, or tribal governments serving nationally recognized and/or unrecognized native communities.

b) Examples: USDA Indian Health Services, EPA regional tribal program.

### **Underserved Communities (UND)**

a) Organizations, associations, and programs serving urban and rural communities of no specific ethnicity or race, and that experience minimal, or lack of quality financial, educational, and medical opportunities.

b) Examples: National Rural Health Association, WIC, HUD, State or Local Social Services, USDA Food and Nutrition.

# ACHIEVEMENTS

The NPIC Outreach program defines its activities as either proactive or responsive. Proactive outreach is initiated by NPIC, while responsive outreach is NPIC responding to requests for materials (e.g. brochures). As a result of both proactive and responsive outreach during this grant period, NPIC provided over 102,000 brochures to the public, government agencies and professional organizations, compared with 72,921 brochures disseminated in the previous year. NPIC continued to target its outreach efforts, specifically focusing on Spanish-speakers, farmworkers and under-served populations.

**Proactive Outreach** - Outreach initiated by NPIC is considered proactive outreach, and can be conducted through four methods: 1) sending literature and/or attending conferences and events, 2) conducting targeted mail-outs, 3) submitting items for publication, or 4) other methods. NPIC initiated 73 proactive outreach activities this year, including 15 activities aimed at reaching under-served populations and 10 activities aimed at reaching farmers, workers and applicators. NPIC proactively provided 36,596 brochures as a result of those activities (19,631 English and 16,965 Spanish). A summary of NPIC's proactive outreach activities is shown in the right-hand column

**Responsive Outreach** - Responsive outreach is defined as NPIC's response to requests for outreach materials (brochures, flyers, etc.) by telephone, web comment, or e-mail. NPIC provided 65,409 NPIC brochures in response to requests this year (57,064 English and 8,345 Spanish). A summary of the inquiries received from specific audiences is shown in the right-hand column. Over half of those inquiries came from public health services, such as state or county health departments.

NPIC continued to benefit from the recently developed "business reply card" that allows individuals or organizations to request free brochures by mail. Each card is printed with a tracking number so that NPIC can track the effectiveness of each outreach activity.

## Proactive Outreach

Audience Name	Number of activities	Number of English Brochures	Number of Spanish Brochures
Animal Caretakers	3	320	95
Emergency Management Services	2	129	129
Environmental and Municipal Agencies	3	233	80
Environmental Protection Agency	4	500	425
Farmers, Workers, and Applicators	10	1357	282
Gardeners	7	908	250
General Public	1	75	0
Industry	1	100	0
Other	7	1225	25
Parents & Children	1	8103	8103
Physicians	0	0	0
Public Health Information Services	7	4326	3876
State Pesticide Agencies	8	687	342
Tribes	4	791	791
Underserved	15	877	2567

## Responsive Outreach

Audience Name	Number of activities	Number of English Brochures	Number of Spanish Brochures
Animal Caretakers	3	250	0
Emergency Management Services	5	920	0
Environmental and Municipal Agencies	9	3450	520
Environmental Protection Agency	11	3000	300
Farmers, Workers and Applicators	23	3016	33
Gardeners	24	2545	725
General Public	35	1327	58
Industry	0	0	0
Other	9	607	80
Parents & Children	9	886	220
Physicians	4	590	5
Public Health Information Services	216	25873	3304
State Pesticide Agencies	26	10500	2675
Tribes	14	2180	0
Underserved	19	1920	425

The outreach team grew this year, with the addition of four new members. Suzanne Phillips, Masa Youngblood, Rachelle Travers and Kari Christensen received training and made significant contributions.

# ACHIEVEMENTS

## Proactive Events with Brochure Distribution (April 1, 2007 - March 31, 2008)

Date	Project Name	Project Activity	Audience	English Brochures
04/10/07	Priester National Extension Health Conference	Provided literature unattended.	PHI	200
04/24/07	OSU Earth Day Community Fair	Attended Fair and provided brochures and literature to attendees.	OTH	200
04/25/07	Oregon State University Spring Career Fair	Provided NPIC information to attendees.	OTH	300
05/16/07	Western Region Pesticide Meeting	Attended conference and provided NPIC brochures to attendees.	OTH	100
06/18/07	Community Involvement Training Conference Southern Region Pesticide Safety Educators 2007 Conference	Provided literature unattended.	FAR	25
06/19/07	Community Involvement Training Conference	Provided literature unattended.	EPA	200
06/25/07	UC Davis Pesticide Regulatory Education Program	Provided NPIC brochures.	SPA	50
07/10/07	USDA Pesticide Recordkeeping Annual Meeting	Provided literature unattended.	SPA	100
07/18/07	Green-Blue Summit Clean Water Through Residential IPM	Provided literature unattended.	ENV	100
07/22/07	Florida Pesticide Residue Workshop	Provided literature unattended.	SPA	50
07/27/07	Association of American Pesticide Control Officials	Provided literature unattended.	SPA	50
08/01/07	24th Annual Gardener's Mini-College "Growing the Future"	Attended conference, PC gave a talk and provided brochures.	GAR	200
08/06/07	Puerto Rico Pesticides Training Conference	Provided literature unattended.	PHI	250
08/20/07	2007 North American Pesticide Applicator Certification and Safety Education Workshop	Provided literature unattended.	FAR	100
08/22/07	Agricultural Worker Health Initiative Conference	Provided literature unattended.	FAR	400
08/23/07	The Farwest Show North America's Top Nursery and Greenhouse Industry Trade Show	Provided literature unattended.	GAR	50
08/25/07	Association of Structural Pest Control Regulatory Officials 51st Annual Meeting	Provided literature unattended	IND	100
08/26/07	Oregon Child Development Coalition	Provided literature unattended.	FAR	50
09/20/07	Oregon State University Day Expo	Attended conference and exhibited a booth.	OTH	200

**Outreach Audience Definitions** - Audience definitions assist NPIC in identifying and defining specific target audiences. The framework has proven useful, helping NPIC target its outreach efforts and evaluate the effectiveness of individual activities. Each audience is assigned a code which can be referenced in outreach status reports for ease in tracking, sorting, and reviewing progress for a given audience. See the audience definition table on page 16.

**Special Projects** - NPIC issued a press release in mid-December in both English and Spanish announcing the expansion of its services to include interpretation in over 170 different languages. Within three months, several media outlets re-published the press release including the Health News Digest, Promotora Programs online message board, the Plant Management Network, the AthleticTurf web site and Western Farmer Magazine.

Polly Wegner coordinated NPIC's annual bulk mail-out, which was completed in March 2008. Specific audience groups were targeted, and over 13,000 recipients received a custom cover letter, business reply card, brochures in English and Spanish, and one of NPIC's new flyers. Target audience groups included state pesticide and environmental agencies, food distribution programs (including WIC), tribal programs, rural health associations, HUD directors, public health and veterinary associations, and university extension services.

Over 200 business reply cards were returned soon after the bulk mail-out, resulting in requests for over 25,000 brochures. In 2008, NPIC added over 8,000 school officials to its mailing list. NPIC invited schools to publish its phone number in newsletters, pesticide application postings and/or take-home letters to parents.

# ACHIEVEMENTS

## Proactive Events with Brochure Distribution (April 1, 2007 - March 31, 2008)

Date	Project Name	Project Activity	Audience	English Brochures	Spanish Brochures
09/27/07	Rep. Avakian town hall meeting	Provided literature unattended.	GEN	75	
10/17/07	Northeast Epidemiology Conference	Provided literature unattended.	EPA	100	100
10/23/07	OSU Fall Career Fair	Attended conference and exhibited a booth.	OTH	200	0
11/02/07	Pesticide Worker Safety and Health Conference	Provided literature unattended.	EPA	0	300
11/03/07	American Public Health Association Annual Meeting and Expo	Provided literature unattended.	PHI	1000	1000
12/04/07	OSU Extension Outreach & Engagement Strategic Conference	Exhibited during poster session and provided NPIC brochures.	GAR	150	150
01/08/08	Oregon Chemical Applicators Short Course	Attended conference and provided NPIC brochures.	FAR	200	40
01/12/08	Oregon State University Master Gardener Training Program	Project Coordinator gave a presentation and provided brochures.	GAR	70	20
01/25/08	Western Migrant Stream Forum	Attended conference and provided NPIC brochures.	UND	200	200
02/13/08	Oregon Chemical Applicators Short Course	Project Coordinator gave a presentation and provided brochures.	FAR	150	10
02/19/08	Oregon State University Winter Career Fair	Attended conference and provided NPIC brochures.	OTH	100	0
02/24/08	National Pesticide Stewardship Alliance Conference	Provided literature unattended.	OTH	125	25
03/02/08	American Mosquito Control Association Annual National Meeting	Provided literature unattended.	SPA	300	25
03/03/08	Association of American Pesticide Control Officials	Executive Committee gave presentation and provided NPIC brochures.	SPA	20	200
03/06/08	Professional Grounds Management Society Regional Seminar	Provided literature unattended.	GAR	75	25
03/07/08	Oregon Veterinary Conference	Provided literature unattended.	ANI	250	25
03/11/08	Western Society of Weed Science Annual Meeting	Provided literature unattended.	FAR	200	0

Two flyers were also developed and published for use in conjunction with bulk mail-outs and future publications/outreach efforts. NPIC staff also redesigned the NPIC business reply card to include an option for ordering NPIC brochures in Spanish.

NPIC updated its visual display booth for use in conferences, career fairs and expos. This booth highlights the newly developed Spanish-language outreach materials. NPIC staff exhibited a booth at the Oregon State University Earth Day Community Fair in April, and at the University Day Community Fair in September. OSU faculty members, researchers, and students attended the events. NPIC provided brochures, EPA literature on IPM practices, and other EPA publications to attendees. NPIC also attended two career fairs on campus, combining outreach and recruitment efforts.

NPIC staff developed new promotional materials for conferences, including magnets and fly swatters listing NPIC's name and toll-free number in both Spanish and English. The magnets were provided in several mail-outs to public health agencies, and in person at career fairs and expos.

Dr. Stone developed and presented a poster describing NPIC services at the Oregon State University Extension Outreach & Engagement Strategic Conference in December.

Dr. Jenkins and Kaci Agle attended the Pesticide Regulatory Education Program (PREP) Course held at the University of California, Davis in June. Dr. Jenkins spoke about NPIC's approach to risk communication. Ms. Agle led an exercise on strategies for facilitating effective public meetings related to area-wide pesticide applications.

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Dr. Jenkins presented NPIC services at the annual meeting of the Association of American Pest Control Officials in Washington, DC in March.

Dr. Stone presented risk communication strategies used by NPIC specialists at the annual meeting of the Association of American Pest Control Officials in Washington, DC in March.

Kaci Agle spoke to more than 100 attendees at the *24th Annual Master Gardeners' Mini-College* in January; she delivered a presentation about NPIC's services and disseminated brochures. She also delivered the presentation to over 200 pesticide applicators in eastern Oregon in February.

NPIC completed two smaller mail-outs this year, in addition to its bulk mail-out. NPIC disseminated brochures, business reply cards, and cover letters to Recreation and Parks directors in each state and to members of the New England Nursery Association.

NPIC provided its brochure to attendees of several conferences/events this year, some of which were mentioned above. See page 18-19 for a table that includes details on proactive events and brochure distribution.

In November, the outreach team instituted a cold-call campaign to disseminate the new NPIC Spanish brochures to targeted public and private agencies which serve farm-workers and their families. NPIC contacted dozens of health advocacy groups nation-wide, promoting NPIC services as a resource for clients and staff members. As a result of this effort, 1,750 Spanish brochures have been disseminated.

Polly Wegner contacted the Migrant Clinicians Network to reach and serve migrant farm-workers through their health care providers. NPIC drafted a short article describing NPIC services for their newsletter. She also initiated a cooperative outreach venture with the Mosquito and Vector Control Association of California to develop new materials specific to mosquito abatement programs and risk reduction strategies.

Rachelle Travers, NPIC's Spanish Resource Specialist, participated in a national workgroup to develop training on Integrated Pest Management (IPM) for Spanish-speaking landscapers. She participated in conference calls and started developing resources and information related to landscape insect IPM. NPIC will be highlighted in those training materials and at the training events that result from the project.

Ms. Travers also presented a poster and highlighted NPIC's multilingual capabilities and Spanish-language resources at the Western Migrant Stream Forum in Spokane, WA in January. She followed up with a mail-out to all of the conference attendees including NPIC's new Spanish "tear-off" flyer.

**EPA Cooperative Outreach** - NPIC collaborated with Candy Brassard to arrange for distribution of 200 brochures (English and Spanish versions) at the NE Epidemiology Conference in October and 2,000 brochures (English and Spanish versions) at the American Public Health Association annual meeting in No-

**¿Tiene Preguntas Sobre Pesticidas? ¡Tenemos Respuestas!**

¿ Está usted embarazada y pensando en usar un pesticida adentro de su casa ?

**npic**  
NATIONAL PESTICIDE INFORMATION CENTER

¿ Tiene preguntas acerca del uso seguro de repelentes de insectos en sus hijos ?

**¡Respuestas reales a preguntas reales en tiempo real!**

llame gratis  
**1.800.858.7378**

# ACHIEVEMENTS

vember. Also in November, Frank Davido distributed 300 English and 300 Spanish NPIC brochures at the Pesticide Worker Safety and Health Conference in Washington, DC.

NPIC collaborated with Vivian Conte, EPA Region 2, to distribute 300 Spanish-language NPIC brochures and fact-sheets to Puerto Rico. NPIC worked with Robert Koethe, EPA Region 1, to distribute 225 NPIC brochures to state lead agencies within the region. In addition, Jack Arias, EPA Region 6, and Mark Leshner, EPA Region 7, both requested English and Spanish brochures to include with their outreach materials.

Detailed tables are included in each of NPIC's quarterly reports describing individual proactive outreach activities. They also list the inquirers who requested NPIC brochures or other outreach materials.

## Resources

Books acquired or purchased during the 2007-08 grant year include:

*2007 TLVs and BEIs*, ACGIH, 2007; *Pflanzenschutz Nachrichten Bayer: Volume 59*, Bayer CropScience AG, May 2007; *Monograph of Cimicidae*, Usinger, 1966; *Environmental Impacts of Treated Wood*, Timothy Townsend, 2006; *Risk Communication: A Handbook for Communicating Environmental, Safety and Health Risks*, Regina Lundgren, 2004; *Pesticide Chemistry: Crop Protection, Public Health and Environmental Safety*, H. Ohkawa, 2007; *Casarett and Doull's Toxicology: The Basic Science of Poisons 6<sup>th</sup> Edition*, Curtis Klaassen, 2001; *The Practical Veterinarian: Veterinary Toxicology*, Joseph Roder, 2001 and *Small Animal Toxicology*, Michael E. Peterson, 2006; *Code of Federal Regulations 21, Parts 170 -199, Food and Drugs*, Office of Federal Register National Archives and Records Administration, April 2007; *Toxicological Profile for Boron (Draft for Public Comment – Update)*, USDHHS, September 2007; *Toxicological Profile for Chlorine (Draft for Public Comment)*, USDHHS, September 2007; *Toxicological Profile for 1,4 - Dioxane (Draft for Public Comment – Update)*, USDHHS, September 2007; *Toxicological Profile for Ethylbenzene (Draft for Public Comment – Update)*, USDHHS, September 2007; *Toxicological Profile for Ethylene Glycol (Draft for Public Comment – Update)*, USDHHS, September 2007; *Toxicological Profile for Plutonium (Draft for Public Comment – Update)*, USDHHS, September 2007; *Toxicological Profile for Styrene (Draft for Public Comment – Update)*, USDHHS, September 2007; *Toxicology*

*for Nontoxicologists*, M. E. Stelljes, 2008; *Code of Federal Regulations 40, Parts 150 -189, Protection of Environment*, Office of Federal Register National Archives and Records Administration, July 2007; *The Perception of Risk*, P. Slovic, 2000; *Pesticide Chemistry*, H. Ohkawa, 2007; *Principles and Practice of Toxicology in Public Health*, Richards, 2008; *Herbicide Handbook*, Senseman, S., 2007; *Residential, Industrial, and Institutional Pest Control*, Marer, P., 1991; *Residential, Industrial, and Institutional Pest Control*, Marer, P., 2006; *Insect Repellents: Principles, Methods, and Uses*, Debboun, M., 2007; *Aerial Application Equipment Guide 2003*, Kilroy, B., March 2003; *Evaluation: A Systematic Approach*, Rossi, P., 7<sup>th</sup>, 2004; *The Toxicology and Biochemistry of Insecticides*, Yu, S., 2008.

NPIC obtained the following EPA publications: *Special Docket for OPP Pesticide Reregistration Risk Assessments (DVD Set)*, May 2007.



NPIC acquired the following US EPA, Office of Pesticide Programs, Reregistration Eligibility Decision (RED) documents: *RED Dikegulac Sodium*, June 2007; *RED Chlorflurenol Methyl Ester*, May 2007; *RED Inorganic Polysulfides*, September 2005; *RED Methyl Esters of Fatty Acids*, June 2007; *RED Rotenone*, June 2007; *RED Inorganic Sulfides*, July 2006; *RED Antimycin A*, May 2007; *RED Aliphatic Alcohols*, July 2007; *RED Benzyl Benzoate*, June 2007; *RED Sodium Carbonate*; *RED Weak Mineral Bases*, January 2006, *RED Allethrins*, June 2007; *RED Aldicarb*, September 2007; *RED Carbaryl*, September 2007; *RED Dichlorprop-p*, August 2007; *RED Mecoprop-p*, August 2007; *RED 4-aminopyridine*, September 2007; *RED Chlormequat Chloride*, September 2007; *RED Mefluidide, Volume 1&2*, September 2007; *Revised RED Naphthaleneacetic Acid, Its Salts, Ester, and Acetamide –*, October 2007; *RED Para-dichlorobenzene*, September 2007; *RED Butoxypolypropylene Glycol*, September 2007; *RED Aliphatic Sol-*

# ACHIEVEMENTS

vents, November 2007; *RED Ammonium Thiosulfate (Inorganic Thiosulfate)*, December 2007; and *RED Cypermethrin*, January 2008.

NPIC added the following publications from DHHS/ATSDR to its library this year: *Toxicological Profile for Chlordane*, 1989; *Toxicological Profile for Sulfur Trioxide and Sulfuric Acid (Draft for Public Comment)*, 1997; *Toxicological Profile for 1,4-Dichlorobenzene (Update) (Draft for Public Comment)*, 1997; *Toxicological Profile for Hexamethylene Diisocyanate (Draft for Public Comment)*, 1996 and *Toxicological Profile for Hexamethylene Diisocyanate*, 1998; *Toxicological Profile for Acrolein (Update)*, August 2007; *Toxicological Profile for Arsenic (Update)*, August 2007; *Toxicological Profile for Barium (Update)*, August 2007; *Toxicological Profile for Benzene (Update)*, August 2007; *Toxicological Profile for Heptachlor (Update)*, August 2007; *Toxicological Profile for Lead (Update)*, August 2007; and the *Toxicological Profile for Xylenes (Update)*, August 2007.

World Health Organization International Programme on Chemical Safety publications received by NPIC include: *Pesticide Residues in Food - Evaluations 2005 - Part II - Toxicological*, WHO, September 2005; *Environmental Health Criteria No. 145: Methyl Parathion*, 1993; *Environmental Health Criteria No. 184: Diflubenzuron*, 1996; *Environmental Health Criteria No. 176: 1,2-Dichloroethane (Second Edition)*, 1995; *Environmental Health Criteria No. 191: Acrylic Acid*, 1997; *Environmental Health Criteria No. 183: Chlorthalonil*, 1996; *Environmental Health Criteria No. 133: Fenitrothion*, 1992; *Environmental Health Criteria No. 142: Alpha-cypermethrin*, 1992; *Environmental Health Criteria No. 194: Aluminum*, 1997; *Environmental Health Criteria No. 149: Carbendazim*, 1993; *Environmental Health Criteria No. 146: 1,3-Dichloropropene, 1,2-Dichloropropane and Mixtures*, 1993; *Environmental Health Criteria No. 168: Cresols*, 1995; *Environmental Health Criteria No. 150: Benzene*, 1993; *Environmental Health Criteria No. 143: Methyl Ethyl Ketone*, 1993; *Environmental Health Criteria No. 179: Morpholine*, 1996; *Environmental Health Criteria No. 174: Isophorone*, 1995; *Environmental Health Criteria No. 17: Manganese*, 1981; *Environmental Health Criteria No. 148: Benomyl*, 1993; *Environmental Health Criteria No. 186: Ethylbenzene*, 1996; *Environmental Health Criteria No. 124: Lindane*, 1991; *Environmental Health Criteria No. 195: Hexachlorobenzene*, 1997; *Environmental Health Criteria No. 5: Nitrates, Nitrites and N-Nitroso Compounds*, 1978; *Environmental Health Criteria No. 20:*

*Selected Petroleum Products*, 1982; *Environmental Health Criteria No. 187: White Spirit (Stoddard Solvent)*, 1996; *Environmental Health Criteria No. 41: Quintozene*, 1984; *Environmental Health Criteria No. 190: Xylenes*, 1997; *Environmental Health Criteria No. 67: Tetradifon*, 1986; *Environmental Health Criteria No. 58: Selenium*, 1987; *Environmental Health Criteria No. 50: Trichloroethylene*, 1985; *Environmental Health Criteria No. 182: Thallium*, 1996; *Environmental Health Criteria No. 155: Biomarkers and Risk Assessment: Concepts and Principles*, 1993; *Environmental Health Criteria No. 141: Quality University*, November 2006; *Journal of Agromedicine: Volume 10 Number 1*, Haworth Medical Press, 2005; *Public Health Reports: Volume 122 Number 4*, ASPH, July/August 2007; *Public Health Reports - Volume 122 Number 5*, Robert Rinsky, September/October 2007; *The Truth About Pesticides*, WSU, 2000; *Hot Topics Binder: Non-CCA Wood Preservatives*, NPIC, 2007; *Hot Topics Binder: Mothballs*, NPIC 2007; *Public Health Reports: Volume 121 Number 3*, Rinsky, R., May/June 2006; *Journal of Occupational and Environmental Medicine: Volume 49 Number 2, 3 and 4*, American College of Occupational and Environmental Medicine, February 2007; *ToxProfiles 2007 CD-ROM*, US Department of Health & Human Services, 2007; *Public Health Reports: Volume 123 Number 2*, Reed, Laurence, March/April 2008; *Public Health Reports: Supplement 1*, Koo, Denise, March/April 2008; *Pesticide Data Program Annual Summary, Calendar Year 2006*, United States Department of Agriculture, December 2007.

## Facilities

NPIC renewed hardware and software maintenance agreements for the Sun Microsystems servers and Convera RetrievalWare software serving critical roles in the organization. For additional printing capacity, NPIC purchased a Xerox Phaser 4510DX laser printer. NPIC also purchased 14 CS55™ Wireless Office Headset Systems from Plantronics® to enable specialists to address pesticide inquiries while accessing NPIC's hardcopy resources in several locations.

In order to replace aging/malfunctioning equipment, NPIC acquired seven Tiffany Industries® office chairs, fourteen Dell Precision T3400 Workstations and an Epson Powerlite 822P multimedia projector for permanent ceiling installation in the conference room.

# PERSONNEL UPDATE

After 12.5 years at the helm as the Director of NPIC, Dr. Terry Miller stepped down on July 1, 2007. He continues to be employed at NPIC to work on database development and as a consultant for various issues. Dr. David Stone, an Assistant Professor in the Department of Environmental & Molecular Toxicology at Oregon State University, assumed the role of NPIC Director.

NPIC celebrated Cameron Carlson's transition from a temporary worker to Professional Faculty status on January 1, 2008. Ms. Carlson has served NPIC in an administrative role for over two years, assuming increasing levels of responsibility and training. She will continue to provide leadership in desk-top publishing, scheduling and scanning documents for inclusion in NPIC's InfoBase. She also supervises undergraduate student assistants who work for NPIC.

NPIC hired seven full-time pesticide specialists during the 2007-08 grant year. Eight pesticide specialists resigned during this period. In addition, one pesticide specialist reduced her appointment to 0.4 FTE in order to care for her new son. Two student workers

were hired to assist with office support, and one specialist continued to work for NPIC as a part-time "student worker" after making the decision to continue her education as a full-time student at OSU. NPIC continued recruitment efforts for other full-time specialists.

NPIC's current staff includes a full-time project coordinator, ten full-time, and three part-time Pesticide Specialists, a full-time information resource supervisor, a full-time professional faculty, a part-time fiscal/personnel manager, and three part-time undergraduate student assistants. In addition, the NPIC Executive Committee includes the Director, and two co-investigators, all of which hold faculty appointments within the Department of Environmental & Molecular Toxicology at OSU. All specialists have at least a bachelor's degree in a scientific field. Several staff have a Masters of Science or Masters of Public Health degree and one specialist has a Ph.D. Specialists have a variety of scientific backgrounds including toxicology, biology, biochemistry, environmental science, public health, microbiology and soil science.



**POSITION ANNOUNCEMENT**  
Faculty Research Assistant Pool  
National Pesticide Information Center  
Department of Environmental & Molecular Toxicology



**Position** – The National Pesticide Information Center (NPIC) invites applications for one or more full-time Faculty Research Assistant positions. These are full-time fixed-term appointments, with reappointment at the discretion of the NPIC Director.

**Salary and Benefits** – Full-time annual salary rate of \$33,000 - \$39,000, depending on qualifications, education, and experience. Benefit package includes options for health/dental/life insurance and retirement program.

**National Pesticide Information Center** – The only service of its kind in the US, NPIC's mission is to deliver objective, science-based information about a variety of pesticide-related issues to the public and professionals, with a goal of promoting informed decision-making. NPIC, a cooperative effort between OSU and the US Environmental Protection Agency, serves the US and its territories via an 800-telephone number (seven days per week), email, and its website (<http://npic.orst.edu>).

NPIC provides its staff with many opportunities for professional development, including: Public service experience; coordination of projects; working in a dynamic learning atmosphere; and continuing education (e.g., taking occasional classes at OSU at reduced tuition rates - some restrictions apply).

**Responsibilities and Duties** – Provide objective, science-based information on a variety of pesticide-related topics, including: pesticide chemistry, toxicology, and environmental fate, to the public and professionals; participate in the development of fact sheets that promote a broader understanding of issues related to pesticide use and their potential impact on human health and the environment; respond to telephone inquiries and help maintain a pesticide inquiry database; develop and maintain knowledge of pesticides and pesticide-related issues; contribute to other areas as needed for NPIC to fulfill its mission.

**Qualifications** – Position requires a minimum of a B.S. degree in toxicology, environmental chemistry, biotechnology, agricultural sciences, public health, or closely related area (degree must include coursework in biochemistry, physiology, or equivalent). Also required are knowledge and experience in one or more of the following - Pesticide toxicology, environmental chemistry, regulations, and use practices; ability to provide unbiased information on pesticide issues to both the public and professionals.



Left to Right, Back Row: Dixie Jackson, **PS** (Master of Public Health); Suzanne Phillips, **PS** (B.S. Biology) **KMPS**; Bryan Harper, **PS** (M.S. Ecology & Evolution); Andrea Christiansen, **PS** (B.S. Biology/German); Rachelle Travers, **PS** (B.S. Molecular Biology & Biochemistry); Sean Ross, **SNIRC**.

Left to Right, Front Row: Matthew Wenning, **PS** (B.S. Bioresource Research/Toxicology); Kari Christensen Johnson, **PS** (B.S. Biochemistry/Biophysics); Dr. Daniel Sudakin, **Co-PI** (M.D., Master of Public Health); Terry Miller, **EF** (Ph.D. Biochemistry/Environmental Toxicology); Dr. Jennifer Gervais, **PS** (Ph.D. Wildlife S

**PI** = Principal Investigator    **PC** = Project Coordinator    **PS** = Pesticide Specialist    **SNIRC** = Supervisor of NPIC



; Dr. Dave Stone, **PI** (Ph.D. Toxicology); Dr. Jeffrey Jenkins, **Co-PI** (Ph.D. Entomology); Cameron Carlson,  
; Bryan Luukinen, **PS** (Master of Public Health); Kelly Bahns, **PS** (B.S. Environmental Biology/Zoology);

sen, **PS** (Master of Public Health); Miller Henderson, **PS** (M.S. Marine Resource Management); Melody  
Laura Power (M.S. Soil Chemistry); Kaci Agle, **PC** (M.S. Integrated Pest Management). Not pictured: Dr.  
cience); Polly Wegner, **PS** (B.S. Environmental Science).

Information Resources Capability    **KMPS** = Knowledge Management & Project Specialist    **EF** = Emeritus Faculty

## Data Summary

Specialists record pertinent information for every inquiry received at NPIC via telephone or e-mail. This information is entered into the NPIC Pesticide Inquiry Database (PID), an electronic database used to record information for all inquiries to NPIC. Generally, there are two types of inquiries received by NPIC: 1) those for general or specific information about pesticides and pesticide-related issues and 2) inquiries about pesticide incidents. For example, an inquirer might ask a question about “pesticides in foods” (a general information inquiry) or about the toxicity of a particular pesticide (a pesticide-specific information inquiry). An inquiry to report an exposure to a pesticide is an example of an incident inquiry. The type and amount of information entered into the PID depends on whether the inquiry was for information or to report a pesticide incident. Information collected and entered into the PID for information inquiries includes:

- origin of inquiry (e.g., telephone or e-mail)
- state from which the inquiry originated
- type of person (e.g., general public, government agency, or medical personnel)
- type of inquiry (e.g., request for pesticide information or report of pesticide incident)
- reason for inquiry (e.g., concern/knowledge in the case of information inquiries)
- action required (e.g., verbal information, referral, or mailed information).

If a specific pesticide product or active ingredient is discussed, the product and/or active ingredient is entered into the database. Details of an inquiry, including what the inquirer told or asked the specialist and how the specialist responded to the inquirer, are recorded as a narrative statement in the PID.

When incidents are reported, more detailed and specific information is recorded, including:

- type of incident (e.g., exposure, spill, drift)
- location of the incident
- circumstances surrounding incident
- information about person or animal, including age and gender
- route of exposure
- reported symptoms and time to onset
- product information
- EPA registration number
- type of application
- contact information.

For incidents involving reported human or animal health effects, and for environmental incidents, a certainty index is assigned. The certainty index is an estimate by NPIC (based on information provided by the inquirer) as to the likelihood that the reported effects were caused by exposure to a pesticide. Additionally, if an incident involves an environmental impact, the nature of the impact is recorded in the database (e.g., impact to air, water, or soil).



Picture Provided By Joseph Foley

## Tables and Figures

There are three main means of inquiry to NPIC: telephone, e-mail, and the internet. For purposes of this report, use of the terms “inquiry” and “inquirer” generally refer to use of the telephone or e-mail to contact NPIC. Unless otherwise specified, inquiries to NPIC via the web are referred to as “hits”.

NPIC received 23,787 inquiries during its thirteenth year of operation (April 2007 - March 2008) at Oregon State University. Most of the inquiries received by NPIC are complex, requiring extensive expertise on the part of the specialists to be able to provide answers which are objective, science-based and, at the same time, discussed in an understandable manner.

A summary of the number of telephone inquiries received each month is provided in Table 1.1 and Graph 1.1. Also included in Table 1.1 is a listing of the total number of inquiries by calendar year. Most inquiries occurred during the period of March to October.

The types of inquiries received by NPIC are shown in Table 2.1 and Charts 2.1 and 2.2. Inquiries ranged from questions regarding general or specific information about pesticides, to reporting of incidents.

The means by which people contact NPIC are shown in Table 3.1. The telephone was by far the most important contact route. However, many people accessed NPIC through its website (Table 4.1 and Graphs 4.1 - 4.8).

The variety of inquirers to NPIC is shown in Table 5.1 and Chart 5.1. The predominant number of inquiries received by NPIC were from the general public.

The types of questions posed to NPIC specialists are presented in Table 6.1 and Chart 6.1. Most of the inquirers requested information about health-related issues and pesticide products.

Most of these information inquiries, and others listed in Table 6.1, were prompted by concern/knowledge of the inquirer (Table 7.1 and Charts 7.1 and 7.2). Only a small percentage of the inquiries were to report a pesticide incident.

Most inquirers received information verbally from a specialist (Table 8.1 and Charts 8.1 and 8.2). Some inquirers also requested and received written information. In addition, appropriate inquiries were referred to either EPA, the National Pesticide Medical Monitoring Program (NPMMP, a cooperative project between Oregon State University and the U.S. EPA to provide medical consultation and follow-up to potential pesticide exposures), an extension specialist or a state lead agency (such as a State Department of Agriculture).

The inquirers to NPIC represented all 50 states, as well as Canada and other foreign nations. Table 9.1 shows the number of inquiries from each of the states, Puerto Rico, the Virgin Islands, and other locations. The 10 states where most of the inquiries were from is presented in Graph 9.1. Also shown in Table 9.1 and presented in Graph 9.2 are the number of inquiries from each of the EPA regions.

The total number of inquiries, as well as the number of information and incident inquiries, for the 25 most asked about pesticide active ingredients are presented in Table 10.1. For incident inquiries, the value shown in parentheses indicates the number of inci-

dents with a certainty index of 1 (definite) or 2 (probable). The 10 active ingredients mentioned most often in all inquiries are presented in Graph 10.1.

The 25 active ingredients most frequently mentioned in incident inquiries are listed in Table 11.1. Incident inquiries are further classified by entity type. The 10 active ingredients most often mentioned in incident inquiries are presented in Graph 11.1.

The locations where pesticide incidents were purported to have occurred are shown in Table 12.1. Of those inquiries where the location was reported, most incidents occurred in or around the home.

The environmental impact of the pesticides involved in incidents is shown in Table 13.1.

The incident inquiries are further categorized by whether the incident involved a human, animal, or building/other (Table 14.1 and Graph 14.1). The incident inquiries for each entity type are qualified by the certainty index. The certainty index is an estimate by NPIC as to whether the incident was either definitely (1), probably (2), possibly (3), or unlikely (4) to have been caused by exposure to a pesticide, or whether the incident was unrelated (5) to pesticides. A certainty index of zero (0) reflects those inquiries where the inquirer reported an exposure to a pesticide, but no symptoms were present. For human entities presented in Table 14.1, the certainty index is further categorized by gender and group.

Table 15.1 and Graphs 15.1.1 - 15.1.3 list the descriptions for the entities involved in incidents such as female, male, groups, animals, and other. Chart 15.1 provides a description of entities involved in incidents grouped as humans, animals and other entities.

Reported symptoms are shown in Table 16.1 and Charts 16.1 and 16.2. Symptoms provided by inquirers were either symptomatic, asymptomatic, or atypical.

The number of deaths or interesting/strange cases, due to a potential pesticide exposure, is shown in Table 17.1 and Chart 17.1.

Ages were available for most of the human entities and are presented in Table 18.1 and Graph 18.1.

# MONTHLY INQUIRIES

## 1. Monthly Inquiries

NPIC received 23,787 inquiries during the 2007 grant year. Graph 1.1 shows the number of inquiries received for each month. Eighty-two percent of the inquiries were received between March and October, coinciding with that part of the year when most pest pressures are highest. Total inquiries received during previous grant and calendar years are provided for comparison in Table 1.1. June received the highest number of inquiries, while December received the lowest number of inquiries, consistent with the previous four years.

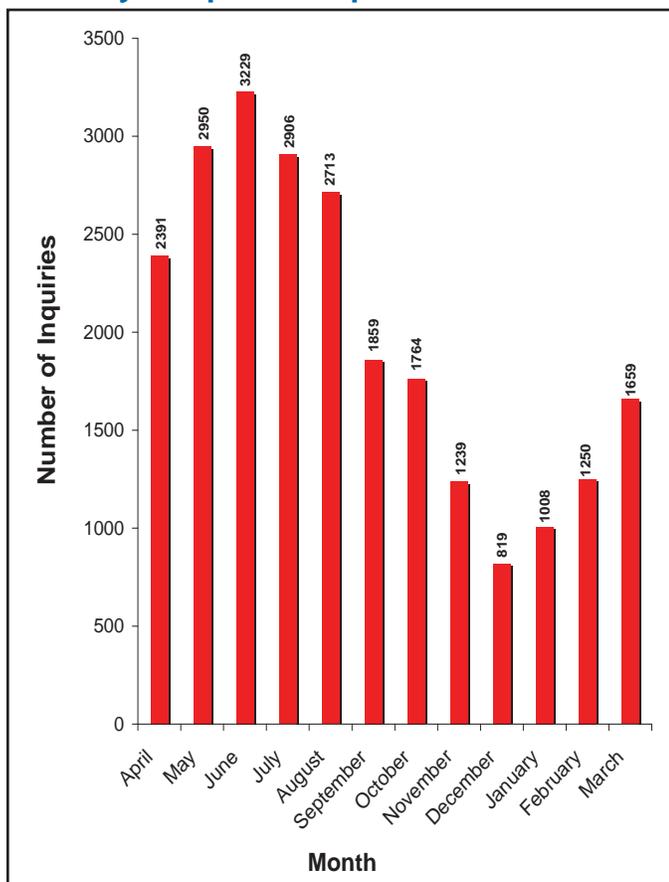
Table 1.1 - Monthly Telephone Inquiries

Month	Number of Inquiries				
	2003	2004	2005	2006	2007
April	2328	2519	2556	2494	2391
May	2891	2826	2620	3140	2950
June	3267	3386	3602	3400	3229
July	3143	3136	3071	3241	2906
August	2747	2792	2951	2716	2713
September	2026	2142	1952	1807	1859
October	1597	1821	1638	1640	1764
November	1032	1193	1211	1149	1239
December	796	886	818	838	819
January	969	1065	1145	1074	1008
February	1077	1172	1106	1045	1250
March	1736	1827	1752	1928	1659
<b>Calendar<sup>1</sup> Year Total =</b>	<b>23524</b>	<b>24483</b>	<b>24484</b>	<b>24428</b>	<b>23918</b>
<b>Grant<sup>2</sup> Year Total =</b>	<b>23609</b>	<b>24765</b>	<b>24422</b>	<b>24472</b>	<b>23787</b>

<sup>1</sup> January 1 through December 31.

<sup>2</sup> April 1 through March 31.

Graph 1.1 - Monthly Telephone Inquiries



# TYPE OF INQUIRY

## 2. Type of Inquiry

NPIC classifies inquiries as information, incident, or other (non-pesticide) inquiries. The types of inquiries are summarized in Table 2.1 and Charts 2.1 and 2.2.

The majority of inquiries (18,589 or 78.1%) to NPIC were information inquiries in which the inquirer requested information about pesticides or pesticide-related issues (Chart 2.1). Information inquiries may involve a discussion of a specific pesticide, or of pesticides in general. NPIC responded to 7,635 (32.1%) information inquiries about specific pesticides. NPIC responded to 10,954 (46.1%) inquiries relating to pesticides in general.

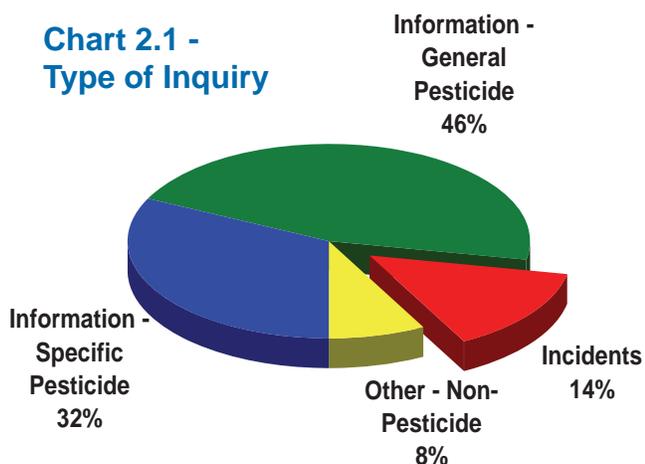
NPIC responded to 3,326 (14.0%) inquiries about pesticide incidents. A pesticide incident is a spill, a misapplication, a contamination of a non-target entity or any purported exposure to a pesticide, regardless of injury. The majority of incident inquiries involved human and animal entities (Chart 2.2). Of the 3,326 incident inquiries, 1,749 (52.6%) involved a human entity, 1,127 (33.9%) involved an animal entity, and 450 (13.5%) involved a structure or other location such as a garden or automobile.

NPIC also addressed 1,872 (7.9%) inquiries that were not related to pesticides.

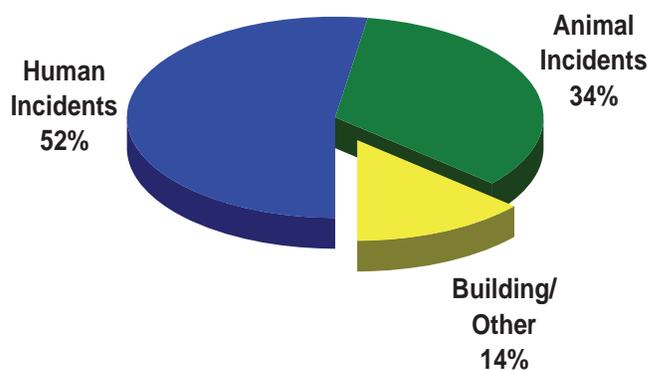
**Table 2.1 - Type of Inquiry**

Type of Inquiry	Number of Inquiries				
	2003	2004	2005	2006	2007
Information - Specific Pesticide	9907	9900	8690	8303	7635
Information - General Pesticide	11056	10547	9733	10707	10954
Incidents	1777	2455	3190	3393	3326
Human Incidents	718	1089	1477	1714	1749
Animal Incidents	763	984	1250	1235	1127
Building/Other	296	382	462	443	450
Other - Non-Pesticide	869	1863	2809	2069	1872
<b>Grant Year Total =</b>	<b>23609</b>	<b>24765</b>	<b>24422</b>	<b>24472</b>	<b>23787</b>

**Chart 2.1 - Type of Inquiry**



**Chart 2.2 - Incidents**



# ORIGIN OF INQUIRY

## 3. Origin of Inquiry

Table 3.1 summarizes the origin of inquiries received by NPIC. Most inquiries are received by telephone. Of the 23,787 inquiries, 22,171 (93.2%) were received by telephone, 464 (2.0%) were recorded by a voice mail system, 274 (1.2%) were received by postal mail, 5 were walk-in inquiries, and 873 (3.7%) were by e-mail.



Table 3.1 - Origin of Inquiry

Origin of Inquiry	Number of Inquiries				
	2003	2004	2005	2006	2007
Telephone	21999	23242	22871	22907	22171
Voice Mail	671	598	521	483	464
Mail	24	19	121	266	274
Walk In	12	8	2	3	5
E-Mail	901	897	906	813	873
Other	2	1	1	0	0
<b>Grant Year Total =</b>	<b>23609</b>	<b>24765</b>	<b>24422</b>	<b>24472</b>	<b>23787</b>



# WEB SITE ACCESS

## 4. Web Site Access

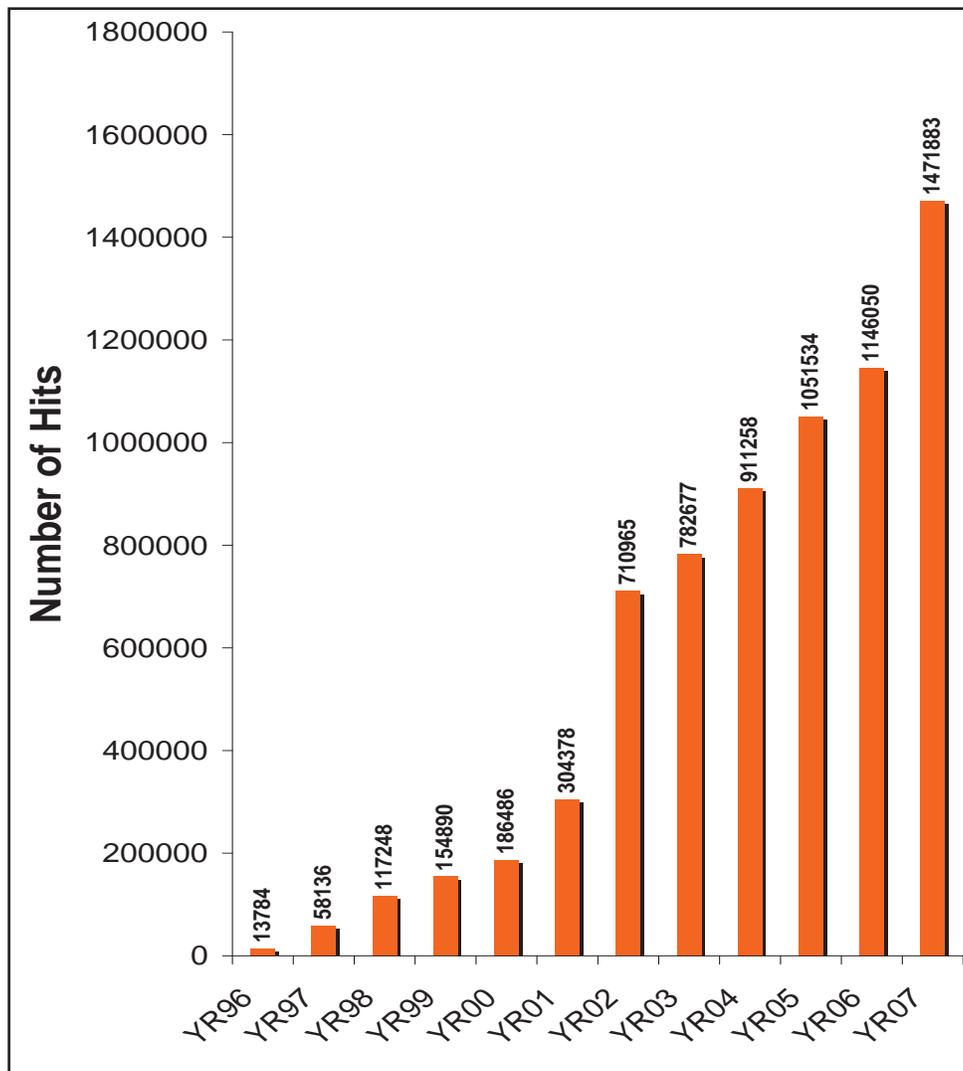
The NPIC web site is an increasingly popular source of information for NPIC clientele. The NPIC web site received 1,471,883 hits in 2007.

Graph 4.1 shows the number of total hits per grant year. Table 4.1 and Graph 4.2 summarizes the number of web site hits to NPIC main web pages. Graph 4.3 shows the number of hits for emergency-related information. The number of hits (68,911) to the NPIC West Nile virus web pages is shown in Graph 4.4. Hits to case profiles are shown in Graphs 4.5 and 4.6. Graphs 4.7 and 4.8 detail the number of hits for NPIC fact sheets (>220,000 hits). Web hits are a major form of inquiry to NPIC, in addition to telephone and e-mail. The NPIC InfoBase received 105,277 hits this year, a 44% increase from last year.

Table 4.1 - Selected Web Hits

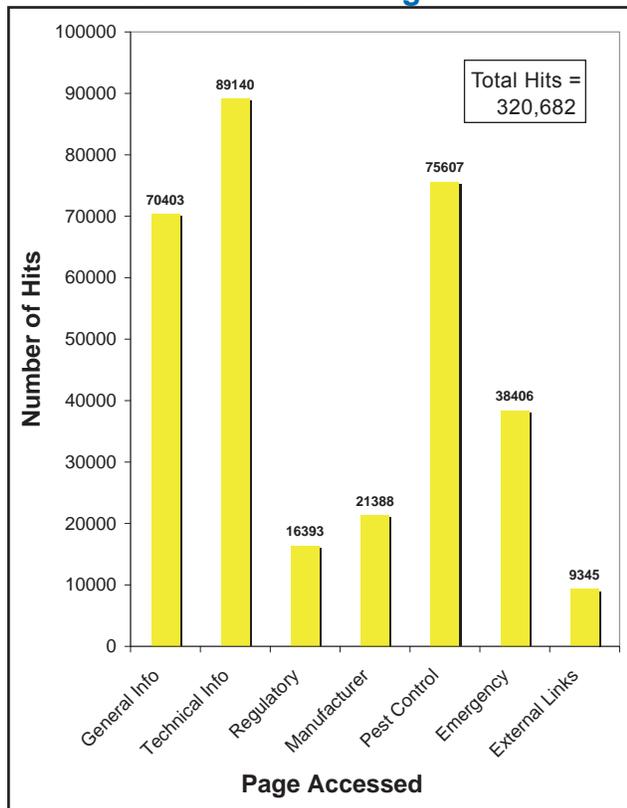
Page Accessed	Web Hits
General Information	70403
Technical Information	89140
Fact Sheets	220867
State Regulatory Agencies	48674
Recognition & Management of Pesticide Poisonings	62291
Manufacturer Information	47303

Graph 4.1 - NPIC Total Hits per Year

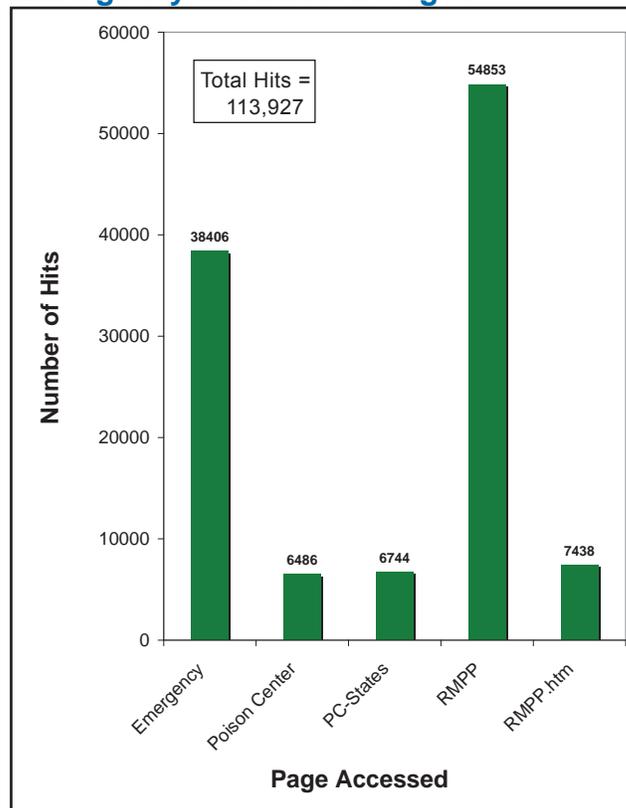


# WEB SITE ACCESS

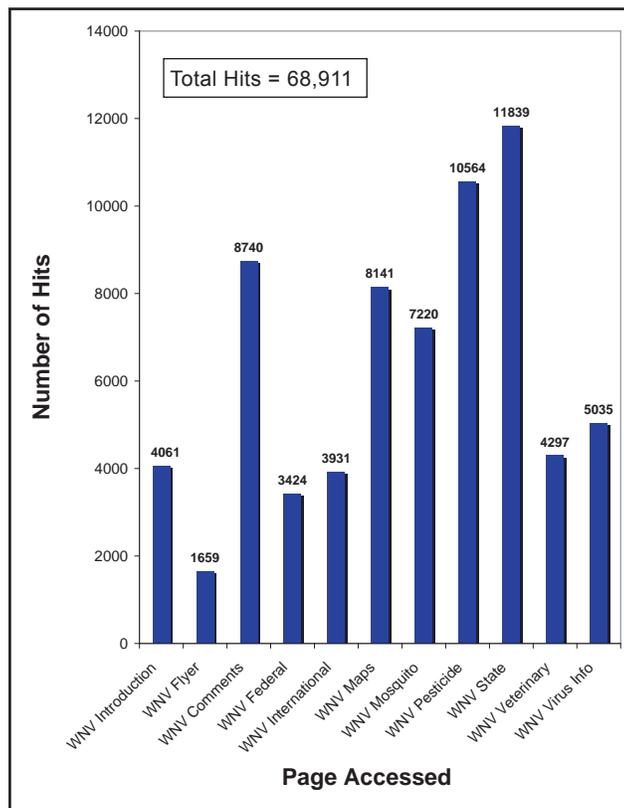
**Graph 4.2 - Hits to NPIC Main Web Pages**



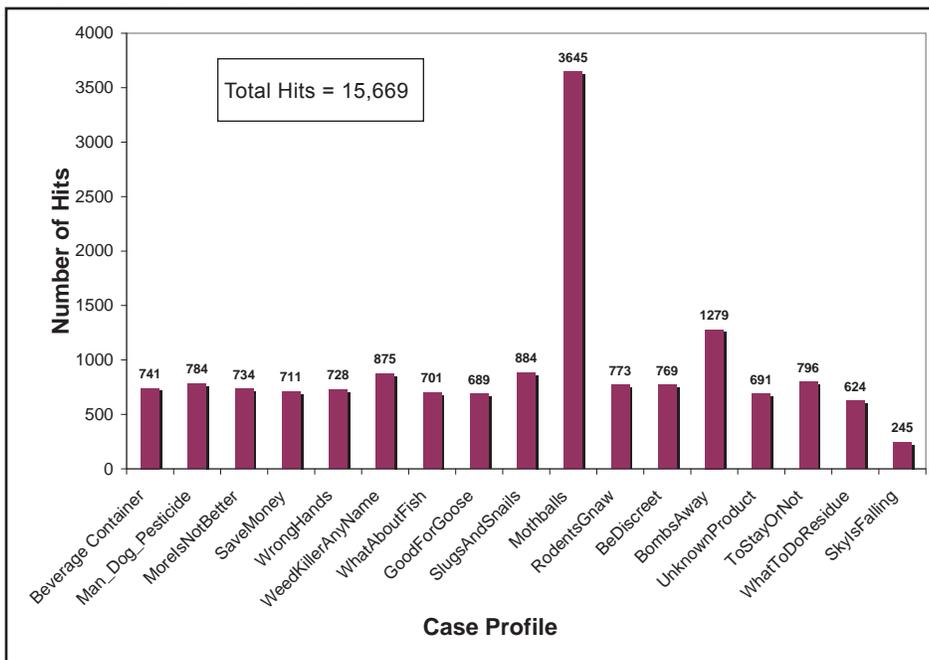
**Graph 4.3 - Hits to Emergency Information Pages**



**Graph 4.4 - Hits to West Nile Virus Pages**



**Graph 4.5 - Hits to Case Profiles**

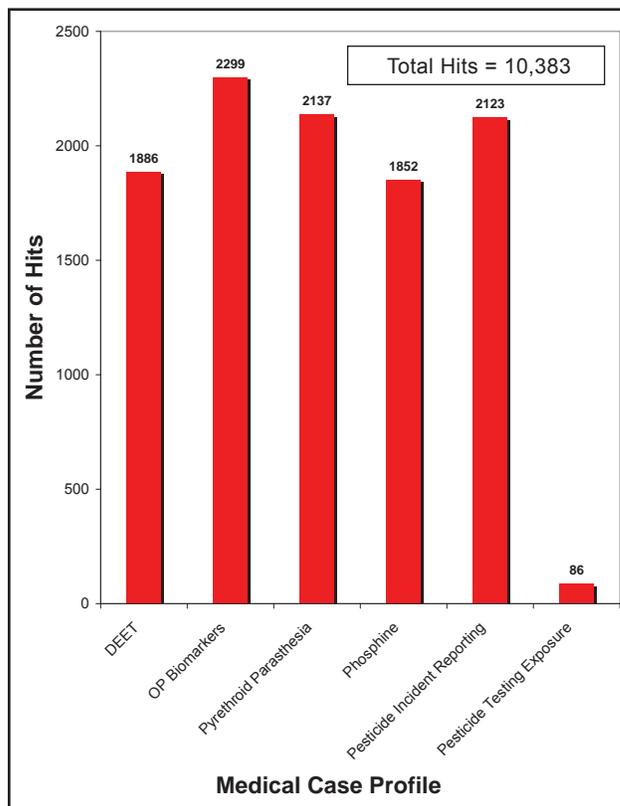


### What are Case Profiles?

Case Profiles were developed in 2003 as a new type of NPIC publication, aimed at a general audience, to turn frequently asked questions into learning opportunities. Each case profile describes a caller's question, NPIC's answer, and provides a series of links that allow the reader to learn more about specific topics of interest. Some case profiles describe mishaps, and ways to prevent accidental exposures or incidents. Some case profiles address common misconceptions about pesticides. The whole case profile collection, now totaling 17, is available on the NPIC website.

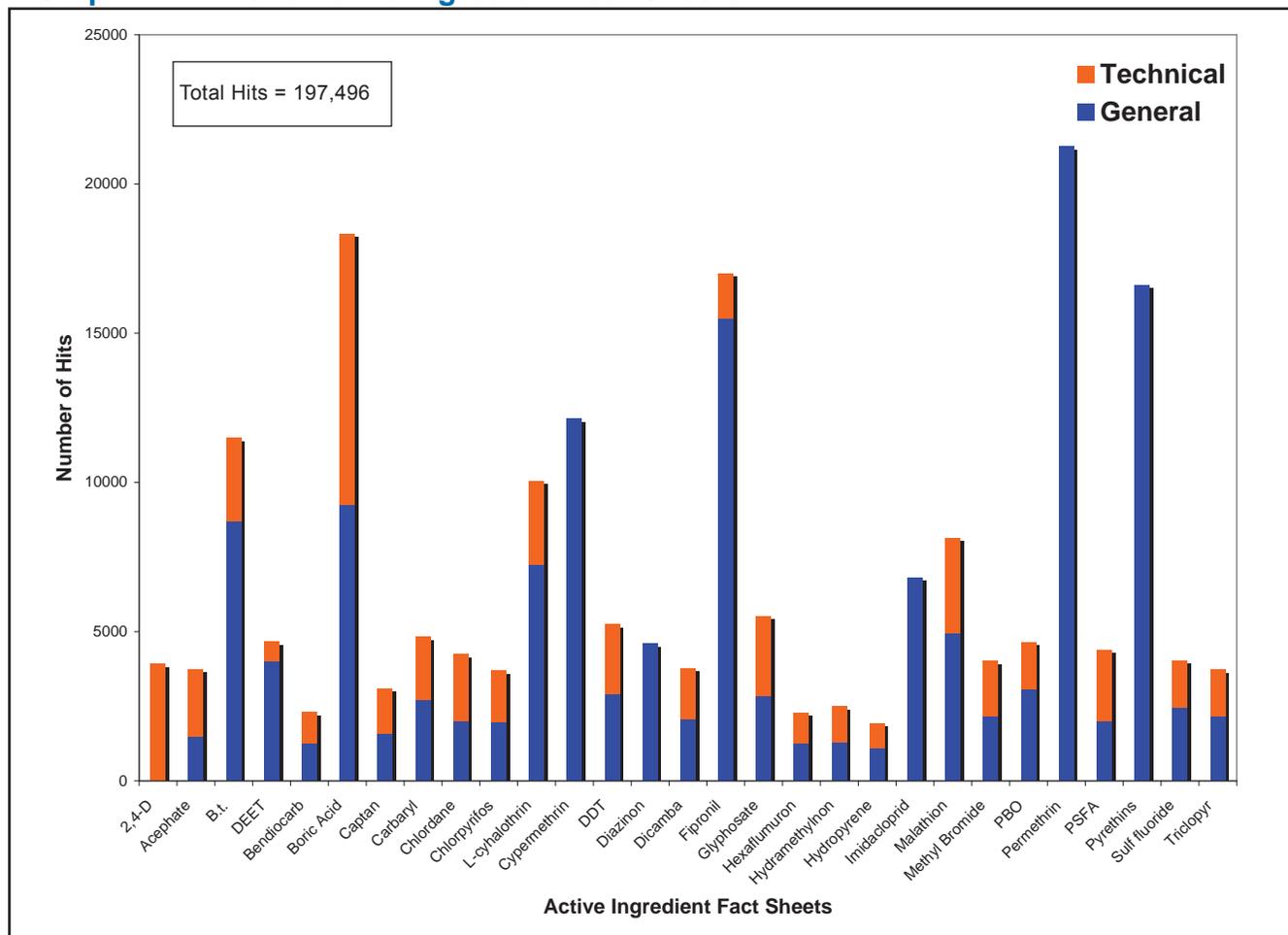
Medical case profiles are directed toward health care providers and convey pesticide specific clinical information useful to this audience. Dr. Daniel Sudakin produces these resources in order to raise awareness of pesticide-related issues in the medical community. The collection of six medical case profiles is available on the NPIC website.

**Graph 4.6 - Hits to Medical Case Profiles**

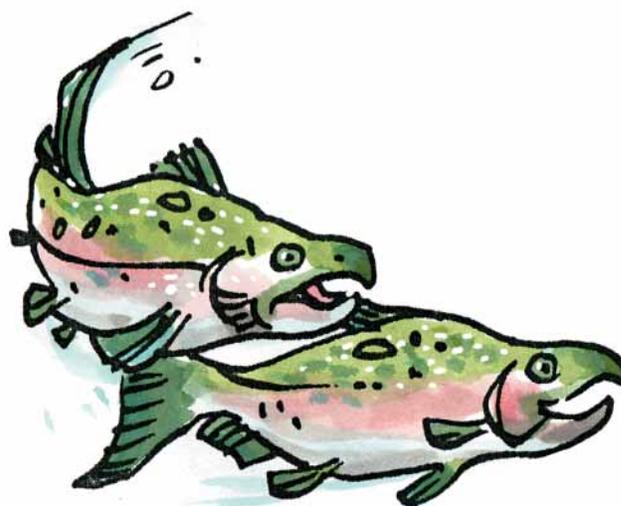
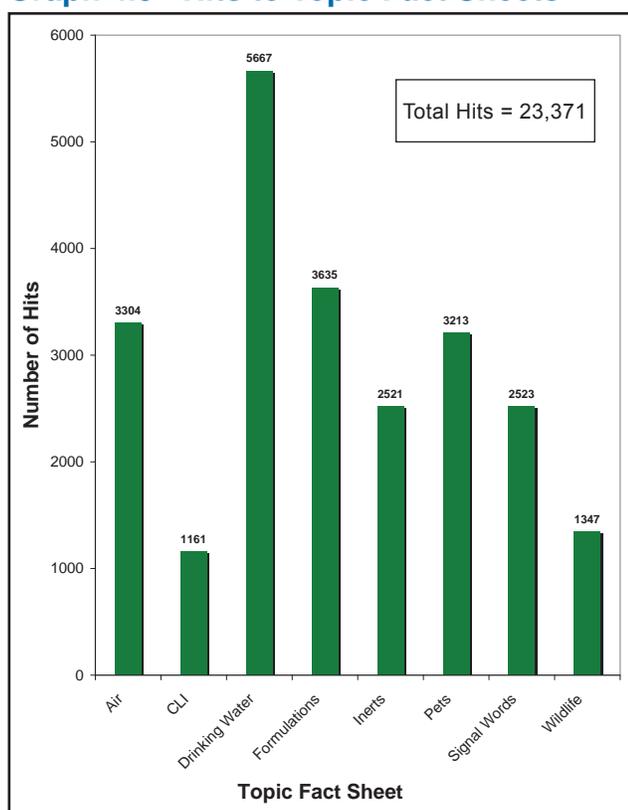


# WEB SITE ACCESS

Graph 4.7 - Hits to Active Ingredient Fact Sheets



Graph 4.8 - Hits to Topic Fact Sheets



# TYPE OF INQUIRER

## 5. Type of Inquirer

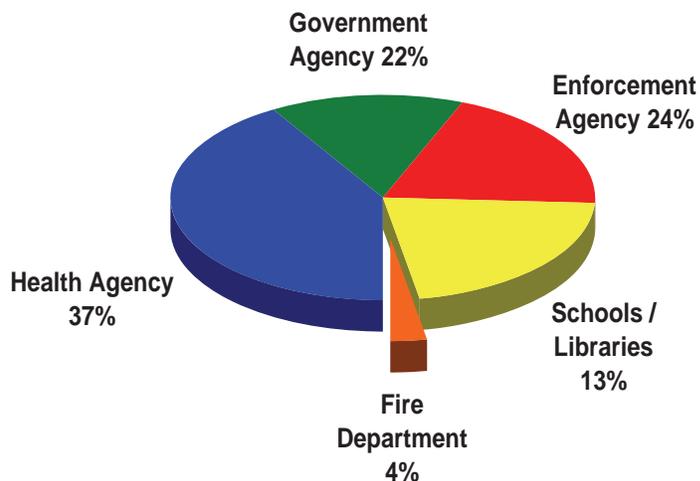
Table 5.1 summarizes the profession/occupation of individuals contacting NPIC. The majority of inquiries made to NPIC are from the general public. Of the 23,787 inquiries received, there were 20,941 (88.0%) from the general public, 778 (3.3%) from federal, state or local government agencies, 487 (2.0%) from human and animal medical personnel, 433 (1.8%) from information groups including the media, unions, environmental organizations and pesticide manufacturing or marketing companies, 701 (2.9%) from consumer users including legal or insurance representatives, laboratory or consulting personnel, pest control operators, retail store personnel or farm personnel, and 403 (1.7%) inquiries from other professions/occupations.

Chart 5.1 summarizes the 778 governmental entities that contacted NPIC during the 2007 grant year.

Table 5.1 - Type of Inquirer

Type of Inquiry	Number of Inquiries				
	2003	2004	2005	2006	2007
<b>General Public</b>	20443	21334	21733	21794	20941
<b>Federal/State/Local Agencies</b>					
Health Agency	116	118	108	251	322
Government Agency	221	225	173	157	115
Enforcement Agency	387	292	184	169	152
Schools/Libraries	165	174	155	93	167
Fire Department	32	31	27	31	22
<b>Medical Personnel</b>					
Human Medical	315	290	250	279	218
Animal Vet./Clinic	238	292	238	281	261
Migrant Clinic	10	8	8	4	8
<b>Information Groups</b>					
Media	121	101	79	69	75
Unions/Info. Service	180	147	121	106	102
Environmental Org.	82	114	97	88	70
Pesticide Mfg./Mktg. Co.	202	198	179	194	186
<b>Consumer Users</b>					
Lawyer/Insurance	62	50	46	46	52
Lab./Consulting	56	106	62	37	49
Pest Control	161	183	163	155	198
Retail Store	308	384	302	316	349
Farm	37	71	54	39	53
Other	435	621	412	327	403
<b>Grant Year Total =</b>	<b>23606</b>	<b>24765</b>	<b>24422</b>	<b>24472</b>	<b>23787</b>

Chart 5.1 -  
Inquiries - Federal/State/Local Agencies



# TYPE OF QUESTION

## 6. Type of Question

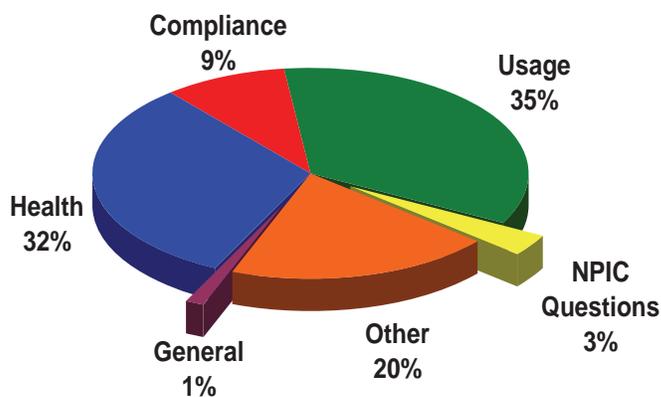
The types of questions received at NPIC are most often related to health effects and usage of pesticides (Chart 6.1 and Table 6.1). NPIC responded to 7,521 (31.6%) inquiries related to health effects of pesticides, including inquiries about general health, treatment and testing, and laboratory questions. In addition, there were 8,223 (34.6%) inquiries involving requests for pesticide usage information, including questions about use on specific pests or crops, chemical information, pros and cons of application, safety and application questions, cleanup, preharvest intervals, and lawn care usage.

NPIC also responded to 2,146 (9.0%) inquiries involving compliance questions, including regulations, disposal, and complaints. There were 100 (0.4%) inquiries about other food safety issues, 301 (1.3%) inquiries involving general pesticide questions, 823 (3.5%) inquiries involving questions about NPIC, and 4,673 (19.6%) inquiries not classified according to type of question.

Table 6.1 - Type of Question

Type of Question	Number of Inquiries				
	2003	2004	2005	2006	2007
<b>Health Related</b>					
Health	7850	7891	6655	7192	6780
Treatment	159	278	470	600	584
Testing Lab.	169	188	210	169	157
<b>Usage Information</b>					
Pest/Crop	1918	2007	1764	1929	2069
Chemical	824	697	799	828	1076
Pros and Cons	75	69	43	73	101
Safety/Application	3559	3760	4430	4831	4246
Cleanup	255	296	362	388	470
Harvest Intervals	123	162	154	224	245
Lawn Care	40	28	22	26	16
<b>Compliance</b>					
Regulations	1597	1484	1365	1322	1325
Complaints	492	747	879	658	653
Disposal	134	164	201	162	168
<b>Food Safety</b>					
General	227	184	166	69	100
General	323	325	250	274	301
NPIC Questions	1042	847	749	898	823
Other	5045	5638	5900	4829	4673
<b>Grant Year Total =</b>	<b>23608</b>	<b>24765</b>	<b>24422</b>	<b>24472</b>	<b>23787</b>

Chart 6.1 - Type of Question



# REASON FOR INQUIRY

## 7. Reason for Inquiry

Specialists identify the reason for all inquiries received by NPIC (Table 7.1 and Charts 7.1 and 7.2). The reason for all information inquiries is recorded as Concern/Knowledge. The reason for incident inquiries varies according to the nature of the incident. Of the 3,327 inquiries for which a reason was available, there were 2,760 (83.0%) about pesticide exposure, and 567 (17.0%) about accidents. There were 34 (1.0%) inquiries about odor only, and 24 (0.7%) inquiries for other reasons. The reason for all other (non-pesticide) inquiries is N/A–Unknown.

Table 7.1 - Reason for Inquiry

Type of Inquiry	Number of Inquiries				
	2003	2004	2005	2006	2007
<b>Information Inquiries</b>					
Concern/Knowledge	21476	20988	19019	20567	19108
<b>Incident Inquiries</b>					
<b>Exposures</b>					
Dermal - Acute	482	655	863	782	866
Dermal - Chronic	12	18	21	50	63
Ingestion - Acute	443	647	885	968	981
Ingestion - Chronic	7	3	12	15	11
Inhalation - Acute	115	227	296	289	340
Inhalation - Chronic	20	61	94	134	150
Exposure Possible	127	163	281	319	194
Unknown/Many	176	181	154	177	152
Occupational	7	14	9	4	3
<b>Accidents</b>					
Misapp. - Homeowner	165	229	337	384	308
Misapp. - PCO	37	42	39	30	19
Misapp. - Other	24	29	36	35	24
Spill - Indoor	59	44	54	44	80
Spill - Outdoor	10	16	14	27	19
Contamination - Home	3	5	5	8	12
Contamination - Other	2	7	7	13	16
Drift	33	37	30	41	30
Fire - Home	0	0	1	2	1
Fire - Other	1	0	1	0	0
Industrial Accident	0	0	0	1	0
Odor Only	24	42	67	60	34
Other	30	33	13	9	24
N/A - Unknown	356	1324	2184	513	1352
<b>Grant Year Total =</b>	<b>23609</b>	<b>24765</b>	<b>24422</b>	<b>24472</b>	<b>23787</b>

Chart 7.1 - Pesticide Exposures

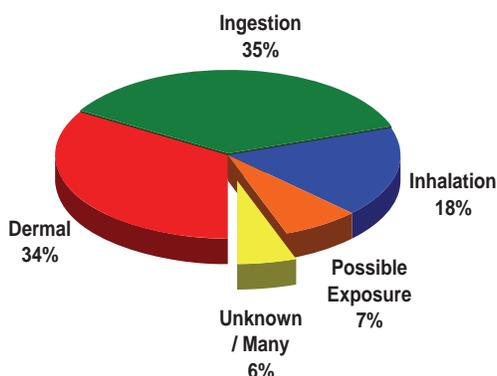
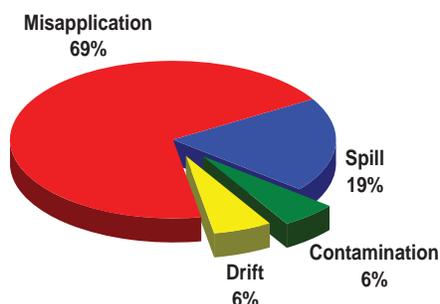


Chart 7.2 - Pesticide Accidents



# ACTION TAKEN

## 8. Action Taken

NPIC specialists respond to inquiries in many ways, including the provision of verbal information, transfer to poison control, discussion and contact information for other agencies or organizations, and information sent by e-mail, mail, or fax. Actions taken by specialists in response to inquiries are summarized in Table 8.1, and Charts 8.1 and 8.2. Most inquiries (23,631; 99.3%) were answered by providing verbal information and referrals to the inquirer, excluding transfers.

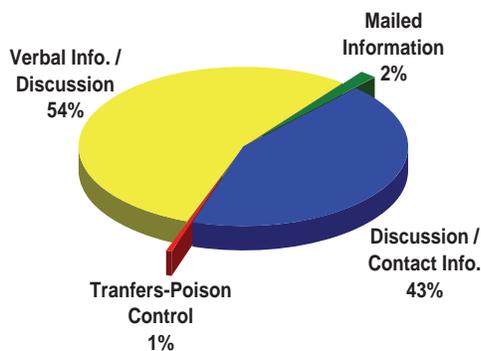
Some inquiries (156; 0.7%), where the specialist determined a need, were transferred to Oregon

Poison Control Center, Animal Poison Control Center, or the National Pesticide Medical Monitoring Program, as appropriate. For other inquiries, information in addition to that provided by NPIC was required to meet the needs of the inquirer. Of the total referrals made, there were 289 (2.8%) to the EPA, 795 (7.8%) to state lead agencies, 1,797 (17.6%) to cooperative/county extension service, 836 ( 8.2%) to Poison Control, 353 (3.5%) to Animal Poison Control, and 6,132 (60.1%) to the manufacturer/registrant.

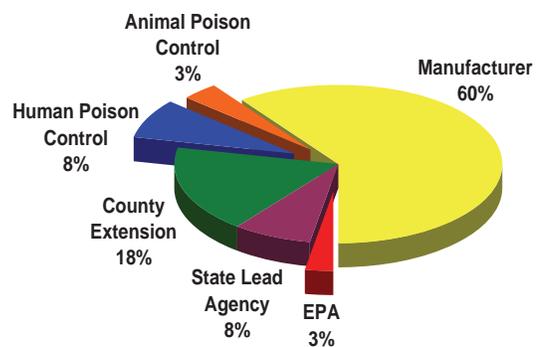
**Table 8.1 - Action Taken**

Action Taken	Number of Inquiries				
	2003	2004	2005	2006	2007
<b>Provided Verbal Information/Discussion</b>	<b>16703</b>	<b>15335</b>	<b>12844</b>	<b>12231</b>	<b>13047</b>
<b>Provided Transfer to:</b>					
Oregon Poison Center	71	70	99	109	43
Animal Poison Control Center	95	51	98	105	38
National Pesticide Medical Monitoring Program	209	193	128	106	75
<b>Provided Discussion and Contact Information for:</b>					
EPA HQ or Regional Office	337	515	389	332	289
State Lead Agencies	544	757	825	781	795
Cooperative/County Extension	1171	1624	1946	1926	1797
Human Poison Control	74	315	578	766	836
Animal Poison Control	104	115	244	318	353
Manufacturer/Registrant	2803	4199	5762	6466	6132
<b>E-mail, Mailed Information, Brochure, Publication</b>	<b>1018</b>	<b>994</b>	<b>1047</b>	<b>922</b>	<b>381</b>
<b>Other/FAXED Information</b>	<b>454</b>	<b>587</b>	<b>451</b>	<b>410</b>	<b>0</b>
<b>Grant Year Total =</b>	<b>23609</b>	<b>24765</b>	<b>24422</b>	<b>24472</b>	<b>23787</b>

**Chart 8.1 - Action Taken**



**Chart 8.2 - Discussion/Contact Information**



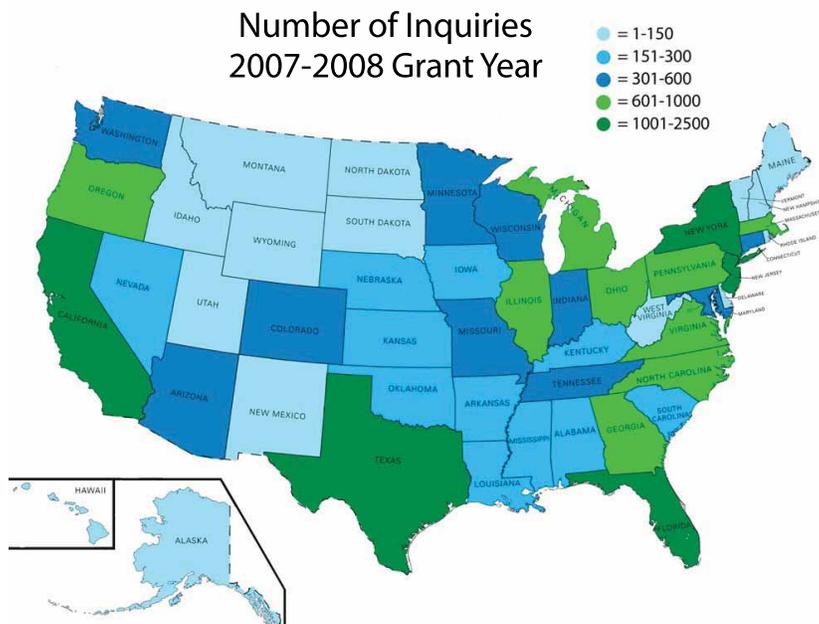
# INQUIRIES BY STATE

## 9. Inquiries by State

Table 9.1 lists the number of inquiries received by NPIC from each state. The largest number of inquiries came from California, followed by Texas, New York and Florida (Graph 9.1).

Graph 9.2 summarizes inquiries by EPA region. NPIC received 16.2% of inquiries from Region 4, 14.5% from Region 5, 12.4% from Region 2, 11.9% from Region 9, and 11.8% from Region 6.

Graph 9.1 - Inquiries by State



Graph 9.2 - Inquiries by EPA Region

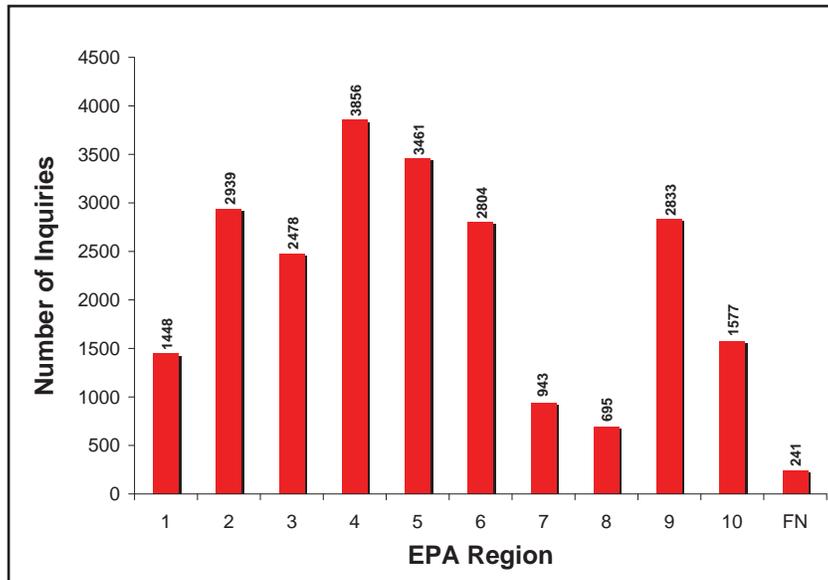


Table 9.1 - Listing of States and Foreign Nations Using NPIC

EPA Region	State Code	State	# of Inquiries
0		Unknown	512
10	AK	Alaska	41
4	AL	Alabama	277
6	AR	Arkansas	158
9	AZ	Arizona	340
9	CA	California	2274
FN	CN	Canada	117
8	CO	Colorado	358
1	CT	Connecticut	357
3	DC	DC	125
3	DE	Delaware	91
4	FL	Florida	1188
FN	FN	Foreign	124
4	GA	Georgia	672
9	HI	Hawaii	60
7	IA	Iowa	243
10	ID	Idaho	126
5	IL	Illinois	740
5	IN	Indiana	340
7	KS	Kansas	174
4	KY	Kentucky	292
6	LA	Louisiana	243
1	MA	Massachusetts	720
3	MD	Maryland	576
1	ME	Maine	121
5	MI	Michigan	821
5	MN	Minnesota	320
7	MO	Missouri	373
4	MS	Mississippi	174
8	MT	Montana	83
4	NC	North Carolina	646
8	ND	North Dakota	39
7	NE	Nebraska	153
1	NH	New Hampshire	81
2	NJ	New Jersey	1048
6	NM	New Mexico	103
9	NV	Nevada	159
2	NY	New York	1829
5	OH	Ohio	804
6	OK	Oklahoma	187
10	OR	Oregon	840
3	PA	Pennsylvania	941
2	PR	Puerto Rico	55
1	RI	Rhode Island	107
4	SC	South Carolina	214
8	SD	South Dakota	36
4	TN	Tennessee	393
6	TX	Texas	2113
8	UT	Utah	146
3	VA	Virginia	626
2	VI	Virgin Islands	7
1	VT	Vermont	62
10	WA	Washington	570
5	WI	Wisconsin	436
3	WV	West Virginia	119
8	WY	Wyoming	33
Total =			23787

# TOP 25 AIs FOR ALL INQUIRIES

## 10. Top 25 Active Ingredients for All Inquiries

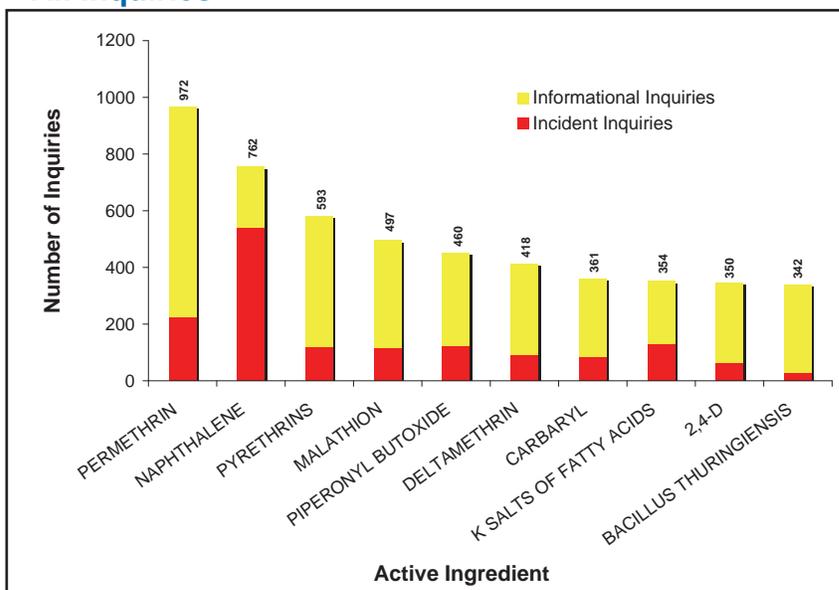
When inquiries to NPIC involve discussion of a specific product or active ingredient, specialists record the product and the active ingredient in the PID. Permethrin was discussed in more inquiries than any other single active ingredient this year (Table 10.1, Graph 10.1). Of the 972 inquiries involving permethrin, 225 (23.1%) were incident inquiries and 742 (76.9%) were inquiries for information. See Table 10.1 and Graph 10.1 for this and similar information for the active ingredients most commonly discussed in inquiries made to NPIC. Note that an inquiry may involve discussion of more than one active ingredient; thus totals reflect the number of times active ingredients are discussed during all inquiries. Graph 10.1 illustrates the number of informational inquiries and incident inquiries for the top active ingredients that NPIC received in the 2007 grant year. The certainty index is an estimate by NPIC as to whether the incident was definitely (1), probably (2), possibly (3), or unlikely (4) to have been caused by exposure to a pesticide, or whether the incident was unrelated (5) to pesticides. A certainty index of zero (0) is assigned to those inquiries where the inquirer reported an exposure, accident, or odor, but no health effects were reported.

Table 10.1 - Top 25 Pesticide Active Ingredients for All Inquiries to NPIC

Active Ingredient	Total Inquiries	Incident Inquiries <sup>1</sup>	Information Inquiries
PERMETHRIN	972	225 (29)	742
NAPHTHALENE	762	539 (17)	217
PYRETHRINS	593	121 (8)	460
MALATHION	497	114 (8)	382
PIPERONYL BUTOXIDE	460	123 (12)	329
DELTA METHRIN	418	92 (1)	321
CARBARYL	361	85 (3)	274
POTASSIUM SALTS OF FATTY ACIDS	354	128 (3)	224
2,4-D	350	64 (3)	282
BACILLUS THURINGIENSIS	342	29 (0)	310
PARADICHLORO BENZENE	322	177 (9)	141
BORIC ACID	310	101 (2)	206
FIPRONIL	306	43 (2)	262
ZINC PHOSPHIDE	302	156 (15)	146
METALDEHYDE	297	189 (25)	108
CAPSAICIN	282	66 (28)	214
CAPTAN	260	49 (2)	210
GLYPHOSATE	258	58 (2)	198
BIFENTHRIN	258	35 (0)	218
DICAMBA	255	41 (0)	210
PETROLEUM HYDROCARBONS	231	39 (1)	192
MECOPROP	215	39 (0)	176
SULFUR	212	41 (2)	171
CYFLUTHRIN	183	38 (2)	137
PUTRESCENT WHOLE EGG SOLIDS	166	45 (1)	120
<b>Total =</b>	<b>8966</b>	<b>2637 (175)</b>	<b>6250</b>

<sup>1</sup> First number represents the total number of purported incidents regardless of certainty index. The numbers in parentheses indicate the total number of incidents with certainty index of 1 (definite) or 2 (probable).

Graph 10.1 - Top 10 Pesticide Active Ingredients for All Inquiries



# TOP 25 AIs FOR INCIDENT INQUIRIES

## 11. Top 25 Active Ingredients for Incident Inquiries

The most common active ingredients reported during incident inquiries are listed in Table 11.1 and Graph 11.1. Also, Table 11.1 summarizes the number of reported incidents involving human and animal entities exposed to specific active ingredients. Naphthalene was reported to be involved in more incidents (539) than any other active ingredient (3.2% of these incidents had a certainty index of 1 or 2). Permethrin was involved in the second largest number (225) of incidents (12.3% of the incidents had a certainty index of 1 or 2).

Pyriproxyfen and capsaicin had the highest percentage of incidents with a certainty index of 1 or 2, 52.0% and 42.4%, respectively.

Of the total active ingredients listed in Table 11.1, 9.2% of incident inquiries were assigned a certainty index of 1 (definite) or 2 (probable).

Graph 11.1 - Top 10 Active Ingredients for Incident Inquiries

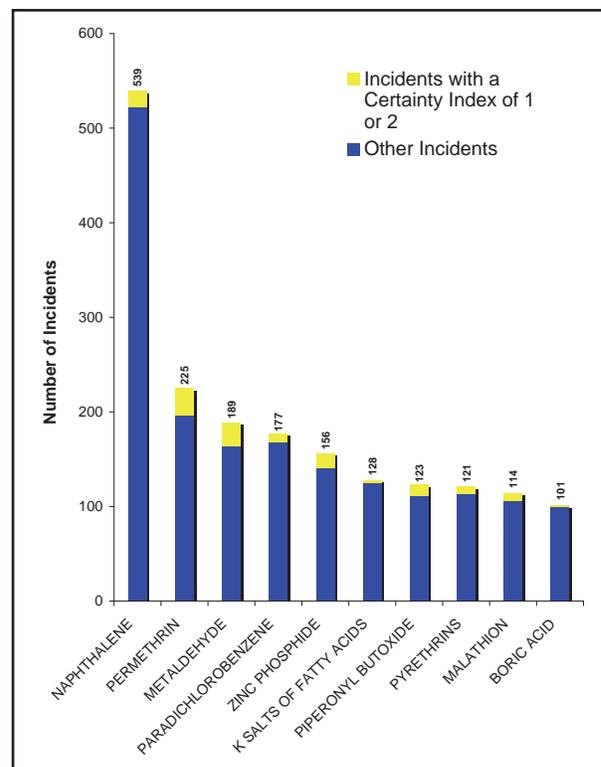


Table 11.1 - Top 25 Pesticide Active Ingredients for Incident Inquiries<sup>1</sup> to NPIC

Active Ingredient	Total Incidents	Human Incidents	Animal Incidents	Other Incidents
NAPHTHALENE	539 (17)	401 (16)	69 (1)	69
PERMETHRIN	225 (29)	111 (5)	79 (24)	35
METALDEHYDE	189 (25)	34 (1)	150 (24)	5
PARADICHLORO BENZENE	177 (9)	130 (9)	15 (0)	32
ZINC PHOSPHIDE	156 (15)	8 (0)	137 (15)	11
POTASSIUM SALTS OF FATTY ACIDS	128 (3)	84 (3)	31 (0)	13
PIPERONYL BUTOXIDE	123 (12)	74 (3)	30 (9)	19
PYRETHRINS	121 (8)	82 (3)	21 (5)	18
MALATHION	114 (8)	70 (8)	9 (0)	35
BORIC ACID	101 (2)	61 (2)	34 (0)	6
DENATONIUM BENZOATE	97 (37)	81 (37)	16 (0)	0
DELTAMETHRIN	92 (1)	61 (0)	21 (1)	10
CARBARYL	85 (3)	42 (2)	12 (1)	31
CAPSAICIN	66 (28)	53 (28)	7 (0)	6
2,4-D	64 (3)	38 (3)	12 (0)	14
GLYPHOSATE	58 (2)	31 (2)	12 (0)	15
METHOPRENE	52 (15)	7 (0)	44 (15)	1
PYRIPROXYFEN	50 (26)	9 (0)	40 (26)	1
CAPTAN	49 (2)	26 (2)	3 (0)	20
TETRAMETHRIN	46 (1)	27 (0)	10 (1)	9
PUTRESCENT WHOLE EGG SOLIDS	45 (1)	15 (1)	10 (0)	20
FIPRONIL	43 (2)	15 (0)	23 (2)	5
INDOLE-3-BUTYRIC ACID	41 (0)	20 (0)	20 (0)	1
SULFUR	41 (2)	24 (2)	10 (0)	7
GARLIC OIL	41 (1)	15 (1)	7 (0)	19
<b>Total =</b>	<b>2743 (252)</b>	<b>1519 (128)</b>	<b>822 (124)</b>	<b>402</b>

<sup>1</sup> First number represents the total number of purported incidents regardless of certainty index (categorized by humans, animals, and other). The numbers in parentheses indicate the total number of incidents with certainty index of 1 (definite) or 2 (probable).

# LOCATION OF INCIDENT

## 12. Location of Incident

For incident inquiries, NPIC specialists record the location of the reported exposure. Of the 3,282 known locations where incidents occurred, 93.7% occurred in the home or yard, 1.6% occurred in an agricultural setting, 1.1% occurred in an office building or school, and 0.9% occurred in a retail store or business (Table 12.1).

**Table 12.1 - Location of Pesticide Incident**

Location	Number of Incident <sup>1</sup> Inquiries				
	2003	2004	2005	2006	2007
Unclear/Unknown	50 (5)	27 (6)	33 (2)	13 (0)	33 (5)
Home or Yard	1556 (174)	2207 (248)	2929 (136)	3196 (114)	3076 (229)
Agriculturally Related	35 (3)	50 (5)	42 (4)	35 (1)	52 (1)
Industrially Related	4 (0)	6 (0)	11 (0)	9 (0)	15 (2)
Office Building, School	23 (1)	29 (5)	46 (0)	31 (2)	35 (2)
Pond, Lake, Stream Related	7 (0)	5 (1)	4 (0)	12 (0)	4 (1)
Nursery, Greenhouse	8 (1)	8 (1)	8 (0)	4 (0)	2 (0)
Food Service/Restaurants	4 (1)	4 (0)	10 (0)	6 (0)	2 (0)
Retail Store/Business	16 (2)	21 (3)	29 (2)	20 (0)	31 (1)
Roadside/Right-of-Way	10 (1)	13 (1)	19 (0)	8 (0)	16 (3)
Park/Golf Course	3 (0)	18 (2)	5 (1)	6 (0)	12 (3)
Other	60 (14)	67 (9)	54 (3)	48 (2)	37 (5)
<b>Total =</b>	<b>1776 (202)</b>	<b>2455 (281)</b>	<b>3190 (148)</b>	<b>3388 (119)</b>	<b>3315 (252)</b>

<sup>1</sup> First number represents the total number of purported incidents regardless of certainty index. The numbers in parentheses indicate the total number of incidents with certainty index of 1 (definite) or 2 (probable).



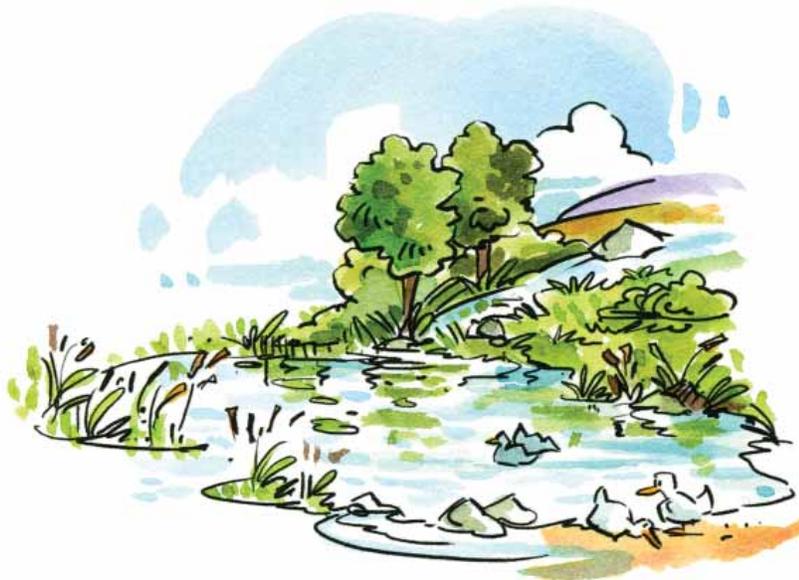
## 13. Environmental Impact

NPIC specialists record reported environmental impacts discussed in incident inquiries. The most common reported environmental impacts are damage to property and plants, including food crops and other plants or trees. Of the 804 times that a specific environmental impact was reported, 4.2% of the cases were assigned a certainty index of 1 (definite) or 2 (probable).

**Table 13.1 - Reported Environmental Impact**

Environmental Impact	Number of Incident <sup>1</sup> Inquiries				
	2003	2004	2005	2006	2007
Air	18 (2)	48 (5)	42 (2)	34 (0)	66 (3)
Water	8 (0)	8 (1)	10 (0)	12 (0)	9 (0)
Soil	9 (0)	24 (0)	12 (0)	13 (0)	25 (0)
Food Crops/Process	85 (1)	85 (0)	120 (1)	99 (0)	158 (1)
Property	168 (6)	261 (21)	284 (7)	219 (5)	465 (26)
Poultry/Livestock	4 (1)	5 (1)	6 (1)	1 (0)	3 (0)
Plants/Trees	43 (0)	88 (1)	51 (0)	25 (0)	59 (0)
Not Applicable	1423 (189)	1926 (252)	2654 (136)	2982 (115)	2522 (218)
Other	19 (3)	10 (0)	11 (1)	7 (0)	19 (4)
<b>Total =</b>	<b>1777 (202)</b>	<b>2455 (281)</b>	<b>3190 (148)</b>	<b>3392 (120)</b>	<b>3326 (252)</b>

<sup>1</sup> First number represents the total number of purported incidents regardless of certainty index. The numbers in parentheses indicate the total number of incidents with certainty index of 1 (definite) or 2 (probable).



# CERTAINTY INDEX

## 14. Certainty Index

Table 14.1 and Graph 14.1 summarize the assignment of the certainty index for all incident inquiries received by NPIC. Inquiries are sorted according to the type of entity; human entities are further sorted according to gender and groups of entities. Multiple entities may be discussed in one incident inquiry; thus totals reflect the number of entities (as opposed to number of incidents) discussed during the course of incident inquiries to NPIC. Of the total number of entities discussed in incident inquiries to

NPIC (3,835), 7.4% of the cases were assigned a certainty index of definite (1) or probable (2), 15.5% of the cases were assigned a certainty index of possible (3), 15.2% of the cases were assigned a certainty index of unlikely (4), 0% of the cases were assigned a certainty index of unrelated (5), 61.8% of the cases did not involve health effects, or the active ingredient was unknown, and were assigned the certainty index of zero (information only).

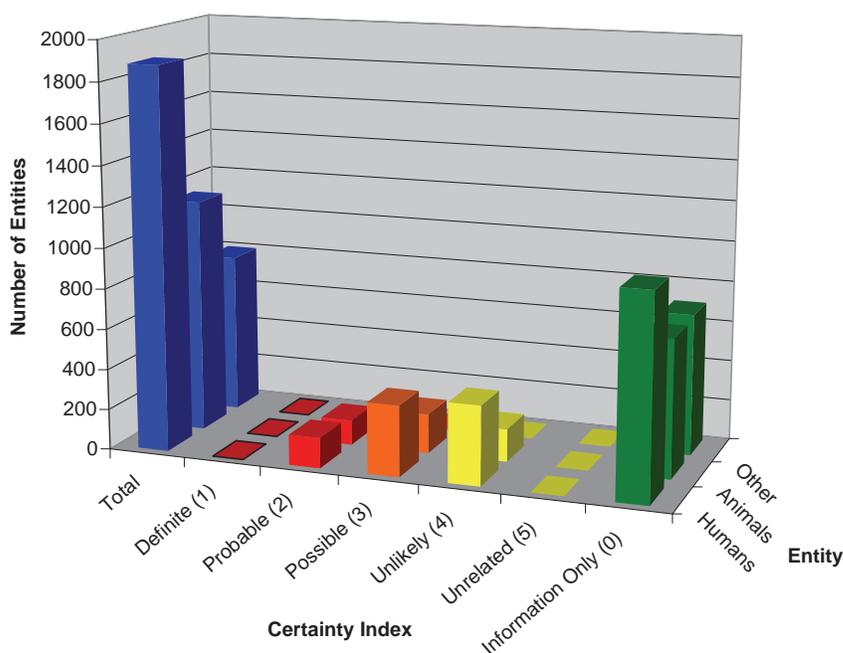
**Table 14.1 Incident Inquiries by Certainty Index (CI)**

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
<b>Total Inquiries in Operational Year = 23787</b>								
Information Only (0)	996	678	697	2371	410	521	58	7
Definite (1)	0	0	0	0	0	0	0	0
Probable (2)	150	122	13	285	68	71	11	0
Possible (3)	349	195	51	595	131	196	22	0
Unlikely (4)	389	162	33	584	166	203	20	0
Unrelated (5)	0	0	0	0	0	0	0	0
<b>TOTAL =</b>	<b>1884</b>	<b>1157</b>	<b>794</b>	<b>3835</b>	<b>775</b>	<b>991</b>	<b>111</b>	<b>7</b>

### What is the Certainty Index?

The certainty index is an estimate by NPIC as to whether an incident (including reported symptoms) was either definitely (1), probably (2), possibly (3), or unlikely (4) to have been caused by the reported exposure to a pesticide, or whether the incident was unrelated (5) to pesticides. A certainty index of (0) reflects those inquiries where the inquirer reported being exposed to a pesticide, but no symptoms were present. In addition, a certainty index of zero (0) would be assigned if an exposure and symptoms were reported, but no active ingredient could be identified. Pesticide Specialists assign a certainty index to each incident inquiry. Certainty index assignments are reviewed by Melody Johnson and/or by Dr. Daniel Sudakin.

**Graph 14.1 - Certainty Index for Incidents**



# DESCRIPTION OF ENTITIES

## 15. Description of Entities

Table 15.1 presents the number of entities (by category) involved in reported incidents. Entity categories are arranged into like associations, such as females, males, gender not stated, groups, animals, and other entities. The totals at the bottom of each

column are for the total number of entity categories. For each incident, two entity categories can be recorded in the NPIC database, therefore the number of entity categories may not be the same as the number of incidents reported.

**Table 15.1 - Description of Entities**

Description of Entities	Number of Entities <sup>1</sup>				
	2003	2004	2005	2006	2007
<b>ALL FEMALES -</b>					
Female	388 (25)	599 (58)	805 (10)	935 (9)	958 (71)
Female-Pregnant	26 (1)	22 (1)	28 (0)	28 (0)	34 (0)
Female Suicide Attempt	0 (0)	2 (2)	1 (1)	3 (0)	0 (0)
<b>TOTAL ALL FEMALES =</b>	<b>414 (26)</b>	<b>623 (61)</b>	<b>834 (11)</b>	<b>966 (9)</b>	<b>992 (71)</b>
<b>ALL MALES -</b>					
Male	292 (30)	452 (47)	643 (9)	734 (10)	775 (68)
Male Suicide Attempt	2 (1)	2 (0)	4 (1)	4 (0)	0 (0)
<b>TOTAL ALL MALES =</b>	<b>294 (31)</b>	<b>454 (47)</b>	<b>647 (10)</b>	<b>738 (10)</b>	<b>775 (68)</b>
<b>ALL GROUPS -</b>					
Family	38 (4)	75 (8)	75 (8)	128 (1)	92 (8)
Non-Family Group	13 (4)	12 (5)	12 (5)	30 (1)	20 (3)
<b>TOTAL ALL GROUPS =</b>	<b>51 (8)</b>	<b>87 (13)</b>	<b>87 (13)</b>	<b>158 (2)</b>	<b>112 (11)</b>
<b>GENDER NOT STATED -</b>					
Child - Sex Unknown	6 (0)	2 (0)	10 (0)	9 (0)	7 (0)
Adult - Sex Unknown	0 (0)	0 (0)	0 (0)	1 (0)	0 (0)
Other - Sex Unknown	1 (1)	1 (0)	0 (0)	0 (0)	0 (0)
<b>TOTAL GENDER NOT STATED =</b>	<b>7 (1)</b>	<b>3 (0)</b>	<b>10 (0)</b>	<b>10 (0)</b>	<b>7 (0)</b>
<b>TOTAL ALL HUMANS =</b>	<b>766 (66)</b>	<b>1167 (121)</b>	<b>1596 (27)</b>	<b>1872 (21)</b>	<b>1886 (150)</b>
<b>ALL ANIMALS -</b>					
Single Animal	717 (136)	954 (169)	1199 (120)	1204 (98)	1098 (113)
Group of Animals	60 (11)	54 (9)	81 (10)	67 (7)	66 (12)
Wildlife	10 (0)	6 (1)	4 (2)	6 (0)	3 (0)
<b>TOTAL ALL ANIMALS =</b>	<b>787 (147)</b>	<b>1014 (179)</b>	<b>1284 (132)</b>	<b>1277 (105)</b>	<b>1167 (125)</b>
<b>OTHER ENTITIES:</b>					
Building-Home/Office	128 (2)	234 (7)	316 (0)	219 (1)	342 (7)
Other Places	211 (1)	298 (2)	333 (2)	394 (3)	452 (6)
<b>TOTAL OTHER ENTITIES =</b>	<b>339 (3)</b>	<b>532 (9)</b>	<b>649 (2)</b>	<b>613 (4)</b>	<b>794 (13)</b>
<b>TOTAL ALL ENTITIES =</b>	<b>1892 (216)</b>	<b>2713 (309)</b>	<b>3529 (161)</b>	<b>3762 (130)</b>	<b>3847 (288)</b>

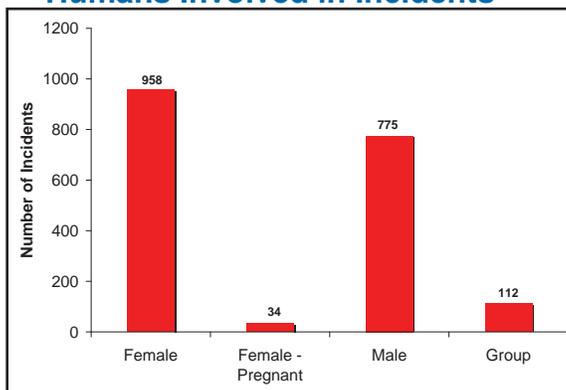
<sup>1</sup> First number represents the total number of purported incidents regardless of certainty index. The numbers in parentheses indicate the total number of incidents with certainty index of 1 (definite) or 2 (probable).

# DESCRIPTION OF ENTITIES

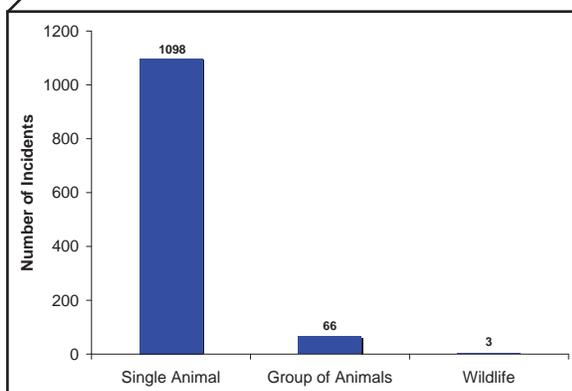
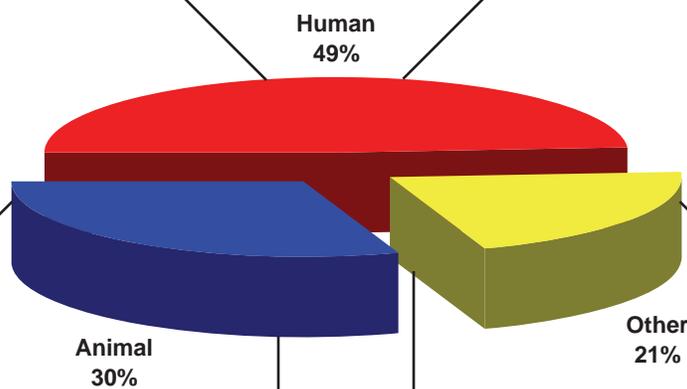
The chart and graphs (15.1.1 - 15.1.3) below provide a summary of entities involved in incident inquiries. Of the 3,847 entities involved in incidents reported to NPIC this quarter, 49.0% were hu-

man, 30.4% were animal, and 20.6% were other types of non-target entities (buildings or gardens, for example). Please note, an incident may involve one or more entities.

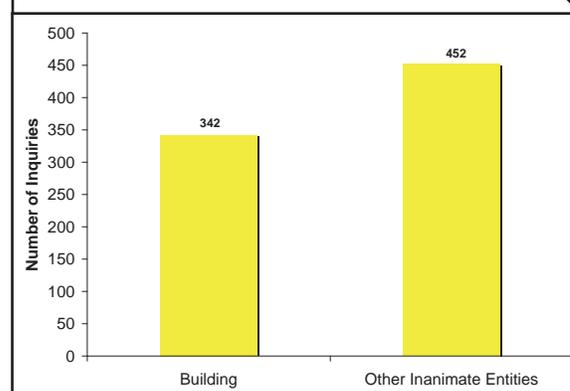
**Graph 15.1.1 - Humans Involved in Incidents**



**Chart 15.1 - Description of Entities**



**Graph 15.1.2 - Animals Involved in Incidents**



**Graph 15.1.3 - Other Entities Involved in Incidents**

# ENTITY SYMPTOMS

## 16. Entity Symptoms

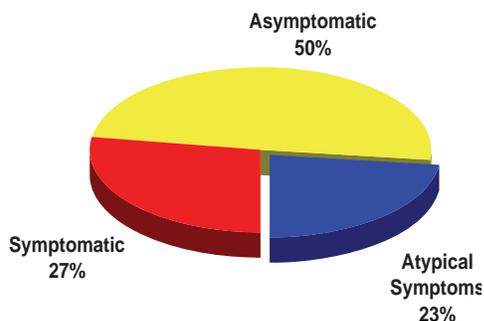
Of the 1,886 human entities discussed in incident inquiries to NPIC, symptoms, or absence of symptoms, were reported for 1,649 entities (Table 16.1). Of these entities, 27.4% reported symptomatic health effects (effects that are consistent with a significant exposure to the pesticide in question), 49.7% were asymptomatic, and 22.9% reported atypical health effects (Chart 16.1). Chart 16.2 provides similar information for animal entities.

**Table 16.1 - Reported Symptoms of Entities**

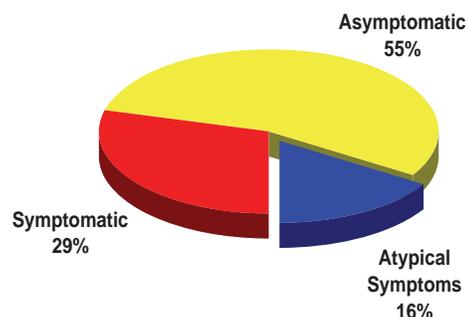
Reported Symptoms	Number of Entities <sup>1</sup>				
	2003	2004	2005	2006	2007
<b>Human Symptoms -</b>					
Symptomatic	345 (97)	542 (172)	484 (81)	435 (64)	452 (160)
Asymptomatic	223	344	600	802	819
Atypical	157	226	332	347	378
<b>Total Humans =</b>	<b>725</b>	<b>1112</b>	<b>1416</b>	<b>1584</b>	<b>1649</b>
<b>Animal Symptoms -</b>					
Symptomatic	391 (174)	456 (207)	446 (155)	365 (114)	315 (131)
Asymptomatic	319	446	559	633	586
Atypical	73	121	186	211	174
<b>Total Animals =</b>	<b>783</b>	<b>1023</b>	<b>1191</b>	<b>1209</b>	<b>1075</b>
<b>Total Symptoms =</b>	<b>1508 (271)</b>	<b>2135 (379)</b>	<b>2607 (236)</b>	<b>2793 (178)</b>	<b>2724 (291)</b>

<sup>1</sup> First number represents the total number of purported incidents regardless of certainty index. The numbers in parentheses indicate the total number of incidents with certainty index of 1 (definite) or 2 (probable).

**Chart 16.1 - Symptoms: Humans**



**Chart 16.2 - Symptoms: Animals**



# DEATHS AND OTHER OUTCOMES

## 17. Deaths and Other Outcomes

Amongst the 1,886 human entities, one human death was reported (Table 17.1). A man called regarding his deceased infant who died the day of a residential application of a product containing bifenthrin. The caller requested information about tests to detect the product in the body.

The number of animal and human deaths, and other outcomes have been fairly constant over the last 5 years. For the current year, of the 1,167 animal victims, there were 46 deaths, with 12 of the cases assigned a certainty index of 1 or 2, indicating likely pesticide involvement. Table 17.1 and Chart 17.1 summarize this information and also list the number of entities associated with unusual circumstances.

Table 17.2 shows the active ingredients involved in the majority of the animal deaths. methoprene, permethrin, D-phenothrin, metaldehyde, ethofenprox, imidacloprid and piperonyl butoxide were reported to be associated with the largest number of animal deaths.

Table 17.1 - Additional Outcomes

Additional Outcomes	Number of Entities <sup>1</sup>				
	2003	2004	2005	2006	2007
<b>Human Deaths -</b>					
Male	0 (0)	0 (0)	2 (1)	1 (0)	1 (0)
Female	0 (0)	1 (1)	0 (0)	0 (0)	0 (0)
<b>Total Human Deaths =</b>	<b>0 (0)</b>	<b>1 (1)</b>	<b>2 (1)</b>	<b>1 (0)</b>	<b>1 (0)</b>
<b>Animal Deaths -</b>					
Single Animal	33 (11)	55 (24)	38 (9)	31 (9)	41 (10)
Group of Animals	10 (3)	10 (2)	15 (2)	7 (1)	5 (2)
Wildlife	4 (0)	2 (1)	2 (2)	0 (0)	0 (0)
<b>Total Animal Deaths =</b>	<b>47 (14)</b>	<b>67 (27)</b>	<b>55 (13)</b>	<b>38 (10)</b>	<b>46 (12)</b>
<b>Other -</b>					
Interesting/Strange	95 (21)	107 (26)	109 (9)	117 (7)	131 (14)
<b>Total Additional Outcomes =</b>	<b>142 (35)</b>	<b>175 (54)</b>	<b>166 (23)</b>	<b>155 (17)</b>	<b>178 (26)</b>

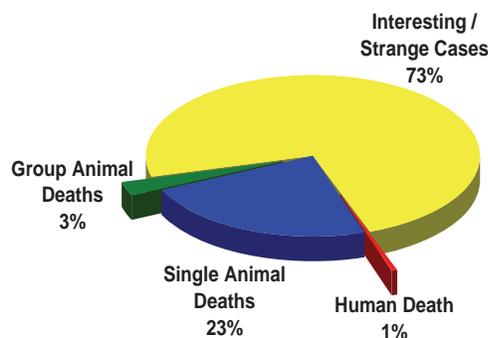
<sup>1</sup> First number represents the total number of purported incidents regardless of certainty index (categorized by humans, animals, and other). The numbers in parentheses indicate the total number of incidents with certainty index of 1 (definite) or 2 (probable).

Table 17.2 - Active Ingredients Involved in Animal Deaths

Active Ingredient <sup>1</sup>	Number of Deaths
METHOPRENE	8
PERMETHRIN	7
D-PHENOTHRIN	5
METALDEHYDE	4
ETHOFENPROX	3
IMIDACLOPRID	3
PIPERONYL BUTOXIDE	3
ALDICARB	2
CARBOFURAN	2
COPPER SULFATE	2
CYPERMETHRIN	2
DELTAMETHRIN	2
DISULFOTON	2
FIPRONIL	2
LAMBDA-CYHALOTHRIN	2
NAPHTHALENE	2
PYRETHRINS	2
TETRACHLORVINPHOS	2

<sup>1</sup> Note that a pesticide product may contain more than one active ingredient.

Chart 17.1 - Deaths and Other Outcomes



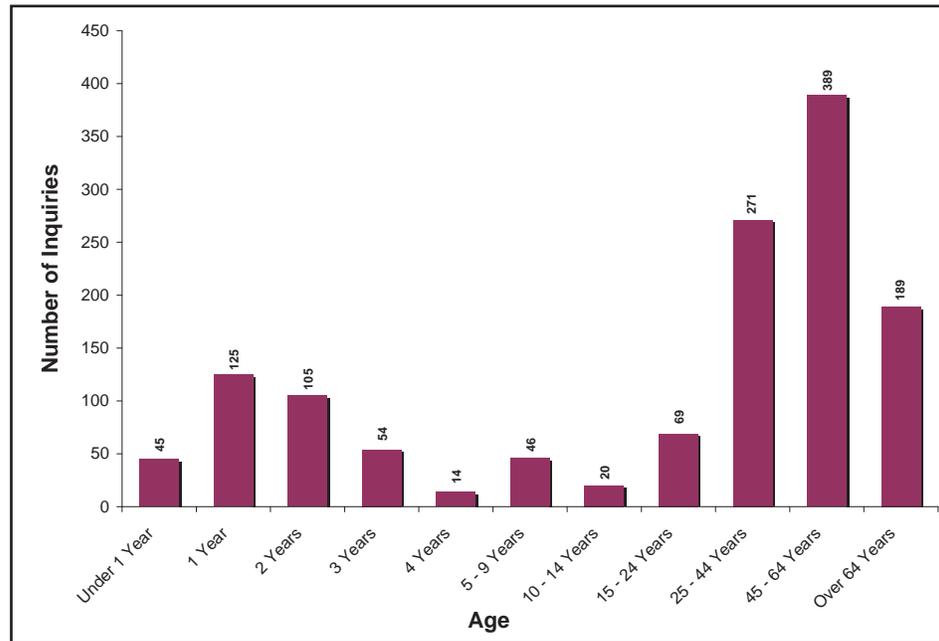
# ENTITY AGE

## 18. Entity Age

Table 18.1 and Graph 18.1 summarize information about the ages of people involved in incidents reported to NPIC. Of these 1,327 entities, 25.8% were less than 5 years of age (primarily consisting of ages

1 and 2), 5.0% were between the ages of 5 and 14, 5.2% were between the ages of 15 and 24, 20.4% were between the ages of 25 and 64, and 14.2% were over age 64.

**Graph 18.1 -  
Age of Human  
Entities**



**Table 18.1 - Reported Ages of Human Entities**

Age Category	Number of Entities				
	2003	2004	2005	2006	2007
Under 1 Year	7	12	27	35	45
1 Year	26	42	90	119	125
2 Years	22	50	90	112	105
3 Years	15	24	42	52	54
4 Years	10	11	22	22	14
5 - 9 Years	29	32	39	46	46
10 - 14 Years	8	15	20	14	20
15 - 24 Years	30	41	57	56	69
25 - 44 Years	148	228	243	266	271
45 - 64 Years	200	273	313	327	389
Over 64 years	82	125	139	197	189

# REPORT ON SUBCONTRACTS

## *Oregon Poison Center*

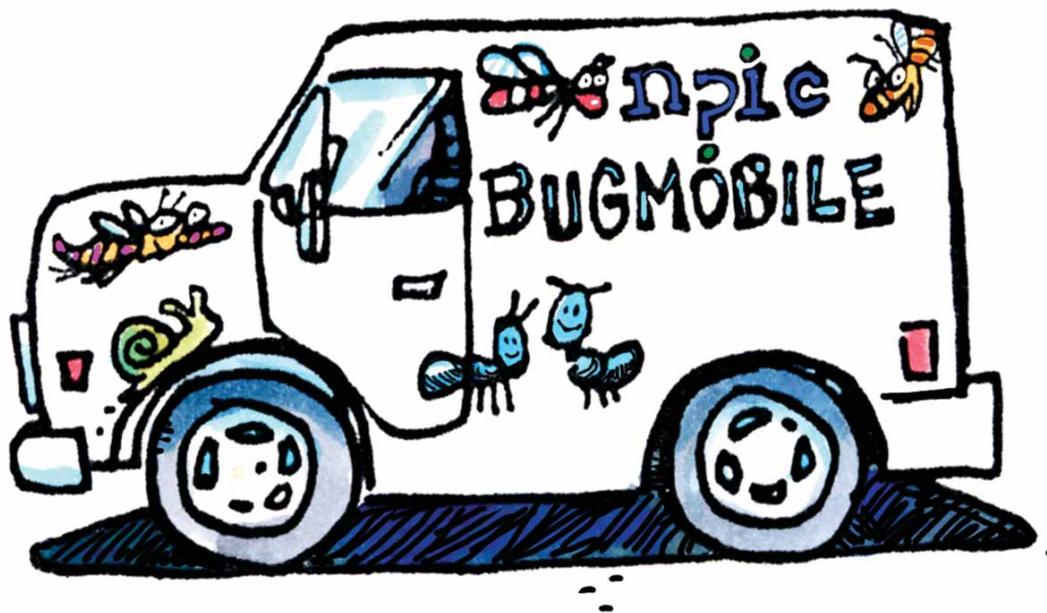
NPIC specialists transferred 43 inquiries to the Oregon Poison Center. These inquiries were transferred to the center because the specialists deemed that the inquirer's situation represented an acute poisoning emergency. The NPIC quarterly reports present information for the inquiries transferred in each quarter.

## *Animal Poison Control Center*

In the current year, 38 inquiries were transferred to the Animal Poison Control Center (APCC). The situation presented in each inquiry was considered to be an emergency; therefore, the inquiry was transferred to APCC. The nature of the inquiries transferred is detailed in the NPIC quarterly reports.

## *Language Line Services, Inc.*

During this grant year, NPIC entered into a contract with Language Line Services, Inc. This national company provides real-time access to over-the-phone interpretation services, seven days per week. Interpretation is possible in over 170 languages, including Spanish, Vietnamese, Chinese, Russian and Korean. NPIC made arrangements to work with medically-trained interpreters, capable of translating technical information about the potential health effects of pesticides. Service started on August 10, 2007. By March 31, 2008, NPIC had utilized the service to provide risk communication to 68 clients in Spanish, Russian, Mandarin or Farsi.



NPIC is a cooperative agreement between Oregon State University  
and the United States Environmental Protection Agency.

