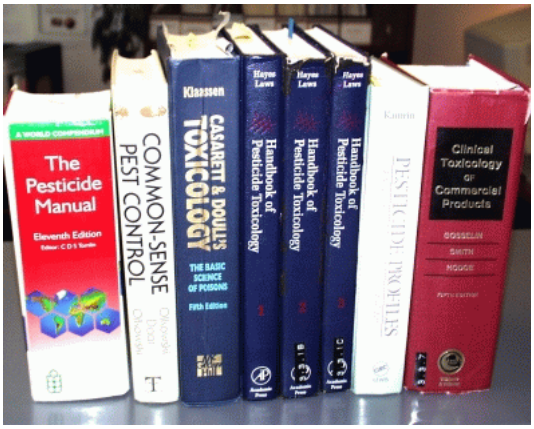

National Pesticide Telecommunications Network

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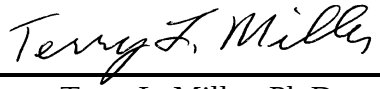
Environmental & Molecular Toxicology
Oregon State University

This is the fourth annual report for the National Pesticide Telecommunications Network (NPTN) since it began operation at Oregon State University in April, 1995. NPTN, a service providing a variety of pesticide and pesticide-related information to the general public and professionals across the United States and Puerto Rico and the Virgin Islands, is a cooperative project between Oregon State University and the U.S. Environmental Protection Agency. This report, the 1998 Annual Report, covers the period April 1, 1998 - March 31, 1999, corresponding to NPTN's fourth grant year.

DISCLAIMER

Material presented in this report is based on information as provided to NPTN by individuals who have contacted NPTN for information or to report a pesticide incident. None of this information has been verified or substantiated by independent investigation by NPTN 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 NPTN. NPTN 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." NPTN makes no claims or guarantees as to the accuracy of the CI or other information presented in its reports, other than that NPTN has done its best to accurately document and report the information provided to NPTN.

Written and Submitted By:



Terry L. Miller, Ph.D.
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NPTN 1998 ANNUAL REPORT

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"Pesticide Information...
How May I Help You?"

Executive Summary -

NPTN 1998 Annual Report

Note: The complete record of the accomplishments of NPTN for the current operational year includes the 12 monthly reports and 4 quarterly reports (submitted earlier), in addition to this "1998 Annual Report." This report covers the NPTN grant year: April 1, 1998 through March 31, 1999.

Operations

- The NPTN World Wide Web site is an increasingly popular source of information to NPTN clientele - during this operational year the site received 183,127 hits; an additional 68,832 hits were received by the National Antimicrobial Information Network (NAIN) web site. NPTN received 400 inquiries via email.

- NPTN answered 21,717 calls during its fourth operational year. Eighty percent of the inquiries were received between March and October, coinciding with that part of the year where most pest pressures are the highest (Table 1, Figure 1).

- The majority of calls (91.3%) were for information only, i.e., not related to an incident; 5.1% related to exposure concerns, and 3.7% concerned other non-health-related pesticide incidents (Table 7, Figures 8 and 9).

- The greatest number of calls (40.7%) were health-related, whereas 21.8% were for information about pesticide usage, and 10.5% were of a regulatory nature (Table 6, Figure 7). Examples of "health-related" calls include:
  - Caller's husband sprayed ant and roach spray in basement. She is pregnant and wants to know if it will affect her baby.
  - Caller wanted information on Dursban (and chlorpyrifos and other organophosphates) because she and her family were tested and confirmed exposed to Dursban.
  - Caller's workplace was sprayed with a pesticide during working hours, including rooms they were working in at the time. She wanted to know if this was okay and "safe".
  - Pesticide company applied Conquer once a month for the past 5 years. Caller's cat (8 years) now has been diagnosed with kidney problems. She wanted to know if the kidney problem could be linked with the pesticide.

- Of the 21,717 calls, 7.2% (1,562) involved pesticide incidents, while 37.9% (8,235 calls) were for information about specific pesticide active ingredients or products, and 48.9% (10,621 calls) were for general information about pesticides and pesticide-related issues (Table 2, Figures 2 and 3). Examples of pesticide incident calls include:
  - Caller is a physician treating a 30 yr old female patient that misapplied Tempo (cyfluthrin) concentrate in her apartment. The patient had symptoms of abdominal pain, muscle aching, and sensory loss in feet. Similar symptoms were also reported for the patient's 16 year old son. A cat and a hamster have also died. Physician needed information on cyfluthrin.
  - Caller has a friend who brought him a bottle of Protecto 100 from Mexico. Contains 5% chlordane. He spilled the entire bottle in garage and wanted to know what he can do about the spill.
  - A two-year old male child (25 lbs) ingested a rodent bait - caller not sure how much but there was 1 empty packet. He is sleepy and vomiting. Transferred call to Oregon Poison Center.
  - Caller and wife have been living in an apartment (FHA housing) for 3 months. PCO treats every month. Both have been having headaches, dizziness, confusion, and blackouts for 3 months. The caller has a 1 month old child with a heart condition (congestive heart failure) for which she is taking two medications. The caller is worried about his child. The manager won't give the caller the name of the PCO or what is used.

- Of the 1,562 incident calls, 8.3% were assigned a certainty index of 1 or 2; thus, judged to have been either definitely or probably caused by the pesticide in question (Table 12).

- The active ingredient - chlorpyrifos - generated more inquiries (1,402) (corresponding to 6.5% of all calls, and 17.0% of pesticide-specific calls) than any other single active ingredient. Of these, 17.1% (240) were incident calls and 82.9% were inquiries for general information. Of the 240 chlorpyrifos incident calls, 8.9% were assigned a certainty index of 1 (definite) or 2 (probable). The relatively large number of calls about chlorpyrifos is likely related to its being one of the most widely used chemicals in and around the home (Table 10, Figure 14).

- For the remaining active ingredients (in the top 25) involved in incidents, there were a total of 765 incidents, with 8.6% of them assigned a certainty index of 1 or 2. It is interesting to note that the proportion of chlorpyrifos incidents assigned a certainty index of 1 or 2 was not much different than for the remaining top 24 pesticides taken as a group. Most of the reported incidents involved humans (64.0%) and 19.9% involved animals (Table 11, Figure 15).

- There were 1,668 victims involved in the incidents reported to NPTN - 61.8% were human, 21.5% animal, and 16.7% other (e.g., building, environment). Of the human victims, 35.8% were male, 50.2% female, 12.1% groups, and 1.9% where gender was not stated (Tables 14 and 15, Figures 16 and 17).

- Of the 1,030 human victims in incident calls, information about symptoms was given for 968. Of these, 63.4% were symptomatic (symptoms matched those for pesticide in question), 18.6% were asymptomatic, and 18.0% reported atypical symptoms (Table 16, Figures 18 and 19).

- Amongst the 1,030 human victims, 3 deaths were reported, with one of these incidents judged to have a certainty index of 1 or 2, making it likely that the death was a result of pesticide exposure. Of the 359 animal victims, there were 48 deaths, with 15 of the incidents assigned a certainty index of 1 or 2, indicating likely pesticide involvement (Table 17, Figure 20).

- Victim ages were available for 810 of the 1,030 human victims. A portion (22.3%) of the victims were less than 5 years old, 10.2% were between the ages of 5 - 14, 3.5% were between 15 - 24, 54.4% were between the ages of 25 - 64, and 9.0% over age 64 (Table 18, Figure 21).

- Of the known locations (1,562) where incidents occurred, 84.9% were the home or yard, while 6.2% were agriculturally related and 4.4% involved an office building or school (Table 12).

- Most of the calls (86.6%;18,802) to NPTN came from the general public, while 4.9% calls came from federal/state/local agencies, 2.6% from medical personnel, 2.4% from information providers, and 2.2% from consumer users (Table 5, Figures 5 and 6).

- Most of the calls to NPTN (83.7%; 18,180) were handled by providing verbal information to the caller. Other actions taken by pesticide specialists were to refer callers to EPA and SLA (5.1%), County Extension Service (2.7%), Oregon Poison Center (0.5%), National Animal Poison Control Center (0.7%), National Antimicrobial Information Network (0.8%), and other organizations (4.5%). Some callers (2.0%) received information via mail or FAX (Table 8, Figures 10 and 11).

- There were 20,950 inquires to NPTN via telephone (Table 3).

- The largest number of calls were received from Texas, California, and New York - states ranked 3, 1, 2 respectively, in terms of population (Table 9, Figure 12).

- By EPA region, 14.1% of the calls came from Region 6, 13.3% from Region 4, 13.0% from Region 9, 12.8% from Region 3, and 10.6% from Region (Figure 13).

Organization

- During its third year of operation, NPTN hired 8.0 FTE pesticide specialists at the rank of Faculty Research Assistant, one of whom also serves as the NPTN project coordinator. Two specialists left NPTN, and two others reduced their hours to part-time. Presently, NPTN has a staff of 15 full-time pesticide specialists.

- NPTN computer resources were upgraded to meet the increasing demand placed on its web site and to provide capacity for growth in other areas soon to be initiated by NPTN.

- Fact sheets now posted on the NPTN web site are: *Permethrin, Fipronil, Diazinon, Imidacloprid, Cypermethrin, Pyrethrins & Pyrethroids, 2,4-D,* and the general topic fact sheet *Pets and Pesticides*. Now posted on the NAIN web site are the fact sheets *Sodium Hypochlorite (General Public)* and *Sodium Hypochlorite (Medical Professionals)*.

  Work was initiated this year on the following active ingredient fact sheets: Chlorpyrifos, DEET, Bacillus thuringiensis, Hexaflumuron, Methoprene, Esfenvalerate, Sulfuryl Fluoride, DDT, Malathion, Chlordane, Bendiocarb, Piperonyl Butoxide, Acephate, Potassium Salts of Fatty Acids, and the antimicrobial active ingredients Glutaraldehyde, *o*-Phenylphenol, Chlorine Dioxide and Bronopol.

  The following general topic fact sheets are in development: Consumer Labeling Initiative, Fumigation, Inert Ingredients, Pesticides and Wildlife, Biotechnology & Engineered Crops, Risk Assessment, and Pregnancy, Infants & Pesticides.

- NPTN continued its weekly training sessions for pesticide specialists. Extensive efforts were put forth to market NPTN to a broader base of clientele, including poster presentations of NPTN at several professional meetings and a mailing to 3,200 public health officials. Resource files were updated and new hard copy and electronic resources were acquired.

NPTN Mission Statement

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

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

NPTN provides objective, science-based, accurate information about pesticides and pesticide-related topics to empower callers to make informed decisions about pesticide use...

In addition, NPTN provides referrals for:

- laboratory analyses, investigation of pesticide incidents, and emergency treatment
- safety practices
- health and environmental effects
- clean-up and disposal.

A major goal of NPTN is to promote informed decision making on the part of the caller. Service provided by NPTN is available from 6:30 am - 4:30 pm Pacific Time, 7 days per week (excluding holidays), principally through a toll free telephone number available to anyone in the United States and its territories. NPTN is sponsored cooperatively by Oregon State University and the U.S. Environmental Protection Agency.

NPTN is open to questions from the public and professionals. It is staffed by highly qualified and trained pesticide specialists who have the toxicology and environmental chemistry training needed to provide knowledgeable answers to questions about pesticides. NPTN pesticide specialists deliver information in a user-friendly manner and are adept at communicating scientific information to the lay public. Pesticide specialists can help callers interpret and understand toxicology and environmental chemistry information about pesticides. The services provided by NPTN and its associated projects are strictly informational and have no regulatory or enforcement capabilities.

NPTN maintains a TDD to facilitate access to pesticide information by the hearing-impaired. Also, NPTN has a full-time pesticide specialist fluent in Spanish.

Objectives

The objectives of NPTN are:

1) To operate a toll free telephone service to callers in the United States, Puerto Rico, and the Virgin Islands. A recording device is provided to capture off-hour calls.
2) To serve as a source of factual, unbiased information on pesticide chemistry, toxicology, and environmental fate to all who call including industry, government, medical, and agricultural personnel, as well as the general public.
3) To provide the medical community with diagnostic and crisis management assistance involving pesticide incidents in situations pertaining to both human and animal patients.
4) To acquire accurate and complete information on all calls considered to be pesticide incidents.
5) To computerize all call information as well as pesticide incident data for easy retrievability.

NPTN pesticide specialists deliver information in a user-friendly manner and are adept at communicating scientific information to the lay public...

History

The pesticide information service began in 1978 with the Texas Tech University Health Sciences center associated Pesticide Hazard Assessment Project (PHAP) in San Benito, Texas. This service 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, the 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 1985 when it moved to the Department of Preventive 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.

Inquiries and Resources

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

NPTN maintains an extensive collection of hard-copy and electronic resources for pesticide information, used as necessary by the pesticide specialists in answering inquiries. Included in this collection are: NPTN's AI file containing information on the over 200 pesticide active ingredients about which NPTN receives the greatest number of inquiries; numerous compendia of pesticide information (e.g., Handbook of Pesticide Toxicology, Code of Federal Regulations - 40 CFR Parts 150 - 189, Pest Control Operations, Toxicology - The Science of Poisons, Farm Chemicals Handbook, WHO Environmental Health Criteria series, Herbicide Handbook, The Pesticide Manual, Common-Sense Pest Control, pesticide product labels - to name but a few); electronic access to EXTOXNET (EXtension TOXicology NETwork), CHEMBANK (HSDB, RTECS, IRIS), and PESTBANK; and on-line literature searching capabilities (e.g., Medline, Toxline).

Associated Projects

In addition to its basic service described above, NPTN administers a related sub-project - NAIN (National Antimicrobial Information Network). NAIN, previously known as ACS (Antimicrobial Complaint Service), provides information (via its own toll free telephone line and a World Wide Web site) to medical professionals and the public on disinfectants, sanitizers, and sterilants, each classified as pesticides by the U.S. EPA.

Funding

Funding for NPTN and NAIN is provided principally by the U.S. Environmental Protection Agency, with substantial support being provided by Oregon State University in the form of cost sharing, salary support, and facilities.

NPTN is a cooperative effort of Oregon State University and the U.S. Environmental Protection Agency...

NPTN Update

Personnel Update

During the 1998 grant year, NPTN hired 8 full time pesticide specialists, one of whom also serves as the NPTN project coordinator. Two specialists left NPTN, one specialist reduced her hours from full- to part-time, and another specialist now works half time with NAIN and half-time with NPTN. Other part-time staff, including graduate and undergraduate student help, were hired. Presently NPTN employs 15 full-time pesticide specialists.

Call Update

NPTN responded to 21,717 telephone inquiries, 1,562 of which were classified as pesticide incidents. 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. Incident calls are reviewed by Dr. Sheldon Wagner and/or a senior pesticide specialist. On the basis of information provided by the caller, and with reference to established criteria, all incident calls are assigned a certainty index (CI) - this is NPTN's assessment as to whether the health effects were definitely (CI = 1), probably (2), possibly (3), or unlikely (4) to have been caused by exposure to a pesticide, or whether the health effects were unrelated (5) to pesticide exposure. For incidents in which the caller reported an exposure, accident, or odor, but no health effects, a certainty index of zero (0) is assigned.

Achievements

Facilities

NPTN updated its UNIX operating system to Solaris 2.6 which provides for increased computing capabilities and enhanced security measures. Six personal computers were purchased and added to the NPTN network. A Sun Enterprise 450 Server, with Solaris 2.7 operating system, was purchased to meet increasing demand on NPTN's Internet resources. NPTN has taken efforts to increase the security of its UNIX system, and plans to implement a "firewall" to further increase security. Software and other computer accessories purchased include: search engine software, a Fastor tape back-up unit and a new un-interruptible power supply.

Telecommunications capabilities were improved with the addition of a back-up system that allows NPTN to receive overflow calls when all regularly staffed lines are busy, the purchase of auxiliary telephone headsets that enable third parties to listen to calls as they come in to NPTN (after informing the caller and used primarily for training and QA/QC purposes), and the addition of five telephones for five new telecommunications stations. The OSU telecommunications system was upgraded for Y2K compliance. Two file cabinets were purchased and a new keypad security lock was placed on another NPTN room. NPTN acquired 160 square feet of office space to accommodate its expanding needs. NPTN's long-standing request for an additional 1500 square feet of office space is still under consideration by OSU.

Resources

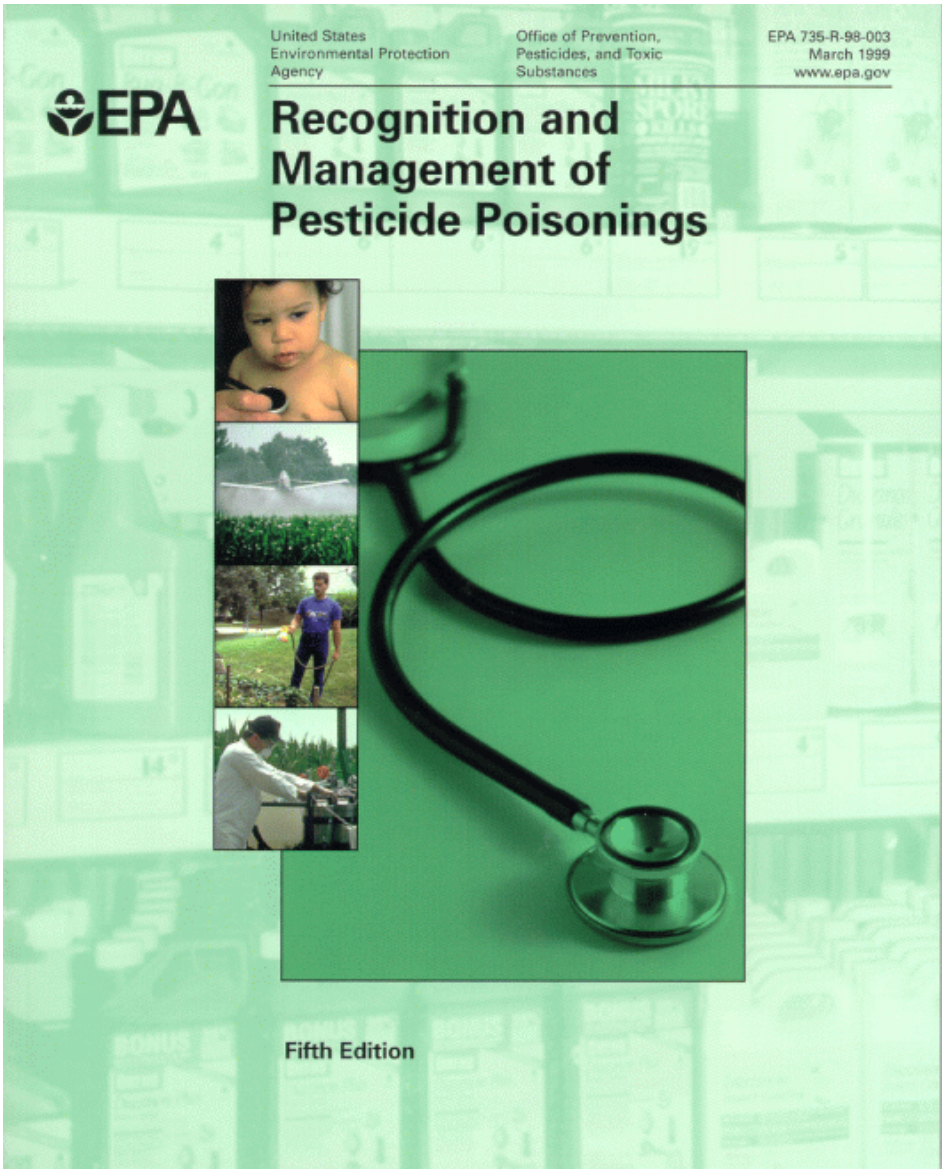
NPTN acquired many books, reports, and other documents to supplement the NPTN library that serves as a resource for specialists who respond to pesticide inquiries.

Books acquired during the 1998 grant year include: *Clinical Veterinary Toxicology, Basic Toxicology, Infectious Disease Handbook, Food Safety and Toxicology, Understanding Toxicology, Calculation Methods for Industrial Hygiene, Pesticide Properties in the Environment, Common Sense Pest Control (5th edition), Science and Judgement in Risk Assessment, Eighth Report on*

Carcinogens (1998 Summary), The Pesticide Manual, Merck Veterinary Manual (8th edition), The Dispossessed, Environmental Illness: Myth and Reality, and *Truman's Scientific Guide to Pest Control Operations (5th edition).*

EPA documents received include: *40 CFR; Label Review Manual (2nd edition); Consumer Labeling Initiative: Phase I Report; FIFRA; Status of Pesticides in Registration, Reregistration, and Special Review (Rainbow Report, Spring 1998); EPA Referral Database: Quick Guide to EPA Public Access Lines;* two copies of *CFR 21, Parts 170-199; Selected terms and Acronyms: Office of Pesticide Programs; Common Synonyms for Chemicals listed under section 313 of the Emergency Planning and Community Right-to-Know Act; Pollution Prevention (P2) Guidance Manual for the Pesticide Formulation, Packaging, and Repackaging Industry: Implementing the P2 Alternative; Title III List of Lists: Consolidated List of Chemicals Subject to the Emergency Planning and Community Right-to-Know Act (EPCRA) and Section 112 (R) of the Clean Air Act, as amended;* the poster *Integrated Pest Management;* and the video *Pesticide Handlers/Worker Protection Standard.*

World Health Organization publications received include: *Guidelines for Drinking Water Quality (2nd edition), Evaluation of Certain Veterinary Drug Residues in Food, Pesticide Residues in Food, Environmental Health Criteria 198 Diazinon* and *Environmental Health Criteria 204 Boron.*



NPTN obtained the following Reregistration Eligibility Decisions: *Boric Acid and its Sodium Salts, DEET, Bacillus thuringiensis, Diphenylamine, Butraline, Sulfuryl Fluoride, Zinc Phosphide, the Rodenticide Cluster (Brodifacoum, Bromadiolone, Bromethalin, Chlorphacinone, Diphacinone and its sodium salt, Pival and its sodium salt), Hexazinone, Silicon Dioxide, Phosamine Ammonium, Methiocarb, Triclopyr, Dichlobenil, Methylisothiazolone, Propachlor, Prodione, DEET, Dicofol, DCPA, Aluminum Magnesium Sulphate, Aluminum Magnesium Phosphide, Hydramethylnon, Methomyl, Iprodione, Bromoxynil, 1,3-Dichloropropene, Thiodicarb,* and *Alachlor.*

Other reports obtained include: the draft document *Final Report Guidance for Total Organics; The Nonoccupational Pesticide Exposure Study (NOPES); Report on Multiple Chemical Sensitivity, Predecisional Draft, ATSDR;* and *The National Toxicology Program Fiscal Year 1998 Annual Plan.*

Project and Information Review

Fact Sheets - Fact sheets now posted on the NPTN web site are: *Permethrin, Fipronil, Diazinon, Imidacloprid, Cypermethrin, Pyrethrins & Pyrethroids, 2,4-D,* and the general topic fact sheet *Pets and Pesticides*. Now posted on the NAIN web site are the fact sheets *Sodium Hypochlorite (General Public)* and *Sodium Hypochlorite (Medical Professionals)*. The fact sheet priority list was updated to include additional active ingredients and general topics.

Work was initiated this year on the following active ingredient fact sheets: Chlorpyrifos, DEET, Bacillus thuringiensis, Hexaflumuron, Methoprene, Esfenvalerate, Sulfuryl Fluoride, DDT, Malathion, Chlordane, Bendiocarb, Piperonyl Butoxide, Acephate, Potassium Salts of Fatty Acids, and the antimicrobial active ingredients Glutaraldehyde, *o*-Phenylphenol, Chlorine Dioxide and Bronopol.

The following general topic fact sheets are in development: Consumer Labeling Initiative, Fumigations, Inert Ingredients, Pesticides and Wildlife, Biotechnology & Engineered Crops, Risk Assessment, and Pregnancy, Infants & Pesticides.

NPTN Web Site - NPTN web site developments this year include the start-up of Internet discussion groups, including a discussion group on the Food Quality Protection Act open to all interested parties, and Pesticides and Health Care Providers Discussion Groups to facilitate communication between committee members associated with the Pesticides and National Strategies for Health Care Providers Initiative. Additionally, the new, updated version of the NPTN web site, Version IV, with improved organization, new information and added links, was implemented this year. This new version includes an internal FQPA Q&A site to assist specialists in answering FQPA-related calls.

Active Ingredient Files - Review and update of the active ingredient files continued during grant year 1998. Multiple Chemical Sensitivity (MCS) call coding guidelines were developed and implemented. A Library Inventory Database program was developed and implemented to electronically catalog NPTN hard-copy holdings, including books, journals, articles, government publications, and other types of hard copy resources.

Personnel - Faculty Position Descriptions were revised, signed, and submitted to Oregon State University. NPTN and NAIN personnel were evaluated for satisfactory performance and merit salary increases. NPTN personnel policies were reviewed, revised, and posted in the NPTN Standard Operating Procedures Manual.

Training and Continuing Education

The NPTN Specialist Training Manual was updated with inclusion of sections on *Risk Assessment, Risk Communication,* and *Telephone Exercises.*

Two specialists completed their attendance at all lectures of the 9-credit, 3-term series of graduate-level introductory toxicology courses, including: Fundamentals of Toxicology, Target Organ Toxicology, and Environmental Toxicology and Risk Assessment.

Weekly NPTN group meetings, a principal training and QA/QC activity for pesticide specialists, continued throughout the year. Internal training seminars were scheduled during many of these weekly sessions. One internal seminar was on the topic of herbicides. Several internal seminars were conducted on FQPA in anticipation of increased calls to NPTN relating to implementation of the FQPA. At one weekly meeting, Dr. Wagner discussed the coding strategy/classification system being developed by National Institute for Occupational Safety and Health (NIOSH) and pesticide specialists participated in utilizing this coding strategy on sample

pesticide illness reports. At another weekly meeting, specialists participated in review and training in use of the telecommunications device for the deaf (TDD) to facilitate receiving and responding to calls from hearing-impaired individuals.

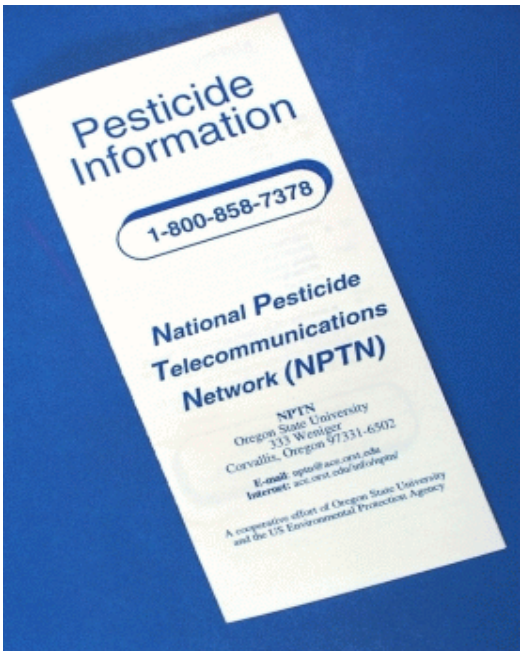
Academic activities at Oregon State University provide additional opportunities for specialists' continuing education. Formal seminars or lectures attended by NPTN staff during grant year 1998 include: *Soil Solarization of Soil Borne Plant Pathogens; Pesticides and Cancer; How embryos cope with environmental stress: Are there differences between embryo cells and adult cells?; IPM, Pesticides, and Locust Control in Mali;* and *The Future of Pesticides.*

Two specialists attended the workshop *Conversational Skills for Convening People and Influencing Decisions* sponsored by OSU.

Conferences attended by NPTN personnel this year include: The Pesticides and National Strategies for Health Care Providers Workshop (Dr. Wagner was a member of the Expert Panel and NPTN was invited as an observer), The Second Annual Antimicrobial Workshop, The American Medical Veterinary Association Conference, The National Association of City County Health Officials (NACCHO) and Association of State and Tribal Health Officials (ASTHO) Conference, The Third Pacific Northwest Pesticide issues Conference: Explaining the Science Behind FQPA, The 1999 Chemical Applicators Short Course, and The Association of American Pesticide Control Officials/Association of American Pesticide Safety Educators (AAPCO/AAPSE) Spring Meeting.

Publicity

NPTN brochures and other materials were distributed at the conferences listed above. Additionally, the NPTN display was exhibited at the National



Strategies for Health Care Providers and the National Association of City County Health Officials (NACCHO) and Association of State and Tribal Health Officials (ASTHO) Conference. NPTN publicity also occurred at the Second Annual Antimicrobial Workshop where the NAIN display was exhibited along with information about NPTN. At this conference, Wade Trevathan, a NAIN specialist, conducted a breakout session with a presentation about NAIN/NPTN services.

Specialists also participated in local community outreach. Presentations about NPTN were conducted for master gardeners at the Salem, Oregon Public Library, students of the OSU Veterinary College, participants in the Oregon Department of Agriculture Ornamental Pesticide Applicator Training Program, attendees at the Albany, Oregon Agricultural Fair, and students of the Department of Public Health at OSU.

NPTN brochures were distributed to several local agencies in the Corvallis, Oregon vicinity, including ten elementary schools, Kidco Head Start which serves over 350 children from low income families, the Benton County Health Department, the Linn County Health Department, and the Lincoln Health Center, a school-based health center serving many low income families in Benton County. Two hundred brochures were mailed to the Oregon Health Division for distribution with their mailings to local Public Health Departments throughout the state of Oregon.

NAIN specialists completed development of a new NAIN brochure.

The U.S. EPA released the brochure *Pesticides and Food: What you and your family need to know*. The NPTN 1-800-number is displayed on the brochure as a source of additional information on pesticides and food safety.

Other

NPTN personnel periodically meet with EPA personnel for the purpose of discussing the progress of NPTN, future directions for NPTN, and other issues of mutual concern to NPTN and the EPA. This year, Dr. Terry Miller (Director) and Dorothy Tibbetts, the project coordinator hired at the beginning of grant year 1998, spent a day in April, 1998 at EPA headquarters in Arlington, Virginia to meet with individuals at the EPA Office of Pesticide Programs for the purpose of orienting Ms. Tibbetts to the functions of the OPP and its relationship to NPTN. Sherri Street and Frank Davido from the EPA Office of Pesticide Programs Information Resources and Services Division conducted their annual site visit to NPTN in early September, 1998.

Terry Miller, Jeff Jenkins, Sheldon Wagner, Dorothy Tibbetts, Terry Brock, and Dawn Andrews met with EPA/OPP personnel at the EPA headquarters in Arlington, Virginia in March, 1999. Meetings during this visit were held with the NPTN Project Officer, Frank Davido; the NPTN Oversight and Monitoring Committee; and representatives of other EPA/OPP divisions, including: Information Resources and Services, Field and External Affairs, Antimicrobial, and Health Effects Divisions. The NPTN delegation also met at this time with OPP director Marcia Mulkey and her associates.

NPTN hosted visits by professionals interested in learning more about operations at NPTN. This year, NPTN hosted a visit by Steve Kirkhorn, MD., MPH., who was engaging in research on rural health and outreach systems. Dr. Kirkhorn observed the NPTN operation for one week and provided NPTN with information about his work as Medical Director of Occupational Health services at Immanuel-St. Joseph's, Mayo Health System, Mankato, Minnesota. NPTN also hosted a visit by Dr. Anita Janson, MD, MPH. Dr. Janson is a consultant to the Oregon Department of Agriculture; she spent one afternoon with NPTN listening to calls and learning about the project.

NPTN periodically conducts meetings with OSU officials to orient them to NPTN. During grant year 1998, the directors of NPTN met with Dr. Lyla Hoaglum, Dean and Director of the Oregon State University Extension Service, to tour NPTN and discuss its mission. Also present at this meeting were Bill Braunworth, Ag Program Leader for the College of Agricultural Sciences, and Michael Stoltz, Regional Director with OSU Extension Service. NPTN was also visited by Dean Thayne Dutson and Associate Dean Lavern Weber (both from College of Agricultural Sciences) and Vice Provost for Research Wilson "Toby" Hayes.

Traffic Report

Traffic Report Summary

NPTN answered 21,717 inquiries during its fourth year of operation (April 1998 - March 1999) at Oregon State University. Most of the calls received by NPTN are quite sophisticated, requiring extensive expertise on the part of the pesticide specialists to be able to provide answers which are objective, science-based, and accurate, and, at the same time, are presented in an understandable way to the caller.

A summary of the number of calls received per month is provided in Table 1 and Figure 1. Also included in Table 1 is a listing of the total number of calls by calender year. Most calls come to NPTN during the period March to October.

The types of calls received by NPTN are shown in Table 2 and Figures 2 and 3. Calls range from

inquiries about general or specific information about pesticides to reporting of incidents.

The means by which people contact NPTN is shown in Table 3. The telephone is by far the most important verbal contact route. However, many people access NPTN through its World Wide Web site - during this year, the web site received 183,127 hits. During the same time, there were 68,832 hits to the web site of a NPTN sub-project, the National Antimicrobial Information Network (NAIN) (Table 4 and Figure 4). In addition, there were 400 direct inquiries to NPTN via email.

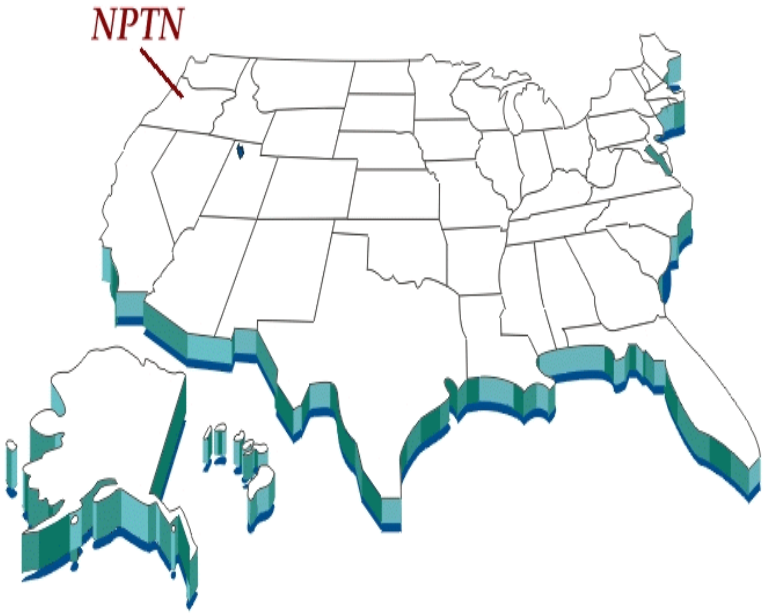
The variety of callers to NPTN is shown in Table 5 and Figure 5. The predominant number of calls received by NPTN are from the general public.

The types of questions posed to the NPTN Pesticide Specialists are presented in Table 6 and Figure 7. Most of the callers requested information about health-related issues.

Most of these information calls and others listed in Table 6 were prompted by concern/knowledge of the caller (Table 7 and Figures 8 and 9). Only about 7% of the calls are to report a pesticide incident.

The outcome of most calls to NPTN is that the caller receives verbal information from a Pesticide Specialist (Table 8 and Figures 10 and 11). Some callers also request and receive written information. In addition, many calls are referred to either EPA, 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), or a state lead agency (such as the Department of Agriculture).

The callers to NPTN represent all 50 states as well as Canada and other foreign nations. Table 9 shows the number of calls from



each of the states, Puerto Rico, the Virgin Islands, and other locations. The 10 states from which most of the calls are from is presented in Figures 12. Residents from Texas, California, and New York initiated the greatest number of calls. Also shown in Table 9 and presented in Figure 13 are the number of calls from each of the EPA regions.

The total number of calls as well as the number of information and incident calls for the 25 most asked about pesticide active ingredients is presented in Table 10. For incident calls, the value shown in parentheses indicates the number of incidents with a certainty index of 1 (definite) or 2 (probable). The 10 active ingredients mentioned most often in calls is presented in Figure 14. The 25 active ingredients most frequently mentioned in incident calls are listed in Table 11. Incident calls are further classified by victim type. The 10 active ingredients most often mentioned in incident calls are presented in Figure 15.

The locations where pesticide exposures were purported to have taken place are shown in Table 12. Of those calls 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.

The incident calls are further categorized by whether the incident involved a human, animal, or building/other (Table 14 and Figure 16). The incident calls for each victim type are qualified by the certainty index. The certainty index is an estimate by NPTN 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 0 reflects those calls where the caller reported being exposed to a pesticide but no symptoms were present. For human victims presented in Table 14, the certainty index is further categorized by gender and group.

Table 15 and Figure 16 list the descriptions for the victims involved in incidents, as female, male, groups, animals, and other.

Reported symptoms are shown in Table 16 and Figures 18 and 19. Symptoms provided by callers ranged from symptomatic, to asymptomatic, to atypical.

The number of deaths, life threatening, or interesting/strange cases due to a potential pesticide exposure is shown in Table 17 and Figure 20.

Ages were available for some of the victims and are presented in Table 18 and Figure 21.

Traffic Report Tables and Figures

Pesticide specialists record pertinent information for every call that is received at NPTN. This information is entered into the NPTN Pesticide Incident Database (PID), an electronic database used to record information for all inquiries to NPTN. Broadly speaking, there are two types of calls received by NPTN - those for general or specific information about pesticides and pesticide-related issues and calls about pesticide incidents. For example, a caller might ask a question about 'pesticides in foods' (a general information call) or about the toxicity of a particular pesticide (a pesticide-specific information call). A call to report an exposure to a pesticide is an example of an incident call. The type and amount of information entered into the PID depends on whether the call was for general information or to report a pesticide incident.

Information collected and entered into the PID for general information calls 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 calls), and 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.

When incidents are reported, more detailed and specific information is recorded, including: type of incident (e.g., exposure, spill, drift), location of the incident and information about the victim, including age, gender, nature of the exposure, and reported symptoms. 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 NPTN (based on information provided by the caller) as to the likelihood that the health 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).

Following is a summary of selected data from the NPTN Pesticide Incident Database for the 1998 NPTN operational year.

Monthly Calls

NPTN received 21,717 inquiries during the 1998 grant year. Figure 1 shows number of calls received for each month. Eighty percent of the inquiries were received between March and October, coinciding with that part of the year when most pest pressures are highest. Total calls received during previous grant and calendar years is provided for comparison in Table 1.

Figure 1 -
NPTN Monthly Calls - 1998

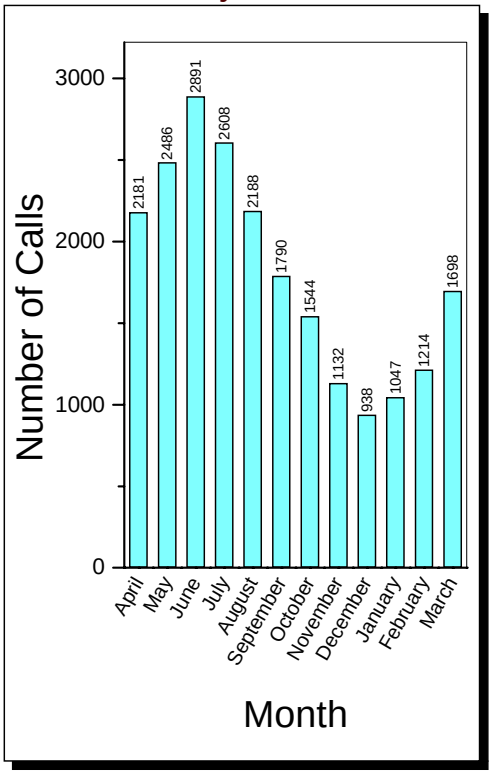


Table 1 -
NPTN Monthly Telephone Calls

Month	Number of Calls				
	1995	1996	1997	1998	1999
April	1560	2015	2129	2181	
May	1494	2215	2199	2486	
June	1612	2111	2441	2891	
July	1763	2114	2536	2608	
August	2004	1950	2282	2188	
September	1633	1638	1904	1790	
October	1699	1642	1712	1544	
November	1289	1094	1131	1132	
December	895	858	1060	938	
January	1098	1114	1153	1047	
February	1217	1263	1353	1214	
March	1511	1557	1937	1698	
Calendar[1] Year	13949	19463	21328	22206	
Grant[2] Year	17775	19571	21837	21717	

[1] April 1 through December 31 for 1995; January 1 through December 31, other years.
[2] April 1 through March 31.

"I've been told that my home needs to be treated with pesticides to kill termites. I am pregnant, and I am wondering if the chemicals will hurt my unborn baby? What about my other children?"

Types of Calls

NPTN classifies calls as information calls, incident calls, or other (non-pesticide) calls. These types of calls are summarized in Figures 2 and 3 and Table 2. The majority of calls (18,856 or 86.8%) to NPTN were information calls in which the caller is requesting information about pesticides or pesticide-related matters (Figure 2). Information calls may involve a discussion of a specific pesticide, or of pesticides in general. NPTN responded to 8,235 (37.9%) information calls about specific pesticides, for example: *How long does chlorpyrifos last indoors?* and *Can "Corry's Slug and Snail Death" get into my garden vegetables and cause me to get sick when I eat the vegetables?* NPTN responded to 10,621 (48.9%) calls relating to pesticides in general, for example: *What are the least toxic methods of pest control?* and *What pesticide can be used to control ants?*

NPTN responded to 1,562 (7.2%) calls 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 calls involved human and animal victims (Figure 3). Of the 1,562 incident calls, 939 (60.1%) involved a human victim, 352 (22.5%) involved an animal victim, and 271 (17.3%) involved damage to a building such as a home or office. NPTN also took 1,299 (6.0%) calls that were not related to pesticides, for example: *Is the Peace Lily poisonous?* and *Who do I call if my neighbor is dumping oil in my back yard?*

Figure 2 -
Types of Calls

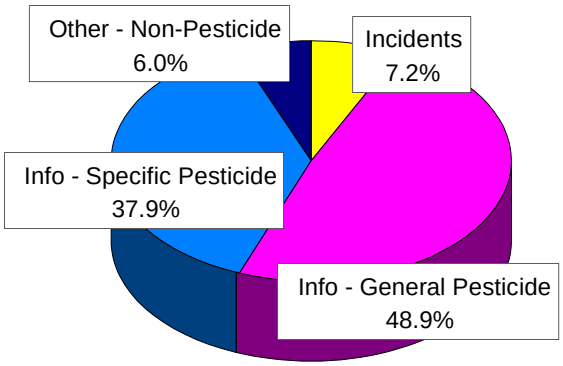


Figure 3 -
Incidents

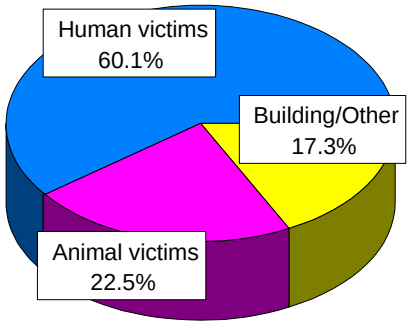


Table 2 -
Types of Calls Received by NPTN

Type of Call	Number of Calls				
	1995	1996	1997	1998	1999
Information - Specific Pesticide	7215	7757	8953	8235	
Information - General Pesticide	7973	9243	10482	10621	
Incidents	1944	1749	1559	1562	
Human Victims	1327	1067	1026	939	
Animal Victims	276	327	311	352	
Building/Other	331	355	221	271	
Other - Non-Pesticide	643	822	843	1299	
Grant Year Total =	17775	19571	21837	21717	

Origin of Calls

Table 3 summarizes the origin of inquiries received by NPTN. Most inquiries are received by telephone. Of the 21,717 inquiries, 20,950 (96.5%) were received by telephone, 470 (2.2%) were recorded by a voice mail system, 40 (0.2%) were received by postal mail, 4 (0.02%) were walk-in inquires, 215 (1%) were by email, and 38 (0.2%) inquiries were received by NPTN via other means. NPTN received an additional 185 email responses in follow-up to previous email inquiries.

Table 3 -
Origin of Calls to NPTN

Origin of Call	Number of Calls				
	1995	1996	1997	1998	1999
Telephone	17104	18901	21005	20950	
Voice Mail	373	455	542	470	
Mail	117	129	126	40	
Walk In	7	10	6	4	
E-Mail	-	-	-	215	
Other	174	76	158	38	
Grant Year Total =	17775	19571	21837	21717	

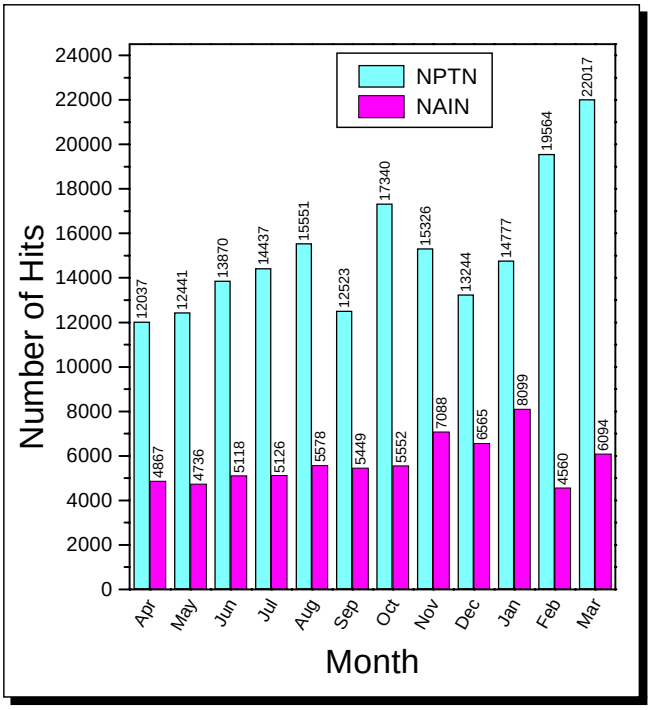
Web Site Access

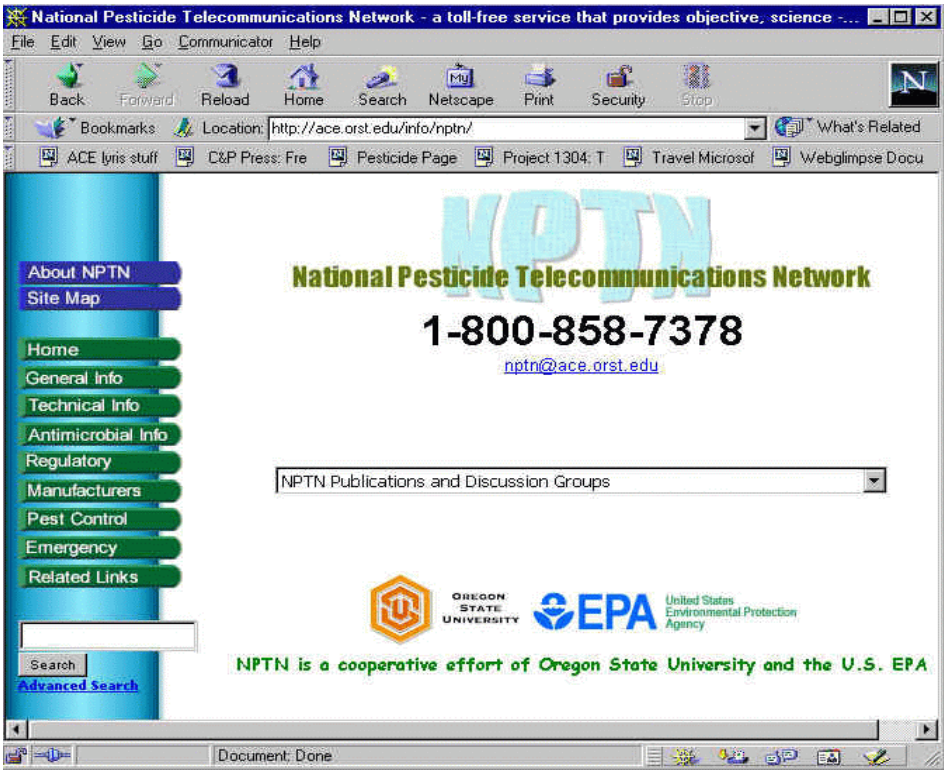
The NPTN World Wide Web site continues to be popular source of information to NPTN clientele. The NPTN web site received 183,127 hits and the NAIN web site received 68,832 hits. Table 4 and Figure 4 summarize by month the number of web site hits received by NPTN and NAIN during 1998. These are substantial increases over the previous year - 174% increase in hits to NPTN and 406% for NAIN - when NPTN received 105,343 hits and NAIN received 16,931 hits.

Table 4 -
Web Site Hits for NPTN and NAIN - 1998

Month	# of Hits NPTN	# of Hits NAIN
April	12037	4867
May	12441	4736
June	13870	5118
July	14437	5126
August	15551	5578
September	12523	5449
October	17340	5552
November	15326	7088
December	13244	6565
January	14777	8099
February	19564	4560
March	22017	6094
Total =	183127	68832

Figure 4 -
Web Site Hits for NPTN and NAIN - 1998





Type of Caller

Figures 5 and 6 and Table 5 summarize the profession/occupation of individuals contacting NPTN. The majority of calls made to NPTN are from the general public. Of the 21,717 inquiries received, there were 18,802 (86.6%) from the general public; 1,070 (4.9%) from federal, state, or local government agencies; 566 (2.6%) from human and animal medical personnel; 513 (2.4%) from information groups including the media, unions, environmental organizations and pesticide manufacturing or marketing companies; 475 (2.2%) from consumer users including legal or insurance representatives, laboratory or consulting personnel, pest control operators, retail store personnel, or farm personnel; and 291 (1.3%) calls from other professions/occupations.

Figure 5 -
Type of Caller

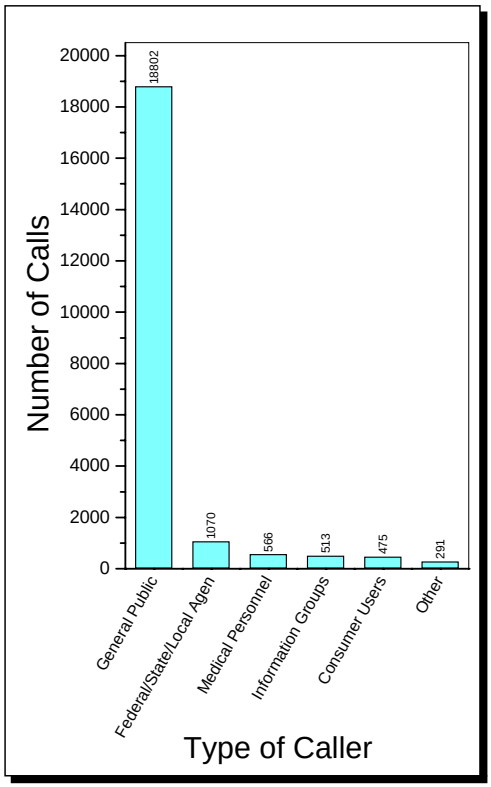
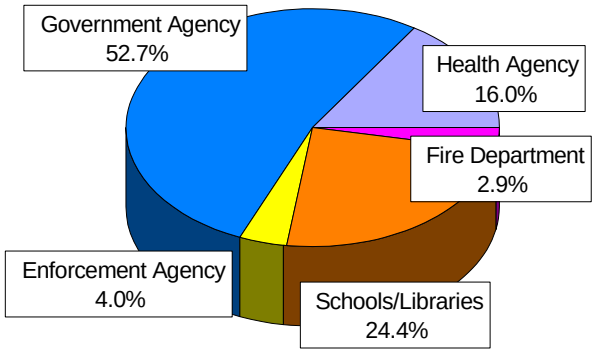


Table 5 -
Type of Caller to NPTN

Type of Caller	Number of Calls				
	1995	1996	1997	1998	1999
General Public	15357	16743	18304	18802	
Federal/State/Local Agency					
Health Agency	122	101	120	171	
Government Agency	360	446	637	564	
Enforcement Agency	39	50	67	43	
Schools/Libraries	239	222	280	261	
Fire Department	27	26	26	31	
Medical Personnel					
Human Medical	336	423	532	395	
Animal Vet./Clinic	92	147	159	168	
Migrant Clinic	9	10	16	3	
Information Groups					
Media	127	165	228	162	
Unions/Info. Service	51	96	104	68	
Environmental Org.	119	139	191	150	
Pesticide Mfg./Mktg. Co.	128	136	158	133	
Consumer Users					
Lawyer/Insurance	98	143	129	69	
Lab./Consulting	222	176	149	96	
Pest Control	186	167	227	202	
Retail Store	55	49	57	51	
Farm	51	65	67	57	
Other	157	267	386	291	
Grant Year Total =	17775	19571	21837	21717	

Figure 6 -
Inquiries from
Federal/State/Local Agencies



Type of Question

The types of questions received at NPTN are most often related to health effects of pesticides (Figure 7 and Table 6). NPTN responded to 8,794 (40.7%) inquiries related to health effects of pesticides, including inquiries about general health, treatment and testing, and laboratory questions. NPTN responded to 4,705 (21.8%) 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 questions, questions about harvest intervals, and lawn care usage questions.

NPTN responded to 2,278 (10.5%) inquiries involving compliance questions, including questions about regulations, questions about disposal, and complaints. Additionally, NPTN responded to 33 (0.15%) inquiries specifically about the FQPA brochure, 42 (0.19%) inquiries about other food safety issues, 18 (0.08%) inquiries about the Consumer Reports article [it should be noted that tracking of these three items began only recently], 653 (3.0%) inquiries involving general pesticide questions, 1,266 (5.8%) inquiries involving questions about NPTN, 5 (0.02%) inquiries involving non-pesticide questions, and 3,922 (18.1%) inquiries not classified according to type of question.

Figure 7 -
Type of Question

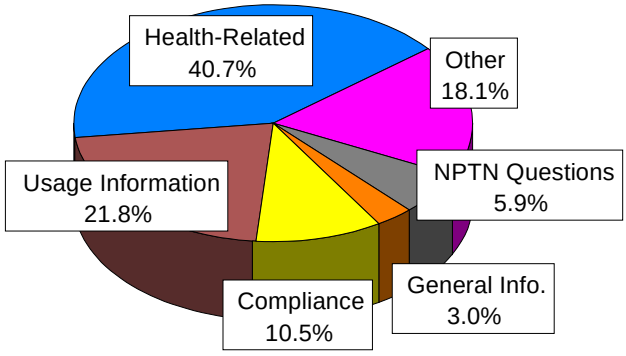


Table 6 -
Type of Question Asked by Callers to NPTN

Type of Question	Number of Calls				
	1995	1996	1997	1998	1999
Health Related					
Health	8225	8363	7997	8396	
Treatment	172	158	238	284	
Testing Lab.	73	97	114	115	
Usage Information					
Pest/Crop	1211	1267	1437	1575	
Chemical	912	1202	1865	2111	
Pros and Cons	162	181	185	104	
Safety/Application	278	655	1040	531	
Cleanup	273	283	312	252	
Harvest Intervals	143	69	105	89	
Lawn Care	58	51	54	43	
Compliance					
Regulations	1107	1201	1567	1714	
Complaints	223	233	279	328	
Disposal	210	166	197	236	
FQPA Brochure	-	-	-	33	
Food Safety	-	-	-	42	
Consumer Report Article	-	-	-	18	
General	1519	1845	1026	653	
NPTN Questions	973	1033	1407	1266	
Non-Pesticide Related	460	127	5	5	
Other	1776	2640	4009	3922	
Grant Year Total =	17775	19571	21837	21717	

Reason for Inquiry

Pesticide specialists identify the reason for inquiry for all calls received by NPTN (Table 7 and Figures 8 and 9). The reason for inquiry for all information calls is Concern/Knowledge. The reason for inquiry for incident calls varies according to the nature of the incident. Of the 1,562 incident calls, reasons for inquiry involved pesticide exposure for 1,107 (70.9%) calls, accidents for 412 (26.4%) calls, odor only for 28 (1.8%) calls, laboratory testing for 0 calls, and other reasons for inquiry for 26 (1.7%) calls. The reason for all other (non-pesticide) calls is N/A–Unknown.

Figure 8 -
Pesticide Exposures

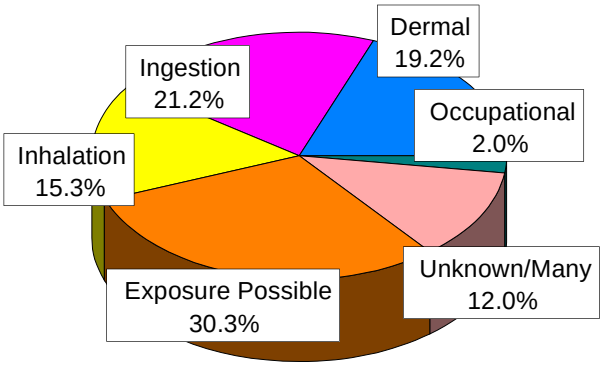
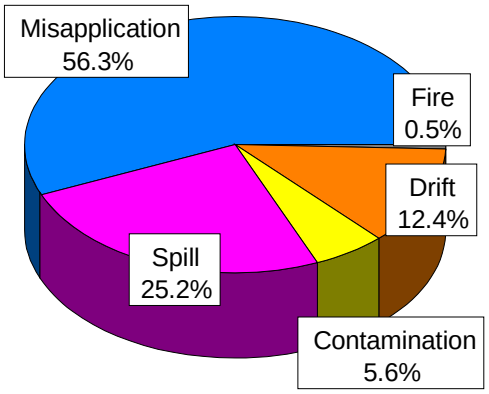


Table 7 -
Reason for Inquiry to NPTN

Reason for Inquiry	Number of Calls				
	1995	1996	1997	1998	1999
Information Calls					
Concern/Knowledge	15019	17313	20020	19817	
Incident Calls					
Exposures					
Dermal - Acute	249	239	201	200	
Dermal - Chronic	34	32	13	13	
Ingestion - Acute	160	175	178	228	
Ingestion - Chronic	7	8	3	7	
Inhalation - Acute	244	241	176	147	
Inhalation - Chronic	45	61	43	22	
Exposure Possible	445	357	311	335	
Unknown/Many	72	54	83	133	
Occupational	79	39	42	22	
Accidents					
Misapplic. - Homeowner	152	116	101	120	
Misapplic. - PCO	132	84	111	80	
Misapplic. - Other	31	22	39	32	
Spill - Indoor	65	47	55	75	
Spill - Outdoor	24	18	15	29	
Contamination - Home	37	25	21	15	
Contamination - Other	36	26	16	8	
Drift	81	81	59	51	
Fire - Home	3	2	1	0	
Fire - Other	3	0	0	2	
Industrial Accident	0	0	0	0	
Odor Only	53	80	58	28	
Testing Laboratory	6	2	1	0	
Other	103	76	36	26	
N/A-Unknown	695	473	254	327	
Grant Year Total =	17775	19571	21837	21717	

Figure 9 -
Pesticide Accidents



Action Taken by NPTN

NPTN specialists respond to inquiries in many ways, including the provision of verbal information, referrals to other agencies or organizations, and hard-copy information sent by mail, fax, or email. Actions taken by pesticide specialists in response to inquiries are summarized in Figures 10 and 11 and Table 8. Most inquiries (18,180; 82.4%) were answered by providing verbal information to the caller. If specialists determine that other agencies or organizations are better able to respond to an inquiry than NPTN, a referral is made. Referrals were made for 3,096 (14.3%) calls. Common NPTN referrals include referrals to the EPA, state lead agencies or the National Pesticide Medical Monitoring Program; referrals to county extension services; referrals to Oregon Poison Center and National Animal Poison Center; and referrals to the National Antimicrobial Information Network (NAIN). Some callers (441; 2.0%) received hard-copy information via mail or FAX.

Figure 10 -
Action Taken by NPTN

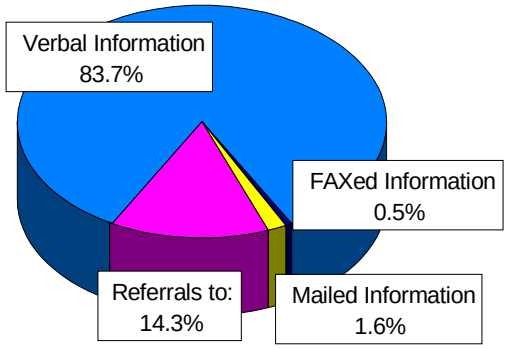
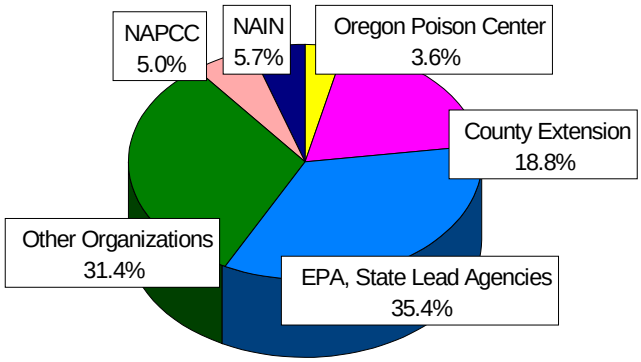


Table 8 -
Action Taken by NPTN

Action Taken	Number of Calls				
	1995	1996	1997	1998	1999
Verbal Information	11590	15078	17948	18180	
Referrals to:					
EPA, State Lead Agencies, National Pesticide Medical Monitoring Program	1763	1363	1404	1095	
County Extension	711	500	490	583	
Oregon Poison Center	69	45	42	112	
National Animal Poison Control Center	100	152	77	155	
Antimicrobial Complaint System	103	208	214	178	
Other Organizations	2001	1086	915	973	
Mailed Information, Brochure, Publication	1098	802	576	340	
Other/FAXED Information	340	337	171	101	
Grant Year Total =	17775	19571	21837	21717	

Figure 11 -
Referrals Made



Calls Listed by State

Table 9 lists the number of calls from each state received by NPTN. The largest number of calls were received from Texas, California, and New York–states ranked 3, 1, and 2 respectively in terms of population (Figure 12). Figure 13 summarizes calls by EPA region. NPTN received 14.1% of calls made from Region 6, 13.3% from Region 4, 13.0% from Region 9, 12.8% from Region 3, and 10.6% from Region 2.

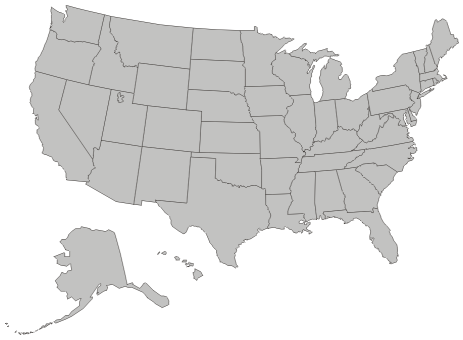


Figure 12 -
Top 10 States Using NPTN

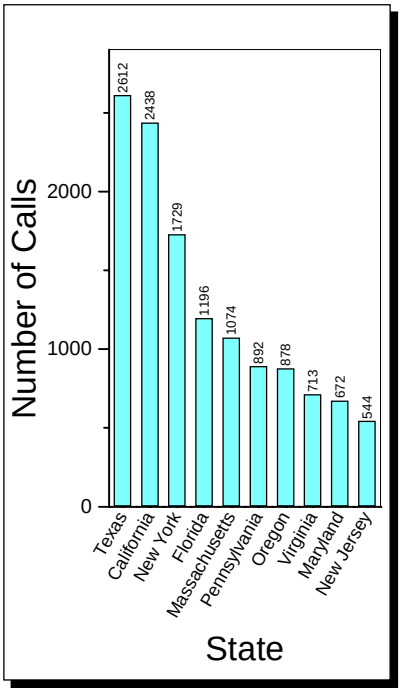
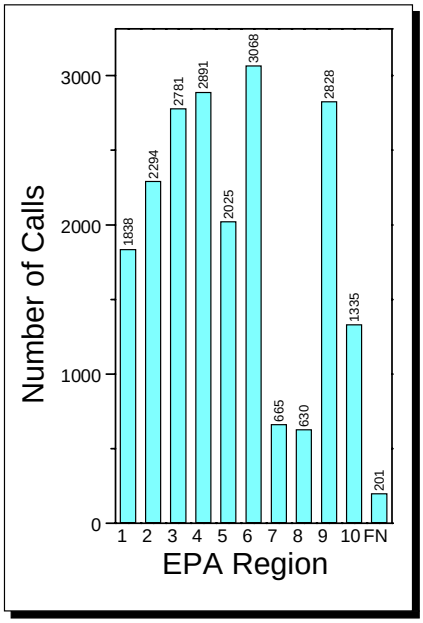


Table 9 -
Listing of States and Foreign Nations
Using NPTN During 1998 Operational Year

EPA Region	State Code	State	Number of Calls
		Not recorded	1163
10	AK	Alaska	23
4	AL	Alabama	263
6	AR	Arkansas	102
9	AZ	Arizona	225
9	CA	California	2438
FN	CN	Canada	132
8	CO	Colorado	432
1	CT	Connecticut	492
3	DC	Dist. of Columbia	356
3	DE	Delaware	49
4	FL	Florida	1196
FN	FN	Foreign	69
4	GA	Georgia	374
9	HI	Hawaii	83
7	IA	Iowa	92
10	ID	Idaho	82
5	IL	Illinois	496
5	IN	Indiana	201
7	KS	Kansas	163
4	KY	Kentucky	174
6	LA	Louisiana	134
1	MA	Massachusetts	1074
3	MD	Maryland	672
1	ME	Maine	67
5	MI	Michigan	396
5	MN	Minnesota	201
7	MO	Missouri	304
4	MS	Mississippi	54
8	MT	Montana	80
4	NC	North Carolina	429
8	ND	North Dakota	22
7	NE	Nebraska	105
1	NH	New Hampshire	80
2	NJ	New Jersey	544
6	NM	New Mexico	101
9	NV	Nevada	83
2	NY	New York	1729
5	OH	Ohio	480
6	OK	Oklahoma	119
10	OR	Oregon	878
3	PA	Pennsylvania	892
2	PR	Puerto Rico	12
1	RI	Rhode Island	76
4	SC	South Carolina	162
8	SD	South Dakota	31
4	TN	Tennessee	240
6	TX	Texas	2612
8	UT	Utah	42
3	VA	Virginia	713
2	VI	Virgin Islands	4
1	VT	Vermont	49
10	WA	Washington	352
5	WI	Wisconsin	251
3	WV	West Virginia	100
8	WY	Wyoming	24
		Total =	21717

Figure 13 -
Calls to NPTN by EPA Region



Top 10 Active Ingredients In All Calls

When calls to NPTN involve discussion of a specific product or active ingredient, the pesticide specialist records the product and the active ingredient in the NPTN Pesticide Incident Database. The active ingredient chlorpyrifos was discussed in more calls than any other single active ingredient (Table 10). The relatively large number of calls about chlorpyrifos is likely related to its being one of the most widely used chemicals in and around the home. Of the 1,402 calls involving chlorpyrifos, 240 (17.1%) were incident calls and 1,163 (82.9%) were calls for general information. See Table 10 and Figure 14 for this and similar information for the 25 active ingredients most commonly discussed in calls made to NPTN. Note that a call may involve discussion of more than one active ingredient; thus totals reflect the number of times active ingredients are discussed during the course of all calls. Table 10 also provides the certainty index assigned to all incident calls. The certainty index is an estimate by NPTN 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 calls where the caller reported an exposure, accident, or odor, but no health effects were reported. Of the 240 times that chlorpyrifos was mentioned during incident calls in which health effects were reported, 8.6% of the cases were assigned a certainty index of 1 (definite) or 2 (probable).

Figure 14 - Top 10 Active Ingredients in All Calls

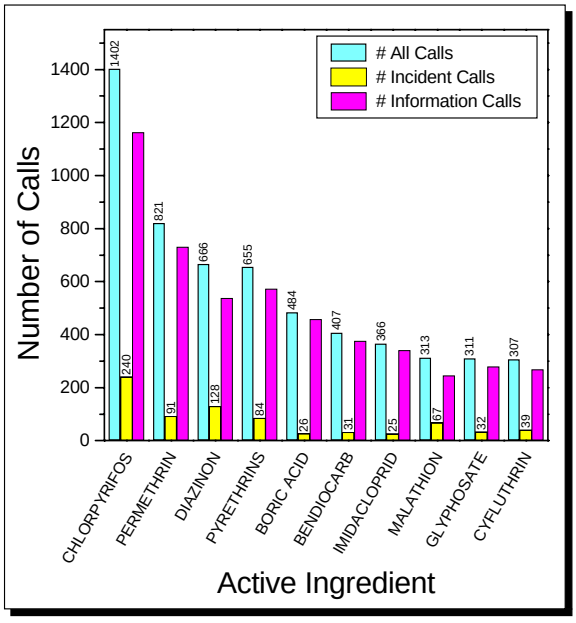


Table 10 - Top 25 Active Ingredients for *All* Calls to NPTN in the 1998 Operational Year

Active Ingredient	Total Calls	Incident[1] Calls	Information Calls
CHLORPYRIFOS	1402	240 (21)	1163
PERMETHRIN	821	91 (13)	730
DIAZINON	666	128 (9)	538
PYRETHRINS	655	84 (5)	573
BORIC ACID	484	26 (1)	458
BENDIOCARB	407	31 (1)	376
IMIDACLOPRID	366	25 (1)	341
MALATHION	313	67 (4)	246
GLYPHOSATE	311	32 (1)	279
CYFLUTHRIN	307	39 (3)	268
CYPERMETHRIN	298	30 (4)	268
2,4-D	272	44 (2)	230
CHLORDANE	248	23 (1)	225
SULFURYL FLUORIDE	229	10 (4)	219
CARBARYL	220	31 (1)	190
DEET	195	14 (4)	181
LAMBDA-CYHALOTHRIN	185	18 (2)	168
HYDRAMETHYLNON	169	19 (2)	152
HEXAFLUMURON	158	0 (0)	158
DICAMBA	145	39 (3)	107
MECOPROP	137	40 (4)	97
ACEPHATE	135	26 (1)	110
ESFENVALERATE	132	14 (1)	118
POTASSIUM SALTS of FATTY ACIDS	132	18 (3)	115
BIFENTHRIN	128	5 (0)	123
Total - Above	8515	1094 (91)	7433
All Other	1292	823	807

[1] First number represents the total of purported incidents regardless of certainty index - numbers in parentheses indicate the total of incidents with certainty index of 1 (definite) or 2 (probable).

Top 10 Active Ingredients in Incident Calls

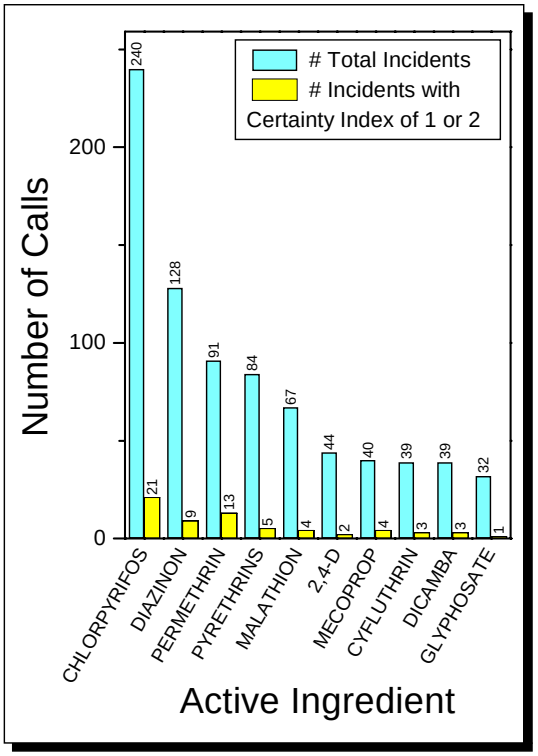
The most common active ingredients reported during incident calls are listed in Table 11 and Figure 15. Table 11 also summarizes the numbers of human and animal victims involved in reported incidents of exposure to specific active ingredients. Of the 977 times that one of the top 25 active ingredients was mentioned during incident calls in which human or animal victims were involved, 8.9% of the cases were assigned a certainty index of 1 (definite) or 2 (probable).

Table 11 - Top 25 Active Ingredients for *Incident* Calls in the 1998 Operational Year

Active Ingredient	Total Incidents[1)]	Human Incidents	Animal Incidents	Other Incidents	Information Calls
CHLORPYRIFOS	240 (21)	180 (18)	32 (3)	28 (0)	1163
DIAZINON	128 (9)	77 (7)	15 (2)	36 (0)	538
PERMETHRIN	91 (13)	50 (2)	30 (11)	11 (0)	730
PYRETHRINS	84 (5)	63 (3)	10 (2)	11 (0)	573
MALATHION	67 (4)	39 (3)	3 (1)	25 (0)	246
2,4-D	44 (2)	28 (1)	7 (1)	9 (0)	230
MECOPROP	40 (4)	26 (3)	11 (1)	3 (0)	97
CYFLUTHRIN	39 (3)	33 (2)	5 (1)	1 (0)	268
DICAMBA	39 (3)	26 (2)	5 (1)	8 (0)	107
GLYPHOSATE	32 (1)	16 (1)	11 (0)	5 (0)	279
BENDIOCARB	31 (1)	23 (1)	2 (0)	6 (0)	376
CARBARYL	31 (1)	21 (1)	6 (0)	4 (0)	190
CYPERMETHRIN	30 (4)	27 (4)	1 (0)	2 (0)	268
ACEPHATE	26 (1)	17 (1)	1 (0)	8 (0)	110
BORIC ACID	26 (1)	19 (1)	7 (0)	0 (0)	458
DIPHACINONE	25 (2)	1 (0)	23 (2)	1 (0)	32
IMIDACLOPRID	25 (1)	8 (0)	12 (1)	5 (0)	341
MCPA	25 (2)	21 (2)	2 (0)	2 (0)	34
CHLORDANE	23 (1)	16 (1)	0 (0)	7 (0)	225
PROPOXUR	21 (1)	4 (1)	10 (0)	7 (0)	77
FIPRONIL	20 (0)	2 (0)	18 (0)	0 (0)	92
PENDIMETHALIN	20 (0)	12 (0)	5 (0)	3 (0)	51
PIPERONYL BUTOXIDE	20 (3)	14 (2)	2 (1)	4 (0)	96
HYDRAMETHYLNON	19 (2)	9 (1)	10 (1)	0 (0)	152
LAMBDA-CYHALOTHRIN	18 (2)	14 (0)	3 (2)	1 (0)	168
Total - Above Pesticides	1164 (87)	746 (57)	231 (30)	187 (0)	6901
All Other Pesticides =	753	457	177	119	1339

[1)] First number represents the total of purported incidents regardless of certainty index - numbers in parentheses indicate the total of incidents with certainty index of 1 (definite) or 2 (probable).

Figure 15 - Top 10 Active Ingredients in Incident Calls



It is interesting to note that, even though more calls are received about chlorpyrifos than any other active ingredient, the proportion of chlorpyrifos incidents assigned a certainty index of 1 or 2 was not much different than for the remaining top 24 pesticides taken as a group.

Location of Incident

For all incident calls, the NPTN specialist records the location of the reported exposure, accident, or odor. Of the 1,468 known locations where incidents occurred, 84.9% occurred in the home or yard, 6.2% occurred in an agricultural setting, and 4.4% occurred in an office building or school (Table 12).

Table 12 - Location Where Exposure to a Pesticide Occurred

Location	Number of Incident[1] Calls				
	1995	1996	1997	1998	1999
Unclear/Unknown	975 (139)	482 (40)	14 (3)	32 (6)	
Home or Yard	730 (152)	902 (152)	1148 (129)	1246 (97)	
Agriculturally Related	92 (19)	115 (21)	131 (22)	91 (8)	
Industrially Related	10 (2)	16 (3)	11 (0)	12 (1)	
Office Building, School	51 (9)	52 (9)	75 (10)	65 (2)	
Pond, Lake, Stream Related	8 (3)	4 (1)	6 (3)	5 (0)	
Nursery, Greenhouse	7 (1)	9 (1)	10 (1)	10 (0)	
Food Service/Restaurants	6 (3)	6 (0)	4 (1)	4 (0)	
Retail Store/Business	4 (2)	15 (6)	14 (3)	17 (2)	
Roadside/Right-of-Way	10 (1)	15 (0)	17 (1)	9 (1)	
Park/Golf Course	8 (0)	7 (1)	7 (0)	9 (1)	
Other	43 (16)	126 (20)	122 (28)	62 (12)	
Total =	1944 (347)	1749 (254)	1559 (201)	1562 (130)	

[1] First number represents the total of purported incidents regardless of certainty index - numbers in parentheses indicate the total of incidents with certainty index of 1 (definite) or 2 (probable).

Environmental Impact

NPTN specialists also record reported environmental impacts discussed in incident calls. See Table 13. The most common reported environmental impacts are damage to property and damage to plant material, including food crops and other plants or trees. Multiple environmental impacts may be reported for each incident calls; thus totals reflect the number of times these locations were discussed during the course of all incident calls. Of the 210 times that a specific environmental impact was reported, 6.7% of the cases were assigned a certainty index of 1 (definite) or 2 (probable).

Table 13 - Reported Environmental Impact from Pesticide Incidents

Environmental Impact	Number of Incident[1] Calls				
	1995	1996	1997	1998	1999
Air	29 (6)	32 (4)	35 (8)	13 (0)	
Water	24 (5)	19 (1)	15 (1)	17 (1)	
Soil	17 (2)	22 (3)	41 (6)	21 (3)	
Food Crops/Process	68 (4)	60 (3)	44 (4)	38 (0)	
Property	105 (24)	131 (19)	120 (14)	93 (7)	
Poultry/Livestock	11 (2)	9 (4)	7 (0)	3 (1)	
Plants/Trees	31 (1)	26 (2)	44 (4)	25 (2)	
Not Applicable	1647 (297)	1431 (215)	1211 (154)	1333 (112)	
Other	11 (6)	19 (3)	42 (10)	19 (4)	
Total =	1943 (347)	1749 (254)	1559 (201)	1562 (130)	

[1] First number represents the total of purported incidents regardless of certainty index - numbers in parentheses indicate the total of incidents with certainty index of 1 (definite) or 2 (probable).

Certainty Index

Table 14 and Figure 16 summarizes the assignment of certainty index for all incident calls received by NPTN. Calls are sorted according to type of victim; human victims are further sorted according to gender and groups of victims. Multiple victims may be discussed in one incident call; thus totals reflect the number of victims (as opposed to number of incidents) are discussed during the course of incident calls to NPTN. Of the total number of victims (1,668) discussed in incident calls to NPTN, 1.3% of the cases were assigned a certainty index of definite (1), 7.1% of the cases were assigned a certainty index of probable (2), 39.8% of the cases were assigned a certainty index of possible (3), 15.6% of the cases were assigned a certainty index of unlikely (4), 1% of the cases were assigned a certainty index of unrelated (5), 35.8% of the cases did not involve health effects and so were assigned the certainty index of zero (0), information only.

Figure 16 -
Certainty Index for Victims

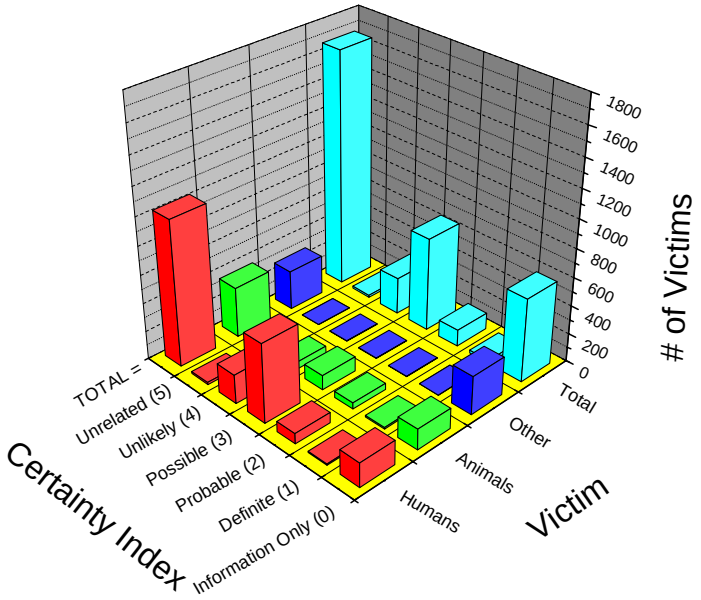


Table 14 -
Incident Calls Sorted by Certainty Index for the 1998 Operational Year

CI for All Categories of Victims					Breakdown of Human Victim Incident Calls			
Certainty Index	Humans	Animals	Other	Total	Male	Female	Groups	Gender Not Stated
Total Calls in Operational Year = 21,717								
Non-Incident Calls = 20,735								
Information Only (0)	171	146	272	589	70	83	13	5
Definite (1)	9	12	0	21	3	4	1	1
Probable (2)	74	44	1	119	32	34	8	0
Possible (3)	556	104	3	663	191	276	78	11
Unlikely (4)	205	52	3	260	68	111	24	2
Unrelated (5)	15	1	0	16	5	9	1	0
TOTAL =	1030	359	279	1668	369	517	125	19

Description of Victims

Table 15 and Figure 17 provide a more detailed summary of categories of victims discussed in incident calls. Of the 1,668 victims involved in incidents reported to NPTN, 61.8% were human, 21.5% animal, and 16.7% were other types of non-target entities (building or environment, for example).

Figure 17 - Description of Victims

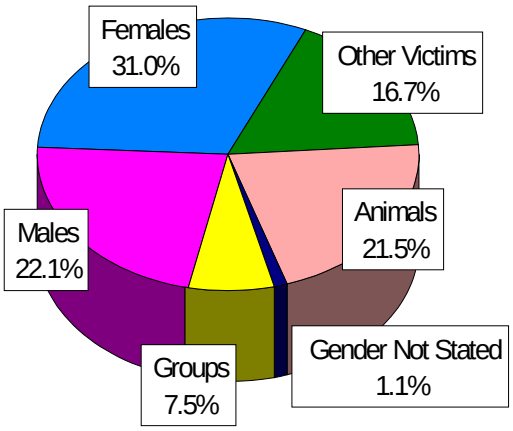


Table 15 - Description of Victims Involved in Reported Incidents

Description of Victims	Number of Victims[1)]				
	1995	1996	1997	1998	1999
All females -					
Female	625 (112)	562 (91)	555 (76)	502 (37)	
Female-pregnant	68 (5)	36 (2)	22 (1)	12 (0)	
Female suicide attempt	2 (1)	1 (0)	2 (1)	3 (1)	
Total all females =	695 (118)	599 (93)	579 (78)	517 (38)	
All males -					
Male	460 (103)	397 (75)	407 (79)	367 (35)	
Male suicide attempt	2 (1)	0 (0)	1 (1)	2 (0)	
Total all males =	462 (104)	397 (75)	408 (80)	369 (35)	
All groups -					
Family	144 (40)	90 (15)	88 (10)	94 (7)	
Non-family group	54 (13)	33 (5)	32 (7)	31 (2)	
Total all groups =	198 (53)	123 (20)	120 (17)	125 (9)	
Gender not stated -					
Child - sex unknown	33 (4)	16 (4)	15 (1)	7 (1)	
Adult - sex unknown	0 (0)	0 (0)	0 (0)	0 (0)	
Other - sex unknown	15 (1)	4 (0)	22 (4)	12 (0)	
Total gender not stated =	48 (5)	20 (4)	37 (5)	19 (1)	
Total all humans =	1403 (280)	1139 (192)	1144 (180)	1030 (83)	
All animals -					
Single animal	242 (66)	273 (57)	259 (42)	312 (39)	
Group of animals	50 (15)	47 (13)	57 (15)	45 (16)	
Wildlife	18 (4)	19 (4)	6 (1)	2 (1)	
Total all animals =	310 (85)	339 (74)	322 (58)	359 (56)	
Other victims:					
Building-home/office	134 (16)	147 (7)	88 (2)	135 (0)	
Other places	208 (9)	214 (6)	138 (2)	144 (1)	
Total other victims =	342 (25)	361 (13)	226 (4)	279 (1)	
Total all victims =	2055 (390)	1839 (279)	1692 (242)	1668 (140)	

[1)] First number represents the total of purported incidents regardless of certainty index - numbers in parentheses indicate the total of incidents with certainty index of 1 (definite) or 2 (probable).

Victim Symptoms

Of the 1,030 human victims discussed in incident reports to NPTN, symptoms or absence of symptoms were reported for 968 victims (Table 16). Of these 968 victims, 63.4% reported symptomatic health effects (effects that would be expected to result from a significant exposure to the pesticide in question), 18.6% reported asymptomatic health effects, and 18.0% reported atypical health effects (Figure 18). Table 16 and Figure 19 provide this and similar information for animal victims.

Figure 18 - Symptoms - Humans

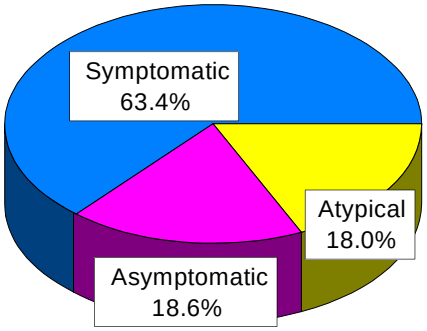


Figure 19 - Symptoms - Animal

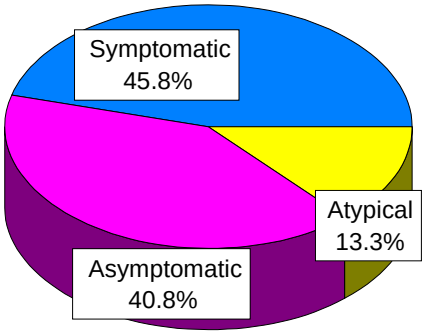


Table 16 - Reported Symptoms of Victims Involved in Incident Calls

Reported Symptoms	Number of Victims[1)]				
	1995	1996	1997	1998	1999
Human symptoms -					
Symptomatic	721 (263)	605 (187)	651 (202)	614 (138)	
Asymptomatic	258 (48)	145 (29)	164 (16)	180 (24)	
Atypical	264 (22)	221 (21)	227 (17)	174 (19)	
Total humans =	1243 (333)	971 (237)	1042 (235)	968 (181)	
Animal symptoms -					
Symptomatic	152 (81)	169 (70)	162 (64)	165 (59)	
Asymptomatic	77 (10)	78 (8)	108 (6)	147 (5)	
Atypical	53 (6)	54 (5)	54 (3)	48 (5)	
Total animals =	282 (97)	301 (83)	324 (73)	360 (69)	
Total symptoms =	1525 (430)	1272 (320)	1366 (308)	1328 (250)	

[1)] First number represents the total of purported incidents regardless of certainty index - numbers in parentheses indicate the total of incidents with certainty index of 1 (definite) or 2 (probable).

Deaths and Other Outcomes

Amongst the 1,030 human victims, 3 deaths were reported (Table 17). One of these incidents was assigned a certainty index of 1 or 2, making it likely that the death was a result of pesticide exposure (it was an apparent homocide with measured levels of carbofuran). Of the other 2 deaths, one was a person who died of cancer after working in agriculture, and the other a person who died during the course of applying Orthene (there was no evidence of pesticide involvement in either of these cases). Of the 359 animal victims, there were 48 deaths, with 15 of the cases assigned a certainty index of 1 or 2, indicating likely pesticide involvement. Table 17 and Figure 20 summarize this information and also list the number of victims associated with life threatening conditions or interesting or strange circumstances.

Figure 20 - Deaths and Other Outcomes

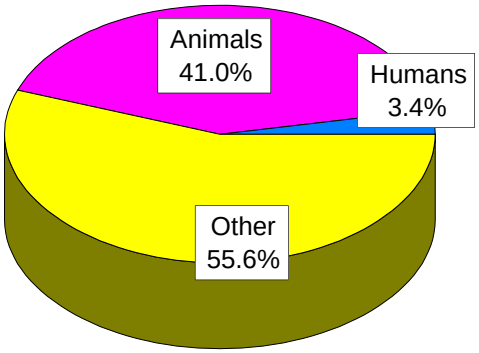


Table 17 - Additional Outcomes for Victims Involved in Incidents

Additional Outcome	Number of Victims[1)]				
	1995	1996	1997	1998	1999
Human deaths -					
Male	2 (0)	3 (1)	1 (0)	2 (0)	
Female	0 (0)	0 (0)	1 (0)	1 (1)	
Total human deaths	2 (0)	3 (1)	2 (0)	3 (1)	
Animal deaths -					
Single animal	19 (10)	18 (7)	16 (7)	27 (4)	
Group of animals	12 (7)	13 (7)	14 (4)	20 (10)	
Wildlife	5 (2)	10 (1)	4 (1)	2 (1)	
Total animal deaths =	36 (19)	41 (15)	34 (12)	48 (15)	
Other -					
Life threatening	11 (7)	7 (4)	0 (0)	5 (1)	
Interesting/strange	42 (17)	50 (6)	144 (60)	60 (12)	
Total other =	53 (24)	57 (10)	144 (60)	65 (13)	
Total additional outcomes =	91 (43)	101 (26)	180 (72)	117 (29)	

[1)] First number represents the total of purported incidents regardless of certainty index - numbers in parentheses indicate the total of incidents with certainty index of 1 (definite) or 2 (probable).

Victim Age

Victim ages were available for 810 of the 1,030 human victims. Table 18 and Figure 21 summarize information about the ages of human victims discussed in incident calls to NPTN. Of these 810 victims, 22.3 were less than 5 years of age, 10.7% were between the ages of 5 and 14, 3.5% were between the ages of 15 and 24, 54.5% were between the ages of 25 and 64, and 9% were over age 64.

Figure 21 - Age of Victims

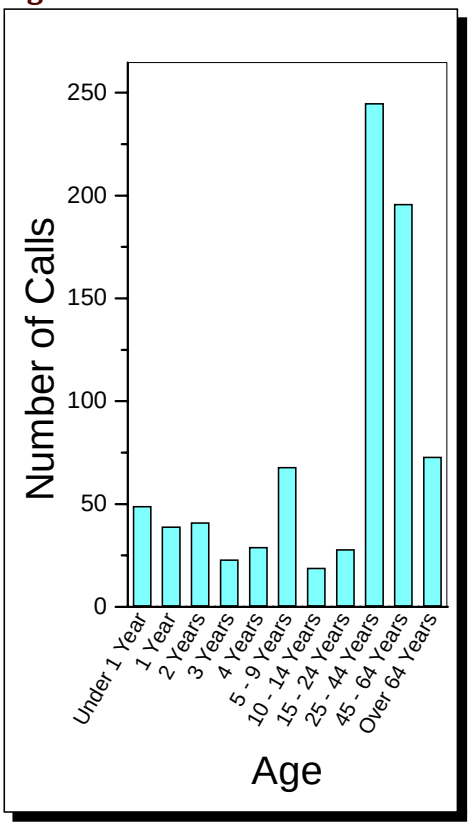


Table 18 - Reported Ages of Human Victims Involved in Incidents

Age Category	Number of Victims				
	1995	1996	1997	1998	1999
Under 1 Year	27	24	42	49	
1 Year	19	25	36	39	
2 Years	23	30	19	41	
3 Years	11	8	21	23	
4 Years	9	15	13	29	
5 - 9 Years	20	41	51	68	
10 - 14 Years	21	17	30	19	
15 - 24 Years	32	34	33	28	
25 - 44 Years	201	257	276	245	
45 - 64 Years	115	198	226	196	
Over 64 Years	47	66	83	73	

Report on Subcontracts

Oregon Poison Center

NPTN pesticide specialists transferred 103 calls to the Oregon Poison Center. These calls were transferred to the center because the specialists deemed that the caller's situation represented an acute poisoning emergency. The NPTN Quarterly Reports present information for the calls transferred in that quarter.

National Animal Poison Control Center

In the current year, 160 calls were transferred to the National Animal Poison Control Center (NAPCC). The situation presented in each call was considered to be an emergency; therefore the call was transferred to NAPCC. The nature of the calls transferred is detailed in the NPTN Quarterly Reports.

Sub-Projects

National Antimicrobial Information Network (NAIN)

The National Antimicrobial Information Network (NAIN), operated in association with the National Pesticide Telecommunications Network, is a toll-free telephone service that provides antimicrobial pesticide information via telephone and the Internet. Information is provided to health care and antimicrobial industry professionals, and to the general public. NAIN helps callers understand product labels and determine permitted uses for specific products; provides lists of products registered as sterilants, tuberculocides, and products effective against HIV and HBV/HIV; provides toxicology, health effect and safety information on specific antimicrobial active ingredients; supplies information on regulation and registration of antimicrobials in the United States; fields complaints on product efficacy and forwards that information to the EPA; and refers requests that are outside of the scope of NAIN services to the correct agencies and resources.

NAIN provides callers with a variety of antimicrobial pesticide information, including lists of products registered as sterilants, tuberculocides, and products effective against HIV and HBV/HIV, and toxicology, health effect and safety information on specific antimicrobial active ingredients.

NAIN received 1,932 calls during grant year 1998. Of these 1932 calls, 1,529 were for general information about antimicrobial pesticides, 16 were complaints about antimicrobials, and 29 were incidents purported to involve antimicrobials. The NAIN web site received 68832 hits; the current rate of Internet access is about 5,730 hits/month. Other highlights of the year for NAIN include the following: Use of the new database began on April 1, 1998. The computer database, log sheets, and coding definitions were revised. The NAIN brochure was revised.

Wade Trevathan, Julie Vanderkolk, Dorothy Tibbetts and Terry Miller attended the Second Annual National Antimicrobials Workshop in Washington D.C. During one breakout session of this workshop, Wade Trevathan gave a presentation about NAIN. The NAIN display was presented and at the workshop and NAIN brochures and other materials were distributed.

NAIN staffing was increased from 2.0 FTE to 2.5 FTE. The NAIN web site was updated to include new links to manufacturer contact information, links to regulatory documents including DIS-TSS documents and Draft CFR 152-156 and 158. Fact sheets now posted on the NAIN web site are *Sodium Hypochlorite for the General Public* and *Sodium Hypochlorite for Medical Professionals*. Work was initiated on the following antimicrobial fact sheets: Glutaraldehyde, *o*-Phenyl phenol, Chlorine Dioxide and Bronopol.

NAIN submits independent quarterly and annual reports to the EPA. For current, detailed information about NAIN, see the National Antimicrobial Information Network Quarterly and Annual Reports posted on the NAIN web site at http://ace.orst.edu/info/nain/.