

AN IDEA WHOSE TIME HAS COME: PESTICIDE USE REPORTING

Over 4.6 billion pounds of pesticides are introduced into the U.S. environment each year, yet we have little accurate information about which of these poisons are used, where they are used, when, and in what amounts. Although right-to-know laws for toxic industrial chemicals have been in place for some time, similar requirements for pesticides have not been as widely adopted. Recently, however, momentum has grown for mandatory use reporting.

California has had a detailed use reporting program since 1990 for agricultural pesticide use and commercial applicators. New York began a pesticide use reporting system in 1996 that combines actual use reports from commercial applicators with data from dealers about sales of agricultural pesticides. Data from both programs has been useful in evaluating problems associated with pesticide use.

In 1999, Oregon established a pesticide use reporting program that promises to be the most comprehensive one yet adopted because it will track household pesticide use as well as agricultural, commercial, and governmental use. Wisconsin's legislature also initiated the development of a tracking program in 1999.

Asserting our right to know about pesticide use is an important step toward a healthy future with pest management practices that do not threaten the resources upon which all life depends.

BY NEVA HASSANEIN

If, having endured much, we have at last asserted our "right to know," and if, knowing, we have concluded that we are being asked to take senseless and frightening risks, then we should no longer accept the counsel of those who tell us that we must fill our world with poisonous chemicals; we should look about and see what other course is open to us.

— Rachel Carson, *Silent Spring*

When Rachel Carson penned these words some 40 years ago, she understood that if society is to adopt nonchemical pest management strategies, we must first assert our right to know. If she were alive today, I suspect Rachel Carson would be shocked at how long it has taken to require disclosure of even basic information about the patterns of pesticide use in our communities, work-

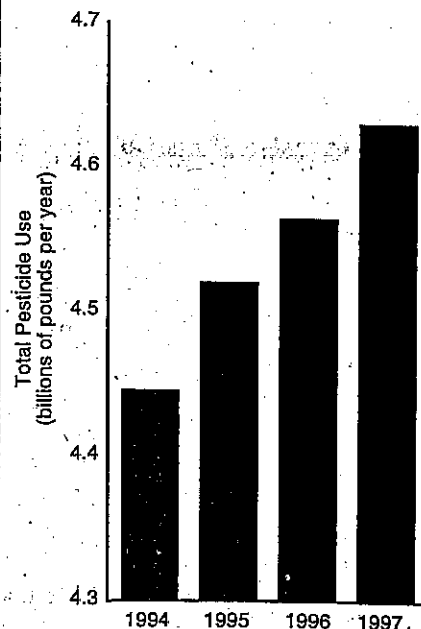
Neva Hassanein is NCAP's pesticide use reporting program associate.

places, and watersheds.

The U.S. Environmental Protection Agency (EPA) estimated that pesticide use in the U.S. was over 4.6 billion pounds of active ingredients in 1997, the most recent year for which estimates are available.¹ Despite the widespread use of these toxic materials, the federal government and most states do not collect accurate, detailed information about which pesticides are used, where, when, and in what amounts. Although most pesticide applicators keep records of this information, either because they are required to by law or because it makes good sense, the data are typically not submitted, collected, and compiled into a useful format. While toxics right-to-know laws for industrial chemicals, such as the federal Toxics Release Inventory, have been in place since the mid-1980s, disclosure laws for pesticide use have lagged behind.

The good news is that this common sense idea, mandatory reporting of pesticide use, has caught on in a number of states. California has had use reporting since 1990 (although a partial system was in place earlier). New York enacted a program in 1996, after three legislative sessions of heated debate. A handful of other

Figure 1
U.S. Pesticide Use



Source: Aspelin, A.L. and A.H. Grube, 1999. *Pesticide Industry sales and usage: 1996 and 1997 market estimates*. US EPA, Office of Pesticide Programs, Biological and Economic Analysis Division, Washington DC. www.epa.gov/oppphead1/pestsales.

Pesticide use in the U.S. is over four billion pounds per year, and continues to increase.

states — including Arizona, Connecticut, New Hampshire, New Jersey, and Montana — also require some use reporting. Most recently, in 1999, Oregon and Wisconsin took steps toward establishing new reporting systems, and Texas established requirements for tracking the use of aquatic herbicides. Efforts to create use reporting programs are underway in a number of other states as well.

The reasons behind the changes are not too surprising. Many government agencies, health providers, researchers, and public interest groups have been repeatedly frustrated by the lack of reliable data on pesticide use. Currently available estimates of use are woefully inadequate. In addition, activists have begun to galvanize the strong public support for right-to-know laws, and to seize on the issue as an excellent opportunity to build strategic alliances with nontraditional allies — like public health groups, labor unions, children's advocates, and drinking water providers.

In light of the increased interest in pesticide use reporting policies, this article discusses what some of the policies include, why the information is needed, and how the data are used by activists.

State Use Reporting Programs in California and New York

Ideally, pesticide use reporting programs require routine submittal of detailed, site-specific information on pesticide applications, which is then compiled into a database. Discussions of reporting typically focus on the programs in California and New York.

California: As the result of long-term pressure by farm workers and their advocates, as well as the agricultural industry's belief that accurate data was better than the estimates used by regulators, California enacted a "full" use reporting system in 1990. That law was very brief, stating simply that "a pesticide report shall be submitted to the [county agricultural] commissioner or director on a form and in a manner prescribed by the director"² of the Department of Pesticide Regula-

WHY TRACKING PESTICIDE USE IS USEFUL AND NECESSARY

Accurate and detailed information on which pesticides are used, where, when, and in what amounts provides an essential tool for protecting public health and the environment from these toxic chemicals. Making that information available — preferably in a geographic information system — will help to:

- **Secure our right to know.** Toxic pesticides are widely used in our communities, usually without our knowledge. Everyone has a right to know about the pesticides used around us.

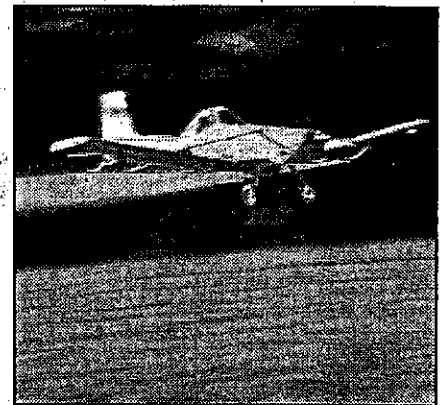
- **Protect public health.** Pesticides are linked to a range of health problems, including cancer and birth defects. Without accurate information on the pesticides that people are exposed to, health researchers find it very difficult to understand the relationship between exposure and illness.

- **Safeguard children.** Fetuses, infants, and children are more vulnerable than adults to the health threats posed by toxins. To protect the next generation, we need to know which chemicals our children are being exposed to in the food they eat, the water they drink, and the air they breathe.

- **Keep our water clean.** Pesticides are widely found in rivers, streams, and wells in both urban and rural areas across the U.S. Site-specific data on pesticide use help identify water supplies at the greatest risk of contamination, and inform realistic

protection efforts.

- **Save our wild salmon.** Pesticides have not only killed salmon directly, but low levels of pesticides in salmon habitat can also have profound, delayed effects that threaten survival. Real-world data on pesticide use in our watersheds can be mapped with locations of salmon populations to address these threats.



- **Create healthy workplaces.** People are exposed to pesticides in a range of jobs, from office work to flower shops to road repair. Farm workers and pesticide applicators suffer the most. Pesticide use reporting can help document and prevent health problems associated with exposure in the workplace.

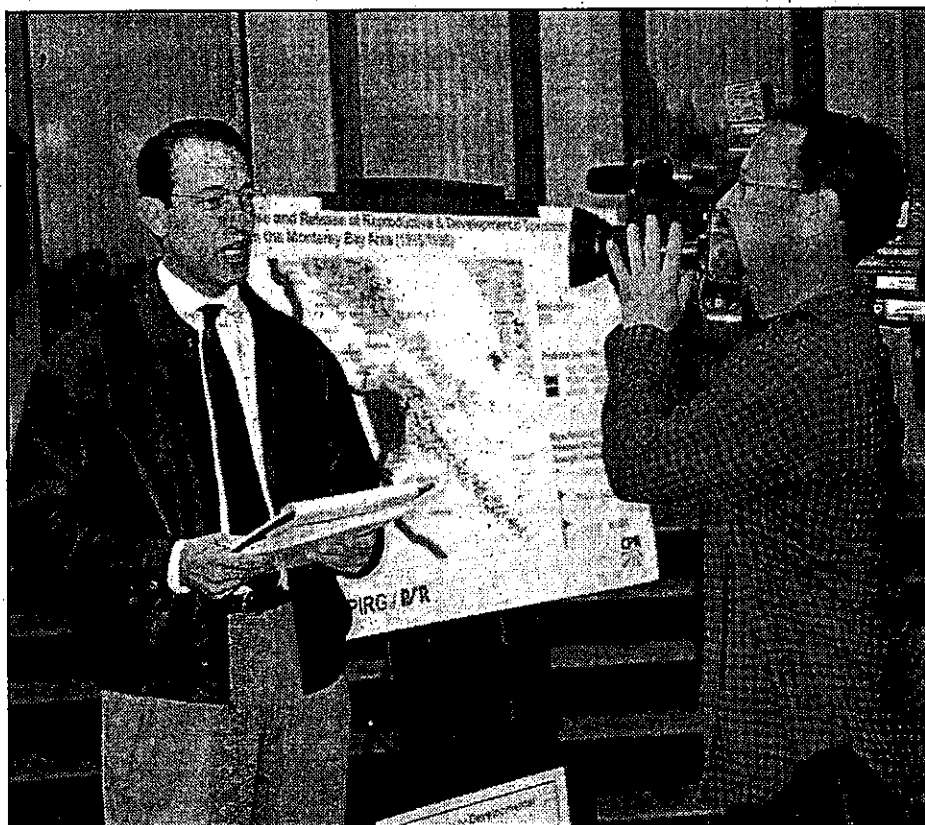
- **Make better decisions about pests.** Tracking pesticide use will create non-regulatory incentives for the adoption of pest management strategies that are better for the environment and the bottom line.

tion. The mechanics are set out in the agency's regulations.

Basically, California requires reporting by those who apply pesticides for agricultural use (which is defined broadly to include roadsides, cemeteries, and parks,

for example) and commercial pesticide applicators (those who apply pesticides for hire). The database includes about three million records totaling over 200 million pounds of active ingredient each year.³

Amy Cohen



Brian Linde, M.D. of Physicians for Social Responsibility talks to a reporter at a news conference in Santa Cruz, California. Behind them is a map made with data from California's pesticide use reporting system.

The program is considered to generate the most detailed data not only in the nation but in the world. It is important to note, however, that the reporting for production agriculture is more site-specific than is the reporting for other applications. For instance, nonagricultural use is reported only to the county level, rather than to a specific site as in agriculture.

Significantly, California's program is not comprehensive. Certain applications — such as home and garden uses and many institutional uses of pesticides — are not tracked by the system. However, these uses make up an estimated 20 percent of the total pesticide use in the state.

One of the main issues that activists have had to deal with is pesticide applicators' interest in keeping their names confidential in the pesticide use database. In releasing the data to the public, the state of California consolidates their data to square mile units, and thus tries to

keep the identity of specific farms confidential. In practice, however, anyone can access the information through the public records law. Nonetheless, pesticide applicators' concerns about potential harassment and frivolous lawsuits have not come to pass in California. In other states considering pesticide reporting, however, these fears have persisted, resulting in more limited public access elsewhere, such as New York and Oregon.

California's data have been used for a variety of purposes. For example, state and federal agencies have used the data for water quality studies⁴ and public health research.⁵ Activists, such as the Pesticide Action Network (PAN) and Californians for Pesticide Reform (CPR), have also used this powerful tool. For example, in a 1997 report titled *Rising Toxic Tide*, CPR and PAN were the first to analyze and publish the data collected from 1991-1995.⁶ That analysis focused on the use

of carcinogens, reproductive toxins, and acute poisons by documenting dramatic increases in their use by county and statewide. Geographical and crop data stimulated considerable interest in the media and among policy makers.

CPR has also used the data to associate pesticide use with contamination of water supplies; with populations that may be affected by pesticide drift; and with impact on surface waters. CPR also looked at farmworker safety and lack of enforcement, showing that the lowest fines for pesticide violations are levied in the counties with highest pesticide use.⁷

“A unique alliance between breast cancer activists from Long Island and statewide environmental groups advanced the pesticide use reporting issue, largely in response to the increased incidence of breast cancer on Long Island.”

New York: Unlike the broad language authorizing reporting in California, New York's 1996 law lays out exactly which data must be reported by which categories of pesticide users and sellers.⁸ A unique alliance between breast cancer activists from Long Island and statewide environmental groups advanced the issue, largely in response to the increased incidence of breast cancer on Long Island. But the strong alliance met with powerful opposition from the state's Farm Bureau, which argued that reporting would be time consuming and costly. After several legislative sessions of protracted debate, the law was the result of a series of

THE GUESSING GAME: EXISTING USE ESTIMATES

*"The real problem is that estimating pesticide usage for many compounds is very inexact. EPA has no independent, statistically valid set of data... Accurate, comprehensive, publicly available pesticide use data are needed in order to make informed and fair public policy decisions."*¹²

— Leonard Gianessi,
National Center for Food and
Agricultural Policy

Even Leonard Gianessi, a senior research associate at a Washington, DC think tank for the agricultural industry, recognizes that currently available estimates of pesticide use are not valid or very useful. Still, activists pushing for reporting of actual pesticide use hear from industry representatives that these data *are* available. While there are four major sources for estimates of pesticide use, these data are of limited utility and their accuracy is suspect.

1. Pesticide industry sales and usage. The US Environmental Protection Agency (EPA) publishes annual market estimates of use and sales for the country as a whole.¹ EPA surveys pesticide manufacturers, and obtains confidential sales and marketing data from the companies. The information provides only a general picture of pesticide use by major categories and does not include state-level information. EPA cannot make public any of the proprietary information used to generate the estimates; therefore, it is difficult to judge the accuracy and completeness of their figures.

2. Surveys of major commodities. The National Agricultural Statistics Service (NASS) at the US Department of Agriculture (USDA) has summarized pesticide use on major crops in leading producing states since 1991. Based on random on-farm surveys of farmers, NASS produces annual sum-

maries of pesticide use on field crops, and reports selected fruit crops and selected vegetable crops in alternate years.¹³ The surveys are most useful for broadly describing pesticide use on specific crops and identifying differences among the major producing states.

3. State surveys. The National Agricultural Pesticide Impact Assessment Program (NAPIAP) at USDA complements the NASS data by funding pesticide use studies at the state level. These studies look at crops or data points not covered by NASS, or increase the sample size. These data can be more geographically specific than the NASS surveys. States publish this information themselves.

4. Record keeping. Many pesticide applicators keep records of their use either because they are required to by law or because it makes good business sense. The federal government requires that certified applicators keep records of their applications of restricted use pesticides, a small number of pesticides that require a license to apply. Thirty-three states also have record-keeping requirements.¹⁴ They typically apply to restricted use pesticides; however, some states, such as Oregon, require commercial applicators to keep records of all pesticides. In addition, many food processors require farmers to keep and submit records.

For the most part, these records sit on the shelf collecting dust, unless an investigation of a particular incident is underway. Records must be kept on-site (usually for two to three years), and made available to an authorized agency and health professionals treating poisoning cases upon request.

Limitations of Pesticide Estimates

To be sure, the existing estimates of pesticide use describe general trends, but they present several serious problems.

First, the accuracy of these estimates

is highly suspect. The NASS data, for example, cover a limited number of states and chemicals, which means that the data contain significant gaps. Such problems were documented by researchers who compared the 1992 NASS estimates for pesticides used on seven California fruits and vegetables with the actual use tracked in California's reporting system.¹⁵ Only seven of 99 estimates were within 10 percent of actual use. Moreover, 86 of the NASS estimates were lower than reported use, many by more than a factor of two.

Another problem is that estimates are aggregated in such a way that they are of limited utility for protecting human health and water quality. For example, the U.S. Geological Survey (USGS) was unable to understand how pesticides move into the streams of the Willamette River Basin because the estimates of use on agricultural crops failed to predict the extent and nature of the contamination in those areas, and seven compounds were found for which there was no use estimated at all.¹⁶ (See JPR 18(1):8.)

A final problem is that estimates tend to focus on agricultural use, leaving pesticide use by households, urban pest control applicators, roadside sprayers, school districts, foresters, and other sectors unassessed. In the USGS study mentioned above, there was no information available about urban pesticide use; however, pesticide pollution in urban areas is significant.

In sum, existing estimates of pesticide use are not detailed enough to be useful for protecting human health and the environment from pesticide threats, measuring specific progress toward use reduction, or securing the public's right to know about the use of these toxic chemicals in our communities.

Shan Gordon.



Governor John Kitzhaber signs Oregon's new pesticide tracking law. It establishes the most comprehensive pesticide use reporting system in the nation. When implemented, it will track agricultural, commercial, governmental, and household pesticide use.

negotiations and compromise.⁹

New York's law requires commercial applicators to report each pesticide application made during the year, including specific location of application by address. Private applicators, such as farmers, however, are not required to report their pesticide use directly. Instead, the state attempts to gather this information through reporting of sales made by licensed pesticide dealers. Pesticide manufacturers and distributors must also report their sales of restricted use pesticides, a relatively small number of pesticides for which a license is required to apply. Thus, while sales reporting is a key mechanism of tracking agricultural use in New York, not all sales are reported.

For agricultural uses, sales reporting generates much less specific information than actual use reporting, making New York's program significantly less useful than California's agricultural use data (available by square mile). On the other hand, the information from New York's database is released to the public at the zip-code level, which is more precise than the county level data available for nonagricultural, commercial applications in California.⁹ Zip-code level information is insufficient, however, for individuals wanting to determine their immediate exposure. In New York, researchers can

access more specific data to examine human health questions than is available to the general public.

Despite the serious gaps in New York's system, activists have found it useful for identifying broad patterns of use. The data for 1997, the first year available, did not attract a lot of attention until Environmental Advocates and the New York Public Interest Research Group published *Plagued By Pesticides*,¹⁰ a statewide analysis of the data and a series of five regional editions, in late 1998 and early 1999 making the data more meaningful to the general public. The reports garnered statewide media coverage, and were widely disseminated through the internet.

The New Kids on the Block: Oregon and Wisconsin

In 1999, activists in Oregon and Wisconsin made significant headway toward establishing comprehensive pesticide use reporting programs.

Oregon: Governor John Kitzhaber signed Oregon's new pesticide tracking law in September of 1999, after NCAP and our allies successfully waged a broad-based coalition campaign. The law was the result of a compromise that emerged when industry groups saw the handwriting on the wall: strong public support

for the right to know coupled with our coalition's willingness to put the issue on the ballot through the state's initiative process.

In short, the new law directs Oregon's Department of Agriculture (ODA) to develop a comprehensive system to collect and organize information on all categories of pesticide use.¹¹ ODA must develop a mechanism to identify and track household uses of pesticides, and is granted the authority to collect retail sales information. Also, government agencies and businesses — such as farmers and exterminators — will report information on their use directly. ODA must also have an independent review panel of scientists ensure the accuracy of the data and collection methods.

ODA must release an annual summary of the data, and the public will also have access to all non-confidential information. The names and addresses of private pesticide users and vendors will not be released to the public, although researchers and governmental agencies will have restricted access.

While the law sets out a framework for the program, many key decisions remain before it becomes fully operational in 2002. If implemented as intended, however, the program should generate the

Key Data Points for Effective Record Keeping and Reporting of Pesticide Use

- Product name and active ingredient.
- EPA registration number.
- Identification of the reporting entity and applicator.
- Total amount of product applied.
- Size of area treated, in acres or square feet.
- Name of adjuvant and/or carrier applied (if added by applicator).
- Location of application.
- Timing of application.
- Crop/site type.
- Target pest organism.
- Application method.
- Weather conditions.

(For more information, see NCAP's web page: www.pesticide.org)

most comprehensive pesticide use information in the country because it includes all pesticide use — agriculture, forestry, industrial, government, urban commercial, and urban household.

Wisconsin: In 1999, a broad and bipartisan coalition of over 40 groups overcame efforts by the chemical industry to kill a provision to create a pesticide database in the state's budget. As a result, Governor Tommy Thompson signed a pesticide database provision in Wisconsin's 1999 Act 9, using a partial line veto.

The new law has two components. First, the state's Department of Agriculture, Trade, and Consumer Protection (DATCP) is directed to develop a proposal for a pesticide sales and use reporting system and submit the proposal to the Legislative Joint Finance Committee (JFC) for approval. DATCP has appointed an advisory committee to help develop the proposal, but many promoters of the database feel that the committee has been stacked with industry lobbyists opposing use reporting. Second, when the JFC approves the proposal, it may allocate funds to administer a pilot program to test the system.

Once the system is designed and the pilot program run, the state legislature must reconsider the issue to grant authority and funding for full implementation. Wisconsin activists feel, however, that the legislation passed in 1999 shows the state's commitment to establishing a database.

Steps in the Right Direction

None of the pesticide use reporting programs enacted to date are perfect. Still, advocates should be heartened by the steps that have been taken down the long road toward pesticide reform. To paraphrase Rachel Carson, the public's obligation to endure the risks of pesticides gives us the right to know. Asserting that right is an important step toward a healthy future with pest management practices that do not threaten the resources upon which all life depends. Assert your right to know every chance you get. ♣

References

1. Aspelin, A.L. and A.H. Grube. 1999. *Pesticide industry sales and usage: 1996 and 1997 market estimates*. US EPA. Office of Pesticide Programs, Biological and Economic Analysis Division. Washington DC. www.epa.gov/opphead1/pestsales.
2. California Food and Agriculture Code, Title 3, Section 12979. www.leginfo.ca.gov/cgi-bin/displaycode?section=fac&group=12001-13000&file=12971-12979.
3. Robinson, J.C., W.S. Pease, D.S. Albright, and R.A. Morello-Frosch. 1994. *Pesticides in the home and community: Health risks and policy alternatives*. An Environmental Health Policy Program Report, School of Public Health, University of California, Berkeley.
4. Dubrovsky, N.M., C.R. Kratzer, L.R. Brown, J.M. Gronberg, and K.R. Burow. 1998. *Water quality in the San Joaquin - Tulare Basins, California, 1992-1995*. U.S. Geological Survey Circular 1159. <http://water.usgs.gov/pubs/circ1159>.
5. Mills, P.K. 1998. Correlation analysis of pesticide use data and cancer incidence rates in California counties. *Archives of Environmental Health* 53(6):410-413.
6. Liebman, J. 1997. *Rising toxic tide: Pesticide use in California, 1991-1995*. San Francisco: Pesticide Action Network.
7. Reeves, M., K. Schafer, K. Hallaward, and A. Katten. 1999. *Fields of poison: California's farmworkers and pesticides*. San Francisco: Californians for Pesticide Reform. www.panna.org/resources/documents/fieldsAvall.dv.html.
8. New York Laws of 1996, Chapter 279 (Bill S.7884-A.11210).
9. Thier, A. 1997. *A review of pesticide use reporting policies*. Submitted to the Pesticide Right-to-Know Campaign.
10. Thier, A., J. Enck, and C. Klossner. 1998. *Plagued by pesticides: An analysis of New York State's 1997 pesticide use and sales data*. Albany: Environmental Advocates and NY State Public Interest Research Group. www.envadvocates.org/public_html/Pest/plague.html.
11. Enrolled House Bill 3602. 70th Oregon Legislative Assembly — 1999 Regular Session. www.leg.state.or.us/99reg/measure/hb3600.dir/hb3602.en.html.
12. Gianessi, L.P. 1996. Has US pesticide use really increased since 1993? *Agrichemical and Environmental News*, June.
13. National Agricultural Statistics Service and Economic Research Service. 1998. *Agricultural Chemical Usage*. US Department of Agriculture. Available on-line at: <http://www.usda.gov/nass>.
14. Arne, K.H. 1997. State pesticide regulatory programs: Themes and variations. *Occupational Medicine: State of the Art Reviews*. 12(2):371-385.
15. Pease, W.S., J. Liebman, D. Landy, and D. Albright. 1996. *Pesticide use in California: Strategies for reducing environmental health impacts*. An Environmental Health Policy Program Report, School of Public Health, University of California, Berkeley.
16. Anderson, C.W., T.M. Wood, and J.L. Morace. 1997. *Distribution of dissolved pesticides and other water quality constituents in small streams, and their relation to land use, in the Willamette River Basin, Oregon, 1996*. Water Resources Investigations Report 97-4268. Portland, OR: U.S. Geological Survey.
17. Voss, F. D. et al. 1999. *Pesticides detected in urban streams during rainstorms and relations to retail sales of pesticides in King County, Washington*. Tacoma: U.S. Geological Survey.

RETAIL SALES DATA CAN DOCUMENT HOUSEHOLD USE

The best way to collect reliable information on pesticide use is directly from the user. When it comes to household use, however, that becomes very difficult, expensive, and unenforceable. Collecting information on retail pesticide sales can help fill this important data gap.

A study in King County, Washington, demonstrates the potential of retail sales data for understanding water pollution problems in residential areas.¹⁷ In that study, the U.S. Geological Survey found 23 pesticides in water collected from 12 sites in 10 urban or suburban streams during rainstorms.

The researchers related their findings to sales data collected from 10 home and garden stores located in the area. Those pesticides with the largest unit sales in the area — two herbicides (2,4-D and MCPP) and one insecticide (diazinon) — were detected at every sampling site.

Although the retail sales data showed consumer preferences, the data were limited in a number of key ways. First, the measured quantity was a "package" of a pesticide sold, rather than actual amounts. Second, the database only included the first two active ingredients listed on the product, but packages can have more than two active ingredients. More units were sold than recorded for these active ingredients.