

# Expanding Our Horizons

2009/10 PROGRESS REPORT



**CALIFORNIA DEPARTMENT OF PESTICIDE REGULATION**

**DPR's mission** is to protect human health and the environment by regulating pesticide sales and use and by fostering reduced risk pest management. DPR's strict oversight begins with product evaluation and registration, and continues through statewide licensing of commercial applicators, consultants and other pesticide professionals; evaluation of health impacts of pesticides through illness surveillance and risk assessment; environmental monitoring of air, water, and soil; field enforcement (with the County Agricultural Commissioners, our local enforcement partners) of laws regulating pesticide use; and residue testing of fresh produce.



#### **OUR EXECUTIVE TEAM**

From left to right: JoAnne Payan, Assistant Director for Administrative Services; Chris Reardon, Chief Deputy Director; Mary-Ann Warmerdam, Director; Marylou Verder-Carlos, Assistant Director for Pesticide Programs and Science Advisor, Chuck Andrews, Associate Director for Pesticide Programs.  
*(Photo taken in front of Cal/EPA Headquarters.)*

# Leadership and Legacy

The city of Davis in Yolo County controlled pests like most other cities in the 1980s, with scheduled applications of pesticides and fertilizers. Davis' transformation to a model of integrated pest management earned it a 2008 IPM Innovator Award from the Department of Pesticide Regulation.

Often collaborating with University of California at Davis (UCD) researchers, the city uses solarization, flame weeding, less-toxic herbicides, biological control, mulching, various irrigation rates on poor soil and other pest-control strategies more protective of public health and the environment. Pest control information is distributed via the city's Web site, posters, handouts, signs, press releases, community-access television and at booths during its popular weekly farmers market and other events.

When accepting the award, Davis Mayor Ruth Asmundson recalled how residents kept "pushing, pushing, pushing" city leaders to use more environmentally friendly pest control. "They care about their planet," she said. "It's not always easy to change, but in the end we have innovative, creative solutions."

Davis, known for its progressive politics, is not a typical city. It has benefited from its relationship with UCD to compare less-toxic herbicides on city land and study an array of pest control methods. But its embrace of IPM reflects DPR's path under the leadership of Governor Schwarzenegger. The initial emphasis is pest prevention, followed by environmentally friendly practices and as a last resort, more traditional treatments.

While most people associate pesticides with agriculture, more than half of the products regulated by DPR are for commercial, industrial and home use. As the most extensive pesticide regulatory system in the world, one of our goals is to ensure that the most appropriate and least-toxic products are used on crops, in schools, hospitals and other institutions, and homes and gardens.

On the regulatory front, California is the first state in the nation to regulate pesticide emissions to improve air quality. Partnering with the California Air Resources Board, DPR set emission levels in five areas of the state not meeting national air quality standards. Pesticide emissions comprise a small percentage of California's air pollution, but we're committed to doing our part.

DPR's role as a national leader also was highlighted when Governor Schwarzenegger signed Senate Bill 1723, which requires recycling of HDPE pesticide containers. Under this first-of-its-kind law in the nation, pesticide sellers must participate in an existing recycling program or develop their own.

Finally, while DPR can't yet claim that pesticides with less risk to public health and the environment are the norm rather than the exception, we are building a foundation to take us there. Positive change will continue through a combination of regulation, enforcement, risk assessment, new technology, incentive and recognition. As you read about DPR's programs and achievements in the following pages, I think you will agree that the state of California, working with its many partners, will continue to lead the nation in balancing pest control and a healthy environment.



Mary-Ann Warmerdam  
*DPR Director*

# Bring Home the Green

*Integrated pest management (IPM) emphasizes pest prevention and nature-oriented techniques. IPM reinforces our vision of a California where pest management is safe, effective and contributes to a healthy environment. Toward those goals, DPR works with local government and schools to promote IPM programs. We award grants to promote reduced-risk practices on the farm and in urban areas, and we honor innovative organizations that share our vision.*

## Marin Center a landmark of design... and pest management

Frank Lloyd Wright's architecture was rooted in nature. He called it "organic architecture" and advised his students to "study nature, love nature, stay close to nature."

The Marin County Civic Center is Wright's largest building and one of his last, completed in 1962. He believed that a building and its natural setting should be so well integrated that together they appear to be a single entity, with a seamless transition between interior and exterior spaces. This approach, however, along with many of Wright's unusual architectural features, introduced some uncommon challenges for the building's pest managers. So challenging, in fact, that

DPR has used the Civic Center for several IPM training sessions, including a session for the U.S. Environmental Protection Agency.

Marin County had taken a traditional approach to pest control – focusing on routine pesticide applications – until the county's 1999 adoption of an ordinance banning the most hazardous pesticides in public buildings and mandating a 75 percent decrease in overall pesticide use. The ordinance also required that building managers employ IPM, which relies on preventing pests through exclusion (keeping pests out) and sanitation (eliminating the food, water and shelter pests need).



That was no small feat since thousands of people use the building every year. As a result, the Civic Center's pest managers have learned to balance historic preservation and daily business demands with inventive IPM practices. The building's elaborate arched entry is open; the grillwork doors don't fully control access. That created a unique pest management challenge when a fox was discovered wandering around the third floor one night. Netting placed at the entries after-hours was the solution.

Gold spheres outline the interior and exterior rooflines. During rainy weather, the roof leaked and water pooled up and drained into the spheres, leaving them moldy. The solution? Small drainage holes drilled through the bottom of the spheres.

### **Pigeon problem**

Pigeons loved to roost in Wright's modernistic lighting fixtures. Spikes glued to the tops now keep the birds away.

Because the Civic Center is built into and connects the hillsides, the long buildings are, as Wright would say, "married to the ground." Surrounded by vegetation, it's not unusual for offices to have infestations of field cockroaches, spiders, rodents and fleas from deer. Prevention is the key. For example, gardeners removed ivy growing on the slopes that provided a home for rats, and installed owl boxes to encourage predation.

The elaborate grillwork, accents and appliques on the balconies and elsewhere are ideal habitat for spiders and other pests, and must be cleaned regularly to keep pest populations down. The long, narrow structures, by necessity, have many openings for electrical wiring. Without strict maintenance of the seals around the conduits, pests could find an easy way inside.

### **Atrium pests**

Among the building's most dramatic features are atriums that run down the center of each wing. In keeping with his dictum to "go to nature every day for inspiration in the day's work," Wright brought nature indoors with atrium plantings of ivy, bromeliads, anthurium, schefflera, pothos, hibiscus and bird-of-paradise. The airy, sky-lit plantings, while visually dramatic, were home to infestations of mealybugs and spider mites until brought under control with a least-toxic approach, using horticultural oil. Similarly, German cockroaches found living under the plastic liner of the atrium planters were eliminated with targeted use of boric acid.

Skylights above the atriums have small holes that allow hot air to escape – and insects to fly in. Screens could be installed, but the maintenance staff works hard to balance preservation of the building's architectural quirks when considering modifications to prevent pests. A key difference between IPM and traditional pest control is that rather than

automatically spraying every month or so, IPM uses "thresholds" to trigger action. The idea is that most pests can be tolerated at some low level, and below that level (or threshold), no action may be taken, while monitoring and evaluation continue. At the Civic Center, there have been few complaints about the flying insects, so the county has not reached the threshold where screens or baits are needed.

### **Scrubbing, sealing**

The cafeteria, on the other hand, like any food service establishment, has a zero tolerance for cockroaches and other bacteria-carrying pests. Until the Civic Center adopted its IPM program, there were so many cockroaches in the restaurant that workers were reluctant to eat there. Organophosphate insecticides were sprayed and fogged every three months, but the roaches always came back.

The first traps set up to gauge the extent of the problem collected more than 600 roaches. Preventing access was key, so the cafeteria was scrubbed from top to bottom and all openings sealed. Today, the cafeteria has eliminated the use of liquid and aerosol pesticides – and the roaches are gone. Instead of spraying, the cafeteria relies on reduced-risk products such as baits and traps, and routine monitoring to make sure pests haven't returned.

*Organic buildings are the strength and lightness of the spiders' spinning, buildings qualified by light, bred by native character to environment, married to the ground. – Frank Lloyd Wright*

*The outside of any building may now come inside and the inside go outside, each seems as part of the other.*

FRANK LLOYD WRIGHT (1867–1959)



**MARY PFEIFFER**  
Shasta County Agricultural Commissioner

## Shasta Commissioner scoring a win against weeds

Imagine disastrous grass fires fed by 30-foot-tall reeds that burn like kerosene and then regenerate for future blazes. Or alien invaders whose tough, creeping roots suck up thousands of gallons of water daily in water-parched California while choking riverbanks and destroying native habitat. These are not science fiction plots – it’s the true story of *Arundo donax*. This invasive plant – also called “giant reed” – causes environmental havoc throughout the state. But in one area of California, *arundo* may have met its match.

“We’re trying to nip it in the northern bud,” said Shasta County Agricultural Commissioner Mary Pfeiffer. “Many agricultural commissioners have been managing weed eradication programs for decades. It’s not a glamorous job, but it goes on year after year. Preventing the establishment of invasive weeds and eliminating non-native weed populations when they are small is generally the most effective approach. Pest prevention is the best method of pesticide reduction.”

Shasta’s *arundo* project demonstrates how early, targeted herbicide use to prevent the spread of invasive weeds is essential to protecting the environment. “Noxious and invasive weeds can have a major impact on resource lands and waterways,” Pfeiffer noted, “so our strategy has always been one of early detection and rapid response.”

*Arundo* had become established along Shasta’s Stillwater Creek – a tributary of the Sacramento River. Estimated costs for a conventional eradication program ran into

hundreds of thousands of dollars. Herbicide use along 16 miles of waterway also raised regulatory, environmental and other issues.

In response, the Shasta County Weed Management Area Group joined forces with state and local agencies, civic groups and state legislative staff to attack the problem. The result: a project that maximized weed management funding of almost \$43,000 from the State Department of Food and Agriculture by using local volunteers and California Conservation Corps workers. More than \$20,000 of in-kind contributions were also received. Herbicide use was minimized with spot treatments, and the project has already improved the creek environment.

While stressing the cooperative nature of the project, Shasta *arundo* activist Randall Smith said: “Mary really went out and pushed for the state funds that made this possible. And she helped arrange for the training that allowed us to apply herbicides. All DPR regulations are followed and enforced... it’s been a great partnership and an ongoing story that needs to be told.”

Pfeiffer, who’s served as Shasta Agricultural Commissioner since 1994, credits her staff and other local leaders, including the Rotary Club of Redding and Western Shasta Resource Conservation District, who managed the project’s day to day operations. “We put a good plan together, and kept tweaking it... to see what we’ve all been able to do on this is just amazing.”



Photo: C. Barger, UGA, Bugwood.org

▲ A researcher finds himself overshadowed by a relatively small stand of *arundo*.

“We’re trying to nip it in the northern bud.”

Agricultural Commissioner  
MARY PFEIFFER



## Pest Management Alliances resume fight against farm, urban pests

The Pest Management Alliance Program has been one of DPR's most successful initiatives, developing partnerships with the private sector that promote safer, less toxic strategies with economic benefits as a bonus. Many Alliances have become self-sustaining, statewide efforts that permanently change an industry's pest management strategy for the better.

Budget cutbacks forced us to suspend Alliance grants in 2002, but with support from the Schwarzenegger Administration, the program was revived in 2008. DPR funded three Alliance projects early in the year and followed up with three more grants in December, for a total of more than \$1.1 million. These projects are closely tied to DPR regulatory priorities for the protection of air, water, agricultural and urban environments.

*Almond* – Aims to reduce the use of highly toxic pesticides by 25 percent at three demonstration sites. Information will be distributed

through newsletters, field days and other outreach to 3,000 growers (\$217,860 for three years).

*Grape* – Extends reduced-risk wine grape pest management strategies to wine, table and raisin grape growers in the San Joaquin Valley. Ten hands-on workshops, demonstration vineyards and a series of 20 educational events will help growers adopt IPM practices that reduce pesticide risks to air and water (\$183,640 for three years).

*Urban pest* – Seeks ant control alternatives to pyrethroid insecticides identified as a runoff hazard in urban streams. Focusing on Orange and San Diego counties, the project aims to reduce pyrethroid use among participants by 50 percent (\$183,488 for three years).

*Peach* – Focuses on a 20 percent cutback in the use of organophosphate insecticides used by the canning peach industry. San Joaquin Valley

growers will adopt new pest monitoring and biological control methods to achieve this goal (\$195,000 for three years).

*Urban child care* – Takes the IPM principles successfully applied by DPR to California schools and extends them to pest management in child care centers. Plans begin with a survey of child-care providers in the San Francisco Bay Area and development of English and Spanish-language educational materials on common pests (\$215,000 for three years).

*Waterways runoff* – Helps tomato, alfalfa, walnut and wine grape growers in the Sacramento-San Joaquin Delta reduce pesticide runoff up to 10 percent by 2011. The project will support a workbook of best management practices, such as pest monitoring, hedgerow plantings to increase beneficial insects, and sediment basins (\$175,000 for three years).



## ▶ BOB ELLIOTT

### Environmental Scientist in Pest Management Analysis and Planning

For more than a decade, Bob Elliott, an environmental scientist in Pest Management Analysis and Planning, has been DPR's "go-to" person for IPM. He helped start up DPR's first grant program in the mid-1990s to encourage reduced-risk pest management. Later, he took over the annual IPM Innovator Awards, which recognize organizations that bring new ideas to farm fields and urban neighborhoods.

"While our IPM funding efforts have been relatively modest, as state programs go, the payoff has been tremendous," said Elliott. "You get back to using practices that minimize disruption to the natural system. Each project is unique, yet they are built on the same principles. Work with nature, not against it. Take a systems approach to the situation that considers both environment and economics. Be patient and thoughtful."

"I have especially enjoyed working with so many people in the regulated community who are true environmentalists. They talk the IPM talk, but they also walk the IPM walk on a daily basis. I think of these people as our partners, and DPR does its best work when we encourage and support them."

## REWARDING INNOVATORS

For 15 years, DPR has encouraged IPM – integrated pest management – as a way to reduce pesticide risks by emphasizing natural pest solutions and promoting healthier, self-sustaining environments on the farm and in urban settings. Toward that goal, the Department created its IPM Innovator Awards to highlight success stories and encourage more groups to join the cause.

Winners for 2007 and 2008:

- Almond Pest Management Alliance Team, Butte, Stanislaus and Kern counties
- Breyer's Vineyard IPM Service, Sonoma County
- City of Santa Barbara Parks and Recreation Department
- EcoWise Certified Structural IPM Certification Program, Oakland
- Los Angeles Unified School District
- Locke Ranch, Inc., San Joaquin County
- Sacramento-Yolo Mosquito & Vector Control District, Sacramento
- San Diego Healthy Garden-Healthy Home Program
- City of Davis IPM Program
- FreshSense LLC, Parlier
- Pestec, San Francisco
- Santa Clara Valley Urban Runoff Pollution Prevention Program, Santa Clara County

More than 100 Innovators have been recognized since the awards began. Many of them also have participated in DPR pest management grant projects that focus on reducing risks. That's no coincidence.

"These programs mean more to DPR than good public relations – they're valuable because they set the right tone for progressive pest management," said DPR Director Mary-Ann Warmerdam. "DPR is the enforcement authority for pesticides, but we also see our role as encouraging the regulated community to voluntarily adopt 'greener' practices. That in turn promotes collaboration over conflict between industry and government, while providing more incentive for farmers and others who want to do the right thing."

"Hundreds of successful IPM programs – ranging from city and county governments to school districts and a museum to private landscaping and gardening operations – have quietly sown the seeds of urban environmental progress throughout California," Warmerdam said. "These voluntary projects have succeeded because they provide cost-effective pest management solutions without layers of government regulation. IPM 'brings home the green' in a way that meets our environmental and economic goals."



◀ DPR Director Mary-Ann Warmerdam holds the “Green Apple Award.” With her are School IPM staff members, Sewell Simmons and Ann Hanger. School IPM staff not pictured were Tom Babb, Madeline Brattesani, Nita Davidson, Nan Gorder, Belinda Messenger, Lisa Ross, Mary Votaw and Angelica Welsh.

▼ Nita Davidson, a DPR environmental scientist, points out DPR’s touchscreen kiosk in the Cal/EPA building lobby.

## SCHOOL IPM WINS TWO AWARDS, PROTECTS KIDS IN CHILD CARE AND CLASSROOMS

The Department received two statewide environmental awards for our school IPM program in 2008. In April, the Green California Summit presented us with a Leadership Award. In September, we were honored with a “Green Apple Award” from the Collaborative for High Performance Schools, which recognizes major environmental accomplishments in school policy and “green” school facilities. DPR was cited for changing the way that schools confront pest management problems and improving the indoor environment of existing schools.

Several efforts highlight our work to protect children and promote IPM education. In 2007, a new law gave parents the right to know when pesticides are used in private child day care centers (except family-run care homes). Assembly Bill 2865 affects some 14,000 private child day care operations, as well as hundreds of pest control businesses that serve them. Commercial child day care providers now must provide pre-application pesticide notices on request and post areas to be treated.

In 2008, DPR staff revised its school IPM fact sheets on common school pests to better help the child care audience, and we began distributing these materials in English and Spanish. A child day care page also has been added to our extensive School IPM Web resource. It includes a list of pesticides outlawed for use at schools and day care centers in 2009.

Since 2002, DPR has conducted 27 school IPM training workshops across the state and reached 70 percent of California school districts. In 2007, we surveyed schools to gauge statewide compliance and IPM adoption to better focus our continuing outreach efforts. We plan a follow-up survey in 2010. Meanwhile, we’ve developed a school IPM display booth to show how better design of buildings and grounds can help prevent pest infestations.



## CLICK FOR HELP ON PEST SOLUTIONS

DPR partnered with the University of California to develop IPM kiosks with interactive touchscreen computers that answer pest-related questions and then print out information. DPR funded eight kiosks that UC takes to nurseries, public buildings and even street fairs. DPR bought another three kiosks and designed an exhibit to house them. One is in the Cal/EPA building lobby, the second will tour other state buildings in Sacramento and the third goes on the road.

# Preventing Pollution

*Air, water, and waste recycling programs aim to protect and enhance our environment without needless disruption to the economy. This carries out two of Cal/EPA's founding objectives – to “act to prevent the creation of pollution” and to view environmental protection and economic progress as complementary, not competing goals.*

## Clearer rules for cleaner skies highlight our agenda



### **PARTNERSHIP ATTACKS SMOG WITH \$160,000 EPA GRANT**

We've teamed up with federal, state, and local agencies on a project to reduce smog-causing emissions from valley peach, almond and walnut orchards. The effort is backed by a \$160,000 grant from the U.S. Environmental Protection Agency in 2008.

Our plan is to create a multi-agency project team that spans San Joaquin, Stanislaus and Merced counties. In addition to growers, pest control advisers and service providers, our group will include the Natural Resources Conservation Service and county staffers. The goal is to produce a new guide emphasizing reductions in air emissions and overall pesticide use. We also plan to harness training and outreach resources from the DPR Pest Management Alliance Program, University of California Cooperative Extension and UC IPM programs, and commodity groups to make the most of this project.

In spring 2009, DPR will revise rules that were put into place to help bring clearer skies to areas of California where volatile organic compounds (VOCs) emitted by pesticides are a significant contributor to smog. Our new regulations will update the most complex, controversial, and sweeping environmental initiative we've ever undertaken. This is the first air quality program in the nation to focus only on pesticides.

While pesticides produce only a small fraction of the total emissions that lead to smog, California faces daunting air quality goals. All of us must be part of the solution. DPR's commitment to federal and state air regulators is to reduce pesticide emissions now and in the future. In return, we can select regulatory solutions that best suit our environment and economy.

Major progress was made in 2008 as state and federal court rulings essentially reaffirmed DPR's approach to regulating pesticides in the air. For several years, the efforts of DPR and the California Air Resources Board (ARB) to carry out thoughtful, effective rules to reduce pesticide air emissions were hampered by litigation challenging DPR's regulatory mandate. Some stakeholders sought to force harsh restrictions on pesticides that would have caused economic chaos in farm communities. On the other hand, there were those who refused to recognize that changes in pesticide

use must play a role in improving air quality.

DPR sought a more reasonable course. We pledged to comply with the federal Clean Air Act and meet our obligations to public health, while working with all parties to establish practical air rules. In cooperation with the ARB and the U.S. Environmental Protection Agency, we sought a logical, predictable approach that could guide pesticide standards for years to come.

Our current focus is on fumigants, since they are a significant source of VOCs. Statewide, more than half of all pesticide VOCs may be traced to fumigant use. Yet fumigants are also essential to producing many high-value crops. DPR has devoted enormous time and effort to resolving this conundrum.

In mid-2008, DPR's successful appeal of an earlier court order allowed us to proceed with our plan to phase in controls in Ventura County. Growers there had faced allotments on fumigant use that threatened to idle thousands of acres. Working with ARB, we then began a phase-in that will give growers four years to reduce fumigant use, allow them to remain economically viable and still meet clean air goals for their area.

Even more strict federal air standards lie ahead, so we are looking beyond fumigants to other pesticide solutions. In cooperation with a leading



registrant, DPR recently registered a new formulation of chlorpyrifos. While this insecticide is sometimes essential for San Joaquin Valley growers, it also has a high potential for emissions. The new, improved formulation could reduce that load about 45 percent an acre. To encourage use of the lower-emission product, DPR will not renew the special registration of the older product that would be required to continue its use.

We are hopeful for similar progress with other non-fumigant products. Our goal is to avoid the need for future emission allowances that would restrict grower access to specific pesticides. Meanwhile, we'll also continue to encourage new pest management strategies that rely less on traditional chemical tools and more on prevention, new technology and least-toxic approaches that could also help a farmer's bottom line.

In California, such strategies are feasible because DPR takes a comprehensive approach to air, water, endangered species and other environmental issues. Also critical to our approach is DPR's partnership with the County Agricultural Commissioners, our local enforcement agents. DPR is recognized nationally and internationally for our expertise in pesticide use and trends, human health and worker safety issues, and grants that foster safer, innovative pest management. In the pages that follow, read more about our initiatives, how they complement one another and how we plan to meet air quality goals and other environmental challenges ahead.



A four year legal battle challenging DPR's efforts to meet federal emission standards for ozone, under a state plan based on law and sound science, ended in mid 2008 when a federal appellate court panel unanimously ruled in our favor. An advocacy group had challenged our approach to reduce pesticide emissions and convinced a lower court to order DPR to require immediate restrictions on pesticide emissions that would have disrupted agriculture in Ventura County and the San Joaquin Valley. Once the appeals court overturned that order, in cooperation with the ARB, DPR moved immediately to modify the court ordered regulations to meet state and federal clean air goals and set a reasonable timetable that does not unnecessarily disrupt the economy. DPR held public hearings on the proposed rules in January 2009, with final regulations expected to follow shortly.



## ▶ ROSEMARY NEAL

### Staff Environmental Scientist Air Protection Program

Rosemary Neal doesn't look like a detective, though her understated British accent is vaguely reminiscent of a fictional character named Holmes. In reality, Neal is a veteran environmental research scientist on the trail of an invisible, elusive, and hazardous quarry – VOCs, or volatile organic compounds. Her job: Estimate levels of these smog-causing pesticide emissions in specific regions of the state and calculate reductions needed to meet clean air rules. This complicated assignment involves integrating pesticide data with geographic information systems.

"I love tasks that require detective work. Although I have a scientific background, I am a geographer at heart and love to work with anything related to mapping or spatial relationships. I am a firm believer that better decisions can be made through mapping our world and visualizing relationships, connections and patterns in data, and I love opportunities to demonstrate that.

"I believe my work is important because our world faces a tremendous environmental crisis. Although my contribution toward understanding a complex environmental problem is small, it can be combined with other information to help implement the change we need."

## PESTICIDE CONTAINER RECYCLING LAW EASES FARM BURDEN, HELPS ENVIRONMENT

Governor Schwarzenegger signed the nation's first pesticide container recycling law in September 2008 after DPR teamed up with the California Farm Bureau to push for the progressive initiative. The new law helps farmers deal with a longstanding disposal problem while providing a safe process that turns heavy-duty plastic containers into materials like fencing, pallets and marine pilings.

Senate Bill 1723, carried by Senator Abel Maldonado (R-Santa Maria) requires first sellers of agricultural and commercial pesticides to either participate in a recycling program or create their own program. DPR plans to propose regulations in 2009 designed to assure compliance and maintain a level playing field.

A similar federal initiative failed in 2008, despite warnings that voluntary efforts by industry could not handle recycling demands or fairly assess their costs to business. More than 80 million pounds of pesticide containers were recycled in California during the past 10 years, but a backlog kept growing and many farmers had no place to take their empty drums for processing.

After the Legislature passed the bill with strong support, DPR Director Mary-Ann Warmerdam commended the Farm Bureau for its help. "This is one of those cases where a formal, government-sanctioned recycling initiative is the only feasible alternative," said Warmerdam. "And it makes sense for government to get involved when growers want to do the right thing for the environment, but the market can't seem to serve them fairly and effectively."

## GARLIC RESEARCH SMELLS LIKE SUCCESS

DPR strongly supports work to reduce the need for soil fumigants, highly toxic pesticides that also can contribute to the formation of smog. The search for alternatives will take an unusual turn in the spring of 2009 when an experimental project funded by DPR goes into its second season. This unique field study involves about 200 acres of garlic and onion plots at Tule Lake and in the San Joaquin Valley.

Our goal is to defeat a soil fungus that can lie dormant for 40 years before it reawakens to destroy garlic and onion bulbs. The so-called "white rot" has disrupted garlic production on more than 13,000 acres in California, prompting a shift of most production to China. Fighting the pest required highly toxic, very expensive fumigants that made commercial production unprofitable here. Now, a \$40,000 DPR grant is helping industry test a different approach: Trick the fungus into germinating with a compound that synthetically imitates the presence of garlic or onion bulbs. Absent a crop, the fungus then starves or is weakened.

The outlook is promising, said project technical manager Robert Ehn. "We know it works in small plots... Now the question is whether it will work commercially, and can we get growers to adopt it." And if the technique works for garlic, similar strategies may be developed for other crops that rely on pre-plant fumigation.



## Helping urban residents do the right thing in their own front yards

Pesticide issues don't end at the farm fence line. DPR is putting more emphasis on urban and suburban environments. With our support, the San Luis Obispo (SLO) County Agricultural Commissioner's Office launched a pilot project to educate and license maintenance gardeners after inspections of local gardeners showed more than 80 percent were out of compliance with state licensing and pesticide safety requirements.

Surveys also showed that the urban residents who hire these gardeners had little knowledge of pesticide safety laws or the potential environmental impacts of improper pesticide use.

We know the misuse of pesticides in urban settings can lead to environmental and health problems.

SLO's surveys also showed that most gardeners were immigrants whose primary language was Spanish, and that the language barrier was a significant reason for noncompliance. Many did not know they needed DPR licenses. Maintenance gardeners typically mow lawns, do general yard cleanup and take care of ornamental plants and turf. They apply pesticides only occasionally. They typically do not have (or need) the knowledge of pesticides required for DPR's existing landscape maintenance license, which is intended for people whose primary business is pest management, not gardening.

In 2008, we developed a maintenance gardener study guide and exam in English and Spanish. To field-test the new materials, we approved a proposal from the SLO Agricultural Commissioner's Office to create an

outreach program for both gardeners and the residents who employ them.

Among other activities, the county produced and aired television and radio ads in English and Spanish to make people aware why they should hire licensed gardeners trained in pesticide safety. Continued county focus on maintenance gardener inspections will measure the success of the outreach, while encouraging compliance and fair business competition.

DPR has applied for federal grants to continue training and outreach efforts in SLO County in 2009 and 2010.

Based on what we learn from this pilot project, DPR can develop training and licensing programs for maintenance gardeners that ensures these workers know how to apply pesticides safely to protect themselves, public health and the environment.



▶ **LEILANI HANSEN**

**Senior Environmental Scientist  
Pesticide Registration Branch**

Senior Environmental Scientist Leilani Hansen leads a team of scientists who evaluate and register pesticides for agricultural, home and garden use in California. She also manages the Pesticide Label Resource Center, the state's repository for pesticide labels. A 25-year veteran of the Registration Branch, Hansen previously worked as an agricultural biologist in Fresno, Madera and Sacramento counties.

Her background in local pesticide regulation – which included inspecting fields and packing houses, writing environmental reports and developing insect trapping programs – gives her a unique perspective on pest management and the evolution of pesticide regulation in California.

"In Registration, you can see the complete picture, how each DPR branch contributes its expertise toward our goal – to control pests without adverse impacts to people and the environment. Over the years, our registration process has promoted more stringent labeling and data requirements, better worker protection, effective environmental monitoring and the shift to lowerrisk pesticides. Our record shows we have provided for proper, safe and effective use of pesticides, advanced the production of food and fiber, and improved protection for public health and safety."

## **ALL NEW PRODUCTS MUST UNDERGO SCRUTINY, BUT DPR ENCOURAGES THE BEST**

Through our registration process, DPR encourages the introduction of new, less-risky products. We promote a business climate that also favors our natural environment.

### **Streamlining registration**

In 2006, passage of Assembly Bill 1011 streamlined the product registration process. It eliminated a requirement that had essentially forced DPR to be the arbiter of business disputes over use of scientific data to support new registrations. Such disputes could delay registration actions for years. The bill created a California data protection and cost-sharing system similar to the federal system. It has helped bring new, improved products into California more quickly, with potential savings for pesticide buyers while eliminating the need for DPR to evaluate duplicative data.

We also promised to track the progress of this new law and report on its impact. DPR completed its second report on the impacts of the new law in early 2009. The report indicated:

- The number of registration submissions that required scientific data evaluation dropped about 20 percent in three years since DPR no longer had to scrutinize duplicative data. In 2004, there had been 608 submissions; by 2007, that dropped to 484.
- In turn, our analysis found an overall decrease in the average time required to process a submission, from just over 91 days in 2004 to 67 days in 2007 – a 27 percent decrease.
- And when scientific evaluations were required, we were able to conduct those reviews more efficiently, and the average evaluation time dropped significantly.

While we will continue to assess the ultimate effects of streamlined registration as more statistics become available, the first results are positive.

### **Improving services**

In 2007, DPR undertook a Stakeholder Outreach Project to improve our product registration process and, at the same time, advance health and environmental protection. We held discussions and meetings with more than 30 major commodity and chemical groups, as well as environmental and advocacy organizations. In August 2008, we announced our plans and priorities. The first steps include revamping the Registration Branch Web pages to make them more user-friendly and beefing up our outreach materials. By the end of 2009, we expect that online references to registration-exempt products, experimental use permits, research authorizations and other topics will be more accessible and understandable to the regulated community.

In 2009, Registration Branch staff also plan to start work on a Stakeholder Guidance Manual, a "bible" to help industry register, amend or renew licenses to sell pesticide products in California. The manual will be developed with help from an advisory panel of stakeholders.

## Surface water protection focuses on pyrethroids

The ripple effect of an initiative DPR launched in 2006 continues to spread as we take a more comprehensive view of pesticides and water on the farm and in urban environments. Our major review of certain pesticides, based on monitoring that found water runoff was affecting small aquatic organisms, aims to learn how runoff occurs and then develop rules to prevent it.

Under DPR scrutiny are pyrethroids, insecticides favored in agriculture and in urban areas. By the end of 2008, nearly 700 products were under review, separated into three groups.

For the first group (about 7 percent of the products), we were almost finished receiving and reviewing environmental data by the end of 2008. A second group of products (about 1 percent) have limited uses and their manufacturers have agreed to put into place preventive steps we believe appropriate. For the third group of chemicals, we continue to assess offsite movement into waterways in agricultural and urban areas.

We're also working with pesticide makers to assess the impacts from two agricultural insecticides, chlorpyrifos and diazinon. Those efforts will help direct regulatory actions by DPR in cooperation with state and regional water authorities. For chlorpyrifos, we expect new data in mid-2009 will signal whether declining use has helped reduce concentrations in waterways. For diazinon, our scientists are evaluating data to show if controls during dormant-season applications are working as intended.

On another water front, DPR continues work on copper-based marine paints used on boat hulls. Based on monitoring data from 23 California marinas, our scientists in 2008 concluded these paints leach into marina waters and violate water standards. DPR's formal product reevaluation could take the products off the market. Meanwhile, we're working with the boating industry and water authorities to promote less-toxic alternatives and voluntary compliance.



### OPPORTUNITY KNOCKS FOR WELL MONITORING

In 2008, DPR researchers knocked on about 200 doors around the state as part of our annual water well monitoring program. Since 1985, we've sampled more than 5,000 wells for more than 160 pesticides to protect Californians' drinking water.

DPR samples wells on private property and cooperation is voluntary. In 2008, DPR scientists produced a brochure, in English and Spanish, to better explain our program and invite cooperation. "People often aren't at home when we initially visit," said program coordinator Lisa Quagliaroli. "So we have something to leave at the door to explain what we're doing, and why it's important. These private drinking water wells are really the equivalent of the canary in the coal mine. Since we don't have our own monitoring wells, participation by private well owners is crucial to the success of our program."

There's no charge to property owners for testing, and results go into our well inventory database. It's part of a ground water regulatory program designed to prevent contamination before it occurs. Find more information at [www.cdpr.ca.gov/docs/emon/ehap.htm](http://www.cdpr.ca.gov/docs/emon/ehap.htm)

# Working for a safer environment

*A single principle guides all DPR policies and programs – to better protect people and their environment. Our work spans a broad range of regulatory activity and programmatic initiatives, including improving enforcement of pesticide laws, reaching out to workers and environmental justice communities, sampling fresh produce and using the best science to assess pesticide risk.*

## Reaching out to better protect Hispanic workers

### WORKER SAFETY CALLING CARD

In 2006, DPR began distributing wallet-sized cards to help field workers understand technical rules for using gloves and respirators. It proved to be a simple yet effective safety tool. When DPR staff recently held a brainstorming session on worker outreach, someone remembered the card and asked, “What if we did another wallet card to tell workers what to do if pesticides make them sick? That they can get medical care, and that all illnesses should be reported to the County Agricultural Commissioner?” So in 2009, DPR will produce a laminated card for workers that lists emergency phone numbers, plus who to call if a pesticide illness occurs.

► *Martha Sánchez of DPR’s Worker Safety Branch and Jose Bueno of our Enforcement staff discuss safe pesticide use at the 5th Annual-Campesinos Saludables (Healthy Farm Workers) event in Tulare County.*

As pesticide regulators, we’ve always followed a simple rule of thumb: If you protect workers well, many other problems can be avoided. Our view is that when risk is reduced for people who are closest to pesticide use, there are benefits for everyone and for our environment. The key is to reach workers, especially those who speak limited English. DPR has long published safety information for field workers in English and Spanish. But limited resources hampered further efforts to reach Hispanic workers and communities.

In 2008, DPR’s Worker Health and Safety Branch assigned Martha Sanchez, an 18-year DPR employee, as an informal liaison to the Latino community. The bilingual Sanchez developed a network of contacts with community activists, health and welfare organizations, Latino news media and other state agencies that serve Hispanic needs.

Her most surprising discovery? “So many people were unaware that DPR even exists,” she said “They are surprised and then they are quiet...

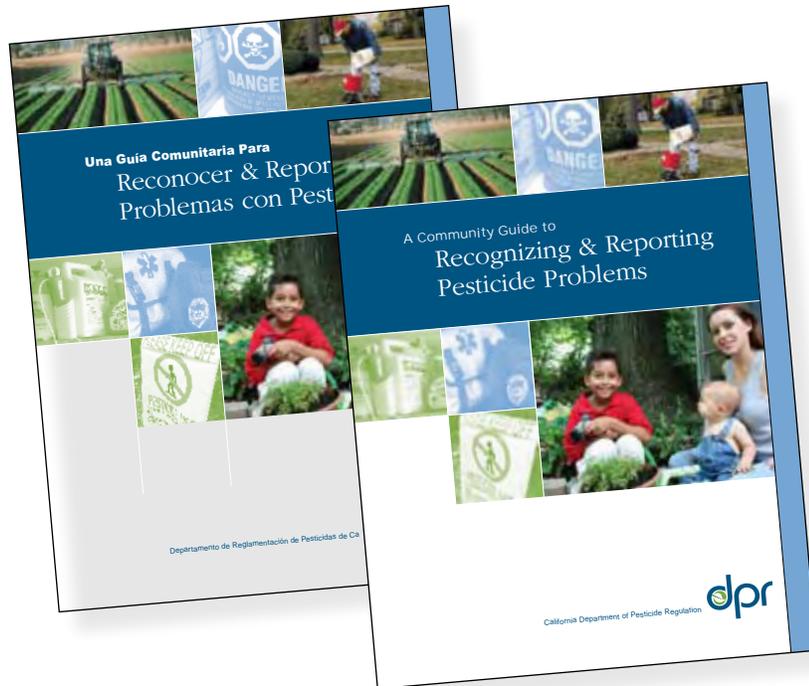


and then their faces light up, because they're glad to learn that someone wants to look out for their well-being." Such breakthroughs often occurred as Sanchez became better acquainted with local community leaders and developed a personal rapport with them.

She also has reached out to worker advocates and encouraged a more positive dialog between activists and County Agricultural Commissioners, who regulate pesticide use locally.

In little more than a year, Sanchez took part in more than 30 community meetings, health conferences and other events to promote pesticide safety for workers and their families. On half a dozen occasions, she visited a health services center in Stanislaus County to help farm worker families learn more about proper pesticide use in the home. She promoted pesticide safety in guest appearances on Radio Bilingue and the Telemundo television network, two major Spanish-language media outlets in the Central Valley.

Sanchez and other DPR staff are also assisting in the Border 2012 project, a state and federal initiative to help Mexican agencies set up and manage pesticide safety programs.



## COMMUNITY GUIDE OFFERS INSIGHT, ADVICE

We are always looking for new ways to make pesticide information more readily available – and understandable – to the public. Our 2008 release of the “Community Guide to Recognizing and Reporting Pesticide Problems” represented another major accomplishment in this direction.

The 34-page guide offers plain-language explanations that focus on practical solutions for real-world situations. The guide has already become a popular reference for public health agencies, emergency responders, community advocates, industry, local government officials and individuals with pesticide questions or complaints.

Topics include step-by-step instructions on what to do in a pesticide emergency, a discussion of pesticide drift and odor issues, and a checklist form to use when reporting a pesticide incident. The guide was prepared in consultation with County Agricultural Commissioners, who act as DPR’s local enforcement agents.

The first printing of 5,000 English copies ran out quickly. We printed several thousand more copies early in 2009, including a Spanish-language version targeted for distribution at ethnic venues. The guide already has been distributed to more than 900 community health centers, county health departments and to every public library in the state. California Poison Control Centers are using it for staff training. It also may be downloaded directly from the DPR Web site.

In 2009, we plan two more publications. One will be a Spanish-language home calendar with helpful tips on pest management and pesticide safety at work and in residential settings. Our outreach staff will distribute free copies at fairs and other events and it will also be available by request. The second publication will be a companion to the Community Guide to help people understand and participate in our pesticide decisionmaking processes.



**KURT E. FLOREN**  
Los Angeles County Agricultural Commissioner

## Structural enforcement goes undercover in Los Angeles

The 2003 undercover operation in Los Angeles County was a classic. Investigators in unmarked vehicles spent days on stakeouts, then moved in swiftly. It sounds like a TV police show, but these agents worked for the County Agricultural Commissioner's Office. Their investigation targeted structural pest fumigations, and their legwork prompted stronger enforcement that continues today in major urban areas.

More homes are fumigated in Los Angeles than anywhere in California – up to 50,000 a year when real estate business is booming and property sales require termite treatments. Typically, a pest control business covers a home with a large tent, releases a highly toxic gas inside and then “airs out” the structure later, following DPR rules. But the 2003 Los Angeles undercover investigation found only two out of 27 jobs were aerated properly – posing potential danger to fumigation workers, home dwellers and neighbors.

In response, the Los Angeles County Agricultural Commissioner staff stepped up its regulatory oversight with strong support from the industry against “bad actors.” Compliance has risen sharply – particularly in worker safety re-entry rules and aeration of structures, said Agricultural Commissioner Kurt E. Floren. “We do more than 1,200 inspections a year. This includes about 36 undercover surveillances of aeration activities and 10 to 15 for re-entry procedures. We directly witness and document the actions to make the case if violations should occur.”

Funding is key to these labor-intensive investigations. In the 1990s, the Los Angeles Agricultural Commissioner's Office started a pilot enforcement program with a \$5-per-structure fumigation fee. The program's success was underscored on January 1, 2009, when Assembly Bill 2223 gave San Diego County the same fee authority. San Diego now joins Los Angeles, Orange, and Santa Clara counties in the program.

The Los Angeles Agricultural Commissioner adds structural fumigation enforcement to a list of accomplishments in a county that, if it were a state, would rank among the 10 most populous in the nation. Floren began his career there as a pest detection trapper in 1981. He later moved to San Diego, becoming that county's assistant agricultural commissioner, and returned to L.A. for the top job in 2005. While the volume of structural pest control reflects the county's urban character, L.A.'s regulatory profile is anything but simple. “We've had more experience with exotic and invasive pests here in Los Angeles than you would find in most states,” said Floren, noting that Los Angeles is a major shipping point for fresh produce moving across the country and the world. He was on a team of California Agricultural Commissioners who won \$3 million in federal funding for pest detection and exclusion and aided in securing significant future funding through the 2008 federal Farm Bill.



▲ Protecting fumigation workers is a top priority.

Los Angeles has “more experience with invasive pests than you would find in most states.”

Agricultural Commissioner  
KURT E. FLOREN



DPR uses the Enforcement Statistical Profile to make enforcement more efficient and effective.

## Hard stats helping us improve compliance

DPR's Enforcement Response Initiative, launched in 2005, continues to demonstrate our commitment to consistent, firm and fair enforcement. The initiative led to regulations in 2006 that reinforced enforcement guidelines for the County Agricultural Commissioners, our local enforcement partners. In 2007, the Schwarzenegger Administration supported budget increases that beefed up DPR oversight of CAC programs.

A key commitment was to improve accountability, for CACs and ourselves. In effect, we promised clear, detailed enforcement goals for each county, based on its own pesticide use patterns and other factors. And we committed to a system that would reveal whether local enforcement reached its goals and what DPR had done to ensure success.

The task involves tracking pesticide enforcement programs in 58 differ-

ent counties. Each year, they collectively issue about 39,000 permits for restricted-use materials; do about 11,000 site inspections before restricted pesticides are applied; conduct another 20,000 inspections at agricultural and non-agricultural sites; and do more than 6,600 compliance actions, investigations and enforcement actions.

In 2008, we launched an online template of enforcement metrics that we call the Enforcement Statistical Profile – or ESP. This comprehensive dataset is unique in its detail and public transparency.

We use ESP to identify trends and program changes, CAC staff training needs, areas for industry outreach and improvements in inspection compliance. ESP also allows for comparisons among similar counties and regions. The results are posted online graphically and numerically to provide a

clear picture of where enforcement resources – time and money – are spent, and why.

DPR will use ESP to make future enforcement funding more efficient and effective, and reflect the needs of individual counties.

Taking the next logical step, DPR also has posted county work plans developed by CACs in cooperation with DPR, as well as our evaluations of county performance based on those plans.

“The best way to show our commitment to protecting people and the environment is to make our programs as transparent as possible,” said Director Mary-Ann Warmerdam. “People who are concerned about pesticide enforcement can now get solid information on regulatory priorities and accomplishments, statewide and in their own communities.”



### ▶ JAHAN MOTAKAF

#### Senior Environmental Scientist Pesticide Enforcement Branch

Jahan Motakaf joined DPR 17 years ago as a seasonal employee. His day began at 2 a.m. in a Los Angeles shipping terminal, where he collected fresh produce to test for pesticide residues. It was the beginning of an enforcement career that led him to become a supervisor for the Southern Regional Office in Anaheim, where he directs a staff of nine.

In that role, he regularly juggles multiple tasks involving complaints and complex investigations while serving as a liaison to County Agricultural Commissioners and a mentor to his staff. Yet he can describe his priorities in simple terms: "Every time we prevent a pesticide injury to a worker or a member of the public, it's another step closer to success. Every time we make a case that stops contamination of the environment, we've made a difference in people's lives – both now and in the future. We are entrusted to protect people's health, and we are entrusted to protect our water, soil and air. Surely, nothing is more important than this."

## ASSESSING THE HEALTH RISK OF PESTICIDES

The first step in making sure pesticides are used safely is to find out what the limits of safe use are. DPR scientists are among the world's best in evaluating the risk posted by pesticides and in developing ways to ensure those risks are minimized.

Risk assessment plays a critical role in DPR's evaluation of the potential hazards associated with pesticide exposure. Risk assessment is a process designed to answer questions about how toxic a chemical is, what exposure results from its various uses, what is the likelihood that use will cause harm, and how to characterize that risk. Risk assessment is often the driving force behind new regulations and other use controls.

In 2007 and 2008, DPR scientists completed 12 risk characterizations. Close to completion were five others, including methyl iodide, a fumigant not yet registered in California, and chlorpyrifos, an insecticide that was frequently detected in the air monitoring project DPR conducted in 2006 in the Fresno County community of Parlier.

Among the risk assessments completed in 2007 and 2008, four were pesticides already listed as toxic air contaminants (TACs): carbaryl, DDVP, mancozeb and maneb. The completion of a risk assessment is important because it makes it possible for DPR to determine if further restrictions on use are needed, and what they should be. Our scientists also completed assessments on methidathion and endosulfan, listing the former as a TAC early in 2008. DPR will list the latter in early 2009. DPR scientists also finished their assessment of chloropicrin and in 2009 will begin the process of bringing it before the Scientific Review Panel for review as a possible TAC.

In progress are another 12 risk assessments, including the insecticide diazinon, also found frequently in the air samples taken in our Parlier environmental justice project, and methyl parathion and phosphine, both already listed as toxic air contaminants.

The methyl iodide risk assessment is the first in which DPR scientists made extensive use of physiologically based pharmacokinetic (PBPK) computer modeling, which allows more accurate predictions of the level of a chemical in the body. Assessing the risk associated with human exposure to environmental chemicals inevitably relies on many assumptions and estimates. Some of the greatest challenges result from the need to extrapolate from the results of animal studies to likely effects in humans. A key consideration for such extrapolation is how and at what rate a substance is absorbed, distributed, metabolized and eliminated – that is, the pharmacokinetics of the substance—in different species. PBPK models describe the dose or degree of exposure at the level of the target tissue, cell or even within the cell, both for the experimental species and in the human population of interest. It is one of the methods scientists use to improve our ability to estimate the extent of potential toxic effects and make better risk assessments.



DPR has long been a major player in food safety issues. Our fresh produce residue monitoring program made national headlines in 2007 when we detected illegal residues of aldicarb sulfoxide in ginger imported from China.

## Monitoring what's on your dinner table

In September 2008, a new law began requiring country-of-origin labels on all fresh produce commercially sold in the United States. California growers strongly supported the national law, since they believe our state's strict pesticide laws encourage more consumer confidence.

Indeed, DPR has long been a major player in food safety issues. Our fresh produce residue monitoring program made national headlines in 2007 when we detected illegal residues of aldicarb sulfoxide in ginger imported from China. DPR findings led the U.S. Food and Drug Administration to issue a national warning and spotlighted the issue of pesticides on produce imports.

DPR monitoring is designed to assure that all fresh produce – foreign or domestic – meet the same high standards. In 2007, almost 99 percent of all samples had no illegal or

excessive residues. But because certain commodities from some countries have sometimes shown a higher proportion of residue problems, we subject them to a higher level of scrutiny. For example, we found a relatively high rate of illegal pesticides on Guatemalan snow peas in 2006 and 2007, and acted to take contaminated lots of produce off the market.

The Guatemalan problem provided an opportunity for a pro-active, long-term solution that could apply to other recurring residue detections. Late in 2008, DPR's Enforcement Branch contacted a federally supported research team, an agency within the United Nations, and a Guatemalan export association. We explained our concerns about snow pea residues, helped identify the originating farms and encouraged Guatemalan officials to work with

their growers on alternatives that could benefit both their environment and economy. We believe such a cooperative approach could serve everyone's best interests – from faraway fieldworkers to California consumers.

This initiative provides another example of why USDA and other government agencies look to DPR for expertise in monitoring fresh produce. In 2007, DPR collected 3,562 samples of more than 100 commodities, domestic and foreign, and tested them for more than 200 pesticides. DPR detected slightly more than 1 percent of produce with illegal residues, though the detections did not necessarily indicate a health risk. That's because we detect residues at extremely low levels and move quickly to remove products from the market whenever necessary.



## ILLNESS DATABASE GOES ONLINE

For nearly 40 years, our Pesticide Illness Surveillance Program – the first in the nation – has continued to break new ground in reporting, investigating and assessing injuries from pesticide use. In 2009, DPR takes that to another level with an online database that makes thousands of illness reports available to the public. It will allow users to analyze the data with individual, user-defined queries from any computer with access to the Internet. We call it the California Pesticide Illness Query – CalPIQ.

DPR's Worker Health and Safety Branch annually summarizes suspected and confirmed reports of pesticide illness. The yearly summaries have included static tables that break down illness and injury data associated with pesticide exposure. While portions of the data are subject to medical patient privacy laws, most of the information can be released to the public.

University researchers, pesticide industry officials, environmental advocates and others rely on DPR's data in their work. In the past decade, we have responded to more than a thousand of their requests for specific data. We wanted to make this information more accessible and more useful. So DPR's technical staff teamed up with our epidemiologists to develop CalPIQ.

CalPIQ will initially allow online queries of illness reports collected between 1992 and 2006. The program, which will be operational early in 2009, will allow users to select which cases to list or summarize based on variables such as year, agricultural or non-agricultural use, county, pesticide (active ingredient or intended use), type of exposure (such as drift or residue), and more. CalPIQ will be prominently featured on the DPR homepage at [www.cdpr.ca.gov](http://www.cdpr.ca.gov).

## Computers link DPR to community

In 2006 and 2007, DPR conducted air monitoring at three schools in the Fresno County community of Parlier. The project highlighted our environmental justice initiative, which sought to find out if disadvantaged Californians are disproportionately affected by pesticides. To kick off the project, we sponsored a community fair, inviting more than two dozen local agencies to talk about jobs, education and health. During the project, DPR scientists often visited Parlier schools. While our scientists are trained to be objective and dispassionate in their professional lives, Parlier affected them on a personal level. They found themselves drawn to this poor community, especially to the children.

The project is complete (with our final scientific evaluation due in early 2009), and our connection to Parlier remains. DPR, like many agencies, replaces a portion of its desktop computers each year, usually sending the old computers to a state clearinghouse which in turn gives them to local agencies and charities. In 2008, we decided to take a more direct approach and donated 40 computers to the Parlier school district.

The donation allowed the district to set up a computer lab at Chavez Elementary School. The school, with

about 500 students, "had few computers," said Parlier technology supervisor Avtar Gill. "The computers were old and broke down a lot. It was our school in greatest need."

The computers transformed the school library into a multimedia center, with Internet access and computer training classes. Students and teachers visit in their free time as well. Many students use the lab to pursue interests in science sparked by their contacts with DPR project staff.

Besides the standard software, Gill and his staff installed several learning programs. Especially important is a program that helps students learn to read, write and speak English. The Parlier district is 99 percent Hispanic, and more than 35 percent of the students are migrants. Because Spanish is the primary language spoken at home, many students have difficulty learning and practicing English.

Getting the computers from DPR has made a real difference, Gill said. "It may be a small thing to a state agency, but it is not a small thing to a school district like ours. We don't have a lot of resources, and neither do the families of our students."

### **ACKNOWLEDGEMENTS:**

We would like to thank DPR staff for the wonderful photographs of their work that are featured throughout this publication. We would also like to thank the four staff members who agreed to represent their fellow DPR employees and be spotlighted in this publication.

**Editor:** Veda Federighi

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*In recognition of the State's budget challenges, we printed the inside pages of this Progress Report on one of DPR's printers rather than having it printed commercially.*



ARNOLD SCHWARZENEGGER, Governor

LINDA S. ADAMS  
Secretary for Environmental Protection

MARY-ANN WARMERDAM  
Director, Department of Pesticide Regulation

## **DEPARTMENT OF PESTICIDE REGULATION**

1001 I Street  
P.O. Box 4015  
Sacramento, CA 95812  
[www.cdpr.ca.gov](http://www.cdpr.ca.gov)

General Information  
**916/445-4300**

Administrative Services Division  
**916/445-4140**

Enforcement Branch  
**916/324-4100**

Environmental Monitoring Branch  
**916/324-4039**

Information Technology Branch  
**916/445-4110**

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**916/445-4159**

Pesticide Registration Branch  
**916/445-4400**

Worker Health and Safety Branch  
**916/445-4222**

### **ENFORCEMENT REGIONAL OFFICES**

Northern Regional Office (Sacramento)  
**916/324-4100**

Central Regional Office (Fresno)  
**559/243-8111**

Southern Regional Office (Anaheim)  
**714/279-7690**

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