

required the department to set up a database of wells sampled for pesticides, to collect data on the physical properties of pesticides that might lead to ground water contamination, and to control the use of and monitor for these pesticides. (*See Chapter 10 for more information on the ground water monitoring program.*)

The 1980s also marked the continued expansion of the department's pesticide enforcement program. Enforcement Branch staffing was increased and legislation passed to strengthen enforcement authority. AB 1614 (Chapter 943, Statutes of 1985) authorized CACs to levy direct civil penalties for violations of specified provisions relating to pesticides. Later legislation (Chapter 843, Statutes of 1989, AB 1873) gave CDFA (and, later, DPR) authority to levy civil penalties for the sale of unregistered or mislabeled pesticides, and for packing, shipping or selling of produce containing illegal pesticide residues. AB 1142 (Chapter 908, Statutes of 1988) improved the director's authority to seize and destroy a crop treated with a pesticide not registered for that crop.

In 2000, DPR was given authority to levy civil penalties up to \$5,000 per violation for serious cases resulting from high-priority investigations or multi-jurisdictional violations (Chapter 806, SB 1970). Also in 2000, CACs were given the authority to refuse, suspend or revoke restricted materials permits of individuals who ignore fines or lawful orders. In 2002, AB 947 increased the fines CACs could impose to \$5,000 per violation. In 2005, SB 391 became law, allowing DPR and CACs to impose penalties for each person exposed as a result of a violation.

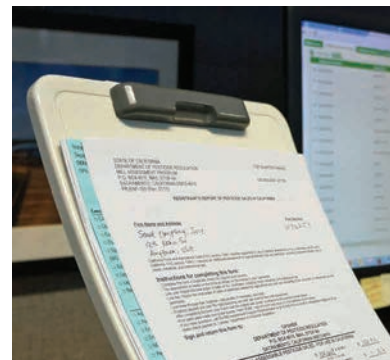
ENSURING STABLE FUNDING

A long-standing policy of CDFA was that the state's General Fund should be used for programs that directly benefited the public or agriculture in general. Programs of direct benefit to an identifiable part of industry were to be supported by special charges or fees. However, these distinctions were seldom easy to decide and quantify as programs grew in responsibility and complexity. In any case, departmental policies did not have the force of law. The governor and the Legislature determined the source and division of funding.

Pesticide and pest control legislation in the early part of the 20th century was sponsored by the regulated industry and focused on preventing fraudulent practices and unfair competition. Activities clearly related to registration and product quality were fully funded by industry fees, which were increased as necessary to keep the programs self-supporting. Public health protection became part of the regulatory program mission in 1927, when the Chemical Spray Residue Act became law and residue testing of fresh produce began. The General Fund provided all or most of the funding for this program until 2003, when the department became funded by special funds.

In 1971, the mill assessment on pesticide sales was enacted (set then at \$0.008 per dollar of pesticide sales) to help support the pesticide regulatory program. Beginning in the 1990s, the Legislature approved a series of increases in the mill assessment and, at the same time, decreased the General Fund support for the department. In the 1989-90 fiscal year, the General Fund comprised two-thirds of the regulatory program budget. By 2000-01, the percentage was reversed, with the DPR Fund funding 69 percent of program costs. Since 2003, the department's budget has been based almost entirely on fees and the mill assessment on pesticide manufacturers' sales. In 2006, the mill assessment was increased to 2.1 cents per dollar of pesticide sales (*for more on DPR's funding, see Chapter 13*).

In 1993, the Legislature passed AB 770 (Chapter 1176) to ensure that all people or businesses that were the first sellers of agricultural pesticides into California—whether a pesticide registrant, broker or dealer—pay the required assessment on their sales. Pesticide dealers already had to be licensed; the bill created a new license category for agricultural pesticide brokers, requiring them to have a DPR



DPR's programs are funded in large part by the "mill," which is an assessment paid by pesticide manufacturers based on sales.



The California Environmental Protection Agency was established in 1991. That same year, DPR was created.



license to conduct business with or within California. The law also made it illegal for anyone to buy a pesticide labeled for agricultural use except from a person licensed as a pest control dealer or broker. The 2005 passage of AB 1011 (Chapter 612) expanded broker licensing to include first sellers of nonagricultural pesticides. (*See Chapter 13 for a more detailed discussion of regulatory funding.*)

PESTICIDE REGULATION BECOMES A CALEPA DEPARTMENT

In 1991, California's environmental authority was unified in a single cabinet-level agency—the California Environmental Protection Agency (CalEPA). This brought the Air Resources Board (ARB), State Water Resources Control Board, and Integrated Waste Management Board (IWMB) under an umbrella agency with the newly created Department of Toxic Substances Control (DTSC) and Office of Environmental Health Hazard Assessment (OEHHA). As part of this reorganization, the pesticide regulation program was removed from CDFA and given departmental status as the Department of Pesticide Regulation within CalEPA. Pesticide-related statutory responsibilities and authorities were transferred to DPR. The pesticide residue laboratory remained with CDFA and local enforcement authority with CACs.

In 2009, legislation transferred the Structural Pest Control Board from the Department of Consumer Affairs (DCA) to DPR. It was transferred back to DCA in 2013, as directed under the Governor's Reorganization Plan No. 2 of 2012. The Structural Pest Control Board licenses businesses and individuals who conduct structural pest control.

CalEPA was created to improve environmental protection by coordinating multimedia issues in a single agency. DPR long had a cross-media program addressing water, air, soil and biological organisms. Other regulatory agencies have jurisdiction and authority over specific media, such as CalEPA's Air Resources Board and State Water Resources Control Board. DPR has entered into formal agreements with these and other agencies to ensure a coordinated and effective approach to pesticide regulation regardless of the media affected. Besides these written agreements, DPR engages in frequent interagency consultations. Such consultations may be program-specific. For example, in the early 1990s DPR worked with DTSC, ARB and the Integrated Waste Management Board to address proper disposal or burning of empty agricultural pesticide bags and containers.

In other instances, the consultation may be more systematic, as with DPR's Pesticide Registration and Evaluation Committee, which brings together representatives of public agencies whose activities or resources may be affected by the use of pesticides. It meets about six times a year to advise DPR on regulatory development and reform initiatives.

By the early 1990s, DPR grew into a fully functional environmental regulator, addressing mandates and needs that had been neglected or underserved. These included legislative mandates imposed in the 1980s—most notably requirements to collect and evaluate health effects and ground water data on pesticides. These mandates—the Birth Defects Prevention Act and Pesticide Contamination Prevention Act—gave DPR the authority to require the data it needed to more thoroughly evaluate the health and environmental effects of the products it registers to guide its regulatory decisions.

DPR also stepped up efforts to carry out its mandate to encourage the development of reduced risk pest management. These efforts included working with school districts across the state to implement reduced-risk pesticide programs utilizing Integrated Pest Management (IPM)—which emphasizes prevention and non-chemical controls—and, in 1998, awarding a consortium of school districts to develop a training curriculum for school IPM and a school pesticide record-keeping system. In 1994, DPR also established its IPM Innovator Award program to recognize individuals and organizations that emphasize pest prevention, favor

least-hazardous pest control, and share their successful strategies with others.

In 1997, DPR's IPM Alliance Grant Program was created to help fund projects that increase implementation and adoption of IPM practices. DPR is one of the few government agencies nationally awarding grants to help develop and demonstrate innovative pest management practices that reduce the risks associated with pesticide use.

DPR IN THE 21ST CENTURY

Since its creation, DPR has significantly strengthened its programs protecting public health and the environment, and has promoted public involvement, outreach and transparency. In addition, DPR has adopted programs to stimulate research and collaboration to develop products or practices to reduce risk in pest management.

In 2001, DPR adopted new regulations that placed restrictions on how the field fumigant methyl bromide could be used to protect both pesticide workers and those near applications. These restrictions included notifications to neighboring properties, limitation on work hours, and application methods. In 2010, additional regulations were adopted to limit the risks to both workers and bystanders from methyl bromide use that included a limit on the amount that could be used monthly in any township.

In 2005 and 2006, DPR launched major initiatives to reduce volatile organic compounds (VOCs) emitted into the air by pesticides that contribute to poor air quality (smog). DPR conducted several reevaluations of nonfumigant pesticides which resulted in pesticide makers reformulating several high-use and high-VOC contributing pesticide products and replacing them with low-VOC contributors. The next year, DPR began the process of developing and adopting regulations to limit the methods used to apply field fumigants to reduce VOC emissions. In early 2008, regulations went into effect that restricted fumigation methods in those areas of the state most impacted by poor air quality. In 2012, DPR adopted regulations to further reduce and control emissions by placing restrictions on certain nonfumigant pesticides in the San Joaquin Valley during the months when air quality is typically the worst.

Another fumigant, sulfuryl fluoride, used primarily to protect structures from termites and related insects, went through a risk assessment and reevaluation process. As a result, in 2013, measures required by regulation for some structural fumigations were made more stringent to protect workers.

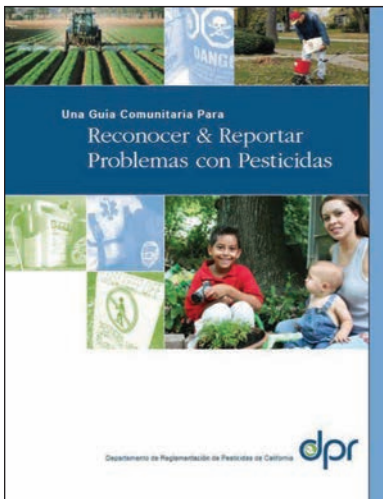
In 2015, based upon a risk assessment that provided an in-depth scientific analysis, and after a series of three community meetings, DPR developed a number of measures restricting the use of the field fumigant chloropicrin to protect the public. The measures are implemented by permit condition and labels requirements, and include increasing the buffer zone around an application, the size of the application, and time when an application can occur.

Beyond protection of human health, several actions were taken to protect the environment. In 2012, DPR adopted regulations that identified 17 pyrethroid pesticides with a high potential to contaminate surface water used in outdoor nonagricultural (structural, residential, institutional, and industrial) settings and that require users to take certain measures to minimize the potential for such contamination. In 2014, DPR passed other regulations to limit the use of certain rodenticides (second generation anticoagulant rodenticides, SGARs) that create a hazard to wildlife that prey on the rodents targeted.

In recent years, DPR has increased both outreach and regulatory efforts to protect those whose job requires them to work with pesticides. DPR employees attend workshops, training sessions, and other events that draw farmworkers,



DPR Worker Health and Safety outreach at the Mexican Consulate in Sacramento.



DPR's *A Community Guide to Recognizing & Reporting Pesticide Problems* is available online at:
www.cdpr.ca.gov/docs/dept/comguide/

In Spanish: http://www.cdpr.ca.gov/docs/dept/comguide/spanish/index_sp.htm

farmers, applicators, and others. Since 2012, to protect workers at risk of pesticide exposure, DPR has produced numerous publications, radio public service announcements, and videos addressing pesticide safety and what to do if a worker is exposed or becomes ill. In 2014, DPR created a bilingual brochure with information on licensing requirements for maintenance gardeners who apply pesticides. Learning that a license is required and qualifying for one will give these individuals information to ensure their safety and the safety of others as they use pesticides in their work. DPR, working with the U.S. EPA, also produced a video series in Spanish, Mixteca and Zapoteca on pesticide safety. The videos are used in training in both agricultural and urban outreach settings. In 2015, DPR also updated its Pesticide Safety Information Series, published in English, Spanish and Punjabi. The series provides information on safety requirements for workers.

DPR has been continuously strengthening regulations to protect persons handling pesticides and working in and about pesticide-treated areas. Regulations in 2008 specified more stringent respiratory protection and, in 2009, improved hazard communication was required. In 2015, existing regulations requiring specific types of protective equipment be used by workers using pesticides were clarified and improved, including requiring protective eyewear and gloves that meet nationally recognized standards. In the same year, additional regulations were adopted to better protect workers mixing pesticides. In 2016, DPR moved forward to align any of its regulations that did not already meet or go beyond the new federal agricultural worker protection standard by the effective date of January 2017.

Communication, access

To bring the public into the regulatory discussion, DPR has been active in communicating and working with the public on pesticide issues. In 2006, as part of CalEPA's Environmental Justice Action Plan, DPR collaborated with a community advisory group to set up a monitoring project in a rural farm community to determine pesticide levels over an extended period. The committee provided input on key elements of the project including its goals and the monitoring sites. Parlier in Fresno County was selected. Besides involving the public for the first time in planning a monitoring project, other aspects of the project broke new ground: DPR released preliminary results and evaluations as the project continued, posting interim reports online and discussing them with the local advisers at public meetings; DPR conducted pesticide air monitoring for over 12 months in a single community; and the project monitored a substantial number of pesticides—40 in all, including pesticide breakdown products. That same year, continuing its efforts to engage the public, DPR launched an automated, toll-free phone line (1-87PestLine) that gives callers their county agricultural commissioner's phone number and then offers to transfer the call.

In 2008, DPR published a 34-page *Community Guide to Recognizing and Reporting Pesticide Problems*. Topics include what to do in a pesticide emergency, a discussion of pesticide drift and odor, and a checklist to record details about a pesticide incident. After the first printing of 5,000 copies ran out, DPR printed several thousand more, including a Spanish-language version. DPR sent the guide to more than 900 community health centers, county health departments and to every public library in the state. It may be downloaded from the DPR website and free copies are available on request.

In addition, since 2012, DPR has continued to build a presence on social media to connect with the public. The department uses Facebook, LinkedIn, Twitter, and YouTube to communicate its mission and achievements and to disseminate training materials in English and Spanish. In 2014, DPR also held a series of four workshops for CACs—"Neighbors at the Edge"—to generate dialog about pesticide use concerns in areas where development abuts agricultural land.

In 2003, DPR launched the web-based California Pesticide Information Portal—CalPIP. CalPIP provides access to pesticide use data that must be reported

by agricultural and structural applicators. It allows the public to search the data pesticide, crop, and location (*see Chapter 9 for more on pesticide use reporting*). Users can then tie this knowledge to information about specific pesticide products using DPR's database of more than 13,000 registered pesticide products including the manufacturer, active ingredient, target pests, sites where the product can be applied, and certain chemical and environmental characteristics.

In 2005, DPR introduced an online tool that gives pesticide users and CACs customized information to protect California's 300-plus endangered and threatened species. The Pesticide Regulation Endangered Species Custom Real-time Internet Bulletin Engine (PRESCRIBE) allows users to check for use-limitations intended to protect sensitive species based on geographical area and pesticides of interest.

In 2009, DPR introduced a web-based search engine of DPR's database of pesticide-related illnesses and injuries. California Pesticide Illness Query (Cal-PIQ) includes illness and injury data since 1992. Users can request data based on customized variables, including year and county where the incident occurred, whether the use was in agriculture or not, and specific pesticide by toxicity category, active ingredient or intended use.

Other activities

The Healthy Schools Act of 2000 (HSA) mandated DPR to work with schools to implement integrated pest management (IPM) programs that encourage effective pest control with less risk of harm to people and the environment. The HSA required DPR to develop a model program guidebook, resource information, and training program. In 2007, amendments to the HSA expanded DPR's responsibility to include working with daycare centers. DPR actions included developing educational materials, training school district staff, and creating an extensive web-site of information oriented toward school employees. In 2010, DPR extensively updated an earlier booklet, originally created before the HSA and later improved to assist schools in implementing IPM programs. In 2013, DPR developed a Child Care IPM Video Series, with outreach materials and training. In 2014, further amendments to the HSA required any person applying pesticides at a schoolsite to be trained annually. In 2016, DPR began providing online IPM training modules for school and daycare employees, volunteers, and contractors.

DPR has embraced its role to encourage research, innovation, and collaboration to improve pest management systems that achieve acceptable levels of pest control with the least impact on people and the environment. In 2012, DPR and the California Strawberry Commission launched a three-year, \$500,000 research partnership to explore ways to grow strawberries in substances other than soil which are less pest-susceptible. That same year, DPR convened the Nonfumigant Strawberry Production Work Group—a diverse group of scientists and stakeholders—to explore the best way forward to find practical and cost-effective alternatives to soil fumigants used by strawberry growers. In April 2013, the group produced an action plan to guide future research to find production practices to maintain a viable industry without reliance on fumigants. The fiscal year 2013-14 and 2014-15 budgets allocated \$500,000 to award research grants to improve pest management systems with a focus on nonfumigant alternatives in production practices. A legislative augmentation in fiscal year 2014-15 added an additional \$600,000 annually for three years to expand the Pest Management Grant program to support research projects that develop effective alternatives to fumigants.

In 2014, DPR hosted the Soil Health Symposium that assembled experts to explore and gain a better understanding of soil ecology with the view that it could lead to advances in reduced risk practices. DPR has continued its IPM Innovator Award program (now called the IPM Achievement Award) which emphasizes sharing successful production strategies that favor least-hazardous pest control. As of 2015, 149 awards had been given out.



DPR training videos in Spanish, Mixteco and Zapoteco.

Appendix C: A History of Pesticide Regulation in California

Going forward, DPR will continue its broad focus on evaluating and regulating pesticides to protect human health and the environment. It will continue to give special attention to those who work with pesticides and to those communities where they are used. It will actively promote IPM and research to improve pest management for the benefit of all in society.

