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Pesticide Field Programs

Ensuring Protection Through Partnerships

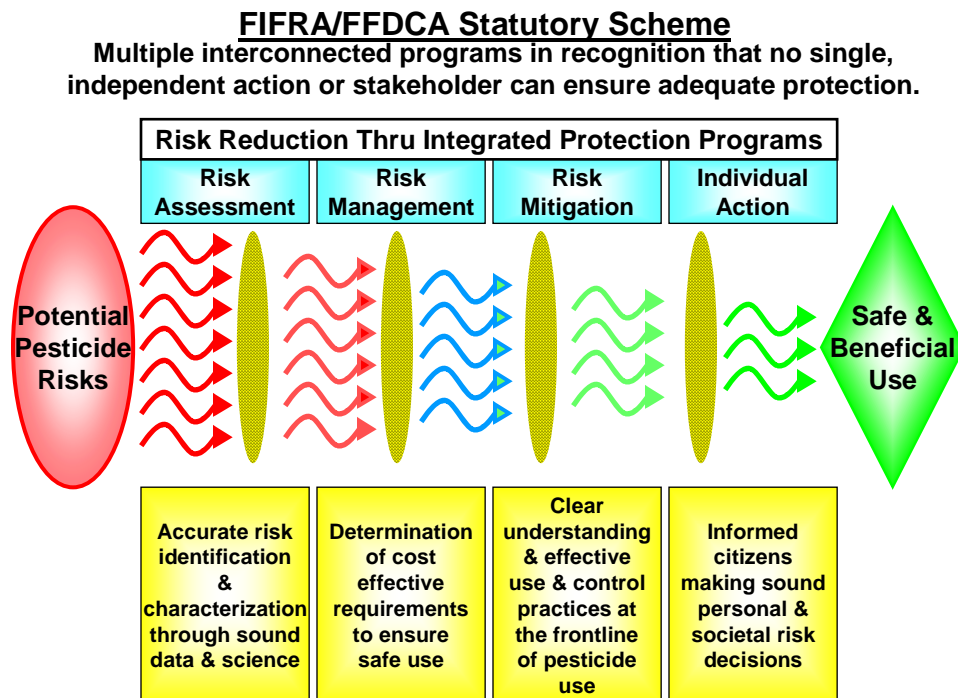


The U.S. Environmental Protection Agency's Pesticide Field Programs – Ensuring Protection through Partnerships

Introduction

Because they are designed to kill, prevent, or mitigate pests, pesticide products may pose a risk to users or to the environment. However, when used properly, pesticides provide benefits to farmers, homeowners, and in settings such as hospitals and factories. The primary pesticide statute, the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), requires EPA to balance risks and benefits when making pesticide regulatory decisions. The goal of the Environmental Protection Agency's (EPA) National Pesticide Program is to protect public health and the environment by ensuring the safety and availability of pesticides and pesticide alternatives.

The pesticide regulatory system is an integrated protection program designed to ensure that decisions on pesticide products are translated to actual protections in the field. The first step is an assessment of a pesticide's risks, using a battery of scientific studies. Second, EPA conducts risk management where measures are introduced where needed to allow for the safe use of a pesticide. Third, risk management decisions are conveyed through label directions so that potential risks may be mitigated at the point of use. Finally, effective risk communication ensures that individuals who use pesticides have the knowledge to use them properly. Pesticide regulation is essentially a series of screens where each level provides more protection. Broad regulatory decisions made at the federal level require appropriate action at the user level to insure that envisioned protections are realized.



Successfully addressing potential risks from pesticide use requires cooperative action from the national to the local level. EPA Headquarters and Regions, states, tribes, and territories all play a crucial role in ensuring each layer of protection accomplishes its intended function. This relationship is a continuum, with EPA establishing national standards (registrations, certification and training requirements, etc.), communicating those standards to states and tribes through regional offices, and receiving feedback and assistance in monitoring, enforcement, and risk communication from the states and tribes.

The demands of evolving science, efforts to minimize costs, and a desire to allow flexibility for localized implementation approaches have created an increasingly complex regulatory system. Pesticides are used in multiple settings (e.g. residential, agricultural, commercial, and public areas), serve a variety of purposes (e.g. insect control, eradication of weeds, disinfection, preservation of wood), and contain labels with assorted use directions and limitations, many tailored to specific products. This diversity underscores the need for a strong field presence and capacity to provide assistance.

National Pesticide Field Program

The National Pesticide Field Program supports the National Pesticide Program's primary activities, the registration and reregistration of pesticides, and is essential in ensuring that the national pesticide program meets its statutory requirement to protect human health and the environment from unreasonable adverse effects from pesticide use. In addition, the field program helps the national program in addressing its strategic goals of clean air, clean and safe water, and healthy communities and ecosystems. These efforts contribute to reducing exposure to toxic pesticides (sub-objective 4.1.1), allowing more people to breathe cleaner air (sub-objective 1.1.1) and improving water quality on a watershed basis (sub-objective 2.2.1).

Among its many functions, the field program performs the following:

- Ensuring Compliance in Pesticide Use: The field program develops and provides technical assistance and training so pesticide users understand and implement risk management requirements, new federal regulations and policies, and changes in existing programs. Target audiences may include other federal agencies, states, tribes, pesticide registrants, and the general public.
- Providing a Federal Regulatory Presence: In some cases, the field program works in close partnership with EPA's Office of Enforcement and Compliance Assistance to help realize the Agency's pesticide regulatory goals. Examples include Indian Country and where states lack the authority or resources to develop or maintain pesticide programs meeting statutory requirements. In addition EPA may pursue cases that states cannot take, such as those which have impacts beyond the borders of a particular state.

- Educating the Public on Pesticide Risks and Control Practices: The field program plays an essential role in EPA's risk communication and outreach and is the principle vehicle for disseminating pesticide educational materials. The field program is designed to allow for tailored risk communication to effectively reach local audiences, whether for general education or in response to incidents which pose significant danger to local communities. This allows for addressing issues ranging from differing dialects among farm workers to use of illegal pesticides in urban settings.

One of the most significant examples of this targeted communication was the illegal sale of the agricultural chemical methyl parathion for use in residential settings in the mid-90s. In response, all levels of government (federal, state, and local) began an aggressive outreach campaign to educate the public about the risk of pesticide use, choosing pesticide applicators, and alternative pest control approaches. Fact sheets were developed discussing the process for, and significance of, registering tips and complaints to authorities when illegal pesticide use is suspected. Due to the diversity of local communities, many fact sheets were translated into other languages. EPA and state authorities worked through community groups (e.g., churches, shelters, block groups) to educate the public regarding potential dangers associated with pesticide use.

- Maximizing Flexibility: EPA's statutory mandate to establish risk management requirements at the national level creates the potential for over-regulation. In many cases, the national program has avoided this problem by allowing flexibility based on local circumstances (e.g. atrazine watershed-based controls, county-specific bulletins for the protection of endangered species). This approach is only successful if there is a robust field program to ensure compliance with necessary safeguards. It is impossible to predict all eventualities when establishing a national standard. Local differences in factors such as soil type, crop diversity, and ecosystems place a premium on flexibility in order to achieve intended protections in areas such as endangered species protection and water quality.
- Promoting Sound Decision Making and Performance Accountability: The field program provides a framework for exchanging information on effects of pesticide regulatory decisions. National risk assessments and risk management decisions benefit from data collection, data analysis, and ground truthing that can be provided by EPA Regions, states, and tribes. Examples of potential inputs include information on patterns of pesticide and pesticide-related incidents, effectiveness of controls, and local factors impacting vulnerability of human health and natural resources, including endangered species. Resource constraints have negatively impacted the success of these efforts. EPA Headquarters Office of Pesticide Programs (OPP) is working with EPA Regions, states, and tribes to develop performance measures that will consider ways to strengthen this interaction and use it to help track program performance.

- Ensuring Financial Integrity of Public Resources: EPA provides categorical grants to help states and tribes meet their responsibility to regulate pesticide use. EPA Regions directly manage state and tribal categorical grants, which support activities related to water quality, endangered species, and the protection, certification, and training of workers. A strong field program helps ensure that the millions of dollars spent in this area effectively contribute to advancing national objectives related to protecting human health and the environment.

This paper examines the integrated approach for ensuring that EPA's regulatory decisions are communicated and implemented at the local level. Without this integrated approach, the only pesticide products that could be registered would be those that are essentially benign. A strong pesticide field program is necessary to ensure that pesticide regulatory decisions have their intended impact. A field program protects workers who mix, load, and apply pesticides by providing training and education. A field program ensures that measures are taken to minimize effects on non-target plants and animals, and that pesticides do not contaminate water bodies. Finally, a field program provides information to pesticide users so they can move toward use of less toxic pesticides or alternatives and employ more sound application practices.

Regulatory Partners

Successfully executing the pesticide field program depends on a partnership between federal, state, and tribal authorities. The mandates of FIFRA and associated regulations make distinctions between responsibilities that EPA implements directly (related to the licensing of pesticides) and those associated with pesticide use (which usually reside with EPA's state, tribal, and territorial partners with Agency oversight). Given that each entity has specific responsibilities related to pesticide regulation, the success of the field program relies on effective relationships between EPA headquarters, Regional Offices, states, and tribes.

EPA Headquarters

OPP is responsible for carrying out activities that are inherently governmental, such as the national licensing of pesticide products. OPP conducts extensive assessments of the risks associated with pesticides. Based on these assessments OPP identifies and characterizes the risk and designs risk mitigation measures that are sufficient to ensure safe use of the pesticide; measures may include limitations on the number, frequency, or location of applications, requirements that applicators wear protective equipment, or inclusion of specific use directions on pesticide labels or labeling. In addition to registering pesticides before they can be marketed in the U.S., OPP periodically reviews existing pesticides to ensure that they meet current scientific standards.

In respect to pesticide field programs, EPA Headquarters sets priorities and is responsible for establishing national standards in areas such as applicator training. Under FIFRA a pesticide's label is the law and any deviation from that label is a violation. Label requirements such as limitations on use near water bodies and endangered species

and their habitats, identification of allowable use sites, and restrictions on re-entering fields following application of a pesticide, require monitoring and enforcement as part of the field program. In addition, OPP houses three labs in areas including analytical and environmental chemistry which work with EPA Regions, states and tribes in support of field program activities.

EPA Regions

The activities of EPA's ten regional offices consist primarily of communicating national program priorities, negotiating their implementation and resource allocations, and tracking implementation to ensure targeted outcomes. Because FIFRA authority cannot be delegated below the federal level, implementation of the federal program occurs through negotiated cooperative agreements, and oversight of said agreements. States and tribes are each accountable under their own statutes and rules, which in some cases may be stricter than federal standards. EPA regional offices are responsible for negotiating achievable implementation strategies, taking into account the diversity among their state and tribal partners.

Field implementation of FQPA and pesticide program environmental stewardship requires EPA regional staff to be in direct contact with agricultural and urban pesticide users to provide technical support and outreach on regulations. Regions are in the best position to ensure that program goals are communicated, that progress is monitored, and that pertinent information from the field is shared with headquarters. The Regions serve as the direct link between OPP and the states and tribes, and maintain direct relationships with regulated and other affected communities. Their proximity to the public and regulated community positions them to develop "real world" perspectives on actual and potential impacts of Agency programs, ensuring that field implementation activities are tailored to meet geographically-specific ecological, economic, and agronomic needs.

States

Each state has a designated state lead agency (SLA) that has primary authority for implementing pesticide regulatory programs. States provide feedback and "ground truthing" for federal regulatory decisions to ensure they are effective and realistic. SLAs are active in areas as diverse as water quality monitoring, oversight of pesticide use, and lab support for the national pesticide program. EPA maintains open dialogue with the states through the State FIFRA Issues Research and Evaluation Group (SFIREG), a state advisory committee, and regular meetings with state pesticide officials.

States play a pivotal role in implementing the pesticide field program. States are responsible for developing programs to train and certify applicators of certain pesticides, ensuring that those programs meet national standards. States are on the front line of pesticide regulation, providing monitoring data related to environmental impacts from pesticide use. State laboratories play a critical role in monitoring for pesticides in water and soil. States also play a primary role in investigating and enforcing pesticide misuse laws. These actions inform EPA decisions and shape pesticide regulatory policy. In the

past few years, states have conducted these activities with steady or shrinking resources. In the absence of state cooperative agreements, EPA Regional Offices directly implement the national pesticide field program.

Tribes

Similar to states, some tribes have pesticide lead agencies charged with pesticide regulatory activities. Regional offices work closely with individual Tribes to determine the most effective ways to implement pesticide field programs in Indian Country and reducing risk from pesticide exposure to water resources, endangered species, and those who live and work on reservations. This is particularly important in cases where tribes do not have the resources or expertise to manage pesticide programs. Since tribes are uniquely sovereign, EPA Headquarters and Regions must respect their treaty rights. The Agency addresses tribal issues on a government-to-government basis, thereby meeting its federal Trust Responsibility to Tribes. The National Pesticide Program consults with tribal governments and receives valuable input on routine and unique tribal concerns through the Tribal Pesticide Program Council (TPPC), comprised of tribal representatives involved with pesticide regulation. EPA also funds regional discretionary projects and one-time project specific grants intended to protect public health and the environment by ensuring pesticide and pesticide alternatives are safe and available in Indian Country.

Depending on specific Tribal needs, regional offices provide outreach, education, training and technical assistance, resulting in sale and use of pesticides in Indian Country that is more responsible and consistent with registration determinations made by OPP under FIFRA. Regional Pesticide Programs provide cooperative agreement funds to Tribes to support the development and implementation of Tribal Pesticide Programs and Pesticide Projects that protect human health and the environment on reservations and address Goals 2 (Clean and Safe Water) and 4 (Healthy Communities and Ecosystems) of EPA's Strategic Plan. In the absence of tribal cooperative agreements, EPA Regional Offices directly implement the national pesticide field program

Communications Among Regulatory Partners

The National Pesticide Program considers it essential that open communications be maintained among the various regulatory partners. Several advisory committees have been established to facilitate the exchange of ideas and information. The Association of American Pest Control Officials, comprised of state pesticide regulatory officials, formed a State FIFRA Issues Research and Evaluation Group (SFIREG) which meets regularly with OPP to discuss pesticide regulatory issues. A formal process has been established whereby SFIREG submits priority issues for OPP consideration. Similarly, the TPPC holds regular conversations with OPP regarding issues affecting tribes. Through this regular communication, OPP and state and tribal partners are able to exchange ideas, discuss pesticide regulatory issues, and receive feedback on EPA decisions and policies. While Regional Offices communicate with states and tribes much more regularly than OPP, these groups provide an opportunity for establishing working relationships that further strengthen the field programs.

Components of the National Pesticide Field Program

To meet its statutory requirements to protect human health and the environment from pesticide risks, the National Pesticide Field Program focuses activities in four areas: ensuring the safety, certification, and training of workers, preserving water quality, protecting endangered species, and promoting pesticide stewardship. These activities help ensure that people exposed to pesticides through their occupation are adequately trained and protected, that pesticide regulatory decisions (such as use restrictions) are successfully implemented, and that pesticide users are educated about proper use of pesticides and made aware of alternatives to toxic pesticides. Ensuring proper pesticide use, and anticipating and addressing pesticide risk, are best achieved through action at local levels, making EPA's Regional Offices, states, and tribes essential participants.

Worker Safety Programs

A large number of workers, in several occupations, may be exposed to pesticide in the course of their normal duties. In agriculture alone there are over half a million farms in the U.S., employing more than 1.8 million farm workers. Workers may be exposed to pesticides through activities such as mixing pesticide products or loading pesticides into application equipment, applying pesticides in agricultural or commercial settings, and entering areas where pesticides have been applied to perform tasks such as harvesting crops or scouting for insects or disease.

Protection of these workers helps EPA meet its commitments under Goal 4 of the Agency's strategic plan, to ensure healthy communities and ecosystems. To achieve this goal, EPA has developed a comprehensive strategy grounded in risk assessment and risk management principles. The strategy consists of several components:

- **Worker Protection Standard (WPS)** – Under the Worker Protection Standard, EPA regulations provide for use of personal protective equipment when mixing, loading, or applying pesticides, posting of application sites to ensure that workers do not reenter until it is safe to do so, and maintenance of proper supplies to decontaminate workers who come in contact with pesticides. The Agency also provides training for agricultural workers to protect themselves and their families;
- **Pesticide Applicator Certification and Training** – Some of the more toxic pesticides are classified as “restricted use” and can only be applied by, or under the direct supervision of, someone certified as competent through approved training. EPA sets minimal national requirements for competency but states establish and conduct their own certification and training programs which may go beyond the federal minimum:
- **Communications and Outreach** – The national pesticide field program works to ensure that health care providers receive information on the identification and treatment of pesticide poisonings. The program also develops and distributes materials to educate workers who may be exposed to pesticides.

EPA Regions, states and tribes contribute to both ends of the worker safety spectrum: providing information on pesticide use that help inform risk assessments, and supporting and implementing worker protection programs essential in successfully managing pesticide risk. EPA supports State and Tribal Lead Agencies through grants and cooperative agreements, while Regional Offices are responsible for assuring that programs implemented through these vehicles achieve the health and environmental objectives established in the Agency's strategic plan. Where no EPA-approved plan exists, Regions are responsible for direct implementation of worker safety and applicator certification programs. For example, EPA Region 8 implements worker safety programs in Colorado, including certifying all private applicators.

EPA Regional Offices help assure that worker safety programs make efficient use of resources and that agreed upon activities are appropriately conducted to reduce the risks associated with pesticide use. Regional oversight includes an appropriate number of site visits to monitor employer, worker and pesticide applicator training programs, review and distribution of worker safety training materials, and consultation on certification and training programs. Accomplishments and recommended improvements are captured in mid- and end-of-year reports provided to both the State and Tribal Lead Agency and EPA. The National Pesticide Program uses this information to evaluate trends associated with pesticide use and the information is critical in efforts to understand program needs and formulate an effective national program.

Worker safety programs enable EPA to respond to local worker safety concerns. Regions, states and tribes provide a crucial link between OPP and pesticide users. They participate in meetings with stakeholders, build positive relationships with the regulated community, help ensure local understanding of federal law, and in many cases resolve worker safety issues before they rise to a national level. Regional, state and/or tribal experience working with local agencies, industry and advocates provides EPA with information to 'ground truth' decisions or policies made at the national level. Field input regarding national pesticide registration decisions helps ensure that proposed mitigation of health effects to workers reflect actual pesticide use and labor practices, which vary dramatically from region to region.

Regional, state and/or tribal participation on workgroups that set national policy are critical to ensure that policies respond to current field realities and can be implemented at the local level. Workgroups are strengthened by the unique ability of field programs to represent both the broad Agency perspective and the specific experience of industry and advocates in their geographic region. Similarly, state and tribal participation on workgroups provides a context for prospective regulatory activities and helps EPA understand the ultimate effectiveness and impact of its decisions. Worker safety related workgroups which have benefited from field input include the:

- Certification and Training Assessment Group (CTAG);
- Pesticide Program Dialogue Committee (PPDC);
- WPS Interpretive Guidance Workgroup (IGW);
- Pesticides Safety Education Program (PSEP) Review Committee

- Various WPS Re-Assessment Workgroups;
- Inspector's Guide to Farm Worker Interviews Workgroup;
- WPS Enforcement Analyst Workgroup, and
- WPS Inspection Guidance Workgroup.

Endangered Species Protection Program (ESPP)

OPP's Endangered Species Protection Program (ESPP) was developed to assist EPA in meeting its obligations under the Endangered Species Act (ESA). Under the ESA, EPA must ensure that its actions do not jeopardize endangered or threatened species or adversely affect the habitat of those species. In other words, the registration and reregistration of pesticides must consider potential impacts to threatened or endangered species. Given the wide disparity in species location and pesticide use patterns, a strong role for EPA Regions, states and tribes is essential in successful implementation of the ESPP.

The goals of the ESPP, which are reflected in the ESA, are protecting threatened and endangered species from pesticide use while minimizing the impact of the program on pesticide users. At this point the field implementation provisions of the ESPP are voluntary, but they will become enforceable over time. EPA Headquarters and Regions have worked with their state and tribal pesticide lead agencies on interim program efforts, which have focused on education, cooperation, and public outreach.

Many of the ESPP activities occur within the headquarters pesticide program, including:

- Producing and distributing county bulletins containing maps of species locations and pesticide use limitations;
- Conducting endangered species risk assessments;
- Consulting with the Fish and Wildlife and National Marine Fisheries Services (the Services) on pesticide determinations, as required by the ESA.

EPA conducts risk assessments to determine if a pesticide's use is likely to impact a threatened or endangered species or its habitat. Depending on the outcome of that assessment, the Agency may need to take additional steps to develop and implement protections. This may entail consultation with the Services, preparation of endangered species bulletins, or imposition of use restrictions such as buffer zones or use prohibition. EPA Regions as well as state and tribal pesticide lead agencies support headquarters endangered species activities, and provide meaningful input that helps shape regulatory decisions.

Once assessments have been completed, and determinations on risk mitigation reached where needed, field implementation of the ESPP ensures that necessary protections are available to pesticide users. The major tools for field implementation are Endangered Species Bulletins, which detail local, geographically specific pesticide use limitations based on listed species habitat and specific use sites for a pesticide active

ingredient. EPA Regions, states and tribes provide information critical to the effective and efficient production of bulletins. It is essential that knowledge about species location and pesticide use patterns are communicated from the local to the national level to ensure that bulletins provide sufficient, reliable information to pesticide users so they can make informed and appropriate decisions regarding pesticide use.

EPA encourages states to develop unique plans for endangered species protection by whatever approach they determine is most appropriate, as long as plans meet the goals of protecting species and minimizing impact on users. Development and implementation of alternative protection measures that occur with state-initiated plans provide flexible solutions to local situations. EPA Regions conduct oversight of state plans to ensure that any proposed alternative protection measures are integrated with EPA priorities and ESPP implementation activities. Where pesticide registrations are granted under emergency or special local needs, states are authorized to conduct informal consultations with the Services, which contributes to the timeliness of EPA's response and helps ensure that ESA requirements are met. ESPP implementation activities are negotiated, funded, and tracked through cooperative agreements between EPA, states, and tribes.

Additional Regional, state, and tribal activities in support of the ESPP include:

- Identifying and communicating possible overlap between pesticide use and threatened or endangered species locales;
- Conducting local review during county bulletin development to ensure consideration of local factors;
- Providing input on proposed use limitations based on field situations and current user practices (practicality of measures).

Water Quality Program

Protecting the nation's water sources from possible pesticide contamination is another component of activities under Goal 4 of EPA's Strategic Plan. The National Pesticides Field Program provides a framework for coordinated dialogue among OPP, EPA Regions, states, tribes, and EPA's Office of Water (OW) on pesticide issues that may impact water quality, including registration, reregistration, regulation and policy, incident reports, monitoring programs, and labeling/enforcement. Communication among these organizations and stakeholders provides vital feedback to assist OPP in assessing and managing pesticide risks to water quality, and helps states and tribes develop proactive protection programs (such as Pesticide Management Plans which assess water resource vulnerability, monitor water quality, and integrate pesticide management measures on a regional, rather than national level).

OPP has developed a comprehensive approach toward water quality protection based on a combination of preventative measures and geographic-specific responses. The preventative measures may include FIFRA-imposed pesticide label restrictions, conditions on pesticide registrations, and regulations and policies aimed at mitigating risks to water quality. These measures are typically developed by OPP, but State and

Tribal Lead Agencies may also implement local regulations and enforcement programs to keep pesticides out of vulnerable water resources. EPA assists states and tribes in the management of pesticides at the local level in coordination with appropriate federal and state partners.

The National Pesticide Field Program provides a mechanism for EPA to insure that registered pesticides do not adversely affect water bodies. Lead Agency activities under the field program may include training, technical assistance, coordination with other agencies, identification and ranking of critical water resources at risk, investigation, monitoring, and mitigation of water resource contamination through tools such as pesticide management plans, pollution prevention projects and best management practices, and development or maintenance and updating of pesticide management plans to protect critical water resources.

EPA provides funding through cooperative agreements to Lead Agencies to carry out water quality activities. EPA Regional Offices provide funding oversight by negotiating annual Lead Agency work plan commitments, insuring work plans meet administrative requirements, and evaluating work plan activities annually. OPP also develops policy guidance and responds to requests for policy interpretation, often in conjunction with state and tribal groups such as the American Association of Pesticide Control Officials (AAPCO), the State FIFRA Issues Research and Evaluation Group (SFIREG), and the Tribal Pesticide Program Council (TPPC). FIFRA Cooperative Agreement funds have been used by Lead Agencies to develop generic pesticide management plans and similar approaches to protect ground and surface water from pesticide contamination.

OPP's primary method of communication to states and tribes is through direct contacts mediated by Regional Offices. The Office also maintains close communication with SFIREG, AAPCO and the TPPC to address broader policy issues relating to water quality. These organizations provide Lead Agencies, OPP, and EPA's Office of Enforcement and Compliance Assurance (OECA) opportunities for coordinated problem identification and resolution, in conjunction with other stakeholders including other EPA offices. Through these efforts, the National Field Program provides:

- technical assistance on water quality issues (e.g., how to develop monitoring programs, conduct vulnerability assessments);
- advice regarding pesticides with potential water quality concerns;
- information gathering services regarding pesticides scheduled for regulatory action (e.g., registration of new pesticides or reregistration of existing pesticides);
- assistance in addressing unique environmental, human health, or cultural aspects surrounding local water quality issues relating to environmental justice, lifeways or other special circumstances.

Lead Agencies routinely partner with EPA Regions to protect water resources from pesticides risks. Through the cooperative agreements with EPA, Lead Agencies exercise responsibility to enforce pesticide label restrictions such as buffer zone

restrictions for herbicides. Lead Agency inspections can be targeted to areas most vulnerable to pesticide contamination. Authority to regulate pesticide use and investigate pesticide misuse lies with Lead Agencies, as do mechanisms to regulate pesticide use on a geographic-specific basis for water quality protection. A large number of effective state regulatory programs have emerged from this coordinated effort, including:

- Wisconsin Atrazine Management Program: Wisconsin prohibits atrazine use in areas where ground water is highly vulnerable to leaching by the herbicide; the program also monitors to assure that water quality goals are being achieved.
- DCPA (Dacthal) use in Michigan: DCPA use in Michigan was cancelled by the Michigan Department of Agriculture due to the frequent occurrence of the parent compound and degradates in ground water.
- Aldicarb management in Florida: A combination of label restrictions and state regulations prohibits use of aldicarb near drinking water wells. Well buffers are adjusted according to local soil conditions. State water quality monitoring programs and compliance inspections document the effectiveness of these mitigation measures.
- Authority to perform up-front registration activities to prevent pesticides with high potential to leach into ground water in Hawaii: The Hawaii Department of Agriculture can reclassify pesticide products as Restricted Use Pesticides (RUPs) when the products can be reasonably expected to result in ground water contamination, perform a rigorous review of new products for potential adverse effects from their use, field test new products for potential to leach to ground water, including the potential to contaminate sources of drinking water, and track the of sales and application of RUPs to impose use restrictions when appropriate.

Under the National Pesticide Field Program, participants carry out diverse activities which contribute to protection of water resources:

- EPA headquarters and Regions provide intra-agency coordination and liaison with state pesticide agencies, tribes and the agriculture community. For example, OW and OPP jointly developed rulemaking to determine whether National Pollutant Discharge Elimination System (NPDES) permits would be needed in certain pesticide applications and have begun conducting side-by-side comparisons of risk assessment measures used by FIFRA and the Clean Water Act for protection of water quality from selected pesticides;
- OPP works with other relevant agencies to promote consistent and efficient approaches on science, data systems and issues including NPDES and Total Maximum Daily Loads and coordinates with OW regarding state and local water monitoring and sampling programs to ensure results effectively address information needs of both OPP and OW;

- OPP conducts Water Quality Courses for state pesticide regulatory officials through Pesticide Regulatory Education Programs. Classes are developed jointly by EPA and state partners and may include participation by OW and their state counterparts. OPP also coordinates with the U.S. Geological Survey to provide training on methods for determining potential vulnerability of water bodies;
- EPA Regional Pesticide Programs coordinate pesticide in surface and ground water activities with Regional Water Programs and state water programs. Examples of coordination include TMDL program, NPDES permits, Drinking Water Program, Source Water Protection Programs, Wellhead Protection Programs, and development of generic or chemical specific PMPs;
- Lead Agencies coordinate with various state, federal and local agencies in implementing PMPs and similar regulatory programs, with many delegating responsibilities to reduce the amount of overlap in activities and authorities. In addition, states provide sample results for better informed monitoring/mitigation measures and activities;
- State applicator certification and training programs, which are part of FIFRA Cooperative Agreements, contain information on water quality risk, which is provided to pesticide applicators.

Strategic Agricultural Initiative (SAI)

The Strategic Agricultural Initiative (SAI), developed in 1998, is EPA's outreach program to demonstrate and facilitate adoption of farm pest management practices that will enable growers to transition away from the use of high-risk pesticides. The SAI also addresses concerns with reregistration decisions impacting topics such as worker safety and ecological effects. The SAI helps EPA respond directly to Sub-objective 4.1.1 of the Agency Strategic Plan, Reducing Exposure to Toxic Pesticides. The SAI complements registration and reregistration, but considers possibilities beyond pesticides such as cultural practices, cropping systems, and other biologically based approaches to pest management, meaning that measurements go significantly beyond risk reduction.

The SAI helps develop pest management practices and products that are safe, effective and support FQPA implementation with a unique focus on regional needs. The SAI provides specialists and grant applicants with useful information designed to maximize success of the program and produce results or outcomes sought by EPA. The SAI's mission is to "support and promote environmentally sound agricultural and pest management practices across the United States that are economically viable and socially responsible." The SAI fills a unique niche within EPA's regulatory framework by providing on the ground support to growers interested in transitioning away from high risk pesticides to lower risk practices that are more environmentally sound.

EPA resources available for the SAI include an OPP coordinator at Headquarters and an Agricultural Specialist in each Region. Each EPA Region receives grant funding

based on minor crop sales (ranging from \$60K to \$380K). Approximately \$1.8 million in grant money is available nationwide each year to help producers transition to lower risk pesticides. Over the past two years, the SAI team has worked with American Farmland Trust to develop and implement use of the web-based SAI Toolbox. The Toolbox helps SAI staff contribute to the Agency's strategic plan, implement FQPA, and implement recommendations from advisory committees. Toolbox guidance helps partners:

- Leverage additional resources to maximize outcomes;
- Tap into existing monitoring efforts by EPA, other agencies and organizations;
- Set appropriate performance measures

The Toolbox helps the SAI team carry out its mission to support environmentally sound, economically viable, and socially responsible agricultural and pest management practices across the U.S. National Performance Targets for SAI include: 1) Decrease, by 30 percent, the occurrences of residues of carcinogenic and cholinesterase-inhibiting neurotoxic pesticides on food eaten by children, and/or 2) Reduce, by 30 percent, the mortality to non-targeted terrestrial and aquatic wildlife caused by pesticides. These targets are to be achieved by 2008.

SAI major field program priorities include:

- **Regional Grant Program** -- Each region funds projects that help growers of minor and specialty crops transition away from older pesticides to newer reduced risk pesticides and more sustainable agricultural practices. The SAI grant program provides growers an opportunity to begin a transition to another pesticide or practice while maintaining economic viability;
- **Collaboration and Partnerships** -- SAI specialists have established productive partnerships and successful working relationships with agricultural interests in each Region; including commodity groups, land grant university researchers, Cooperative Extension system specialists, and U.S. Department of Agriculture (USDA) staff. The SAI specialists communicate regulatory decisions and their potential impacts to the agricultural community, and provide feedback to EPA and USDA on producers' pest management issues. SAI specialists participate in USDA Regional Pest Management Center activities, USDA Risk Avoidance and Mitigation Program grant panels, and other cooperative efforts to develop pest management strategic plans for specific crops, such as production certification programs. Meetings, speeches and site tours are scheduled to provide SAI specialists with valuable opportunities to interact with agricultural stakeholders;
- **Field Representatives** -- As liaisons to the field, the SAI staff also works with EPA/OPP reregistration staff and grower groups concerned with reregistration decisions involving minor or specialty crops and topics such as worker safety and ecological effects. The SAI is the link for EPA/OPP reregistration staff to access the latest research on commodities in the field. Many commodity boards depend on SAI staff for advice on reregistration decisions that will affect crops;

- **Performance Measurement** -- The SAI Toolbox offers examples of over 40 direct and surrogate performance measurements to assist the SAI team and grantees in determining impacts on environmental quality. SAI grantees are required to report baseline information and establish performance measures to determine their projects' benefit to human health and the environment.

With a focus on performance measures established in the SAI Toolbox, SAI and USDA launched a new cooperative relationship to achieve common goals. OPP organized an October 2004 performance measures workshop to bring staff from the two agencies together to discuss environmental measures and outcomes resulting from IPM programs and projects nationwide. Collaborators include the SAI staff and program leaders from USDA's Sustainable Agriculture Research and Education (SARE), Cooperative State Research, Education and Extension Service (CSREES), Economic Research Service (ERS), Natural Resources Conservation Service (NRCS) and the four USDA Regional IPM Centers. Staff from EPA and USDA are now better acquainted with each other's work in Integrated Pest Management (IPM) and continue to work together year-round. As part of a long-term strategy for cooperation, the group is creating common reporting elements for IPM projects for federal partners.

Compliance and Enforcement

In addition to activities related to the National Pesticide Field Program, EPA Regions, states and tribes play a crucial role in pesticide compliance and enforcement activities. FIFRA is unique in that states have primary responsibility for regulating the use of pesticides, having entered into cooperative agreements with EPA to receive federal funding in exchange for conducting inspections and training and certifying applicators. EPA maintains authority over non-use related pesticide issues. Where a state has not been granted enforcement primacy, EPA Regions have primary responsibility for compliance and enforcement implementation.

States and tribes are instrumental in investigating pesticide use and misuse. Lead Agencies conduct initial investigations, requesting EPA Regional involvement where necessary. State labs provide critical support by analyzing samples taken from sites of potential pesticide misuse. States also conduct inspections of pesticide use sites, such as golf courses, and agricultural sites where workers may be using pesticides.

OPP's approach to compliance and enforcement is intended to provide significant flexibility, accomplish certain goals for the specific program areas, ensure accountability for funds, and advance broad goals for pesticide management programs. OPP defines specific *levels of attainment* for each program area (water quality, endangered species, worker protection, and certification programs) and requires states and tribes to commit to reach these *levels of attainment*. States and tribes may negotiate with EPA Regions to define other activities they will accomplish which will advance OPP goals.

Pesticide Field Program Performance Measures

OPP is conducting a comprehensive project (the OPP Performance Measures Improvement Project) to produce an integrated suite of improved outcome performance measures for pesticide field programs. The project grew from recognizing the value and necessity of strengthened measures, as detailed in the Office of Management and Budget's (OMB) Program Assessment Rating Tool review of field programs. The effort is built on accountability measures contained in the OMB-approved EPA Strategic Plan.

This high priority effort involves senior management at Headquarters and EPA Regions and significant participation by our state and tribal partners. The end result will be the establishment of a comprehensive and consistent set of realistic, meaningful, and supportable outcome performance measures, and institution of steps to ingrain those measures. This is an important component of our work to strengthen links between budget, performance and accountability.

To develop comprehensive performance measures, OPP established a multi-tiered HQ/Regional/state/tribal project framework. A senior management Steering Committee provided project direction, ensured appropriate priority and resolved issues. A Coordinating Committee organized the project, ensured timely progress and promoted consistency on cross-cutting issues. Sub-program specific workgroups were charged to evaluate and develop potential strategic, annual performance and efficiency measures. Several work groups addressed key aspects of the field program: worker protection, water quality and endangered species.

Real World Examples of Ensuring Protection through Partnerships

As discussed in this paper, a strong pesticide field program is essential to informing, supporting, and implementing pesticide regulatory decisions made at the national level. Through the field program, EPA is able to reach better initial decisions and is equipped to address localized issues more effectively. For example, as the cases below illustrate, a strong field program enables the Agency to allow continued use of important pest control tools, address emerging public health problems quickly, and take steps to protect vulnerable sub-populations.

Maintaining Use of Important Pest Control Tools

Atrazine is a widely used and economically important herbicide, with use sites that include corn, sugarcane, and sorghum. During the reregistration of atrazine, EPA fully considered the risks and benefits of the pesticide's use and sought to develop a regulatory approach that was protective of human health and the environment while maintaining flexibility for atrazine users. Previous water quality monitoring had identified atrazine at levels of concern in surface water and at levels that may pose ecological risks. As reregistration proceeded, it became evident that to maintain continued use EPA needed to develop a proactive risk management strategy. Because of their field experience, and that of their state and tribal partners, OPP initiated communications with EPA Regions to

solicit suggestions on possible risk management approaches. The Regions worked with states, utilizing their understanding of agriculture, how atrazine is actually used, and past experience with other mitigation efforts, to provide input to OPP scientists attempting to develop a feasible regulatory approach.

Ultimately, this field prospective aided OPP in developing a strategy which allowed continued use of atrazine while making efficient use of resources by focusing mitigation and potential use restrictions on potentially vulnerable watersheds. This cooperative effort resulted in a reregistration decision with provisions which included:

- An intensive monitoring program for raw water, including weekly sampling during the pesticide use season and biweekly sampling for the rest of the year, to ensure that the 200 most vulnerable watersheds are not negatively impacted;
- For the eight highly vulnerable water systems, if atrazine is detected above the level of concern, use will be prohibited in the specific watershed area.
- If atrazine levels exceed safety standards in raw water, atrazine will be prohibited in geographic areas or watersheds.
- Manufacturers will conduct an education program with farmers to ensure atrazine is used according to more restrictive management practices shown to reduce atrazine contamination to safe levels for ground and surface water.

Addressing Emerging Public Health Issues

The West Nile virus (WNV), a mosquito-borne illness, was first detected in the Western Hemisphere in 1999 and has since rapidly spread across the North American continent into all 48 continental states, seven Canadian provinces, and throughout Mexico. In addition, WNV activity has been detected in Puerto Rico, the Dominican Republic, Jamaica, Guadeloupe and El Salvador. According to the U.S. Centers for Disease Control and Prevention (CDC), over 15,000 people in the U.S. have tested positive for WNV infection since 1999, including over 500 deaths. Many more people have likely been infected with WNV, but have experienced mild or no symptoms. The pesticide field program enabled EPA to mobilize quickly to address this unexpected health risk. Shortly after WNV was first detected, EPA began working closely with the CDC and the Agency's Regional Offices began working with states to address concerns.

Among the most active was EPA Region 2 (New York, New Jersey, Puerto Rico, and the U.S. Virgin Islands). The Region took a comprehensive approach to dealing with the issue of mosquito control. Region 2 provided technical assistance to its states on which pesticides were available for use and how to properly use them. Regional staff provided oversight, accompanying both New York and New Jersey state personnel during mosquito spraying to observe how the spraying was conducted. The Region took steps to ensure that spraying was not having adverse effects on the environment by conducting ambient water monitoring of sensitive water bodies. Samples were collected from these water bodies pre- and post-application to determine if contamination was occurring. Region 2 also worked with state and local governments to develop long-term mosquito control programs and prepared educational materials and presentations that it has given to

schools, senior citizen centers, the media, etc. Region 2 was one of several Regions that participated in an inter-regional conference on mosquito control which was attended by states affected by West Nile.

Protecting Vulnerable Sub-Populations

A strong field pesticide field program allows for a more targeted approach to regulation. EPA is particularly concerned about potential pesticide impacts to vulnerable sub-populations such as children or groups where cultural practices and lifestyles may result in greater pesticide exposures. OPP has worked with its tribal partners to better consider the unique circumstances that impact their exposure to pesticides. This work is being carried out as part of the Tribal LifeLine Project, an attempt to modify existing risk assessment modeling to better consider unique exposure scenarios facing tribes. OPP is working with tribes in both the U.S. and Canada to harmonize efforts for assessing communities living a “traditional lifestyle”. In addition, EPA is coordinating with the Smithsonian Institution to address exposure from pesticide residues on museum objects that would be repatriated to tribes and handled by museum guests and the public.

The Tribal LifeLine software being developed concentrates on accurately modeling tribal people and how they interact with their environment. The model incorporates exposure scenarios of tribal communities practicing traditional lifestyles using information that represents subsistence diets (hunting, gathering, fishing), seasonal changes in lodging, use of sweat lodges, and other unique exposure scenarios. A pilot for this approach was conducted in 2002-2003. Initial efforts are focusing on Alaskan tribes since they participate in subsistence activities to a greater extent than many tribes in the continental U.S. Following completion of the Alaska module, the Tribal LifeLine program will be extended to consider additional tribal lifestyles.

Conclusion

Protecting human health and the environment from potential pesticide risks requires a multi-level approach. Federal authority is needed for setting national standards and priorities, federal oversight is needed to ensure that taxpayer money is used to further goals and meet statutory obligations, and state, tribal, and local action is needed to assure that implementation is effective and responsive. Each regulatory partner has specific responsibilities, and the pesticide program will only succeed if those responsibilities are met. The National Pesticide Field Program was designed to foster communication and coordination among regulatory partners, in recognition that no single independent action or stakeholder can ensure adequate protection.

The National Pesticide Field Program plays a critical role in delivering the health and environmental protections envisioned by pesticide regulatory decisions and statutory authority. Much of this work has been accomplished in a time of stagnant or reduced resources. EPA continues to work with states and tribes to improve its field programs, and to develop methods of measuring performance to understand and improve the effectiveness of pesticide field program activities.