



STRATEGIC AGRICULTURAL INITIATIVE

EPA 731-R-07001

Progress Report 2007



Agriculture in Concert with the Environment

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“Farmers are not only the stewards of the land; they are vital partners in [our] efforts to accelerate the pace of environmental progress, while growing our nation's economy.”

EPA Administrator Stephen L. Johnson



Strategic Agricultural Initiative's Vision

American agricultural producers use bio-intensive farming practices that minimize the impact on human health and the environment, resulting in cleaner air and water and safer food.

The mission of EPA's Strategic Agricultural Initiative is to support and promote agricultural and pest management practices that are economically viable and protect human health and the environment.



A New Path for EPA with Agriculture

The Strategic Agricultural Initiative (SAI) is an innovative partnership between EPA and the agricultural community. As required by the Food Quality Protection Act (FQPA) of 1996, EPA is phasing out or reducing the risks from many toxic and persistent pesticides. As those pesticides are taken off the market, farmers need assistance adopting new reduced-risk pesticides such as biological pesticides, advanced pest monitoring, pheromone mating disruption, and other Integrated Pest Management (IPM) practices.

The transition to sustainable, reduced-risk practices requires that agricultural producers have access to new tools and information. In response to this need, EPA's Office of Pesticide Programs (OPP) created the SAI as a pilot in 1998. The successful pilot was expanded to all ten EPA Regions in 2002, with one SAI Specialist in each Region to provide technical assistance, outreach, and to implement the SAI grant program.

The program encourages bio-intensive farming practices, works with farmers to change their

traditional pest management approaches, and measures the impact of those changes on human health and the environment.

Biointensive farming practices are economically viable, socially responsible, and minimize the impact on human health and the environment, resulting in cleaner air, water and food.

EPA funds grants to demonstrate and facilitate the adoption of pest management practices that will enable growers across the country to transition away from the use of high risk pesticides. SAI partners with pesticide users, grower groups, agricultural educators, and the research community, and passes information and data on pest management needs and economically viable, safer alternatives to OPP.

SAI supports EPA's Strategic Plan through collaborative activities, outreach, and grants. Incorporating sustainability into the regulatory decision making process is consistent with EPA's goal of protecting human health and the environment from pesticide risks.

EPA's STRATEGIC PLAN

Sub-objective 4.1.1: Reducing Exposure to Toxic Pesticides. Through 2008, protect human health, communities and ecosystems from pesticide use by reducing exposure to pesticides posing the greatest risk.

Sub-objective 4.1.5: Realize the Value from Pesticide Availability. Through 2011, ensure the public health and socio-economic benefits of pesticide availability and use are achieved.



Funding for Alternative Pest Control



From 2003 - 2006, SAI helped to implement reduced-risk pest management strategies on over **1.2 million acres** of farmland. This led to a **reduction of at least 30 percent** in the use of highly toxic pesticides on those acres.

Approximately \$1.5 million in Federal grant funding is awarded competitively each year through SAI. Funding levels vary between the ten EPA regions based on minor crop acreage. All projects address one or more of the following goals:

- utilize demonstration, outreach, and education to increase the adoption of reduced-risk/IPM practices that provide alternatives to the use of highly toxic pesticides or pesticides impacted negatively by FQPA decisions;
- encourage partnerships between producers, commodity groups, scientists, extension, local/state/federal government agencies, and other stakeholders to find regional solutions to pest management issues;

- measure and document the effects of using reduced risk and IPM programs on the environment, human health, and the community;
- use a whole farm systems approach that considers alternative pest control tactics impacts to air, water, and ecosystem health.

National program measures capture SAI's influence in reducing pesticide risk in American agriculture. Using measures created by SAI in 2006, EPA can summarize and report the environmental progress of individual grantees and the program overall.

In the field, SAI grantees are learning how to gauge their own environmental progress by using the SAI IPM Transition Gradient.



SAI's IPM Transition Gradient

The SAI IPM Transition Gradient is used to score and evaluate pesticide risk-reduction projects across an easy to use continuum. It can be used to document the baseline level of current pest management practices and as a monitoring tool to document the progress toward the adoption of reduced-risk pest control methods. All SAI grantees evaluate their performance using this tool.

- 0 No transition, growers resist any change.**
- 1 Growers are interested in learning about reduced-risk pest management practices.**
- 2 Reduced-risk pest management practices have been initiated at the grower level on a pilot basis.**
- 3 Growers utilize key management practices to determine pest management needs.**
- 4 Full implementation of reduced-risk pest management practices.**
- 5 Adoption of a *whole systems* approach.**



Eyes and Ears in the Field and Boots on the Ground

Implementing the Food Quality Protection Act (FQPA) and demonstrating environmental stewardship requires EPA Regional staff to be in direct contact with agricultural pesticide users.

Proximity to the public and the regulated community allows Regional staff to develop *real world* perspectives on actual and potential impacts of Agency programs, ensuring their activities are tailored to meet geographically-specific ecological, economic, and agronomic needs.

Regions communicate program goals, monitor progress, and share pertinent information from the field with EPA Headquarters.

Most of the SAI Specialists also participate in the national EPA Agriculture Sectors Contacts group, providing a pesticide perspective in the Region and nationally. Jon Scholl, Counselor to the EPA Administrator for Agricultural Policy, used the SAI Specialists' local connections to gain field knowledge, which is essential to EPA's regulatory decisions.

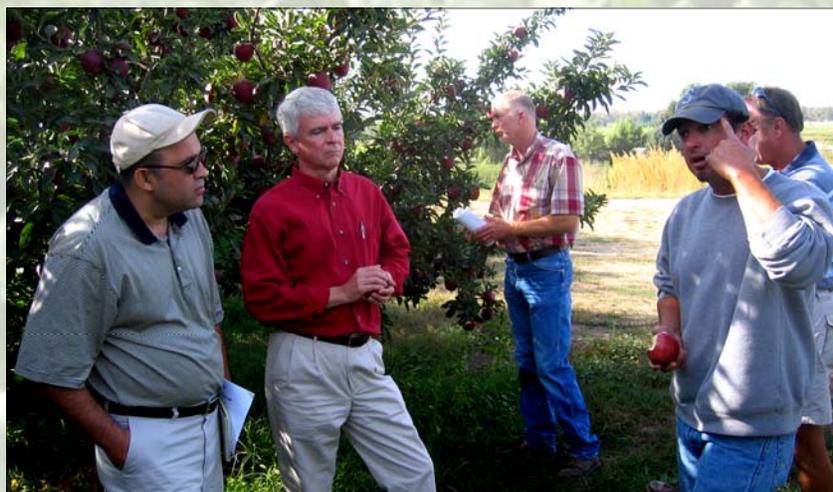
SAI facilitated tours and discussions in New England, the Eastern Seaboard, and California,

covering a broad array of topics from pesticides to livestock production issues.

In 2005, Regions 9 & 10 guided the OPP soil fumigant risk assessment team in learning first hand about fumigant use and possible alternatives specific to production areas and systems in the West. Two years later, public meetings were hosted by SAI staff in the west and southeast to provide a forum for EPA to discuss with growers and the public proposed mitigation practices for soil fumigants.

With assistance from SAI staff, EPA Assistant Administrator Jim Gulliford visited several regions to discuss a proposed phase-out of azinphos-methyl with fruit producers, farmworker advocates, researchers, and state agriculture, environmental, and health agencies prior to signing a decision in the fall of 2006. The result was a tiered reduction of use rates over a four year period and increased no spray zones for homes and water while growers adopt alternative tactics.

These are just a few examples of the type of service the national SAI program provides EPA and the agricultural community nationwide.



EPA Assistant Administrator Gulliford (second from left) discusses pesticide issues with apple growers.

Weaving New Networks for EPA

SAI contributes to a positive presence for EPA across the United States. The SAI team is characterized by diverse backgrounds and expertise, as well as a willingness to understand and address growers' issues.

Trust between EPA, university research and extension services, and growers is critical to the problem-solving process of finding acceptable solutions to transition from higher-risk pesticide use.

SAI actively engages in grower meetings, field days, advisory committees, and other outreach events. Partnerships with groups outside of EPA expand each year. This is a critical indicator of EPA's positive field presence and the Agency's ability to establish and maintain cooperative, effective relationships with the agricul-

Seeding Alternative Ideas

SAI assists USDA in developing commodity-specific Pest Management Strategic Plans (PMSPs), which outline the top research, regulatory, and educational needs to move forward on pest management alternative tactics.

Region 3 supported a PMSP for lima bean production in Delaware, Maryland and New Jersey where it is a cornerstone crop.

Region 4 facilitated the sweet potato growers and researchers to document their transition needs and this effort resulted in a \$2 million dollar grant from USDA Crops at Risk program.

Ten specialty crops were able to develop transition plans under a PMSP grant from Region 9 to the California Minor Crops Council.

Adoption of new tactics and technologies by a broader audience is best achieved by outreach, education and demonstration. SAI project re-

tural community for better environmental stewardship.

While many organizations support the adoption of IPM and sustainable agricultural practices, it is EPA's role to promote IPM with a focus on protecting human health and the environment from pesticide risks.

This unique perspective is presented when SAI serves on advisory boards for USDA's Regional IPM Centers, Sustainable Agriculture Research and Education program, and Natural Resources Conservation Service.

As a result, grants and contracts awarded by other agencies and organizations address EPA's priorities and complement SAI's efforts. Since the start of SAI, 40 percent of its projects received additional funding due to these collaborative efforts.

sults are being incorporated into pest control and best management guidelines used by producers, pest control advisors, and USDA programs.

Region 3 is supporting a project that promotes successful tactics from across the Northeastern U.S. through grower to grower exchanges.

SAI looks forward to expanding this concept nationally in future years by increasing the dialogue on how to communicate innovative technology transfer concepts across the country.

In addition to reducing pesticide risk, SAI is achieving other environmental benefits. Promotion of the use of cleaner bio-diesel fuels and biofumigant cover crops reduces air toxics; reduced tillage systems protect water, air, and soil quality; and precision agriculture methods reduce pesticide, nutrient, and water use.

EPA Region 1

Small scale fruit and vegetable production and fresh market distribution constitute agriculture in New England. Communication and collaboration with the agricultural community and other stakeholders is the primary focus of Region 1's SAI.

The Region 1 SAI Specialist, Andrea Szylvian, facilitates cooperation with other agencies and non-profit organizations, thereby creating opportunities to identify and work toward shared goals.

An example of this cooperative effort is a partnership with the Cape Cod Cranberry Grower's Association. A project was funded to refine weed management practices; as a result, the practice was added to the U.S. Department of Agriculture's and National Resource Conservation Service's *Best Management Practices* for cranberry production. This weed management practice was also added to the Massachusetts cranberry growers' production guide and is eligible for USDA funds allocated for cost sharing.

Collaborative efforts with the New England Vegetable and Berry Grower's Association provided a resource to support a production and outreach project focused on sweet corn—a New England fresh market staple and favorite summer vegetable. Producers were educated on the use of biopesticides and *Trichogramma* (a parasitic wasp) release for control of corn earworm and European corn borer.

Going beyond the scope of production, partnerships were forged with agricultural stakeholders such as *Red Tomato*, a not-for-profit, fair trade marketing organization that promotes locally grown produce. *Red Tomato* is facilitating the development of an *Eco-Apple* protocol for Northeastern apple production. Region 1's work with the Northeastern IPM

Center provides an invaluable resource network for the entire pesticide program.

As funding for cooperative extension is reduced or eliminated, New England growers have fewer reliable sources for consultation and on-going production support. As a result, growers sometimes are forced to rely on product sales staff for pest control advice.

SAI's support of commodity groups and other agricultural organizations provides a mechanism for additional support to well established and respected IPM programs at New England's land-grant universities.

"The SAI program has been of extreme benefit to the vegetable growers of New England. Through this program we improved growers' ability to identify pests, increased grower knowledge of pest populations and IPM practices, improved the ability of Extension to communicate timely insect population data to growers, and increased grower adoption of reduced-risk practices. Our efforts in sweet corn alone have reduced sprays on thousands of acres of sweet corn each growing season."

-Rich Bonanno, New England Vegetable and Berry Growers Association



EPA Region 2

The main focus of Region 2's SAI is to establish and maintain partnerships with agricultural organizations, grower associations, and other federal and state agencies in New York, New Jersey, Puerto Rico, and the U.S. Virgin Islands. These partnerships aim to reduce exposure to toxic pesticides through the adoption of farm pest management practices that transition growers away from the use of high-risk pesticides.

The SAI Specialist, Audrey Moore, worked with other grant programs in Region 2, such as Pollution Prevention, which funded several SAI projects. In addition, the SAI Specialist is part of the Region's cross-media Agriculture Team and the Pollution Prevention Council.

The Region 2 SAI program maintains a broad focus and is not limited to any specific crop. Growers interested in developing, demonstrating, or applying reduced-risk alternatives and ecologically-based integrated approaches to agricultural pest management were eligible to apply for SAI grant funding.

Projects demonstrating IPM or Integrated Crop Management included many commodities such as blueberries, cranberries, pumpkins, peaches, and wine grapes.

A recent success was demonstrated through the Blueberry Reduced Risk Integrated Crop Management System in New Jersey. This recently completed project showed that commercial Highbush blueberry growers can reduce or eliminate the use of organophosphate and carbamate insecticides.

In fact, pesticide use for a key blueberry pest, blueberry maggot, was reduced by over 50% with border sprays alone. Mating disruption replaced the use of insecticides used for white grub (Oriental beetle) control.



Region 2's Kathleen Callahan and Audrey Moore along with grantee Dean Polk at a blueberry event in 2005.

Another success is a project demonstrating biological control of the Mexican bean beetle using the parasitic wasp. The New Jersey Department of Agriculture mass-produced a larval parasitoid for release into 86,000 acres of New Jersey soybean fields.

This program reduced the need to chemically control beetle population in snap and lima bean production. The use of approximately 16,000 pounds of active ingredients was reduced, yielding a savings of nearly \$17 per acre, saving the state of New Jersey approximately \$1.5 million dollars.

Region 2 reported a growing interest in organic farming and pesticide risk-reduction practices that both control pests and save growers money.

EPA Region 3

SAI in Region 3 supports the agricultural community's efforts to transition from conventional pesticides to reduced-risk pesticides, alternative methods of pest control, and sustainable practices in food production. The SAI Specialist in Region 3, John Butler, focuses on outreach and education to assist growers making this transition in the mid-Atlantic.

Apples and tomatoes are two crops that received significant funding support from the Region 3 grant program. Lima beans, melons, and peppers also received support because of their significance to agricultural production in this region. Overall, minor crops receive support based on a project's ability to assist growers in the transition from the use of conventional pesticides.

One noted success was the Pennsylvania Department of Agriculture's project, "*Greenhouse Integrated Pest Management for the Amish and Mennonite Community of Lancaster County*." The project was able to assist these family farms in transitioning to the use of bio-control methods of pest control, thereby, creating a safer work environment for the family farm in keeping with their Amish and Mennonite lifestyles.

In addition, the Pennsylvania Association for Sustainable Agriculture supported a farm-based education series of field days and conferences. It also assisted fruit and vegetable growers in changing production methods to reduce pesticide use on the farm.

Region 3 sees a growing interest in the transition to organic production on small-scale, minor crop farms. Growing specialty markets, farm markets and restaurants in suburban and urban communities are driving this focus because of the consumer demand for healthier food.

Region 3 also promotes the technology transfer of previously funded and successful SAI projects from all ten Regions to a broader audience. This is accomplished through a supplemental grant program that fosters the transition to alternative and reduced-risk pest management practices.



SAI's John Butler (center) with Amish grower (left) and Cathy Thomas, IPM Coordinator for the Pennsylvania Department of Agriculture.

"Amish and Mennonite growers are proud to have EPA representatives visit our operations and see what we have accomplished. Our individual accomplishments benefit the whole community."

-Pennsylvania Amish Grower

EPA Region 4

Region 4's SAI Specialist, Lora Lee Schroeder, focused on reducing pesticide risks on fruits and vegetables, such as peaches, sweet potatoes, strawberries and Satsuma citrus in the Southeast. The Region also funded projects on honeybees, turf grass, ornamentals, cotton, peanuts and Frasier firs, representing the geographic diversity in the Southeast.

The SAI program is making baby food safer. Over one billion pounds and eighty percent of sweet potatoes, the number one selling vegetable in baby food, are grown in four Southeastern states.

To prove that organophosphate and carbamate pesticides are not needed to control insects under most conditions, SAI brought together sweet potato researchers to develop a research plan, which resulted in \$2 million in funding by USDA. The researchers proved their point, and work is underway to

train farmers to scout for insects and not apply insecticides under most conditions.

SAI also promoted the transition to organic agriculture. In fact, the number of certified organic farmers in the Southeast more than doubled from 2004 - 2006.

Georgia Organics worked with fruit and vegetable growers, focusing its research on organic blueberries, peanuts, and Vidalia onions.

During workshops and on-farm demonstrations, Georgia Organics promoted reduced tillage, which reduces pesticide use and eliminates run-off of fertilizer and pesticides. As a result, the number of acres of reduced tillage in Georgia increased from 622,666 acres in 2000 to 1,154,204 acres in 2004, which represents 34 percent of all planted acres in the State.



Relinda Walker (left), Region 4 SAI Specialist Lora Lee Schroeder (center), and Shirley Daughtry examine no-till broccoli at Heritage Organic Farm.



EPA Region 5

Region 5's SAI focuses on outreach and minor crops, primarily fruits and vegetables, in the Midwest. Reducing risk by transitioning to bio-intensive, sustainable systems is the goal of the program, and economics is a driving force in making this transition.

The lack of effective tools to control key pests, such as plum curculio and codling moth in orchard crops, necessitates much of the IPM work. As broad-spectrum organophosphates are phased-out, growers will need viable alternatives, requiring further research and education on IPM implementation.

Measuring the success of the program in advancing IPM and reducing risk is a priority.

Through SAI, reduced-risk alternatives to FQPA-targeted pesticides were found and environmental results were achieved on over 46,000 acres in the Midwest, mostly in Michigan and Wisconsin. For example, Michigan vineyards that adopted IPM used 31% less carbaryl, 51% less phosmet, and 70% less azinphos-methyl than vineyards managed with a standard spray program.

In 2006, apple and cherry growers in Michigan met with EPA Assistant Administrator Jim Gulliford and Office of Pesticide Programs staff to discuss efforts to transition from Azinphos-methyl (AZM) to lower-risk alternatives.

In 2007, Ohio parsley growers worked with the SAI Specialist, Barbara VanTil, to draft an AZM transition strategy and define how to measure

growers' transition to viable pest management options.

Through the Wisconsin *Eco-apple* project, fifteen growers increased their use of bio-intensive IPM programs by 13% on 395 acres of fruit. The growers also reduced pesticide toxicity by 58%, as assessed by the apple Pesticide Risk Assessment Tool, a software program used by growers for pesticide record keeping and risk analysis. The software includes ratings for pesticide risks, such as worker risk or environmental risk, as well as pesticide price data so that growers can assess the cost of switching from chemical controls to biological pesticides.



Barbara VanTil, SAI Specialist, and John Mayne, Southern SARE, discuss sustainable production.

EPA Region 6

The focus of Region 6's SAI is on pest management programs that reduce the use of conventional pesticides, demonstrate the efficacy of reduced-risk practices, or completely eliminate the use of pesticides. Projects were undertaken on pecans, sugarcane, cotton, rice, wheat, and turf grass in the southern states west of the Mississippi River.

Outreach by the Region's SAI Specialist, Eugene Thilsted (below), included participation on IPM committees with land grant universities as well as U.S. Department of Agriculture's IR-4 programs that impact the Region. Outreach also included contact with commodity groups such as the Texas Vegetable Association and the Texas Nursery and Landscape Association, along with Farmers Market Associations.

A cotton initiative introduced global positioning, field monitoring, and field topography for applying highly toxic nematocides in a manner that determined when and where the nematocide is needed, instead of broadcast throughout the entire cotton field. Even though the method was tested on cotton, it was determined that sweet potatoes, soybeans, and



any other crop impacted by nematodes can also benefit from this method.

A wheat project demonstrated that a blanket treatment to control greenbugs in winter wheat is not needed to obtain optimum wheat yield. This change in approach not only saved growers money, but also reduced potential pesticide risks such as spray drift, water contamination, worker safety, and ecological effects.

In the past, many pecan growers made pesticide applications according to the calendar instead of when needed. Thanks to SAI, pecan growers throughout Texas can access a



website that tells them if an insecticide application is needed in their specific orchard.

A sugarcane insect pest control initiative identified the importance of resistance management using a reduced-risk insecticide, tebufenozide, to prevent resistance for control of sugarcane borer, a major pest. By utilizing IPM along with insect resistance management, the longevity of the proper use of this reduced-risk insecticide can be extended before widespread insect resistance occurs.

Another project demonstrated that peat moss can be used to control damaging fungal diseases on golf courses, lawns, and landscaping, without the use of pesticides. Spring and fall applications of peat moss

EPA Region 7

Region 7's SAI is focused on the interaction between traditional field crops and specialty and food crops in Iowa, Kansas, Missouri, and Nebraska. In order to encourage growers to adopt reduced-risk practices such as non-conventional pesticides, SAI aims to reduce the cost of pesticide inputs through outreach and efficacy research.

The Region 7 SAI Specialist, Heather Duncan, focuses her energy on such outreach and research projects.

A successful project funded through SAI tested using sunflowers to reduce soybean stem borer damage in soybean fields. Sunflowers were planted at each of the four corners of a soybean field to show that sunflower trap crops are a viable alternative to chemical control of soybean stem borer infestation.

In 2005, female stem borers laid nearly three times more eggs per plant in sunflower than in soybean. 2006 growing season results demonstrated that the soybeans had only 5% infestation while the sunflower border was 96% infested with a number of plants containing multiple larvae. The project will be completed in 2007.

The University of Nebraska-Lincoln is researching and demonstrating pest control alternatives to control varroa mites in honey bee hives.

"The Kansas Soybean Commission had expressed interest in the approach, but this project would not have proceeded without the support of the SAI."

- J.P. Michaud, Kansas State University entomologist and sunflower trap crop project coordinator



To protect bee hives from varroa mites, EPA has allowed the use of coumaphos, an organophosphate, when states requested emergency exemptions under FIFRA Section 18. Every year 39 states, including all four Region 7 states, request emergency exemptions to use coumaphos to control varroa mites and small hive beetles.

The project demonstrated that treating bee hives with oxalic acid was as effective as coumaphos and did not injure bee colonies. These results will be published in several influential journals. Through such efficacy tests and outreach, this project will reduce conventional pesticide use and increase the use of reduced-risk pesticides to treat bee colony pests. This project is one example of how Region 7 SAI could help reduce pesticide risks nationally through effective technology transfer.

EPA Region 8

Region 8's SAI focused on research on IPM and sustainable agricultural practices and grower education in the Mountain states. Research and outreach addressed crops such as tree fruits, onions, corn, sugar beets, and vegetables.

The program also demonstrated practices such as organic farming, using biological pesticides, whole-farm systems, and innovative IPM techniques such as thermal weed control, straw and other mulches, and weather modeling.

Peg Perreault, Region 8's SAI Specialist, conducted outreach through partnerships with university extension and researchers, participation in field days and crop tours, presentations at association meetings and conferences, and partnerships with USDA. Region 8 addressed alternatives to FIFRA Section 18 emergency pesticide registration exemptions and cancelled pesticides and uses. A drought in some states resulted in a need for whole farm management that would include water conservation.

One project introduced a predictive, weather-based model for controlling powdery mildew on grapes in Colorado to reduce fungicide use by at least 50 percent. The project used predictive modeling to reduce the number, frequency, and rates of fungicide applications. One spray application per season was shown to be adequate, as opposed to the six applications normally recommended.

During the first two years, there was a reduction in the number of spray applications in test vineyards, resulting in significant cost

savings while maintaining yields and grape quality. After attending demonstrations, grape growers started implementing these practices.

One successful project replaced the use of several insecticides and Section 18 products used on Colorado onions with biopesticides and alternative cultural practices.

Another project encouraged growers in South Dakota to be certified by the Food Alliance and agree not to use sixteen highly toxic pesticides. A precision agriculture project adopted by over 200 corn growers in the high plains region resulted in reductions in herbicide use--particularly atrazine --and nitrogen applications, and it saved irrigation water on over 200,000 acres.

All of these projects resulted in additional funding from other organizations, such as USDA, States, and trade associations, for expanded research, outreach, and implementation.



EPA Region 9

Region 9 SAI helps growers transition away from high risk pesticides to lower risk, more environmentally friendly practices on a wide array of commodities including grapes, plums, nectarines, peaches, almonds, and walnuts. According to SAI Specialist, Cindy Wire (pictured right), most projects are located in California due to its large agricultural acreage, the diversity of its crops, and the Region's focus on the San Joaquin Valley.

The Region also collaborated with the University of California to fund biologically integrated farming systems projects, which demonstrate a whole-systems approach to farming on crops such as rice, prunes, strawberries, lettuce, and citrus.

Table grapes were identified as one of the top five commodities in California responsible for releases of volatile organic compounds (VOCs). To transition grape growers away from VOC contributing pesticides to practices that meet new air quality goals, Region 9 funded a project targeting 94% of the 85,000 acres of table grapes grown in California. This project is moving growers away from using chlorpyrifos, simazine, and oxyflourfen towards reduced-risk pesticides such as imidacloprid and buprofezin, and using fewer pesticide applications.

From 2001 to 2004, Region 9 funded IPM programs in three wine grape growing regions in California to reduce the use of diazinon and chlorpyrifos. These separate efforts led to the

development of a statewide Sustainable Winegrowing Practices program. As a result of this effort, the California wine grape is the first commodity to adopt sustainable growing practices commodity-wide, covering 527,000 acres.



One of the IPM programs was established by the Sonoma County Grape Growers Association, which represents 35 percent of Sonoma's grape growers and approximately 60,000 acres of farmland. In 2000, the Association started a grower-to-grower program that reinforces the need to

reduce the use of pesticides being phased out by FQPA. This effort helped grape growers reduce their use of nine targeted pesticides, including dimethoate, diazinon, fenmiphos, carbaryl, mancozeb, iprodione, simazine, oxyfluorfen, and propargite. From 1999 to 2003, there was a 32 percent reduction in pounds used of these active ingredients and a 31 percent reduction in treated acres.

California's Central Valley produces four-fifths of the world's almonds. Almond growers traditionally use FQPA-targeted pesticides such as organophosphates and carbamates. The SAI program funded IPM projects summarized in the *Seasonal Guide to Environmentally Responsible Pest Management Practices in Almonds*, a tool for growers. Demonstration projects like these contributed to an 85% decrease in dormant-season organophosphate use in almonds.

"SAI has been critical to the success of Lodi-Woodbridge Winegrape Commission's sustainable winegrowing program, from grower outreach, to developing our self-assessment workbook, to the implementation of our third party-certified sustainable winegrowing program, all of which has not only advanced sustainable winegrape growing in the Lodi region but has influenced similar programs throughout California and the rest of the US wine industry."

- Cliff Ohmart, Research/IPM Director Lodi-Woodbridge Winegrape Commission

EPA Region 10

Region's 10 SAI Specialist, Sandra Halstead, works in the Yakima Valley of Washington State, providing EPA with a unique opportunity to become a member of the agricultural community. Since 1999, SAI has built relationships with growers, commodity organizations, crop consultants, and university faculty in Oregon, Washington and Idaho. With assistance under a cooperative agreement with American Farmland Trust, Region 10 focuses on projects that assist in the transition away from organophosphates, carbamates, and soil fumigants.



Sandra Halstead, SAI Specialist, and Manuel Silveria, Vice President of NOPAC Foods, discuss the successes and challenges snap bean growers face in current production systems.

The region funded Washington State University to reduce the use of chlorpyrifos on grapes. The project demonstrated the use of precision application technology to spot spray pyrethrins at the vine base, creating a barrier to prevent cutworms from climbing vines and damaging grape buds. Grower adoption of this technique resulted in a 25,000 pound per year reduction in the use of chlorpyrifos (75 percent in wine grapes and 30 percent in juice grapes) and increased grower returns of over \$6 million annually.

Participating in cross media issues, with particular emphasis on water quality and endangered species concerns as they relate to pesticides is a priority for Region 10's SAI. For example, SAI funded the Hood River Grower Shipper Association, a cooperative for pears, apples, and cherries, to work with its members on pesticide alternatives and best management practices. By the third year of the project, water quality monitoring detected less azinphos-methyl, chlorpyrifos, and malathion in salmon-bearing streams.

In 2005, a grant funded the design, demonstration, and evaluation of snap bean field scouting protocols and monitoring for mold and damage from the 12 spot beetle in the Willamette Valley of Oregon. Snap bean growers frequently applied pesticides to control these pests. EPA's cancellation of a key fungicide and increased scrutiny of carbaryl, a broad spectrum insecticide, helped drive the project. NORPAC, a large grower-owned frozen vegetable processor, in partnership with Oregon State University, utilized local and regional monitoring programs to predict fields at high risk to pest damage and communicated pest control options to growers. As a result, there was a 75 percent reduction in pounds of carbaryl applied on over 10,000 acres from 2004 to 2006.

"SAI has had a positive role in improving the overall attitude towards EPA and how they can work in harmony with production agriculture and advocacy groups. This is extremely important for the future working relationships needed to sustain agriculture production while protecting food safety and environmental quality."

- Bob Stevens, Interim Director, Washington State University Irrigated Agriculture Research and Extension Center

SAI Grant Recipients 2003 - 2007

REGION 1

Caledonia County Natural Resources Conservation District
Intervale Foundation
University of Massachusetts Cranberry Experiment Station
University of Connecticut
Red Tomato, Inc.
University of Maine
Cape Cod Cranberry Grower's Association
New England Vegetable and Berry Growers Association

REGION 2

Rutgers University
Organic Materials Review Institute
Cornell University
New Jersey Department of Agriculture
Cornell Cooperative Extension of Suffolk County
New Jersey Department of Environmental Protection

REGION 3

Future Harvest, Inc.
National Audubon Society with the Pickering Creek
Audubon Center
University of Delaware
University of Maryland, College Park
Virginia Polytechnic Institute and State University
Pennsylvania Association for Sustainable Agriculture
Pennsylvania Department of Agriculture

REGION 4

Alabama A & M University
University of Florida
Delta F.A.R.M
University of Georgia
Clemson University
Auburn University
Center for Agricultural Partnerships
Georgia Organics
Florida Department of Agriculture & Consumer Services
Appalachian Sustainable Agriculture Project
University of Tennessee
Mississippi State University
North Carolina University
Rural Advancement Foundation International USA
Tennessee State University

REGION 5

* Purdue University
Michigan State University
Organic Farming Research Foundation
University of Wisconsin, Madison
University of Illinois
* Center for Agricultural Partnerships
University of Minnesota
Protected Harvest
Cherry Marketing Institute and HortSystem, Inc
IPM Institute of North America, Inc.

REGION 6

Louisiana State University
University of Arkansas
Oklahoma State University
New Mexico State University
Texas A&M University
The Kerr Center for Sustainable Agriculture

REGION 7

Kansas State University
Missouri Environmental Resources Coalition
Iowa State University
University of Missouri
University of Nebraska

REGION 8

Land Stewardship Project and Food Alliance Midwest
Organic Farming Research Foundation
Colorado State University, West Colorado Research Centers, Orchard Mesa and Rogers Mesa
Colorado State University, Tri-River Extension
Colorado State University, San Luis Valley Research Center
Montana State University

REGION 9

California Tree Fruit Agreement
University of California Cooperative Extension
The Regents of the University of California Davis
Center for Agricultural Partnerships
University of Hawaii, Kaneohe Extension Office
Protected Harvest
California Dept. of Pesticide Regulation
University of California Sustainable Ag Research and Education Program
Lodi-Woodbridge Winegrape Commission
Sonoma County Winegrape Commission
California Specialty Crops Council
Organic Farming Research Foundation
Food Alliance
Agriculture and Land-based Training Association

REGION 10

* Amalgamated Sugar Company LLC
* Center for Agricultural Partnerships
* Hood River Grower-Shippers Association
* Norpac Foods, Inc.
* Optimized IPM
* Peerbolt Crop Management
* Potato Growers of Idaho
* The Food Alliance
* Oregon State University
* Washington State University
* Three Rivers Resource Conservation Council
* Wy'East Resource Conservation and Development
* USDA-Agricultural Research Service

* funded under a cooperative agreement between EPA and American Farmland Trust

SAI shows that biopesticides and reduced-risk chemicals work.



Field of biofumigant mustard crops which can help suppress soil pests and reduce the use of chemical fumigants.



Widespread adoption of spinosad-based insecticides for cherry fruit fly have significantly reduced risk to consumers, applicators, farmworkers, and non-target species when compared to broadspectrum organophosphate materials used previously. Pictured here is the application technique for GF-120 fruit fly bait, which also is approved for use in organic production.

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