Implementing the Pesticide Registration Improvement Act - Fiscal Year 2012

Ninth Annual Report



Table II – Partnership Grants – Funding and Accomplishments FY 2008 – Partnership Grants ~\$970K in grants (\$750K in PRIA2 fees and additional appropriated funds) funded five projects from October 2008 to September 2010		
		2010
Recipient	Project Title and Accomplishments	Funding
California Department of Pesticide Regulation (Sacramento, CA)	 "Reducing Volatile Organic Compound Emissions from Pesticide Use in Nuts and Tree Fruit Orchards in California's San Joaquin Valley" This two-year project, which concluded in September 2010, applied PRIA funds to promote reduction of pesticides in surface water runoff and volatile organic compound (VOC) emissions from almond, peach, and walnut orchards in California. Funding supported a multi-agency and grower group team of 12 organizations that developed a new <u>Conservation Management Practices (CMP) Guide</u> and a <u>Web-based VOC Emissions Calculator</u>. Team members gave seventeen presentations to over 500 farmers on how to use the CMP in conjunction with year-round IPM plans to reduce VOC emissions and pesticides in water runoff. They distributed 3,700 copies of the CMP to 14 sites including California state and county agencies, USDA, and grower associations. Nineteen sessions, with over 750 attendees, demonstrated the use of the <u>Web-based VOC Calculator</u> for nonfumigant agricultural-use pesticides. The potential benefit of the CMP guide and <i>VOC Calculator</i> will extend to over 300,000 acres in California producing almonds, peaches, and walnuts. 	\$159,494
IPM Institute of North America (Madison, WI)	"High-level IPM in All U.S. Schools by 2015" This project supported the establishment and verification of the adoption of integrated pest management (IPM) in public kindergartens through high schools across the country. Concluded in September 2011, the project promoted increased use of IPM tools by teaching IPM managers about pest biology, inspection and monitoring for both pests and pest-conducive conditions, and prevention through education, sanitation, and maintenance techniques. A national network of four regional work groups established 13 school demonstration sites (affecting 19,365 staff and 139,398 students) in seven states to promote IPM. The project established four new self-expanding coalitions to further expand IPM that resulted in 13 new state coalitions (affecting 13,287 staff and 244,745 students). A network database of contacts was developed that includes over 11,000 administrators, teachers, facility and grounds, food service, health care, and school business professionals. As a result of PRIA funding, IPM measures are now affecting 2,166,904 students and staff (1,794,657 students and 372,247 school staff) through project demonstrations and new partnerships.	\$250,000

University of Florida (Gainesville, FL)	"Reduced Pesticide Use for <i>Bermisia tabaci</i> and Greenhouse Whiteflies on Greenhouse Tomatoes Using Protected Culture, IPM Techniques, Parasitic Wasps, and Papaya Banker Plants" PRIA funds promoted research, education, and adoption of a biological pest management system that reduces use of	\$246,418
	pesticides in greenhouses in this ongoing project. Banker plants serve as a home base for parasitic wasps and predatory arthropods. In the case of Papaya banker plants, wasps feed on whiteflies, which are greenhouse pests of tomato plants. To achieve the project goal of demonstrating efficacy and adoption into production greenhouses, the presence of other pest species necessitated incorporation of additional biocontrol systems. The biocontrol of whiteflies was coordinated with the use of an expanded suite of similar banker plant biocontrol methods for aphids, mites, and thrips. Funds supported demonstrating IPM approaches for controlling these pests and mitigating the spread of viral diseases using banker plants in greenhouses at five vegetable grower demonstration sites in Florida (4 cooperator owned, 1 University). Participants installed unique banker plant systems for mites, thrips and aphids, successfully demonstrating the banker plant approach. The project's success and outreach efforts have prompted University Extension agents to request development of systems for homeowners to help manage pest arthropods in vegetable gardens and landscapes. The potential impact for future use of biocontrols in tomato production includes greenhouse grown tomatoes representing 17% of the fresh market volume and 37% of grocery store sales in the United States.	
Michigan State University (East Lansing, MI)	"Increasing Adoption of Reduced-Risk Pest Management Practices in Midwest Blueberries to Prepare for FQPA Implementation"	\$91,508
	PRIA funds helped prepare the Great Lakes' blueberry industry for the phase-out of an organophosphate pesticide, azinphos-methyl (AZM), by increasing the adoption of reduced-risk alternatives and IPM methods. This two-year project, which concluded September 2010, demonstrates the greater rain-fastness of alternative pesticides when compared to AZM. Thus, use of the alternatives leads to reductions in the number of pesticide applications during the growing season. Demonstration control programs at four commercial blueberry farms in Michigan successfully replaced AZM and pyrethroid based insecticides with reduced-risk alternative pesticides, achieving comparable or better control. Each year, workshops on IPM approaches were presented to groups of 50 to 75 attendees (including growers, crop consultants, and industry representatives). The weekly newsletter, <i>The Blueberry IPM Update</i> , had over 250 subscribers during each growing season. The Michigan Blueberry IPM Update Web page also updated project information for its readers. The Fruit and Vegetable Expo in Grand Rapids, Michigan offered the region's blueberry growers presentations of project results in 2009. Participants at the North American Blueberry Research and Extension Workers meeting also saw results from this research and education project. The impacts of this project continued as the principal investigators presented talks on Blueberry IPM in 2011 at industry-led grower meetings, Fruit and Vegetable Days, and Michigan State University Horticulture Days.	

Central Coast	"Reducing Pesticide Risk through the Adoption of Integrated Farming Practices in Central Coast	\$225,000
Vineyard Team	Vineyards and Marketing Certified Sustainable Products"	
(CCVT)		
(Paso Robles, CA)	PRIA funding initiated the adoption and implementation of IPM practices through CCVT's grower self assessment and the "Sustainability in Practice Vineyard Certification Program (SIP)." The program is now fully operational: for 2010 the results of 86 Self Assessments were sent back to participating growers. Funds also supported field research to demonstrate effective alternatives to pesticides currently used in vineyards. Participants installed 200 Argentine ant bait stations at four grower-cooperator research stations and worked with a grower cooperator to implement an IPM bait-station strategy to control mealybugs. CCVT delivered outreach programs to educate and guide growers on the use of integrated farming systems using "Certified Sustainable Standards" and educated the public and wine trade about the environmental and economic benefits of products that are "Certified Sustainable." As a result, SIP™ Certified labeled wines are a growing presence in the marketplace. Each label is evidence that IPM and stewardship practices are in use in participating vineyards. The team conducted workshops on pest identification (attended by 100 Spanish speaking participants) and training sessions in support of the SIP. Initially, twenty new vineyards applied to the SIP certification program in 2009. During 2010, CCVT engaged in outreach events with some 260 participants, including a Vineyard Pest and Disease Seminar, workshops on Irrigation and Water Management, Biodiversity and Conservation in the Vineyard, and an Oak Habitat Conservation Field Day. CCVT also worked with a bait-station grower-cooperator and other organizations to host a field day on ant and mealybug control. While this two year project ended in September 2010, the impact of PRIA funding continues as SIP reaches a broader audience.	

	FY 2009 – Partnership Grants ~\$1.3 million awarded (\$750K in PRIA 2 fees with additional funds from EPA's Office of the Science Advisor) to fund six projects from October 2009 to September 2011	
University of	"Implementing Reduced Risk Alternatives for Management of Codling Moth in Walnuts"	\$249,687
California		
(Berkeley, CA)	This completed project included: 1) a resistance management program for navel orangeworm and codling moth in walnuts; 2) reducing organophosphate and pyrethroid insecticide use by over 50%; and 3) demonstrating the effective use of a biopesticide (a pheromone that interferes with moth mating habits), currently used for apples, to replace azinphos methyl and other pesticides commonly used in growing walnuts. A reduction in the use of these pesticides also addresses concerns about water quality and runoff and resistance management in relation to controlling codling moth. Field research was expanded to include three more cooperating partners, making a total of six orchards in two California growing regions. Future impacts resulting from this project will be: 1) the final development and registration of new pheromone delivery options for walnuts, currently grown on 240,000 acres in the U.S., 2) an increase in adoption in terms of total acres of walnuts using pheromone mating disruption, and 3) a corresponding reduction in use of organophosphates and pyrethroids in walnut systems.	
University of	"Expanding and Improving the Use of IPM in Midwest Fruit Production"	\$202,027
Wisconsin		
(Madison, WI)	PRIA funds supported adoption of IPM practices for apples, cherries, and grapes in Wisconsin and nearby states to address water quality and runoff issues. The project team trained 55 participants, including new IPM coaches, in how to use low-cost modifications to airblast sprayers to help growers in Wisconsin, Minnesota, Illinois, and Iowa use pesticides more efficiently and to reduce drift, risk, and water runoff. Impacts of the training were assessed through a survey that compares prior year pesticide use to use in the year following the training. Approximately 40 new coaches were trained. The University of Wisconsin previously demonstrated that adding new coaches leads to a reduction in pesticide risk by 50% and increased IPM adoption by 78% within 3 years. An extensive four part IPM training course with 20 participants from six Midwest states (IA, IL, MN, MO, OH, and WI) was provided. This training promoted the use of reduced risk pesticides as well as biopesticides and pheromone technologies and will help growers and USDA's Natural Resources Conservation Service with their IPM and conservation activity plans for specialty fruit crops.	

Baltimore City Health Department (Baltimore, MD)	 "Safe Pest Management for Health (SPMH): An Initiative to Reduce Community Pesticide Use, Increase Integrated Pest Management (IPM), and Improve Environmental Health in Baltimore Through Public and Private Partnerships" PRIA funds supported use of multiple IPM approaches that improve human health by controlling pests in residences, schools, day care facilities, and homeless service centers in Baltimore, Maryland. The Baltimore City Health Department developed IPM training and site plans for target sites; developed and administered the nation's first IPM subsidization program for low-income families; coordinated pest control with six partner organizations; and implemented an educational IPM program for Baltimore's Latino community. Through the SPMH Initiative, over 3,400 residents, including Latinos, as well as city staff and other professionals, received IPM training. An additional 1,800 residents were trained indirectly during pre-occupancy training with the Housing Authority of Baltimore City. One example of SPMH's legacy is that pest presence and unmet IPM need is a consideration during holistic house assessments conducted by LIGHT (Leading Innovation for a Green and Healthy Tomorrow) - Baltimore City's response to provide comprehensive services from multiple city agencies and non-profits. Policy recommendations or changes were proposed for five city agencies, which have resulted in strengthened staff training, monitoring, and responses to pests. In addition, on-site assessments and action plans were produced for 35 municipal facilities. Major SPMH outcomes included a greater than 90% increase in the use of either baits or boric acid in rental housing and 84% post-training retention of IPM knowledge regarding use of baits versus aerosol sprays based on pre- and post-training assessments. 	\$250,000
Pennsylvania State University (University Park, PA)	"Collaborative Design & Delivery of a Unified Training Platform for IPM in Buildings" PRIA funds supported a Penn State project to increase IPM in urban structures through a pilot training program and a collaborative network of housing entities in the Philadelphia metropolitan area that performed contract work in housing and commercial and public buildings. Funds supported the development of educational modules for <i>IPM in Buildings</i> first for the Philadelphia area and later for dissemination nationally via an internet-based training program. The modules, designed for service providers and their clients, addressed IPM in diverse building types and management systems. The pilot program trained 80 owners, 500 health outreach professionals, and 400 occupants. Accomplishments included completing 5 cycles of the Urban IPM training for 60 entry-level employees (10 of whom are now IPM technicians and practitioners for local pest management companies in low-income neighborhoods of Philadelphia). A series of educational programs and materials were developed to educate students, parents, and building staff and management on bed bug control as part of a Penn State Campus IPM Team-initiated Centre County Bed Bug Coalition. The Coalition educated 60 people involved in housing on & off campus. IPM training for school facilities managers resulted in 25 individuals educated to deal with bed bugs and to use this information to support Pennsylvania laws mandating IPM education in public schools. Twenty community health workers also received IPM training and additional training for community housing was planned.	\$249,770

University of Rhode	"Web-Based Decision Support Tools for Risk-Appropriate Tick-Bite Protection and Disease Prevention"	\$142,320
Island (Kingston, RI)	Funded by Advanced Monitoring Initiative funds from EPA's Office of the Science Advisor, this project has developed and implemented high quality, interactive, user-friendly health promotion tools that support individuals at risk in using best practices for tick bite prevention. URI's nationally recognized TickEncounter Resource Center is created a program "GET TickSmartSTAY TickSafe!" a campaign for increasing knowledge, building positive attitudes, and promoting best practices for tick bite protection and disease prevention. Researchers developed an interactive decision support tool to help homeowners appreciate the potential tick encounter risk where they live, and a "Get TickSmart" Certification Training Program for professional tick control applicators. With nearly 70,000 internet "visitors" in 2010, the program has succeeded in successfully developing an attractive delivery platform (www.tickencounter.org) which is becoming one of the nation's best sources of information on tick-bite protection and tick-borne disease prevention. One innovation of this project is that it both takes advantage of, and contributes significantly to developing improved decision support tools for guiding homeowners towards affordable, safe, risk appropriate strategies to prevent encounters with infected vector ticks. http://www.tickencounter.org/pub/TickRiskCalculator_Beta_August2011.html	
Washington University (St. Louis, MO)	"Landscape Design Guidelines for Mitigating Human Risk of Exposure to Lone-Star Tick-Associated Pathogens"	\$237,439
	Funded by Advanced Monitoring Initiative funds from EPA's Office of the Science Advisor, this interdisciplinary study examined the consequences of landscape change on the emergence of tick-borne diseases in the St. Louis, MO metropolitan area. The objective was to explicitly quantify the effects of environmental changes on human health, and directly compare the level of risk between landscapes with varying degrees of man-made change. The research indicated that human risk of exposure to tick-borne disease varies considerably over time and space, and this variation occurs in predictable patterns. This result was very important for human health, as it suggested that times and place of high tick-borne disease risk were predictable; therefore, limited resources can be better utilized to reduce human risk of exposure. These resources may take the form of more targeted education of the public or specific interventions to reduce disease risk. One targeted intervention illuminated through this research was the removal of invasive plant species, one of which, invasive bush honeysuckle, greatly increased human risk of exposure to diseases transmitted by the lone star tick. Removal of invasive honeysuckle may present an opportunity for a particularly inexpensive approach to reducing disease risk, and carries the added benefit that native communities of wildlife can be restored when invasive species are removed.	

~\$1 million awarded (\$500,000 from PRIA 2 fees and the remainder from of the Office of the Science Advisor) funded five projects		ote
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IPM Institute of North	"Healthy School Communities Through IPM And Expanded Partnerships: Reducing Pest And Pesticide	\$250,000
America	Risks, Improving Asthma Outcomes And Furthering Environmental Justice"	
(Madison, WI)	PRIA funds were used to address environmental justice concerns. In particular, this project focused on expanding the previous IPM Institute PRIA project (FY 2008) that established and verified adoption of IPM in public kindergartens through high schools across the United States. This project: 1) expanded self-sustaining school IPM coalitions in all states, where experienced school professionals recruit and mentor peers at other districts; 2) focused on childhood asthma and asthma triggers associated with cockroaches, rodents, and dust mites; 3) affected more than 49 million students served by 6.1 million staff including 3.1 million teachers in 14,383 public school districts in the US; and 4) expanded a national working group to build effective new partnerships in fifteen target states. Over the course of the project, 129 school IPM meetings, conferences, workshops and training sessions were held. The national steering committee was expanded to 24 members. The publication <i>Reducing Your Child's Asthma using Integrated Pest Management: A Practical Home Guide for Parents</i> was completed and distributed. The project developed a comprehensive set of metrics and online performance reporting for participating school districts, delivered fifteen new coalitions, delivered take-home educational materials about asthma and IPM in homes, developed a written business case for coalitions, provided training for site inspections in participating schools, produced monthly pest newsletters, supported a listserv, and produced presentations and webinars. Overall, this project significantly expanded use of advanced IPM methods in U.S. schools.	
Michigan State	"Effective Soil-Based Biopesticide And Nutrient Delivery In Orchard Ecosystems"	\$249,939
University (East Lansing, MI)	PRIA funds were applied to develop a biological IPM approach using a beneficial nematode and compost system to support the phase-out of the organophosphate azinphos methyl (AZM) and control the plum curculio (PC), a pest of pome (apple) and stone (cherry) fruit. The project was based in the Great Lakes Basin where fruit growers relied on extensive broad- spectrum pest control methods that affected both target pests and non-target insects, including many endangered species. PRIA funding supported the further development of a beneficial nematode biocontrol for PC. This was critical because of a lack of alternatives comparable to AZM. Project results were reported to the grower community through on-farm demonstrations, training workshops, internet resources, print materials, and weekly IPM email updates. The major goal of improving the duration of nematode efficacy was achieved. Results suggested that if the experimental field conditions can be duplicated elsewhere, PC control with nematodes may be sufficiently efficacious to compete with conventional pesticides. If further economic analysis demonstrates that one or two nematode applications are as feasible as conventional pesticides, sustainable reductions in pesticide use may be realized.	

FY 2010 – Partnership Grants

Cary Institute of	"Landscape Epidemiology And Integrated Mgmt Of Tick-Borne Diseases"	\$299,998
Ecosystem Studies (Millbrook, NY)	Funded by Advanced Monitoring Initiative funds from EPA's Office of the Science Advisor, this study is developing predictive models of landscape-level variation in the risk of Lyme disease, human anaplasmosis and human babesiosis; testing how well ecological metrics of disease risk correlate with actual human incidence of tick-borne diseases; and using landscape variables to assess the likely impacts of development and land-use planning scenarios on the human risk of tick-borne diseases. These models may lead to the design of environmentally sound (non-chemical) strategies to reduce infectious disease transmission as part of an IPM strategy that also helps to minimize the use of pesticides. Models will also inform forest ecosystem valuation and support management of forested landscapes, which can benefit public health.	
University of Washington	"Pests, Predators, And Multiple Stressors In Agroecosystems"	\$100,000
(Seattle, WA)	Funded by Advanced Monitoring Initiative funds from EPA's Office of the Science Advisor, this project is investigating the combined effects of pesticide use, land-use change, and climate change on working agricultural ecosystems in California's Central Valley. The main product will be a spatially-explicit population model to assess the effects of altered precipitation regimes, and land-use change on population size and distribution of rodent pests and a sensitive non-target species, the San Joaquin kit fox (natural predators of the rodent pests). The model will be used to prioritize lands for pesticide use under IPM and to inform guidance for IPM implementation.	
Oregon State University	"Willamette Valley Pesticide Risk: an Alternative Futures Approach to Integrated Pest Management"	\$97,065
(Corvallis, OR)	Funded by Advanced Monitoring Initiative funds from EPA's Office of the Science Advisor, this project is developing a model-based tool to facilitate assessments of IPM strategies under a changing climate. The primary question is: <i>How will the broad adoption of IPM strategies influence non-target pesticide concentrations and ecological risk?</i> To connect the research results to IPM users, the team is coordinating the modeling work with a USDA National Institute of Food and Agriculture funded Extension IPM program to quickly develop a mechanism to present results to a group of interested growers and other stakeholders. These presentations will be developed as part of already planned stakeholder meetings focused on IPM strategies.	

	FY 2011 – Partnership Grants ~\$500,000 awarded from PRIA 2 fees to fund three projects from October 2011 to September 2013	
University of California - Riverside	"IPM Strategies for Controlling Ants and Reducing Pesticide Runoff" PRIA funds are being applied to develop ant control strategies in urban environments that reduce pesticide use and prevent pesticide runoff into urban waterways. This project is developing reduced risk treatment strategies for pest management professionals, preparing educational materials for homeowners, and determining the strategies that reduce pesticide runoff into urban waterways. The project is expected to reduce pyrethroid use by 75% and fipronil use by 50% compared with original ant control practices. To date, the use of bifenthrin in a 170 home IPM-based pest control route has been reduced by 68%. Pest management professionals servicing the IPM route have been trained to use precision insecticide application equipment (i.e., pin stream applicators) for fipronil sprays resulting in an average reduction of 34% per treatment compared to the fan spray applications used in standard routes. Pesticide runoff and treatment efficacy data from the 2012 summer season are being analyzed. Collaboration with large pest control firms and meetings that include ant IPM training are conveying information on the effectiveness and potential cost savings provided by IPM.	\$249,193
Michigan State University	 "Demonstration of Strip Cultivation to Reduce Herbicide Use in North Central and Northeastern Perennial Fruit Production" PRIA funds are being used to reduce or eliminate herbicide use in north central and northeastern U.S. perennial fruit production through the demonstration and delivery of strip cultivation systems. Strip cultivation is transforming "weeds" into a dynamic, functional part of orchard and vineyard agroecosystems contributing to soil fertility and arthropod ecosystem services, while building organic matter, reducing herbicide run-off and saving growers money. The PRIA funding is providing critical protection of watersheds from herbicide infiltration, enhancing perennial fruit systems for pollinators and other beneficial arthropods, and addressing the emerging issue of herbicide resistant weeds through the integration of a physical pest management tactic. The project is expected to reduce herbicide use 75-100% on perennial fruit farms that adopt strip cultivation and has the potential to impact over 176,000 and 73,000 acres of tree fruit and vineyards in Michigan and the north-central/northeastern regions, respectively. Preliminary results from the first field season were communicated to growers on a biweekly basis and at a grower meeting. A second wine grape grower was added to the collaboration, indicating good grower readiness for strip cultivation. Preliminary analysis of ground cover data indicated slightly less bare ground where cultivation was used as opposed to flaming or herbicides. 	\$141,343

University of Georgia		\$109,115
	Control of Glyphosate-Resistant Palmer Amaranth in Conservation Tillage Cotton " The widespread use of the herbicide glyphosate across space and time has resulted in the development of glyphosate-resistant weeds. Glyphosate-resistant Palmer amaranth is the most significant weed species of concern in cotton production; more than 2 million hectares (1 hectare= approximately 2.47 acres) of agricultural land in the midsouth and southeastern U.S. are estimated to be infested. PRIA funds are being applied to develop an economically and environmentally sustainable management program for the control of Palmer amaranth through research trials testing the effectiveness of rye plant biomass and a reduction of the number of broadcast herbicide applications. The intended long-term outcomes, which will lead to improved farm profitability, are (1) increased Palmer amaranth control and crop yield, (2) an increased number of growers employing conservation tillage for cotton production, and (3) an improved environmental profile at the individual farm level across the U.S. Cotton Belt. Thus far, all treatments at the four experimental locations were successfully implemented and the data are being collected and analyzed. A presentation of the interim results will be made at the 2013 Beltwide Cotton Conferences. A DVD is being scripted to assist growers in the adoption of heavy rye residue in their cotton production program as well.	

\$500	FY 2012 – National Pesticide Information Network Partnership 0,000 awarded from PRIA 2 fees to provide partial (50%) support of the National Pesticide Information Center	
Oregon State University	 PRIA funding partially supported National Pesticide Information Network (NPIC) efforts to provide objective, science-based information about pesticides and pesticide-related topics to enable people to make informed decisions. Information is disseminated through a telephone hotline, an extensive website, outreach materials and training assistance. NPIC provides crucial resources to health care providers, educators, consumers, state and local pest management communities, and other members of the general public, to assist inquirers in making informed decisions regarding pest management, correct pesticide usage, and potential exposures. NPIC also acts as a portal for the public to report incidents and collects valuable incident-related information that contributes to informed agency decision-making. This cooperative agreement supported activities that included: Hotline response - A telephone hotline, with live operators 7:30 am -3:00 pm PT, M-F to provide real-time answers to inquiries. Operators are highly trained in risk communication, as well as pesticide and environmental studies. Voicemail is available on the weekends and calls are returned during business hours. Inquiries are also accepted via email. Between June and August 2012, NPIC responded to 6,239 inquiries. Of the inquiries, 79 were in languages other than English, including Spanish, French, French Canadian and Portugese. Total inquiries in a given year range between 18,000 and 25,000. Over 2,500 potential incidents of pesticide exposure or misuse were documented over a one year period ending May 2012. Outreach and electronic resources - NPIC resources include an extensive website featuring detailed web pages, downloadable radio spots, downloadable factsheets, and local resource listings on a wide variety of topics including bedbugs, ticks, IPM, risk communication, protecting children from exposure, poison prevention in the home, and several specific pesticides. Apps - Two mobile apps developed by Oregon Sta	\$500,000