FQPA/Strategic Agricultural Initiative Program Grants
EPA Region 5/American Farmland Trust
2002 Cooperative Agreement

U.S. Environmental Protection Agency (EPA) Region 5 initiated a small-grant program in 2002 to help implement the Food Quality Protection Act (FQPA) and support "transition" efforts by growers. The program supports innovative efforts that enable growers to reduce their reliance on pesticides targeted for removal under FQPA while maintaining or enhancing their present income. The program is administered by the American Farmland Trust's Center for Agriculture in the Environment (AFT/CAE) through a cooperative agreement with EPA. Funding was granted to projects that will successfully demonstrate and/or apply reduced-risk alternatives and ecologically based integrated approaches to pest management of minor crops. Projects focused on results or actual on-the-ground changes, rather than activities. Approximately $210,000 in funding was awarded in 2002 for five projects.

Summary of 2002-2003 Awards

Fostering the Adoption of IPM Practices in the Processing Vegetable Industry through Public-Industry Collaboration

Term: March 1, 2003 to February 28, 2005
Partners: EPA Region 5/American Farmland Trust Assistance Agreement grant to the University of Wisconsin, Madison in collaboration with Del Monte Foods, four growers and a commercial provider of IPM services, Pest Pros, Inc.

Wisconsin is a leader in the production of vegetables grown for processing. They are the leading producer snap beans (300 growers on 71,900 acres) and third largest producer of carrots (10 growers on 4,300 acres). Wisconsin also has extensive acreage in other processed vegetables such as sweet corn, kraut cabbage, red beets, onions and potatoes. Several pesticides routinely used on carrots and snap beans to control pests have been targeted by the Food Quality Protection Act for reduction or elimination (including the insecticides endosulfan, diazinon, dimethoate, acephate, chlorpyrifos, disulfoton, phorate, methomyl and carbaryl and the fungicides chlorothalonil, benomyl, thiophanate-methyl, iprodione and vinclozolin). On-going research activities have focused on reducing the use of FQPA materials and finding viable alternatives for both insect and disease control. In research trials, alternative control tactics that have proved effective on carrots and snap beans include intensive use of IPM scouting and treatment thresholds in insect management, host resistance for management of several diseases, and biological control to reduce the primary inoculum of a key disease. These tactics are combined with standard crop rotation, fertilization and irrigation practices. This project will demonstrate the feasibility of adopting these alternative control tactics on a commercial scale by working closely with two carrot growers and two snap bean growers, a prominent processor (Del Monte Foods) and a commercial provider of IPM services (Pest Pros, Inc.). They plan to reduce the use of FQPA targeted insecticides and fungicides by at least 50 percent. This project is part of an on-going effort in Wisconsin to implement IPM on a large scale. Since 1997, the University of Wisconsin, World Wildlife Fund and the Wisconsin Potato and Vegetable Growers Association have been developing tools to document pesticide risk reduction and the adoption of IPM. Using a Preventative Practice Point survey that assigned points to pest management practices, they

surveyed the Wisconsin potato industry and also developed a multi attribute toxicity index for measuring pesticide risk reduction. Survey data then served as the basis for profiling pest management practices, defining the target audience and initiating an eco-labeling program for an important segment of the Wisconsin potato industry (partially funded through a U.S. EPA/AFT Assistance Agreement grant). During 2002, with funding from a USDA-RAMP grant, the project coordinators began developing a similar survey and toxicity index for carrots. In this project, they will further modify the carrot and potato surveys for the production of snap beans and track their progress both in reducing toxicity units and in implementing IPM practices.

Mites and Soil Microbes as Ecological Indicators of Stability in Cherry Orchards: Evaluating FQPA Induced Transitioning in Michigan

Term: March 1, 2003 to February 28, 2005
Partners: EPA Region 5/American Farmland Trust Assistance Agreement grant to the Cherry Marketing Institute and HortSystem, Inc. in Lansing and Honor, Michigan.

Michigan produces 75 percent of the nation's and 70 percent of the world's tart cherry crop on 27,400 acres. Michigan also produces over 7,400 acres of sweet cherries, over 25 percent of the U.S. processed sweet cherry crop. Cherries are grown in more that 15 Michigan counties, primarily within Lake Michigan's coastal region. Peninsula Township's Purchase of Development Rights Program has permanently protected some of these orchards. In 1996, the Integrated Fruit Practices Think Tank, a farmer-researcher-industry partnership, was formed to design solutions to some the industry's challenges. The Michigan cherry industry has been actively investigating innovative techniques to manage the orchard ecology, including soils, ground covers, tree nutrition and pest IPM. They are trying to develop a tool that can help growers monitor the health of the environment and provide an accurate indication of whether a grower's IPM program is moving more or less towards sustainability. The project cooperators will work with eight growers and two independent crop consultants who make decisions on 30 to 40 percent of Michigan's cherry orchards. These participants will utilize soil and duff diagnostics, soil nutrient analysis, foliar nutrient analysis and tree canopy predator-prey mite ratio sampling in an array of management systems to assess the ecological stability of their orchards. By using ecological monitoring tools such as mite and soil microorganism monitoring, producers will be able to see how production management practices affect the overall health of tree and orchard ecosystems.

Implementing New Tactics for Management of Apple Diseases in the FQPA Era

Term: March 1, 2003 to December 31, 2004
Partners: EPA Region 5/American Farmland Trust Assistance Agreement grant to the University of Illinois

There are 360 commercial apple growers in Illinois on about 6,000 acres. These orchards are among the most pesticide-intensive crop production systems in the state. Restrictions on pesticide use as a result of the Food Quality Protection Act will greatly impact pest management decisions during mid- to late- season. Pesticides applied during this period are more likely than springtime sprays to leave residues on apples at harvest, and most of these products have been targeted for reduction or eliminated by FQPA. The most common summer diseases in apple orchards in Illinois are sooty blotch, flyspeck, bitter rot, black rot and white rot, which cause up to 100 percent yield losses. There is no measurable resistance in apple cultivars to summer diseases so growers rely on six to eight applications of fungicides to keep diseases in check. The project cooperators hope to integrate innovative, reduced-risk tactics for these diseases into a practical management program tailored to apple growers in Illinois and the Midwest. In preliminary tests, they were able to reduce the number of applications by 25 to 100 percent. They

will: 1) test the applicability of two weather-based disease warning systems (on-site and site-specific) for management of summer diseases; 2) evaluate the efficacy of the organic fungicide, Kaligreen, and the lower-toxicity fungicide, kresoxim-methyl (Sovran); 3) compare the costs, economic returns and risks of each tactic with conventional tactics; and 4) work with growers to rapidly adopt new IPM tactics. They will be working directly with five commercial growers in different locations throughout the state. They expect all 360 apple growers in Illinois as well as approximately 10,000 apple growers in the eastern section of the U.S. to benefit from their research.

Reducing Organophosphate Use in Potato Production in Minnesota

Term: April 15, 2003 to April 15, 2004
Partners: EPA Region 5/American Farmland Trust Assistance Agreement grant to the University of Minnesota

Potatoes are grown on 80,000 acres in Minnesota and 120,000 acres of North Dakota. Seed potatoes are grown on 10-12 percent of this acreage. Growers apply about 75,000 lbs of methamidophos, a restricted-use organophosphate insecticide, each year to control the aphids that transmit virus diseases. Aphid-transmitted diseases (including Potato leafroll virus (PLRV) and Potato virus Y (PVY)) have been epidemic in this region since 1995. The production of potatoes for processing and fresh market is entirely dependent upon the availability of healthy virus-free seed tubers. As a result of these aphid-transmitted diseases, seed potato production has declined by half, with 40 percent of the growers going out of business. Most seed potato growers apply two to six applications of insecticide to control the green peach aphid, *Myzus persicae*, and bird cherry-oat aphid, *Rhopalosiphum padi*. Other potato growers (fresh, processing, storage) may or may not treat for aphids. *Aphid Alert*, a regional aphid monitoring network, was established in 1998 to provide real-time information on aphid flight activity. By following *Aphid Alert* advisories, growers saved over $6 million in reduced insecticide application costs in 2000 and 2001. Careful monitoring also showed that aphids initially colonize the margins of potato fields. For the first 10 days following initial detection, more than 90 percent of the aphids are within 20 meters of field margins. This suggests that insecticides applied to field margins only would largely eliminate a colonizing aphid population, conserve natural enemies in the center of fields and reduce insecticide use by 70 to 80 percent. The project cooperators will work with at least 30 leading potato growers to demonstrate and promote the application of insecticides to field margins only for aphid control.

Delivery of a Weather-Based Spray Advisory Program to Illinois and Indiana

Term: April 1, 2003 to March 31, 2005
Partners: EPA Region 5/American Farmland Trust Assistance Agreement grant to Purdue University

Two hundred farmers on 3,500 acres grow muskmelons and 396 farmers on 7,800 acres grow watermelons in Indiana and Illinois. In Indiana, most of the melon acreage is in southwestern Indiana in Knox County with some melons grown around Brownstown in Jackson County, New Albany and south of Gary. In Illinois, melons are grown in the Kankakee area to the north and Shawneetown to the south. Farms range from over 500 acres to just a few acres. The principle diseases are *Alternaria* leaf blight, anthracnose and gummy stem blight. Conventional disease prevention programs for vegetables often include a calendar-based fungicide application schedule that has growers spraying routinely once a week. MELCAST, in contrast, is a weather-based spray advisory program for foliar diseases of muskmelon and watermelon currently used by about 13 percent of the growers in the two states (50 growers). The MELCAST program translates weather data into Environmental Favorability values (EFI). The decision whether to apply

fungic ides can be made by keeping track of the cumulative EFI values. When the spray threshold of 20 for muskmelons and 35 for watermelons are reached, the grower applies fungicide. In an average year, growers who use MELCAST apply two to three fewer fungicide applications than if a calendar-based system is used. The project cooperators will deliver the MELCAST system to the major muskmelon and watermelon growing regions of Indiana and Illinois to reduce the amount of carbamate fungicides (mancozeb) used. The cooperators plan to have one-third of the melon growers in Indiana and Illinois (130 growers) convert to MELCAST use in the next two years.