



Agricultural Tours of the West Create New Bridges of Communication and Understanding

By Rick Melnicoe

The western United States has the most diverse agriculture of anyplace in the world. Agricultural tours offer participants a glimpse of the complex issues that face growers, ranchers, regulators, and others. I had the privilege of participating in three tours this summer in California, Washington, and Oregon. Tours like these are very educational for the participants, local hosts, and presenters, and at times they are also quite tiring. Days begin early (usually by 7:00) and finish late (sometimes as late as 9:00 or 10:00).

Tour organizers spend a considerable amount of time each year in preparation. In addition to decisions about what issues to focus on, there are many practical and logistical details that have to be decided and arranged, including whom to invite, where to stop, who will present topics, and how to deal with lodging, meals, and the ever-present need for snacks and drinks. All the tours I attended this summer were extremely well-organized, and organizers endeavored to meet the needs of each and every participant.

One key to success on any agricultural tour is the participation of university researchers and Extension personnel. These researchers/Extension staff provided expert presentations on various issues and challenges. Tour participants saw the results of field trials and were able to ask questions in the field and/or in a classroom setting. This type of interaction among the regulators, researchers, producers, and processors participating on such tours is invaluable for making good policy. Good contacts for regulators result, allowing them to direct questions that might come up later to someone they know. Industry representatives learn firsthand what



Diane Clarke

As part of the comprehensive food safety measures that have been implemented, workers wear gloves for in-field harvest and packing of green leaf lettuce at this field in the Salinas Valley. Workers inch backward as the large harvest machines slowly move down the rows.

types of products are needed and how they would be used by growers.

All tours provide opportunities for growers to interact with tour attendees, and they foster interaction on the buses and vans among participants. These discussions result in increased knowledge and appreciation of the complex issues facing today's agriculture. Growers welcomed the ability to talk to people who ultimately have a great deal to say about how they do business. And regulators and registrants, in turn, paid close attention to the growers and were respectful of the challenges they face.

California Specialty Crops Council Tour

The California Specialty Crops Council hosts an annual tour that begins with locations in the San Joaquin Valley, continues in the Salinas Valley, and then heads north, ending in the Sacramento-San Joaquin Delta. The tour focuses on educating regulators about agricultural issues that include air and water quality, international trade, pest management and pesticide use, production practices, and worker issues.

Attendees represented the U.S. Environmental Protection Agency, the California Department of Pesticide Regulation, USDA Natural Resources Conservation Service, USDA Animal and Plant Health Inspection Service, USDA Agricultural Research Service (ARS), USDA Foreign Agricultural Service, IR-4, and various California commodity organizations.

The tour began in Visalia with an overview of issues from Patricia Stever, Executive Director of the Tulare County Farm Bureau, and Gary Kunkel, Tulare County Agricultural Commissioner. Both gave an interesting history and perspective on agriculture in the area. The following day was spent in the field learning from growers about production of dried plums (prunes to us older people), post-harvest issues, stone fruit production and packing, and raisins. We ended the day at the USDA-ARS field station in Parlier, where we heard about irrigation issues (most of California is considered desert and relies on irrigation for crop production), invasive species, and dairy issues. The second day transitioned us from the San Joaquin Valley to

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Director's Comments

This summer was busy for the Western IPM Center. We recently closed our annual Request for Applications and received a record number of applications. Forty-seven applications were submitted with the following emphasis area breakdown: 27 Addressing Western IPM Issues, seven Work Groups, 12 Outreach/Publications, and one Survey. Information Networks are no longer being funded, as requests for information from USDA and USEPA have fallen over the years. All Networks were advised of this and advised of other funding opportunities available to them. We are very pleased with the response to our revised RFA. Last year we limited the emphasis areas and were not satisfied with the number of applications. We successfully hit the right areas to trigger a good pool of applications this year. Reviews will be conducted in early November and outcomes relayed to applicants soon afterwards. The RFAs for EIPM and the Regional IPM Grants programs are scheduled to be released at the end of September or in early October. The WIPMC will be happy to provide guidance to applicants to these programs.

In addition to managing our Center grants, the WIPMC administers the field monitoring component of the Legume *ipmPIPE*. Those of you unfamiliar with this program may want to visit <http://legume.ipmpipe.org/cgi-bin/sbr/public.cgi> to see how monitoring for legume diseases and pests is made available to growers in a timely manner. Twenty-two states are

conducting monitoring and then reporting to the Web site.

As part of my efforts to meet with stakeholders, I participated in several agricultural tours this summer. These tours are always educational and foster a greater appreciation for the complexity of issues facing western producers, regulators, and other interested groups (see front page article).

I also attended the 2009 North American Pesticide Applicator Certification and Safety Education Workshop on August 11–13 in Charleston, South Carolina. This workshop focused on a number of issues relating to pesticide safety including innovative training techniques, label-mandated training, reporting of impacts and accomplishments, how to survey audiences, reaching non-English speaking audiences, upcoming soil fumigation requirements, and many other topics. As a first-time attendee, I found the presentations extremely informative and well-presented.

Finally, I would like to wish Sandra McDonald the best as she retires from Colorado State University to seek out other career and personal adventures. Sandra provided a great service to Colorado and the West for many years. Her enthusiasm and innovations helped a great many people become better and safer pesticide handlers.

Rick Melnicoe

Seven Regional IPM Grants Awarded in Western Region, Totaling \$662,516

The Regional IPM Competitive Grants Program (RIPM) is administered by the land-grant university system's four regions in partnership with USDA-CSREES. In FY 2009, the Western Region RIPM program is supporting three types of projects: Research, Extension, and Joint Research-Extension. The following 2009 proposals have received grant awards:

IPM Disease Risk Forecasts and Virtual Weather for Western States (Research-Extension, \$179,227)

PI: Leonard Coop, Oregon State University

Assessing the Ability to Increase the Capacity for Spinach Seed Production in the United States by Developing Soils Suppressive to Fusarium Wilt (Research, \$99,482)

PI: Lindsey Jane du Toit, Washington State University

Creation of Online Urban IPM Resources for the High Plains Region (Extension, \$58,355)

PI: Mary Ellen Burrows, Montana State University

Improving IPM of Mosquitos by Addressing Scientific Uncertainty and Public Concerns (Research, \$78,600)

PI: Robert K.D. Peterson, Montana State University

Management of Virus Disease Epidemics in Lentils via Prescribed Conditional Pea Aphid Control: Evaluation of Economic Effectiveness and Feasibility (Research, \$94,410)

PI: Levan Elbakidze, University of Idaho

Mitigating the Threat of PVY: Understanding and Exploiting the Biological and Epidemiological Factors behind the Increasing Incidence of PVY (Research, \$71,486)

PI: Juan Alvarez, University of Idaho

Using Sheep in No-Till Wheat: Pea/Hay Barley-Fallow Rotation to Control Weeds; Comparisons with Minimum Tillage and Complete Tillage Systems (Research, \$80,956)

PI: Patrick Hatfield, Montana State University

State Briefs

Arizona Reorganizes Pesticide Programs

The University of Arizona has reorganized statewide pesticide safety education and other pesticide programs, which are now administered by the Arizona Pest Management Center (APMC). The change happened this year, as Peter Ellsworth was appointed Pesticide Coordinator, replacing Paul Baker who served in that position for more than 20 years. Dr. Ellsworth is also Arizona's IPM Coordinator and heads the IPM Coordinating Committee, a stakeholder advisory board that provides ongoing input on Arizona's IPM and related pesticide programs. Federal Pesticide Safety Education Program (PSEP) formula funds, and related activities, are now managed by the APMC with input from the committee.

New Extension Associate, Environmental Fate Training Module, IPM-Water Quality Collaborations

The University of Idaho Pest Management Center (IPMC) has a new Extension Associate, Dr. Megan McCarthy, who is working part time developing Extension materials for the IPMC Information Portal and the Pesticide Safety Education Program. Megan, who received her Ph.D. in evolutionary biology from the University of Arizona, has a particular interest in assisting homeowners with IPM practices that reduce unnecessary pesticide use and protect water quality.

The IPMC is developing a PowerPoint presentation and script on "Environmental Fate of Pesticides," to be used for pesticide pre-license

ARIZONA

In 2009, the APMC awarded about \$24,000 in intramural grants to faculty to stimulate pesticide safety education throughout the state. Several faculty members are involved, and many of the trainings are coordinated with the Arizona Department of Agriculture and include testing and certification opportunities as well as continuing education credits. A program in Flagstaff in early September was very well received by clientele, and plans are in place for several other trainings this fall, including in Tsaile, Holbrook, and Kingman.

More information can be found on the new "Pesticide Safety" page of the Arizona Pest Management Center Web site, <http://cals.arizona.edu/apmc/psep.html>.

IDAHO

and recertification classes. The new module provides best management practices to protect water from pesticides as well as Idaho monitoring data for surface and ground water. The module will be available on the IPMC's information Web site for county educator use.

Ronda Hirnyck, IPMC, has been collaborating with the Region 10 (Pacific Northwest) water quality program team on issues and programs of joint interest to IPM and water quality. A symposium on IPM and water quality programming is planned for April 13, 2010, in Boise. Linda Herbst, WIPMC, and Ronda co-chair the planning committee along with Bob Mahler, University of Idaho (water quality), Doug Walsh, Washington State University (IPM), and Paul Jepson, Oregon State University (IPM).

Tours—from page 1

the Salinas Valley. En route we saw garlic, onions, various nut crops, and a family-owned operation that makes dried herbal and floral products. Food safety was the main focus as we reached the Salinas area with all of its vegetable crops. We learned about baby lettuce production and harvesting for salad mixes. Day three began with a leaf lettuce harvest and an emphasis on good agricultural practices relating to food safety (see photo, page 1). Cut flower and bulb production issues were next, followed by organic strawberry production, fresh market tomatoes, and a fascinating discussion of honey bee issues. We saw firsthand the reuse of irrigation tail-water, and we discussed required water monitoring to determine whether total maximum daily levels (TMDLs) of contaminants are being exceeded. If a TMDL is exceeded two times in a waterway, the development of a management plan that must be approved by the local water quality agency is mandated. Pear production and use of area-wide pheromone mating disruption ended the formal portion of the tour.

Washington Pest Control Tour

The Washington Pest Control Tour is hosted by the Washington State Commission on Pesticide Registration (WSCPR). The WSCPR was created by the legislature in 1995 to assist Washington producers in obtaining safe and effective crop management tactics (pesticides and biological, mechanical, and cultural controls) for crops produced on limited acres. Funding is made available by the WSCPR for research to develop these tactics. This tour is focused on registrant interactions with growers. Cooperation with Washington State University (WSU) and the IR-4 Project is highly evident in the research conducted and trials visited.

Tour participants came from a wide variety of interests and included several legislative representatives and staffers from local districts, Region 10 EPA, the Washington Department of Agriculture, USDA-CSREES, public policy groups, and most of the WSCPR board.

Our first stop on Tuesday morning was the WSU-Mount Vernon Northwestern Washington Research and Extension Center (WSU-NWREC). This state-of-the-art facility houses a number of researchers and includes research land. Dr.



Rick Melnitcove

Blueberries at Sakuma Brothers Farms, Burlington, Washington, in the heart of the Skagit Valley.

Lindsey du Toit hosted a tour of the facility, discussing community involvement with a “seed map pinning” project. Seed crop producers must maintain certain distances from related crops, so each season they meet to take turns placing pins on their proposed growing sites on a map. A grower must choose an alternate site if another grower selects a site before him that has an incompatible crop. This is an orderly process that has worked well for this important seed producing region. Lindsey went on to discuss her plots that are planted with spinach seed (see related article on page 7).

Our next stop was the beautiful Washington Bulb Company headquarters. Owner John Roozen hosted a tour of their bulb and cut flower facility. This family-owned business is the largest tulip bulb grower in the United States and one of the largest employers in the Skagit Valley. After that we visited potatoes, cabbage, wheat, cucumbers, and pumpkins.

Environmental quality is a big concern for Washington (and other states in the West). Water quality, particularly in tidal areas, was discussed at length. We viewed tidal gates (one-way valves to let freshwater out but to keep salt water from intruding) and discussed the growers’ and environmentalists’ concerns with these very old gates. We ended the tour’s first day with a visit to an organic apple grower and then a farm stand visit with a berry grower who is also experimenting with growing tea. He is one of

only two growers of tea in the continental United States.

Day two started with a visit to the WSU Puyallup Research and Extension Center. Dr. Carrie Foss led a tour of the Structural Pest IPM Facility. This structure was built to teach pest control operators how to best implement IPM and how to conduct effective structural inspections. Next on the agenda was a discussion of turf pest management at a local golf course. We learned about turf problems and the use of pesticides, and we viewed equipment used for pesticide applications to turf and trees. Lunch was at the Weyerhaeuser Company-Mima Forest Tree Nursery, where millions of trees are produced annually for forest revegetation. Problems of pesticide use, nutrient runoff, and labor were highlighted. All trees are produced from seed collected in the areas to be revegetated to ensure the greatest level of genetic compatibility with the local environment. Our



Rick Melnitcove

Dr. Kim Patten speaks to the tour participants in front of a stand of Japanese knotweed.

host, Tom Stevens, has overseen production of more than 50 million trees during his career. Aspects of rights-of-way management were next, followed by a visit to a Japanese knotweed eradication project. This weed grows up to 15 feet tall in a single season along waterways, causing significant environmental degradation. Dr. Kim Patten has been working on herbicide treatments, and his research is showing good control.

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Diane Clarke

Calla lilies at Golden State Bulbs, a cut flower operation in Moss Landing, CA.



Rick Melnitcove

Lygus bug “vacuuming” being conducted on a strawberry farm in Watsonville, CA.

H. Michael Harrington

Executive Director, Western Association of Agricultural Experiment Station Directors

H. Michael (Mike) Harrington's workload could jokingly be summarized as follows: 25% of his time is spent in airplanes, 25% in meetings, 25% on conference calls, and 25% sleeping, and while he is on airplanes he eats and memorizes lists of acronyms. There's a kernel of truth here, but the details are too interesting to leave out.

Mike, who has served on the Western IPM Center's Advisory and Steering Committees since 2004, is the Executive Director of the Western Association of Agricultural Experiment Station Directors (WAAESD), which is headquartered at Colorado State University in Fort Collins, Colorado. The WAAESD is comprised of 13 western states and the four Pacific U.S. territories and is one of five such regional associations in the United States. The others include the North Central, Northeast, and Southern regional associations, as well as the Association of Research Directors, a federation of the so-called 1890 land-grant universities (established under a Congressional act known as the Second Morrill Act, in 1890).

To really understand what Mike does in his role as Executive Director of WAAESD, it is helpful to have some background. See Sidebar 1 for some history and explanation about the State Agricultural Experiments Stations (SAESs) and the regional associations of the SAES Directors. Also included there is a brief overview of the relationship between the regional associations and the federal government.

Mike's Responsibilities and Activities

Appointed to the role of Executive Director in July, 2001, Mike's primary responsibilities include providing leadership for the western SAES Directors as they engage in high priority regional and multistate initiatives, providing management oversight for the multistate projects funded through the Multistate Research Fund (MRF), and developing functionally integrated multistate projects that include research, extension, academic programs, and international programs. Thanks to his efforts, the Western Region portfolio now has robust participation by faculty from Extension.

In many of his job functions, Mike serves as a liaison, and undergirding and permeating all of his work is a great deal of communication, coordination, and collaboration via his participation in local, regional, and national meetings (27 trips in 2008, including seven to Washington, D.C.); conference calls; service on boards and advisory councils of regional and national organizations (currently serving on seven); support for those serving in the leadership structure of the WAAESD; and service as an information resource for WAAESD members as well as for national agency personnel.

An example of the impact of Mike's role as a liaison is his service on the WIPMC's Advisory and Steering Committees over the last 5 years. The Center highly values Mike's presence and input on these committees, where he provides a critical linkage between Center issues and regional- and national-level priority setting. Center Director Rick Melnicoe said, "Mike has been an invaluable member of our committees, listening to our concerns and then



H. Michael (Mike) Harrington

looking for ways to address them within his associations. And, in the other direction, he conveys the pulse of national issues that are critical to agriculture in the West." Associate Director Linda Herbst added, "Mike keeps us in touch with the trends in the land-grant institution system. Without his input, we would be mired in ignorance about these issues. He is a terrific resource for our Center, and our voice at the regional and national level."

Mike's Role with the Association of Public and Land-Grant Universities

Mike provides leadership for the SAES Directors with national activities through the Experiment Station Committee on Organization and Policy (ESCOP), which is part of the Association of Public and

Land-Grant Universities (APLU), formerly called the National Association of State Universities and Land-Grant Colleges (NASULGC). The APLU is a voluntary, non-profit association of public research universities, land-grant institutions, and many state university systems, and has member campuses in all 50 states and the U.S. territories. Dedicated to advancing research, learning, and engagement, the APLU provides a forum for the discussion and development of policies and programs affecting higher education and the public interest. ESCOP handles continuing business, organization, and policy issues on behalf of the SAES Directors. Mike serves as executive vice chair of both ESCOP and its Budget and Legislative Committee. He is also a member of the Budget and Advocacy Committee of APLU's Board of Agriculture Assembly, and he served as the executive vice chair of APLU's Farm Bill/CREATE-21 Committee. Mike currently serves on APLU's new Farm Bill Committee, which is looking at President Obama's proposed 2010 budget.

Assessment, Planning, Accountability

Mike also provides leadership for the region in needs assessment, long-range planning, and project accountability and communication of impacts.

Needs Assessment. The top three most-cited areas of need in a 2003 western region needs survey conducted by Mike's office were water and associated problems; human and social sciences research needs, such as nutrition and health; and sustainable production systems. Mike said, "An often-quoted passage attributed to Mark Twain states 'Whiskey is for drinking, but water is for fighting.'" WAAESD and the Western Extension Directors Association (WEDA) have agreed that partnering to address pressing needs relating to water in the West is among the highest priorities in meeting stakeholder needs in the region. The Executive Directors of all five regional experiment station associations also met with committee members in the Water Quality Program at the USDA Cooperative State Research, Education, and Extension Service (CSREES) and agreed to work toward planning listening sessions in each region. The Western Region is the first to organize such a meeting. The listening session will be held in 2010.

Sidebar 1

Formation of the Regional Associations

Federal formula funds for State Agricultural Experiment Stations (SAESs) began with the Hatch Act, passed by Congress in 1887. Then, in 1946, legislation signed by Harry Truman mandated that each state spend no less than 25% of these Hatch formula funds for cooperative “regional research.” This mandate was a chief impetus for the formal organization of the Western Association of Agricultural Experiment Station Directors (WAAESD), in 1948. The WAAESD, and the other four regional associations of SAES Directors, were to serve as coordinating entities for regional research activities. The intent was to bring institutions in the different states together, to plan for identification of problems and opportunities that could be addressed through regional collaboration, and to plan for shared use of resources. With Congress’s Agricultural Research, Extension, and Education Reform Act of 1998 (AREERA), the term “regional research” was replaced by “multistate research.” Thus, the Hatch formula funding for these multistate projects is known as the Multistate Research Fund (MRF).

Each regional association of Experiment Station Directors has an Executive Director and an administrative assistant who manage the region’s entire portfolio of multistate projects. Currently, Mike’s office manages 86 multistate projects, about half of which are research projects supported by the MRF.

Role of SAES Directors with Multistate Projects

The SAES Directors determine the most effective use of federal and nonfederal funds in support of multistate research. They are responsible for peer reviews of all proposed multistate projects, and they determine and authorize the human resources to be committed to MRF projects and other multistate research activities.

Role of USDA-CSREES

The U.S. Secretary of Agriculture is responsible for the administration of the Multistate Research Program and has delegated this responsibility to the USDA Cooperative State Research, Education, and Extension Service (CSREES). In addition to promulgating rules and regulations for carrying out the multistate program funded by the MRF, CSREES is responsible for providing leadership at the national level for the Multistate Research Program. Mike’s office serves as a liaison between the SAESs and CSREES for the Western Region.

In his role with ESCOP, Mike develops a survey each year to determine budget priority issues for the SAES system as a whole. The results of the 2008 survey sent to all SAES Directors in the country showed the following top three priority clusters: 1) formula funds, water use, food safety, 2) biofuels, and 3) land use issues, invasive species, and water quality. Obesity and nutrition came in fourth.

Long-Range Planning. Mike completed a survey of research priorities for the region in late 2007 as part of the long-range planning efforts for the region. Priority areas are couched in terms of the ESCOP “Science Roadmap for Agriculture” and support the CSREES “Strategic Goals.” The research priorities were 1) bioenergy and a biobased economy, 2) food, nutrition, health, and well-being, 3) environmental stewardship, and 4) specialty and organic crops.

Project Accountability and Communication of Impacts.

Mike works with the WAAESD leadership structure to assure accountability in the multistate programs. This is chiefly

“Researchers are very effective in speaking to each other, but we also need to speak to the general public about what we do. Impact statements do this by answering the questions: So what? and Who cares?”

accomplished through required regular progress reports and statements of impact. There is also a strong emphasis on communication of impacts to stakeholders, government officials, university administrators, external funding sources, industry representatives, and the public. A goal for 2009 is to post summaries of all multistate projects on the WAAESD Web site as well as posting impact statements for the

MRF-funded projects. Mike said, “Researchers are very effective in speaking to each other, but we also need to speak to the general public about what we do. Impact statements do this by answering the questions: So what? and Who cares? The West has led the way for the rest of the country in impact statement development, and we’ve recently added a writer to continue this leadership.”

Other Projects

Other current or recent special projects Mike has collaborated on include:

- Working with Western Region SAES Directors and Extension Directors to create a multistate/territories Consortium for Renewable Energy in the West (CREW).
- Working with other regional Executive Directors on a steering committee aimed at developing a national strategic plan for vegetable crops.
- Working with Pacific Northwest (PNW) Extension personnel on the PNW Extension Energy Initiative.
- Working with SAES Directors to develop new partnerships with the Western Governors Association and the Council of State Governments—West.
- Working with CSREES Competitive Programs staff to organize and cosponsor Grants Workshops in the Western Region. Mike co-teaches a one-day session, “Writing Winning Grants,” at these workshops.

Mike also assisted with development of the USDA-Research, Education, and Economics (USDA-REE) Mission Area “Strategic Energy Science Plan for Research, Education, and Extension,” published in March, 2008.

Background and Personal

Prior to accepting the Executive Director’s position, Mike was a faculty member in the College of Tropical Agriculture and Human Resources at the University of Hawaii from 1985 to 2001. He was a

member of the Department of Plant Molecular Physiology, where he served as chair of the department. Mike also served as Assistant Dean for Academic Affairs from 1991 to 1996. He served as Interim Director of the Hawaii Institute for Tropical Agriculture and Human Resources from 1996 to 1999, and as Interim Dean of the college from 1999 to 2000.

Mike received a B.A. degree in botany from Miami University in Oxford, Ohio, and an M.S. degree from the same university in botany and plant physiology. His Ph.D. in botany and plant biochemistry was earned at Ohio University in Athens, Ohio. Mike has been married to Pam for 27 years and has two sons, David, 25, and Evan, 16. His other interests include fly fishing, remote control airplanes, and hiking. Mike is an Assistant Scout Master for his son Evan’s troop and also assists with adult leader training for prospective Boy Scout and Cub Scout leaders. Mike can be contacted at wadal@lamar.colostate.edu.

"Biodiversity Working for Farmers" Tour

By Gwendolyn Ellen, Oregon State University

What Was Done

On July 21, in Corvallis, Oregon, 35 regional policymakers, regulators, industry personnel, conservationists, and researchers visited three established, ecologically-rich Willamette Valley farms (together totaling more than 800 acres). Farmers led the group to rich, biodiverse areas of their farms, highlighting the habitat enhancement practices they have implemented and the impacts of these practices on farm production, economic viability, and quality of life for them and for future generations of farmers.

The tour was sponsored by the Western IPM Center-funded Functional Agro-Biodiversity Work Group (the FAB Work Group). The group, comprised of specialists in agricultural biodiversity from industry and nonprofit organizations, as well as farmers, meets on a regular basis to develop and promote adoption of ecological practices in the Western Region. On the tour, work group members led discussions on impacts of on-farm biodiversity. Such impacts include biological pest management, increased native pollinator populations, farm resiliency to environmental degradation such as soil erosion and reduced water quality, and regional contributions to local agricultural sustainability.

What Was Learned

The three farmers, Peter Kenagy of Kenagy Family Farms, Jim Caulkin of Heavenly Harvest Farm, and Dave Buchanan of Buchanan Family Farm/Tyee Vineyard, identified the following constraints they face while enhancing on-farm biodiversity:

- High costs in terms of the time required to plan and implement the practices, the labor of creating and maintaining the habitats, and the land taken out of production for the habitat.
- Paucity of regionally relevant information about the long-term impacts of these habitats on their farm production systems.
- Scant technical information about what plant selections to make for optimal beneficial organism enhancement (i.e., specific plants to enhance the presence of insect predators, parasitoids, native pollinators, and predator birds).

These farmers, who are masters or soon-to-be masters of conservation ecology and of adapting practices to fit within their farm ecosystems and production systems, do what they do because they strongly feel that on-farm biodiversity can

- Improve the quality of their products
- Create new, alternative farm products
- Make their farm production systems more interesting
- Support ecological product labels and certification
- Conserve the biodiversity of the farm landscape
- Preserve this biodiversity for future generations

Both the tour participants and the farmers concluded that there should be increased communication among the groups represented on the tour to identify and foster the creation of new policy opportunities that would 1) support the conservation and promotion of on-farm biodiversity and 2) encourage funding for the participatory research and technological development that would support on-farm biodiversity implementation on a regional level.

Tour Objectives

The tour's objectives were to

- Provide a direct and compelling experience of the progressive biodiversity enhancement practices that are driving sustainable agriculture forward in the twenty-first century.
- Provide first-hand access to scientists and other specialists who are helping people understand on-farm biodiversity's importance to the quality and yield of agricultural crops.



Cropped bottomland (walnuts and native grasses) at Kenagy Family Farms.

- Identify constraints that may limit realization of the full benefits of these practices.
- Provide relevant insights for future discussions about agricultural policies that would encourage on-farm biodiversity.

Tour Impacts: FAB Tour Cited in Congress

The FAB Work Group tour was referred to in a discussion in Congress before HR2749, the Food Safety Enhancement Act, was passed on July 30. In the discussion, Congressman Earl Blumenauer (D-OR) mentioned the tour and said, "Biodiversity is a prerequisite for a healthy farm and not something we should penalize farmers for." He asked Congressman John Dingell (D-MI), the bill's main author, if he would ensure that the bill does not harm wildlife and biodiversity. Dingell responded, "There is direction within the bill for the FDA to consider small farms, organic practices, and conservation methods, and I trust that this will be followed. The intention of this bill is not to harm farming practices that have existed for centuries with minimal documented health risk."

Sponsors of the FAB tour included members of the USDA-CSREES Western IPM Center Functional Agro-Biodiversity Work Group, the Western IPM Center, the Xerces Society for Invertebrate Conservation, and the National Center for Appropriate Technology (NCAT).

Contact Gwendolyn Ellen at gwendolyn@science.oregonstate.edu.



Bumble bee flying toward Spirea hedgerow at Kenagy Family Farms.

State Brief

Utah State University Joins School IPM Work Group

By Ryan Davis

In 2009, Utah State University insect diagnostician Ryan Davis joined the Western Region School IPM Implementation and Assessment Work Group, funded by the Western IPM Center. He will help the Salt Lake City (SLC) School District develop online resources for managing pests, act as a resource for insect-related pest control issues, and aid in the adoption of IPM in Utah's schools. Despite successes at the SLC school district, adoption by other Utah school districts has been slow. Because improper pest management affects all Utah children, parents can help to drive IPM adoption in schools by working with school administrators. For information on how to get started, visit the US EPA's IPM in Schools Web site, <http://www.epa.gov/opp00001/ipm/>. You can also contact Ryan directly at ryan.davis@biology.usu.edu.

UTAH

All Utah Counties Now "Scoped"

By Diane Alston

Recently, Diane Alston, diane.alston@usu.edu, and Ryan Davis, ryan.davis@biology.usu.edu, of the Utah Plant Pest Diagnostic Lab (UPPDL) travelled to three regional Extension meetings in Utah to provide training on using the Leica EZ4D dissecting microscope with integrated camera. Each of Utah's Extension county offices now has a new microscope. With integrated camera/microscopes, staff in county Extension offices can take detailed, close-up images and send them to the UPPDL for rapid diagnosis. The microscope program, funded through the Western Plant Diagnostic Network (WPDN) and through state funding for the UPPDL, will facilitate distance pest diagnostics between counties and the UPPDL on campus.

Increasing the Capacity for Spinach Seed Production in the United States by Promoting Soil Suppression of Fusarium Wilt

By Lindsey du Toit, Vegetable Seed Pathologist/Associate Professor, and Emily Gatch, Ph.D. Student
Washington State University Mount Vernon Northwestern Washington Research and Extension Center

The Problem

Spinach seed crops in western Washington and Oregon annually produce 30 to 50% of the U.S. and up to 25% of the world supply of spinach seed. Few areas of the world have the climatic conditions of the coastal Pacific Northwest (PNW) required to produce spinach seed—long summer days to trigger flowering, dry summers to minimize pathogens infecting the developing seed, and mild temperatures for uniform flowering. However, Fusarium wilt, caused by the soilborne fungus *Fusarium oxysporum* f. sp. *spinaciae*, has become the primary factor limiting spinach seed production in the PNW. Cultivars with partial resistance are available, but many cultivars carry little or no resistance. The pathogen can survive more than 10 to 20 years in soils and can be seedborne.

Spinach seed growers originally managed Fusarium wilt by planting seed crops in fields not previously planted to spinach. Subsequent depletion of virgin ground led to Fusarium wilt becoming the main factor limiting production of spinach seed. Losses to Fusarium wilt now necessitate rotations of 6 to 10 years for spinach lines with partial resistance and 12 to 15 years for susceptible lines. In addition, seed crops are grown on contract, so growers have little choice of which parent lines they grow. Fields that meet these constraints as well as the required pollen isolation distances for these wind-pollinated seed crops are increasingly difficult to find. In contrast, approximately 15,000 acres of spinach seed crops are grown in Denmark annually on 4 to 5 year rotations. The alkaline and calcareous (limestone-containing) soils in Denmark appear to suppress spinach Fusarium wilt.

Funding and Research Findings

Over the past 7 years, Lindsey du Toit's program at the Washington State University (WSU) Mount Vernon Northwestern Washington Research and Extension Center (NWREC) has carried out research on management tools for spinach Fusarium wilt. This research has been funded by the Puget Sound Seed Growers' Association, the Western Washington Small Seed Advisory Committee (a seed industry group), the Robert MacDonald Vegetable Seed Memorial Fund, a Western Sustainable Agriculture Research and Education (WSARE) Graduate Student Fellowship, and state funding from the Washington State Commission for Pesticide Registration. Lindsey's program, focusing on research with grower cooperators in western Washington, has demonstrated unequivocally that limestone can suppress Fusarium wilt in spinach seed crops in the PNW. In 2009, Lindsey received funding from the Regional IPM Grants Program, Western Region, for a Ph.D. student, Emily Gatch, to continue with the next stages of the project.

Next Stages

The overall objective of Emily's project is to enable spinach seed growers to reduce rotation intervals from 6 to 15 years to 5 to 8 years, thereby increasing the capacity for spinach seed production in the United States. Emily is assessing the mechanisms of Fusarium wilt suppression that occur with limestone amendments in order to optimize and integrate this with other cultural practices. The specific objectives of her project are to 1) investigate soil properties that affect host-pathogen interactions, 2) develop a soil bioassay as a risk assessment tool to be used by growers to select appropriate fields for seed crops to minimize losses to Fusarium wilt, and 3) assess levels of Fusarium wilt suppression induced with annual applications of limestone and other cultural practices that lower the carrying capacity of PNW soils for this pathogen. In addition, Lindsey's program is working with Dr. Pat Okubara, a USDA Agricultural Research Service (USDA-ARS)



July, 2009, field trial showing one replicate of three rates of limestone amendment and four spinach parent lines in plots with very severe Fusarium wilt disease pressure. Plots in foreground had 2 tons limestone amendment per acre; plots in middle-ground had 0 tons per acre; and plots in near-background had 1 ton per acre.

Lindsey du Toit

pathologist in Pullman, to develop a molecular diagnostic assay for detecting the spinach Fusarium wilt pathogen.

Importance of Stakeholder Input

Successful adoption of recommendations from this research is dependent on stakeholder input, particularly given the "high value" yet "high risk" nature of this minor-acreage crop. Lindsey's program actively seeks the expertise of seed growers and seed industry personnel. In addition to continued stakeholder funding for research, field trials are in grower-cooperator fields to facilitate selection of sites that meet the requirements for the research (acid soils, and a spinach seed crop grown in the field 4 to 5 years prior to the trial as a guarantee of natural and relatively uniform disease pressure). Stakeholders have assisted with field preparation and/or planting, soil fertility assessment, and development of fertilizer programs that reflect current grower practices. Field trial results are demonstrated to stakeholders annually during the WSU Mount Vernon NWREC Field Day, and seed companies have generously donated stock seed of proprietary parent lines for field and greenhouse research trials. Stakeholders meet with Lindsey's program each winter to discuss results of the previous year's research and to provide input on the next season's research.

Research Impacts

U.S. farmers remain restricted in their capacity to produce spinach seed on the limited acreage suitable for this crop. As a result of preliminary data generated by this project, some growers in the PNW and Holland have increased the rate of limestone amendment they use to grow spinach seed crops on acid soils, apparently with positive results. Emily's research project is expected to fill knowledge gaps about the relationship between soil chemical/microbial properties and the suppression of spinach Fusarium wilt, and about the potential to manipulate soil properties to make naturally conducive soils of the PNW more suppressive to this disease. We expect this research to contribute to reduced rotation intervals for spinach seed crops in the United States. This is significant, because application of the knowledge generated by this study is expected to increase the capacity of each acre in the coastal PNW that can be used to produce spinach seed. This should increase the sustainability and profitability of spinach seed as a U.S. crop. In addition, results of this research are expected to provide information relevant to Fusarium wilts of other crops.

The project receives excellent technical support from Mike Derie, Louise Brissey, and Barbara Holmes as well as the farm crew at the WSU Mount Vernon NWREC, Dan Gorton, Ron Dralle, and Matt Reichlin. For further information, contact Lindsey du Toit, dutoit@wsu.edu, (360) 848-6140, or Emily Gatch, ewgatch@wsu.edu, (360) 848-6129.

Tours—from page 3

Our final stop of the day was on the Long Beach Peninsula. Here we visited Steve Gray's cranberry farm, Blue Heron Cranberry Bogs, in Seaview. Steve looked like he came right out of one of those Ocean Spray commercials (maybe it is a requirement of cranberry growers!). He stood in his unflooded bog and discussed pest control and environmental issues with the group. His family-owned farm is part of the Ocean Spray cooperative.

Day three took us to Willapa Bay to see and discuss issues encountered in oyster farming. The burrowing shrimp destroys oyster beds. For many years, carbaryl has been sprayed on the mudflats to control the shrimp prior to seeding the oysters. This causes environmental concerns, and alternatives to this pesticide are being sought. We also saw spartina (a grass-like aquatic weed) eradication that is restoring habitat. At our final stop there was a forestry discussion centering on reforestation after logging.

Western SARE Tour

The Western Sustainable Agriculture Research and Education (WSARE) Administrative Council (AC) meets twice a year. During the summer meeting, AC members meet with local producers and community members. The AC met in



Banner advertises Larry Thompson's produce at Kaiser Permanente in Clackamas, OR.

Portland, OR, this summer and visited Larry Thompson's farm in Damascus. Here we saw sustainable farming and community involvement with local producers, and we enjoyed an interesting lunch presentation at the Damascus City Hall on incorporating the Thompson farm into a planned housing development. Larry has provided about 5 acres of land to the MercyCorps Northwest's Immigrant Farmer Internship program. On these acres, immigrant farmers learn skills that will enable them to become farmers and supply their local community with fresh produce. Larry has been innovative with his farmers markets, too. He supplies to about 30 markets, including one on the Kaiser Permanente campus in Clackamas. Here, staff and visitors can purchase farm-fresh produce on a daily basis.

Agricultural tours provide an ideal opportunity for contacts among growers, regulators, university researchers, commodity organizations, and others, developing excellent communication links among all of the participants. I have found that these contacts allow both formal and informal discussions when important issues arise relating to agriculture. Regulators are able to make informed decisions based on direct contact with those people and situations affected by the regulations, and growers develop trust that they are being heard and that regulators understand their operations, challenges, and needs.

Organic Potato PMSP Yields Funding and More

Jennifer Miller, the Sustainable Agriculture Coordinator for the Northwest Coalition for Alternatives to Pesticides and a lead author for the Organic Potato PMSP, published in December, 2008, recently checked in with researchers who participated on the PMSP work group to see how they have used the document at the 6 month mark after publication. Of the 23 researchers and agronomists surveyed, 12 responded. Results showed:

- Five researchers have used the PMSP to document stakeholder need in grant proposals, and all were funded. Projects included the following topics: conservation biological control, biocontrol of potato pests, organic sprout control, IR-4 program funding, and general IPM programming.
- Three researchers used the PMSP to develop their research and/or extension plans.
- Four researchers reported sharing the document with other researchers and farmers.
- Five reported they had not used the PMSP yet, but several expected to use it in the coming months.

These initial results are a great example of leveraging of Center funding and the immediate value and diverse uses of PMSPs.

Mark Your Calendar

2009

November

- EPA Environmental Stewardship Branch (ESB) National Conference, "The New Pesticide Environmental Stewardship Program (PESP): Building Stronger Partnerships for Effective Environmental Stewardship," November 17–18, Potomac Yard Conference Center, Arlington, Virginia.
<http://esbconference2009.eventbrite.com/>

December

- 2009 National Soybean Rust Symposium, December 9–11, New Orleans, Louisiana.
<http://www.apsnet.org/online/sbr/>
- Entomological Society of America, December 13–16, Indianapolis, Indiana.
<http://www.entsoc.org/am/index.htm>

2010

February

- 24th Vertebrate Pest Conference, February 22–25, Sacramento, California.
<http://www.vpconference.org>

August

- 95th Annual Ecological Society of America Meeting, August 1–6, Pittsburg, Pennsylvania.
<http://www.esa.org/pittsburgh/>

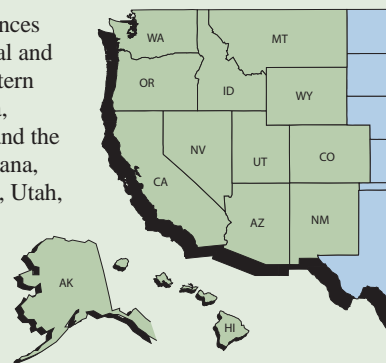
December

- Entomological Society of America 57th Annual Meeting, December 13–16, Indiana Convention Center, Indianapolis, Indiana.
<http://www.entsoc.org/am/fm/index.htm>

For more information, see "News/Announcements" and "Funding Opportunities" on the WIPMC Web site.

Center Scope

The Western IPM Center enhances communication between federal and state IPM programs in the western United States: Alaska, Arizona, California, Colorado, Hawaii and the Pacific territories, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming. It serves as an IPM information network, designed to quickly respond to information needs of the public and private sectors.



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