



2005  
ANNUAL  
REPORT

**WESTERN INTEGRATED PEST MANAGEMENT (IPM) CENTER**

**WIPM**

# Director's Comments

## Showcasing Our Western IPM Center Activities

This is the inaugural annual report of the Western Integrated Pest Management (IPM) Center, first funded in 2003. We are proud of our accomplishments.

The Western IPM Center is one of four centers funded by the United States Department of Agriculture, Cooperative States Research Education and Extension Service (USDA-CSREES).

Each center is unique in issues to be addressed, but all follow the overarching guidance of the National IPM Roadmap. The goal of the National IPM Program is to improve the economic benefits of adopting IPM practices and to reduce potential risks to human health and the environment caused by pests or by pest management practices.

Funding granted to the Western IPM Center supports center activities in a number of ways. Information networks at the state or multi-state level provide needed information on pest management tactics at the local level. These networks respond to information requests from USDA and USEPA. Coordination of these requests often occurs via regional comment coordinators.

Regional staff develops pest management strategic plans (PMSPs), which address pest management needs and priorities for individual crops in specific states or regions. These documents are invaluable to industry and state and federal authorities in understanding pest management uses and needs in agricultural settings. Since 2002, the Western IPM Center has completed 40 PMSPs, which are posted on our Web site at [www.wriipmc.org/CropProfiles/](http://www.wriipmc.org/CropProfiles/) and on the National IPM Center's Web site at <http://pestdata.ncsu.edu/pmsp/>.

Focused workgroups are funded to address particular issues such as pesticide resistance management, urban IPM, weather modeling and pest forecasting, and other topics. As we identify research and education needs through these groups and other stakeholders, we are able to offer some funding via an annual grants program or small start-up grants. Through these small start-up grants, we can quickly address crucial or emerging issues such as disease or pest outbreaks.

In 2004, the Western IPM Center assumed management of the USDA-CSREES regional IPM grants program, which annually provides approximately \$700,000 for research and extension in IPM in the western region. Through this program, headed by grants panel manager Frank Zalom, we can identify and fund important issues.

The Western IPM Center's symposium, *Water, Wildlife, and Pesticides in the West: Pest Management's Contribution to Solving Environmental Problems* took place Aug. 31 and Sept. 1 in Portland, Ore. This symposium brought together a diverse group of people, who addressed, listened to, and discussed various issues related to water and pest management.

Two standing committees guide the center: the Advisory Committee and the Steering Committee:

- The Advisory Committee provides vision and guidance. Members represent a wide range of stakeholders linking the Western IPM Center to stakeholder needs and priorities for pest management programs. These advisors, integral to IPM Center outreach, promote awareness of the center's resources to their own constituencies and beyond.
- The Steering Committee gathers input from stakeholders (including the Advisory Committee); determines broad policy goals and priorities; recommends Center budgets; and provides direction for timely and effective Western IPM Center management.

Other key projects include our Web site, [www.wriipmc.org](http://www.wriipmc.org), and our online newsletter, *The Western Front*, published four times a year. The Western IPM Center is headquartered in Meyer Hall, University of California, Davis.

Please read our annual report, showcasing some of the activities and people who have come together to make the Western IPM Center a truly committed and responsive entity.



Rick Melnicoe

## Three Lead the Center

Rick Melnicoe, active in pest management issues for more than 25 years, serves as the director of the Western IPM Center (WIPMC), headquartered at Meyer Hall, University of California, Davis.

Co-director is entomologist Tom Holtzer of Colorado State University, Fort Collins, and assistant director is Linda Herbst of UC Davis.

WIPMC 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.

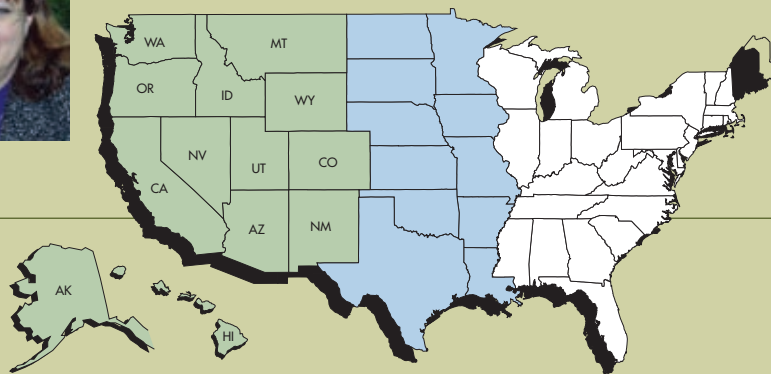
The contracted center staff includes regional comment coordinators, regional Pest Management Strategic Plans/crop profile coordinators, IPM regional grants manager, and a writer (Web site and newsletter), located throughout the region.



Tom Holtzer



Linda Herbst



**The Crop Insect Losses and Impact Workgroup** expanded this past year to include cotton, melons, and lettuce in Arizona and the low desert regions of California. In 2003-2004, six interactive workshops involving more than 140 stakeholders took place in the two states.

The data collected includes metrics on insecticide use patterns, costs, targets, and frequency, and crop losses due to various stressors of yield and quality.

**The Pacific Northwest Workgroup** zeroes in on issues affecting Oregon, Idaho, Washington, Alaska, Montana, and Utah. In the past two years, it has provided IPM information and resources by coordinating

- regionwide pest alerts and weather/forecasting models
- regionwide projects with water quality and endangered species impacts
- "OnePlan" (farm planning) with NRCS
- regionwide pest management handbooks

**The Weather Systems Workgroup**, comprised of agricultural meteorologists, climatologists, plant epidemiologists, and IPM specialists in the western region, has written a white paper identifying weather-related issues that need to be addressed for next-step IPM practices. Some issues are routine production scale issues; others identify basic research that needs to be conducted.

To address these needs, the group is pursuing Web-based applications and has submitted several funding proposals. Through the partnership of the National Plant Diagnostic Network and the Western IPM Center and others, the workgroup anticipates a national scope and applicability.

## Workgroups

### WIPM Center Sponsors Seven Workgroups

Western IPM Center funding currently supports seven issue-based workgroups involving:

- crop insect losses and impact in California and Arizona cotton
- herbicide tolerant and/or insect resistant crops in western agriculture
- collaboration with Natural Resources Conservation Service (NRCS) in developing IPM guidelines as part of NRCS conservation plans
- organization of research on beet curly top virus genetics in the western United States
- development of a technical workgroup that discusses and refines standards and protocols for the collection, analysis, and Web delivery of weather data for IPM purposes
- a Pacific Northwest small fruits workgroup to identify and prioritize IPM research projects
- a Pacific Northwest coalition that collaborates on a multitude of issues



(Photo by Len Coop)

*The WIPMC Weather Workgroup examines interpolated climate maps. From left are From left are Chris Daly, Spatial Climate Analysis Service, Oregon State University, Corvallis; Alan Fox, Fox Weather LLC, Fortuna, Calif.; Joyce Fox Strand, University of California Statewide IPM Program; Carla Thomas, Western Plant Diagnostic Network, UC Davis; and Bill Pfender, USDA-ARS NFSPRC (Agricultural Research Service/National Forage Seed Production Research Center), Corvallis.*

# Grants Program

## Eight Grants Funded in Western Region IPM Grants Program

Five research grants totaling \$485,000 and three research/extension grants totaling \$176,652, were funded earlier this year through the Western Region IPM Grants Program.

The Regional IPM Competitive Grants Program is administered by the land-grant university system's four regions (North Central, Northeastern, Southern, and Western), in partnership with USDA/CREES.

### Mechanisms and Impacts of Integrated Pest Management for Sustainable Dalmatian Toadflax Control in the Western U.S.

**Principal Investigator:** Stephen Enloe, University of Wyoming

**Co-Principal Investigators:** Timothy Collier and Paul Meiman, University of Wyoming; and Andrew Norton, University of Colorado



(Photo by Joe DiTomasso)

Dalmatian toadflax, a highly invasive, exotic weed, is classified as a noxious weed in every Western state except Utah, Alaska, and Hawaii. This research and extension project evaluates IPM strategies using reduced-rate applications of an herbicide (either imazapic or picloram) combined with releases of the weevil, *Mecinus janthinus*, at ecologically different sites in Wyoming and Colorado.

**Objectives:** To minimize risk to nontarget species while achieving rapid, permanent, and economical weed management.

### Determining the Potential for Release of Lepidopteran Parasitoids from Pesticide Limitation to Enable Biologically Based IPM in Caneberries

**P. I.:** Leonard Coop, Oregon State University  
**Co-P.I.:** Paul Jepson, Oregon State University



(Photo by Jack Kelly Clark)

Leafroller insect pests threaten the \$82 million Washington and Oregon caneberry

industry, which includes red raspberry, blackberry and other *Rubus* spp. To control the pests, particularly orange tortrix (*Argyrotaenia franciscana*), growers annually spray multiple applications of broad-spectrum insecticides.

This project, addressing 13 research, regulatory, and educational needs listed in the Pest Management Strategic Plan (PMSP) for Oregon and Washington caneberries, involves selective controls, conservation biological control, IPM, and direct grower participation.

**Objectives:** To allow growers to reduce their risks from leafroller contaminant losses through biologically based IPM. Research results will be transferred widely to growers.

### Reduced Fungicide Use for Hop Downy Mildew Management

**P. I.:** Cynthia M. Ocamb, Oregon State University  
**Co-P.I.:** David H. Gent, USDA-Agricultural Research Service



(Photo by University of Wisconsin Botanical Garden)

The western U.S. produces nearly the entire nationwide supply of hops (*Humulus lupulus*) and more than 30 percent of the worldwide supply. Hop downy mildew, caused by *Pseudoperonospora humuli*, threatens sustainable and profitable hop production. To suppress the disease, growers rely on chemical control.

Increased production costs, food safety concerns, and environmental quality underscore the need to develop multi-tactic strategies. The project involves better timing of chemical controls through the use of disease weather forecasts for hop downy

mildew. The researchers will couple these disease models to site-specific, five-day weather forecasts to allow growers more response time to implement appropriate control measures. Research will take place in experimental plots, growth chambers, and commercial fields.

**Objectives:** To create new knowledge and tools to reduce fungicide use; to enhance and protect environmental quality (by reducing health risks and other problems associated with pest management); and to share information among growers.

### Integrated Control of Spotted Knapweed: Utilizing Spotted Knapweed-Resistant Native Plants to Facilitate Revegetation

**P. I.:** Mark W. Paschke, Colorado State University  
**Co-P.I.:** Jorge M. Vivanco, Colorado State University; Raean M. Callaway, University of Montana; and Laura Perry, Colorado State University



(Photo by Jack Kelly Clark)

Knapweeds (*Centaurea maculosa*, *C. diffusa*, and *Acroptilon repens*) are among North America's most destructive exotic and invasive plants. Their production of potent phytotoxins (allelochemicals) interferes with many native species. However, some North American grassland species are resistant to the phytotoxins, such as the (±)-catechin produced by spotted knapweed. Some resistant grassland species detoxify (±)-catechin by secreting organic acids into the soil. This appears to protect neighboring plants from the toxic effects as well.

**Objectives:** To test whether planting native species that are resistant to knapweed allelopathy can detoxify knapweed allelochemicals and facilitate the establishment of diverse native communities in knapweed-infested sites. This project, involving greenhouse and field experiments, aims to reduce reliance on chemical control and add to the arsenal of pest control methods.

### Spatially Explicit Approaches for Measuring and Implementing Higher Level, Multi-Crop, Multi-Pest IPM

P. I.: Peter C. Ellsworth, University of Arizona

Co-PI.: Al Fournier, Yves Carriere, and John C. Palumbo, University of Arizona

IPM should be elevated, implemented, and adopted to a level that spans multiple crops and pests over entire agroecosystems. This would include the desert Southwest where pests such as whiteflies and aphids attack our nation's major source of winter vegetables, melons, and cotton. Reducing areawide pest populations is especially important due to the year-round growing season in desert cropping systems and the chronic nature of pest incidence. Selective and reduced-risk technologies include Bt cotton, whitefly-specific insect growth regulators, and organophosphate replacements.

The researchers earlier developed IPM guidelines for cross-commodity management of whiteflies that transcend fields or grower borders. These guidelines depend on group adoption over large areas to be effective, and proactive resistance management for major reduced-risk technologies, such as IGR and neonicotinoids.

**Objectives:** To develop a novel approach for measuring spatially relevant adoption of IPM guidelines. This new analytical approach will study pesticide use data and GIS/GPS technology as a means to understanding the areawide adoption of the cross-commodity guidelines and to further guide future research, technology transfer, and outreach efforts.



### Yield Losses for Western Bean Cutworm and European Corn Borer Among Site-Specific Management Zones of Field Corn

P. I.: Frank Peairs, Colorado State University

Co-PI.: Rajiv Khosla, Colorado State University



(Photo by Keith Weller, USDA/ARS)

Site-specific management zones (SSMZ) are areas within fields that have similar yield potential and are managed in a similar manner. Through SSMZ, growers can reduce the amount of insecticides applied, cut costs, reduce environmental contamination, preserve natural enemies, and better manage insecticide resistance.

Although SSMZ studies have included water and fertilizer management, insect injury is relatively unstudied.

This research and extension project involves a corn agroecosystem with two pests: western bean cutworm (*Richia albicosta*) and European corn borer (*Ostrinia nitbilalis*). Artificial infestations will be used to create various levels of injury for each pest.

**Objectives:** To determine how loss factors differ for these two pests among the zones and to greatly improve the pest management efficiency, Scientists from Colorado State University Bioagricultural Sciences and Pest Management, and Soil and Crop Sciences are participating in the project.

### Developing Integrated Management Programs for Soilborne Potato Diseases Using Mycofumigation, *Trichoderma* sp., Pesticides, and Host Resistance

P. I.: Barry Jacobsen, Montana State University

Co-PI.: Nina Zidack, Montana State University

The western region produces more than 749,000 acres of potatoes or 57.3 percent of the total U.S. acreage. Three fumigants are used on 30 to 55 percent of this acreage to control the early dying disease complex and nematodes. They are metam sodium (Vapam), metam potassium (K Pam), and 1,3 dichloropropene (Telone). In Washington, Idaho, and Colorado, annual Vapam use alone totals more than 60 million pounds.

Both the PMSP for Pacific Northwest Potato Production and the Potato Crop Profiles for these three states call for alternate management strategies. This proposal addresses field studies on the integrated use of mycofumigation, pesticides, *Trichoderma* and host resistance for control of the early dying disease complex, nematodes, and *Rhizoctonia*.

**Objectives:** To replace the fungicides with mycofumigation, which is the use of antimicrobial volatile chemicals produced by fungi (such as *Muscodora albus* isolate 620) to control other microorganisms. In vitro tests show that these fungi effectively inhibit and kill many important plant pathogens but are neither phytotoxic nor pathogenic to any of the eight plant families under study. The researchers also will evaluate potato cultivars and germplasm sources for resistance to black dot root rot.



(Photo by Jack Kelly Clark)

# Collaborations

## Development of an Integrated Pest Management Program for Arthropod Pests of Cool-Season Grass Crops

P. I.: Larry D. Godfrey, University of California, Davis



Washington, Montana, Oregon, Colorado, Idaho, Nevada, and California produce most of the cool-season grass hay in the western states, or some 1.7 million acres, according to the 2002 Census of Agriculture. Five of these states each produce more than 200,000 acres.

The most economically important are timothy hay (*Phleum pratense*) and orchardgrass (*Dactylis glomerata*). Timothy hay is highly valued as feed for horses (race horses and hobby-farm horses) and for export.

Prices for good-quality timothy hay are often 25 percent more than alfalfa hay. Marketing of cool-season hay is based largely on visual appearance and aesthetics. In recent years, grass thrips (*Anaphothrips obscurus*) and mites (several species but primarily *Tetranychus* spp. and *Oligonychus* sp.) have severely damaged these crops. In California, growers often resort to four to seven insecticide applications seasonally to manage thrips.

Although a Special Local Needs label for methidathion is in place in several western states for thrips and mite control, the long-term availability is unclear. Registration of the acaricide bifenazate is being pursued. Sound IPM practices need further scrutiny with the increase of crop acreage, market demands, and agricultural economic importance.

**Objectives:** To investigate sampling protocols, decision thresholds, influence of cultural practices on pest populations, and incidence of biological control at sites in California, Washington, and Nevada. To develop the data needed to design a baseline IPM program for major arthropod pests of cool-season grass crops.

## Western IPM Center Trains USEPA/BEAD Staff

The Western IPM Center provided five days of nursery issues training to five USEPA/ Biological Effects Analysis Division (BEAD) staff last year in the San Diego, Calif., area.

Training, conducted Aug. 23-27, included classroom-style lectures, hands-on pest identification, and field visits to various nursery operations. Extensive discussions centered around pesticides, worker issues, water quality (especially surface runoff), economics, and the enormous variety of plants produced.

The site visits emphasized the range of nursery production in California, including cut flowers, potted plants, ornamental trees, and bulbs. Among the many issues discussed were runoff and collection systems, fumigation needs, worker pesticide exposure, and urban encroachment.

Funding from the USDA's Natural Resources Conservation Service (NRCS) and the Environmental Quality Incentives Program (EQUIP) supports some of the runoff mitigation projects in nursery production.

## Information Networks Solve Problems

Activities of the Western IPM Center's information networks have resulted in everything from added worker protection to retained pesticide uses for minor crops.

"Each information network is comprised of many people working on a variety of issues," said WIPMC assistant director Linda Herbst. The main functions of information networks are to:

- serve as resources for information about the importance of pesticides and other pest management tactics in local production systems, and urban and natural systems covered by the network
- collaborate and/or coordinate with a diverse group of stakeholders, including extension IPM coordinators
- identify critical issues
- aid in identifying appropriate individuals to address IPM tactics use surveys, crop profiles, and Pest Management Strategic Plans (PMSPs).

The network participants are closely involved in many activities directly related to the mission and goals of the Western IPM Center. They serve as members of workgroups; organize or assist on PMSP teams; and participate in peripheral programs such as IR-4, water quality, Natural Resources Conservation Service, sustainable agriculture, and many others.

"This involvement provides avenues for the Western IPM Center to understand and address stakeholder needs," Linda said. "Follow-up activities from PMSPs have resulted in several research projects, IPM manuals, pesticide registrations, and improved IPM in many crops."

## Indicators Workgroup Studying Key Issues

The Indicators Workgroup is a definite indication that lots of collaboration is under way.

The Western IPM Center staff is part of the newly formed Indicators Workgroup that collaborates on key issues with representatives from EPA's Strategic Agricultural Initiative staff and regional IPM centers, and with CSREES program leaders.

Issues include impact assessment of integrated pest management and sustainable agriculture programs.

The workgroup met Aug. 28-29 in Portland, Ore. to work together on three areas:

- identifying target outcomes and indicators by applying the Logic Model framework to the goals of the National Roadmap for IPM
- developing a common structure for reporting progress of funded projects toward those outcomes; and
- sharing experiences of successful collaboration with Natural Resources Conservation Service in IPM training and implementation.

The workgroup first met at an October 2004 workshop to explore mutual EPA/USDA goals in measuring success and create a long-term strategy for cooperation in IPM performance measurement and outcome reporting.

The Indicators Workgroup will post its work on a Web site and continue working on these three initiatives in the coming year. Its third meeting is scheduled for August 2006.



Oliver Storm (far left) of Weidner's Nursery, Encinitas, talks to the USDA/BEAD group.

# Resources

## Got Questions? They Supply the Answers

When the USEPA or USDA or other organizations request information about a specific pesticide, chances are that Jane Thomas and Cathy Tarutani are involved.

Jane serves as the Western IPM Center's Pacific Northwest comment coordinator, covering Alaska, Idaho, Montana, Oregon, Utah and Washington.

Cathy is the comment coordinator for the American-affiliated Pacific Islands (API), which encompasses Hawaii, Guam, the Commonwealth of the Northern Mariana Islands, American Samoa, the Federated States of Micronesia, the Republics of Palau, and the Marshall Islands, spanning an area larger than the continental United States.

Once an inquiry is received, the comment coordinator:

- gathers information from growers, commodity groups, extension personnel, and others
- writes a response
- submits it to the appropriate federal agency

Inquiries generally target specific pesticide active ingredients. The information is organized alphabetically by active

ingredient on the Western IPM Center Web site, under "Replies to Information Requests" ([www.wripmc.org/NewsAlerts/](http://www.wripmc.org/NewsAlerts/)).

"The questions range from all encompassing and consequently difficult to address, to simple and straightforward, such as whether wheat is grown at elevations above 5000 feet," said Jane, who is based in the Richland, Wash., office of Pest Management Resource Service, Washington State University Tri-Cities.

Cathy, headquartered in the Department of Plant and Environmental Protection Sciences, University of Hawaii, Honolulu, said communicating the uniqueness of API to American agriculture is an important component of her work as comment coordinator.

"The regulatory decisions affecting pest management practices can have a major impact on ultra-minor crop producers and consumers and on fragile island ecosystems," she said.

Their work is definitely making a



Jane Thomas



Cathy Tarutani

difference. Due primarily to Jane's input, EPA decided to forego application buffers for chlorsulfuron, at least for this round of re-evaluation, reported USDA's Teung Chin.

Cathy's input and "the work done by the centers is invaluable to the continued success of agriculture in Hawaii," declared John J. McHugh, Jr., owner of Crop Care Hawaii, LLC, Aiea, in a letter dated April 15.

Agronomist Harold Coble of the Office of Pest Management Policy, USDA's Agricultural Research Service, praised WIPMC director Rick Melnicoe and Jane Thomas in a Sept. 12 letter:

"Because of your dedicated approach to providing timely and accurate information for use in working with EPA on re-registration decisions, we have been able to keep napropamide uses on several crops that otherwise would have been lost. These include basil, blackberry, blueberry, boysenberry, loganberry, raspberry, and persimmon. " He added that a pesticide use rate was retained for ornamentals. "I consider this a win for agriculture and you folks in the region."

## Critical Issues

### Western IPM Center Addresses Critical Issues

The Western IPM Center funded nine critical-issue projects, totaling \$485,644 in the fall of 2004.

The projects:

- Determination of Alternatives to Current Pesticides for Controlling Wireworms, *Principal Investigator: Juan Alvarez, University of Idaho*
- Identification of a Sex Pheromone of *Prionus californicus*, and its Potential Use in Management of Hop  
*P. I.: James Barbour, University of Idaho*
- Microbial Biopesticides for Small Grain and Potato Wireworm Control  
*P. I.: Sue Blodgett, Montana State University*
- Potato IPM Scouting Manual (A Pocket Guide in English and Spanish)  
*P. I.: Ronda Hirnyck, University of Idaho*
- OnePlan IPM Planner *P. I.: Ronda Hirnyck, University of Idaho*
- Regionalized IPM Outreach: Buffers, Drift Management, and Best Management Practices (BMP) to Protect Water Quality  
*P. I.: Paul Jepson, Oregon State University*
- Walnut Pest Management Alliance: A Research and Implementation Project  
*P. I.: Carolyn Pickel, University of California*
- Iris Yellow Spot Virus Risk Index to Predict Virus and Thrips Responses to Management Inputs in Western-Grown Onions  
*P. I.: Howard Schwartz, Colorado State University*
- Monitoring and Mass Trapping Olive Fruit Fly in California  
*P. I.: Paul Vossen, University of California*

Further information is online at [www.wripmc.org/](http://www.wripmc.org/).

### WIPMC Symposium on Water and Pest Management Concerns

The Western IPM Center's symposium, *Water, Wildlife, and Pesticides in the West: Pest Management's Contribution to Solving Environmental Problems*, brought together a diverse group of people concerned about water and pest management.

The symposium, held Aug. 31 and Sept. 1 in Portland, Ore., included extensive interaction among participants and speakers.

Speakers addressed broad themes of water quality, endangered species, and reduced-risk IPM. At breakout sessions, participants identified issues that the IPM Center, or other groups, may be able to address. These include research and extension needs, endangered/invasive species and urban concerns, adoption of IPM and best management practices (BMP), and the formation of coalitions to address problems.



# PMSPs Result in Success Stories



## Sugarbeet Project

The Sugarbeet Pest Management Strategic Plan (PMSP) isn't finalized yet, but already a new grant project is under way, thanks to the collaborative efforts of the sugarbeet industry, researchers, and the Western IPM Center.

When PMSP members met last December in Boise, Idaho, to begin developing a strategic plan, both sugarbeet industry officials and researchers identified green manure cropping as a high priority. They wanted to pursue the

economics, the role of pest control, and the impacts on soil nutrition.

Later, WIPMC steering and advisory committees member Jennifer Miller (Northwest Coalition for Alternatives to Pesticides) discussed possible grant funding with Sandy Halstead of EPA, and staff from the Amalgamated Sugar Company (ASC), a grower-owned processing company in Boise.

Jennifer then assisted Dennis Searle of ASC in developing and submitting a successful grant proposal to the Food Quality and Protection Act/Strategic Agriculture Initiative Program, EPA Region 10.

Thanks to the American Farmland Trust-funded grant, the ASC will implement green manure cropping into the sugarbeet rotations of 10 growers and share the findings with the 1,100 growers.

Said Western IPM Center director Rick Melnicoe: "This is a good example of how PMSPs can help an industry seize an opportunity and increase their IPM efforts."

## Potato Project

A Best Management Practices Standards Checklist, the work of the Potato Growers of Idaho, is an outgrowth of the Pacific Northwest Potato PMSP workshop held in February of 2002.

This checklist was developed with assistance of many potato experts and industry professionals.

The purpose of this checklist is to evaluate IPM practices currently in use by the growers, monitor changes in practices, and to encourage adoption of IPM practices.



## Rangeland Beef Cattle

The beginning work on the Rangeland Beef Cattle PMSP has already resulted in a grant.

Washington State University officials, part of the PMSP workgroup on June 18-19 in Bozeman, Mont., have just received word from the USDA Federal Crop Insurance Corporation (FCIC), through its Risk Management Agency, that they won a three-year \$385,425 grant to pursue Reduced-Risk Pest Management Strategies in Beef Cattle.

The grant is for Oct. 1, 2005 through Sept. 30, 2008.

WSU IPM Program coordinator Douglas B. Walsh is the principal investigator. Co-principal investigators are cattle geneticist Arthur Linton, director of WSU's Irrigated Agriculture Research and Extension Center (IAREC), Prosser, and Extension IPM coordinator specialist Holly Ferguson of IAREC.



For more information on the Western Integrated Pest Management Center, see <http://www.wripmc.org/index.html>

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