

Enhancements to the Statewide IPM Program in Oregon

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Introduction

The statewide IPM program is undergoing a vision setting exercise to tune its programs to stakeholder needs within Oregon and the Pacific Northwest. This poster represents a snapshot of recent developments and current activities.

The core of the program is the Integrated Plant Protection Center, a research and extension center that reports to the Dean of the College of Agricultural Sciences at OSU. The IPPC works with faculty from many Departments in the College, and is the home for the USDA CSREES programs in IPM, Pesticide and Environmental Stewardship, Farm Safety, Pesticide Coordination and the Regional IPM Center (Co-PI's Jeffrey Jenkins and Paul Jepson).

The most significant recent development is the creation of the Western Region IPM Center. The Oregon program is contributing multi-state activities with colleagues in Alaska, Montana, Washington State, Idaho and Utah, in addition to other states in the Western Region.

The scope of reorganization of the statewide program includes expanded engagement with state and regional agencies and NGOs, in addition to the many commodity-based organizations in Oregon. Active collaborations are developing with the Oregon Department of Agriculture (ODA), the USDA ARS, NRCS and APHIS, and the Oregon Department of Environmental Quality. Our active links with NGO's include the Food Alliance, Oregon Tilth and Defenders of Wildlife.

Acknowledgements

Thanks are due to many in this reorganization:

- *IPPC staff:* Myron Shenk, Linda Parks, Len Coop, Allan Deutsch, Marcos Kogan, and long time IPPC colleague, Handbook Editor and County Chair, Dan McGrath
- *IPM Center staff:* Joe DeFrancesco, Wade Trevathan, Mario Ambrosino
- *Western Region IPM Center colleagues:* Rick Melnicoe, Linda Herbst, Tom Jahns, Ronda Hirnyck, Ed Bechinski, Catherine Daniels and others
- *National Pesticide Information Center* lead PI: Terry Miller
- *OSU CAS Administrators:* Thayne Dutton, Erik Fritzell, Bill Braunworth and Hu, Ching Yuan
- *IPPC Advisors:* Jeffrey Jenkins (Co-PI WRIPMC) Melodie Putnam, Ray William, Russ Ingham, John Luna
- *Collaborators at the Oregon Department of Agriculture (including Kathleen Johnson, Chris Kirby, John Griesbach and Dan Hilburn)*
- *Collaborators at USDA ARS (including Joyce Loper and Walt Mahafee)*
- *Collaborators at USDA NRCS (including Tom Gohlke)*
- OSU faculty and individuals throughout the state and region, with whom we collaborate (many of whom are named within the poster)

Poster themes

The poster outlines four themes that capture the needs and concerns expressed by OSU faculty and other stakeholders in our consultations. These themes provide a focus for new leadership and collaboration within the state and beyond. They are under constant review.

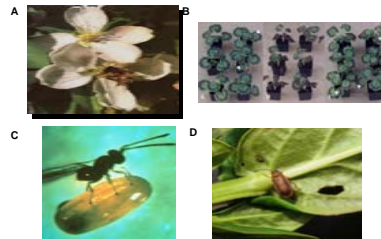
1) Biological Control, Biologically-Based Pest Management

Scope:

Prioritization of candidate pathogens, insects, mites, weeds and non-traditional candidates for biological control, enhanced research and educational opportunities, improvements to risk assessment procedures, greater focus on cultural practices, improved awareness of landscape factors, constructive partnerships with state and regional agencies, NGO's and grower organizations.

Recent developments:

- **Biologically-based pest management workshop**, jointly organized by OSU, USDA ARS and ODA, held December 13th 2003. Workshop program and summary of discussion can be found in the Oregon IPM Newsletter (January 2003 edition) at <http://oregonipm.ipcc.orst.edu>.
- Joint project with Oregon Tilth, to develop conservation biological control guidelines for practical implementation by growers.



Examples of programs:

A) Fire Blight biocontrol with BlightBan A506 (Johnson, Stockwell, OSU; Loper, USDA), B) *Botrytis* biocontrol (Mahafee, USDA), C) Cereal Leaf Beetle biocontrol with *Anaphes flavipes* (Bai, ODA), D) Purple Loosestrife biocontrol with *Galenucella californiensis* (McEvoy, OSU; Coombs, ODA).

Conclusions:

We have identified considerable scope for collaboration between agencies (OSU, ODA, USDA) and the traditional disciplines. Further workshops, conferences, newsletter items are being planned, and the group has identified acquisition of a graduate training grant as a key facilitator of collaboration.

Lead contributors: Peter McEvoy, Paul Jepson, Sujaya Rao, John Luna (OSU), Eric Coombs, Barry Bai (ODA), Joyce Loper, Walt Mahafee (USDA ARS)

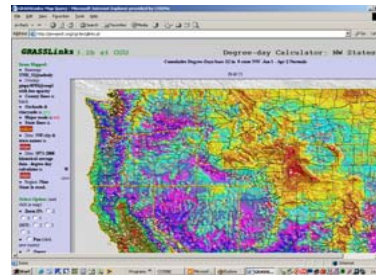
2) Enhanced Diagnostic and Forecasting Tools

Scope:

Improved incidence and vulnerability maps for pests, diseases and weeds, development of epidemiological models, driven by weather and landscape factors, enhanced state and regional diagnostic expertise, development of comprehensive decision support tools

Recent developments:

- Western Region IPM grant *Regional Internet and GIS-based Multiple Pest Forecasting and Risk Management System* (Coop & Spotts [OSU]).
- Collaborative projects with National Plant Diagnostics Network (through NPDM Western Region, Carla Thomas & Rick Bostock [UC, Davis]).
- WRIPM Outworm and armyworm monitoring project (sub-contract with Montana State University). Development of interactive GIS-based risk mapping, at <http://pnwpest.org/glinks/>. (Coop [OSU], Lanier & Blodgett [MSU]).
- Implementation of multiple, web-based, *Pest Alert Systems* to coordinate rapid release of alerts and decision support systems to end-users, at <http://ipcc.orst.edu/>. (Bajwa, Coop, Castagnoli, Hilton, Johnson, McGrath, Riedl, Van Buskirk, Simko, Spotts, Sugar [OSU]).
- Advances in web-based phenology modeling and decision support tools including downscaling routines to provide 500m resolution & interactive GIS interface using GRASSLinks, covering 9 NW states at <http://pnwpest.org/weat/>.



Example: Use of *NW Degree-Day Mapping Calculator* to show historical average degree-days above 32 degrees for 1400 weather stations in 9 NW states within a web-based, interactive GIS interface. Users can zoom into small, sub-regions to obtain real time, or near real time, updates of weather data, linked to a large number of pest, disease and weed phenology models. We welcome collaborations to further develop this system in the USA and beyond

Conclusions:

Advances in interactive, web-based GIS and database technology have enabled very significant advances in our capacity to deliver warnings, advice and decision support on a real time basis. We seek collaborators to adopt these systems beyond the Pacific Northwest.

Lead Collaborators (in addition to those cited in box above): Waheed Bajwa, Melodie Putnam, Stella Coakley, George Taylor (OSU), Kathleen Johnson, John Griesbach, Dan Hilburn (ODA)

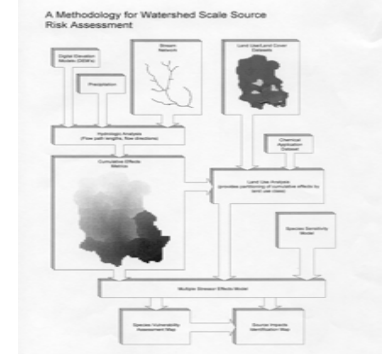
3) Pesticide Management, Rational Use & Risk Mitigation

Scope:

Refine development of *Crop Profiles* and *Pest Management Strategic Plans*, accelerate adoption of reduced-risk pesticides, constructive dialog with water quality, ecological health and regulatory communities, develop watershed-based risk mitigation models, exploit advances in product marketing, quantify IPM impacts, strengthen bilingual PESP program

Recent developments:

- EPA (Region 10) grant *Watershed-based Ecological Risk Assessment of Pesticide Use in Western Oregon* (Jenkins, Jepson & Bolte [OSU]).
- Programmatic focus on Hood River Watershed, for drift management, risk mitigation and development of BMP's in pear and cherry production (OSU, Confederated Tribes of the Warm Springs, Hood River Watershed Group, Hood River Soil and Water Conservation District, Hood River Grower-Shipper Association, Oregon Department of Environmental Quality).
- Regional *Pest Management Strategic Plans* for mint and for cane fruits (Western Region IPM Center).



Example: Flow chart illustrating the project components for current watershed-based ecological risk assessment program (graphic by John Bolte [OSU]).

Conclusions:

Oregon agriculture is dominated by multiple minor crops, and we must improve the tools available to growers for pesticide evaluation, selection, risk mitigation and IPM adoption. This program will expand to bring to bear a pesticide science-based focus, partially returning to skills and expertise that was widely available in Land Grant Universities until the 1970's and 80's, and partially bringing to bear the latest advances in pesticide chemistry, toxicology, and ecotoxicology.

Lead contributors: Jeffrey Jenkins, Paul Jepson, Joe DeFrancesco, Myron Shenk, John Bolte, Steve Castagnoli, Clark Seavert (OSU), Mick Jennings (CTWS), Holly Coccoli (HRWG), Anne Saxby (HWG), Brian Nakamura, Kristin Kerwin (HRGSA), Gene Foster (DEQ)

4) Information Delivery, Decision Support and Outreach

Scope:

Improve access to IPM information including PNW Handbooks, increase access to time-sensitive information and news through meetings, newsletters, e-mail lists, prioritize skills and expertise that was widely available in Land Grant Universities until the 1970's and 80's, and partially bringing to bear the latest advances in pesticide chemistry, toxicology, and ecotoxicology.

Recent Developments:

- Creation of OSU IPM E-mail list, to recipients in OSU, ODA, USDA (NRCS, ARS, APHIS). See <http://oregonipm.ipcc.orst.edu>.
- Launch of on-line Tri-State Insect Control, and Weed Control Handbooks, to complement on-line Plant Disease Control Handbook. See <http://insects.ipcc.orst.edu>, <http://weeds.ipcc.orst.edu> & <http://plant-disease.ipcc.orst.edu>.
- Development of an IPM Portal system for Regional IPM Center - Pacific NW Coalition. See <http://pnwpest.org/pmc/index.pl>.
- Publication of Oregon IPM Newsletter. Available at <http://oregonipm.ipcc.orst.edu>.
- USDA grant to support IPMNet News, a global IPM newsletter (<http://ipcc.orst.edu>).
- Development of procedures for engaging growers and researchers in systems level IPM (William, Jepson [OSU], Alston [Utah State], WCC-69 collaborators).



Example: Grower-researcher farm workshop to develop system level IPM principles

Conclusions:

Our greatest challenges in IPM adoption are 1) the provision of appropriate and timely information, and 2) engagement of growers and researchers in truly collaborative enterprise. We have concluded that these challenges require fresh approaches.

Lead contributors: Dan McGrath, Jay Pscheidt, Cynthia Ocam, Ray William, Len Coop, Allan Deutsch, Linda Parks, Paul Jepson (OSU), David Bragg (Washington State University), Diane Alston (Utah State University), WCC-69 members, PNW IPM Coalition members, contributors to the Tri-State IPM Handbooks

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