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INTEGRATED PEST MANAGEMENT RESOURCE GUIDE

P.C. Jepson, L.J. Brewer, and S.B. Jepson



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Cover photo by Silvia Rondon

Integrated Pest Management Resource Guide



Silvia Rondon

This publication is offered as a reference to Integrated Pest Management (IPM) resources available to Oregon growers. It highlights university, federal, state, and private services and resources that provide support to growers in the implementation of IPM programs. The Guide consists of five sections:

- An introduction to the National Roadmap for IPM
- A reference-rich introduction to biointensive IPM systems
- Regional and national resources
- OSU faculty and others with an interest in IPM
- Publications related to IPM

A NATIONAL ROADMAP FOR IPM

LEADING THE WAY TO THE FUTURE OF PEST MANAGEMENT

An elaborate network of state, regional, and national resources now supports the development of IPM within U.S. crop production. Coordinated by the USDA Cooperative Research, Extension and Education Service (CSREES), this national program seeks to increase adoption of IPM and to deliver economic, environmental, and health benefits to growers, farm workers, and consumers. The goals of this program are outlined in a National Roadmap for IPM, which can be found online at http://northeastipm.org/whatis_ipmroadmap.pdf. The Roadmap is the main policy document being used to establish the network of IPM support provided by Land Grant universities and federal agencies within states, regions, and nationally.

One of the key components of the national roadmap is the development of Pest Management Strategic Plans (PMSPs), a commodity-based analysis of the IPM needs in particular crops. PMSPs define the research, educational, and regulatory priorities for specific crops, and investments are made so that responses to these priorities can

be carried out. PMSPs can be found online at <http://www.wripmc.org/CropProfiles/index.html>, or listed by commodity and state at <http://pestdata.ncsu.edu/pmsp/pmindex.cfm?USDARegion=Western>. PMSPs are not IPM guides, but they are effective summaries of the status of IPM practices and the priorities for research and education in each crop that has been addressed.

Crop-based IPM strategic plans, and the followup to these plans, should set the stage for increased adoption of IPM. As IPM advances, it increasingly incorporates measures that prevent or mitigate pest attack, as well as measures that emphasize biological approaches to pest suppression. This guide emphasizes access to resources that support these longer term goals of IPM.

If you would like to know more about the process that leads to development of a PMSP, please contact Paul Jepson at jepsonp@science.oregonstate.edu.

BIOINTENSIVE INTEGRATED PEST MANAGEMENT SYSTEMS

AN INTRODUCTION

Defining biointensive IPM systems

The most effective suppression of insect pests, plant diseases, and weeds is achieved when producers integrate a variety of tactics that prevent, avoid, or reduce crop losses, while limiting the need for suppressive measures, including the use of pesticides. The term Integrated Pest Management (IPM) is used to define this approach. It is based on an understanding of the ecology of the pest organism and the relative contributions that cultural, biological, and chemical approaches make to pest suppression.

The term biointensive IPM defines the more dynamic and ecologically informed approach to IPM that considers the farm as part of an agroecosystem. Each farm has particular characteristics that must be understood and managed to minimize pest damage. This approach is information-intensive, and it relies upon diagnosis and observation, combined with a commitment to longer term, ecologically based solutions to pest problems. This systems approach to IPM depends on communication among growers who learn from each other. They are supported by an increasingly sophisticated network of research, education, and outreach programs from universities, agencies, and nonprofit organizations. The rate of growth in IPM knowledge and of these support systems is impressive, but we are still at a relatively early stage in development of the comprehensive IPM programs that will ensure sustainable crop production.

Biointensive IPM is one of the most complex and sophisticated agricultural production approaches. No one group is the sole resource for information delivery or support. It pays to consult multiple sources of information and to communicate with growers who share common problems and approaches. For a general introduction and guide to biointensive IPM, see “Biointensive

Integrated Pest Management,” by Rex Dufour, available online from ATTRA (<http://attra.ncat.org/attra-pub/PDF/ipm.pdf>).

What does a biointensive IPM system look like?

In the end, farms practicing biointensive IPM tend to adopt a similar set of approaches. These approaches differ in specific details, depending on the crops grown, climate, soil, and surrounding landscape. What they have in common is an essential feature: diversity has been enhanced so that the farm is less susceptible to pest outbreaks. Planned diversity—the arrangement of purposely included plants in time and space and the addition of beneficial organisms—is enhanced and supports unplanned diversity. Unplanned diversity includes organisms that persist in less-disturbed systems and those that colonize the farm from the surrounding landscape. Producers combine a variety of pest management approaches. If sprays are required, they tend to have reduced risks to applicators and the environment.

For example, five *Phyllotreta* flea beetle species attack a variety of cole crops and other vegetables in the Pacific Northwest. Management methods, other than conventional pesticides, for flea beetle pests can include the following:

- Within-season use of noncrop crucifers as trap crops. These trap crops are removed between seasons.
- Timing of transplant establishment to avoid peaks of beetle emergence
- Use of floating row covers as barriers before beetles emerge
- Use of undersowing or interplanting with noncrucifers
- Mass trapping of adults with yellow sticky traps
- Use of repellent sprays, including Neem-based products

How do I get started?

Diagnose your problems

- Confirm the identity of insect pests, plant diseases, and weeds in your crops by accessing state diagnosticians, county-based Extension agents, online PNW pest management handbooks (see page 5), and printed materials.
- Map your farm over the season (e.g., winter, spring, summer, autumn), including crop and noncrop areas and the cultural, biological, and chemical pest control practices that you use.
- Are economic injury levels (EILs) for pests known? These might help determine how damaging pest outbreaks are, and could indicate the best time for sprays, if needed. See the online *World Textbook of IPM* (<http://ipmworld.umn.edu/textbook.htm>) for a definition and use of the EIL concept. Under the “content” box, select “Search chapters by keyword.” Enter “EIL” at the prompt.

Determine management options

- Develop your own resources from printed and online materials (e.g., Extension bulletins, BIRC (Bio-Integral Resource Center), and ATTRA (National Sustainable Agriculture Information Service) publications (see pages 6 and 32).
- Find a local expert, e.g., a county Extension agent (see page 16) or a knowledgeable crop consultant.
- Talk to producers with similar crops/problems and consider forming a grower group to develop IPM practices.
- Can the pest problem be prevented by changing rotation, variety, or cultural methods, or through habitat modifications?
- If sprays or other suppressive tactics are required, which are the least hazardous (e.g., Organic Materials Review Institute-approved, or reduced-risk pesticides)?



Ken Gray image courtesy of Oregon State University

Select options that best fit your system

- Which options might be most cost-effective?
- Are decision aids, such as weather and degree-day models available? (See page 5.)
- Which methods best fit your time constraints?
- Might other problems be encouraged by some approaches?
- How might approaches be integrated to achieve more sustainable pest suppression?
- Are methods compatible with certification systems that may apply to your farm?

Consider on-farm experiments to evaluate options

- Do you need to select from among several possible approaches?
- Are grower grants or local researchers available to help support comparisons (see funding sources, page 8)?
- Might adoption of these practices qualify you for Farm Bill support programs?
- Design a simple experiment. See *On-Farm Research Guide*, by Jane Sooby, Organic Farming Research Foundation (see page 6).

Monitor results to check how well your approach works and to help it evolve

- On simple maps of your farm, note the timing and severity of outbreaks.
- Can you enhance natural controls or cultural practices in locations where severity is higher?
- Develop a whole-farm perspective (see USDA SARE *Whole Farm Approach to Managing Pests*, page 7).

UNIVERSITY-BASED IPM INFORMATION

FINDING AND OBTAINING RESOURCES

The western United States is well served with university-based research, education, and outreach resources, including county and regionally based Extension offices and research centers. The links and addresses below provide access to a number of these resources and to key personnel who can direct you to the relevant person, program, or publication suited to your need. They also can provide access to relevant regionally based state and federal laboratories. Many publications are available free of charge or at low cost, and Internet-based resources are increasingly rich and comprehensive.

CAUTION: Most of the publications listed in this guide provide recommendations for conventional pesticide and nutrient applications and are not specifically focused on compliance with particular certification systems or organic standards. To help provide this additional focus, the Oregon State University Extension Small Farms Program has produced an *Organic Farmer's Guide to OSU*, which is available online as a pdf file at <http://extension.oregonstate.edu/catalog/pdf/em/em8835.pdf> or through the OSU Extension Service.

IPM resources in Oregon

Integrated Plant Protection Center

Coordinates IPM programs in Oregon; produces online weed and insect management handbooks, online weather and degree-day models to aid IPM decision making, e-mail news service supported by website for links and documents, and *IPM Newsletter*; home of the Farmscaping for Beneficials program, Farm Safety Program, and Pesticide Safety Education Program.

Paul Jepson, director, IPM coordinator
Phone: (541) 737-9082
e-mail: jepsonp@science.oregonstate.edu
Web: <http://ipmnet.org/>
IPM news: <http://oregonipm.ippc.orst.edu/>

Additional IPM program links through Oregon State University

Cereals Extension

<http://cropandsoil.oregonstate.edu/cereals/>

Commercial Vegetable Production Guides

<http://oregonstate.edu/dept/NWREC/vegindex.html>

Dryland Cropping Systems

<http://extension.oregonstate.edu/umatilla/cereals/>

Fruit and Nut Orchard Network

<http://oregonstate.edu/dept/hort/orchardnet/>

Fruit Crop Pest Alerts

<http://ippc.orst.edu/pestalet/>

Nursery Crops

<http://oregonstate.edu/dept/nurspest/>

Nursery Weed Management

<http://oregonstate.edu/dept/nursery-weeds/>

Oregon Forages

<http://forages.oregonstate.edu/>

Potato

<http://oregonstate.edu/potatoes/index.html>

Viticulture

<http://wine.oregonstate.edu/>

Weed Science Program

<http://cropandsoil.oregonstate.edu/weeds/>

OSU Plant Clinic

Identification of plant disease, nematode, and arthropod pests. Fee for disease diagnosis. Many samples submitted via county Extension offices. Submission forms for insect and disease diagnosis available on website.

Melodie Putnam
OSU Plant Clinic
Oregon State University
1089 Cordley Hall
Corvallis OR, 97331
Phone: (541) 737-3472
Web: http://www.bcc.orst.edu/bpp/Plant_Clinic/index.htm

OSU Extension Service publications

Access to all Extension publications, including those related to IPM in various commodities.

Phone: (800) 561-6719
e-mail: puborders@oregonstate.edu
Web: <http://extension.oregonstate.edu/catalog/>

IPM resources in the Pacific Northwest

PNW pest management handbooks

Hard-copy and online manuals of pest management options from Extension personnel in Oregon, Washington, and Idaho. Online versions include thousands of photographs and links to useful resources. Up-to-date chemical information. Content increasingly IPM oriented.

PNW Plant Disease Management Handbook

Lists products approved for use within organic agriculture.

<http://plant-disease.ipmc.orst.edu>

PNW Weed Management Handbook

<http://pnwpest.org/pnw/weeds>

PNW Insect Management Handbook

<http://pnwpest.org/pnw/insects>

Treasure Valley pest alert network

OSU/University of Idaho joint pest alert system, using e-mail and Web-based alerts for producers in the Treasure Valley region.

<http://www.tvpestartert.net/index.php3>

Weather and degree-days for IPM decision making

OSU IPPC service with development models for more than 40 pests, diseases, and weeds, as well as general degree-day models, for Pacific Northwest states. Linked to weather data and maps.

<http://www.pnwpest.org/wea/>

Northwest Berry and Grape Information Network

Comprehensive Web-based resource, including IPM information.

<http://berrygrape.oregonstate.edu/>

IPM resources in the western United States

USDA Western Region IPM Center

Administers regional IPM grant programs, coordinates Pest Management Strategic Plans, organizes regional IPM workshops and conferences; website includes announcements for grant programs and events.

Rick Melnicoe, director
USDA Western Region IPM Center
University of California, Davis
Phone: (530) 754-8378
Web: <http://www.wripmc.org/>

National Pesticide Information Center

National toll-free public service to answer questions and respond to concerns about any aspect of pesticide use, exposure, or toxicity.

Phone: (800) 858-7378

e-mail: npic@ace.orst.edu

Web: <http://npic.orst.edu/>

Center for Agroecology and Sustainable Food Systems (CASFS)

Center dedicated to ecological sustainability and social justice in the food and agriculture system.

Center for Agroecology and Sustainable Food Systems

University of California, Santa Cruz

1156 High St.

Santa Cruz, CA 95064

Phone: (831) 459-3240

Web: <http://zzyx.ucsc.edu/casfs/index.html>

University of California

Website provides access to a wide array of services, publications, and other relevant resources for northern California and southern Oregon. Expert Committee on Integrated Pest Management (ECIPM) publications on IPM are among the best of their type in the world.

Peter B. Goodell, IPM Extension coordinator

Statewide IPM Program

Phone: (559) 646-6515

e-mail: ipmpbg@ucckac.edu

Web: <http://www.ipm.ucdavis.edu/index.html>



Gwendolyn Ellen

BIOINTENSIVE IPM AND BIOLOGICAL PEST CONTROL

SELECTED GENERAL RESOURCES

The following organizations and websites provide widely used and high-quality guides to IPM practices attuned to the needs of organic and sustainable producers.

Oregon Tilth, Inc.

Nonprofit research and education organization supporting biologically sound and socially equitable agriculture. Programs include *In Good Tilth*, a bimonthly newspaper; organic certification; Organic Education Center; Organic Seed Project; and collaborative research and education projects with regional universities and nonprofit organizations.

470 Lancaster Dr. NE
Salem, OR, 97301
Phone: (503) 378-0690
e-mail: organic@tilth.org
Web: <http://www.tilth.org>

University of California, Riverside, Biological-Integrated Pest Control and Insect Identification

Databases and guides to concepts and practices of biological control and to the agents themselves.

<http://faculty.ucr.edu/~legneref/bc.htm>

Cornell University Guide to Natural Enemies of North America

Comprehensive online textbook and guide to biological control organisms, including parasitoids, predators, and pathogens of crop pests, as well as biological weed control agents.

<http://www.nysaes.cornell.edu/ent/biocontrol/>

Bio-Integral Resource Center (BIRC)

Many IPM publications available; members receive *IPM Practitioner and Common Sense Pest Control Quarterly*.

PO Box 7414
Berkeley, CA 94707
Phone: (510) 524-2567
Web: <http://www.birc.org/>



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Organic Farming Research Foundation (OFRF)

Access to summaries of OFRF-sponsored research in organic pest, disease, and weed management. See also printable booklet on on-farm research methods at <http://www.ofrf.org/research/On-farm.Research.Guide.PDF>

PO Box 440
Santa Cruz, CA 95061
Phone: (831) 426-6606
e-mail: research@ofrf.org
Web: <http://www.ofrf.org/index.html>

The IPM Institute of North America, Inc.

A nonprofit organization fostering recognition of IPM practices in the marketplace.

1914 Rowley Ave.
Madison, WI 53726
Phone: (608) 232-1528
e-mail: ipminstitute@ipminstitute.org
Web: <http://www.ipminstitute.org/about.htm>

National Sustainable Agriculture Information Service (ATTRA), Pest Management

Online IPM publications, including landscape management for biological control and IPM approaches relevant to many crops.

Phone: (800) 346-9140
Web: <http://www.attra.org/pest.html>

USDA Alternative Farming Systems Information Center (AFSIC)

A National Agriculture Library service, including many links to information sources and historic agricultural research publications predating synthetic insecticides.

Web: <http://www.nal.usda.gov/afsic/ofp/>

USDA Cooperative State Research, Education and Extension Service (CSREES)

Includes summary of USDA programs, including IPM, and research databases relevant to the Pacific Northwest.

Web: <http://www.csrees.usda.gov/>

USDA Sustainable Agriculture Research and Education Program: Whole Farm Approach to Managing Pests

Excellent 20-page book on whole-farm pest management.

Sustainable Agriculture Publications
University of Vermont
210 Hills Building
Burlington, VT 05405-0082
Phone: (802) 656-0484
e-mail: sanpubs@uvm.edu
Web: <http://www.sare.org/publications/farmpest/index.htm>
Printable book: <http://www.sare.org/publications/farmpest/farmpest.pdf>

ORGANIC AND CERTIFIED AMENDMENTS, REDUCED-RISK PESTICIDES, AND BIOLOGICAL CONTROL AGENTS

Organic Materials Review Institute (OMRI)

Reviews materials for compliance with National Organic Program standards and produces lists of approved products.

PO Box 11558
Eugene, OR 97440
Phone: (541) 343-7600
Web: <http://www.omri.org/>

California Department of Pesticide Regulation

Suppliers of Beneficial Organisms in North America, a 34-page booklet, can be printed from CDPR website.

<http://www.cdpr.ca.gov/docs/ipminov/bensuppl.htm>

EPA Biopesticides Division

Website includes excellent biopesticide active ingredient fact sheets.

<http://www.epa.gov/pesticides/biopesticides/>

EPA reduced-risk pesticides classification

Website provides a list of reduced-risk products, including those with low impact on human health, low toxicity to nontarget organisms, low potential for groundwater contamination, lower use rates, low pest resistance potential, and compatibility with IPM.

<http://www.epa.gov/pesticides/health/reducing.htm>

IR-4 Program

Program ensures that specialty crops receive registrations for modern, often reduced-risk, pesticides, including biopesticides. These chemicals are listed by commodity.

IR-4 Program
Rutgers, The State University of New Jersey
681 U.S. Highway 1 South
North Brunswick, NJ 08902
Phone: (732) 932-9575
Web: <http://ir4.rutgers.edu/biopesticides.html>

GROWER ORGANIZATIONS WITH PROGRAMS IN IPM RESEARCH, DEVELOPMENT, OR IMPLEMENTATION

Protected Harvest

Biointensive IPM certification (e.g., Wisconsin potato growers' Healthy Grown brand)

3053 Freeport Blvd., #251
Sacramento, CA 95818
e-mail: info@protectedharvest.org
Web: <http://www.protectedharvest.org/>

Community Alliance with Family Farmers

Well-established organization with multiple programs, including biological farming. Activities include light-house farms, biologically integrated orchard systems, and farmscaping for wildlife and conservation.

PO Box 363
Davis, CA 97002-9543
Phone: (530) 756-8518
Web: <http://www.caff.org/index.shtml>

Practical Farmers of Iowa

Organization includes Extensive Farming Systems, on-farm research program with detailed summaries of projects.

PO Box 349
Ames, IA 50010
Phone: (515) 232-5661
Web: <http://www.practicalfarmers.org/>

Healthy Grown

A group of Wisconsin potato growers who have developed a reduced-risk IPM program and successfully marketed their brand.

Phone: (715) 623-7683
Web: <http://www.healthygrown.com/index.htm>

FUNDING SOURCES FOR PRODUCERS, NONPROFITS, AND RESEARCHERS

A number of organizations provide grants directly to producers, or seek to have producers or commodity groups directly engaged in the research that they fund. In the Pacific Northwest, grant sources for IPM-related research, demonstration, and outreach include the following.

Natural Resources Conservation Service (NRCS)

For details, contact state NRCS offices or local conservation districts:

Bob Graham, state conservationist
Oregon NRCS
101 SW Main St., Suite 1300
Portland, OR 97204
Phone: (503) 414-3200

USDA office locator website for conservation districts:

<http://offices.sc.egov.usda.gov/locator/app>

NRCS now has a pest management policy and can incorporate IPM practices within conservation planning procedures.

Ken Pfeiffer
USDA/NRCS National Water and Climate Center
101 SW Main, Suite 1600
Portland, OR 97204
Web: <http://www.wcc.nrcs.usda.gov/pestmgt/>

Organic Farming Research Foundation

OFRF is a leading proponent of on-farm research in organic agriculture.

Web: <http://www.ofrf.org/>

The Bullitt Foundation

Supports research in nonprofit organizations in the Pacific Northwest in numerous areas, including conservation and stewardship in agriculture.

1212 Minor Ave.
Seattle, WA 98101-2825
Phone: 206-343-0807
e-mail: info@bullitt.org
Web: <http://www.bullitt.org/>

National Foundation for IPM Education, Inc.

Awards funds to grower groups and others from EPA's Pesticide Environmental Stewardship Program (PESP). The EPA lists previous award holders at <http://www.epa.gov/oppbppd1/PESP/grants.htm>

111 Congress Ave., 4th floor
Austin, TX 78701
Phone: (512) 391-4998
e-mail: mwallipm@ev1.net
Web: <http://www.ipm-education.org/>

Center for Agricultural Partnerships

A nonprofit organization dedicated to solving agricultural problems by helping farmers adopt more environmentally sound and profitable practices. CAP programs improve the productivity and well-being of farm communities, build healthier ecosystems, reduce pesticide risk, and improve water quality in growing regions across the country.

<http://www.agcenter.org/index.html>

USDA Western Region IPM Center

The WRIPMC administers regional IPM grants for universities, Pest Management Alternative Program grants for producers and commodity groups, and their own grants for IPM working groups. Direct links with producers and producer organizations are strongly encouraged. The WRIPMC also sponsors development of pest management strategic plans for individual commodities.

Rick Melnicoe, director
USDA Western Region IPM Center
University of California, Davis
Phone: (530) 754-8378
Web: <http://www.wripmc.org/Research/index.html>

USDA Cooperative State Research, Education and Extension Service (CSREES)

Numerous grant programs support IPM research and outreach through universities. Many grants encourage cooperation with producers and producer groups. Available grants listed by subject area.

<http://www.csrees.usda.gov/>

ANALYTICAL LABS, DIAGNOSTIC RESOURCES, AND OTHER SERVICES TO GROWERS

Information systems

Northwest Berry and Grape Information Network

The Northwest Berry and Grape Information Network is the most comprehensive information and communications resource for berry and grape production practices, research, and marketing. Communications features include regional and international e-mail discussion groups and online discussion forums focused on fruit growing. The primary intended audience is commercial growers, marketers, crop consultants, pest management advisors, educators, and researchers in the Pacific Northwest. The information on this website originates from the four cooperating institutions (Oregon State University, Washington State University, University of Idaho, and USDA-ARS) and includes links to selected, critically reviewed websites from credible sources.

<http://berrygrape.oregonstate.edu/>

Potato Information Exchange

The PIE is an information clearinghouse for growers and other production-oriented professionals. It provides information on most aspects of production, storage, and marketing as well as links to many additional topics of interest such as weather, food and water quality, pesticides, and endangered species. Includes links to many informative private and public websites. Check these sites for additional information.

<http://oregonstate.edu/potatoes>



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Nursery Weed Management

This website provides educational materials and links for the identification and management of weeds in commercial nursery production in the Pacific Northwest. It is designed to be dynamic, allowing growers and pest management professionals to give and receive information regarding weeds in nurseries in the Pacific Northwest. An e-mail alert system is online. Visit the website to subscribe to this service. The website is constantly expanding and will develop further.

<http://oregonstate.edu/dept/nursery-weeds/>

Ornamentals Northwest

A cooperative effort to provide nursery and greenhouse crop producers with the latest information when they need it. Hosted by Oregon State University and created by the Cooperative Extension Services of Oregon State University, Washington State University, and the University of Idaho; The British Columbia Ministry of Agriculture, Food, and Fisheries; and the USDA Horticultural Crops Research Laboratory.

<http://oregonstate.edu/dept/nurserystartup/>

Forage Information System

The Forage Information System is a global online forage information resource; its goal is to become a comprehensive information system for all aspects of forages. It is a collection of Internet-based forage information.

<http://forages.oregonstate.edu/default.cfm>

Analytical services and diagnostic resources

Nematode Testing Service

The Oregon State University Nematode Testing Service determines the identity and number of plant-parasitic nematode genera and the total number of non-plant-parasitic nematodes in soil and plant samples. There is a basic charge for extraction and counting of plant-parasitic nematode genera from a soil or plant sample and for identification of common nematodes of concern. Other procedures are charged at an hourly rate.

Call for a list of "common nematodes of concern," sampling instructions, and more information.

Kathy Merrifield
Department of Botany and Plant Pathology
Oregon State University
1090 Cordley Hall
Corvallis, OR 97331
Phone: (541) 737-5540
Fax: (541) 737-2412
e-mail: merrifik@science.oregonstate.edu

Plant Clinic

The Oregon State University Plant Clinic is a resource for the identification of plant problems caused by insects and other arthropods, diseases, and nonpathogenic conditions. It is also the designated National Plant Diagnostic Network resource laboratory for Oregon, Washington, Idaho, and Alaska.

Consult the website for sample submission instructions.

Melodie Putnam, disease diagnostician
OSU Plant Clinic
Oregon State University
1089 Cordley Hall
Corvallis, OR 97331
Phone: (541) 737-3472
Fax: (541) 737-2412
e-mail: putnamm@science.oregonstate.edu
Web: http://www.science.oregonstate.edu/bpp/Plant_Clinic/index.htm

Insect Identification Service

The Insect Identification Service is part of the OSU Plant Clinic. Insects, arthropods, and their damage are identified. Provides services for the public, but encourages those interested in having a sample identified to first contact their county office of the OSU Extension Service. Consult the website for sample submission instructions.

OSU Plant Clinic
Oregon State University
1089 Cordley Hall
Corvallis, OR 97331
Phone: (541) 737-3472
Fax: (541) 737-2412
Web: http://www.science.oregonstate.edu/bpp/Plant_Clinic/index.htm

Soil Physical Characterization Laboratory

Soil physical analysis, including but not limited to: textural class determinations (percent sand, silt, and clay), moisture retention/moisture release curves (field capacity and wilting point), bulk density, particle density, porosity, and aggregate stability. Provides service to public organizations and individuals. Call for instructions regarding sample submission protocols.

Will Austin, laboratory director
Central Analytical Lab
Department of Crop and Soil Science
Oregon State University
3051 ALS
Corvallis, OR 97331
Phone: (541) 737-5731
e-mail: will.austin@oregonstate.edu
Web: <http://cropandsoil.oregonstate.edu/Services/Plntanal/CAL/index.html>



Ken Gray image courtesy of Oregon State University

Central Analytical Laboratory

Chemical analyses of plants, soils, waters, and biosolids. The OSU Central Analytical Laboratory (CAL) in the Department of Crop and Soil Science is a fee-based analytical services lab. The lab works with scientists at universities and other public agencies as well as individuals and private companies. CAL is nationally known for its ability to provide unique or more difficult inorganic analyses. The lab provides an annual (summer and fall harvest) Growers Program for the general public, which includes plant nutrient analysis with recommendations. Call for instructions regarding sample submission protocols.

Will Austin, laboratory director
Central Analytical Lab
Department of Crop and Soil Science
Oregon State University
3051 ALS
Corvallis, OR 97331
Phone: (541) 737-5731
e-mail: will.austin@oregonstate.edu
Web: <http://cropandsoil.oregonstate.edu/Services/Plntanal/CAL/index.html>

Integrated Plant Protection Center (IPPC)

An IPM research and extension center within the College of Agricultural Sciences at OSU, housing the state IPM program and the Pesticide Safety Education Program. The IPPC coordinates Pest Management Strategic Plans in Oregon and Pacific Northwest commodities, and facilitates followup to these plans, to address research and education needs. It also develops and provides access to online decision support tools and resources, including the online pest management handbooks and degree-day models. The IPPC functions as a clearinghouse for up-to-date information on crop protection, IPM, and related topics. IPPC promotes and participates in multidisciplinary research and outreach programs that enhance the scientific basis of IPM for Oregon and beyond.

Integrated Plant Protection Center
Oregon State University
2040 Cordley Hall
Corvallis, OR 97331-2915
Phone: (541) 737-3541
e-mail: IPPC@science.oregonstate.edu
Web: <http://ipmnet.org>



M. Ambrosino

OSU National Pesticide Information Center

Toll-free or online, the National Pesticide Information Center is a cooperative effort between Oregon State University and the United States Environmental Protection Agency. NPIC provides real-time answers to questions about pesticides.

<http://www.npic.orst.edu/>

National Pesticide Medical Monitoring Program

- Provides and collects information pertaining to the clinical toxicology of pesticides.
- Develops and maintains a library of scientific resources on pesticides and health effects in humans.
- Submits reports to the U.S. EPA, describing inquiries and incidents involving human pesticide exposures. These reports are intended to provide direction for future research or regulatory needs by identifying problems associated with pesticide use and their effects in humans.
- Provides quantitative laboratory measurements of pesticides in environmental or biological samples in select cases involving human exposure to pesticides; cooperates with EPA for the measurement of such samples where needed or as directed by the Office of Pesticide Programs.

Daniel Sudakin, M.D., M.P.H., principal investigator
National Pesticide Medical Monitoring Program
Oregon State University
333 Weniger Hall
Corvallis, OR 97331-6502
Web: <http://oregonstate.edu/npmpmp/>

OSU FACULTY WITH INTERESTS IN INTEGRATED PEST MANAGEMENT: QUICK-PICK BY SPECIALTY

	Veg, peas, sugar beets, potatoes, hops, mint	Tree fruit, nuts	Small fruits	Hay and pasture	Corn, small grains	Legume and field seed, veg seed	Stored grain	Christmas trees, ornamentals	Home horticulture	Turf, mushrooms	Nursery, greenhouses	Forestry	Nuisance, public health, structural	Livestock, poultry	Pesticide safety, regs, protecting bees	Insect pests	Plant disease	Nematodes	Weeds	Cover crops	Soil/water quality, fertility	IPM	Marketing, economic development
Aldrich-Markham				●	●	●	●																
Altland								●			●								●		●	●	
Andrews	●	●				●										●				●	●	●	
Azarenko		●																			●		
Ball															●				●			●	
Bell									●														
Bohle				●	●	●	●															●	
Bubl	●					●			●					●	●				●				●
Castagnoli		●													●	●						●	
Coop		●														●	●					●	
Corp					●										●				●			●	
Crowe																	●					●	
DeFrancesco			●												●	●	●		●			●	
Detweiler								●	●													●	
Dreves																●						●	
Finn			●																				
Gent	●														●	●						●	
Hamm	●				●	●									●							●	
Hannaway				●																			
Hilton		●													●	●							
Horneck	●			●	●	●									●				●	●	●	●	
Ingham	●																	●		●		●	
Jenkins															●						●		
Jensen	●															●	●		●		●	●	
Jepson															●						●	●	

OSU FACULTY WITH INTERESTS IN INTEGRATED PEST MANAGEMENT—QUICK-PICK BY SPECIALTY (CONTINUED)

	Veg, peas, sugar beets, potatoes, hops, mint	Tree fruit, nuts	Small fruits	Hay and pasture	Corn, small grains	Legume and field seed, veg seed	Stored grain	Christmas trees, ornamentals	Home horticulture	Turf, mushrooms	Nursery, greenhouses	Forestry	Nuisance, public health, structural	Livestock, poultry	Pesticide safety, regs, protecting bees	Insect pests	Plant disease	Nematodes	Weeds	Cover crops	Soil/water quality, fertility	IPM	Marketing, economic development
Johnson	●	●						●									●					●	
Kaufman			●																●	●			
Lambrinos																			●				
Locke	●												●		●								●
Long		●														●	●						●
Luna	●															●				●			●
Machado					●											●	●		●				●
Macnab					●																		●
Mahaffee		●						●		●							●						●
Maley					●		●												●				
Martin		●															●						●
Matthewson	●			●					●		●					●			●	●	●	●	●
McGrath	●							●					●		●	●	●		●	●	●	●	
McReynolds	●																						●
Mellbye	●					●											●		●				
Myers	●					●										●	●						
Norberg	●	●	●	●	●	●	●								●	●	●	●	●	●	●	●	
Ocamb	●					●											●						●
Olsen		●																					●
Olszyk															●								
Parke								●			●						●						●
Peachey	●																		●		●	●	
Penhallegon			●					●	●		●				●	●	●		●		●	●	
Porath														●		●			●			●	

OSU FACULTY WITH INTERESTS IN INTEGRATED PEST MANAGEMENT—QUICK-PICK BY SPECIALTY (CONTINUED)

	Veg, peas, sugar beets, potatoes, hops, mint	Tree fruit, nuts	Small fruits	Hay and pasture	Corn, small grains	Legume and field seed, veg seed	Stored grain	Christmas trees, ornamentals	Home horticulture	Turf, mushrooms	Nursery, greenhouses	Forestry	Nuisance, public health, structural	Livestock, poultry	Pesticide safety, regs, protecting bees	Insect pests	Plant disease	Nematodes	Weeds	Cover crops	Soil/water quality, fertility	IPM	Marketing, economic development
Pscheidt		●						●	●	●		●					●					●	
Putnam																	●					●	
Regan								●			●						●		●	●	●	●	
Renquist		●							●		●					●						●	
Riedl		●														●						●	
Rondon	●				●						●				●	●						●	
Rosetta								●			●					●						●	
Ross												●				●							
Smiley					●												●	●				●	
Staben																					●	●	
Stock																						●	
Stone	●					●										●	●		●	●	●	●	
Strik			●																		●	●	
Sugar		●															●					●	
Tuck					●										●							●	●
VanBuskirk															●							●	
Walenta	●				●										●	●		●				●	
Wallin												●				●						●	
Walton		●						●								●						●	
Yang			●													●							

OSU FACULTY WITH INTERESTS IN INTEGRATED PEST MANAGEMENT—QUICK-PICK BY SPECIALTY (CONTINUED)

	Veg, peas, sugar beets, potatoes, hops, mint	Tree fruit, nuts	Small fruits	Hay and pasture	Corn, small grains	Legume and field seed, veg seed	Stored grain	Christmas trees, ornamentals	Home horticulture	Turf, mushrooms	Nursery, greenhouses	Forestry	Nuisance, public health, structural	Livestock, poultry	Pesticide safety, regs, protecting bees	Insect pests	Plant disease	Nematodes	Weeds	Cover crops	Soil/water quality, fertility	IPM	Marketing, economic development
Potato Information Exchange	●						●									●	●		●				●
Nursery Weed Management								●		●									●				
Forage Information System				●		●									●	●	●		●	●	●	●	
Nematode Testing	●	●		●	●	●		●	●	●		●						●				●	
Plant Clinic	●	●		●	●	●	●	●	●	●		●			●		●		●	●			
Insect ID Clinic	●	●		●	●	●	●	●	●	●		●	●	●	●	●			●	●			
Soil Physical Characterization Lab																					●		
Central Analytical Lab																					●		
Integrated Plant Protection Center															●	●	●	●	●			●	
OSU National Pesticide Information Center													●		●								

OSU FACULTY WITH INTERESTS IN INTEGRATED PEST MANAGEMENT

Faculty are listed alphabetically, by last name.

Susan Aldrich-Markham

Extension agent, field crops
Department of Crop and Soil Science

Expertise: Agronomy

Responsibility: Yamhill, Polk, and Washington counties

- Grass and clover seed production
- Grains
- Forages
- Weed control

OSU Extension Service, Yamhill County

2050 Lafayette Ave.

McMinnville, OR 97128

Phone: (503) 434-8917

e-mail: susan.aldrich-markham@oregonstate.edu

James Altland

Extension faculty, nursery crops

Department of Horticulture

Expertise: Plant nutrition, weed management

Responsibility: Nursery crop producers in the North Willamette Valley

- Nonchemical alternatives to herbicides for weed control in nursery crops
- Cultural practices for reducing weed pressure in nursery crops
- Reduced-risk herbicides for greenhouse weed control

North Willamette Research and Extension Center

Oregon State University

15210 NE Miley Rd.

Aurora, OR 97002-9543

Phone: (503) 678-1264, ext. 46

Fax: (503) 678-5986

e-mail: james.altland@oregonstate.edu

Web: <http://oregonstate.edu/dept/nursery-weeds/>



Ken Gray image courtesy of Oregon State University

Nick Andrews

Area Extension small farms faculty

Department of Horticulture

Expertise: Fruit and vegetable production and IPM

Responsibility: Multnomah, Washington, and Clackamas counties; Extension small farm program

- Organic vegetable production
- IPM
- Cover crop utilization
- Organic fertilizer calculator

North Willamette Research and Extension Center

15210 NE Miley Rd.

Aurora, OR 97002-9543

Phone: (503) 678-1264, ext. 49

Fax: (503) 678-5986

e-mail: nick.andrews@oregonstate.edu

Web: <http://smallfarms.oregonstate.edu/>

Anita Nina Azarenko

Head, Department of Horticulture

Expertise: Integrative horticulture

Responsibility: Statewide—management of the Department of Horticulture; tree fruit and hazelnut production

- Sweet cherry management systems—integrative and organic
- Alternative orchard floor management
- Orchard soil quality

Department of Horticulture

Oregon State University

4017 ALS

Corvallis, OR 97331

Phone: (541) 737-5475

Fax: (541) 737-3479

Web: <http://oregonstate.edu/dept/hort>

Daniel Ball

Professor of weed science
Department of Crop and Soil Science

Expertise: Weed science

Responsibility: Weed management in eastern Oregon; dryland crops and grass seed production

- Integrated weed management
- Herbicide efficacy and persistence
- Herbicide resistance management
- Weed science outreach

Columbia Basin Agricultural Research Center

PO Box 370

Pendleton, OR 97801

Phone: (541) 278-4394

e-mail: daniel.ball@oregonstate.edu

Web: <http://oregonstate.edu/weeds>

Neil Bell

Community horticulturist

Department of Horticulture

Expertise: Home garden problem diagnosis

Responsibility: Marion and Polk counties; home horticulture

- Pruning ornamentals
- Drought-tolerant garden plants

OSU Extension Service, Marion County

3180 Center Street NE, Room 1361

Salem, OR 97301

Phone: (503) 361-2671

Fax: (503) 585-4940

Mylen Bohle

Area Extension agronomist, research agronomist

Department of Crop and Soil Science

Expertise: Forage and cereals

Responsibility: Crook, Deschutes, and Jefferson counties, eastern Oregon (forage research)

- Pasture (legumes and grasses)
- Hay (legumes and grasses)
- Cereals (hay and grain)
- Irrigation
- IPM

OSU Extension Service, Crook County

498 SE Lynn Blvd.

Prineville, OR 97754

Phone: (541) 447-6228

e-mail: mylen.bohle@oregonstate.edu

Chip Bubl

Extension agent, horticulture and general agriculture

Department of Horticulture

Expertise: Commercial horticulture, community horticulture, pesticide safety, and small farms

Responsibility: Columbia County and some Portland metro area

- Vegetable production, with Alliums a specialty
- Development of commercial small farms
- Regional Master Gardener instructor
- Weed management
- Small farm livestock management

OSU Extension Service, Columbia County

505 N. Columbia River Hwy.

St. Helens, OR 97051

Phone: (503) 397-3462

Fax: (503) 397-3467

e-mail: chip.bubl@oregonstate.edu

Steve Castagnoli

Hood River area Extension agent, horticulture

Department of Horticulture

Expertise: Horticulture; pear cultivars and rootstocks

Responsibility: Mid-Columbia region; pome fruits, wine grapes

- Best management practices for pesticide use
- Pome fruit IPM
- Internet-based pest management decision-making tools
- Wine grape pest management

Mid-Columbia Agricultural Research and Extension Center

2990 Experiment Station Dr.

Hood River, OR 97031-9512

Phone: (541) 386-3343

Fax: (541) 386-3684

e-mail: steve.castagnoli@oregonstate.edu

Web: <http://extension.oregonstate.edu/hoodriver/>

Leonard Coop

Assistant professor (senior research)
Department of Botany and Plant Pathology

Expertise: Entomology, decision support, and Web delivery of pest models

Responsibility: Statewide, some regional and national; all crops and pests

- IPM systems, weather data-driven pest models
- Pest development models
- Plant disease risk models
- Biological control in small fruit crops

Integrated Plant Protection Center

Oregon State University

2040 Cordley Hall

Corvallis, OR 97331-2907

Phone: (541) 737-5523

e-mail: coopl@science.oregonstate.edu

Web: <http://pnwpest.org>

Mary Corp

Extension agent, cereal crops

Department of Crop and Soil Science

Expertise: Weed science, pesticide drift, cereal crops

Responsibility: Umatilla County; dryland crops

- Weed identification and IPM
- Pesticide drift management education
- Conflict resolution—grower and environmental issues
- Cereal variety selection and agronomy

OSU Extension Service, Umatilla County

2411 Carden Ave., Umatilla Hall 100

Pendleton, OR 97801

Phone: (541) 278-5403

e-mail: mary.corp@oregonstate.edu

Web: <http://www.cerealcentral.com>



Pat Welch

Fred Crowe

Research and Extension plant pathologist
Department of Botany and Plant Pathology

Expertise: General plant pathology, disease spread with true and vegetative seed; garlic and onion diseases; garlic seed management; peppermint diseases and rootstock management, a national/international resource for information on Allium white rot disease and verticillium wilt of peppermint.

Responsibility: Central Oregon; all crops; assistance offered statewide on all diseases of peppermint, garlic, onions/onion seed, and carrot seed.

- Cultural disease controls
- Chemical disease controls
- Organically acceptable disease controls
- Integrated pest management where disease is a component

Central Oregon Agricultural Research Center

850 NW Dogwood Lane

Madras, OR 97741

Phone: (541) 475-7107

e-mail: fred.crowe@oregonstate.edu

Web: <http://oregonstate.edu/dept/coarc/index.php>

Joe DeFrancesco

Senior research assistant

Department of Horticulture

Expertise: Horticulture, berry production, and pest management

Responsibility: Statewide; berry IPM, pesticide registrations, IR-4 Project

- Blueberry, caneberry, and strawberry pest management
- Crop profiles and pest management strategic plans for PNW minor crops
- Pesticide registrations
- GLP residue field trials, IR-4 Project

Integrated Plant Protection Center

Oregon State University

2040 Cordley Hall

Corvallis, OR 97331-2915

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e-mail: defrancj@science.oregonstate.edu



Ken Gray image courtesy of Oregon State University

Amy Jo Detweiler

Horticulture faculty
Department of Horticulture

Expertise: Home horticulture, waterwise landscaping

Responsibility: Central Oregon

- IPM in home and commercial horticulture

OSU Extension Service, Deschutes County

3893 SW Airport Way

Redmond, OR 97756

Phone: (541) 548-6088, ext. 12

Fax: (541) 548-8919

e-mail: amyjo.detweiler@oregonstate.edu

Web: <http://extension.oregonstate.edu/deschutes/>

Amy J. Dreves

Research faculty assistant, research and Extension entomologist

Department of Horticulture

Expertise: Entomology, integrated pest management programs

Responsibility: Statewide; cabbage maggot management

- Biologically based IPM
- IPM program development and evaluation of adoption
- Investigation of pest biology, ecology, and management
- IPM technology transfer
- Monitoring and forecasting
- IPM program outreach and coordination
- Teaching—insect identification and IPM

Department of Horticulture

Oregon State University

4017 ALS

Corvallis, OR 97331

Phone: (541) 737-5576

e-mail: drevesa@science.oregonstate.edu

Chad Finn

Small fruit breeder (research geneticist)

USDA-ARS HCRL Northwest Center for Small Fruit Research;
Department of Horticulture

Expertise: Small fruit breeding

Responsibility: Nationwide, particularly Pacific Northwest

- Blackberry, raspberry, strawberry, and blueberry cultivars as well as some effort in minor crops including lingonberry, hardy kiwi, elderberry, and schisandra
- Cultivar development
- Germplasm development

USDA-ARS, HCRL

Northwest Center for Small Fruit Research

3420 NW Orchard Ave.

Corvallis, OR 97330

Phone: (541) 738-4037

e-mail: finnc@science.oregonstate.edu

Web: <http://www.ars-grin.gov/ars/PacWest/Corvallis/hcrl/finn.htm>

David Gent

Research plant pathologist

USDA-ARS; Department of Botany and Plant Pathology

Expertise: Plant pathology

Responsibility: Nationwide; hops

- Hop production systems
- Disease forecasting for chemical inputs
- Cultural practices for disease management

USDA-ARS

National Forage Seed Production Research Center

3450 SW Campus Way

Corvallis, OR 97331

Phone: (541) 738-4167

Fax: (541) 738-4160

e-mail: gentd@onid.orst.edu

Philip B. Hamm

Extension plant pathologist, Department of Botany and Plant Pathology
Superintendent, Hermiston Agricultural Research and Extension Center

Expertise: Plant pathology

Responsibility: Northeast and north-central Oregon; high-value irrigated crops

- IPM in potatoes
- General IPM concepts
- Pesticide application methods

Hermiston Agricultural Research and Extension Center
PO Box 105
Hermiston, OR 97838
Phone: (541) 567-8321
e-mail: philip.b.hamm@oregonstate.edu

David Hannaway

Forage program director
Department of Crop and Soil Science

Expertise: Forage crops selection, establishment, management, and utilization

Responsibility: Statewide; forage Extension, research, and on-campus and distance-based forage classes

- Forage Information System—Web-based, forage information resource designed to provide comprehensive information systems for all aspects of forage production
- GIS-based forage species suitability mapping based on quantitative climate and soil tolerances
- Web-based forage production course information

Department of Crop and Soil Science
Oregon State University
125 Crop Science Building
Corvallis, OR 97331
Phone: (541) 737-5863
Fax: (541) 737-1589
e-mail: david.hannaway@oregonstate.edu
Web: <http://forages.oregonstate.edu/>
<http://forages.oregonstate.edu/is/ssis/>
<http://forages.oregonstate.edu/css310/default.cfm?PageID=1>



Alan Knight

Rick Hilton

Senior faculty research assistant
Department of Horticulture

Expertise: IPM, entomology

Responsibility: Southern Oregon; IPM research and implementation

- Orchard and vineyard pest management
- Development of pheromone-based technology
- Evaluation of target and nontarget effects of new pesticides

Southern Oregon Research and Extension Center
569 Hanley Rd.
Central Point, OR 97502
Phone: (541) 772-5165
Fax: (541) 772-5110
e-mail: richard.hilton@oregonstate.edu

Donald Horneck

Extension agronomist
Department of Crop and Soil Science

Expertise: Agronomy, soil fertility and chemistry

Responsibility: Morrow and Umatilla counties; irrigated crops

- Biologically and chemically based soil fertility
- Weeds in irrigated crops
- Diseases in irrigated crops
- IPM training

Hermiston Agricultural Research and Extension Center
PO Box 105
Hermiston, OR 97838
Phone: (541) 567-8321
Fax: (541) 567-2240
e-mail: don.horneck@oregonstate.edu
Web: <http://oregonstate.edu/Dept/hermiston/index.php>

Russell E. Ingham

Professor and nematologist
Department of Botany and Plant Pathology

Expertise: Nematology

Responsibility: Statewide; all crops

- Cropping systems for nematode management using non-host crops and green manure cover crops in rotation with susceptible cash crops
- Nematode population biology relative to crop damage and efficacy of timing for nematicide application
- Nematode damage thresholds
- Nematicide application technology
- Evaluation of new chemistries for nematode management
- Extended education in nematode biology and management
- Supervise Oregon State University Nematode Testing Service

Department of Botany and Plant Pathology

Oregon State University

2082 Cordley Hall

Corvallis, OR 97331-2902

Phone: (541) 737-5255

Fax: (541) 737-3573

e-mail: inghamr@science.oregonstate.edu

Jeffrey Jenkins

Professor and Extension specialist

Department of Environmental and Molecular Toxicology

Expertise: Pesticide environmental chemistry and toxicology, risk assessment

Responsibility: Statewide

- Pesticide chemistry and toxicology
- Pesticide environmental fate and effects
- Pesticide risk assessment and regulatory toxicology
- State liaison representative, USDA IR-4 Minor Crop Pest Management Program; principal investigator, National Pesticide Information Center

Agricultural Chemistry Research and Extension

Oregon State University

333 Weniger Hall

Corvallis, OR 97331-6502

Phone: (541) 737-5993

e-mail: jenkinsj@ace.orst.edu

Web: <http://emt.orst.edu>

<http://ipmnet.org>

Lynn Jensen

Staff chair, Malheur County Extension office
Department of Crop and Soil Science

Expertise: Onion and potato production

Responsibility: Malheur County

- IPM for onion production
- IPM for potato production

OSU Extension Service, Malheur County

710 SW Fifth Ave.

Ontario, OR 97914

Phone: (541) 881-1417

e-mail: lynn.jensen@oregonstate.edu

Paul Jepson

Director, Integrated Plant Protection Center

Department of Environmental and Molecular Toxicology

Expertise: Entomology, pesticide science

Responsibility: Statewide; all crops and structural pests

- Biologically based IPM
- Risk assessment for chemical inputs
- Pesticide application technology
- IPM program outreach and coordination

Integrated Plant Protection Center

Oregon State University

2040 Cordley Hall

Corvallis, OR 97331-2907

Phone: (541) 737-9082

e-mail: jepsonp@science.oregonstate.edu

Web: <http://ipmnet.org>

Ken Johnson

Professor of plant pathology

Department of Botany and Plant Pathology

Expertise: Plant pathology

Responsibility: Statewide; horticultural crops

- Biology and control of fungal and bacterial plant pathogens
- Plant disease epidemiology
- Biologically based disease management
- Phytosanitary risk assessment

Department of Botany and Plant Pathology

Oregon State University

2082 Cordley Hall

Corvallis, OR 97331-2902

Phone: (541) 737-5249

e-mail: johnsonk@science.oregonstate.edu

Web: <http://www.science.oregonstate.edu/bpp/>

Diane Kaufman

District Extension agent
Department of Horticulture

Expertise: Horticulture, culture and IPM of berry crops

Responsibility: North Willamette Valley; berry crops, particularly strawberries and caneberries

- IPM of berry crops
- Cover crops/insectary plantings
- Weed control

North Willamette Research and Extension Center
15210 NE Miley Rd.
Aurora, OR 97002-9543
Phone: (503) 678-1264, ext. 23
e-mail: diane.kaufman@oregonstate.edu

John Lambrinos

Landscape ecologist
Department of Horticulture

Expertise: Plant ecology, landscape ecology

Responsibility: Plant ecology related to managed landscape ecosystems

- Plant-based solutions to environmental problems
- Ecological restoration
- Management of invasive weedy plant species
- Coastal wetland ecology

Department of Horticulture
Oregon State University
4017 ALS
Corvallis, OR 97331
Phone: (541) 737-3695
Fax: (541) 737-3479
Web: <http://oregonstate.edu/dept/hort>



Carol Brooks

Kerry Locke

Extension agent, Klamath County
Department of Crop and Soil Science

Expertise: Row crops, horticulture

Responsibility: Klamath County; row crops, Master Gardener Program

- Potato production
- Pesticide safety
- Home pesticide use
- Biologically based IPM

OSU Extension Service, Klamath County
3328 Vandenberg Rd.
Klamath Falls, OR 97603
Phone: (541) 883-7131
e-mail: kerry.locke@oregonstate.edu
Web: <http://extension.oregonstate.edu>

Lynn E. Long

Extension horticulturist
Department of Horticulture

Expertise: Sweet cherry production

Responsibility: Mid-Columbia area (Oregon and Washington)

- IPM for sweet cherries
- Obliquebanded leafroller
- Western tentiform leafminer
- Cherry fruit fly
- Powdery mildew
- Bacterial canker

OSU Extension Service, Wasco County
400 E. Scenic Dr., Suite 2.278
The Dalles, OR 97058
Phone: (541) 296-5494
Fax: (541) 298-3574
e-mail: lynn.long@oregonstate.edu



OSU Extension Service

John Luna

Associate professor
Department of Horticulture

Expertise: Entomology, conservation tillage, cover crops

Responsibility: Western Oregon; vegetable crops research

- IPM program development
- Insect ecology
- Biologically based pest management practices

Department of Horticulture
Oregon State University
4143 ALS

Corvallis, OR 97331

Phone: (541) 737-5430

e-mail: lunaj@oregonstate.edu

Web: <http://oregonstate.edu/dept/hort/faculty/luna.htm>

Stephen Machado

Agronomist
Department of Crop and Soil Science

Expertise: Agronomy, crop/plant physiology

Responsibility: Eastern Oregon (Union, Umatilla, Morrow, Sherman, Gilliam, and Wasco counties); dryland areas; wheat and alternative crops

- Cropping systems
- Rotations
- Long-term experimentation
- Organic farming

Columbia Basin Agricultural Research Center

Mailing address: PO Box 370

Pendleton, OR 97801

Delivery address: 48037 Tubbs Ranch Rd.

Adams, OR 97810

Phone: (541) 278-4416

Fax: (541) 278-4188

e-mail: stephen.machado@oregonstate.edu

Sandy Macnab

County Extension agent, Sherman County
Department of Crop and Soil Science

Expertise: Cereal crops

Responsibility: Sherman County; office chairman

- Crops and related agricultural/conservation efforts
- Community and economic development
- 4-H and youth

OSU Extension Service, Sherman County

PO Box 385

409 Hood St.

Moro, OR 97039

Phone: (541) 565-3230

Fax: (541) 565-3330

e-mail: sandy.macnab@oregonstate.edu

Walter Mahaffee

Research plant pathologist

USDA-ARS; Department of Botany and Plant Pathology

Expertise: Plant pathology and microbial ecology

Responsibility: Oregon, Washington, and Idaho; foliar and fruit diseases of horticultural crops

- Epidemiology
- Disease forecasting
- Biological control
- Integrated pest management

Horticulture Crops Research Laboratory

3420 NW Orchard Ave.

Corvallis, OR 97330

Phone: (541) 738-4036

e-mail: mahaffew@science.oregonstate.edu

Jordan B. Maley

Extension agent, dryland cropping systems
Department of Crop and Soil Science

Expertise: Agronomy, natural resource conservation, geographic information systems (GIS)

Responsibility: Gilliam County; dryland agronomy and resource conservation

- Dryland cereal grain and alternative crop production systems
- Natural resource conservation planning and practice implementation
- GIS applications
- Identity-preserved/value-added grain marketing
- Biological control of weeds

OSU Extension Service, Gilliam County
333 S. Main St.
PO Box 707
Condon, OR 97823
Phone: (541) 384-2271
e-mail: jordan.maley@oregonstate.edu

Robert Martin

Research leader, Horticulture Crops Research Unit, USDA-ARS;
Courtesy faculty, Department of Botany and Plant Pathology

Expertise: Plant virology, detection and control of plant viruses

Responsibility: Pacific Northwest; small fruit crops

- Characterization of new viruses
- Development of diagnostic tests for viruses
- Identifying virus vectors and their control
- Development of strategies for virus control

USDA-ARS Horticulture Crops Research Unit
3420 NW Orchard Ave.
Corvallis, OR 97330
Phone: (541) 738-4041
e-mail: martinrr@science.oregonstate.edu

Melissa Matthewson

Area Extension small farms faculty
Department of Horticulture

- Agroecology
- Organic production methods
- Agro-food systems

Southern Oregon Research and Extension Center
569 Hanley Rd.
Central Point, OR 97502-1251
Phone (office): (541) 776-7371, ext. 208
Phone (cell): (541) 973-6915
Web: <http://smallfarms.oregonstate.edu/>

Dan McGrath

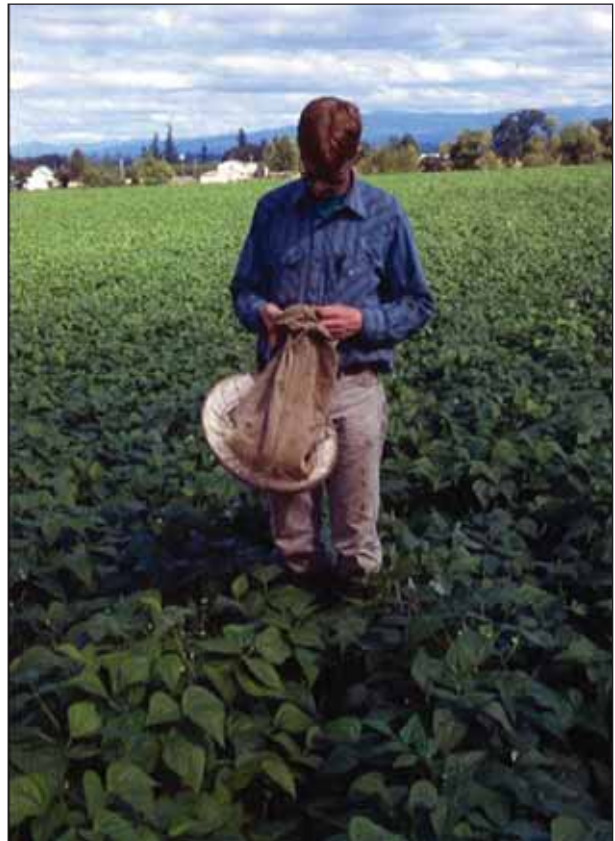
Regional Extension agent (processed vegetables) and staff chair
Department of Horticulture

Expertise: Processed vegetables, integrated pest management, sustainable agriculture

Responsibility: Vegetable production and pest management research and education programs in the nine counties of the Willamette River Basin

- Disease and insect risk assessment
- Regional pest population monitoring
- Field scouting techniques
- Cover crops and riparian buffer strips
- Human learning systems

OSU Extension Service, Linn County
Mailing address: PO Box 765
Street address: 104 Fourth St. SW, Room 101
Albany, OR 97321-0261
Phone (cell): (503) 931-8307
Phone (office): (541) 967-3871
Fax: (541) 967-9169
e-mail: daniel.mcgrath@oregonstate.edu



Dan McGrath

Robert B. McReynolds

Extension faculty, vegetable production
Department of Horticulture

Responsibility: Columbia, Washington, Yamhill, Polk, Marion,
Clackamas counties

- Vegetable production and pest management
- Registration of pest management tools
- Vegetable seed production
- Fresh-market vegetable production systems

North Willamette Research and Extension Center
15210 NE Miley Rd.

Aurora, OR 97002-9543

Phone: (503) 678-1264

Fax: (503) 678-5986

e-mail: bob.mcreeynolds@oregonstate.edu

Mark Mellbye

Extension horticulturist
Department of Crop and Soil Science

Expertise: Field crops, grass seed and peppermint, weed
management

Responsibility: Linn, Benton, and Lane counties

- Disease control in grass seed crops
- Weed control
- Disease management in peppermint

OSU Extension Service, Linn County

Mailing address: PO Box 765

Street address: 104 Fourth St. SW, Room 101

Albany, OR 97321-0261

Phone: (541) 967-3871

Fax: (541) 967-9169

e-mail: mark.mellbye@oregonstate.edu

James R. Myers

Baggett-Frazier professor of vegetable breeding and genetics
Department of Horticulture

Expertise: Vegetable breeding and genetics

Responsibility: Statewide; vegetable crops

- Genetic resistance to vegetable diseases and insects
- Use of molecular markers for genetic diversity studies and
marker-aided selection
- Improved vegetable cultivars adapted to Oregon

Department of Horticulture

Oregon State University

4017 ALS

Corvallis, OR 97331

Phone: (541) 737-3083

Fax: (541) 737-3479

e-mail: myersja@science.oregonstate.edu

Steve Norberg

Field crops and watershed management agent
Department of Crop Science

Expertise: Eastern Oregon production of alfalfa, alfalfa seed,
corn, wheat, oats, barley, dry beans, mint, and grass forage
crops

Responsibility: Malheur County; field crops and watershed
management

- Crop production
- Watershed management
- Irrigation
- Fertilization
- Pest management

OSU Extension Service, Malheur County

710 SW Fifth Ave.

Ontario, OR 97914

Phone: (541) 881-1417

Fax: (541) 889-8840

e-mail: steve.norberg@oregonstate.edu

Web: <http://extension.oregonstate.edu/malheur/>

Cynthia M. Ocamb

Associate professor and Extension specialist
Department of Botany and Plant Pathology

Expertise: Plant pathology

Responsibility: Statewide; pathology of vegetable and field crops

- Biofungicides and conventional fungicides

Department of Botany and Plant Pathology

Oregon State University

2082 Cordley Hall

Corvallis, OR 97331-2902

Phone: (541) 737-4020

Fax: (541) 737-3573

e-mail: ocambc@science.oregonstate.edu

Web: <http://plant-disease.ippc.orst.edu>



Alan Knight



Pat Welch

Jeff Olsen

OSU Extension horticulturist
Department of Horticulture

Expertise: Tree fruit and nut production

Responsibility: Commercial orchards for Yamhill, Polk, Marion, Washington, Clackamas, and Multnomah counties

- Orchard IPM and integrated fruit production
- Organic orchard production

OSU Extension Service, Yamhill County
2050 NE Lafayette Ave.
McMinnville, OR 97128-9333
Phone: (503) 434-8915
Fax: (503) 472-3054
e-mail: jeff.olsen@oregonstate.edu

David Olszyk

Ecologist, U.S. EPA, National Health and Environmental Research Laboratory, Western Ecology Division; courtesy professor, OSU Department of Crop and Soil Science

Expertise: Agroecology, methods for assessing herbicide drift impacts

Responsibility: Nationwide; project leader, pesticides project

- Risk assessment for herbicide drift impacts to nontarget plants
- Global climate change, air pollution and agriculture
- Sustainable agriculture

US EPA/NHEERL/Western Ecology Division
200 SW 35th St.
Corvallis, OR 97330
e-mail: olszyk.david@epa.gov
Web: <http://www.epa.gov/wed/pages/staff/olszyk.htm>

Jennifer Parke

Associate professor (senior research)
Department of Crop and Soil Science; Department of Botany and Plant Pathology

Expertise: Plant pathology, plant-soil-microbe interactions

Responsibility: Nationwide; *Phytophthora ramorum* on nursery crops

- Biological control of plant diseases
- Best management practices for nursery growers
- Pesticide resistance management
- IPM outreach

Department of Crop and Soil Science
Oregon State University
3017 ALS
Corvallis, OR 97331
Phone: (541) 737-8170
Fax: (541) 737-5725
e-mail: jennifer.parke@oregonstate.edu

Ed Peachey

Weed ecology and management
Department of Horticulture

Expertise: Weed science

Responsibility: Western Oregon, vegetable row crops

- Integrated weed management
- Weed seed bank ecology
- Cropping system effects on weed populations
- Herbicide movement in soil

Department of Horticulture
Oregon State University
4017 ALS
Corvallis, OR 97331
Phone: (541) 737-3152
Fax: (541) 737-3479
e-mail: peacheye@science.oregonstate.edu

Ross Penhallegon

Extension horticulture agent
Department of Horticulture

Expertise: Horticultural crop production and protection, IPM and organic production methods

Responsibility: Benton, Lane, and Linn counties; statewide organic working group

- Tree fruits
- Nuts
- Berry crops
- Nursery and greenhouse production
- Water quality and pesticide leachate
- Home horticulture and IPM

OSU Extension Service, Lane County

950 West 13th Ave.

Eugene, OR 97402

Phone: (541) 682-4243

Fax: (541) 682-2377

e-mail: ross.penhallegon@oregonstate.edu

Marni Porath

Extension educator, livestock/range

Department of Rangeland Ecology and Management

Expertise: Black fly (*Simulium*) life cycle, rangeland weeds

Responsibility: Malheur County; rangeland and pasture weeds, black flies

- Weed education and identification
- Weed management using IPM
- Black fly life cycle and management research and education

OSU Extension Service, Malheur County

710 SW Fifth Ave.

Ontario, OR 97914

Phone: (541) 881-1417

Fax: (541) 889-8840

e-mail: marni.porath@oregonstate.edu

Jay W. Pscheidt

Extension plant pathology specialist

Department of Botany and Plant Pathology

Expertise: Plant pathology

Responsibility: Statewide; fruit, nut, and ornamental crops; senior editor of the *PNW Plant Disease Management Handbook*

- Plant disease diagnosis
- Plant disease control
- Evaluation of plant disease control tactics

Department of Botany and Plant Pathology

Oregon State University

1089 Cordley Hall

Corvallis, OR 97331-2903

Phone: (541) 737-3472

Fax: (541) 737-2412

e-mail: pscheidj@science.oregonstate.edu

Melodie Putnam

Chief diagnostician

Department of Botany and Plant Pathology

Expertise: Plant pathology

Responsibility: Statewide; all crops

- Disease diagnosis
- Disease management recommendations
- Plant pathology outreach and coordination

OSU Plant Clinic

1089 Cordley Hall

2701 SW Campus Way

Corvallis, OR 97331-2903

Phone: (541) 737-3472

e-mail: putnamm@science.oregonstate.edu

Web: http://www.science.oregonstate.edu/bpp/Plant_Clinic/index.htm



Ken Gray image courtesy of Oregon State University

Richard Regan

Extension horticulturist
Department of Horticulture

Expertise: Plant disease, nursery crop production

Responsibility: North Willamette Valley; nursery crops

- Foliar *Phytophthora* of woody plants
- Soil-borne pathogens associated with nursery production systems
- Management of environmental stresses
- Applied research and outreach

North Willamette Research and Extension Center
15210 NE Miley Rd.

Aurora, OR 97002-9543

Phone: (503) 678-1264, ext. 22

e-mail: rich.regan@oregonstate.edu

Web: <http://oregonstate.edu/dept/nurserystartup>

Steve Renquist

Horticulture agent
Department of Horticulture

Expertise: Horticulture, IPM systems

Responsibility: Douglas County; all horticultural crops, including orchard, vineyard, nursery, vegetable, landscape; home horticulture, including Master Gardener program

- Using IPM systems in orchard crops (e.g., mating disruption)
- Using trap crops, insectary crops in vegetables and orchards
- Organophosphate pesticide use reduction, softer pesticide programs for orchards and vineyards
- IPM practices for homeowners

OSU Extension Service, Douglas County

PO Box 1165

1134 SE Douglas Ave.

Roseburg, OR 97470

Phone: (541) 672-4461

Fax: (541) 672-4453

e-mail: steve.renquist@oregonstate.edu



Ken Gray image courtesy of Oregon State University

Helmut Riedl

Professor

Department of Environmental and Molecular Toxicology

Expertise: Entomology, tree fruit integrated pest management

Responsibility: Mid-Columbia fruit-growing district; research and extension on IPM of pear, apple, and sweet cherry pests

- Biologically based IPM systems for tree fruits
- Integrated fruit production (IFP)
- Biological and chemical control of tree fruit pests
- Insecticide resistance and resistance management
- Prediction of pest phenology

Mid-Columbia Agricultural Research and Extension Center
3005 Experiment Station Dr.

Hood River, OR 97031

Phone: (541) 386-2030, ext. 14

e-mail: helmut.riedl@oregonstate.edu

Web: <http://oregonstate.edu/dept/mcarec/>

Silvia I. Rondon

Extension entomologist

Department of Crop and Soil Science

Expertise: Integrated pest management and biological control

Responsibility: Eastern Oregon

- Irrigated cropping systems
- Field crops
- Greenhouse vegetable production

Hermiston Agricultural Research and Extension Center
2121 South First St.

PO Box 105

Hermiston, OR 97838

Phone: (541) 567-8321

Fax: (541) 567-2240

e-mail: silvia.rondon@oregonstate.edu

Web: <http://oregonstate.edu/dept/hermiston/index.php>

Robin Rosetta

Regional Extension horticulturist, nursery IPM
Department of Horticulture

Expertise: Greenhouse and nursery IPM, ornamental entomology

Responsibility: Northern Willamette Valley; commercial nursery and greenhouse crops

- IPM for commercial greenhouse and nursery crops
- Research areas: management of root weevils, honeylocust pod gall midge, implementation of biological control, borers, rose midge
- Extension programs, including Pacific Northwest Nursery IPM website, OktoberPest seminar series

North Willamette Research and Extension Center

15210 NE Miley Rd.

Aurora, OR 97002-9543

Phone: (503) 678-1264, ext. 33

Fax: (503) 678-5986

e-mail: robin.rosetta@oregonstate.edu

Web: <http://oregonstate.edu/dept/nurspest/index.htm>

Darrell Ross

Associate professor

Department of Forest Science

Expertise: Entomology, forestry

Responsibility: Statewide; forest pests

- Silvicultural control of forest insect pests
- Pheromone-based management of forest insect pests
- Biological control of invasive species
- Bark beetles, regeneration insects, adelgids

Department of Forest Science

Oregon State University

321 Richardson Hall

Corvallis, OR 97331-5752

Phone: (541) 737-6566

Fax: (541) 737-1393

e-mail: darrell.ross@oregonstate.edu



Pat Welch

Richard Smiley

Professor of plant pathology

Department of Botany and Plant Pathology

Expertise: Plant pathology, cereal crops

Responsibility: Research on root and crown diseases of field crops, with emphasis on dryland cereal crops in north-central and northeast Oregon

- Integrated root–health management strategies
- Soil-borne plant-pathogenic fungi
- Plant-parasitic nematodes affecting wheat
- Field crops, with emphasis on dryland wheat and barley

Columbia Basin Agricultural Research Center

Mailing address: PO Box 370

Pendleton, OR 97801

Delivery address: 48037 Tubbs Ranch Rd.

Pendleton, OR 97810

Phone: (541) 278-4397

e-mail: richard.smiley@oregonstate.edu

Web: <http://cbarc.aes.oregonstate.edu/cbarc/plantpathologyhome.php>

Mary Staben

Coordinator, iSNAP (Integrated Soil Nutrient and Pest) Water Quality Education Project

Department of Crop and Soil Science

Expertise: Program evaluation and learner-centered instructional design

Responsibility: Pacific Northwest (OR, WA, and ID)

- IPM and nutrient management education for agricultural professionals and growers
- Farming practices that protect water quality

Department of Crop and Soil Science

Oregon State University

3017 ALS

Corvallis, OR 97331

Phone: (541) 737-2683

e-mail: mary.staben@oregonstate.edu

Web: <http://isnap.oregonstate.edu>



Jack Kelly Clark, University of California

Tim Stock

IPM education specialist
Department of Environmental and Molecular Toxicology
Responsibility: Statewide; pesticide and farm safety education

- Pesticide and farm safety
- IPM in schools
- Participatory learning and action in large-scale IPM systems

Integrated Plant Protection Center
Oregon State University
2040 Cordley Hall
Corvallis, Oregon 97331-2915
Phone: (541) 737-6279
Fax: (541) 737-3080
e-mail: stockt@science.oregonstate.edu
Web: <http://ipmnet.org>

Alex Stone

Vegetable cropping systems specialist
Department of Horticulture
Expertise: Vegetable production
Responsibility: Statewide; vegetable cropping systems

- Soil and cropping systems management for plant disease suppression
- Organic and conventional vegetable production

Department of Horticulture
Oregon State University
4017 ALS
Corvallis, OR 97331-7304
Phone: (541) 737-5461
e-mail: stonea@science.oregonstate.edu

Bernadine Strik

Extension berry crops professor and berry research leader
Department of Horticulture
Expertise: Production physiology, berry crops (not grapes)
Responsibility: Statewide

- Impact of cultural practices on pest management in berry crops

Department of Horticulture
Oregon State University
4017 ALS
Corvallis, OR 97331-7304
Phone: (541) 737-5434
Fax: (541) 737-3479
e-mail: strikb@science.oregonstate.edu
Web: <http://oregonstate.edu/dept/NWREC/>
<http://oregonstate.edu/dept/hort/>

David Sugar

Professor
Department of Botany and Plant Pathology
Expertise: Plant pathology, postharvest science, pear production
Responsibility: Southwest Oregon; fruit crops

- Integrated management of postharvest diseases
- Fruit handling and storage
- Biological control of tree fruit diseases
- IPM outreach to fruit producers

Southern Oregon Research and Extension Center
569 Hanley Rd.
Medford, OR 97502-1206
Phone: (541) 772-5165
Fax: (541) 772-5110
e-mail: david.sugar@oregonstate.edu

Brian Tuck

Extension agent, dryland and irrigated field crops
Department of Crop and Soil Science
Expertise: Pesticide CORE and pretest trainings, dryland alternative crops research
Responsibility: Wasco County

- Grower pesticide CORE and pretest trainings
- Alternative crops for eastern Oregon
- Small grains production

Oregon State University, Wasco County
400 East Scenic Dr., #2.278
The Dalles, OR 97058
Phone: (541) 296-5494
Fax: (541) 298-3574
e-mail: brian.tuck@oregonstate.edu

Philip VanBuskirk

Administrator and area Extension agent
Department of Horticulture

Expertise: Extension education and IPM

Responsibility: Jackson and Josephine counties; tree fruits and wine grapes

- Pesticide safety and education
- IPM program outreach and implementation
- Risk assessment for chemical inputs

Southern Oregon Research and Extension Center
569 Hanley Rd.

Medford, OR 97502-1206

Phone: (541) 772-5165

Fax: (541) 772-5110

e-mail: philip.vanbuskirk@oregonstate.edu

Darrin L. Walenta

Extension field crops agent
Department of Crop and Soil Science

Expertise: Crop pest management, pesticide applicator training

Responsibility: Northeast Oregon—Union, Baker, and Willamette counties; irrigated and dryland field crops

- Integrated cereal leaf beetle management (ICLBMP)
- Irrigated and dryland cropping systems pest management
- Pesticide applicator training and application technology
- IPM program development

OSU Extension Service, Union County
10507 N. McAlister Rd.

LaGrande, OR 97850

Phone: (541) 963-1010

Fax: (541) 963-1036

e-mail: darrin.walenta@oregonstate.edu

Kimberly Wallin

Research associate
Department of Forest Science

Expertise: Entomology, forest health, urban forestry

Responsibility: Statewide; forest entomology

- Biological control of forest pests
- Pheromone-based management of forest insects
- Host plant resistance to insects
- Black fly monitoring and management through Extension
- IPM and science outreach

Department of Forest Science

Oregon State University

321 Richardson Hall

Corvallis, OR 97331-5705

Phone: (541) 737-8454

e-mail: kimberly.wallin@oregonstate.edu

Vaughn M. Walton

Horticultural entomologist
Department of Horticulture

Expertise: Entomology, insect biology

Responsibility: Extension horticulture

- IPM approaches for tree fruits and vining crops
- Mealybug biology and control strategy
- Natural enemy/pesticide interactions

Department of Horticulture
4017 ALS

Oregon State University

Corvallis, OR 97331

Phone: (541) 737-3695

Fax: (541) 737-3479

Web: <http://oregonstate.edu/dept/hort>

Wei Yang

District berry Extension agent
Department of Horticulture

Expertise: Horticulture, small fruits

Responsibility: Multicounty; blueberries

- Field consultation
- Pest and cultural management

North Willamette Research and Extension Center
15210 NE Miley Rd.

Aurora, OR 97002-9543

Phone: (503) 678-1264, ext. 26

Fax: (503) 678-5986

e-mail: wei.yang@oregonstate.edu



Teresa Welch

PUBLICATIONS

OSU Extension publications

Many of these publications provide recommendations for conventional pesticide and nutrient applications and are not specifically focused on compliance with certification systems or organic standards.

Most of these publications are available online at no charge (<http://extension.oregonstate.edu/catalog/>).

You may order hard copies online, or contact Extension and Station Communications, 422 Kerr Administration, Corvallis, OR 97333-2119; phone: (800) 561-6719; fax: (541) 737-0817; e-mail: puborders@oregonstate.edu

Analytical laboratories

Laboratories Serving Oregon: Soil, Water, Plant Tissue, and Feed Analysis, EM 8677

Biological control

Beneficial Organisms Associated with Pacific Northwest Crops, PNW 343

Biological Control of the Mediterranean Sage, PNW 473

Encouraging Beneficial Insects in Your Garden, PNW 550

Using Beneficial Nematodes for Crop Insect Pest Control, PNW 544

Cereals

Cereal Leaf Beetle: Identification, Control, and California Quarantine Alert, EM 8762

Combating Take-all of Winter Wheat in Western Oregon, EC 1423

Controlling Root and Crown Diseases of Small Grain Cereals, EM 8798

Management Strategies for Preventing Herbicide-Resistant Grass Weeds in Clearfield Wheat Systems, PNW 577

Plant-parasitic Nematodes Affecting Wheat Yield in the Pacific Northwest, EM 8887

Plantback Restrictions for Herbicides Used in the Dryland Wheat Production Areas of the Pacific Northwest, PNW 571

Sawflies in Wheat, EM 8839-E

Seed Treatments for Small Grain Cereals, EM 8797

Viral Diseases of Barley, PNW 493

Weed Management in Clearfield Wheat with Imazamox, EM 8833



Gwendolyn Ellen

Christmas trees/Forestry

Aphid and Adelgid Pests of Conifers in Oregon, EC 1444

Árboles de Navidad video (68 min.), VTP 43

Biology and Control of Douglas-fir Needle Midge in Christmas Trees, EC 1373

Controlling Pocket Gopher Damage to Conifer Seedlings, EC 1255

Controlling Vole Damage to Conifer Seedlings, EC 1256

Converting Western Oregon Red Alder Stands to Productive Conifer Forests, EC 1186

Developing High-quality True Fir Christmas Trees, PNW 226

Developing Sheared Douglas-fir Christmas Trees, PNW 227

Enhancing Reforestation Success in the Inland Northwest, PNW 520

Enhancing Wildlife on Private Woodlands, EC 1122

Forest Insect Ecology and Management in Oregon, Manual 10

Introduction to Conifer Release, EC 1388

An Introduction to Forest Protection, EC 1253

Logging Selectively: A Practical Guide to Partial Timber Harvesting in the Forests of the Inland Northwest and the Northern Rocky Mountains, PNW 534

Maintaining Woodland Roads, EC 1139

Road Construction on Woodland Properties, EC 1135

Using Precommercial Thinning to Enhance Woodland Productivity, EC 1189

Wood Preservation and Wood Products Treatment Training Manual, EM 8403

Commercial turf

Necrotic Ring Spot on Turf in Oregon, EC 1462

Cover crops

- Oregon Cover Crops: Barley, Oats, Triticale, Wheat*, EM 8692
Oregon Cover Crops: Buckwheat, EM 8693
Oregon Cover Crops: Cereal Rye, EM 8694
Oregon Cover Crops: Common Vetch, EM 8695
Oregon Cover Crops: Crimson Clover, EM 8696
Oregon Cover Crops: Fava Bean, EM 8697
Oregon Cover Crops: Field Pea, EM 8698
Oregon Cover Crops: Hairy Vetch, EM 8699
Oregon Cover Crops: Rapeseed, EM 8700
Oregon Cover Crops: Red Clover, EM 8701
Oregon Cover Crops: Subterranean Clovers, EM 8702
Oregon Cover Crops: Sudangrass and Sorghum-Sudangrass Hybrids, EM 8703
Using Cover Crops in Oregon, EM 8704

Cultural/Farmscaping

- Effective Conservation Farming Systems*, PNW 275
A Guide To Multifunctional Hedgerows in Western Oregon, EM 8721

Farm safety

- Basic Boiler Operation* video (42 min.), VTP 34
Farm Safety Series (a set of 15 individual titles designed for local reproduction for use in on-farm worker safety and health programs; available only on-line and from county offices), PNW 512
Hoja Informativa Sobre la Seguridad en las Fincas (a set of 15 individual titles designed for local reproduction for use in on-farm worker safety and health programs; includes CD), PNW 512-S

Garden and landscape

- Blossom-end Rot of Tomatoes*, FS 139
El Control de Insectos en Los Huertos y Jardines, EM 8766-S
Controlling Diseases and Aphids on Your Roses, EC 1520
Controlling Diseases and Insects in Home Orchards, EC 631
Encouraging Beneficial Insects in Your Garden, PNW 550
La Entomología Básica para Jardineros, EC 1545-S
Gardening with Composts, Mulches, and Row Covers, EC 1247
Gardening with Fewer Pesticides: Using Integrated Pest Management, EC 1532
Grow Your Own Lettuce, Spinach, and Swiss Chard, EC 1268
Grow Your Own Potatoes, EC 1004
Growing Tree Fruits and Nuts in the Home Orchard, EC 819
Preventing Plant Disease in Your Garden and Landscape, FS 242
Root Weevils in the Nursery and Landscape: Identification and Control, EC 1485
Wildlife Garden, GARDEN PKG

General pests

- Bibliography of Nematode Interactions with Other Organisms in Plant Disease Complexes*, SB 623
Controlling Moles, EC 987
Controlling Ground Squirrel Damage to Forages and Field Crops, Ditches, and Dams, EC 1429
Controlling Pocket Gopher Damage to Agricultural Crops, EC 1117
Locust Borers in Oregon, FS 328
Laboratory Feeding Tests on the Development of Gypsy Moth Larvae with Reference to Plant Taxa and Allelochemicals, SB 674
PNW Insect Management Handbook (revised edition available March 15 annually), INSECT
PNW Plant Disease Management Handbook (revised edition available March 15 annually), PLANT
Slugs, FS 277

Grapes

- Pest Control Guide for Wine Grapes in Oregon* (revised annually; available only from Willamette Valley county offices), EM 8413
Phylloxera: Strategies for Management in Oregon's Vineyards, EC 1463
Preventing Herbicide Drift and Injury to Grapes, EM 8860
Preventing Phenoxy Herbicide Damage to Grape Vineyards, EM 8737

Grass and grass seed

- Annual Ryegrass (Lolium multiflorum L.)*, PNW 501
Dwarf Bunt of Winter Wheat in the Northwest, PNW 489
Insects and Ergot in Kentucky Bluegrass Seed Production Fields in the Pacific Northwest, SR 1044
Oregon Cover Crops: Annual Ryegrass, EM 8691

Greenhouse and nursery

- Phytophthora ramorum: A Guide for Oregon Nurseries*, EM 8840
Weed Control in Container Crops, EM 8823
Weed Control in Nursery Field Production, EM 8899-E

Pasture and range

- Dryland Cropping Systems: Narrow-leaf Lupin*, EM 8834
Pasture Management Guide: Coastal Pastures in Oregon and Washington, EM 8645

Pesticide application

- Aquatic Pest Control: A Study Manual for Certification in Aquatic Pest Control*, WAMIS 0134
Calibrating and Using a Backpack Sprayer, PNW 320
Calibrating and Using Backpack Sprayers video (16 min.; includes publication PNW 320), VTP 17
Chemigation in the Pacific Northwest, PNW 360

First Aid for Pesticide Poisoning, PNW 278
Get to Know Pesticide Labels, EM 8841-E
Guía Ilustrada para el Uso Seguro de Pesticidas (An Illustrated Guide to Pesticide Safety), EM 8552-S
Oregon Pesticide Applicator Manual: A Guide to the Safe Use and Handling of Pesticides, EM 8532
Pesticide Applicator Training Manual Category 1 Agricultural: Animal, CORN ANIM
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Pesticide Applicator Training Manual Category 5: Aquatic Pest Control, CORN AQUA
Pesticide Applicator Training Manual Category 7: Industrial, Institutional, Structural, and Health: Food Processing, CORN FOOD
Pesticide Applicator Training Manual Category 7: Industrial, Institutional, Structural, and Health: Fumigation, CORN FUMI
Pesticide Applicator Training Manual Category 7: Industrial, Institutional, Structural, and Health: Structural and Rodent, CORN STRU
Oregon Pesticide Safety Education Manual: A Guide to the Safe Use and Handling of Pesticides, EM 8850
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Oregon Pesticide Use Estimates for 1987, EM 8507
Oregon Pesticide Use Estimates for Small Fruits, 1990, EM 8541
Oregon Pesticide Use Estimates for Small Fruits (1995) and Tree Fruits (1996), EM 8673
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Oregon Pesticide Use Estimates for Tree Fruits, 1991, EM 8553
Oregon Pesticide Use Estimates for Vegetable Crops, 1993, EM 8643
Survey of Pesticide Applications on Oregon Mint Fields, SR 958

Pesticides and environment

Endangered Species and Pesticides: Balancing Protection and Production video (13 min.), VTP 6
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Managing Late Blight on Irrigated Potatoes in the Pacific Northwest, PNW 555
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Blueberry Pest Management Guide for the Willamette Valley (revised annually), EM 8538
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Management of Sugarbeet Root Rots, PNW 538
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Root Rot of Sweet Corn in Western Oregon, EM 8859

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Controlling Carpenter Ants, EC 627



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Tree fruits and nuts

- 1995 Cherry Fruit Fly Pest Management for Control Areas in Umatilla and Union Counties*, EM 8587
- The Apple Maggot in Oregon*, FS 271
- Apple Pest Management Guide for the Willamette Valley* (revised annually), EM 8418
- Apple Scab*, PNW 582
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- Detecting and Controlling Eastern Filbert Blight*, EC 1499
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- Guía para el Monitoreo de Plagas en Huertas de Pera: Un Recurso para el Noroeste del Pacífico* (Orchard Pest Monitoring Guide for Pears: A Resource Book for the Pacific Northwest), EM 8830-S
- Hazelnut Pest Management Guide for the Willamette Valley* (revised annually), EM 8328
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- Orchard Economics: The Costs and Returns of Establishing and Producing Hazelnuts in the Willamette Valley*, EM 8748
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Pacific Northwest's Least Wanted List: Invasive Weed Identification and Management, EC 1563
Perennial Weed Biology and Management, EM 8776
PNW Weed Management Handbook (revised annually), WEED
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Other publications

Best Management Practices and Integrated Pest Management Standards Checklist for Quality Potatoes. 2005. Potato Growers of Idaho, PO Box 949, Blackfoot, ID 83221; e-mail: pgike@cablone.net

Biological Control: A Guide to Natural Enemies in North America. C.R. Weeden, A.M. Shelton, Y Li, and M.P. Hoffman, editors. Revised 2006. Cornell University, Ithaca, NY. <http://www.nysaes.cornell.edu/ent/biocontrol/>

Common Sense Pest Control Quarterly. The *Quarterly* features descriptions of the latest research, practical information, products, resources, book reviews, and direct answers to member questions. The Bio-Integral Resource Center. <http://www.birc.org/descjrnl.htm#Common%20Sense%20Pest%20Control%20Quarterly>

IPM in Practice. M.L. Flint and P. Gouveia. 2001. University of California, Agriculture and Natural Resources. <http://anrcatalog.ucdavis.edu/InOrder/Shop/ItemDetails.asp?ItemNo=3418>

The IPM Practitioner. Focuses on management alternatives for pests such as insects, mites, ticks, vertebrates, weeds, and plant pathogens. Each issue contains an in-depth article ("Updates") on a research topic in integrated pest management. The Bio-Integral Resource Center. <http://www.birc.org/descjrnl.htm#Common%20Sense%20Pest%20Control%20Quarterly>

Radcliffe's IPM World Textbook. <http://ipmworld.umn.edu/textbook.htm>

This electronic textbook of integrated pest management is sponsored by the University of Minnesota and features chapters contributed by internationally recognized experts.

The objectives of the website are to provide:

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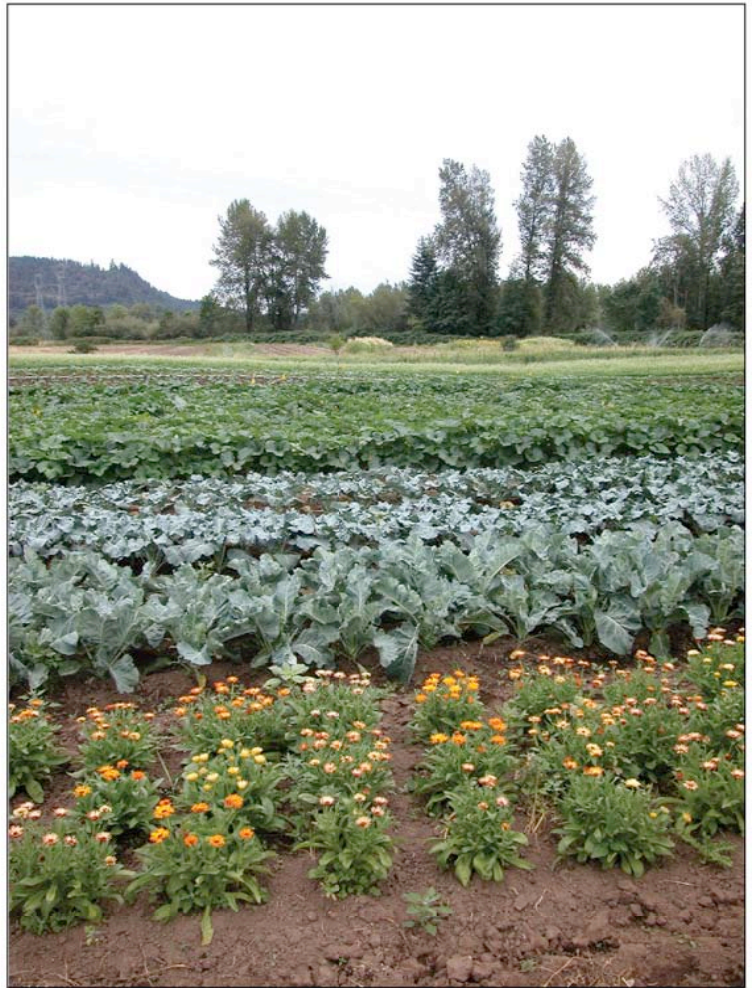
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