



Interactive Short Course

Focusing on Tomorrow Today

Enhancing biological control in orchard cropping systems.

<http://enhancedbiocontrol.org>

February 7-8, 2012

Held concurrently at:

**CTC in Wenatchee WA;
ESD in Pasco, WA; and
The Pine Grove Grange,
Hood River, OR**

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Enhancing Biological Control in Western Orchards



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enhancedbiocontrol.org

Focusing on Tomorrow Today

- ✓ *Why does biological control matter?* – Learn about the economic impact of biological control for the grower.
- ✓ *Are pesticides and biological control compatible?* – Learn about the effects newer insecticides have on key natural enemies.
- ✓ *How do I know what's out there?* - Learn about new monitoring tools to determine natural enemy presence and importance.
- ✓ *Can we predict natural enemy presence in orchards to reduce their exposure to pesticides?* - Learn about new models that will help you conserve natural enemies.
- ✓ *Which predators are most valuable in reducing codling moth?* - Learn how to identify important natural enemies in your orchard.

These and more questions are the focus of a Specialty Crops Research Initiative grant-funded project to enhance biological control in western apple, pear and walnut orchards.

We invite you to our interactive workshop to learn more about natural enemies and novel tools to maximize biological control in your operation.

2-Day Interactive Short Course

Course highlights:

- Discuss general principles of biological control in perennial crops with examples from apple, pear and walnut orchards.
- Engage in understanding and solving issues related to secondary pest outbreaks and the impact of invasive pests on IPM practices.
- Practice developing IPM programs and strategies that support biological control.
- Learn how to identify key natural enemies and pests they control.
- Discover new tools for monitoring natural enemies.
- Explore web resources and how they can help you to integrate biological control into your management strategy.
- Learn from new research the effects of pesticides on natural enemies.
- Understand the economic consequences of natural enemy removal in orchards.

The information presented in this short course is helpful and relevant to most perennial cropping systems.

Meet the Experts: Presenters



Dr. Vincent Jones¹ *email: vpjones@wsu.edu*
Washington State University, Dept. of Entomology, Tree Fruit Research and Extension Center, Wenatchee, WA
Vince's program specializes in novel approaches to population ecology and behavior of tree fruit pests with a focus on strategies to enhance biological control through the development of phenology models for key NEs, development of attractants and improved monitoring.



Dr. Jay Brunner¹ *email: jfb@wsu.edu*
Washington State University, Dept. of Entomology, Tree Fruit Research and Extension Center, Wenatchee, WA
Jay's research focuses on tree fruit crop IPM with specialization in sampling methods and action thresholds, insect phenology and predictive modeling, evaluation of BC agents, and use of MD for management of Lepidoptera pest.



Dr. Nick Mills¹ *email: nmills@berkeley.edu*
University of California Berkeley, Dept. of ESPM
Nick's research is focused on biological control of insect pests and the ecology of insect parasitism and predation. One of the aspects of his work is to discover new elements of natural enemy biology providing a direct linkage to the implementation of improved biological control and a reduced reliance on pesticide intervention in IPM.



Dr. Thomas Unruh² *email: thomas.unruh@ars.usda.gov*
USDA-ARS, Wapato, WA
Tom's research focuses on biological control with emphasis on enhancement of natural enemies in orchard IPM systems, predator release practices, efficacy of attractants, augmentative BC and habitat manipulations.



Dr. Dave Horton² *email: david.horton@ars.usda.gov*
USDA-ARS, Wapato, WA
Dave's research emphasis is on biorational management of temperate fruit insect pests, enhancing BC in orchard IPM systems, optimization of insect attractants and evaluation of HIPVs used for NE monitoring.



Dr. Peter Shearer³ *email: peter.shearer@oregonstate.edu*
Oregon State University, MCARC, Hood River, OR,
Peter's research activities involve studies on the management of arthropod pests of pome and stone fruits by enhancing IPM strategies and tactics including chemical, cultural, and biological control. Current focus areas include: sublethal effects of new pesticides on natural enemies, insecticide resistance management and evaluating impact of pesticides on target and not-target arthropods.



Mr. Steve Castagnoli³ *email: steve.castagnoli@oregonstate.edu*
 Oregon State University, MCARC, Hood River, OR,
 Steve is the Extension Horticulturist for Hood River County providing area growers with the tools they need to maintain an industry that is both economically and environmentally sustainable. Steve’s main focus is supporting the area tree fruit industry with relevant educational programs through implementation projects, workshops, field days, informational meetings, and newsletters.



Dr. Karina Gallardo¹ *email: karina_gallardo@wsu.edu*
 Washington State University, School of Economic Sciences, Tree Fruit Research and Extension Center, Wenatchee, WA
 Karina is an Agribusiness Extension Specialist working in the area of enhancing value-added opportunities for specialty crops with a focus on consumer demand analysis and economics of technological change.



Dr. Angela Gadino² *email: angela.gadino@wsu.edu*
 Washington State University, Dept. of Entomology, Tree Fruit Research and Extension Center, Wenatchee, WA
 Angela is the Project Coordinator for SCRI project: “Enhancing Western Orchard Biological Control” and performs research and outreach aimed at promoting the adoption of sustainable ecosystem-based pest management strategies.



Dr. Ute Chambers² *email: uchambers@wsu.edu*
 Washington State University, Dept. of Entomology, Tree Fruit Research and Extension Center, Wenatchee, WA
 Ute is the Project Manager for the WSU Decision Aid System. Her research and outreach focuses on IPM strategies for orchard pests, insect phenology modeling and the impacts of microhabitat and thermoregulation behavior on insect development.



Dr. Gene Miliczky² *email: gene.miliczky@ars.usda.gov*
 USDA-ARS, Wapato, WA
 Gene is an expert in insect and spider identification with a strong interest in insect life history, ecology, and pest management. He has been working in tree fruits with Dr. Dave Horton for the past 10 years investigating the role of extra-orchard habitats on the pest and natural enemy community in orchards. (Gene prefers pictures of his work.)



Dr. Marshal Johnson¹ *email: marshall.johnson@ucr.edu*
 University of California at Riverside, Dept. of Entomology, Kearney Agric. Center, Parlier, CA
 Marshall is an expert in biological control and is responsible for tree crop extension in the San Joaquin Valley. Recent research has focused on perennial tree crop pests with an emphasis on developing alternative pest management strategies minimizing pesticide use while providing growers practical and feasible control.



Dr. Lynn LeBeck¹ *email: exdir@anbp.org*
 Association of Natural Biocontrol Producers (ANBP), Clovis, CA
 Lynn is the Executive Director for ANBP, a non-profit organization that serves the commercial biocontrol industry in North America. Quality control and the effective use of beneficial predators, parasitoids, and entomopathogenic nematodes, are among their highest priorities.

Meet the Experts: Discussion Facilitators



Dr. Nadine Lehrer² *email: nlehrer@wsu.edu*

Washington State University, Tree Fruit Research and Extension Center, Wenatchee, WA

Nadine is a Rural Sociologist and is experienced in measures of adoption and diffusion of agricultural innovation, farm worker health education, environmental pesticide issues, and US agricultural policy development.



Ms. Karen Lewis² *email: kmlewis@wsu.edu*

Washington State University, Grant County Extension, Ephrata, WA

Karen is an Extension Horticulturist that works with industry and academic partners to identify, develop, and evaluate tools, technologies and practices that improve fruit quality that in turn increases consumer demand and the growers return on investment. Specific areas of interest include: Integration of people, technology and perennial systems, electric light duty farm vehicles, mobile platform and over the row technologies, mechanized thinning, and efficient orchard systems.



Ms. Wendy Jones¹ *email: wendyej@wsu.edu*

Washington State University, Tree Fruit Research and Extension Center, Wenatchee, WA

Wendy is a researcher working to gather, interpret and disseminate IPM and biological control information. She maintains several web sites including the Enhanced BC project site and the Pest Management Transition project site.



Dr. Clive Kaiser³ *email: clive.kaiser@oregonstate.edu*

Oregon State University, Umatilla County Extension, Milton-Freewater, OR.

Clive is an Extension Horticulturist based in the greater Walla Walla Valley. He works primarily in cherries, apples, soft fruit, wine grapes and viticulture. He specializes in problems relating to cherry crack, apple sunburn and overall orchard health.



Mr. Rick Hilton³ *email: Richard.hilton@oregonstate.edu*

Oregon State University, Southern Oregon Research and Extension Center, Medford, OR

Rick works with a research program whose goal is to develop ecologically sound pest management strategies and tactics and to introduce and demonstrate those tools and techniques to growers and field managers.



Dr. Jeff Olsen³ *email: jeff.olsen@oregonstate.edu*

Oregon State University, Yamhill County Extension, McMinnville, OR

Jeff is the Extension Horticulturist for the counties in the northern part of the Willamette Valley, the area with most of the hazel orchards. His expertise covers all the horticultural crops grown in the area, including walnuts, chestnuts, cherries, pip fruit and nursery crops. He is also involved in U.S. and international horticultural extension organizations.

Key to footnote symbols

Numbers following people's name indicate which course location that person will be featured:

- 1 - CTC, Wenatchee, WA
- 2 - ESD, Pasco, WA
- 3 - Pine Grove Grange, Hood River OR

