

**Pesticide License Recertification Seminar Series - Detailed Agenda**  
**WSU Mount Vernon NWREC**  
**Fall 2020**

All seminars will be delivered over Zoom. Please see <http://mtvernon.wsu.edu/events/category/brown-bag-seminars/list/> to register.

**Pesticide License Recertification Credits: 1 credit per date.**

**August 21**

**Epidemiology and IPM of White Rot in *Allium* Crops, 12:00-1:00, Speaker: Jeremiah Dung**

White rot is an extremely destructive and economically important disease of *Allium* crops, especially garlic and onion. The soilborne fungus that causes white rot can lay dormant in soils for decades and germinates in response to the presence of Alliums. Join Dr. Dung as he discusses the biology of the pathogen, the epidemiology and management of the disease, and current research efforts associated with a larger USDA-NIFA SCRI SREP project on stakeholder-prioritized pests and diseases of onion.

**September 2**

**Pesticides and Honey Bees, 11:00-11:30, Speaker: Tim Lawrence**

Pesticides and honey bees are both essential to ensure an adequate supply of affordable food crops. This presentation will cover: the history of pesticides and pollination services provided by honey bees; the evolution of pesticides and their impact on honey bees; issues and concerns related to neonicotinoid pesticides; and steps pesticide applicators and growers can take in mitigating the effects of pesticides on honey bees and other pollinators.

**Seed Crop Pests - Biology and Management, 11:30-12:00, Speaker: Bev Gerdeman**

Root maggots are a particular problem in insect pollinated seed crops like cabbage. Soil applied insecticides for the control of root maggots in the fall have been detected in nectar 9 months later. We will look at the circuitous pathway of a soil-applied insecticide into honey bee hives and its potential effects.

**September 9**

**Know your herbicides: Clopyralid and aminopyralid, 11:00-11:30, Speaker: Steven Seefeldt**

Two related herbicides with interesting properties. Learn how and when to use them as part of an integrated management plan.

**Soil-biodegradable plastic mulch provides weed control, 11:30-12:00, Speaker: Carol Miles**

Soil-biodegradable plastic mulch can be an effective tool for controlling weeds. This presentation will provide an introduction to soil-biodegradable mulch, an overview of how effective weed control can be, and impact on crop yield compared to polyethylene mulch in vegetable and small fruit production systems.

### **September 16**

#### **Forest Pathology—Diseases in Washington State and their Management, 11:00-12:00, Speaker: [Bob Edmonds](#)**

Forest diseases, mostly caused by fungi, are important components of natural forest ecosystems in Washington, causing tree mortality, producing snags and creating habitats for plants and animals, influencing forest succession, and recycling carbon and nutrients. Forest pathogens, fires and insects commonly act together. However, in managed forests they influence forest health, cause site degradation, kill planted trees, and cause economic losses. I will briefly describe the main diseases that occur along the I-90 corridor from Seattle to Ellensburg (the Mountains to Sound Greenway). This includes forest parks in Seattle, the leafy suburbs, State Forests, Parks, and Natural Resource Conservation areas, working forests managed by the Washington DNR and private companies, small woodlot owners, the now essentially unmanaged National Forests and recreation areas, and back to industry forests on the east slopes of the Cascades. Most of the diseases are native, but some are introduced such as white blister rust which has killed millions of 5-needle pine trees. I will also describe the disease management strategies on these lands which involve one or more of the following methods – silviculture (clearcutting, thinning, alternative species), chemical fungicides, biological control, and breeding and genetic resistance – as well as the consequences of doing nothing.

### **September 23**

#### **Fungicides 101 - Making the Most of Your Conventional or Organic Fungicide Programs, 12:00-1:00, Speaker: [Lindsey du Toit](#)**

Whether you grow crops conventionally or organically, are you getting the most out of your fungicide programs? If your crop has a root disease, will you get any benefit from applying a fungicide to the plants or to the soil? When should you make your application(s)? How often? What method of fungicide application will give you the best control of the diseases you are trying to manage? Should you use a sticker or adjuvant with your application? Does it matter what volume of water (GPA) you use to make the application? Does it matter what nozzles and pressure you use? Is the disease you're concerned about caused by a true fungus or a water mold? Why does that even matter? Can you cure a crop of an infection after you see symptoms of the disease? What does FRAC mean, and why should you care? If a fungicide label says the product is 'systemic', will the fungicide move throughout the plant to provide protection against pathogens? Do fungicides really control all the diseases listed on the labels? This seminar will cover the basics of using organic and conventional fungicides, including the many factors to consider so you can get the best results from your fungicide applications, whether you use certified organic fungicides or conventional fungicides.

### **September 30**

#### **Preplant to replant: Fumigation in red raspberry, 11:00-11:30, Speaker: [Lisa DeVetter](#)**

Fumigation is a widely implemented practice to manage soil borne diseases and parasitic nematodes in the Washington red raspberry system. This presentation will provide an overview of fumigation in the raspberry system and research done to improve management of key soil borne pathogens with an emphasis on pre-plant management decisions.

#### **Fungicide resistance and proper rotation, 11:30-12:00, Speaker: [Anthony Keinath](#)**

Discussion of fungicide active ingredients by FRAC Code and managing spray programs to avoid resistance. Examples will be provided for fungicides used on common diseases on some primary vegetable crops grown in NW Washington.

### **October 7**

**Introduction to small fruit lepidoptera, 11:00 – 11:30, Speaker: Ben Diehl**

**Strategies for controlling lepidoptera in small fruit, 11:30 – 12:00, Speaker: Bev Gerdeman**

Small fruit are hosts for multiple pests including many lepidoptera. Damage may be direct/berries or indirect/foliar and larvae can contaminate harvest. This program will highlight their life cycles and biology and best approaches to control them. We will discuss insecticide applications and the potential for mating disruption in small fruit as a future tactic.

### **October 14**

**Know your weeds: Scotch broom and blackberry, 11:00-11:30, Speaker: Steven Seefeldt**

Where did these weeds come from and what are they doing on our farms? Learn about their biology and ecology while getting information on how to control them using old and new technologies.

**Pesticide transport in soil water, 11:30-12:00, Speaker: Gabe LaHue**

Implications of soil properties, soil-water relations, and subsurface water flows for pesticide fate and transport.

### **October 21**

**Controlling latent infections of black dot with early fungicide applications, 11:00-11:30, Speaker: Lydia Tymon**

*Colletotrichum coccodes* causes black dot, which can lead to reduced tuber yield and quality. Although this disease has been studied for many years, black dot continues to be a challenge to manage because the fungus can infect its hosts without causing symptoms. Chemical management tactics such as fumigation and in furrow applications have been shown to be ineffective. Applications of azoxystrobin prior to infection can significantly reduce incidence of sclerotia on stems and tubers while no significant reduction of stem disease incidence has been observed when treatments are applied post-infection. However, it is not clear how early infection of potato seed or plants occurs. This seminar will discuss the timing of latent infections in potato and how earlier fungicide applications affects disease progression.

**Using all the tools in the Fusarium management toolbox, 11:30-12:00, Speaker: Jeff Miller**

This presentation will discuss the disease cycle of Fusarium dry rot as it relates to seed piece decay and dry rot in storage. The importance of all management practices, including seed handling and fungicide seed treatment, will be discussed. The importance of understanding the Fusarium species causing disease and the difference in symptoms caused by the two primary Fusarium pathogens (*F. sambucinum* and *F. coeruleum*) will be addressed. A comparison of varieties and their susceptibility to Fusarium dry rot will also be covered. Fungicides referenced in this presentation include mancozeb dust, CruiserMaxx Potato Extreme, CruiserMaxx Vibrance, Emesto Silver, Quadris, Maxim, Maxim MZ, STartUP MANZ, STartUP Fludi, and Spirato.

## **October 28**

### **Epidemiology and integrated management of bacterial leaf spot caused by *Pseudomonas syringae* pv. *aptata* in table beet and Swiss chard seed production in the Pacific Northwest, 12:00-1:00, Speakers: [Marilen Nampijja](#) and [Stephanie Crane](#)**

Bacterial leaf spot (BLS) of beet and Swiss chard (*Beta vulgaris* subsp. *vulgaris*) is caused by the bacterial pathogen *Pseudomonas syringae* pv. *aptata* (Psa). The bacterium can cause significant economic losses in Swiss chard, table beet, and sugar beet. In 2017 alone, the incidence of BLS in New York table beet crops was 75%. Given the seedborne nature of this pathogen, the genetic similarity of strains of the pathogen to non-pathogenic strains of *P. syringae*, the host range of the pathogen (including crops in other plant families than Chenopodiaceae), a federally-funded research project on Psa was initiated in 2019. Over the next 4 years, 18 investigators from 9 institutions in 2 countries will work together to develop an economically-sound, integrated approach to manage BLS across seed and food production systems of host plants in the Chenopodiaceae and Cucurbitaceae, to ensure high-quality seed and food crops. The research objectives of this study include developing pathogen detection and quantification methods for testing seed and other inoculum sources, identifying primary sources of inoculum of Psa in table beet and Swiss chard seed and production fields, clarifying the disease cycle of Psa in different cropping systems and regions, breeding for resistance to BLS, and developing more effective integrated management programs for BLS. The management aspects include determining the location of the pathogen on/in seed, assessing the risks of seed transmission, and evaluating diverse seed treatments as well as in-field production practices to reduce the negative impacts of Psa on our ability to produce healthy Chenopodiaceae and Cucurbitaceae crops. Marilen Nampijja and Stephanie Crane will share information on their respective graduate research projects at WSU on BLS, and how stakeholders can contribute to the overall project.

## **November 4**

### **Predicting and managing the impacts of invasive insects, 11:00-12:00, Speaker: [Patrick Tobin](#)**

Expansion of global trade and trade has facilitated the arrival and subsequent establishment of non-native insects. Forest ecosystems are especially threatened by non-native insects due to the worldwide importance of solid wood packaging material used in global trade, the importation of lumber and wood products, and the importation of live trees for planting, all of which provide a mechanism on which an insect can 'hitchhike.' Fortunately, of the over 3,500 non-native insect species established in North America, only a small minority of them cause damaging impacts, which collectively exceed US\$70 billion each year. Predicting the rarer, higher-impact species from the more benign ones remains a challenge in invasive species management, and is critically important for developing mitigating and proactive control strategies. In this talk, I will summarize new research on predicting impacts from herbivorous non-native insects, even prior to their establishment. These findings highlight the importance of evolutionary history, as opposed to the traits of the insects, in driving the level of impacts that non-native insects cause. I will then focus on specific non-native insects that are currently present in the Pacific Northwest, and those that are at high risk for introduction into the Pacific Northwest, and how this new research can be used to enhance integrated pest management strategies against invasive insects.