BEGINNING FARMERS

IPM/Pollinators

Activity 1: Insect Investigator

In this "who done it" activity, students will learn to differentiate symptoms, signs, and basic appearances of caterpillars, beetles, stink bugs, aphids, leafhoppers, thrips, mites, and flies. Students will also learn how to collect and store insects for photography and send to a qualified entomologist or use a phone app.

KEY TERMS

Symptoms: Expressions from the plant, such as purpling, spots, bleaching, yellowing between the veins, discolored veins, wilting, twisting, puckering, lumps, bumps, holes, scrapes, etc.

Signs: Physical pieces or impressions left by an afflicting organism, such as frass, shed skins, spores, bacterial streaming, foot prints, trail cam footage, etc.

Economic Threshold: The point at which taking an aggressive reaction against a pest makes the most economic sense.

Weather Model: Programs that read weather data and perform calculations that determine the risk of problems from organisms that cause problems in plants.

SUPPLIES NEEDED

READ (click or scan QR code)
- Scouting and Identifying Vegetables for Insect Pests (42 pages)

BRING
- Pictures of your own with or without explanation of the issue
- Boots
- Hat
- Sunscreen
- Rain gear
- Water
- Notebook
- Writing utensil

How do you do this?

PRE-CLASS:
Step 1. Read the resource titled, "Scouting and Identifying Vegetables for Insect Pests". This combined University of Wisconsin and Purdue resource showcases approximate times to expect certain pests in vegetables, and what to look for when scouting.
Step 2. Come to session prepared to discuss observations of insect symptoms and signs on plants. Some pictures of insect symptoms and signs will be prepared for you, but please consider sharing any you may have as well.

IN-CLASS:
Step 3. Go outside to observe insects on crops. Together, practice grouping similar bugs and taking close up pictures. Do you have an insect identification app?
Step 4. Observe how to fill out an MSU Plant & Pest Diagnostics lab form and package properly for shipping.
Step 5. Fill out the evaluation.

What does it mean for my farm?

This section is for understanding and discussing the observations with a fellow farmer or educator. What do the observations indicate? How can the results help to improve farming practices?

- What kinds of insects make holes, scrapes, puckering, etc.?
- What are some beneficial insects?
- How can you improve your insect pest prevention?
- Is the hole all the way through the leaf?
- Did they leave anything behind, like frass, or eggs, or a cocoon?
- How big are the holes, or how much tissue is left?
- Is one aphid on one plant enough to justify a management action?
- Is it good to manage insects without ever looking for them?
- Some diseases, like viruses, are dependent on insects, like aphids and thrips, to infect plants. Some weeds are hosts to insect pests, like Colorado potato beetle on horsenettle, or leafminers in amaranths. Some nutrient stress symptoms can look like feeding damage from a piercing and sucking insect.

Evaluation

1. Circle how much you would agree with the following statements

- **The material covered was relevant to the my interests and objectives.**

  strongly disagree   disagree   neither agree nor disagree   agree   strongly agree

- **The facility was adequate for the educational sessions/hands-on field activities.**

  strongly disagree   disagree   neither agree nor disagree   agree   strongly agree

- **The presenters clearly delivered the material and fielded audience concerns/questions.**

  strongly disagree   disagree   neither agree nor disagree   agree   strongly agree

- **I learned useful material that I can implement on my operation.**

  strongly disagree   disagree   neither agree nor disagree   agree   strongly agree

- **I have gained resources that will help me find solutions to crop management challenges.**

  strongly disagree   disagree   neither agree nor disagree   agree   strongly agree

Evaluation

2. What did you like about the program?

3. What do you think can be improved about the program?