BEGINNING FARMERS

IPM/Pollinators

Activity 2: Nutrition Deposition

In this "eyewitness account" activity, students will learn how nutrients are used by plants, where plants show symptoms, what they look like, why toxicities and deficiencies occur, and when to expect them. Students will also learn how to collect, package, and mail representative soil and tissue samples to a diagnostics lab.

KEY TERMS

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

pH: A measurement of the amount of hydrogen in soil or water, indicating how acidic or basic it is.

Cation Exchange Capacity: A measurement of soil texture indicating how well nutrients and water will stay available to plant roots.

SUPPLIES NEEDED

READ (click or scan QR code)

- Plant Tissue Analysis and Interpretation for Vegetable Crops in Florida and Beyond (50 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, Plant Tissue Analysis and Interpretation for Vegetable Crops in Florida and Beyond. This University of Florida resource disucusses what nutrients do for plants, symptoms of nutrient-related issues, the procedures for sending samples, and interpreting the results.
Step 2. Come to session prepared to discuss observations of and factors contributing to nutrition issues in plants. Some pictures of nutrient-related issues will be prepared for you, but please consider sharing any you may have as well.

IN-CLASS
Step 3. Go outside to observe soils and foliage of crops. Practice taking a soil sample and/or tissue sample.
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 nutrients are mobile/immobile in plants, how does soil pH, and CEC affect nutrients?
- How can you improve your nutrient management?
- When is an appropriate time for fertilizing?
- What part of the plant is showing symptoms?
- Do we know anything about the soil or fertilizer applied?
- Is it actually a pathogen or insect?
- Are we close to the end of harvest?
- How much fertilizer is too much?
- How can irrigation or rain affect nutrition?
- Some nutrient stress symptoms can look like feeding damage from a piercing and sucking insect, and damaged tissue from nutrient stress can become an easy entry point for diseases. Some diseases are worse depending on the pH of the soil. For example, potato scab is worse in alkaline soils.

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?