

Crop Insects Curriculum



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These lessons introduce students to a variety of common crop insects to prepare them to identify these insects, see how insects damage crops, and a general perspective of what this damage means to the farmer.

Author



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Curriculum Structure

The *Crop Insects Curriculum* is composed of the following lessons. Approximate lesson times are included.

Lesson	Title	Approximate Time
One	Insects That Damage Crops	50 minutes
Two	Cause and Effect of 8 Common Crop Pests	50-60 minutes
	Total	2 hours

Lesson Structure

Each lesson begins with a Lesson Overview, Lesson Objectives, and a Lesson at a Glance table, which lists lesson activities, materials required, suggested preparation steps and approximate class time.

Lesson Sections

The actual lesson follows the overview, which contains some of the sections described below.

FOCUS

Every lesson begins with a FOCUS activity intended to capture participants' attention. This may be in the form of a small or large class discussion, a game, a demonstration, or a review of previous lesson information. During this activity, participants are introduced to the topic of the lesson.

LEARN

The LEARN activity in each lesson varies in its presentation mode. It may be a slide presentation, group activity, or demonstration.

REVIEW

The majority of lessons end with a REVIEW activity intended to briefly review the lesson's key messages or main points.

Lesson One – Insects That Damage Crops

Lesson Overview

Students will learn how insects damage crops along with a general perspective of what this damage means to the farmer.

Lesson Objectives

After completing this lesson, participants will be able to:

- Define the term “insect”
- List the number of major orders that insects fit into
- Name the four types of mouthparts
- Give an example of the damage caused by each mouthpart
- List the other forms of crop damage that insects cause
- Give an example of each form of crop damage caused by insects
- Describe economic consequences of crop damage caused by insects
- Define the difference between primary and secondary crop loss

Lesson at a Glance

Activity	Materials	Preparation	Approximate class time
FOCUS	• <i>Types of Insects Assessment</i> • <i>Types of Insects Assessment – Answer Key</i>	1. Print/photocopy the <i>Types of Insects Assessment</i> (one per participant). 2. Access the answer key.	10 minutes
LEARN	• <i>Common Crop Insects Notes Page</i> • <i>Insects that Damage Crops</i> slide presentation • <i>Common Crop Insects Notes Page – Answer Key</i>	1. Print/photocopy the <i>Common Crop Insects Notes Page</i> (one per participant). 2. Prepare <i>Insects that Damage Crops</i> slide presentation for viewing. 3. Access the notes page answer key.	30 minutes
REVIEW	• <i>Crop Insect Damage Quiz</i> • <i>Crop Insect Damage Quiz – Answer Key</i>	1. Print/photocopy the <i>Crop Insect Damage Quiz</i> (one per participant). 2. Access the answer key.	10 minutes

Lesson One – Insects That Damage Crops

FOCUS: Intro to Types of Insects

10 minutes

Purpose:

Students assess their prior knowledge of insects by taking an assessment.

Materials:

- *Types of Insects Assessment*
- *Types of Insects Assessment – Answer Key*

Facilitation Steps:

1. Distribute the assessment and go over the instructions.
2. Give students time to fill the assessment out.
3. Have students trade papers and go over the answers as a class.
4. Collect the assessments.

Name: _____ Class: _____

Types of Insects Assessment

Instructions: Circle the correct answer after each statement

1. Insects have five body segments. True or False
2. The mouth of an insect only contains chewing parts. True or False
3. Insect damage can cause a reduction in a plant's ability to produce its own food. True or False
4. Galls are not caused by insects. True or False
5. Insects can be plant disease vectors. True or False
6. Pest damage to crops does not increase labor costs. True or False
7. Primary crop loss occurs the same year of planting. True or False
8. Active transmission only occurs during mating. True or False
9. Cat-facing is not caused by insects. True or False
10. Translucent lines or blotches are an indication of an insect problem. True or False
11. Insects only feed on above-ground parts of plants. True or False
12. Misshaped or stunted fruit can be an indication of an insect issue. True or False
13. Insect flagging occurs when insects spray the plant to mark territory. True or False
14. There is no carryover of insect damage from one year to the next. True or False
15. An "infection court" is caused by an open wound on a plant the gets infected. True or False
16. Oviposition is a process by which insects lay their eggs on or in a plant. True or False
17. Post-harvest losses are not something that crop insects cause. True or False
18. Aphids are beneficial insects for any crop. True or False
19. Due to the cleanliness of insects, they never carry diseases to humans, animals, or plants. True or False
20. Insects belong to the Class Hexapoda. True or False

Types of Insects Assessment – Answer Key

1. Insects have five body segments. True or **False**
2. The mouth of an insect only contains chewing parts. True or **False**
3. Insect damage can cause a reduction in a plant's ability to produce its own food. **True** or False
4. Galls are not caused by insects. True or **False**
5. Insects can be plant disease vectors. **True** or False
6. Pest damage to crops does not increase labor costs. True or **False**
7. Primary crop loss occurs the same year of planting. **True** or False
8. Active transmission only occurs during mating. True or **False**
9. Cat-facing is not caused by insects. True or **False**
10. Translucent lines or blotches are an indication of an insect problem. **True** or False
11. Insects only feed on above-ground parts of plants. True or **False**
12. Misshaped or stunted fruit can be an indication of an insect issue. **True** or False
13. Insect flagging occurs when insects spray the plant to mark territory. True or **False**
14. There is no carryover of insect damage from one year to the next. True or **False**
15. An "infection court" is caused by an open wound on a plant the gets infected. **True** or False
16. Oviposition is a process by which insects lay their eggs on or in a plant. **True** or False
17. Post-harvest losses are not something that crop insects cause. True or **False**
18. Aphids are beneficial insects for any crop. True or **False**
19. Due to the cleanliness of insects, they never carry diseases to humans, animals, or plants. True or **False**
20. Insects belong to the Class Hexapoda. **True** or False

Lesson One – Insects That Damage Crops

LEARN: Common Crop Pests

30 minutes

Purpose:

Students will be introduced to common crop pests by watching a slide presentation while filling out a notes page.

Materials:

- *Insects That Damage Crops* slide presentation
- *Common Crop Pests Notes Page*
- *Common Crop Pests Notes Page – Answer Key*

Facilitation Steps:

1. Prepare the slide presentation and distribute the notes page.
2. Go over the notes page instructions and the slide presentation.
3. Collect the notes page from the students.

Instructions: Fill in the blanks as you listen to the slide presentation.

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8. Rasping mouthparts give the insect the ability to _____ the _____ of leaves, gently removing the top layer of the cells. This allows the insect to “drink up” the contents of the leaking cells.
9. What other types of crop damage are caused by insects?
10. What are the negative consequences of crop pests?
11. Crop loss is defined as:
12. Crop loss can also be defined as decreased _____ and _____.
13. Primary crop loss is defined as:
14. Secondary crop loss is:

Common Insect Pests of Crops Notes Page – Answer Key

1. What is an insect?

An insect is defined as any class (insecta) of arthropods that have a well-defined three segment body, only three pairs of legs and normally one or two pairs of wings.

2. The 3 segments of the body are **head**, **thorax**, and **abdomen**.

3. How are insects classified?

- **Crickets, Grasshoppers, Locusts: Orthoptera ("straight wings")**
- **Dragonflies, Damselflies: Odonata ("tooth")**
- **Aphids, Cicadas, Leafhoppers: Homoptera ("same wings")**
- **Bugs, Backswimmers, Water Striders: Hemiptera ("half wings")**

4. Why are certain insects harmful to crops?

- **Most of the damage to crops by insects is caused by direct feeding on above-ground and below-ground plant parts**
- **The type of feeding damage depends on the insect's mouthparts**

5. Insects with chewing parts include **beetles, grasshoppers, and caterpillars**.

6. Stem-boring insects can **deform** individual stems or the whole plant; they can also **kill** the plant.

7. Insects with sucking mouthparts include **aphids, scales, leafhoppers**, and **true bugs**.

8. Rasping mouthparts give the insect the ability to **scrape** the **surface** of leaves, gently removing the top layer of the cells. This then allows the insect to "drink up" the contents of the leaking cells.

9. Other types of crop damage caused by insect pests

- **Damage from Oviposition**
- **Damage from Plant Disease Transmission**
- **Accidental or Incidental Transmission**
- **Phoretic or passive transmission**
- **Active Transmission**

10. What are the negative consequences of crop pests?

On the surface, crop pests cost time/labor, increased expenses due to the cost of control methods, and crop loss.

11. Crop loss is defined as: **a loss in terms of quality and quantity of the crop in the field (pre-harvest) and in storage (post-harvest).**
12. Crop loss can also be defined as decreased **value** and **financial return**.
13. Primary crop loss is defined as: **loss that is suffered in the same year that the pest and/or disease injuries occurred.**
14. Secondary crop loss is: **a negative impact of the previous year affecting this year's crop.**

Lesson One – Insects That Damage Crops

REVIEW: Type of Crop Insect Damage

10 minutes

Purpose:

Students assess their knowledge of the lesson by taking a quiz.

Materials:

- *Crop Insect Damage Quiz*
- *Crop Insects Damage Quiz – Answer Key*

Facilitation Steps:

1. Distribute the quiz to students and go over the instructions.
2. Give students time to complete the quiz.
3. Collect the quiz.

Name: _____ Class: _____

Crop Insect Damage Quiz

Instructions: Circle the correct answer for each statement.

1. Insects are in the Class Tetrapoda. True or False
2. Different insects have different mouthparts to help them eat. True or False
3. Damage to crops by insects only occurs above ground. True or False
4. There are three ways egg laying damage shows up on crops. True or False
5. Primary crop loss occurs the same planting year. True or False
6. Crop pests do not increase labor cost for farmers. True or False
7. An insect with rasping mouthparts simply scrapes the surface of a leaf to expose the liquid they drink. True or False
8. Stem-boring insects only cause the plant to be deformed but can never kill the plant. True or False
9. Most insects fit into eight major orders. True or False
10. Signs that a sucking insect is causing a problem includes leaf curling, spotting or stippling of foliage, and stunted or misshaped fruit. True or False
11. Insects can spread plant disease. True or False
12. Observing plants cut off at ground level can be an indication of a chewing insect problem. True or False
13. There are five ways plant disease can be transmitted from one plant to another. True or False
14. Flagging occurs when eggs are laid in plant stems, killing the stems. True or False
15. Gall-forming insects cause the plant to grow abnormally in the location the insect was feeding. True or False
16. Cat-facing of fruit does not affect the fruit's marketability. True or False

17. Secondary crop loss is when a crop insect attacks the seedlings in the spring and another crop insect attacks plants before harvesting. True or False
18. Active transmission occurs when a plant disease enters an insect's body during feeding and is passed on to another plant through feeding. True or False
19. An "infection court" is a wound in a plant caused by an insect that creates an entry for plant disease without the disease being introduced by insects. True or False
20. Due to the cleanliness of insects, they never carry plant diseases on their bodies. True or False

Crop Insect Damage Quiz – Answer Key

Instructions: Circle the correct answer for each statement.

1. Insects are in the Class Tetrapoda. True or **False**
2. Different insects have different mouthparts to help them eat. **True** or False
3. Damage to crops by insects only occurs above ground. True or **False**
4. There are three ways egg laying damage shows up on crops. **True** or False
5. Primary crop loss occurs the same planting year. **True** or False
6. Crop pests do not increase labor cost for farmers. True or **False**
7. An insect with rasping mouthparts simply scrapes the surface of a leaf to expose the liquid they drink. **True** or False
8. Stem-boring insects only cause the plant to be deformed but can never kill the plant. True or **False**
9. Most insects fit into 8 major orders. **True** or False
10. Signs that a sucking type of insect is causing a problem includes leaf curling, spotting or stippling of foliage, and stunted or misshaped fruit. **True** or False
11. Insects can spread plant disease. **True** or False
12. Observing plants cut off at ground level can be an indication of a chewing insect problem. **True** or False
13. There are five ways by which plant disease can be transmitted from one plant to another. True or **False**
14. Flagging occurs when eggs are laid in plant stems, which causes the stem to die. **True** or False
15. Gall-forming insects cause the plant to grow abnormally in the location by which the insect was feeding. True or **False**
16. Cat-facing of fruit does not affect the fruit's marketability. True or **False**
17. Secondary crop loss is one that is caused when a crop insect attacks the seedlings in the spring and then another crop insect attacks plants before harvesting. True or **False**
18. Active transmission occurs when a plant disease enters an insect's body during feeding and is passed on to another plant through feeding. **True** or False

19. An “infection court” is a wound in a plant that is caused by an insect that creates an entry way for plant disease without the disease being introduced by insects. **True** or False
20. Due to the cleanliness of insects, they never carry plant diseases on their bodies. True or **False**

Lesson Two – Cause and Effect of 8 Common Crop Pests

Lesson Overview

Students will be introduced to eight common crop insects, their lifecycles, plants that they affect, and the type of damage caused by each insect.

Lesson Objectives

After completing this lesson, participants will be able to:

- List eight common crop insects
- Describe the damage caused by each crop insect
- Define “instar”
- Explain the lifecycle of each crop insect
- List plants that are affected by each crop insect

Lesson at a Glance

Activity	Materials	Preparation	Approximate Class Time
FOCUS	• 8 Common Crop Pests Assessment • 8 Common Crop Pests Assessment – Answer Key	1. Print/photocopy the 8 Common Crop Pests Assessment (one per participant) 2. Have the answer key available for reference.	10 minutes
LEARN	• Crop Insects Kit • Crop Insects Flashcards • Cause and Effect of 8 Common Crop Pests slide presentation • Who Is This? worksheet • Who Is This? – Answer Key	1. Print/photocopy the 8 Common Crop Pests Worksheet (one per participant) 2. Prepare the Cause and Effect of 8 Common Crop Pests slide presentation for viewing.	30-40 minutes
REVIEW	• 8 Common Crop Pests Quiz • 8 Common Crop Pests Quiz – Answer Key	1. Print/photocopy the 8 Common Crop Pests Quiz (one per participant). 2. Have the answer key available for reference.	10 minutes

Lesson Two – Cause and Effect of 8 Common Crop Pests

FOCUS: Intro to 8 Common Crop Pests

10 minutes

Purpose:

Students assess their current knowledge of the eight common crop pests by taking an assessment.

Materials:

- *8 Common Crop Pests Assessment*
- *8 Common Crop Pests Assessment – Answer Key*

Facilitation Steps:

1. Distribute the assessment to the students and go over the instructions.
2. Give students time to fill out the assessment.
3. Have students trade papers and go over the correct answers while students correct their peer's assessment.
4. Collect the assessments.

Name: _____ Class: _____

8 Common Crop Insects Assessment

Instructions: Circle the correct answer.

1. There are five types of cutworms that are classified by how they feed. True or False
2. The southern corn rootworm causes the most crop loss. True or False
3. Fecal matter from both nymph and adult garden fleahoppers on agricultural products does not affect the marketability of the product. True or False
4. Beet armyworms generally only overwinter in southern states. True or False
5. Certain species of stink bugs can be classified a beneficial insect. True or False
6. As the name implies, the corn earworm only attacks corn plants. True or False
7. The presence of a web can be an indication of a two-spotted spider mite. True or False
8. Stink bugs can cause “cat-facing.” True or False
9. The two-spotted spider mite affects over 200 species of plants. True or False
10. Seedcorn maggots only eat kernels off the cob. True or False
11. The corn rootworm is not very mobile, so it is hard from them to move from one field to another. True or False
12. Cutworms only feed during the day. True or False
13. The garden fleahopper is native to North America and Canada. True or False
14. Corn earworms are cannibalistic. True or False
15. There are two generations of corn rootworm per season. True or False
16. Symptoms of two-spotted spider mite can be confused with drought stress. True or False
17. Adults of the corn earworm emerge in the fall. True or False
18. The two-spotted spider mite is also called the flea beetle. True or False
19. Army cutworms eat one area bare and then move together to another field. True or False

8 Common Crop Insects Assessment – Answer Key

1. There are five types of cutworms that are classified by how they feed. True or **False**
2. The southern corn rootworm causes the most crop loss. True or **False**
3. Fecal matter from both nymph and adult garden fleahoppers on agricultural products does not affect the marketability of the product. True or **False**
4. Beet armyworms generally only overwinter in southern states. **True** or False
5. Certain species of stink bugs can be classified a beneficial insect. **True** or False
6. As the name implies, the corn earworm only attacks corn plants. True or **False**
7. The presence of a web can be an indication of a two-spotted spider mite. **True** or False
8. Stink bugs can cause “cat-facing.” **True** or False
9. The two-spotted spider mite affects over 200 species of plants. **True** or False
10. Seedcorn maggots only eat kernels off the cob. True or **False**
11. The corn rootworm is not very mobile, so it is hard from them to move from one field to another. True or **False**
12. Cutworms only feed during the day. True or **False**
13. The garden fleahopper is native to North America and Canada. **True** or False
14. Corn earworms are cannibalistic. **True** or False
15. There are two generations of corn rootworm per season. True or **False**
16. Symptoms of two-spotted spider mite can be confused with drought stress. **True** or False
17. Adults of the corn earworm emerge in the fall. True or **False**
18. The two-spotted spider mite is also called the flea beetle. True or **False**
19. Army cutworms eat one area bare and then move together to another field. **True** or False

Lesson Two – Cause and Effect of 8 Common Crop Pests

LEARN: Crop Pest Identification

30-40 minutes

Purpose:

Participants will read the scenarios in *Who Is This?* and come up with important facts about the scenario through research and inquiry-based learning.

Materials:

- Crop Insects Kit
- Crop Insects Flashcards
- *Cause and Effect of 8 Common Crop Pests* slide presentation
- *Who Is This?*
- *Who Is This?* – Answer Key

Facilitation Steps:

1. Go over the *Cause and Effect of 8 Common Crop Pests* slide presentation, displaying each model in the Crop Insects Kit as it is discussed.
2. Allow time for students to study the insects with the Crop Insects Flashcards.
3. Distribute the *Who Is This?* worksheet and either have each participant complete all scenarios or put participants into eight groups and assign each a scenario to complete.
4. If time allows, have participants present the information about the scenarios to the class.

Name: _____ Class: _____

Who Is This?

Instructions: Use the clues below, along with the slide presentation and manipulatives, to identify the culprit to each mystery, then learn more about each pest through the “questions to consider.”

Scenario 1: You see visible damage to your corn crop and are concerned about your production. You notice that the pest has a dark brown spot that is located midway along the outer edge of the front wing. You find some eggs in the corn silks in your field.

Questions to consider:

- What insect is making its presence known in your corn crop?
- What about this description helped you identify the culprit?
- Will your corn ears still be marketable in spite of the damage?

Scenario 2: You notice considerable damage to your soybean crop. You find eggs grouped in clusters of 20 to 30 eggs, which can be seen as yellow to yellow-red dots on the underside of leaves. The soybeans have sunken areas and deformed pods. The pest is off-white with reddish spots.

Questions to consider:

- What insect is making its presence known in your soybean crop?
- What about this description helped you identify the culprit?

Scenario 3: You live in Canada and have found damage to your soybeans and clover. The damage can be seen on the stems and leaves of the plants due to the insect sucking juices from the cells. This looks like whitish or yellowish speckling on the foliage. The pest is black with a hint of green on its legs and antenna.

Questions to consider:

- What insect is making its presence known in your soybeans and clover?
- What about this description helped you identify the culprit?
- In what stages can damage occur from this pest?

Scenario 4: You observe some damage to your cornfield, which shows gaps in the field rows. When you look closer you see pest larvae that are white or pale and legless with tapered bodies. Their mouths are black with hook-like mouthparts. This particular field had high levels of organic matter.

Questions to consider:

- What insect is making its presence known in your corn crop?
- What about this description helped you identify the culprit?
- Will this field likely have issues next year?

Scenario 5: You notice an infestation on several of your berry plants, including blackberries, blueberries, and strawberries. The plants' growth is stunted, and a few are dead. You also observe some webbing on the plants. Upon closer inspection, you see the pest is yellow to orange with one black spot on each side.

Questions to consider:

- What insect is making its presence known in your berry crop?
- What about this description helped you identify the culprit?
- Where will the damage occur on the plants?

Scenario 6: You crop farm in the Midwest and your corn crop has experienced severe damage. The adult beetle-like pests are feeding on green tissues of the corn plant leaves to the point where they appear to look like parchment. The damage appears scattered throughout the field.

Questions to consider:

- What insect is making its presence known in your corn?
- What about this description helped you identify the culprit?
- When do adult beetles emerge?

Scenario 7: It is spring, and you notice damage to your lettuce plants. You went to check on the lettuce plants several times but always notice the most damage in the morning. The plants tend to topple over. When you look for the pest, it appears to look like a caterpillar and tends to hide in the lettuce plant debris.

Questions to consider:

- What insect is making its presence known in your lettuce?
- What about this description helped you identify the culprit?
- In what stages do these pests **not** damage plants?

Scenario 8: You observe damage to your beetroot and cotton crops. Upon closer inspection, you find some pest larvae that have a darker dorsal area and a dark lateral stripe. These pests emerged as tiny caterpillars and seemed to destroy plants by eating them throughout the night.

Questions to consider:

- What insect is making its presence known in your beetroot and cotton crops?
- What about this description helped you identify the culprit?
- How many generations can be raised during the summer months?

Who Is This? – Answer Key

Scenario 1: You see visible damage to your corn crop and are concerned about your production. You notice that the pest has a dark brown spot that is located midway along the outer edge of the front wing. You find some eggs in the corn silks in your field.

Questions to consider:

- What insect is making its presence known in your corn crop? **Corn earworm**
- What about this description helped you identify the culprit? **The pest has a dark brown spot that is located midway along the outer edge of the front wing**
- Will your corn ears still be marketable in spite of the damage? **No**

Scenario 2: You notice considerable damage to your soybean crop. You find eggs grouped in clusters of 20 to 30 eggs, which can be seen as yellow to yellow-red dots on the underside of leaves. The soybeans have sunken areas and deformed pods. The pest is off-white with reddish spots.

Questions to consider:

- What insect is making its presence known in your soybean crop? **Stink bug**
- What about this description helped you identify the culprit? **Eggs grouped in clusters of 20 to 30 eggs, which can be seen as yellow to yellow-red dots on the underside of leaves, and the pest is off-white with reddish spots.**

Scenario 3: You live in Canada and have found damage to your soybeans and clover. The damage can be seen on the stems and leaves of the plants due to the insect sucking juices from the cells. This looks whitish or yellowish speckling on the foliage. The pest is black with a hint of green on its legs and antenna.

Questions to consider:

- What insect is making its presence known in your soybeans and clover? **Garden fleahopper**
- What about this description helped you identify the culprit? **The drop damage looks like whitish or yellowish speckling on the foliage and the pest is black with a hint of green on its legs and antenna.**
- In what stages can damage occur from this pest? **Both nymph and adult stages**

Scenario 4: You observe some damage to your cornfield, which shows gaps in the field rows. When you look closer, you see pest larvae that are white or pale and legless with tapered bodies. Their mouths are black with hook-like mouthparts. This particular field had high levels of organic matter.

Questions to consider:

- What insect is making its presence known in your corn crop? **Seedcorn maggot**
- What about this description helped you identify the culprit? **Gaps in the field rows, pest larvae that are white or pale and legless with tapered bodies, and mouths are black with hook-like mouthparts.**
- Will this field likely have issues next year? **Yes**

Scenario 5: You notice an infestation on several of your berry plants, including blackberries, blueberries, and strawberries. The plants' growth is stunted, and a few are dead. You also observe some webbing on the plants. Upon closer inspection, you see that the pest is yellow to orange with one black spot on each side.

Questions to consider:

- What insect is making its presence known in your berry crop? **Two-spotted spider mite**
- What about this description helped you identify the culprit? **You observe some webbing on the plants. The pest is yellow to orange with one black spot on each side.**
- Where will the damage occur on the plants? **Leaves**

Scenario 6: You crop farm in the Midwest and your corn crop has experienced severe damage. The adult beetle-like pests are feeding on green tissues of the corn plant leaves to the point where they appear to look like parchment. The damage appears scattered throughout the field.

Questions to consider:

- What insect is making its presence known in your corn? **Corn rootworm**
- What about this description helped you identify the culprit? **Beetle-like adult pests feeding on green tissues of the plant**
- When do adult beetles emerge? **Late June to early July**

Scenario 7: It is spring, and you notice damage to your lettuce plants. You went to check on the lettuce plants several times but always notice the most damage in the morning. The plants tend to topple over. When you look for the pest, it appears to look like a caterpillar and tends to hide in the lettuce plant debris.

Questions to consider:

- What insect is making its presence known in your lettuce? **Cutworms**
- What about this description helped you identify the culprit? **Caterpillar stage hiding in plant debris and doing most damage at night**
- In what stages do these pests **not** damage plants? **Moths nor adults cause plant damage**

Scenario 8: You observe damage to your beetroot and cotton crops. Upon closer inspection, you find some pest larvae that have a darker dorsal area and a dark lateral stripe. These pests emerged as tiny caterpillars and seemed to destroy plants by eating them throughout the night.

Questions to consider:

- What insect is making its presence known in your beetroot and cotton crops? **Beet armyworm**
- What about this description helped you identify the culprit? **Larvae that have a darker dorsal area and a dark lateral stripe and the pests emerged as tiny caterpillars**
- How many generations can be raised during the summer months? **Six**

Lesson Two – Cause and Effect of 8 Common Crop Pests

REVIEW: 8 Common Crop Pests Evaluation

10 minutes

Purpose:

Students demonstrate their understanding of the crop pest topic by taking a quiz.

Materials:

- *8 Common Crop Pests Quiz*
- *8 Common Crop Pests Quiz – Answer Key*

Facilitation Steps:

1. Distribute the quiz and go over the instructions.
2. Give students time to complete the quiz before collecting it from them.

Name: _____ Class: _____

8 Common Crop Pests Quiz

Instructions: Circle the correct answer for each statement.

1. The seedcorn maggot aids the corn kernels in seed germination. True or False
2. Beet armyworms are native to North America. True or False
3. There are only three species of plants that the two-spotted spider mite attacks. True or False
4. Corn earworm not only attacks corn but also cotton and tomatoes. True or False
5. All species of stink bugs are harmful to crops. True or False
6. While devastating, the corn rootworm only has one generation per year. True or False
7. Cutworms can be broken down into four groups, which are arranged by how they feed. True or False
8. All eight common crop pests are moved from one area to the next by weather events, such as rain and wind. True or False
9. The damage from the corn rootworm causes the plant to take in too much water and/or nutrients. True or False
10. The garden fleahopper does not use legumes as host plants. True or False
11. Beet armyworms overwinter in warm climates, such as Texas, Arizona, and Florida. True or False
12. Two-spotted spider mites only produce a web when there is a slight infestation. True or False
13. Corn earworm larvae tunnel into the ear of the corn to eat the kernels. True or False
14. Stink bugs can cause “cat-facing” on fruit, which makes it unmarketable. True or False
15. When it comes to seedcorn maggots, these little pests never cause a problem the following year. True or False
16. Cutworms only feed during the day. True or False
17. Corn rootworm beetles only feed on corn kernels. True or False
18. Females of the corn earworm lay their eggs in the leaves of the corn plant. True or False

8 Common Crop Pests Quiz – Answer Key

1. The seedcorn maggot aids the corn kernels in seed germination. True or **False**
2. Beet armyworms are native to North America. True or **False**
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Sources

1. (2024, June 28). *Featured Creatures: Common Name: Garden Fleahopper*. Retrieved from <https://entnemdept.ufl.edu/creatures/veg/leaf/fleahopper.htm>
2. (2024, June 28). *Corn Rootworms (Corn)*. Retrieved from <https://ag.purdue.edu/departement/entm/extension/field-crops-ipm/corn/corn-rootworms.html>
3. (2024, June 26). *Featured Creatures: Common Name Beet Armyworm*. Retrieved from https://entnemdept.ufl.edu/creatures/veg/leaf/beet_armyworm.htm
4. (2024, June 27). *Iowa State University Extension and Outreach Integrated Crop Management: Seedcorn Maggot*. Retrieved from <https://crops.extension.iastate.edu/encyclopedia/seedcorn-maggot>
5. (2024, June 26). *University of Minnesota Extension: Two-spotted Spider Mites in home gardens*. Retrieved from <https://extension.umn.edu/yard-and-garden-insects/spider-mites>
6. Cerda, Rolando., Avelino, Jacques., Gary, Christian., Tixier, Philippe., Lechavallier, Esther., & Allinne, Clementine. (2024, June 27). *Primary And Secondary Yield Losses Caused By Pests And Diseases: Assessment And Modeling In Coffee*. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5207401/>
7. (2024, June 29). *The Eight Major Orders of Insects*. Retrieved from https://ivycreekfoundation.org/docs/23.Insect_Orders_.pdf
8. Barbercheck, Mary E. (2024, June 26). *Ecological Understanding of Insects in Organic Farming Systems: How Insects Damage Plants*. Retrieved from <https://eorganic.org/node/3151>
9. (2024, June 29). *University of New Hampshire: Cutworm Factsheet*. Retrieved from <https://extension.unh.edu/resource/cutworms-fact-sheet>
10. (2024, June 29). *University of Minnesota Extension: Cutworms*. Retrieved from <https://extension.umn.edu/yard-and-garden-insects/cutworms>
11. (2024, June 30). *PennState Extension: Brown Marmorated Stink Bug*. Retrieved from <https://extension.psu.edu/brown-marmorated-stink-bug>
12. (2024, June 30). *Virginia Tech: Stinks Bugs, The good, the bad, and how to get rid of them*. Retrieved from https://news.vt.edu/articles/2023/10/stink_bugs_expert.html
13. (2024, June 30). *PennState Extension: Corn Earworm*. Retrieved from <https://extension.psu.edu/corn-earworm>