

Project 8.1.1 Cause and Infect

Purpose

Just days before the fruit ripened on the blueberry bush, thieves raided and picked every berry from the plant. All that remains are a few scattered and damaged berries lying on the ground below the bush. What, besides humans, could have stolen all of the fruit?

Certain types of pests cause specific damage to plants. Knowledge of the various ways different pests damage plants provide clues for determining the pest that is causing problems. There are so many plant pests it is impossible to list them all. However, pests have specific ways they feed or damage plants. How can you determine what is causing damage to plants? How can you stop the damage from happening?

Materials

Per pair of students:

- Computer with word processing, electronic poster software, and Internet access
- Poster board (optional)
- Markers (optional)
- Colored pencils (optional)
- Glue sticks (optional)
- Scissors (optional)
- Tape (optional)

Per student:

- Pencil
- *Agriscience Notebook*
- *Project 8.1.1 Evaluation Rubric*

Procedure

You will examine categories of pests, anatomical features, damage pests cause, and how to control pests.

1. Your teacher will assign a plant pest you and your partner.
2. Research the distinguishing characteristics of the pest and how to protect plants from insect destruction. Your research will need to answer the following questions.
 - What are the anatomical features of this pest?
 - What damage does this pest cause to plants?

- What are the most appropriate ways to control or deter this pest from damaging plants?
3. Your instructor will review the procedure for the creation of a poster and *Project 8.1.1 Evaluation Rubric* before beginning the project.
 4. Develop a poster describing the pest and control methods. Your poster should include the following components.
 - Title – including the name of your pest category
 - A list of common species that fall into your pest category
 - A picture illustrating an example of your pest clearly showing distinguishing characteristics
 - A list of potential damage your pest will cause
 - A picture of signature damage caused by your pest
 - A list of appropriate methods to control or deter your pest
 - A picture demonstrating a control or deterrent method

Reference Sources for Research:

Herren, R. V. (2004). *The science of agriculture: A biological approach* (2nd ed.). Albany, NY: Delmar.

Iowa State University Extension: Yard and Garden – Weeds and Pests:

<http://www.extension.iastate.edu/yardgarden/weedspests/>

Parker, R. (2010). *Plant and soil science: Fundamentals and applications*. Clifton Park, NY: Delmar.

Reiley, H. E., & Shry, C. L. (2007). *Introduction to horticulture* (7th ed.). Clifton Park, NY: Delmar.

Ohio State University: Plant Disease Series Index: <http://ohioline.osu.edu/hyg-fact/3000/>

Ohioline Yard and Garden: Insects and Pests: <http://ohioline.osu.edu/lines/pests.html>

Pest Tracker: National Agricultural Pest Information System:

<http://pest.ceris.purdue.edu/index.php>

Purdue University: Purdue Plant and Pest Diagnostic Laboratory:

<http://www.ppdl.purdue.edu/PPDL/>

Texas A&M: Plant Pest Identification Aid: <http://vegetableipm.tamu.edu/imageindex.html>

USDA: Animal and Plant Health Inspection Service:

http://www.aphis.usda.gov/plant_health/plant_pest_info/index.shtml

5. When all posters are complete, your teacher will have you share your information with the class. As you view other groups' posters, fill in Table 1 on the student worksheet.

Conclusion

1. How do pests differ?

Different pests cause different damage.

2. What are some general practices that will protect a crop from multiple categories of pests?

Having predators of pests in or around a crop.

3. List the different ways pests cause damage to plants. Which would cause the most severe damage or plant death? Why?

Pests can either suck or chew on a plant. I personally think chewing is the most severe because that leaves the plant more exposed to potential dangers

4. Which types of pests are most common in your area or region?

Birds, vertebrates, insects

5. What is the difference between preventing damage and eradicating pests after damage has occurred?

Preventing damage is a lot easier and you can get a better result.

Eradicating pests is killing off pests that can just come back.

Name: _____

Project 8.1.1 Student Worksheet

Table 1. Pest Categories and Descriptions

Pest Category	How Damage is Caused	Common Species	Control Methods
Chewing Insect	Holes in leaves Poop and decay Eat plant tissue	Beetles Bees Ladybugs Moths	Install barriers Install traps Soap and oil
Sucking Insect	Spread diseases Suck nutrients which causes cellular collapse	Whiteflies Leaf hopper Stink bug Spider mites Aphids	Ladybugs Soap and water spray Aluminum foil mulch
Boring Insect	Attack trees Attack tissue that carries water Damage wood	Ambrosia beetle Bronze birch borer Cottonwood	Remove dead lumber
Weed	Invade crops Smother pastures Harm live stock Poor crop quality	Hare barely Perennial grass Pineapple weed Green foxtail	Pull them Kill them Spray them
Vertebrate Animal	Eat bark leaving tree exposed Eat garden vegetables	Desert cottontail Jack Rabbit	Putting up fences/traps Rabbit repellent

Bird	Feast on crops Negatively affect soil conditions	Pigeon Starling Sparrow Crow Woodpecker	Mesh nets Electronic sounds Spray Repellent Flash tape Plastic bird spikes
Mollusk	Large ragged holes in tender leaves and flowers	Snails Slugs	Encourage predators Traps Chemical warfare
Nematode	Feed on roots of plants	Ascaridid Secerentea Chromadorea Enoplea Adenophorea	Sanitation Crop rotation Soil solarization