

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?

Pests can differ how they affect plants, size, and how they eat plants.

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

You can find the proper bug spray that won't kill the plants too. Also, maintain the pests they don't get to out of hand.

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

- 1) They can kill the plants, and put holes in leaf's.
- 2) 2) They ruin the fruit by putting holes in them.
- 3) They damage roots in the plants, and they holes in the wood. Sucking insects

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

Scorpions, centipedes, rodents, pack rats, mice

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

One is a learning something and one of them is just letting it die.

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 | It put holes in leaf's, and eats plant tissue. It also puts holes in vegetables or fruit. | Armyworm Ladybug Fire ant Weevil beetle Cate | Add vinegar and water to wash away the trail. You can spread beneficial nematodes or botanical insecticide. (Spray) |
| Sucking Insect | feeding can cause spotting or stippling of foliage, leaf curling, and stunted or misshapen fruits. | Black and red frog hopper Blue stink bugs Cabbage whitefly Red cotton bugs Squash bug Ash plant bugs Watercress | Trap cropping and install barriers. Dabbing individual pests with an alcohol soaked cotton swab or neem-based leaf shine will work when infestations are lights |
| Boring Insect | They attack mainly trees, and attacks the tissue that carries water. Also, dead trees and lumber live upon them ,and they damage wood | Wood borer The vinegaroon Coleoperta Pab verde borer | Remove dead lumber, and trees. Also, clean up dead leaf's |
| Weed | Clogs irrigation and drainage canals Invade crops and reduce crop yields Also, reduces farming/ forest productivity | Hare barley Green foxtail Prickly lettuce Cleavers Barnyard grass Carpet weed | Pull them out or kill themby spraying them, and using heribicides |

| | | | |
|--------------------------|---|---|--|
| Vertebrate Animal | <p>Fruit is eaten and open burrow entrances.</p> <p>Irrigation lines are destroyed, and food is stripped.</p> | <p>Rabbits</p> <p>Ground squirrels</p> <p>Deer</p> <p>Birds</p> <p>Pocket gophers</p> <p>House Mice</p> | <p>Get rid of any standing water, and be careful not to over water leaving extra water for possible pests. Also, trapping the animals can kill them.</p> |
| Bird | <p>Damages trees by making a hole in wood, and eats crops</p> <p>They can carry diseases, and can affect soil conditions.</p> | <p>Crows</p> <p>Finches</p> <p>Woodpecker</p> <p>Pigeon</p> <p>Starling</p> <p>Sparrow</p> | <p>Electronic sounds, and spray repellent.</p> <p>Also, cover the field with netting and chicken wire can be laid over a seed bed.</p> |
| Mollusk | <p>Large ragged holes in tender leaves, and flowers</p> <p>Damage during Spring before many insects are active.</p> | <p>Snails</p> <p>Slugs</p> | <p>Use traps or chemical warfare.</p> <p>Also, go picking or encourage predators.</p> |
| Nematode | <p>They feed on the roots of the plants, and since the roots are damaged roots can't absorb water and nutrients.</p> | <p>Enoplea</p> <p>Ascaridid</p> <p>Adenophorea</p> <p>Parasitic</p> <p>Secernentea</p> | <p>Crop rotation and solarization.</p> |