



FOOD FARM S & the FUTURE

is an educational program that teaches the importance of good nutrition, the science of agriculture and environmental sustainability. The exciting livestream you and your students experienced can be enhanced by using these lesson plans, as well as the other educational materials found on www.foodfarmsandfuture.com.

This lesson focuses on invasive insect species. Invasive species can have serious impacts on farming and agriculture. It is important to know what defines an invasive species and some of the effects they have on modern farming. They can push out native species, place other species at risk of extinction, reduce biological diversity, kill forest trees and damage crops.

Allowing students to explore farming and agriculture can be a great introduction to the science of farming. Today's farmers need to have extensive knowledge in technology, biology, meteorology and entomology.



HUNGRY PESTS

Target Audience

Students in middle and high school Family and Consumer Science classes

Objective

Students will learn about invasive species: what they are, the threats they pose and damages they can cause.

How to Use This Program

Make copies of the handout. Prepare the materials for the activity in advance.

Purpose of Activity

Review, Identify Details, Apply Skills

21st Century Skills

Critical Thinking

Cognitive Level

Strategic and Extended Thinking

Class Time

45 minutes

Materials

- Chart paper
- Markers
- Student Handout: *Attack of the Invasive Species*

Teaching Hungry Pests

Introduce the concept of invasive species to students by having them draw upon existing knowledge about pests from real-world experience. Post the following questions on chart paper around the room:

- What is a pest?
- What does invasive mean?
- What are species?
- What are invasive species?

Ask students to move around the room and write a response for each prompt. After each student has visited each prompt, ask for a student representative to summarize the responses. Make sure students understand that invasive species can be plants, animals or pathogens that are not native to an ecosystem and are likely to cause harm. In the following lessons, students will focus on invasive plant pests and diseases. Alert students to the fact that invasive pests might even be found in their own backyards!

To provide students with more information on invasive species, have students read the *Attack of the Invasive Species* fact sheet.

After students have read the fact sheet, they can complete the student handout with the following exploratory questions to help them summarize the informational text.

1. What are invasive species?
2. Why are invasive species threatening?
3. How do invasive species travel?
4. What are some ways individuals can stop the spread of invasive species?

After students complete the handout, review each question and call on students to share their answers. Have them generate a list of any unanswered questions they still have about invasive species. Keep the list visible in the classroom for students to reference, and have them answer the questions as they learn more about invasive pests in future activities.



ATTACK OF THE INVASIVE SPECIES

FACT SHEET



The United States is under attack from alien invaders, but they're not from outer space. They're foreign plant pests, diseases and weeds, and they're feasting on and infesting America's agricultural and natural resources. They all have one other thing in common: They are causing or are likely to cause harm to the economy, the environment or human health. Some pests, such as the imported fire ant, threaten plant, animal and human health.

Just how damaging are invasive species to America's farmland and natural ecosystems? These hungry pests grow and spread rapidly, disrupting the areas they invade by:

- Pushing out native species
- Reducing biological diversity
- Killing forest trees
- Placing other species at increased risk of extinction
- Altering wildfire intensity and frequency
- Damaging crops

- Closing foreign markets to U.S. products from infested areas
- Costing millions of dollars in treatments to industry and government

How Do They Get Here?

Most invasive species get some help from human activities. They are brought into the country and released intentionally, or they are moved and released as an unintentional byproduct of cultivation, commerce, tourism or travel.

Many species enter the United States each year in cargo, mail and passenger baggage or as contaminants of commodities. Agricultural produce, nursery stock, cut flowers and timber can harbor insects, disease-causing microorganisms, slugs and snails. These pests can also hitchhike on containers, crates or pallets. Weeds continue to enter the United States as seed contaminants.





What You Can Do to Fight These Invaders

Based on your outdoor hobbies or your occupation, there are many specific actions you can take. See the following lists for details.

Hikers, bikers, campers and outdoor enthusiasts:

- To avoid spreading seeds of invasive plants, learn to recognize infestations and avoid passing through them.
- Clean equipment, boots, animals and gear between trips, or preferably before leaving an infested area. Make sure to remove all seeds and other plant parts.
- Always use weed-free hay and feed for your animals.
- Don't move firewood. Buy or use firewood that is close to your campsite.

Hunters:

- Use only native plants for food plots. Native plants provide much better food and cover for wildlife.
- Clean your boots, hunting gear, truck bed and tires after a hunting trip to make sure you are not spreading seeds, insects or spores to a new location.
- Don't move firewood. Buy or use firewood that is close to your campsite.

Gardeners:

- Go native! There are a wide variety of beautiful, easy-to-care-for native plants available. Look for an alternative plant list for your state or region.
- Remove invasive plants from your garden.
- Until you are able to rid your garden of invasive

plants, be responsible and remember to remove and destroy seed heads before they can spread.

- Talk to other gardeners about invasives and how you plan to help in the fight against them.
- If you are worried that your garden will lose its luster after removing invasives, talk to your local native plant society or exotic pest plant council. These organizations will be able to suggest suitable native replacements.

Bird watchers:

- To avoid spreading seeds of invasive plants, learn to recognize infestations and avoid passing through them.
- Clean equipment, boots and gear between trips or preferably before leaving an infested area. Make sure to remove all seeds and other plant parts.
- Change the water in bird baths often to prevent mosquitoes from breeding.

Ranchers and farmers:

- Clean your boots, gear, truck bed, tires and harvesting equipment after working a site to make sure you are not spreading seeds, insects or spores to a new location.
- Be sure to control invasive plants along fencerows, ditches and other areas adjacent to fields.
- Always use weed-free hay and feed for your animals.
- Remove or eliminate from your property any junk piles or other places bees can nest.

Source:

www.aphis.usda.gov/publications/plant_health/content/printable_version/fs_attack_of_the_invasive_species.pdf

INVASIVE SPECIES

STUDENT
HANDOUT



Directions:

After reading the *Attack of the Invasive Species* fact sheet, answer the following questions about invasive species. Remember to use textual evidence.

1. What are invasive species?

2. Why are invasive species threatening?

3. How do invasive species travel?

4. What are some ways people can stop the spread of invasive species?
