

Lesson 2

Animals: Field to Factory

[Lesson Duration: 55 minutes]

National Education
Standards Alignment

Social Studies

Science

Health



Lesson Overview

Students will explore how animals are raised for food in the industrial system, and how it impacts human health and ecosystems. They will also look at ecological alternatives to **industrial food animal production (IFAP)**—such as pasture-based production—and consider the advantages and disadvantages of each system.



Learning Objectives

- Explain how food animals are produced in the industrial system.
- Describe the pros and cons of IFAP.
- Identify ways to mitigate the negative impacts of IFAP or move to alternative forms of production.



Essential Questions

- What are the impacts of IFAP on human health and the environment?
- What can be done to raise animals in ways that are more sustainable and humane?



Materials

- Student handout
- Presentation slides
- *Industrial Food Animal Production* primer
- FoodSpan Infographic



Resources

- *Out to Pasture* film (www.foodspan.org/films/out-to-pasture.html)
- *Industrial Food Animal Production* primer (www.foodsystemprimer.org/food-production/industrial-food-animal-production/)



Teacher Note: Refer to Lesson B for background on the industrialization of agriculture.

Warm-up: U.S. Animal Product Consumption

Social Studies
[5 minutes]

Instruct students to think about any two meals they ate this week and write down the foods they consumed. After they complete their lists, have students circle items that contain animal products (meat, dairy, eggs, seafood). Ask: *How frequently do animal products show up in your diet? What role, if any, do animal products play in your cultural food traditions or your family's food habits?*

The intent is to show that these products make up a large portion of most Americans' diets. Display the **Global Animal Product Consumption slide** and ask: *What does this chart tell you about animal product consumption in the U.S.?* Students should note that Americans consume much higher amounts of animal products than people in other countries.

Main Activity: Pros and Cons of IFAP

Science, Health, Social Studies
[10 minutes]

Students will explore the pros and cons of industrial food animal production (IFAP). Display the **Industrial Food Animal Production slide**, which contains images of chickens raised for meat, laying hens, hogs, and beef cattle. Draw a "Pros & Cons of IFAP" list on the board, and ask for a volunteer to take notes. Begin by asking students to consider pros: *What might be some benefits to these production methods? Why do food animal operations like these exist?*

After hearing several student responses, display the **Animal Product Prices slide** and ask: *What does this chart tell us about the benefits of IFAP?* Students should understand that IFAP has been credited with lowering the retail prices of animal products and may be more efficient than pasture-based methods in terms of speed, labor, and land.

Display the **Industrial Food Animal Production slide** again and ask: *What might be some negative impacts of IFAP?* Add responses to the board. Responses may include air and water pollution, the spread of disease, and animal welfare harms. Students will explore these issues in more depth in the next activity.



Teacher Note: Be mindful of the fact that animal products play an important role in many cultures. While IFAP has many negative impacts, the goal of this lesson is to foster inquiry and critical engagement, not to denigrate students' backgrounds.

Main Activity: Jigsaw Cooperative Learning: Impacts of IFAP

Science, Health, Social Studies
[25 minutes]

Divide students into five “expert groups” and assign each one of these topics:

- Waste Management
- Antibiotic Resistance
- Community Impacts
- Worker Health and Justice
- Animal Welfare

Distribute the **Industrial Food Animal Production primer** to each expert group and ask them to read the section that pertains to their topic. Instruct students to consolidate the information into no more than four main points as a group. Have students record these points on the **Impacts of IFAP Handout**.

Then rearrange the “expert groups” into “sharing groups.” Each sharing group should have at least one student from each expert group. If the number of students does not allow for even distribution of group members, groups can have more than one “expert” for a topic. Each expert will share their main points and students in sharing groups will record this information on their handouts.

Emphasize that while the retail prices of animal products may be lower than they were in the 1950s, many of the negative impacts of IFAP, such as pollution and disease, are not captured in the price tag.

“The problem with living in a fast-food nation is that we expect food to be cheap.”

- Alice Waters



Teacher Note: See Lesson 5 for livestock’s contributions to climate change.

Main Activity: Ecological Production

(Science, Health, Social Studies)
[10 minutes]

Display the **Ecological Production slide** and explain that a very small percentage of animal products in the U.S. are from farms that use ecological approaches. These typically involve raising animals outdoors, at lower densities, and on diverse farms that cultivate a variety of crop or animal species. Well-managed pasture-based farms avoid many of the problems of IFAP, offer farmers greater autonomy, and allow animals to express their natural behaviors.

Ask students to consider the images on the slide and reflect on these questions:

- Do the benefits of IFAP outweigh the negative impacts?
- How could we change IFAP to mitigate the negative impacts?
- If we were to shift toward ecological approaches to raising animals for food, how would we achieve this?

Wrap-up: Changing How Animals Are Raised for Food

[5 minutes]

Have students write a journal entry in response to the prompt: *What, if anything, should be changed about the way animals are raised for food? How can farmers, citizens, communities, and governments help bring about those changes?* Optional: Have students share their responses

“Once plants and animals were raised together on the same farm—which therefore neither produced unmanageable surpluses of manure, to be wasted and to pollute the water supply, nor depended on such quantities of commercial fertilizer. The genius of American farm experts is very well demonstrated here: They can take a solution and divide it neatly into two problems.”

– Wendell Berry,
farmer and author



Teacher Note: Ecological approaches to raising animals are further explored in Lesson 6 and the short film, *Out to Pasture* (see extension, on the next page).

Extensions:

Revisiting the Infographic (Social Studies)

Distribute copies of the **FoodSpan Infographic** (students may already have their own from previous lessons). Ask students to identify parts that represent food animal production. Ask: *Do these accurately and fully represent what we learned about food animal production? If not, what could we add to make the infographic more accurate?* Working individually or as a class, have students draw their own versions, create a collage, or add images to the existing infographic. Share photos of students' work on social media and tag #foodspan.

Film: Out to Pasture (Science, Health, Social Studies)

The Johns Hopkins Center for a Livable Future's original short film, *Out to Pasture* (www.foodspan.org/films/out-to-pasture.html) (34 minutes), explores alternatives to IFAP through the eyes of rural communities and pasture-based farmers. A discussion guide is provided. The film is developmentally appropriate for high school students and does not contain graphic imagery.

Food Animal Production: Research Project (Science, Health, Social Studies)

Students will choose an animal product (e.g., beef, poultry, pork, dairy, eggs) and research industrial and pasture-based approaches to producing it. In a report and/or presentation, students should summarize historical trends in that industry; potential impacts to people, animals, and the environment; state or federal policies that affect production methods; and recommendations on how the industry should change, if at all. The **Industrial Food Animal Production primer** provides a list of resources that serve as a good starting point.

Supermarket Survey (Social Studies, Health)

Students will survey their local supermarkets and food stores to investigate what kind of animal products are available and how financially accessible they are. Students will investigate: *What kinds of animal products are sold? Are organic or pasture-based options available? What are the price differences between these and conventional versions of those products? What does this tell us about the accessibility of animal products that are raised in a more sustainable and/or more humane way? What costs of production in the industrial system are not included in the retail price?*

Meatless Monday Challenge (Social Studies)

To experiment with reducing their consumption of animal products and therefore their impact on public health, the environment, and animals, students will go meatless for one day (preferably Monday). Or, they can kick it up a notch by cutting out all animal products for a week. Students will write a reflection paper addressing the following: *Was it easy to give up meat? Why or why not? What did you replace meat with in your diet? Is giving up meat an effective strategy for lessening IFAP's negative impacts? What is the role of dietary choices in improving the food system?*



Share Your Knowledge: How does IFAP affect human health and the environment? How can we address the negative impacts of IFAP? Ask students to tweet their reflections and tag **#IFAP**, **#foodanimals**, and **#foodspan** to join the conversation.