

<b>Course</b>	Agricultural Science I
<b>Unit</b>	Introduction to Swine Production
<b>Lesson</b>	Industry Concerns
<b>Estimated Time</b>	50 minutes

### Student Outcome

Assess issues concerning the swine industry.

### Learning Objectives


1. Identify consumer concerns.
2. Explain how manure nutrients are managed on swine farms.
3. Explain the difference between animal rights and animal welfare.
4. Explain how the swine industry is addressing consumer concerns.

### Grade Level Expectations

SC/ST/1/B/09-11/a	SC/ST/1/C/09-11/a	SC/ST/3/B/09-11/a
SC/ST/3/B/09-11/b	SC/ST/3/B/09-11/c	SC/ST/3/D/09-11/a

### Resources, Supplies & Equipment, and Supplemental Information

#### Resources

1. Activity Sheet
  -  AS 1 – Debate – Swine Production and the Environment
2. *Introduction to Swine Production (Student Reference)*. University of Missouri-Columbia: Instructional Materials Laboratory, 1997.
3. *Introduction to Swine Production Curriculum Enhancement*. University of Missouri-Columbia: Instructional Materials Laboratory, 2003.

#### Supplemental Information

1. Internet Sites
  - ☐ “Conservation and the Environment.” National Pork Producers Council. Accessed July 17, 2007, from [http://www.nppc.org/hot\\_topics/environment.html](http://www.nppc.org/hot_topics/environment.html).
  - ☐ “Gasses and Odors from Swine Waste.” MU Extension. University of Missouri-Columbia. Accessed July 17, 2007, from <http://extension.missouri.edu/explore/agguides/agengin/g01880.htm>.
  - ☐ “Livestock Confinement Dust and Gasses.” University Extension. Iowa State University. Accessed July 17, 2007, from <http://www.cdc.gov/nasd/docs/d001501-d001600/d001501/d001501.html>.
  - ☐ “Livestock – Pork Production.” Extension Service. Mississippi State University. Accessed July 17, 2007, from <http://msucares.com/livestock/swine/index.html>.
2. Print
  - ☐ *Guide to Environmental Quality in Pork Production*. Des Moines: National Pork Producers Council, 1993.
  - ☐ *Pork Issues Handbook*. Des Moines: National Pork Producers Council, 1996/1997.
  - ☐ *Pork Quality Assurance I, II, III*. Des Moines: National Pork Producers Council, 1994.

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❑ *Swine Care Handbook*. Des Moines: National Pork Producers Council, 1996.

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### Interest Approach



Ask students whether they would like a large confinement operation to be built near their homes. Discuss the responses.

### Communicate the Learning Objectives

1. Identify consumer concerns.
2. Explain how manure nutrients are managed on swine farms.
3. Explain the difference between animal rights and animal welfare.
4. Explain how the swine industry is addressing consumer concerns.

Instructor Directions	Content Outline
<b>Objective 1</b>  <i>Ask the class to list current consumer concerns about swine production. Record the responses and discuss each of them.</i>	<b>Identify consumer concerns.</b>  <ol style="list-style-type: none"><li>1. Effect on the environment<ol style="list-style-type: none"><li>a. Odor emission</li><li>b. Pollution of ground water and waterways from untreated wastes in leaking storage facilities</li></ol></li><li>2. Safety of pork - residues from antibiotics</li><li>3. Animal welfare<ol style="list-style-type: none"><li>a. Amount of room given to each animal</li><li>b. Number of pigs in each building</li><li>c. Failure of temperature regulation</li><li>d. Inability to escape fire</li></ol></li><li>4. Animal rights</li></ol>
<b>Objective 2</b>  <i>Ask students how wastes are used on swine farms. Next, ask how producers manage the nutrients contained in the wastes. Emphasize that producers have to manage the nutrients contained in manure to prevent groundwater contamination from nutrient leaching. List the management steps.</i>	<b>Explain how manure nutrients are managed on swine farms.</b>  Storage <ol style="list-style-type: none"><li>1. Lagoon<ol style="list-style-type: none"><li>a. Similar to a pond</li><li>b. Designed to catch runoff from outside animal lots or to hold waste piped from buildings</li><li>c. Stores waste while the solids are broken down by bacteria into liquid and gases</li><li>d. Must be sealed to prevent leaking and may require a liner in some soils</li><li>e. Must be approved by the Department of Natural Resources before construction</li></ol></li><li>2. Pit structure<ol style="list-style-type: none"><li>a. Concrete pits two to eight feet deep found directly below the confinement building</li><li>b. Collect and store liquid and solid wastes that drop through the slotted floor of the building</li></ol></li></ol>

Instructor Directions	Content Outline
	<ul style="list-style-type: none"> <li>c. Conserves nutrients during storage</li> <li>d. Must be sealed with no leaks</li> </ul> <p>Land application</p> <ul style="list-style-type: none"> <li>1. Irrigation <ul style="list-style-type: none"> <li>a. Involves pumping liquid waste through sprinklers on top of the ground</li> <li>b. Should be monitored constantly to ensure that waste is not leaking from the equipment and causing runoff</li> <li>c. Preferably done in spring and summer</li> </ul> </li> <li>2. Injection <ul style="list-style-type: none"> <li>a. Mechanical procedure involving injecting, or “knifing,” the waste into the soil</li> <li>b. Places manure directly under the soil surface, allowing nutrients to be used more effectively by plants</li> <li>c. Reduces odor and runoff but is more time consuming and labor intensive</li> </ul> </li> </ul> <p>Maintaining a stable nutrient balance - Involves testing the soil for nutrient composition and testing the waste for nutrient content, allowing the producer to gauge how much liquid waste can be applied</p>
<p><b>Objective 3</b></p> <p><i>Have students explain the difference between animal welfare and animal rights. Discuss the importance of providing for the welfare of animals from the producer’s perspective.</i></p>	<p><b>Describe the difference between animal rights and animal welfare.</b></p> <p>Animal rights</p> <ul style="list-style-type: none"> <li>1. Belief that animals should not be used as resources by humans</li> <li>2. Belief that animals should have the same rights as humans</li> </ul> <p>Animal welfare</p> <ul style="list-style-type: none"> <li>1. Calls for the humane use of animals</li> <li>2. Belief that use of animals brings a responsibility to provide appropriate care to the animals</li> <li>3. Most pork producers are concerned with the welfare of the animals they raise, since ignoring their needs will affect growth and production, and ultimately influence profits.</li> </ul>

<p><b>Objective 4</b></p> <p><i>Ask students how the swine industry is addressing consumer concerns discussed in Objective 1.</i></p> <p><i>After the discussion, have students carry out the debate outlined on AS 1. Divide the class into two groups. Allow the groups to research the subject in preparation for the debate. Moderate the debate for the students.</i></p> <p> AS 1 – Debate – Swine Production and the Environment</p>	<p><b>Explain how the swine industry is addressing consumer concerns.</b></p> <p>Effect on the environment</p> <ol style="list-style-type: none"> <li>1. Environmental Assurance Program - developed to encourage producers to assess whether they are adequately protecting the environment</li> <li>2. Research by the NPPC and state associations into reducing odor, protecting ground and surface water, and better utilizing nutrients from swine wastes <ol style="list-style-type: none"> <li>a. Modifications to swine diets that can reduce odors</li> <li>b. Products that can be added to diets or to manure to decrease the amount of odor</li> </ol> </li> </ol> <p>Food safety - Pork Quality Assurance</p> <ol style="list-style-type: none"> <li>1. Program designed to expose producers to proper production practices to improve management, reduce costs, ensure proper drug usage, and learn about food safety issues</li> <li>2. Allows producers to develop an HACCP (Hazard Analysis Critical Control Points) program for their individual farms to identify potential problems in production practices that might reduce the quality of the pork produced</li> </ol> <p>3. Animal welfare - The <i>Swine Care Handbook</i> contains information on management practices, proper facilities, environmental management within confinement buildings, nutrition, and health to help ensure that hogs receive humane care.</p>
<p><b>Application</b></p> <p> AS 1 – Debate – Swine Production and the Environment</p>	<p>Answers to AS 1</p> <p>Answers will vary and student participation should be accounted for.</p>
<p><b>Closure/Summary</b></p>	<p>Some aspects of pork production are of concern to the American public, including pollution of the environment, the safety of pork, animal welfare, and animal rights. With the help of state and national pork producers associations, producers are working to address these issues.</p>

Evaluation: Quiz	<p>Answers</p> <ol style="list-style-type: none"> <li>1. c</li> <li>2. c</li> <li>3. d</li> <li>4. a</li> <li>5. Maintaining a stable nutrient balance requires testing the soil for nutrient composition and testing the waste for nutrient content. These tests allow the producer to gauge how much liquid waste can be applied.</li> <li>6. Irrigation and injection</li> <li>7. Supporters of animal rights believe that animals should not be used as resources by humans. Animal welfare calls for the humane use of animals. Supporters of animal welfare believe that use of animals brings a responsibility to provide appropriate care to the animals.</li> <li>8. To identify potential problems in production practices that might reduce the quality of the pork produced</li> </ol>
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