

Course	Agricultural Science I
Unit	Introduction to Swine Production
Lesson	Herd Management
Estimated Time	50 minutes

Student Outcome

Identify management factors important to profitable hog production.

Learning Objectives

1. Describe how nutrition affects herd health.
2. Identify feeding phases for different stages of hog production.
3. Explain how production efficiency is measured in swine.
4. Identify factors to consider in reproduction.
5. Identify the steps in processing of baby pigs.

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

Resources, Supplies & Equipment, and Supplemental Information

Resources

1. PowerPoint Slides
 - ☐ PPt 1 – Ear Notching
 - ☐ PPt 2 – Changing Dietary Requirements
 - ☐ PPt 3 – Ear Notching Diagram
2. Activity Sheet
 - ☐ AS 1 – Ear Notching
3. *Introduction to Swine Production (Student Reference)*. University of Missouri-Columbia: Instructional Materials Laboratory, 1997.
4. *Introduction to Swine Production Curriculum Enhancement*. University of Missouri-Columbia: Instructional Materials Laboratory, 2003.

Supplies & Equipment

- ☐ Ear notching device
- ☐ Cutouts of pig ears for demonstrating how to notch ears

Supplemental Information

1. Internet Sites
 - ☐ "Identifying Pigs." Accessed July 12, 2007, from <http://www2.dpi.qld.gov.au/pigs/4305.html>.
 - ☐ "Care of Pigs from Farrowing to Weaning." MU Extension. University of Missouri-Columbia. Accessed July 12, 2007, from <http://extension.missouri.edu/explore/agguides/ansci/g02500.htm>.
 - ☐ "Nutritional Management: Swine." Dairy and Animal Science. Pennsylvania State University. Accessed July 12, 2007, from

<http://www.das.psu.edu/nutrientmanagement/swine/>.

- ❑ Chiba, Lee I. "Baby Pig Management." *Swine Production Handbook*. Accessed July 12, 2007, from <http://www.ag.auburn.edu/~lchiba/sw06babypigs.pdf>.

2. Print

- ❑ Baker, Meelee and Mikesell. *Animal Science Biology and Technology*. Danville, Ill.: Interstate Publishers, Inc., 1996
 - ❑ Bobbs, Donald L., and Merkel, Robert A. *Live Animal Carcass Evaluation and Selection Manual*. 4th ed. Dubuque: Kendall/Hunt Publishing Company, 1993.
 - ❑ Ensminger, M.E. *Stockman's Handbook Digest*. Danville, Ill.: Interstate Publishers, Inc. 1992.
 - ❑ Gillespie, James R. *Modern Livestock and Poultry Production*. 5th ed. Albany: Delmar, 1997.
 - ❑ Lee, Jasper S., et al. *Introduction to Livestock and Poultry Production*. Danville, Ill.: Interstate Publishers, Inc., 1996
 - ❑ *Swine Care Handbook*. Des Moines: National Pork Producers Council, 2004
 - ❑ Taylor, Robert E.,m and Bogart Ralph. *Scientific Farm Animal Production*. 3rd ed. New York: Macmillan Publishing, 1998.
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Interest Approach

Show students PPt 1 with ear notches drawn in. Have students try to figure out the litter number and pig number. Have them explain why such a system would be used to identify pigs. Using the ear notching device and the cutouts of pig ears, notch pig number 12-4. Explain why notching is important to herd management.




Communicate the Learning Objectives

1. Describe how nutrition affects herd health.
2. Identify feeding phases for different stages of hog production.
3. Explain how production efficiency is measured in swine.
4. Identify factors to consider in reproduction.
5. Identify the steps in processing of baby pigs.

Instructor Directions	Content Outline
Objective 1 <i>Ask students how nutrition affects herd health. Describe the simple stomach found in swine and discuss why swine diets are high in grain. List the components of a balanced diet.</i>	Describe how nutrition affects herd health. Animals that are suffering from nutrient deficiencies are more susceptible to disease-causing organisms and do not achieve maximum performance. <ol style="list-style-type: none">1. Swine require proper levels of energy (from carbohydrates and fats), protein, vitamins, minerals, and water.2. Producers should design a feed ration that meets the requirements for the animal.
Objective 2 <i>Ask students to name different phases of swine production. List the phases. Next, ask students how swine are fed for each of these stages. Stress to the class that different phases of swine production have different nutritional requirements, and discuss the differences between them. Use PPt 2 to illustrate changing dietary requirements in pigs.</i> <input type="checkbox"/> PPt 2 - Changing Dietary Requirements	Identify feeding phases for different stages of hog production. Gestation <ol style="list-style-type: none">1. Gestation diets are generally lower in protein than any other swine diet.2. Gestating sows and gilts are usually fed four to six pounds of feed per head per day.3. Extra fiber is usually added to the diet shortly before farrowing to act as a laxative and reduce constipation.4. A good supply of fresh water should be available at farrowing time. Lactation <ol style="list-style-type: none">1. Lactation diets are higher in protein and energy than gestation diets to meet the energy needs of the female.2. The amount fed to the sows is gradually increased to full feed within five to seven days after farrowing.

Instructor Directions	Content Outline
	<ol style="list-style-type: none"> Generally, producers will feed lactating sows between twelve and twenty pounds per head per day. Lactating sows also require larger amounts of water than other pigs. <p>Weaning</p> <ol style="list-style-type: none"> Weaning diets are the most critical swine diets because they provide the first feed the baby pig will consume. These diets are usually very high in the amino acids found in protein because weaning is a critical time for muscle growth, which requires protein. The level of protein is generally 18 to 22 percent, but it may be as high 26 percent. Feed generally contains milk and blood proteins. As the pig grows, the levels of protein are reduced because the pig's requirements decrease. Easy access to water is important as well. <p>Growing/finishing diets</p> <ol style="list-style-type: none"> The level of protein is usually 14 to 16 percent. The amount of protein in the diet is gradually reduced. Many producers feed gilts separately from barrows, since gilts generally grow more slowly than barrows and require more protein to reach maximum levels of performance.
<p>Objective 3</p> <p><i>Ask students how swine producers measure efficiency. Record the responses. Discuss the importance of each method and what numbers would be acceptable to producers.</i></p>	<p>Explain how production efficiency is measured in swine.</p> <p>Days to 230 pounds</p> <ol style="list-style-type: none"> This measure reflects the growth rate of market hogs. Fewer days on feed usually means that feed costs will be lower and translates into the ability to produce more animals. <p>Feed to gain</p> <ol style="list-style-type: none"> Feed to gain is a measure of how many pounds of feed are necessary to produce a pound of gain in the pig. Pounds of feed fed is divided by pounds of pork produced.

Instructor Directions	Content Outline
	<ol style="list-style-type: none"> 3. A lower feed to gain ratio is desirable, since the pigs will then require less feed and feed costs will be lower. <p>Gain to feed</p> <ol style="list-style-type: none"> 1. Gain to feed measures the efficiency of gain. 2. Pounds of gain is divided by pounds of feed used. 3. High numbers are desirable.
<p>Objective 4</p> <p><i>Have students list some considerations concerning the reproductive management of a swine farm. List the factors and discuss each in more detail.</i></p>	<p>Identify factors to consider in reproduction.</p> <ol style="list-style-type: none"> 1. Swine have a gestation cycle that averages 114 days, so producers need to keep accurate breeding records to know which females will farrow and when farrowing will occur. 2. Producers may balance litter size by fostering pigs from larger litters to sows with smaller litters; fostering should take place within 24 hours of birth for both litters. <ol style="list-style-type: none"> a. Fostering achieves a more uniform weaning size. b. It increases the survival rate. 3. Piglets are weaned when they are between 14 and 28 days of age. <ol style="list-style-type: none"> a. Most producers wean piglets from a group of sows on the same day to maintain the farrowing group. b. Sows will usually come into estrus three to seven days after weaning. c. Most producers will breed the female as soon after weaning as possible to maximize production. 4. Artificial insemination (AI) is becoming more common. <ol style="list-style-type: none"> a. Producers can purchase semen or collect semen from their own superior boars. b. AI allows producers to use superior boars more extensively. c. Producers will determine which female is in estrus and typically AI each female twice. 5. Sows usually have three years of productive life; after three years of farrowing, they generally experience a decline in productivity.

<p>Objective 5</p> <p><i>Ask students what needs to be done to baby pigs after birth. If possible, bring a litter of pigs in for a demonstration or go to a swine operation and observe how a litter of baby pigs is processed. Use PPt 3 as a guide for a discussion of ear notching. Have students complete AS 1.</i></p> <p> PPt 3 - Ear Notching Diagram</p> <p> AS 1 - Ear Notching</p>	<p>Identify the steps in processing of baby pigs.</p> <ol style="list-style-type: none"> 1. Remove the navel cord and apply iodine to prevent infection. 2. Clip the needle teeth. <ol style="list-style-type: none"> a. Clipping prevents injury to the sow's udder. b. It prevents injury to other pigs when fighting. 3. Dock the tail to prevent tail biting. 4. Give an iron shot to prevent anemia. 5. Castrate the males at processing, or at one week of age. 6. Notch ears using a standard ear notching system. <ol style="list-style-type: none"> a. The ear is divided into quadrants; each quadrant can have one or two notches. b. Notches on the right ear indicate the litter number. c. Notches on the left ear identify the number of the piglet. d. Adding the numbers of the notches on each ear gives the litter number and piglet number for that animal. e. The top of the right ear is notched to designate litter 81.
<p>Application:</p> <p> AS 1 - Ear Notching</p>	<p>Answers to AS 1</p> <ol style="list-style-type: none"> 1. 5, 3 2. 10, 2 3. 9, 9 4. 27, 4 5. 51, 2 6. 2, 1 7. 12, 10 8. 100, 10 9. 11, 8 10. 7, 5 <p>Other activities</p> <ol style="list-style-type: none"> 1. Obtain various feed brochures and develop a feeding program for a farrow-to-finish production system.

Closure/Summary	<p>Swine must be fed diets with proper nutrition to ensure health and maximum growth. Swine producers should use phase feeding to meet the nutritional needs of the animals fed. Producers can use several methods to measure the efficiency of production in their hogs. hey also need to manage reproduction in the swine herd properly to maximize production. Baby pigs should be processed within one day of farrowing.</p>
Evaluation: Quiz	<p>Answers</p> <ol style="list-style-type: none"> 1. d 2. d 3. b 4. c 5. How many pounds of feed are necessary to produce a pound of gain in the pig 6. Animals that are suffering from nutrient deficiencies are more susceptible to disease-causing organisms and do not achieve maximum performance. 7. 12, 10 8. 100, 10