Course	Agricultural Science I
Unit	Introduction to Swine Production
Lesson	Principles of Swine Selection
Estimated Time	50 minutes

Student Outcome

Use available information to select swine.

Learning Objectives

1. Identify the parts of a hog.
2. Identify the wholesale cuts of a hog.
3. Determine the criteria used in the selection of slaughter and feeder hogs.
4. Determine the criteria used in the selection of breeding hogs.

Grade Level Expectations

SC/EC/3/B/09-11/a SC/LO/1/B/09-11/d SC/LO/3/E/09-11/a

Resources, Supplies & Equipment, and Supplemental Information

Resources

1. PowerPoint Slides
   - ☐ PPt 1 - Parts of a Hog
   - ☐ PPt 2 - Wholesale Cuts of Pork
   - ☐ PPt 3 - Leanness in Pork
   - ☐ PPt 4 - Leg Structure
   - ☐ PPt 5 - Swine Ratios
2. Activity Sheet
   - AS 1 - Parts of a Hog
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

- ❑ Photograph of a high-quality market hog, gilt, or boar
- ❑ Photograph of a poor-quality pig

Supplemental Information

1. Internet Sites
   - ❑ "*Mississippi 4-H Livestock Judging Manual.*" Mississippi State University Extension Service. Accessed July 6, 2007, from http://msucares.com/pubs/publications/p2289swine.pdf.
   - ❑ "Using Expected Progeny Differences for Swine Selection." Department of Animal Science. North Carolina State University. Accessed July 6, 2007, from http://mark.asci.ncsu.edu/Publications/factsheets/801s.htm.

- ❑ "Boar Selection - Using Expected Progeny Differences." College of Agriculture. University of Kentucky. Accessed July 6, 2007, from http://www.uky.edu/Ag/AnimalSciences/pubs/asc153.pdf.
- ❑ "Swine Care, Selection and Showmanship." Animal Science Publications. MU Extension. University of Missouri-Columbia. Accessed July 6, 2007, from http://extension.missouri.edu/explore/agguides/ansci/g02306.htm.
- ❑ "Selection of Swine Breeding Stock." Oklahoma Cooperative Extension Service. Oklahoma State University. Accessed July 6, 2007 from http://www.ansi.okstate.edu/youth%20extension/files/selection.swine.breeding.stock.pdf.

2. Print
   - ❑ Boggs Donald and Merkel, Robert. *Live Animal Carcass Evaluation and Selection Manual*. 4th ed. Dubuque: Kendall/Hunt Publishing Company, 2003.
   - ❑ Gillispie, 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.

Interest Approach

Show a photograph of a high-quality market hog, gilt, or boar. Compare to a photograph of a poor-quality pig. Discuss the differences between the two animals.

Communicate the Learning Objectives

1. Identify the parts of a hog.
2. Identify the wholesale cuts of a hog.
3. Determine the criteria used in the selection of slaughter and feeder hogs.
4. Determine the criteria used in the selection of breeding hogs.

Instructor Directions	Content Outline
Objective 1 *Display PPt 1 and pass out AS 1 to students. While correctly labeling the diagram, point out that the swine industry has a unique terms for describing the parts of a hog.* PPt 1 – Parts of a Hog AS 1 – Parts of a Hog	**Identify the parts of a hog.** 1. Snout 2. Cheek 3. Jowl 4. Eye 5. Ear 6. Poll 7. Neck 8. Shoulder 9. Back 10. Loin 11. Rump 12. Tail 13. Ham 14. Hind Leg 15. Hock 16. Hind flank 17. Toe 18. Belly 19. Side 20. Foreflank 21. Foreleg 22. Dewclaw 23. Pastern

Objective 2 *Describe what a wholesale cut of pork is. Display PPt 2 and discuss the different wholesale cuts of pork.* ☐ PPt 2 – Wholesale Cuts of Pork	**Identify the wholesale cuts of a hog.** 1. Shoulder butt 2. Picnic shoulder 3. Loin 4. Side 5. Leg
Objective 3 *Ask students what traits a high-quality slaughter hog has. Describe the swine industry's push for leaner pork because of consumer demands. Use PPt 3 to show leanness in a market hog.* ☐ PPt 3 – Leanness in Pork	**Determine the criteria used in the selection of slaughter and feeder hogs.** Slaughter hogs 1. Leanness - must be mostly fat free to produce lean pork; should have an hourglass shape and be trim through the lower body 2. Muscle - should be heavily muscled, with good muscle expression 3. Size/age - should reach a market weight of 240 to 270 pounds, at an age of 140 to 170 days 4. Soundness - should have good feet and legs and be able to get up and down and move with relative ease Feeder pigs 1. Health - should be purchased from healthy herds and vaccinated against the major swine diseases 2. Soundness - must be able to move with ease 3. Lean/muscle - should be extremely lean and show muscle expression at 50 pounds to maintain leanness until market weight 4. Frame size - should be large framed because large-framed hogs mature later and stay leaner at higher weights
Objective 4 *Ask the class what factors are used in selecting breeding hogs. Point out that the ultimate purpose of breeding animals is to produce lean, high-quality pork. Use PPt 4 to show the differences in skeletal soundness. Use PPT 5 to explain SPI, TSI, and MLI.*	**Determine the criteria used in the selection of breeding hogs.** Visual 1. Reproductive soundness a. A priority in selection b. Requires two functional testicles in boars c. Requires a fully developed vulva and a minimum of six and preferably seven teats per side in females

☐ PPt 4 – Leg Structure ☐ PPt 5 – Swine Ratios	2. Skeletal soundness a. A priority in selection b. Must have proper skeletal angulation and move with ease to survive, grow, and reproduce in confinement on concrete floors 3. Growth/production a. Should be fast growing, based on the age of the hog at 230 pounds b. Should come from large litters and have a large body capacity 4. Frame size - should be large framed to produce lean animals at high weights 5. Leanness/muscling - should be leaner and more muscular than average with an adjusted backfat scan at 240 pounds between .6 and 1.1 inches and a loin eye area of more than six square inches EPD information for SPI, MLI, TSI - All three indexes assign an average parent a specific value, while a higher value indicates a superior animal. 1. Sow Productivity Index (SPI) a. Looks at EPDs for 21-day litter weight and number born alive b. Used when selecting animals for these reproductive traits 2. Terminal Sire Index (TSI) a. Looks at EPDs for the number of days to 230 pounds and for backfat b. Used to select terminal sires 3. Maternal Line Index (MLI) a. Looks at EPDs for both reproductive traits (21-day litter weight and number born alive) and growth data (days to 230 pounds and backfat) b. Used to select replacement gilts
Application: AS 1 – Parts of a Hog	Answers to AS 1 1. Ear 2. Eye 3. Cheek 4. Snout 5. Jowl 6. Pastern 7. Dewclaw 8. Foreleg 9. Foreflank

	10. Belly 11. Side 12. Toe 13. Hind flank 14. Hock 15. Hind leg 16. Ham 17. Tail 18. Rump 19. Loin 20. Back 21. Shoulder 22. Neck 23. Poll Other activities 1. Show a video on swine selection and evaluation. 2. Obtain two market hogs to use in a live evaluation exercise. One animal should be lean and muscular; the other should be fatter and more lightly muscled. Have the students evaluate the hogs for leanness and muscle. If possible, send the hogs to the local locker plant and measure backfat and the loin eye area. Discuss the results with the class.
Closure/Summary	Everyone involved in the swine industry should be familiar with the parts of a hog and the wholesale cuts of pork. Slaughter and feeder pig selection focuses on lean and muscular animals that can grow quickly and efficiently. Breeding hogs must be reproductively sound and skeletally sound and be able to produce lean, muscular, and fast-growing offspring. Producers can use the Sow Productivity Index, Terminal Sire Index, and Maternal Line Index to select breeding animals.
Evaluation: Quiz	Answers 1. d 2. h 3. g 4. j 5. b 6. c 7. f 8. a 9. i

	10. e 11. b 12. d 13. c