

Course	Agricultural Science I
Unit	Introduction to Swine Production
Lesson	Production Systems
Estimated Time	50 minutes
Student Outcome	

Compare various production systems.

Learning Objectives


1. Determine the facility requirements for the different production systems.
2. Explain how production costs differ for each system.
3. Explain why the potential returns differ for each system.
4. Explain the available marketing options for each system.

Grade Level Expectations

SC/LO/1/B/09-11/b

Resources, Supplies & Equipment, and Supplemental Information

Resources

1. Activity Sheet
 -  AS 1 – Feeder Pig Budget
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
 - ☐ Chiba, Lee I. "Swine Production Systems." *Swine Production Handbook*. College of Agriculture. Auburn University. Accessed July 6, 2007, from <http://www.ag.auburn.edu/~lchiba/sw02productionsystems.pdf>.
 - ☐ "Production Systems." United States Environmental Protection Agency. Accessed July 6, 2007, from <http://www.epa.gov/oecaagct/ag101/porksystems.html>.
 - ☐ Pitcher, Paul. "Swine Facilities." School of Veterinary Medicine. University of Pennsylvania. Accessed July 6, 2007, from <http://cal.vet.upenn.edu/swine/fac/hm.html>.
 - ☐ "Swine Publications." MU Extension. University of Missouri-Columbia. Accessed July 6, 2007, from <http://extension.missouri.edu/xplor/agguides/ansci/swine.htm>.
 - ☐ "Swine Production and Environmental Stewardship." United States Environmental Protection Agency. Accessed July 6, 2007, from <http://www.epa.gov/agriculture/swine.pdf>.

2. Print


- ❑ Ensminger, M. E. *Stockman's Handbook Digest*. Danville, Ill.: Interstate Publishers, Inc., 1992.
 - ❑ 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.
 - ❑ Taylor, Robert, E., and Bogart, Ralph. *Scientific Farm Animal Production*. 3rd ed. New York: Macmillan Publishing, 1988.
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Interest Approach

Ask students how many of them are willing to take out a loan for hundreds of thousands of dollars to be involved in agriculture. Discuss the costs associated with swine production, particularly for facilities.

Communicate the Learning Objectives

1. Determine the the facility requirements for the different production systems.
2. Explain how production costs differ for each system.
3. Explain why potential returns differ for each system.
4. Explain the available marketing options for each system.

Instructor Directions	Content Outline
<p>Objective 1</p> <p><i>Ask students about the types of swine facilities with which they are familiar. Record the responses. Discuss the change to large total confinement operations in swine production. Have students complete AS 4.1.</i></p> <p> AS 1 - Feeder Pig Budget</p>	<p>Determine the facility requirements for the different production systems.</p> <p>Farrow-to-finish production</p> <ol style="list-style-type: none">1. Farrowing house2. Nursery3. Growing/finishing barns4. Gestation/breeding barns5. Feed handling and storage6. Manure storage <p>Feeder pig production</p> <ol style="list-style-type: none">1. Farrowing house2. Nursery3. Gestation/breeding barn4. Feed handling and storage5. Manure storage <p>Feeder pig finishing</p> <ol style="list-style-type: none">1. Growing/finishing barns2. Feed handling and storage3. Manure storage
<p>Objective 2</p> <p><i>Ask students what costs a producer would incur in producing hogs. Record the responses and discuss them in connection to the different production systems. Explain the large investment required to build a 300-sow facility.</i></p>	<p>Explain how production costs differ for each system.</p> <p>Producers will have two types of costs: fixed and variable costs.</p> <ol style="list-style-type: none">1. Fixed - similar for all producers despite the type of production system used<ol style="list-style-type: none">a. Depreciationb. Interest on loansc. Repairsd. Taxes


Instructor Directions	Content Outline
	<ul style="list-style-type: none"> e Insurance 2. Variable - differ depending on the production system <ul style="list-style-type: none"> a. Feed - major variable cost in raising swine b. Medications c. Veterinary care d. Equipment e. Facilities f. Cost of the stock <p>Costs for the various production systems differ.</p> <ul style="list-style-type: none"> 1. Farrow-to-finish production <ul style="list-style-type: none"> a. Has the most costs because producers own the animals for the longest time b. Must purchase breeding stock and maintain a breeding herd as well as raise market hogs 2. Feeder pig production <ul style="list-style-type: none"> a. Has costs similar to farrow-to-finish production b. Producers do not have to pay for the feed and facilities needed to finish slaughter hogs for market 3. Feeder pig finishing <ul style="list-style-type: none"> a. Has the fewest costs b. Producers do not have the expenses connected to breeding and raising young pigs
<p>Objective 3</p> <p><i>Ask students how various types of swine production generate returns. Record the responses. Discuss the variability of hog prices throughout the year.</i></p>	<p>Explain why potential returns differ for each system.</p> <p>Farrow-to-finish production</p> <ul style="list-style-type: none"> 1. Returns come from the sale of slaughter hogs. 2. Market hogs typically weigh 240 to 270 pounds and have an average price of \$40 to \$60 per cwt. <p>Feeder pig production</p> <ul style="list-style-type: none"> 1. Income is derived from selling feeder pigs. 2. Prices generally range from \$30 to \$55 with an average of \$45. <p>Feeder pig finishing</p> <ul style="list-style-type: none"> 1. Returns come from the sale of slaughter hogs. 2. While they may receive the same amount of money as farrow-to-finish producers, feeder pig finishers must pay for the feeder pigs.

Objective 4

Ask students where producers could sell hogs. Record the responses. Ask about local markets close to or in the community. Describe the differences between the various marketing options.

Explain the available marketing options for each system.**Farrow-to-finish/feeder pig finishers**

1. Buying stations
 - a. They are owned and operated by packers.
 - b. They purchase hogs at a set price, which is generally based on the lean yield from the last three loads sold by the producer.
 - c. Producers deliver the hogs to the local station or send them directly to the processing plant.
2. Auction markets
 - a. They sell market hogs to the highest bidder.
 - b. They are usually privately owned.
 - c. The owner charges the producer a fee.
3. Network marketing - Independent producers cooperate to ship their hogs together to market a larger number of animals and get a better price for their hogs.
4. Lean-based systems
 - a. Producers send hogs directly to packing plant to be processed.
 - b. Carcasses are measured for backfat and muscling.
 - c. Measurements are put into a formula that calculates the percentage of muscle containing five percent fat.
 - d. The packing plant pays a premium for hogs with more than 49 percent muscle. Hogs with a lower percentage are penalized in price.
5. Niche markets
 - a. In value-added marketing, a pork producer might sell the actual food product to consumers or food distributors.
 - b. Producers may cooperate with meat processors or packing houses in value-added ventures; the producer pays the processor for slaughtering the hogs and processing the meat and then sells the meat.
 - c. Some producers may have their own slaughtering and processing facilities.
 - d. Producers hope to take a larger share of the profits along the food distribution channel.

	<p>Feeder pig producers</p> <ol style="list-style-type: none"> 1. They have a contract with a company or with individual feeder pig finishers that states the purchase price for each pig produced to the specified weight and/or age.
<p>Application:</p> <p> AS 1 - Feeder Pig Budget</p>	<p>Answers to AS 1</p> <p>Costs:</p> <p>Stock - 50 pigs \times 50 pounds per pig \times \$.90 per pound = \$2,250</p> <p>Vaccinations - \$2 per pig \times 50 pigs = \$100</p> <p>Feed -</p> <p>250 pounds (market weight) - 50 pounds (starting weight) = 200 pounds</p> <p>200 pounds \times 3 pounds (feed to gain) = 600 pounds of feed per pig</p> <p>600 pounds of feed per pig \times \$14 per cwt \times 50 pigs = \$4,200 (600 \times .14 \times 50)</p> <p>Total cost:</p> <p>\$2,250 + \$100 + \$4,200 = \$6,550</p> <p>Returns:</p> <p>\$52 \div 100 pounds = \$.52 per pound</p> <p>50 pigs \times 250 pounds per pig \times \$.52 per pound = \$6,500</p> <p>Recommended action:</p> <p>No, I will not purchase the pigs, because it is not profitable.</p> <p>Other activities</p> <ol style="list-style-type: none"> 1. Prepare a detailed map showing the facilities required for a total confinement swine operation with 300 sows.
Closure/Summary	<p>The three swine production systems differ in the facilities required, costs, and potential returns. Producers must try to reduce costs and maximize returns to make a profit. Returns vary depending on production levels and market prices. The markets available to farrow-to-finish producers and feeder pig finishers are buying stations, auctions, network marketing, lean-based systems, and niche markets.</p>
Evaluation: Quiz	<p>Answers</p> <ol style="list-style-type: none"> 1. c

	<ol style="list-style-type: none">2. d3. b4. a5. Farrowing house, nursery, growing/finishing barns, gestation/breeding barns, feed handling and storage, and manure storage6. In auction markets, hogs are sold to the highest bidder, while they are purchased at a set price at buying stations.7. Farrow-to-finish producers have the most costs because they own the animals for the longest time. They must purchase breeding stock and maintain a breeding herd as well as raise market hogs.8. While they have the same potential return on a market hog as farrow-to-finish producers, feeder pig finishers must pay to purchase feeder pigs out of the returns.
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