



# How Are Pigs Raised? Swine Production Systems

## Middle School Food and Agricultural Literacy Curriculum

### Precepts

- J. Mental Growth
- J3. Practice sound decision-making.

### National Standards

- AS.07.01.01.a. Identify facilities needed to house and produce each animal species safely and efficiently.
- AS.08.02.01.a. Identify optimal environmental conditions for animals.
- CS.03.02.01.b. Utilize the process used to reach a conclusion for a decision.
- NL-ENG.K-12.12 – Applying Language Skills
- NL-ENG.K-12.5 – Communication Strategies
- NS.5-8.3 – Life Science

### Student Learning Objectives

- As a result of this **unit** the students will...
- Recognize common production systems used in the United States.
- As a result of this **lesson** the students will...
- Describe different types of swine production systems.
- Describe accepted management practices for the stages in the life cycle of swine.

### Content Outline

- I. **Swine Production Systems**
  - A. Indoor – Environmentally controlled buildings that house swine at similar stages of development.
  - B. Outdoor – Systems where swine have access to the outdoors and shelter buildings are not environmentally controlled.
- II. **Life cycle of Swine**
  - A. Farrow – Pigs from birth until approximately three weeks old
  - B. Nursery – Pigs from approximately three until nine weeks old
  - C. Grower-Finish – Pigs from approximately nine weeks old until they are approximately 265-275 pounds

### Animal Science: Production Systems

### Time

Instruction time for this lesson: 45 minutes.

### Resources

Pork Story. (n.d.) Retrieved July 30, 2009, from Pork Check-off: Official Website:<http://www.pork.org/newsandinformation/quickfacts/porkstory9.aspx>

### Tools, Equipment, and Supplies

- Overhead projector/transparencies
- Paper
- Crayons and/or markers
- MS.AS.2.3.AS.A – one per student
- MS.AS.2.3.AS.B – one per student
- MS.AS.2.3.AS.C – one per student
- MS.AS.2.3.TM.A – one per class
- MS.AS.2.3.TM.B – one per class
- MS.AS.2.3.ASSESS.A – one per student

### Key Terms

The following terms are presented in this lesson and appear in **bold italics**:

**Indoor Production**

**Outdoor Production**

**Farrow**

**Nursery**

**Grower-Finish**

### Interest Approach

Students will begin to grasp that there are benefits and disadvantages of a life spent strictly indoors or outdoors.

Hello! Today we need to be ready to think critically and examine all of the possibilities. To do this, we will need to get a piece of paper and writing utensil.

On our paper, let's prepare a "T" chart. Draw a large "T" and label the left side "pros" and the right side "cons." Are you ready? Great!

Here is the situation. We have been informed that the global environment is off balance. All living creatures need to decide if they will live indoors or outdoors for the rest of the year.

Make your decision whether you will live outside or inside at the top of your paper; use the "T" chart to list the pros and cons of your decision. You will have two minutes to do this. What questions do you have? Begin.



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Supervise students work while watching the time.

You have 30 seconds. Let's wrap up our thoughts.  
5...4...3...2...1, pencils down.

How many of you decided to live indoors?

Pause.

Outdoors?

Pause.

Was this an easy decision?

Discuss.

What were some of your determining factors?

Discuss.

Anticipated responses: weather changes, controlled temperature, freedom, location of items important to you, where others will choose to live, etc.

We just walked through one method we can use to make a decision. For more difficult decisions it is always good to write down on paper the pros and cons of the decision. Recording our thoughts allows us to make an informed decision and be prepared for what could happen next.

Great. Thanks for your thoughts. No, there is no global off balance, but this is a very important decision that livestock producers have to make when they have a production operation. Just like there were advantages and disadvantages for us to live indoors and outdoors there are similar ones to outdoor and indoor swine production facilities.

## Summary of Content and Teaching Strategies

**Objective 1.** Describe different types of swine production systems.

Using **MS.AS.2.3.AS.A** and **MS.AS.2.3.AS.B** students will read about and compare the two major types of swine production systems, indoor and outdoor systems. Both activity sheets should be placed in piles at the front of the room in preparation for this activity.

**Animal Science: Production Systems**

During the next few minutes you will need to be investigative. Given the information provided in the reading "Pork Production Today" you will collect information and prepare to make another very important decision.

When I say .GO, come to the front and collect one paper from each pile. When you return to your seat, you will only have 10 minutes to read the story and collect your data on the paper provided. What questions are there? GO.

Provide students 10 minutes to work, gauge the time and adjust as needed for your students. Provide time warnings when you are ready to move on.

Great job! All phases of a pig's life are spent in one of these two production systems, or a combination of the two.

If you were a pig, which system would you prefer to live in? Why?

Anticipated responses: freedom of the outdoors vs. controlled comfortable environment indoors

Keep these types of systems in mind as we discuss what happens in each of the three phases of a pig's life.

**Objective 2.** Describe accepted management practices for the stages in the life cycle of a pig.

Students will go through the life cycle of a pig from birth to market. During this time you will share the information from **MS.AS.2.3.TM.A & B**. While you share the information, students will capture the information on the timeline provided on **MS.AS.2.3.AS.C**.

In your mind, think about all of the milestones you have experienced in your life. What are some of your milestones?

Anticipated answers: Birth, walking, starting school, vaccinations, losing first tooth, etc.

Livestock experience similar milestones in their lives. Today we will explore some of those milestones and record them on this timeline. As we review the stages of a pig's life, you will chart their growth on the timeline provided titled "Timeline of a Pig's Life."

Distribute **MS.AS.2.3.AS.C** then share the information on **MS.AS.2.3.TM.A&B**.



Lesson Number: MS.AS.2.3

**Middle School Food and Agricultural Literacy Curriculum**  
**How Are Pigs Raised?**  
**Swine Production Systems**

**The stages of a pig's life:**

**Farrow** – Pigs from birth until approximately three weeks old or 10-15 pounds

- Sows are placed in individual farrowing pens or stalls
  - o This protects the piglets, usually 9-10 pigs per litter, from getting crushed by the sow.
  - o This also protects the piglets and workers from the sow's protective nature
- The highest loss of piglets happens from birth until they are 3-4 days old. Several protective measures are taken to protect the young pigs.
  - o The navel is disinfected
  - o Needle teeth are clipped so they do not injure other pigs or the sow
  - o They receive a supplement of iron
  - o Their tails are docked to prevent damage from getting stepped on
  - o Young males are castrated so they do not injure other pigs or workers

**Nursery** – Pigs from approximately three weeks (10-15 pounds) until nine weeks old (40-60 pounds)

- Pigs are housed on slatted floors that let waste fall through keeping the pigs clean
- Pigs are fed as many as five different diets changed to meet the needs of the growing pig

**Grower-Finish** – Pigs from approximately nine weeks old (40-60 pounds) until they are approximately 265-275 pounds

- Pigs are focused on growth and development
- Although types of housing varies, they are kept as clean and comfortable as possible to ensure high rates of gain
- Diets are adjusted to meet the specific needs of the pigs at each stage of growth

**Market** – Pigs weighing approximately 265 pounds

- Pigs are marketed to a terminal market or live market

As we discussed earlier, a pig has milestones in their lives just like we do. They have different diets and mature through their life. Regardless if they are housed in an indoor or outdoor facility, the main role of the producer is to make the pigs as comfortable as they can so they produce a high-quality meat product for the consumers.



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## Review/Summary

Use the Crayon e-Moment® and have students visually organize their thoughts by drawing what a pig looks like and what it experiences during each stage of development. Have crayons, colored pencils, or markers available for their use.

It's time for some creativity! When I say CREATE, using the supplies provided draw a picture of a pig in each of the major stages of development: farrowing, nursery, grower-finish, and market. Remember to use the information on the timeline and draw what they might look like and what they experience during that stage. We will have five minutes. Questions? CREATE!

Great Job! I can tell you really understand the stages of development in swine. Similar stages are experienced in all livestock production. Just like humans, milestones determine their current stage of development.

## Application

### **Extended classroom activity:**

Have students create a children's book based on the information found in the "Pork Story" in the reference section.

### **FFA activity:**

Have students create the book above, and read it to a local elementary school or day care.

### **SAE activity:**

Have students research the money and equipment it would require to have a market swine SAE project.

## Evaluation

MS.AS.2.3.ASSESS.A.

## Answers to Evaluation

- 2
- 1
- 4
- 3.
- Answers will vary; they should relate to the information shared on MS.AS.2.3.TM.A&B.



## Pork Production Today

### Swine Production Systems

Whether pigs are raised in pastures or in totally enclosed barns, systems approaches dominate pork production. Repeatable methods and specialization characterize the modern pork producer regardless of the type of facilities used.

The choice of facility type is mainly a balancing of capital investment, labor requirement and management expertise. Animal and worker welfare are primary concerns to producers, regardless of the type of facilities chosen. The key to good swine care rests more on the producer's ability to properly manage housing than it does on the specific type of housing provided.



Controlled-environment buildings require much higher investment but lower labor per unit of output. These facilities make handling hogs easier, provide for more direct observation of animals, allow greater control of the production process, protect both animals and workers from the heat, cold, rain and snow, and usually result in faster growth to market weight and better feed efficiency.

Most controlled-environment facilities are operated in "all-in, all-out" fashion where pigs are moved in groups, and buildings are thoroughly cleaned and disinfected between groups. Controlled-environment facilities take little land and thus leave more available for grain production.

Pasture or outdoor production systems involve more acres of land and more labor per unit of output. They require generally lower capital investment, especially when marginal land can be used, but usually give lower productivity in terms of output per unit of land or labor or feed.

Interest in outdoor or pasture facilities has increased in recent years as "systems" ideas have been imported from Europe and as some niche markets have developed for meat from pasture-raised pigs. Well-run pasture systems can be cost competitive with controlled-environment operations.

Regardless of the type of facilities used, the objective is the same: To provide the proper environment to maximize the welfare and productivity of both animal and worker.

Taken from: Pork Story. (n.d.) Retrieved July 30, 2009 from Pork Check-off: Official Website: <http://www.pork.org/newsandinformation/quickfacts/porkstory9.aspx>



## Comparison of Swine Production Systems

Directions: Using the reading "Pork Story" list the advantages and disadvantages of the two major types of swine production systems using the "T" charts below.

Define the following:

| <b>Indoor Production System</b>               |   |
|---|---|
| <hr/> <hr/> <hr/>                             |   |
| <b>Pros:</b><br><hr/> <hr/> <hr/> <hr/> <hr/> | <b>Cons:</b><br><hr/> <hr/> <hr/> <hr/> <hr/> |

Define the following:

| <b>Outdoor Production Systems</b>             |   |
|---|---|
| <hr/> <hr/> <hr/>                             |   |
| <b>Pros:</b><br><hr/> <hr/> <hr/> <hr/> <hr/> | <b>Cons:</b><br><hr/> <hr/> <hr/> <hr/> <hr/> |



## The Stages of a Pig's Life

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**Farrow** – Pigs from birth until approximately three weeks old or 10-15 pounds

- **Sows are placed in individual farrowing pens or stalls**
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  - o This also protects the piglets and workers from the sow's protective nature
  
- **The highest loss of piglets happens from birth until they are 3-4 days old. Several protective measures are taken to protect the young pigs.**
  - o The navel is disinfected
  - o Needle teeth are clipped so they do not injure other pigs or the sow
  - o They receive a supplement of iron
  - o Their tails are docked to prevent damage from getting stepped on
  - o Young males are castrated so they do not injure other pigs or workers



## The Stages of a Pig's Life (Cont.)

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**Nursery** – Pigs from approximately three weeks (10-15 pounds) until nine weeks old (40-60 pounds)

- Pigs are housed on slatted floors that lets waste fall through, keeping the pigs clean
- Pigs are fed as many as five different diets changed to meet the needs of the growing pig

**Grower-Finish** – Pigs from approximately nine weeks old (40-60 pounds) until they are approximately 265-275 pounds

- Pigs are focused on growth and development
- Although types of housing varies, they are kept as clean and comfortable as possible to ensure high rates of gain
- Diets are adjusted to meet the needs of the specific needs of the pigs at stage of growth

**Market** – Pigs weighing approximately 265 pounds

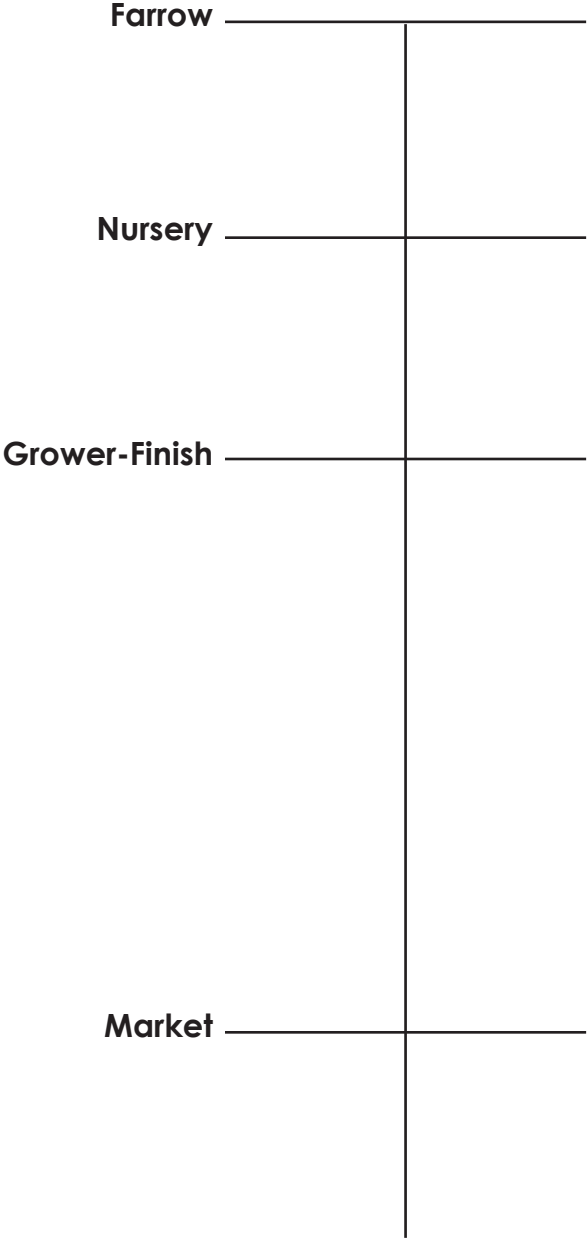
- Pigs are marketed to a terminal or live market





# The Timeline of a Pig's Life

Instructions: Define each of the words on the left and label the major events in a pig's life on the timeline.





# How are pigs raised? Swine Production Systems Quiz

Name \_\_\_\_\_

Directions: Place the number that corresponds to the stage of development onto the timeline provided.

1. Nursery \_\_\_\_\_
2. Farrow \_\_\_\_\_
3. Market \_\_\_\_\_
4. Grower-Finish \_\_\_\_\_

### Timeline of a Pig's Development



5. Select one of the stages of development and describe what happens to the pig during that time.

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