

4-H Animal Science Lesson Plans



Level 1



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4-H Animal Science Lesson Plans

Introduction

The 4-H Animal Science Lesson plans are designed to help provide more focus on animal science education for youth. The materials are intended for use with 4-H members participating in Beef, Sheep, Swine and Meat Goat projects to have an enhanced the learning experience through research-based materials and hands-on activities.

An objective of the Animal Science Lesson plans is to guide the educational experience of youth raising an animal as well as provide an instruction outline for adult volunteers. These lessons include all the information and resources needed for volunteers to prepare and teach at 4-H club meetings.

Youth are encouraged to use the lessons as a 4-H demonstration. This will engage the youth in teaching other youth. Each lesson plan describes the goal for that lesson and is written following the experiential learning model. The hands-on activity included in the lesson is intended for the member to be more engaged in the learning.

Many of the resource materials contained in each lesson come from the Ohio State University Extension Resource Handbooks for Beef, Sheep, Swine, and Goat. These lessons, when accompanied by preparation and teaching, will increase the knowledge of the youth member, which is the goal of 4-H Animal Science projects.

Each lesson plan can be accessed from the following list and downloaded. It is recommended that the presenter read and understand what is being taught through each plan, prepare the activity as outlined and practice so that the educational experience for the youth participants is of highest quality.

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FACILITIES MANAGEMENT



Environment: Caring For My Animal

Scott Nash, Idaho Regional Youth Development Educator

Goal (learning objective)

Youth will learn how bedding material used in the pen can affect animal comfort. Animal comfort affects performance and growth, ultimately influencing meat quality.

Supplies

- Bowl (metal or plastic) - one for each type of bedding material
- Two quarts of each bedding material: straw, sawdust, woodchips, sand
- One gallon of water
- Colander
- Small fan
- Garbage bag
- Paper towels

Pre-lesson preparation

- Chill the bowls so they are cold before the activity.

Lesson directions and outline

Livestock need a place to lie down that is warm and dry during cold weather. When it is hot they need a place that is clean and cool. Have youth discuss ideas on how to keep animals comfortable.

Conducting the activity (DO)

1. Have youth measure 2 quarts of each bedding item into a chilled bowl. Ask: Which bedding do you think will be the warmest?
2. Have youth hold their hands in each type of bedding for at least one minute. Ask: Which bedding is the warmest?
3. Add 1 quart of water to each bowl of bedding material. Ask: Which bedding will hold the most water?
4. After 5 minutes strain the bedding through a colander. Measure the amount of water drained from each of the bedding materials.
5. Have youth hold the wet bedding material with the fan blowing on their hands for a couple minutes.

What did we learn? (REFLECT)

- Ask: Which bedding material absorbed (soaked up) the most water? Which would be better to use at the county fair?
- Ask: How did the fan blowing, while you were holding the cold bedding make you feel? What if it was during the winter time?
- Ask: If an animal is cold and shivering, how does that affect growth? What if the animal gets too hot?

Why is that important? (APPLY)

- Ask: Which bedding would you use? Why?
- Ask: How does this principle of animal bedding apply to how you live?
- Ask: How does this principle apply to how you take care of yourself?
- What can we do to take care of others in the community especially in the winter?

Resources

- Ohio State University Extension. (2011). Management Practices. *Beef resource handbook* (page 3-1).
- Ohio State University Extension. (2008). Housing Facilities. *Goat resource handbook* (pages 147-149).
- Ohio State University Extension. (1999). *Quality assurance and animal care: youth education program curriculum guide* (Unit 3, level 1).
- Ohio State University Extension. (2011). Management Practices. *Sheep resource handbook for market and breeding projects* (page 21).
- Ohio State University Extension. (2000). Space Requirements for My Market Hog. *Swine resource handbook for market and breeding projects* (pages 11-4, 11-6, and 11-7).



Housing My Animal

Scott Nash, Idaho Regional Youth Development Educator

Goal (learning objective)

Youth will learn that animals are healthier and grow efficiently when they have enough pen space.

Supplies

- Closet or small room with a door containing a small table with snacks and water
- Paper and pencils, colored pencils and markers
- Copies of example pen spaces for cattle, sheep, hogs, or goats
- Measuring tape to measure the dimensions of the meeting space

Pre-lesson preparation

- Obtain a copy of the Ohio resource handbook for the species you lead (see references/resources below).
- Study the space requirements for the species.
- Make copies of the suggested pens in the handbook.
- Measure and record the dimensions of the meeting space.

Lesson directions and outline

Ask the youth to share how much space they think is needed to house a beef animal, a market hog, a market lamb and a market goat. Once the youth have shared their ideas, discuss the following with them:

Animals need shelter, food, water and enough pen space to be able to gain weight and grow.

To help make a correlation between the space needed for animals, our meeting room dimensions are ____ (share room measurement).

Beef cattle need a stall that is from 20 to 40 square feet per animal with 2 feet of feed bunk space per animal. They need a minimum of 200 square feet of outside or dry lot area.

Hogs need a minimum of 8 square feet per animal with at least 5 square feet under roof. When using a self feeder, provide a minimum of 1 space per four pigs. One space per two pigs would be optimum.

Sheep require 6 to 10 square feet per lamb in a barn with up to 1 foot of feed trough space.

Goats need 8 to 12 square feet per animal in the barn with about 1 foot of feed trough space and 20 to 25 square feet of space in an outside lot area.

Provide access to clean water for all animals. It's best if the animals travel to water. Do not put water near feeding or bedding areas. This will help keep the pen cleaner.

Conducting the activity (DO)

1. Designate a small room, bathroom, or closet with a door to represent a small pen.
2. Place three or more youth in the confined space. The room should be crowded. Have them perform regular daily activities: walk around the room, eat, drink, and lie down.
3. After no more than 5 minutes, have the youth come out one at a time. When they are all out, have them discuss with the group how it felt to have so many people in the small space.

Activity 2

1. With paper and pencils have the youth design a pen for the animal they are raising. Ask them to keep in mind that the animal will get bigger as it grows to make the weight requirements for the fair.

What did we learn? (REFLECT)

- Ask: How did you feel when you were in the room? Why did you feel that way?
- Ask: the last person to come out how it felt to be in the room alone.

Why is that important?

- Ask: Why is it important to provide adequate space for your animal? (Ability to exercise, room to lie down in a dry place, and enough room so the animals won't have to compete for food. When animals have to compete for space they expend energy, keeping them from gaining as much weight as possible. They may not gain enough weight to qualify for the fair and be eligible for the sale.)
- Ask: Where is having adequate space important in your own life? Why?

Resources

Ohio State University Extension. (2011). Management Practices. *Beef resource handbook* (pages 3-1 and 3-2).

Ohio State University Extension. (2008). Housing Facilities. *Goat resource handbook* (page 149).

Ohio State University Extension. (1999). *Quality assurance and animal care: youth education program curriculum guide* (Unit 3, level 1).

Ohio State University Extension. (2011). Management Practices. *Sheep resource handbook for market and breeding projects* (page 21).

Ohio State University Extension. (2000). Space Requirements for My Market Hog. *Swine resource handbook for market and breeding projects* (pages 11-1 and 11-2).



Safe Animal Handling

Scott Nash, Idaho Regional Youth Development Educator

Goal (learning objective)

Youth will learn about the role of animal flight zones in safely handling and moving animals.

Supplies

- Table
- Magnets - animal shapes where available
- Plastic farm animals and fence
- Wire - a short strand of bar wire and a short strand of smooth wire
- Nails or other objects that should not be in the pen of an animal
- Flight zone diagram that can be found at <http://www.grandin.com/behaviour/principles/flight.zone.html> OR Figure 4.01 on page 4-2 in *Beef resource handbook* (listed in Resources section)

Pre-lesson preparation

- Study the flight zone diagram and become familiar with the term “point of balance”

Lesson directions and outline

Introduction

Explain to the youth that all animals have a point of balance as well as a flight zone. Understanding how to approach animals and move them properly will keep youth and animals safe.

A key point is to make sure the pen is free from any hazards such as broken boards, protruding nails, wire, etc. Make sure there are no electrical wires or sharp edges the animal can come in contact with.

Conducting the activity (DO)

Activity 1 - To demonstrate how livestock move away as someone moves into the animal's flight zone

1. Place one magnet on a flat surface.
2. Use the second magnet to approach the first, making sure the ends with the same magnetic polarity are pointed at each other. (The magnets will repel each other and the first will move away from the second.)

Activity 2 - To illustrate how flight zones work with people

1. Have one volunteer stand in front of the group.
2. As you talk about flight zones and personal space, approach the volunteer closer and closer until he or she moves back.
3. Try this again with one male and one female volunteer. Ask the girl to stand still and have the boy approach her until she moves back. Discuss how flight zones and personal space change depending on how well they know each other.

Activity 3

1. On the table, set up the fence with a gate and place a plastic farm animal.
2. Have a participant demonstrate how they might approach the animal to turn it in a certain direction and move it through the gate.
3. Place nails, wire, or other objects on the table near the animal then work to drive the animal through the gate to avoid the objects.

What did we learn? (REFLECT)

- Ask: What happened when you moved the magnets closer together? (The magnets are like animals and act as if they have a flight zone)
- Ask: What happens to the magnets if you put opposite ends towards each other? Why? (Discuss polarity)
- Ask: What happened when the leader approached the volunteer when talking about flight zones? Why?
- Ask: What happened when the boy approached the girl? Why?
- Ask: What happens when nails, wire, or other objects are in the way when you try to move an animal?

Why is that important? (APPLY)

- Ask: Why is it important to know how to approach an animal to make it move in a certain direction? (Approaching them correctly will get the animal to move in the right direction and hopefully keep it from running away.)
- Ask: How does understanding flight zone and personal space help us when we communicate with others? (We are able to recognize by a person's body language how close we can approach him or her, allowing for more successful communication.)
- Ask: If a person is uncomfortable because you are in his or her flight zone, is the person listening to you?
- Ask: Why do we need to keep nails, wire, or other objects out of the pen of an animal? (Keeping the animal facility free from foreign objects can keep the animal from getting injured.)

Resources

- Ohio State University Extension. (2011). Working Safely With Livestock. *Beef resource handbook* (pages 4-1 through 4-5).
- Ohio State University Extension. (2008). Working Safely with Goats. *Goat resource handbook* (pages 31-33).
- Ohio State University Extension. (2011). Working Safely with Sheep and Caring for Animals. *Sheep resource handbook for market and breeding projects* (pages 103 and 136).
- Ohio State University Extension. (2000). Caring for Animals *Swine resource handbook for market and breeding projects* (page 24-2).



Temperature and Ventilation (Air Flow) in the Barn

Scott Nash, Idaho Regional Youth Development Educator

Goal (learning objective)

Youth will learn how temperature and airflow in the barn (or stall) impact animal growth and performance.

Supplies

- Small room or closet with a door that closes
- Heat lamp or small heater
- Fan
- Ohio Learning Lab Kit you wish to use (either specific species or all species). Check with your local extension office on the availability of the kit and to check it out
- Animal comfort zones (diagrams in learning lab kit)- make enough copies for group
- (Optional) If you cannot create a cold room for Activity 3:
 - Bucket or large pan
 - Chilled water
 - Large bag of ice

Pre-lesson preparation

- Study animal comfort zones
- Study the effect of heat and cold stress on gain
- Review the environment and preferred thermal conditions for swine

Lesson directions and outline

Introduction

Explain to the youth that animals need to be housed and cared for in a place where the temperature and ventilation allow them to grow and gain for optimal performance. This can be achieved by understanding the temperatures where a species is most comforta-

ble.

Airflow or ventilation keeps the air free of harmful odors that make it difficult for animals and humans to breathe. Poor ventilation has a negative impact on animal performance and health.

Conducting the activity (DO)

Activity 1

1. Place the heat lamp or heater in the small room and turn it on.
2. Have as many youth as possible enter the small room wearing coats.
3. Close the door of the room for a few minutes with the youth inside and the heat left on.

Activity 2

1. Leave the heater on but place a fan in the room.
2. Have as many youth as possible enter the room wearing short-sleeved shirts.
3. Open the door to the room, and if the room has a window, open it.

Activity 3

1. Make the room as cold as possible
2. Have only a few youth at a time enter the room and close the door for a few minutes.

Optional Activity 3

1. Fill the bucket or pan two-thirds full of ice and chilled water. *Note: do this 10-20 minutes before starting so water is ice cold; stirring will help speed up the cooling process*
2. Have youth put both hands in the ice water for 60-90 seconds (remove hands sooner if they become too cold).
3. While doing this, have youth close their eyes and imagine how it would feel if their whole body was in the frigid ice water.

What did we learn? (REFLECT)

- Ask: How did you feel with the heat on, wearing a coat with the door closed?
- Ask: How did you feel when the room was cold?
- Ask: How did you feel when the fan was on and the door was open?
- Ask: When did you feel the most comfortable? Why?

Why is that important? (APPLY)

- Ask: In what ways do temperature and ventilation affect the animal you are raising?
- Ask: What will you do to make sure your animal is comfortable?
- Ask: How do temperature and airflow affect you at home?
- Ask: What impacts do temperature and airflow have on your community when an animal-feeding operation is nearby?

Resources

- National Pork Producers. (2007). *Youth Pork Quality Assurance Plus Youth Manual*, (pages 104-105).
- Ohio State University Extension. (2011). Management Practices. *Beef resource handbook* (page 3-1).
- Ohio State University Extension. (2008). Housing Facilities. *Goat resource handbook* (pages 147-149).
- Ohio State University Extension. (1999). *Quality assurance and animal care: youth education program curriculum guide* (Unit 3, level 1).
- Ohio State University Extension. (2011). Management Practices. *Sheep resource handbook for market and breeding projects* (page 21).
- Ohio State University Extension. (2000). Space Requirements for My Market Hog. *Swine resource handbook for market and breeding projects* (pages 11-4, 11-6, and 11-7).
- Ohio State University Extension. (1999). *Quality Assurance and Animal Care: Youth Education Curriculum Guide*, Unit 3, Level 2. (*Note: This document is available in the Learning Lab Kits and is the same for all species*)



What's Your Plan?

Jim Wilson, Idaho Regional Youth Development Educator

Goal (learning objective)

Youth will analyze their particular circumstances to determine if they are adequately prepared to successfully raise a livestock project.

Supplies

- Flipchart (or paper)
- Markers
- Masking tape
- Pencils - enough for group
- Calculators - enough for small groups to share
- Copies of the *4-H Livestock Project Planning Worksheet* (Handout 1) - enough for group
- Copies of the *Seven Steps in Selecting Market Project Animals* (Handout 2) - enough for group

Pre-lesson preparation

- Obtain current prices for feeds (grains and hay) that members might choose to use by visiting local feed stores
- Secure realistic purchase and sale prices youth might expect related to this project - visit with your local 4-H Professional for suggestions
- Review the Introduction section of your *Ohio Resource Handbook*

Lesson directions and outline

Ask the group “Who has gone on a trip or family vacation? Did you just choose a place to go and suddenly you were there, or did you or your parents have to make several arrangements to insure an enjoyable experience? What were some of the things they needed to do before going on the trip?”

Emphasize there were several steps that had

to occur (where to stay, what to visit, how to get there, how much it will cost, etc.). The same is true in preparing for a successful 4-H livestock project experience.

Conducting the activity (DO)

Section A(20-30 minutes)

1. Have members brainstorm all the things or information they will need to know about in planning a successful livestock project. Have someone write responses on the flipchart or on separate pieces of paper and post on a wall. *Note: if they are missing major segments from the worksheet, provide subtle hints. If some ideas are too vague, ask for more specificity.*
2. After brainstorming, discuss and group all responses into categories.
3. Relate that selecting project animals is similar to one phase of planning a family trip – you have to know where you’re going and how to get there before you can start. Introduce the concepts from the Seven Steps in Selecting Market Project Animals. Encourage youth to discuss industry standards, average daily gain, plus preliminary and initial purchase animal weights.

Section B (30 minutes - continue as part of this meeting or finish up at next meeting)

4. Introduce the *4-H Livestock Project Planning Worksheet*. Have each member work with their parent to complete the *4-H Livestock Project Planning Worksheet* – some individuals may need help with possible feed or animal prices.
5. Ask youth to share some of their ideas and results they came up when completing the worksheet.

What did we learn? (REFLECT)

- Ask: What did you learn while doing these activities?
- Ask: Were the results what you had expected? Why or why not?
- Ask: What things, if any, will you need to do so you can be prepared for your project?

Why is that important? (APPLY)

- Ask: Why do you think project planning is important to have a successful experience?
- Ask: Where else might you use these planning skills in the future?

Resources

Ohio State University Extension. (2011). Management Practices. *Beef resource handbook* (pages 1-1 to 1-3).

Ohio State University Extension. (2008). Housing Facilities. *Goat resource handbook* (pages 5-10).

Ohio State University Extension. (2011). Management Practices. *Sheep resource handbook for market and breeding projects* (pages 5-8).

Ohio State University Extension. (2000). Space Requirements for My Market Hog. *Swine resource handbook for market and breeding projects* (pages 1-1 to 1-3).

Wilson, J. (2014). *Plan for Market Animal SUCCE\$\$ Building on 4-H Fundamentals - 4-H Livestock Project Planning Worksheet*. University of Idaho Extension.

Wilson, J. (2014). *Seven Steps in Selecting Market Project Animals - Thinking Backwards to Get Ahead*. University of Idaho Extension.

Wilson, J. (2014). *4-H Market Livestock Budget Template*. University of Idaho Extension.

FACILITIES: WHAT'S YOUR PLAN – HANDOUT 1

4-H Livestock Project Planning Worksheet Member's Name: _____

This worksheet is designed to encourage communication while helping members and their parent(s) carefully consider the various aspects and costs associated with a given livestock project – **before purchasing an animal**. Developing a project plan and budget increases the potential for member success and in having a positive 4-H experience.

General Considerations:

1. What species do you want to take? _____

2. What type of project do you plan to take (circle): Market Breeding Pet

 {If you selected the Market option, do you understand that the final result of this project is to finish an animal that will be sold, harvested and converted into food products?} Yes
 No

3. Have you read the project requirements for this specific project (circle one)? Yes No
 {If not, contact your leader or go on-line extension.ag.uidaho.edu/kootenai for a copy of the requirements}

4. How much time **each day** are you willing to commit to this project? _____

5. How much money do you want to invest in this project? \$_____

Facilities:

6. Are all your facilities (listed below) adequate, or are improvements needed {inc. estimated cost}?
 Y N Shelter/barn: _____ \$ _____
 Y N Fences: _____ \$ _____
 Y N Feed Equip: _____ \$ _____
 Y N Water Equip: _____ \$ _____

7. Do you have facilities necessary to provide basic health care treatments (circle one)? Yes No

8. Do you have a veterinarian that works with your chosen species (circle one)? Yes No

 {If not, you may want to seek out a veterinarian to help guide you in knowing what health care treatments your potential project animals should have received, and to assist in ongoing health care matters.}

9. What is your plan for disposing of animal waste (manure) / odor control: _____


~~~~ Over ~~~~

**Animals:**

10. How many projects animals do you plan to raise? \_\_\_\_\_

11. What are potential sources for purchasing your project animal(s)? \_\_\_\_\_

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12. Animal Purchase / Feed Projections

{Completing the **“Thinking Backwards to Get Ahead”** worksheet may be helpful in determining purchase and projected final weights for market project animals.}

|                                                | Animal 1 | Animal 2 |
|------------------------------------------------|----------|----------|
| A) Projected Purchase Weight (lbs.)            |          |          |
| B) Estimated Purchase Price (total \$/hd)      | \$       | \$       |
| C) Estimated Final Weight (lbs.)               |          |          |
| D) Projected Weight Gain (lbs.) // {C – A = D} |          |          |

|                                                                                                                                                                                                               |    |    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|
| <b>Feed Conversion Ratio</b> (avg. lbs. feed needed to produce 1 lb. gain)<br><b>Beef</b> = 6 lbs <b>Sheep</b> (.75 ADG) = 4 lbs <b>Swine</b> = 4 lbs<br><b>Goat</b> = 7.5 lbs <b>Sheep</b> (.50 ADG) = 6 lbs |    |    |
| E) Estimated Pounds of Feed Needed<br>{Feed Conversion Ratio value x Projected Weight Gain }                                                                                                                  |    |    |
| (1) Estimated Cost for Grain<br>{Est. Feed Needed x % ration from Grain x Cost/lb of Grain}                                                                                                                   | \$ | \$ |
| (2) Estimated Cost for Hay<br>{Est. Feed Needed x % ration from Hay x Cost/lb of Hay}                                                                                                                         | \$ | \$ |
| F) Total Estimated Feed Costs                                                                                                                                                                                 | \$ | \$ |

**Marketing:**

13. Do you plan to market any of your project animals this year (circle one)? Yes No

If yes, how (circle)? Stock Sale Private Treaty Classified Ad Other

Who are some prospective buyers you might contact? \_\_\_\_\_

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14. What is the total projected sale value for: Animal 1 = \$ \_\_\_\_\_ , Animal 2 = \$ \_\_\_\_\_  
{Estimated Final Weight x Sale Price/lb = Sale Value}

## FACILITIES: WHAT'S YOUR PLAN – HANDOUT 2

### Seven Steps in Selecting Market Project Animals

*“Thinking Backwards to Get Ahead” by Jim Wilson, UI Area 4-H/Youth Extension Educator*

1. Determine the projected proper finished weight your project animal needs to be.

Industry standards:

Beef = 1,100 – 1,400 lbs.

Swine = 240 – 290 lbs.

Sheep = 110 – 135 lbs.

Goats = 60 – 90 lbs.

2. Estimate the average daily gain (ADG) that you will achieve from weigh-in to Fair. *{Note: while some Fairs do not require a specific ADG, maintaining efficient gains can improve final product quality and project profitability.}*

Industry standards:

Beef = at least 3.0 lbs./day

Swine = at least 1.8 lbs./day

Sheep = at least 0.6 lbs./day

Goats = at least 0.35 lbs./day

3. Use a calendar to determine the number of days from your preliminary weigh-in to Fair weigh-in (the feeding period); do not include the day of the initial weigh-in in your count. For this example, the following data was used:

Beef = 136 days

Swine = 90 days

Sheep = 59 days

Goats = 59 days

Note: State 4-H Policies recommends the following length of feed periods:

Beef = 130 – 150 days

Sheep = 55 – 65 days

Swine = 80 – 100 days

Goats = 55 – 65 days

4. Multiply the number of days in the feeding period (step 3) by the estimated average daily gain (step 2) - *{note: you can adjust the ADG based on past experience}*. This gives you the number of pounds your animal would gain during the feeding period. Subtract this from the projected finished weight range (step 1) to estimate how much your animal should weigh at preliminary weigh-in.

Beef: 136 days x 3.0 ADG = 408 lbs. gain → Preliminary weigh-in target = 692 – 992 lbs.

Swine: 90 days x 1.8 ADG = 162 lbs. gain → Preliminary weigh-in target = 78 – 128 lbs.

Sheep: 59 days x 0.6 ADG = 35 lbs. gain → Preliminary weigh-in target = 75 – 100 lbs.

Goats: 59 days x 0.35 ADG = 21 lbs. gain → Preliminary weigh-in target = 39 – 69 lbs.

5. Determine the number of days from date of purchase to preliminary weigh-in.
6. Estimate the average daily gain that will be achieved from date of purchase to preliminary weigh-in.
7. Multiply the number of days to the preliminary weigh-in (step 5) by the estimated average daily gain prior to weigh-in (step 6). Subtract that total from your projected preliminary weigh-in target weight range (step 4). The resulting figure then provides you with an estimated weight range for your project animal at the time of purchase.

**Remember: Plan Now to Avoid Disappointment Later!**

# **SELECTION**



# Common Livestock Breeds and Characteristics

Meranda Small, Idaho Extension Educator

## Goal (learning objective)

Youth will learn what several popular livestock breeds are for each species (beef, swine, and sheep) along with some characteristics of those breeds.

## Supplies

- Computer, projector, and screen to present PowerPoint Common Livestock Breeds and Characteristics
- Copies of notes of presentation (optional, enough for group)
- Breeds photos and descriptions from Ohio Learning Lab Kits

## Pre-lesson preparation

Identify the top breeds for each species utilized in US Agriculture Production and research what their distinguishing characteristics are, ex: for swine American Yorkshire is typically a good mother that produces large litters, white in color (susceptible to sunburn), have a big frame and erect ears while the Duroc typically needs less feed per pound of muscle than any other breed, fast growth, feed efficient, vary in color from light gold to dark red and have droopy ears.

## Lesson directions and outline

Ask the youth to share with the group the breed of animal of the species they are raising. Have them discuss the characteristics of the breed.

Explain each breed for each species has characteristics and attributes that make it popular in general and for specific purposes such as reproductive qualities versus meat qualities. For example, large framed cattle that make good mothers versus cattle that muscle well or some sheep breeds are used for wool production more than others leading to why there are differ-

ent breeds for the differing purposes. Understanding these should lead youth to understand why they may or may not select a certain breed for their project.

Ask the youth to share with the group the breed of animal of the species they are raising. Have them discuss the characteristics of the breed.

## Conducting the activity (DO)

1. Popular beef breeds include Angus, Charolais, Gelbvieh, Hereford, Limousin, Red Angus, Short-horn, Maine Anjou and Simmental.
2. Popular dairy cattle breeds include Holstein and Jersey.
3. Popular swine breeds include American Yorkshire, Berkshire, Chester White, Duroc, Hampshire, Poland China, Landrace and Spots.
4. Sheep are categorized as Ram Breed, Ewe Breed or Dual Purpose. Ram breeds are meant for meat, not being used typically for continued breeding purposes. They have good size, growth rate, carcass merit, and ease of lambing. Ewe breeds are highly prolific and have superior mothering abilities. Dual purpose breeds can be used as either ewe or ram depending on the operation. Sheep breeds can also be classified by their wool, Fine, Medium, and Medium to Long Wool breeds. Popular sheep breeds include Merino Wool Sheep, Rambouillet, Suffolk, Hampshire, Dorset, Columbia and South-down.
5. Popular goat breeds include Angora, Spanish Boer, Kiko, Nubian, LaMancha, Alpine, Saanen, and Nigerian Dwarf.
6. Working with the Common Livestock Breeds and Characteristics PowerPoint, ask youth the questions the slides and others to encourage discussion.
7. Following this activity ask youth to find a picture

of a breed not covered and bring with them to the next meeting to share with the group. Also ask them to provide a few of that breed's characteristics (these pictures can be found in the Ohio Learning Lab Kits).

8. Optional activity: Play "Place Your Animal". Print a picture of each animal covered in the presentation. Hand out the pictures until all have been dispersed to the youth group. Have on a table/desk three plastic tubs. One labeled "Meat", second "Reproduction", and the third "Dual/Other". As you go through the presentation, following the explanation of each breed ask who has this animal and then have them place their animal card in what they think is the appropriate bin for that breed based on its characteristics.

### What did we learn? (REFLECT)

- Ask: Is there one single superior breed for any of the species? (No, it comes down to what the production goals are)
- Ask: What are some important reproductive qualities? (Frame size, length of breeding season, number of offspring, milking ability)
- Ask: What are some important meat qualities? (Rate of gain and feed needed for gain, leanness, carcass yield, and marbling)
- Ask: For 4-H, do you want animals that are better for reproduction or for meat? (Depends on the type of project)

### Why is that important? (APPLY)

- Ask: Does selecting the right breed for a certain process affect the success for a producer? Would you select a wool sheep breed if your goal was to produce meat?
- Ask: Why does understanding each breed's qualities make you as a producer, more knowledgeable in producing a better product?
- Ask: Where else can you apply this same type of knowledge? (Example: If you have an ear ache do you go to a doctor that specializes in feet? If your car breaks down do you go to an auto mechanic or

an airplane mechanic?)

## Resources

- Ohio State University Extension. (2011). Selection. *Beef resource handbook* (pages 2-4 through 2-9).
- Ohio State University Extension. (2008). Choosing an Animal. *Goat resource handbook* (pages 21-30).
- Ohio State University Extension. (2011). Sheep Industry and Sheep Breeds. *Sheep resource handbook for market and breeding projects* (pages 107-116).
- Ohio State University Extension. (2000). Your Very First Step - Selection. *Swine resource handbook for market and breeding projects* (pages 3-1 through 3-8).
- Ohio State University Extension. (n.d.). Learning Lab Kits. Beef, Sheep, Swine, and Goat. Available from: <http://www.ohio4h.org/books-and-resources/learning-lab-kits> (NOTE: Check with your local county extension office on availability to check out).
- Small, M. (2014). *Common Livestock Breeds and Characteristics PowerPoint*. University of Idaho Extension.



# Evaluation

Cindy Kinder, Idaho Extension Educator

## Goal (learning objective)

Youth will learn about the basics of livestock evaluation and judging through animal parts, terms and judging criteria.

## Supplies

- Animal Parts poster and the part labels from the Ohio Learning Lab Kit (each species)
- Copies of the following (enough for group):
  - Judging Beef Cattle & Oral Reasons 101, PNW 669
  - Judging Sheep & Oral Reasons 101, PNW 679
  - Judging Meat Goat & Oral Reasons 101, PNW 678
  - Judging Swine & Oral Reasons 101, PNW 677

## Pre-lesson preparation

- Review the following:
  - Judging Beef Cattle & Oral Reasons 101, PNW 669
  - Judging Sheep & Oral Reasons 101, PNW 679
  - Judging Meat Goat & Oral Reasons 101, PNW 678
  - Judging Swine & Oral Reasons 101, PNW 677
- Check out Learning Lab Kits from county extension office

## Lesson directions and outline

Have youth discuss why they think learning animal body parts is important to learning about animal evaluation? How is knowing more about animal evaluation important to raising a livestock project?

List the reasons on flip chart paper.

Explain to youth that livestock evaluation and judging can be a fun and exciting activity. Learning the basics of animal judging starts with learning the parts and what the criteria is for animal selection.

## Conducting the activity (DO)

1. Review with youth the handouts, teaching the following sections: Animal Parts, Terms, Selecting your Animal.
2. Challenge youth by using the poster to see how many parts can be identified correctly. Variations of the challenge may include
  - a. A timed event “in 60 seconds or less”
  - b. Teams of youth with the fastest speed and or number correct
  - c. Pin the tail “part” on the poster where one youth is blindfolded and the other is not.

## What did we learn? (REFLECT)

- Ask: What are the main criteria for livestock judging?
- Ask: Name five parts and two terms associated with the animal?

## Why is that important? (APPLY)

- Ask: Why is it important to know the criteria of something? How does that knowledge impact you when you use that item?
- Ask: Why does understanding each breed’s qualities make more knowledgeable to produce a better product?
- Ask: How does animal conformation impact animal performance? Or animal quality?

## Resources

- Kinder, C., Mavencamp, D. (2015). Judging Beef Cattle and Oral Reasons 101. University of Idaho Extension. PNW 669. <http://www.cals.uidaho.edu/edcomm/pdf/PNW/PNW669.pdf>
- Kinder, C., Mavencamp, D. (2015). Judging Meat Goats and Oral Reasons 101. University of Idaho Extension. PNW 678. <http://www.cals.uidaho.edu/edcomm/pdf/PNW/PNW678.pdf>
- Kinder, C., Mavencamp, D. (2015). Judging Sheep and Oral Reasons 101. University of Idaho Extension. PNW 679. <http://www.cals.uidaho.edu/edcomm/pdf/PNW/PNW679.pdf>
- Kinder, C., Mavencamp, D. (2015). Judging Swine and Oral Reasons 101. University of Idaho Extension. PNW 677. <http://www.cals.uidaho.edu/edcomm/pdf/PNW/PNW677.pdf>
- Ohio State University Extension. (n.d.). Learning Lab Kits. Beef, Sheep, Swine, and Goat. Available from: <http://www.ohio4h.org/books-and-resources/learning-lab-kits> (NOTE: Check with your local county extension office on availability to check out).
- Ohio State University Extension. (2011). Selection. *Beef resource handbook* (pages 2-1, 2-2, 2-10 and 2-11).
- Ohio State University Extension. (2008). Choosing an Animal. *Goat Resource Handbook* (page 21).
- Ohio State University Extension. (2011). Selection: The First Step. *Sheep resource handbook for market and breeding projects* (page 11-12).
- Ohio State University Extension. (2000). Your Very First Step - Selection. *Swine resource handbook for market and breeding projects* (pages 3-1 through 3-2).



# Frame Size and Market-Ready Weights

Cindy Kinder, Idaho Extension Educator

## Goal (learning objective)

Youth will learn the differences in frame sizes and market-ready weights for individual animals.

## Supplies

- Project animals with different frame sizes
- Handouts 1-6, Planning & Record Sheets and Frame Score Charts for each species, enough copies for the group
- Copy of the feeding period minimum requirements for project animals. Idaho 4-H minimum feed periods are 130 days for beef, 80 days for swine, 60 days for sheep and goats
- Pencils

## Pre-lesson preparation

- Review and make copies of all of the handouts

## Lesson directions and outline

### Background information

This would be helpful to share with youth prior to them selecting market animal projects for the year. Members should be familiar with animal industry standards, fair weight requirements and project feeding periods. Older youth could be asked to discuss experiences they have had with frame size and market ready weights while raising project animals.

Frame size is determined by age and hip height for beef, wither height for sheep and goats. For swine, body length and the size of the cannon bone. Refer to the frame score charts for each species. Frame size will determine an individual animal's market-ready weight.

### Introduction

Explain to the group that within each species (beef,

sheep, swine and goats) there are animals with small, medium, and large frames. Each breed of animal within a species has a typical frame size. However, there may be multiple frame sizes within a breed.

## Conducting the activity (DO)

1. Review the frame score chart for the species you are leading to help the youth determine frame size of their animal and potential market ready weight.
2. Have the youth circle the projected market weight of their project animal on the species frame score chart.
3. At time of purchase or at the beginning of the project, fill out the beginning planning & record sheet to estimate the market-ready weight of each project animal and its average daily gain.

## For Level 2 and 3 complete the remainder of the beginning planning and record sheet

4. Determine the resources you have by listing the types of feeds you are using.
5. Describe the method of feeding.
6. Complete the beginning planning & record sheet.

## What did we learn? (REFLECT)

- Ask: What did you learn about frame size?
- Ask: What did you learn about market-ready weights?
- Ask: If you have an animal with a small frame, can you expect a heavy-weight animal at fair? Why or why not?
- Ask: If you have an animal with a large frame that is lightweight at fair, what could have happened? What could you have done different?

**Why is that important? (APPLY)**

- Ask: Can the animal you are raising this year meet the individual estimated final weight?
- Ask: How can the frame score of your animal affect the market ready potential at fair time?
- Ask: How does setting goals for the market ready weight of your animal help you in other activities you participate in?

**Resources**

Kinder, C.A. (2013). Livestock Science Experiment. *Frame size and market ready weights*. Retrieved from <https://www.uidaho.edu/~media/UIdaho-Responsive/Files/Extension/county/Gooding/4-H/animal-science/Experiment-Topics-for-club-work.ashx>

Ohio State University Extension. (2011). Selection. *Beef resource handbook* (pages 2-11 through 2-24).

Ohio State University Extension. (2008). Meat Goats. *Goat resource handbook* (pages 115-119).

Ohio State University Extension. (2011). Selection: The First Step. *Sheep resource handbook for market and breeding projects* (pages 9-18).

Ohio State University Extension. (2000). Your Very First Step - Selection. *Swine resource handbook for market and breeding projects* (pages 3-7 through 3-15)

**SELECTION: FRAME SIZE AND MARKET-READY WEIGHTS - HANDOUT 1**

***Beef Beginning Planning & Record Sheet***

One of your market-project goals should be to have a market-ready animal. Knowing what your animal weighs now and its estimated end weight will help you achieve your market-ready goal.

**General Project Information**

Youth Name: \_\_\_\_\_ Weigh-in Date: \_\_\_\_\_

Animal Tag Number: \_\_\_\_\_ Weight: \_\_\_\_\_ Hip Height (inches): \_\_\_\_\_

Breed: \_\_\_\_\_ ESTIMATED FINAL WT:

Animal Tag Number: \_\_\_\_\_ Weight: \_\_\_\_\_ Hip Height (inches): \_\_\_\_\_

Breed: \_\_\_\_\_ ESTIMATED FINAL WT:

Animal Tag Number: \_\_\_\_\_ Weight: \_\_\_\_\_ Hip Height (inches): \_\_\_\_\_

Breed: \_\_\_\_\_ ESTIMATED FINAL WT:

Vaccinations (circle): wormer      8-way type      Other (list): \_\_\_\_\_

**Estimate Average Daily Gain (ADG) for your steer(s)**

| Tag No. | Estimated Final Weight |   | Beginning Weight |   | Total required gain |   | # Days in feeding period |   | Required daily gain |
|---------|------------------------|---|------------------|---|---------------------|---|--------------------------|---|---------------------|
|         |                        | - |                  | = |                     | ÷ |                          | = |                     |
|         |                        | - |                  | = |                     | ÷ |                          | = |                     |
|         |                        | - |                  | = |                     | ÷ |                          | = |                     |

*Think about this...*

1. What does market ready mean? Is your estimated final weight an ideal market weight for the beef industry?
2. The national average for ADG is 2.5 lb/day. Is your required ADG achievable?

## Feeding Your Steer

Steers will consume about 3% of their body weight per day. A fattening ration is 2% in grain and 1% in hay. Make every effort to keep feed waste to a minimum. Grain waste can be 5 to 10% of the amount fed and hay waste 10 to 20%, depending on the facilities and your care in feeding.

List your concentrates (grain): \_\_\_\_\_

List your roughages: \_\_\_\_\_

List any other feeds: \_\_\_\_\_

Describe your feeding method, i.e., free choice, feed truck or by hand, number of times per day, fed in a bunk or feed pan, etc.

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How much do you feed in the beginning? Choose one project animal to fill this out for.

**Grain:** Steer wt x 2% = pounds of grain per day

Pounds of grain per day ÷ 2 feedings per day = pounds of grain per feeding

Steer wt \_\_\_\_\_ x 2 % = \_\_\_\_\_ lb grain per day/2 feedings = \_\_\_\_\_ lb per feeding

**Hay:** Steer wt x 1% = pounds of hay per day

Pounds of hay per day ÷ 2 feedings per day = pounds of hay per feeding

|                             |  |  |  |  |  |  |  |  |  |
|-----------------------------|--|--|--|--|--|--|--|--|--|
| Current Weight              |  |  |  |  |  |  |  |  |  |
| Est. Grain/day<br>(wt X 2%) |  |  |  |  |  |  |  |  |  |
| Est. Hay/day<br>(wt X 1%)   |  |  |  |  |  |  |  |  |  |

Steer wt \_\_\_\_\_ x 1 % = \_\_\_\_\_ lb hay per day/2 feedings = \_\_\_\_\_ lb per feeding

*Ask yourself these questions*

1. How much does one scoop of grain weigh? Is one scoop of grain enough to feed per feeding?
2. How many scoops should you feed?
3. Calculate how much grain and hay per feeding you will feed by fair time.
4. Did you feed this amount in the beginning? More or less?

**Weight & Feed Estimate Record**

Tracking animal weight can tell you where your animal is compared to your goal. Weigh and record your animals' weights. Estimate the amount of feed you should be feeding. The feed amounts are just minimum estimates. You should be feeding more due to the waste factor. If your animal is eating all the grain, increase it (slowly). It is better to push your calf, in the beginning, to get him market ready then run out of time in the feeding period.

*Think about this...*

1. Typical influences in ADG are feed, water, weather, and illness. Is the ADG more or less than predicted? What caused any problems?
2. After each weigh day, do you need to feed more grain or hay?
3. What happens if your animal does not have the ADG you predicted?
4. If your animal is not market ready by fair time, what happens?
5. Is carcass quality affected by your feeding?

## SELECTION: FRAME SIZE AND MARKET-READY WEIGHTS - HANDOUT 2

### *Beef Frame Score Chart*

Feeder cattle fall into three frame sizes: small, medium and large. Differences between breeds play a role in the frame size of a feeder calf. In general, British breeds have small to medium frames and Continental breeds have medium to large frames. Some breeds will have all three sizes. Frame size is determined by the length of the body, height at the hip, and length and size of the cannon bone.

Frame size is important in determining management and indicates how large the mature animal will be. In feedlots, sorting by frame size will help producers feed each size to its market weight. When selecting breeding heifers, animal selection is based on access and quality of feed resources.

Producers estimate the correct finish weight for an animal by determining its approximate frame score and proper finish (ideal slaughter size and weight) for that score. Frame scores are objective, numerical scores that reflect the growth pattern and potential mature size of an animal. Frame score values typically range from 2 (small) to 9 (large) and are calculated based on hip height and age.

In the chart below, find the animal's age in the left-hand column and its hip height in that row to determine its approximate frame score. Now look at the bottom row under the animal's frame score to determine its estimated finish weight. These are projections for average yearling cattle. Actual weights will vary due to muscling, body length, and condition.

| <b>Age<br/>(months)</b>       | <b>Frame Score<br/>4 (medium)</b> | <b>Frame Score<br/>5 (medium)</b> | <b>Frame Score<br/>6 (large)</b> | <b>Frame Score<br/>7/8 (large)</b> |
|-------------------------------|-----------------------------------|-----------------------------------|----------------------------------|------------------------------------|
| 10                            | 45.3"                             | 47.3"                             | 49.3"                            | 51.3"                              |
| 11                            | 46.2"                             | 48.2"                             | 50.2"                            | 52.2"                              |
| 12                            | 47.0"                             | 49.0"                             | 51.0"                            | 53.0"                              |
| 13                            | 47.8"                             | 49.8"                             | 51.8"                            | 53.8"                              |
| 14                            | 48.5"                             | 50.4"                             | 52.4"                            | 54.4"                              |
| 15                            | 49.1"                             | 51.1"                             | 53.0"                            | 55.0"                              |
| 16                            | 49.6"                             | 51.6"                             | 53.6"                            | 55.6"                              |
| Estimated<br>Finish<br>Weight | 1050 to<br>1174 lbs               | 1175 to<br>1250 lbs               | 1251 to<br>1350 lbs              | 1351 to<br>1485 lbs                |

**SELECTION: FRAME SIZE AND MARKET-READY WEIGHTS - HANDOUT 3**

***Sheep and Goat Beginning Planning & Record Sheet***

One of your market-project goals should be to have a market-ready animal. Knowing what your animal weighs now and its estimated end weight will help you achieve your market-ready goal.

**General Project Information**

Youth Name: \_\_\_\_\_ Weigh-in Date: \_\_\_\_\_

Animal Tag Number: \_\_\_\_\_ Weight: \_\_\_\_\_ Shoulder/Wither Height (inches): \_\_\_\_\_

Breed: \_\_\_\_\_ ESTIMATED FINAL WT:

Animal Tag Number: \_\_\_\_\_ Weight: \_\_\_\_\_ Shoulder/Wither Height (inches): \_\_\_\_\_

Breed: \_\_\_\_\_ ESTIMATED FINAL WT:

Animal Tag Number: \_\_\_\_\_ Weight: \_\_\_\_\_ Shoulder/Wither Height (inches): \_\_\_\_\_

Breed: \_\_\_\_\_ ESTIMATED FINAL WT:

Vaccinations (circle): wormer      8-way type      Other (list): \_\_\_\_\_

Estimate Average Daily Gain (ADG) for your lamb/goat

| Tag No. | Estimated Final Weight |   | Beginning Weight |   | Total required gain |   | # Days in feeding period |   | Required daily gain |
|---------|------------------------|---|------------------|---|---------------------|---|--------------------------|---|---------------------|
|         |                        | - |                  | = |                     | ÷ |                          | = |                     |
|         |                        | - |                  | = |                     | ÷ |                          | = |                     |
|         |                        | - |                  | = |                     | ÷ |                          | = |                     |

*Think about this.....*

1. What does market-ready mean? Is your estimated final weight an ideal market weight for the sheep/goat industry?
2. The national average for ADG is 0.5 lb/day. Is your required ADG achievable?
3. Typical influences on ADG are feed, water, weather, and illness. How will you manage them?

## Feeding Your Lamb/Goat

Lambs/goats consume about 3 to 3.5% of their body weight per day. Make every effort to keep feed waste to a minimum. Grain waste can be 5 to 10% of the amount fed and hay waste 10 to 20%, depending on the facilities and your care in feeding.

List your concentrates (grain): \_\_\_\_\_

List your roughages: \_\_\_\_\_

List any other feeds: \_\_\_\_\_

Describe your feeding method, i.e., free choice, hand fed, number of times per day, fed in a bunk or feed pan, on or off the ground, etc.

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*Think about this.....*

1. What happens if your animal does not have the ADG you predicted?
2. If your animal is not market ready by fair time, what happens?

### How much Do You Feed?

A finishing ration is 2 to 2.5% grain and 1% hay. Start your lamb/goat on  $\frac{1}{4}$  to  $\frac{1}{2}$  pound of grain per day, slowly increasing to the finishing ration.

*Think about this.....*

5. How much does one scoop of grain weigh? Is one scoop of grain enough per feeding?
6. How many scoops should you feed?

### Energy and Protein

Energy is needed for increased growth rate. Many different grains are high in energy. Protein is an important nutrient in a lamb/goat finishing ration. Protein is needed to build bone and muscle. Young, fast growing lambs need rations that contain 16 to 18% protein (13 to 15% for goats) to allow them to grow and develop to their muscle potential.

## Minerals

Salt (sodium and chlorine) and calcium and phosphorus are important for lamb rations. Have loose salt (NOT a block) available free choice. Calcium (Ca) and phosphorus (P) should be fed in a ratio of 2.5 parts calcium to 1 part phosphorus.

Read your feed label and fill in the information below.

Name of feed: \_\_\_\_\_ Protein content: \_\_\_\_\_

Calcium content: \_\_\_\_\_ Phosphorus content: \_\_\_\_\_

List of ingredients: \_\_\_\_\_

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*Think about this.....*

1. What is the main protein source (ingredient) in your feed?
2. Is your feed providing the 2.5 to 1 ratio of Ca to P (Ca:P)?

## Water

Water is the most important nutrient. Explain how your lamb/goat receives fresh, clean water.

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**SELECTION: FRAME SIZE AND MARKET-READY WEIGHTS - HANDOUT 5**

***Swine Beginning Planning & Record Sheet***

One of your market-project goals should be to have a market-ready animal. Knowing what your animal weighs now and its estimated end weight will help you achieve your market-ready goal.

**General Project Information**

Youth Name: \_\_\_\_\_ Weigh-in Date: \_\_\_\_\_

Animal Tag Number: \_\_\_\_\_ Weight: \_\_\_\_\_

Breed: \_\_\_\_\_ ESTIMATED FINAL WT:

Animal Tag Number: \_\_\_\_\_ Weight: \_\_\_\_\_

Breed: \_\_\_\_\_ ESTIMATED FINAL WT:

Animal Tag Number: \_\_\_\_\_ Weight: \_\_\_\_\_

Breed: \_\_\_\_\_ ESTIMATED FINAL WT:

Vaccinations (circle): wormer \_\_\_\_\_ 8-way type \_\_\_\_\_ Other (list): \_\_\_\_\_

Estimate Average Daily Gain (ADG) for your pig(s)

| Tag No. | Estimated Final Weight |   | Beginning Weight |   | Total required gain |   | # Days in feeding period |   | Required daily gain |
|---------|------------------------|---|------------------|---|---------------------|---|--------------------------|---|---------------------|
|         |                        | - |                  | = |                     | ÷ |                          | = |                     |
|         |                        | - |                  | = |                     | ÷ |                          | = |                     |
|         |                        | - |                  | = |                     | ÷ |                          | = |                     |

*Ask yourself these questions*

6. What does market-ready mean? Is your estimated final weight an ideal market weight for the pork industry?
7. The national average for ADG is 1.8 lb/day. Is your required ADG achievable?
8. Typical influences on ADG are feed, water, weather, and illness. How will you manage them?

## Feeding Your Pig

Consistency is the key to feeding. Make sure you feed your animals at the same time every day and that when you have to change batches of feed or increase the amount feed, you do it slowly over a period of 2 to 3 days.

Hand feeding is feeding a known amount of feed to each pig. Hand feeding is done when taming pigs to get to know them better and when watching pig weights to help a pig reach its ideal market weight.

Self-feeders can be used when feeding large groups of pigs. Check the feeder daily, making sure it contains feed and that the feed is flowing to the bottom correctly.

List your concentrates (grain): \_\_\_\_\_

List any other feeds: \_\_\_\_\_

Describe your feeding method, i.e., self-feeders or by hand, number of times per day, in a trough or feed pan, etc.

\_\_\_\_\_  
*Think about this . . .*

3. What happens if your animal does not have the ADG you predicted?
4. If your animal is not market ready by fair time, what happens?

## How Much Do You Feed?

It takes 3 to 4 pounds of feed for a pig to gain 1 pound of weight. If you know the number of pounds your pig must gain per day, you can estimate the amount of feed you will need per day. Faster-gaining animals will require less feed per pound of gain. More waste also means more total feed required.

Feed:

Required daily gain \_\_\_\_\_ X 4 lb = \_\_\_\_\_ lb of feed needed per day

Keep in mind smaller pigs cannot consume as much as larger pigs. Refer to the table below.

| <b>Pig Weight<br/>(lb)</b> | <b>Daily Feed Intake<br/>(lb)</b> |
|----------------------------|-----------------------------------|
| <b>50-75</b>               | <b>2.85</b>                       |
| <b>75-125</b>              | <b>4.46</b>                       |
| <b>125-150</b>             | <b>5.58</b>                       |
| <b>150-200</b>             | <b>6.35</b>                       |
| <b>200-255</b>             | <b>6.69</b>                       |
| <b>225-250</b>             | <b>6.8</b>                        |
| <b>250-270</b>             | <b>7.3</b>                        |

*Think about this.....*

7. How much does one scoop of grain weigh? Is one scoop of grain enough per feeding?
8. How many scoops should you feed?

**Protein**

Protein is the most important nutrient in a swine ration. Protein is needed to build bone and muscle. If your pig is the lean and heavy-muscled type, you will need to feed a higher-protein-content feed. Pigs need feed with 18% protein (for 50-lb pigs) to 14% protein (for 250-lb pigs) in order to grow properly. Amino acids make up proteins. The right balance of amino acids is critical. Amino acids that need to be supplemented include lysine, tryptophan, threonine, and methionine.

Read your feed label and fill in the information below.

Name of feed: \_\_\_\_\_ Protein content: \_\_\_\_\_

List of ingredients: \_\_\_\_\_

*Think about this.....*

3. What is the main protein source (ingredient) in your feed?
4. Is your feed providing additional amino acids?
5. If pigs can only eat so much a day (refer to the pig weight and daily feed intake table) how can they get the required protein?

**Water**

Water is important for survival. Explain how your pig receives fresh, clean water.

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## SELECTION: FRAME SIZE AND MARKET-READY WEIGHTS - HANDOUT 6

### *Swine Frame Score Chart*

Estimate amount of muscle and frame size in your animal then find the proper finished weight for USDA #1 grade. If the beginning weight does not permit an efficient economical gain of at least 1.8 pounds per day, consider setting the USDA #2 grade as your goal.

#### Frame Size (pounds)

| USDA Grade | Small   | Medium  | Large   |                        |
|------------|---------|---------|---------|------------------------|
| 1          | 220-250 | 260-280 | 280-320 | <b>Thick Muscle</b>    |
| 2          | 250-260 | 270-280 | 290-320 |                        |
| 3          | XX      | XX      | XX      |                        |
| 1          | 220-230 | 250-260 | 260-270 | <b>Moderate Muscle</b> |
| 2          | 230-240 | 260-280 | 280-300 |                        |
| 3          | 240-260 | 270-280 | 290-300 |                        |
| 1          | 200-220 | 220-240 | 240-260 | <b>Light Muscle</b>    |
| 2          | 220-240 | 240-260 | 260-280 |                        |
| 3          | 230-240 | 260-280 | 270-280 |                        |



# Structural Conformation

Cindy Kinder, Idaho Extension Educator

## Goal (learning objective)

Youth will learn about structural differences in livestock and the importance of structural correctness.

## Supplies

- The animal parts poster in the Ohio Learning Lab Kit (either specific species or all species). Check with your local extension office on the availability of the kit and to check it out.
- Photocopies of the following handouts (enough for group):
  - Handout 1 - *Beef Resource Handbook*, chapter 2, pages 2-10 through 2-15
  - Handout 2 - *Goat Resource Handbook*, chapter 2, pages 22-26
  - Handout 3 - *Sheep Resource Handbook for Market and Breeding Projects*, chapter 2, pages 11 and 14-16
  - Handout 4 - *Swine Resource Handbook for Market and Breeding Projects*, chapter 3, pages 3-2 and 3-7 through 3-14
- Meeting location with enough space to run a foot-race

## Pre-lesson preparation

This activity can be conducted for a specific species or all species

- Review structural differences in the beef, goat, sheep, and swine resource handbooks (see handouts)
- Review conformation terminology

## Lesson directions and outline

There are many tools available to help with animal selection. They include things such as animal weights,

actual performance data and expected progeny differences. While these tools are helpful visual appraisal is still a key tool in animal selection. Animals, just like people, need to be able to walk and run in order to perform different functions. By taking a good look at the animal you will be able to recognize if they can travel to food, water and shelter comfortably as well as move away from harm.

## Conducting the activity (DO)

1. Ask volunteers to distribute the handouts.
2. While working through the structural faults, have the members stand and adjust their legs so they mimic each fault.
3. Once all the leg structures have been explained, ask for volunteers to represent the different “structural faults”
4. Have volunteers run a relay race with that structural fault (three or four at a time)
  - While members are waiting to run, they can practice walking around with their structural faults. For example, running on tippy toes would be the post-legged structure. Running with heels together would be the splayed-footed structure. Have volunteers experiment with walking with those structures for 5 minutes.

## What did we learn? (REFLECT)

- Ask: What are common structural faults in livestock?
- Ask: Have you seen animals with any of those faults?
- Ask: Relay race volunteers: was it easy to run the foot-race? If you had to walk all the time that way how would you feel? What hurts?
- Ask: Why is structural correctness important?

## Why is that important? (Apply)

- Ask: If your animal is hurting, how often would they get up to eat and drink? As your animal gets heavier, how would they feel?
- Ask: Relay race volunteers: was it easy to run the footrace? If you had to walk all the time that way how would you feel? What hurts?

## Resources

Ohio State University Extension. (n.d.). Learning Lab Kits. Beef, Sheep, Swine, and Goat. Available from: <http://www.ohio4h.org/books-and-resources/learning-lab-kits>.

Ohio State University Extension. (2011). Selection. *Beef resource handbook* (pages 2-10 through 2-15).

Ohio State University Extension. (2008). Choosing an Animal. *Goat Resource Handbook* (pages 22-26).

Ohio State University Extension. (2011). Selection: The First Step. *Sheep resource handbook for market and breeding projects* (pages 11 and 14-16).

Ohio State University Extension. (2000). Your Very First Step - Selection. *Swine resource handbook for market and breeding projects* (pages 3-2 and 3-7 through 3-14).

University of Tennessee Extension. (2013). Module 5 Swine. *Livestock judging guide*. Available from: [https://extension.tennessee.edu/henderson/Documents/%2713%20Livestock%20Judg%20Guide%20Module%205%20Swine%20\(1\).pdf](https://extension.tennessee.edu/henderson/Documents/%2713%20Livestock%20Judg%20Guide%20Module%205%20Swine%20(1).pdf)

## The Ideal Breeding Heifer



### Ideal Breeding Heifer

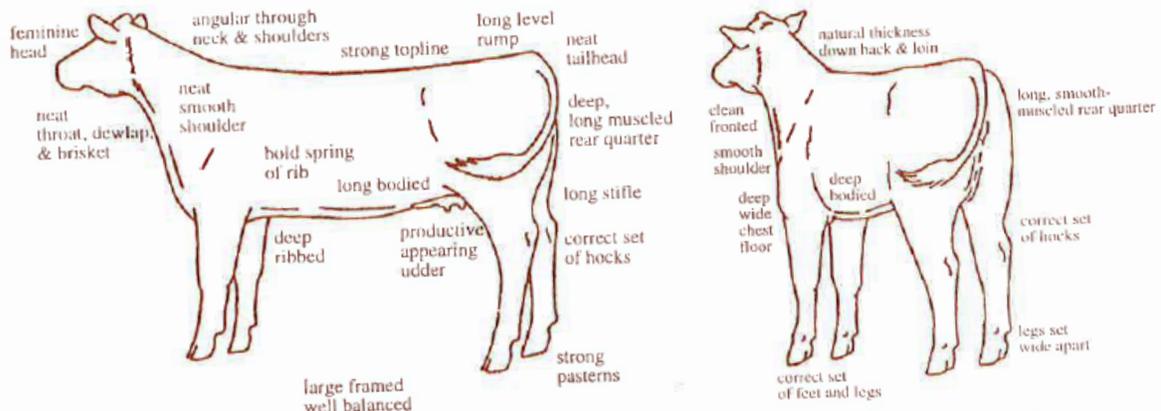
- 5.5-7.0 frame score
- Extra capacity and volume
- Structurally correct
- Feminine

(Figure 2.03)

### Describing the Ideal Heifer

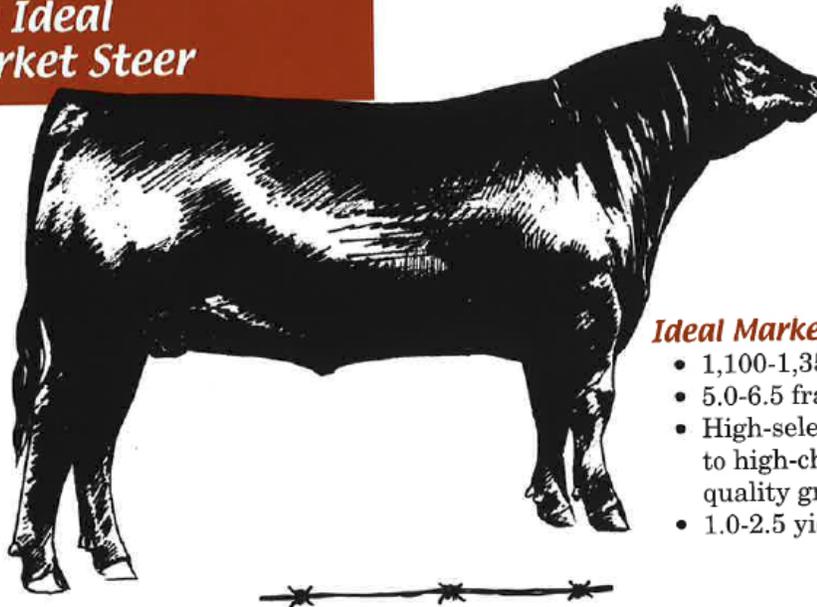
(Figures 2.03 and 2.04)

- Feminine head
- Neat throat, dewlap, and brisket
- Angular through neck and shoulders
- Neat, smooth shoulder
- Strong topline
- Long, level rump
- Smooth tailhead
- Deep, long smooth muscled rear quarter
- Long stifle
- Correct set of hocks
- Strong pasterns
- Productive appearing udder
- Long-bodied
- Bold spring of rib
- Deep-ribbed
- Large frame, well balanced
- Natural thickness down back and loin
- Legs set wide apart
- Correct set of feet and legs
- Deep-bodied
- Deep, wide chest floor
- Clean-fronted



(Figure 2.04)

## The Ideal Market Steer



### Ideal Market Steer

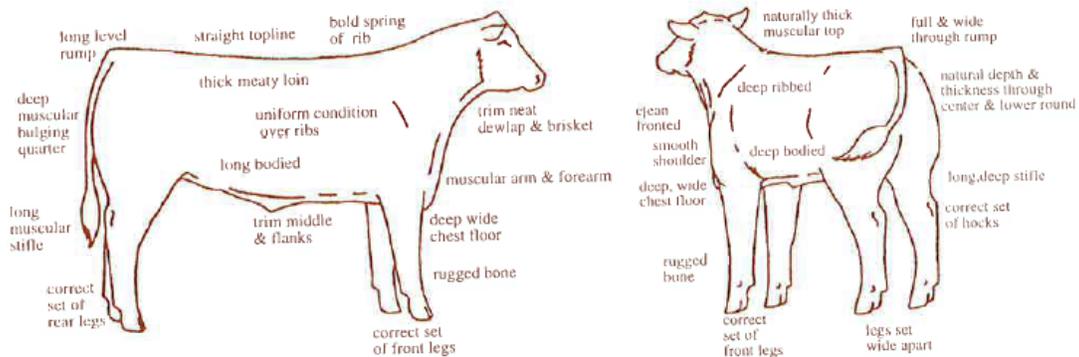
- 1,100-1,350 pounds
- 5.0-6.5 frame score
- High-select to high-choice quality grade
- 1.0-2.5 yield grade

(Figure 2.05)

### Describing the Ideal Market Steer

(Figure 2.05 and 2.06)

- Long, level rump
- Straight topline
- Bold spring of rib
- Thick, meaty loin
- Uniform condition over ribs
- Trim, neat dewlap and brisket
- Muscular arm and forearm
- Deep, wide chest floor
- Rugged bone
- Correct set of front legs
- Trim middle and flanks
- Long-bodied
- Correct set of rear legs
- Long, muscular stifle
- Deep, muscular bulging quarter
- Naturally thick, muscular top
- Full and wide through rump
- Natural depth and thickness through center and lower round
- Long, deep stifle
- Correct set of hocks
- Legs set wide apart
- Smooth shoulder
- Clean fronted
- Deep-ribbed
- Deep-bodied



(Figure 2.06)

## Structural Differences

- **Splayfooted or Knock Kneed**—When viewed from the front, the knees are close together and the feet toe out away from each other. This problem is often seen in extremely light-muscled, narrow-chested cattle when the legs are naturally set too close together.

- **Pigeon Toed or Bowlegged**—When viewed from the front or rear, the knees set too far out, causing the toes to turn inward.

- **Cow Hocked**—When viewing the hind legs from the rear, the hocks are turned inward or are placed too close together, causing the toes to turn outward.

- **Buck Kneed**—When the calf is “over at the knees,” or buck kneed, full extension of the knee cannot occur. When observed from the side the legs appear slightly bent. This is usually seen in cattle that are too straight in the shoulder.

- **Calf Kneed**—This is the other extreme, the opposite of buck kneed, where the calf stands “back at the knees” when viewed from the side.

- **Sickle Hocked**—When viewing the rear legs from the side, the hock has too much angle or set, causing the steer to stand too far underneath himself. Often these calves will droop excessively from hocks to pins.

- **Postlegged**—The hock has too little angle or set. The calf is too straight through the joint, resulting in very stiff, restricted movement because of the lack of flexibility. More cattle become unsound because of being postlegged than sickle hocked.



correct



knock kneed or splayfooted



bowlegged or pigeon toed



correct



cow hocked or splayfooted



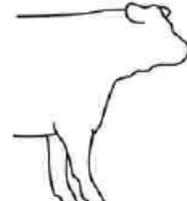
bowlegged or pigeon toed



correct



buck kneed



calf kneed



correct



sickle hocked



postlegged

(Figure 2.07)



## Evaluation of Breeding Cattle

When evaluating breeding cattle, several important characteristics must be examined. Body composition, frame size, structural correctness, sex character, and overall balance must be considered when evaluating a breeding animal. Traits that contribute to productivity and longevity must be emphasized. (Figures 2.08a and 2.08b)

### Volume and Capacity

Current emphasis is placed on animals with more three-dimensional (length, width, and depth) volume and capacity, natural muscling, and fleshing ability.

Traits that contribute to this include:

- spring of rib
- depth of rib
- width of chest
- more natural thickness and shape down the top
- thickness of quarter
- width and depth of stifle



(Figure 2.08a)

### Frame Size

Modern breeding cattle must exhibit adequate growth for their age. Skeletal height in relationship to age contributes to the animal's overall frame score. Cattle should be above average in height but not extremely tall, and should possess extra length of body. Traits that are desirable in regard to frame score are:

- above average hip height (frame score 6.0-7.0)
- extra length of body
- long rump
- above average weight per day of age

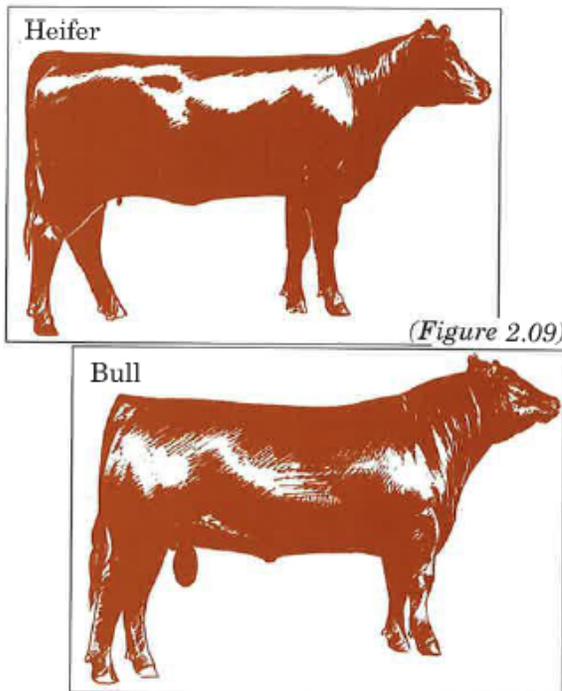
### Structural Correctness

Animals that are more structurally correct will be better able to withstand the rigors of pasture conditions and thus increase their odds of being productive for longer periods of time. Structural correctness is emphasized more in breeding cattle than in market cattle. Look for animals that have the following characteristics:

- stand squarely on front and rear legs
- heavy boned
- move with a long, reaching stride
- level from hooks to pins
- possess adequate set (flex) to the hocks
- proper slope to the shoulder
- large round foot with deep heel



(Figure 2.08b)



(Figure 2.09)

### Sex Character

Differences in sex character are important when judging breeding cattle. There are important differences between females and males. (Figure 2.09)

Femininity is exhibited by a long, refined head that is sharp about the poll. Females should possess a long, trim neck and be smooth about the shoulders.

Masculinity is exhibited by a long head that is slightly broader between the eyes and flatter about the poll. Males should be long necked and display a crest of the neck. Testicular development should be evident and increase with maturity.

### Balance

Traits that relate to balance contribute to the overall appearance of an animal. Characteristics that are considered desirable include:

- straightness of lines
- strong topped
- level rump
- smoothness of shoulder
- clean and trim brisket
- balanced underline

## Evaluation of Market Cattle

When selecting and evaluating market cattle, 4-H members must keep in mind the purpose of these animals. The primary function of market animals is meat production. Therefore, traits such as muscling and finish are emphasized. Frame size and structural correctness are examined but to a slightly lesser degree than in breeding cattle. (Figures 2.10a and 2.10b)

### Muscling

Modern market cattle should exhibit extra muscling down their top and through their quarter. These are the areas from which the high-priced cuts come. Traits that are found in the ideal market steer include:

- natural thickness down the top
- muscular loin
- long, level rump
- wide through the center of the quarter
- wide, deep stifle

### Finish

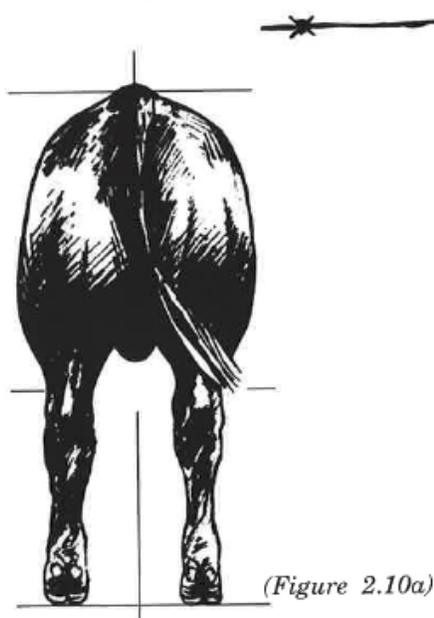
Finish refers to the amount of fat cover a market animal possesses. An ideal market animal should have the minimal amount of body fat and still be able to reach the Choice quality grade. Desirable traits in regard to finish include:

- smooth and uniform fat cover over ribs
- uniform depth of body
- freedom from fat patches around tailhead
- no excessive fullness in brisket

### Frame Size

Current trends in market cattle frame size have shifted toward moderation. Market cattle should have enough frame to enable them to reach an acceptable market weight (1,100-1,350 lbs.) at 12-18 months of age. Acceptable traits for today's frame size include:

- moderate hip height (frame size 5.0-6.5)
- extra length of body
- long rump



(Figure 2.10a)

### Structural Correctness

While it is not emphasized as greatly as it is with breeding cattle, structural correctness is an important selection criteria when judging market animals. As with breeding cattle, look for animals that:

- stand squarely on front and rear legs
- heavy boned
- move with a long, reaching stride
- nearly level from hooks to pins
- possess adequate set (flex) to the hocks
- have a proper slope to the shoulder



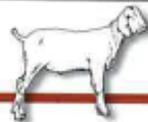
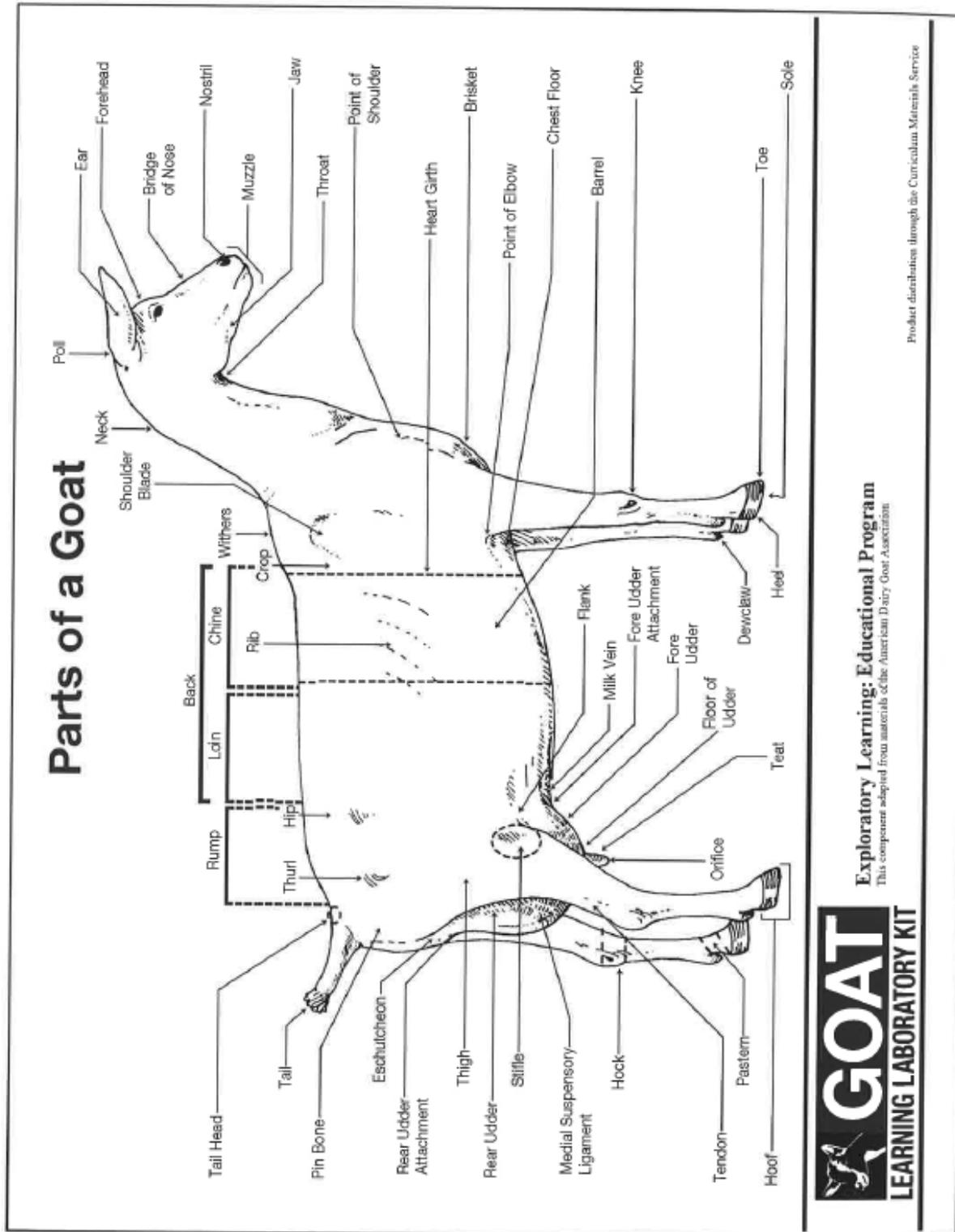
(Figure 2.10b)

For more information on the selection of beef animals, refer to the *Pennsylvania 4-H Livestock Judging Manual* that can be found at [www.ohio4h.org/publications](http://www.ohio4h.org/publications) or the *Ohio 4-H bulletin 103R Beef, Sheep and Swine Selection and Evaluation*. This publication can be purchased at your local Ohio State University Extension office or go to <http://estore.osu-extension.org>.

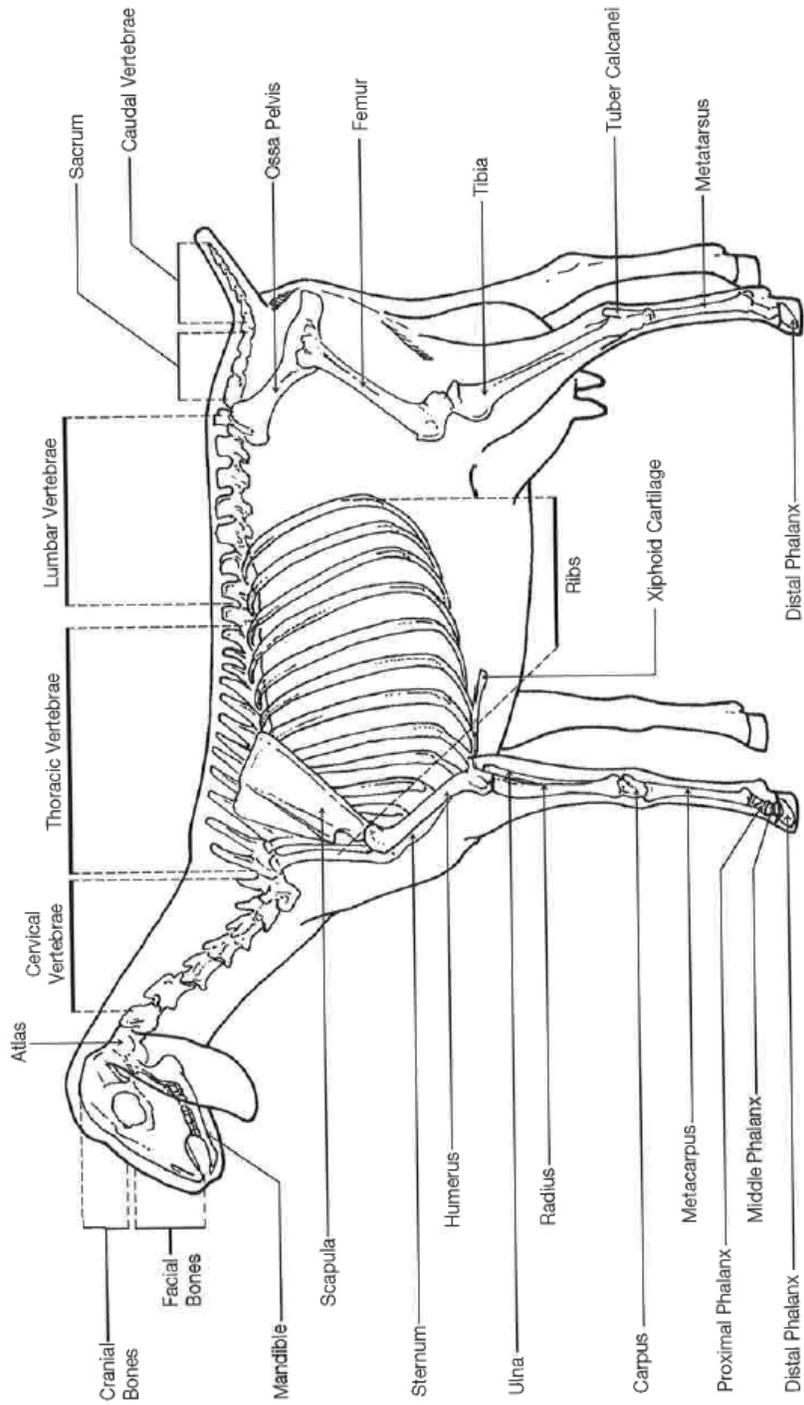
Ohio residents receive the best price when they order and pick up their purchases at their local Extension office.

### Evaluation of Feeder Calves

The selection and evaluation of feeder calves is very similar to that of market cattle. Keep in mind the feeder calf will eventually become a market animal so meat production should be emphasized. One significant difference when evaluating feeder calves is that finish, or fat cover, is not a priority. In fact, excessively fat feeder calves can be an indication of small frame size or very early maturity.



# Goat Skeletal System



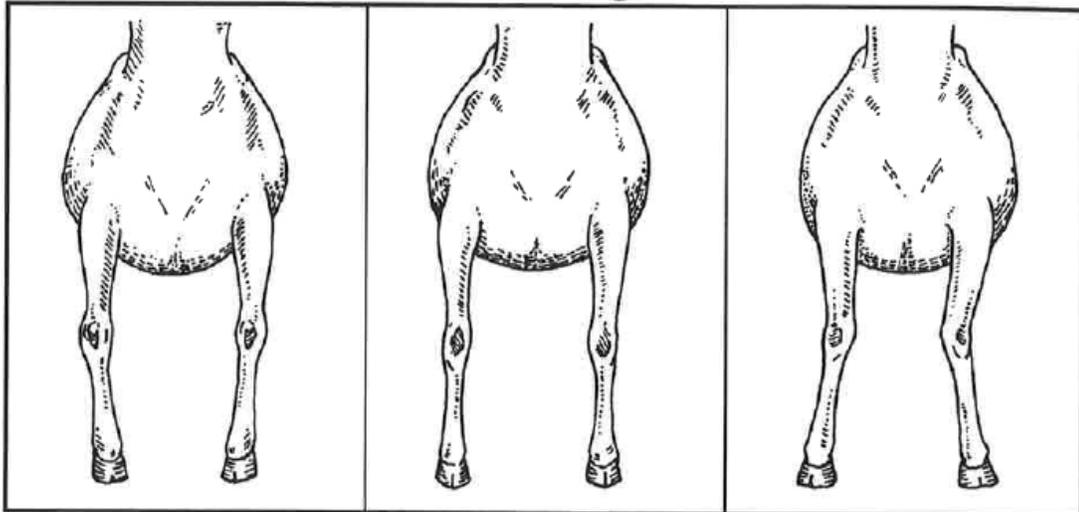
**Exploratory Learning: Educational Program**  
This component adapted from materials of the American Dairy Goat Association

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# Goat Feet and Leg Structure (Part I)

## Front Legs

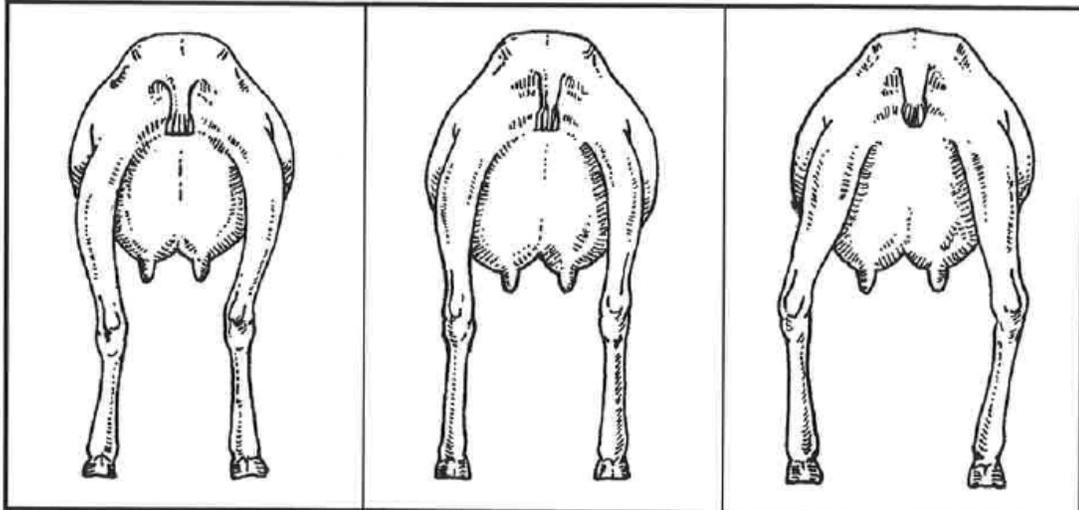


Buckled Knees

Ideal

Knock-Kneed

## Rear Legs



Close at the Hocks

Ideal

Bowlegged



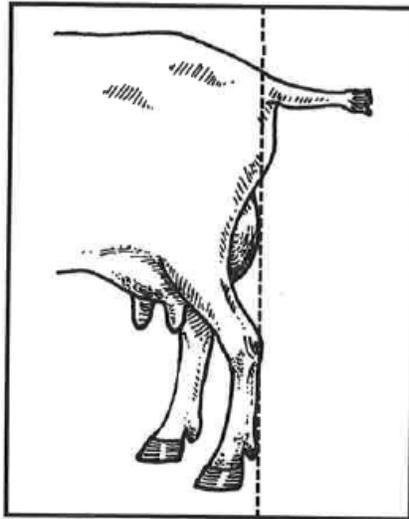
### Exploratory Learning: Educational Program

This component adapted from materials published in the *Dairy Goat Journal*, Helonville, WI

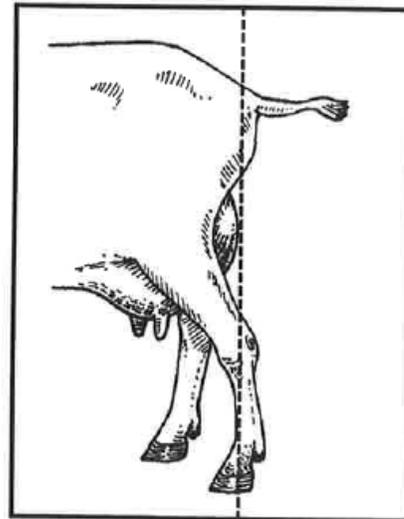
Product distribution through the Curriculum Materials Service



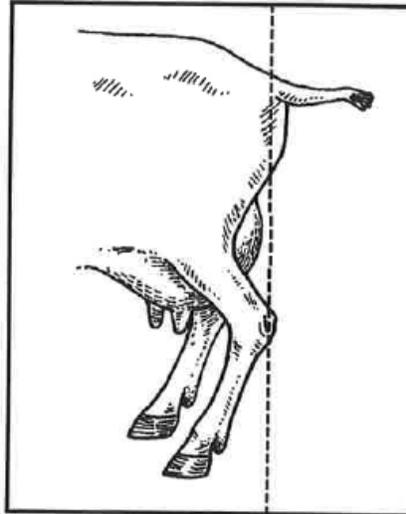
# Goat Feet and Leg Structure (Part II)



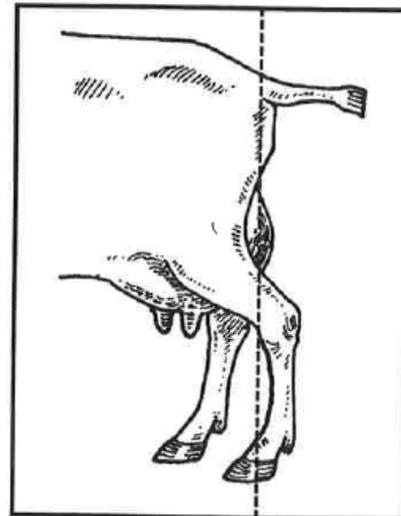
Ideal Rear Legs



Post-Legged



Sickle-Hocked



Weak Pasterns

 **GOAT**  
LEARNING LABORATORY KIT

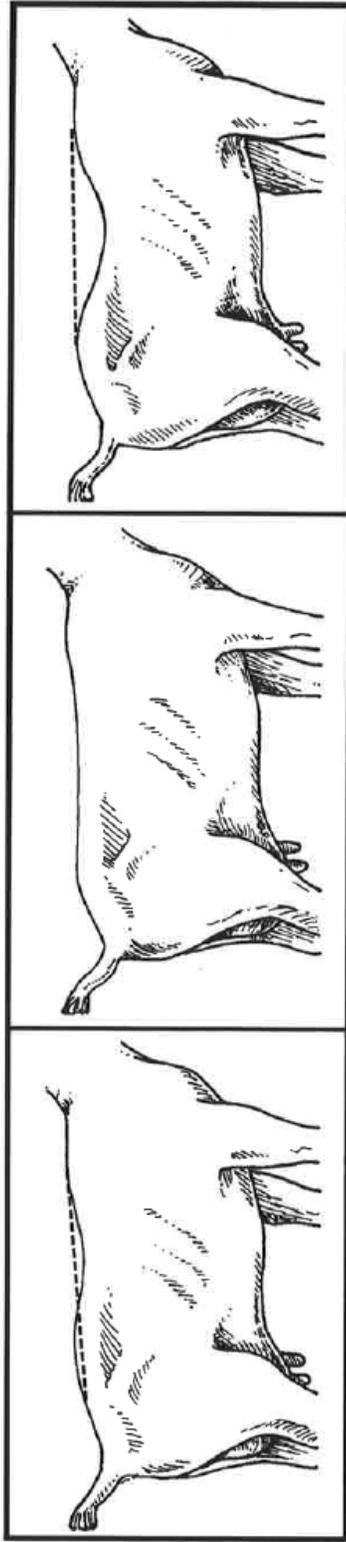
**Exploratory Learning: Educational Program**

This component adapted from materials published in the *Dairy Goat Journal*, Helenville, WI

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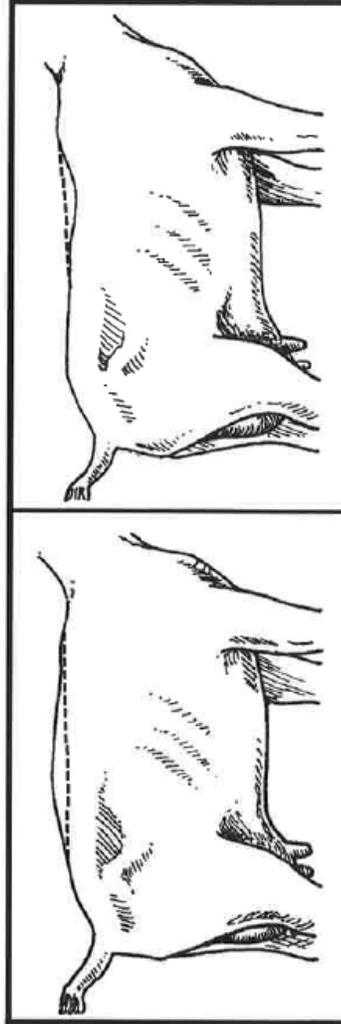
# Goat Topline Structure



Wavy Back

Ideal Back

Sway Back



Roached Back

Weak in the Chine



**Exploratory Learning: Educational Program**

This component adapted from materials published in the *Dairy Goat Journal*, Helenville, WI

Product distribution through the Curriculum Materials Service

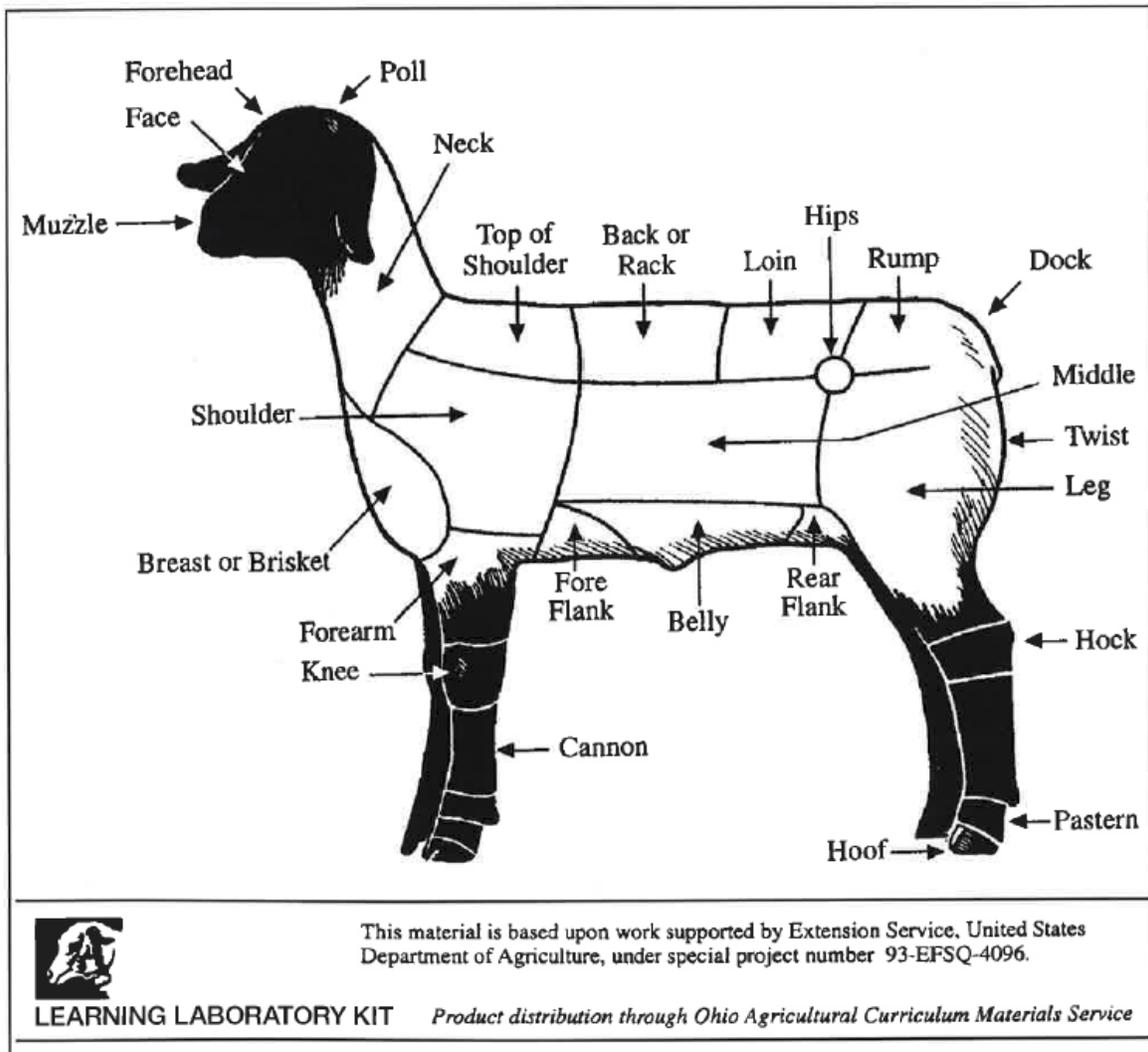


## Judging Market Lambs

The main points to consider in judging market lambs are structure, type, muscling, and finish. (See Figures 3 and 4.) Evaluation of carcass merit is an estimate that measures the relationship between finish and muscle.

## Parts of the Lamb

To be successful in raising and selecting sheep, you should know the names of the various parts of the animal and their locations on the animal's body. Using industry-accepted terms helps you know what to look for and to accurately describe an animal's traits (Figure 1).



**Figure 1**  
*Parts of a Sheep*

## Conformation

An ideal market lamb is one that combines weight and frame, correctness, natural muscling, and trimness. The ideal market lamb weighs between 115 and 140 pounds, has adequate frame, is long-bodied, and is clean and trim throughout the front end and middle. Look for a strong, level topline. Your lamb should be especially long and level through the loin and rump (hindsaddle) standing on a sound, structurally correct set of feet and legs (Figure 3).

## Balance

This is the proportion of body parts. The lamb should be strong-topped and level-rumped, with a long neck and head. It should also be clean and trim (Figure 3). Muscling should be uniform from shoulder getting progressively thicker through to dock.

## Capacity

The body capacity should be moderately deep and square, with the ribs sprung wide throughout

the chest cavity. The depth should continue the length of the animal's body in a uniform manner from the fore flank to the rear flank (Figure 3). Body capacity is important for maintaining health, intake of feed, and adequate reproductive volume.

## Muscle

The ideal market lamb should exhibit extra muscling through its top, hindsaddle, and leg. These are the areas from which the high-priced cuts of meat come from. An indication of muscling is thickness through the center of the leg. When viewed from the rear, the lamb should stand naturally with its legs wide apart. Natural thickness over the top will be visible with a slightly rounded appearance and good width, length, and depth of loin. There should also be good width and length of rump (Figure 4) and muscle expression in the forearm.

NOTE: Natural muscle is round, not square. If the animal is starting to square up over the loin edge, an assessment of over fatness should be made.

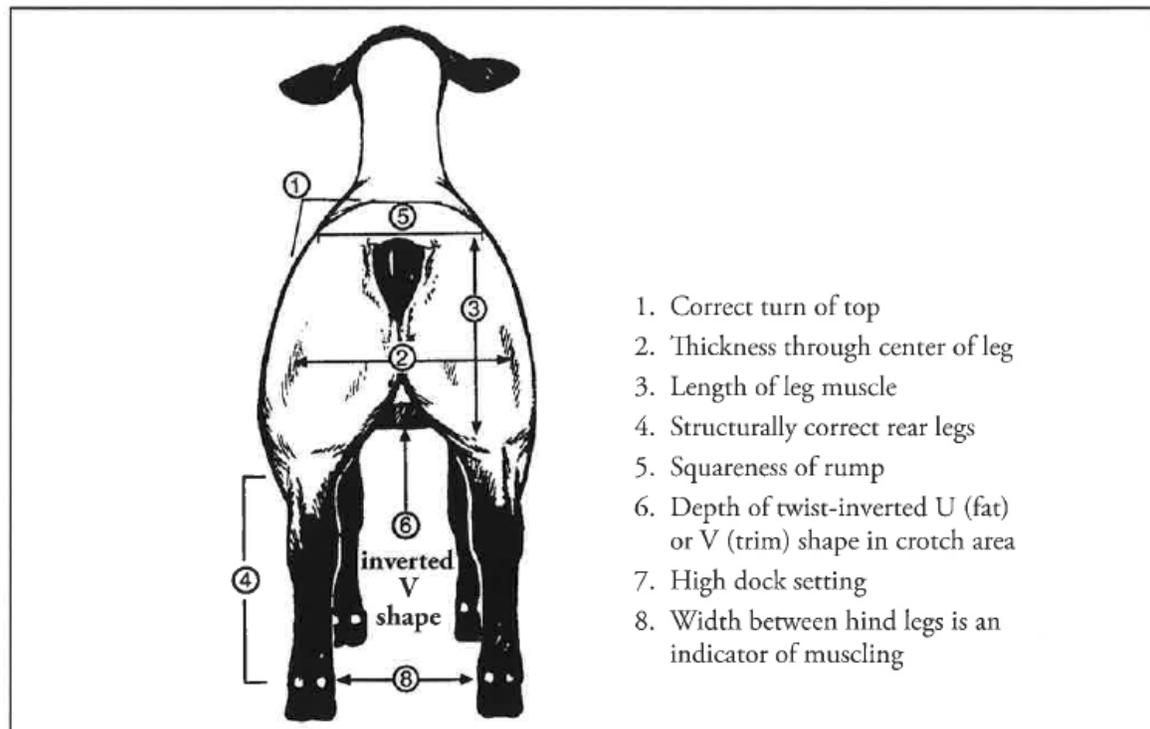


Figure 4

## Structural Soundness

Skeletal correctness in feet, legs, and mouth should be evaluated when selecting a lamb for your project. The lamb should be evaluated on the move as well as being held by someone and being braced if possible. This gives you an idea of how the lamb will look to the judge at the fair whether the lamb is being held or on the move. Evaluate the structural soundness from the ground up.

### Forelegs

The correct placement of the foreleg (Figure 5) has a vertical line from the point of the shoulder to the ground and divides the leg into two equal halves. The line splits the knee, fetlock, and foot.

Calf-kneed (Figure 5) is when the knee is bent slightly backward. A lamb can also have weak pasterns (Figure 5). Buck-kneed (Figure 5) is when the knee is bent slightly forward.

A splayfooted (Figure 5) lamb has toes that point outward. As the lamb walks, the foot will “dish in” toward the other limb. A pigeon-toed animal (Figure 5) is the reverse of one that is splayfooted. The toes point inward and the animal will paddle or “wing-out” as it walks. A knock-kneed lamb (Figure 5) has knees that are set too close together. Often, an animal will be both knock-kneed and splayfooted.

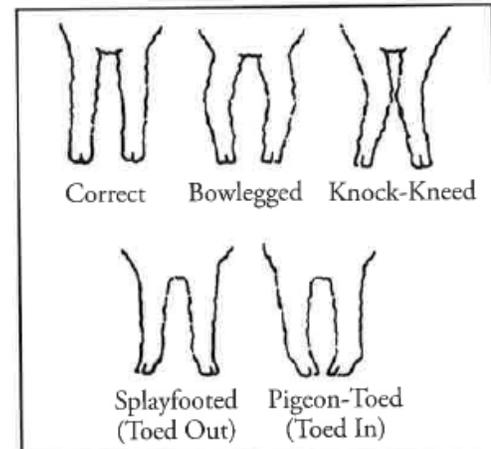
A bowlegged animal (Figure 5) has the opposite condition of a knock-kneed lamb.

### Hind Legs

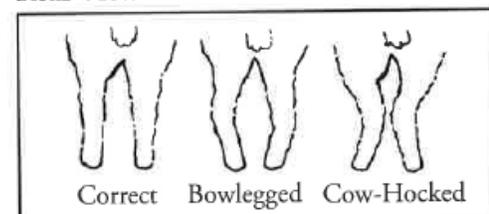
A correctly set hind leg depends on the angle at the hock joint that is formed by the gaskin and cannon bone. Try to visualize a straight edge that touches the pin bones, as illustrated in Figure 5. If the straight line appears to touch the rear edge of the cannon bone, the lamb will have the proper set to the hind leg. This will be true even if the feet are placed more forward or behind the “line.”

### Leg Descriptions and Illustrations

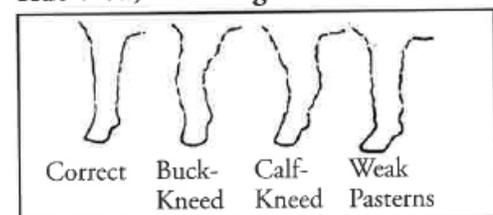
#### Front View



#### Rear View



#### Side View, Front Legs



#### Side View, Rear Legs

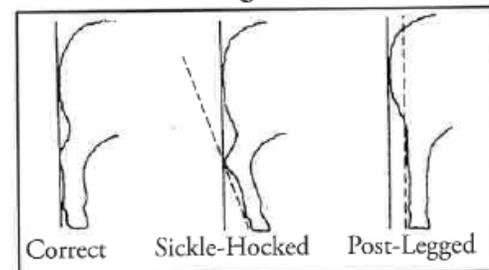


Figure 5

After viewing several lambs, you will soon realize that the angle at the hocks varies. The greater the degree to which this angle varies, the more incorrect the animal is and the more serious the fault (Figure 5).

The sickle-hocked lamb (Figure 5) has too much set or angle at the hock. In horses, this defect causes curbing, a bony growth on the back of the hock that develops because of strain on the joint. This can occur in sheep, but rarely does, because a sheep does not strain the hock to the same extent as a horse.

A more serious fault is a hind leg that is too straight, or post-legged (Figure 5). This condition changes the angulation of the bones at the hock and the stifle joint and shortens the stride. The patella (knee cap) at the stifle joint may be displaced resulting in a stifled, lame, unsound animal.

Figure 5 illustrates the proper set to the hind leg when the animal is viewed from the rear. Figure 5 shows a cow-hocked lamb. With this condition, the hocks are too close together, the cannons are not parallel and the toes deviate extremely outward. A lamb with this defect has an unsightly, inefficient gait.

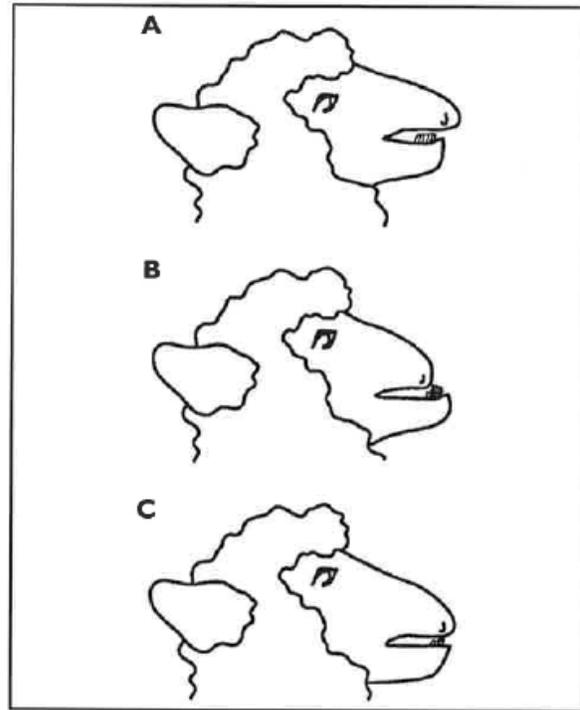
A lamb can also be bowlegged off the hind legs (Figure 5).

## Sheep Jaw Structure

(See Figure 6.)

- A. Undershot (Parrot-mouth)—in this situation the lower jaw is too short.
- B. Overshot (Monkey-mouth)—the lower jaw is too long, and the teeth are in the front of the upper mouth pad.
- C. Normal mouth—the top and bottom jaws are properly aligned. Note that the incisor teeth are flush with the pad on the upper jaw.

Unsound mouth diagrams such as A and B are inherited traits that interfere with the sheep's ability to gather food.



**Figure 6**  
(North Central Region Extension  
Publication #300)

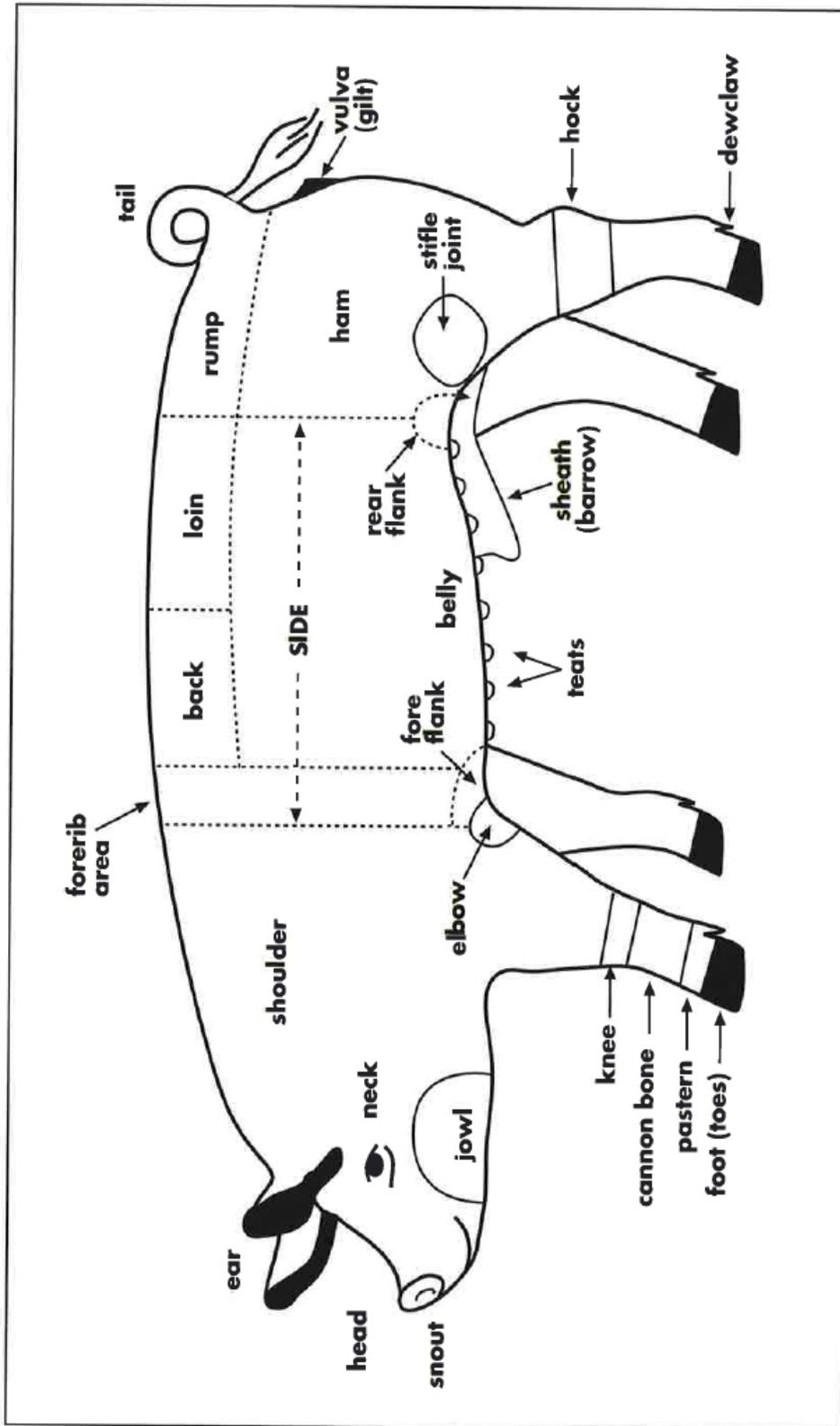
## Finish

Correct finish is important to determine the cutability (retail value) of a lamb. Finish is the amount of external fat on a lamb. To determine the amount of finish, handle the lamb over the backbone and ribs. Excessive prominence of the backbone and ribs shows a lack of finish. Too much finish is present when you cannot feel the backbone or ribs by normal handling methods. Correct finish is 0.15–0.25 inches of backfat. Desirable traits in regard to finish include: smooth and uniform fat cover over the ribs; no excessive fullness in breast; a uniform fat cover of 0.15–0.25 inches.

Finish or Condition is evaluated in the:

- sternum
- over backbone and loin (12th and 13th rib)
- lower forerib
- flank
- upper rear rib
- twist

The measurement over the 12th and 13th rib is the only measurement used in the current USDA yield grade equation.



**SWINE**  
LEARNING LABORATORY KIT

This material is based upon work supported by Extension Service, United States Department of Agriculture, under special project number 93-EFSQ-4096  
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Figure 3.1  
Parts of the pig

## Breed Associations

| Breed                                       | Name of Association                                                                                                                      | Address                                                                                    |
|---------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| Duroc<br>Hampshire<br>Landrace<br>Yorkshire | National Swine Registry/United Duroc Association /Hampshire Swine Registry/<br>American Landrace Association/<br>American Yorkshire Club | P.O. Box 2417<br>W. Lafayette, IN 47996-2417<br>765/463-3594 (phone)<br>765/497-2959 (fax) |
| Berkshire                                   | American Berkshire Association                                                                                                           | P.O. Box 2436<br>W. Lafayette, IN 47996-2436                                               |
| Chester White                               | Chester White Association                                                                                                                | P.O. Box 9758<br>Peoria, IL 61612-6320                                                     |
| Poland China                                | Poland China Record Association                                                                                                          | P.O. Box 9758<br>Peoria, IL 61612-6320                                                     |
| Spotted Swine                               | Spotted Swine Breeders                                                                                                                   | P.O. Box 9758<br>Peoria, IL 61612-6320                                                     |
| Tamworth                                    | National Tamworth Swine Association                                                                                                      | 200 Centenary Road,<br>Winchester, OH 45697                                                |
| Hereford                                    | National Hereford Hog Record Assoc.                                                                                                      | Route 1, Box 37<br>Flandreau, SD 57028-0037                                                |

### Size Consideration/ Structure

Regardless of breed chosen, it is very important when selecting your project pigs to select ones at the right weight and size. If a pig is to weigh 240 pounds by fair time, a 60 pound pig needs 100–110 days to attain that size. Forty pound pigs need 125 days. Select a weight that is appropriate to the amount of time you have from project start until fair time. Expect the average growth rate for a feeder pig to be 1.5–1.75 pounds daily gain.

When selecting size, don't forget to consider frame size as well. Frame size plays an important part in the weight of your pig. If you have a large framed barrow or gilt, it can carry 240–280 pounds much easier and better than a smaller framed animal. The smaller framed pig will appear to be fatter.

### Selecting the Right Type of Pig

Selecting pigs of the right type can be a difficult task because 40–60 pound pigs will not show the differences in body shape that larger pigs do. However, by developing a checklist of characteristics you need to consider for project selection, you can more accurately assess the potential of the project animal.

This list includes:

1. Breed of parents
2. Breed type/appearance
3. Performance history of parents
4. Visual observation and measurement of performance of relatives at 230–260 pounds (Figure 3.2)
5. Carcass evaluation of relatives



**Figure 3.2**  
**Monitor Swine Performance**

Get a picture of a past champion market hog from a county or state fair. Memorize how that ideal market hog is designed. Keep in mind this “ideal” type of pig so you can look for its characteristics as much as possible (Figure 3.3).

## Characteristics You Should Look For

### Conformation

This refers to the general body shape of the pig as determined by its framework or skeleton and muscle structure. A large-framed, longer-sided pig will grow and reach a heavier market weight faster, yielding a carcass with more total muscle than that of a small-framed, shorter-sided pig. Poor management, improper feeding or poor health will prevent either type of pig from developing to its genetic potential.

### Muscle

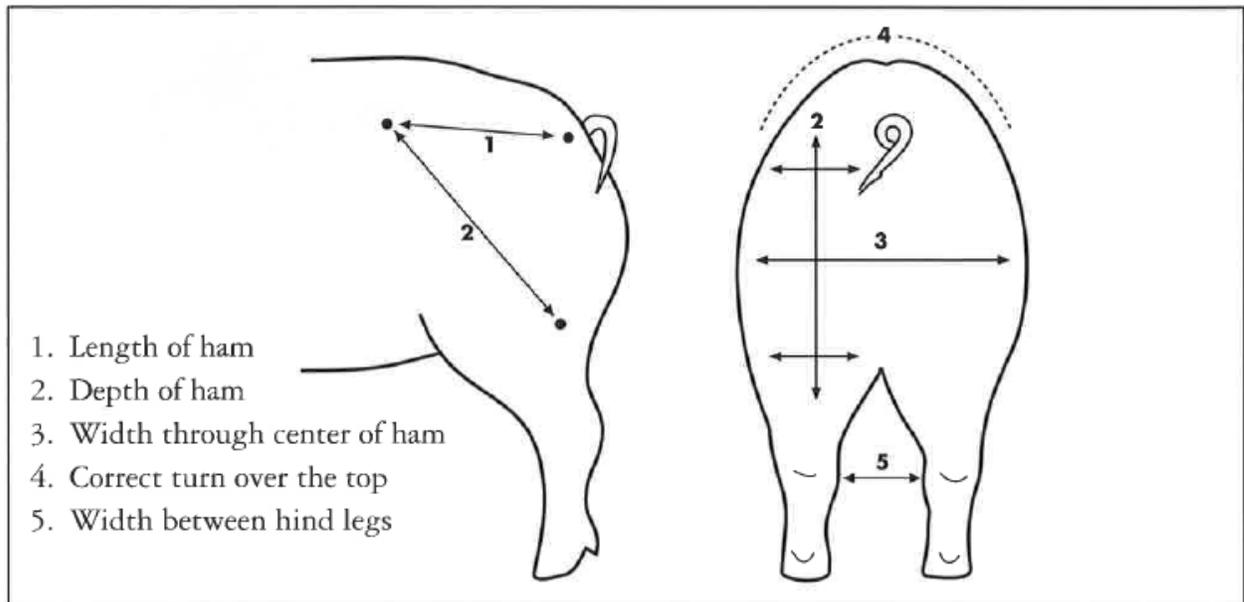
The ideal muscle pattern in today's meat hog is long, thick, and smooth. This muscle structure can best be observed by viewing the ham (Figure 3.4). Also, because this muscle structure is somewhat loose, the pig is able to move more freely off his front and rear legs.

**FIGURE 3.3 APPENDIX**

**IDEAL MARKET HOG DESIGN**



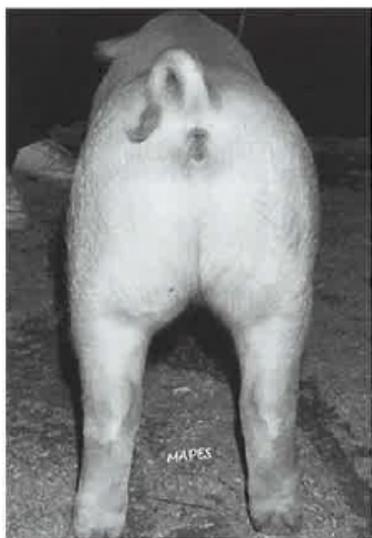
Image from *Livestock Judging Guide* by Neal Smith, University of Tennessee 2013.



**Figure 3.4**  
**Points to consider in appraising muscling.**

Don't confuse type of muscling with the amount of muscle. There is a need for an adequate amount of muscling in the ham and loin region, but it must be long and smooth rather than tight and round. Some extremely thick-muscled pigs may carry an inherited defect known as the Porcine Stress Syndrome (PSS), which contributes to stress susceptibility. When a stress-susceptible

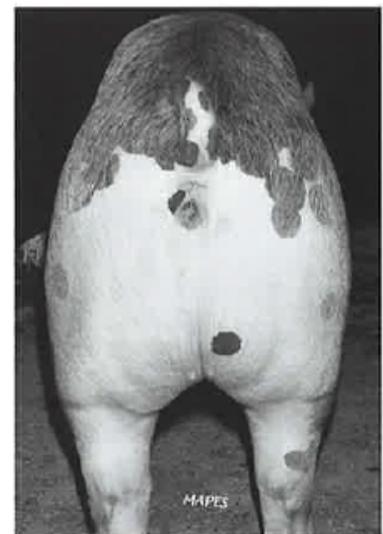
(PSS) pig is excited by movement or fighting, he will begin to tremble and go into shock and may even die. If PSS pigs do not die, they will have carcasses that will yield pale, soft, watery pork. Also, because PSS pigs are often short and steep in their rump structure, females may have more difficulty giving birth. (See Figure 3.5, 3.6, 3.7.)



**Figure 3.5**  
**Light Muscled**



**Figure 3.6**  
**Round Muscled**



**Figure 3.7**  
**Ideal Muscled**

## Fat

Fat has been identified as the pork industries' number one enemy. Fat is a primary concern in our health conscious society. Also, fat is costly to the pork producer because it takes 2½ times the amount of feed to produce a pound of fat versus a pound of lean. (Compare Back Views of Figures 3.8 and 3.9)



**Figure 3.8**  
**Fat Market Hog (Back View)**



**Figure 3.9**  
**Lean Market Hog (Back view)**

A small amount of fat is desirable in market hogs, but a large amount is not. Backfat is the best indicator of total fatness of hogs. Other areas that are good indicators of excess fat that can be observed easily include: lower ham region; area over the loin edge; jowl; middle; elbow pocket; behind the shoulder.

## Structure

In today's confinement rearing of hogs, structural soundness is a necessity. Because of the demand for sound, fast growing, durable and efficient breeding stock, the seedstock producers must produce livestock that adapts to a confinement system in the breeding pens, farrowing crates and finishing floors. Hogs with good structural soundness can adapt to these conditions and produce quality carcasses.

Following are brief descriptions of general and particular characteristics of sound structure in hogs.

It takes several features to ensure soundness. Basic body design on a structurally correct hog includes a relatively flat top, level rump, high tail setting, and a sloping, angular shoulder position, which provides a shock-absorbing effect when walking or standing.

Some particular points important to structural soundness include the following:

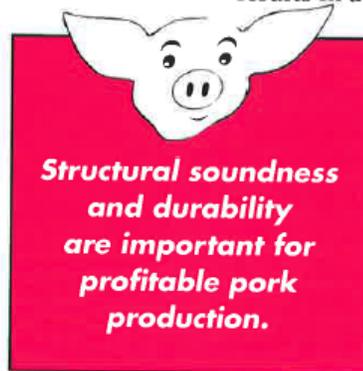
- When the shoulder is too straight, pressure is applied at the shoulder joint and at the knee joint. Because the knee joint offers the least resistance to pressure, the front legs buckle over. Thus, the front legs should angle out of the shoulder into a long, sloping pastern.
- Normal rear leg placement is best described as hocks slightly flexed,

bending into a flexible pastern. This allows the various joints to absorb shock equally.

- The toes should all be evenly sized to allow for more stability on the floor surface. Even toe surface wear occurs because of even weight distribution.
- Larger size of bone is desirable and important for ruggedness and durability, but, not at the expense of structural correctness.
- Desirable movement can best be described as freedom of movement with body weight distributed equally on eight toes.
- Front legs should reach forward with a long, loose stride. A pig will be able to freely raise his head and snout higher than the arch in the center of his back if the skeletal structure is correct. Short, choppy front leg movement appears to be associated with straight shoulders, steep pasterns and strongly arched tops.
- Desirable rear leg action is viewed from the side as long, loose strides with good cushion in both the hock and pastern areas.
- A sound structured market pig should be able to place its rear foot in approximately the same location that the front foot had been, as viewed from the side while walking.

## Structural Soundness

Structural soundness and durability are important for profitable pork production in modern, intensive systems. Study the *undesirable* boar in Figure 3.10. He is steep rumped. The hip (E), stifle (F) and hock (G) lock in a straight line position with each step. This results in more shock to each joint during movement. Also, this boar can be expected to move with a stiff, shuffling gait off his rear legs. Two other structural problems are the top being arched too high and the shoulder blade (A) set in a straight line over the front leg bones. Thus, walking puts stress on the point of the shoulder (B), the knee (C) and the front pastern (D). Sometimes, the pressure will make the knee buckle or remain in a bent position.



Compare the *desirable* structure of the boar in Figure 3.11 to the undesirable boar in Figure 3.10. Observe the more level top line; the longer, more level rump; and the more sloping, angular shoulder blade position (A). The front legs appear to curve slightly backward at the knee (C), and the pasterns (D) slope at about a 60 degree angle. This angularity of the front skeletal structure results in a shock-absorbing or cushioning effect as the boar strides on a hard surface. The rear leg joints also are set with more angle than on the undesirable boar. Notice, too, that the desirable boar appears to stand wider based, with more room between the forelegs. This boar can be expected to move with more action and flexing of knees and hocks.

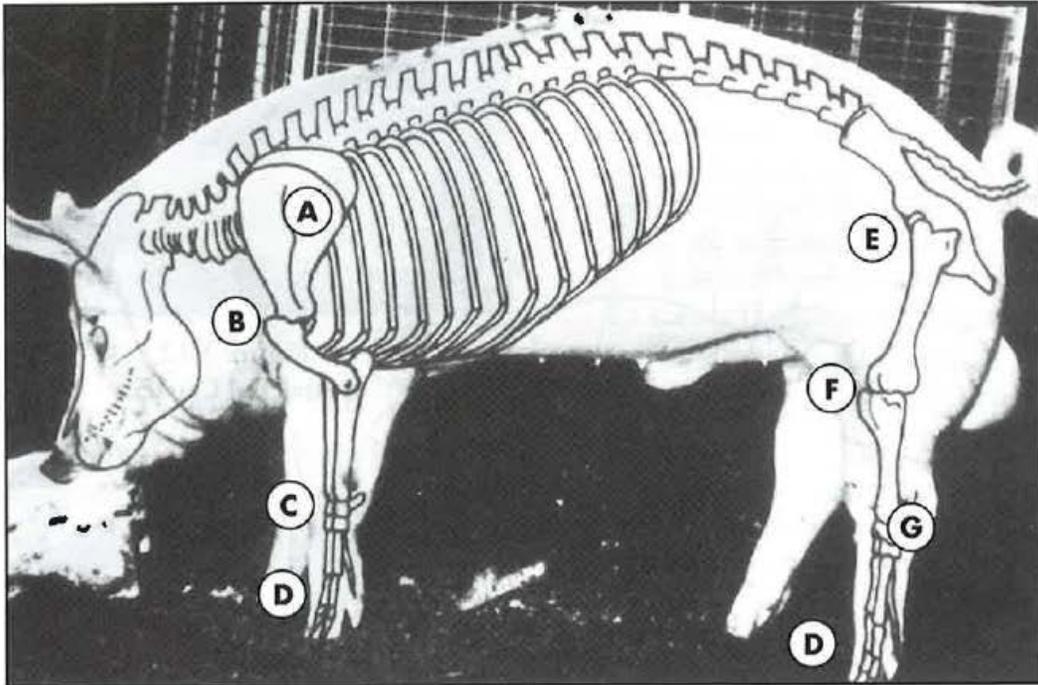


Figure 3.10  
Undesirable Structure

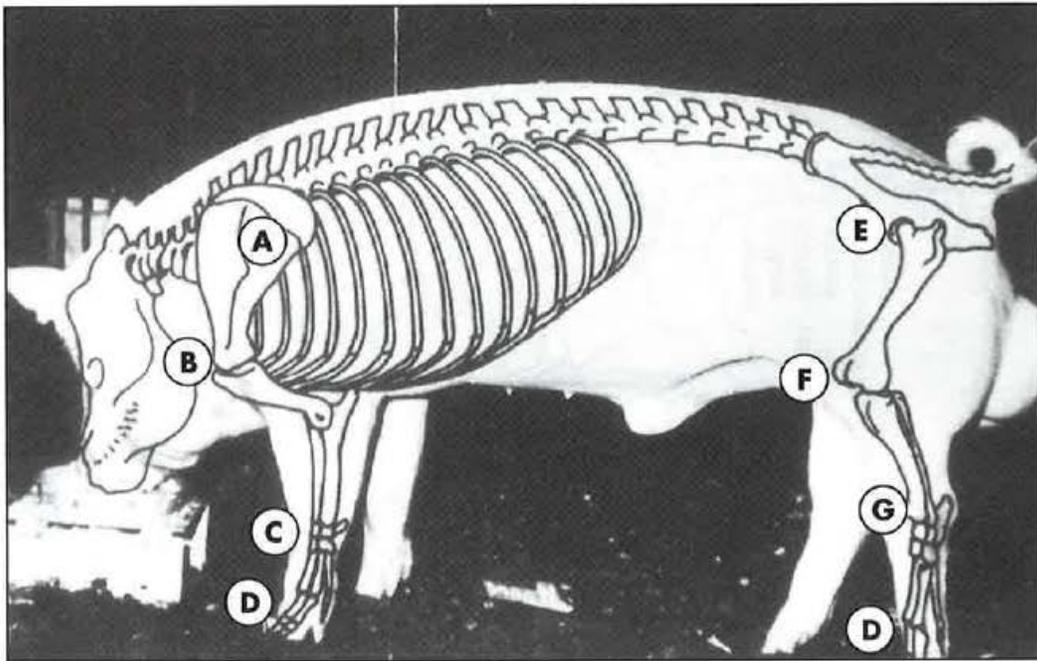


Figure 3.11  
Desirable Structure

## Capacity

The body cavity should be moderately deep and square, with the ribs sprung wide throughout the chest cavity. The depth should continue the length of the animal's body in a uniform manner from the forerib to the rear flank. Body capacity is important for maintaining health, intake of feed, and adequate reproductive volume (Figure 3.12, 3.13).

## Balance

Balance is the proportion of body parts. The pig should be strong topped and level rumped, which allows it to move out freely off its rear legs. (Figure 3.13)



Figure 3.12  
Restricted Capacity



Figure 3.13  
Large Capacity, Well-balanced

**REPRODUCTION**



# Introduction to Reproduction

Meranda Small, Idaho Extension Educator

## Goal (learning objective)

Youth will learn about beginning concepts of reproduction and puberty in livestock.

## Supplies

- Poster displaying a flow chart to summarize the age of puberty onset along with influencing factors (see diagram below), created by you as an example
- Poster paper (for your demonstration poster and enough for team posters)
- Colored markers

## Pre-lesson preparation

- Be prepared to discuss general reproduction. Some information is provided in this lesson and does not vary from species to species
- Research puberty for each species along with physical factors that influence onset of puberty as well as factors unique to species. For example:
  - Beef heifers with a higher fatness will go into puberty earlier than low weight heifers, likely due to metabolic signals effecting hormone production
  - Gilts in a larger group or fenced in a pen next to a male will go into puberty sooner than gilts in small groups or with no male exposure. This is the result of the presence of pheromones and the animals detecting them, initiating a hormonal response
  - The month/season a lamb is born in influences when it will reach puberty, this is in relation to sheep being short day breeders
  - Breed and genetics influence provide a couple examples within a species

See Supplement attached at end of lesson

## Lesson directions and outline

Reproduction is a sequence of events resulting in new life and beginning with development of the reproductive system in the embryo, or unborn animal. After an animal is born, it must grow and achieve puberty, a stage of maturity, by developing the ability to produce fertile gametes, or reproductive cells. This ability must be accompanied by reproductive behavior and copulation or mating. After copulation, the sperm and egg meet, fertilization occurs and development of the embryo follows. The embryo attaches to the inside of the uterus by the placenta, which is where the embryo develops and grows. The fully developed embryo will then be born and the female will begin to lactate or produce milk as nourishment for the newborn. After a time of recovery, the process will happen all over again.

But wait a minute... puberty must take place before any animal is able to reproduce.

**Conducting the activity (DO)**

1. Do a discussion with youth participants. Ask: What is reproduction? What is taking place?
2. Share with the group the prepared poster.
3. Discuss common terms (keep your audience in mind). Discuss ages at which each livestock species reaches puberty (male and female) and influencing factors.
4. After the discussion, break individuals up into groups by species. Have the teams create a poster for their species based on your example and the discussion.
5. Ask teams to share their poster with the group.

**What did we learn? (REFLECT)**

- Ask: What is reproduction?
- Ask: What does reaching puberty allow for?
- Ask: Can we influence puberty in our 4-H animal? How?

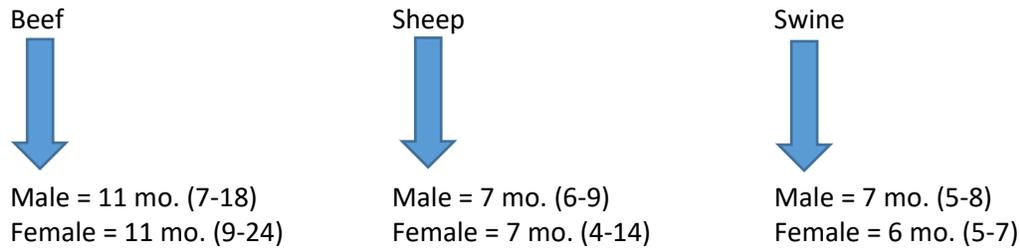
**Why is that important? (APPLY)**

- Ask: Why is successful reproduction important?
- Ask: How is reproduction affected by the onset of puberty in an animal?
- Ask: How is the industry impacted by the ability to influence puberty?

**Resources**

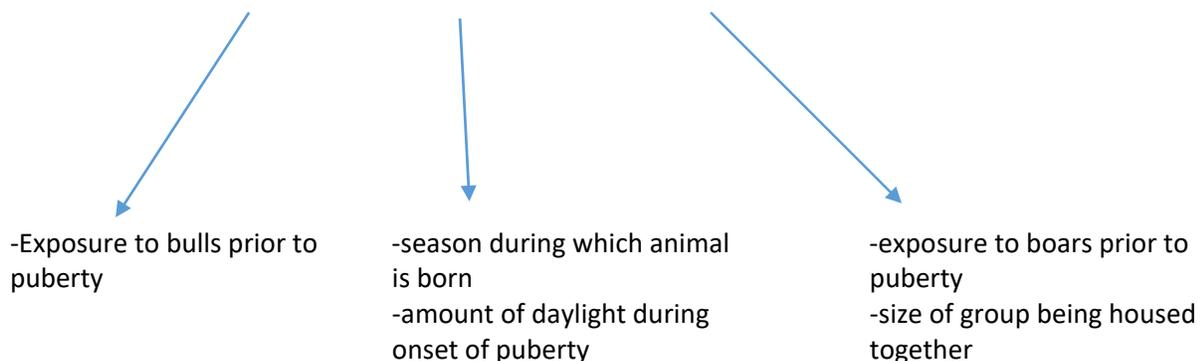
- Ohio State University Extension. (2011). Reproduction and Genetics. *Beef resource handbook* (pages 6-1 through 6-6).
- Ohio State University Extension. (2011). Reproduction. *Goat resource handbook* (pages 35-41).
- Ohio State University Extension. (2011). Reproduction and Genetics. *Sheep resource handbook for market and breeding projects* (pages 119-123).
- Ohio State University Extension. (2000). Selection of Breeding Stock. *Swine resource handbook for market and breeding projects* (pages 15-4 through 15-16).
- Senger, P.L., (2003). *Pathways to Pregnancy and Parturition*. Second revised edition. Chapter 1 (page 1) and Chapter 6 (pages 132-141).

## REPRODUCTION: INTRODUCTION TO REPRODUCTION – SUPPLEMENT 1



- Breed is a general factor that influences onset of puberty in all species for both male and female
- General factors in females in all species that influence onset of puberty include fatness and environmental/social cues
- Hormonal shift is a general factor in males in all species that influences onset of puberty

(Discuss the specifics for the species you are teaching about and any other specific breed factors within that species).



**Goats** - Doelings that are healthy and well managed nutritionally can be bred at 7 to 10 months of age. Bucklings can reach puberty as early as 4 months but 6 to 8 months is typical. As with the other species, the season the animal is born has an effect on puberty onset. Exposure to bucks prior to puberty can affect the onset of puberty.

- Breed is a general factor that influences onset of puberty in all species for both male and female
- General factors in females in all species that influence onset of puberty include fatness and environmental/social cues

Senger, P.L., (2003). Pathways to Pregnancy and Parturition. Second revised edition. Chapter 1 (page 1) and Chapter 6 (pages 132-141).

## Reproduction & Puberty – Chapter 6, pages 132-141

Table 6.1 Average Ages (Range) of Puberty in the Male and Female of Various Species

| <u>Species</u> | <u>Male</u>   | <u>Female</u> |
|----------------|---------------|---------------|
| Cattle         | 11 mo (7-18)  | 11 mo (9-24)  |
| Horse          | 14 mo (10-24) | 18 mo (12-19) |
| Sheep          | 7 mo (6-9)    | 7 mo (4-14)   |
| Swine          | 7 mo (5-8)    | 6 mo (5-7)    |

At least two general factors impact the onset of puberty in the female: development of a **threshold body size** (*body maturation and amount of body fat*) and/or composition and exposure to certain **environmental or social cues**. It is thought that the female must develop a certain degree of “**fatness**” before reproductive cycles can be initiated. Several external factors influence timing of puberty that vary among species including: season during which the animal is born (sheep), the amount of daylight during onset of puberty (sheep), the presence or absence of the opposite sex during the **pre-pubertal** period (swine & cattle) and the size of groups (within the same sex) in which the animals are housed (swine).

The breed of the animal has an important influence on the age at which puberty is attained in both the male and female.

Table 6.2 Influence of Breed on Age at Puberty in Domestic Animals

| <u>Species</u>   | <u>Average Age at Puberty (Months)</u> |             |
|------------------|----------------------------------------|-------------|
| <i>Cattle</i>    | <i>Female</i>                          | <i>Male</i> |
| Holstein         | 8                                      | 9           |
| Brown Swiss      | 12                                     | 9           |
| Angus            | 12                                     | 10          |
| Hereford         | 13                                     | 11          |
| Brahman          | 19                                     | 17          |
| <i>Sheep</i>     |                                        |             |
| Rambouillet      | 9                                      | ---         |
| Finnish Landrace | 8                                      | ---         |
| <i>Swine</i>     |                                        |             |
| Meishan          | 3                                      | 3           |
| Large White      | 6                                      | 6           |
| Yorkshire        | 7                                      | 7           |

In the male, the onset of puberty is brought about because of decreased **hypothalamic sensitivity** to negative feedback by **testosterone/estrogen**. *Essentially, in the male elevated levels of hormones are no longer being suppressed allowing him to go into puberty.* This is somewhat the same in the female.

Nutritional intake in a newborn is directed almost exclusively towards body maintenance. Nonessential processes such as reproduction are of low priority. As the animal begins to grow, nutritional needs increase, the animal grows first structurally to a point before fat begins depositing. At this point nutritional needs shift, allowing for more energy to go towards non-vital functions such as reproduction and the onset of puberty. It needs to be emphasized however that “**fatness**” alone does not promote the onset of puberty, both body maturation and amount of body fat are important in regulating the age of puberty onset. “**Fatness**” for puberty in the male is not well understood, though it is known that restriction of energy intake to 70% of recommended amounts delays the onset of puberty in the male.

Month of birth will influence the age of puberty, particularly in **seasonal breeders** such as sheep which begin their cycles in response to short day lengths. Spring-born (February-March) lambs receiving adequate nutrition attain puberty during the following fall (September-October). Age of puberty is about 5-6 months after birth. Fall born lambs do not reach puberty until about 10-12 months after birth. Fall born lambs require twice as much time to reach puberty than spring born. This is because of **seasonal cues** that delay cycling. This then synchronizes **ovulation** in ewes, young and old, which maximizes the chance they'll all get pregnant in the fall and lamb in the spring when nutrients are more readily available and weather conditions are favorable. Again, "fatness" is necessary before this **photoperiod cue** can have effect. In heifers there is evidence that age at puberty is influenced by the season of birth. Heifers born in the fall tend to reach puberty earlier than those born in spring. Exposure in the second six months of life to long days and warmer temps hastens the onset of puberty. Exposure to short days during the first six months of life (fall born) followed by increasing day lengths in the second six months (spring and summer) has been associated with earliest age of puberty in heifers. Spring born ram lambs begin reproductive development at about 10 weeks of age during midsummer while spring born ewe lambs do not reach puberty until 25-35 weeks after birth. Season of birth does not affect age of puberty in bull calves.

Social cues significantly impact the onset of puberty in many species. This is controlled by **olfactory** (*sense of smell*) recognition of **pheromones** (*bodily chemical*). Enhancement of the onset of puberty by the presence of a male has been demonstrated in the ewe, sow and cow. Females that reaching puberty in the presence of a male have greater opportunity to be bred. Certain social cues will inhibit the onset of puberty as well. Gilts (young female pigs) housed in small group have delayed puberty when compared to gilts housed in larger groups. Gilts housed in small groups but exposed to a boar (male pig) will enter puberty as an earlier age than either the large group or small group not exposed to a boar. The presence of the boar, either direct contact or just visual contact will accelerate the onset of puberty in the gilts. This observation is beneficial in the management of swine as age of puberty can then be reduced and breeding can begin earlier. Heifers with high or moderate growth rate and exposure to a bull reach puberty faster than heifers of the same growth rate not exposed to a bull.

### **Word Bank**

uterus – part of the female reproductive tract that is responsible sperm transport, formation of the placenta and housing the fetus throughout gestation

placenta – organ that enable nutritional exchange between mother and fetus

environmental/social/seasonal cues – signals or stimuli that influence reproductive processes

fatness – level of body condition

pre-pubertal – stage of development prior to reaching puberty

testosterone/estrogen – hormones with reproductive influence

seasonal breeders – animals whose reproduction is influence by time of year; animals that breed only during certain times of year

ovulation – release of eggs to be available for fertilization

photoperiod cue – a reaction in an animal to the period of time during the day when there is daylight

# **NUTRITION**



# 5 Basic Nutrients

Sarah D. Baker, Idaho Extension Educator

## Goal (learning objective)

Youth will learn about the five major types of feed nutrients. In addition, youth will learn how much water livestock drink per day, on average.

## Supplies

- Handout 1 “BEEF Nutrition and Feeding: The Essential Nutrients Handout” make enough copies for your group
- Handout 2 “SHEEP Nutrition Handout” make enough copies for your group
- Handout 3 “SWINE Nutrition Handout” make enough copies for your group
- Handout 4 “GOAT Nutrition Handout” make enough copies for your group
- Handout 5 “Feed Word Bank Worksheet” make enough copies for your group
- 8oz. drinking glass/cups (enough for your group)
- 1-1gal. container (milk jug, etc.)
- 1-5gal. bucket
- Water

## Pre-lesson preparation

- Make copies of the handouts
- Read the handouts to familiarize yourself with the content
- Practice the activities

## Lesson directions and outline

Share the following information with the youth:

All feeds are made up of nutrients. Just like people, livestock must have certain nutrients in their daily feed to remain healthy and continue to grow.

There are five categories of essential nutrients for beef, goats, shee and swine. Ask for volunteers to list them. (Write/post each category on a separate sheet of paper; distribute Handouts 1-4 if youth need hints).

- Water
- Energy
- Protein
- Minerals
- Vitams

(Consider having youth divide into four groups, each taking one of the four species handouts and recording what they see as the 3 most important points for each of the fibe nutrient categories. Come back into one group, then have each species, sharing their 3 points for Water and discuss similiarities/differences, then do the same for Energy, Protein, Minerals and Vitamins - actively engaging youth in learning what each nutrient group provides. Having samples of various feed ingredients would help youth to visualize the different categories).

Instructor Notes;

Water is the most important nutrient and should be available free choice. It should be clean, fresh and accessible. Water is necessary for digestion, carrying food nutrients and waste products, cooling the body, and lubricating the joints.

Energy from carbohydrates and fats enhance movement and produce heat to keep the body warm. Excess energy feeds are stored as fat.

Proteins consist of 20 amino acids. they are the building blocks to make body tissues like muscle, internal organs, bones, blood and skin.

Minerals are needed in small amounts to help build bones and teeth. The three primary minerals are salt, calcium and phosphorus.

Vitamins are classified as either fat-soluble or water-soluble. They are required in small amounts for healthy eyes, nasal passages, lungs, blood and strong bones.

### Conducting the activity (DO)

#### Activity 1

1. Distribute Handout 5, every member should have a copy.
2. Have each member name feed sources that they feed their animals. Have them write these feed sources on their Feed Word Bank Worksheet (if not already listed).
3. For each feed ingredient, check whether it is primarily used as a source of protein, energy, mineral, or vitamin. Discuss options.

#### What did we learn? (REFLECT)

- Ask: What nutrient group is the most important to animal health? Why?
- Ask: What energy feedstuff does your animal eat the most of?
- Ask: What protein source do you feed your animal?

#### Why is that important? (APPLY)

- Ask: Why is it important to observe and record your animal's daily eating habits?
- Ask: What nutrient(s) are important to your growth?
- Ask: How does nutrition impact your life?

#### Activity 2

1. Discuss/share the following:

Water is the basis of all life, and is the most important part of an animal's diet. As livestock producers, you need to know how much clean drinking water your animals need each day.

Let's start with some comparisons:

- The average child drinks about six glasses of water per day. Is this more or less than a 500lb calf?
  - A 350 pound animal needs between one and five gallons of drinking water a day
  - A 500 pound animal needs between two and six gallons of drinking water a day;
  - A 750 pound animal needs 10-15 gallons per day;
  - A steer weighing 1000 pounds or more needs 20 gallons or more of cool, clean drinking water a day
  - On this handout, what differences do you notice?
2. Have a volunteer distribute the cups to members
  3. Have members fill their glass with water and pour into the 1-gallon container and have members count how many glasses it takes to fill the 1-gallon container.
  4. Have members fill the 5-gallon bucket with a 1-gallon container and have members count how many 1-gallon containers it takes to fill the 5-gallon bucket.

#### What did we learn? (REFLECT)

- Ask: Were you surprised at how much water it took to fill the 1-gallon container and the bucket?
- Ask: Do you think your animal would drink more water if it was available?
- Ask: What nutrient group is the most important to animal health? Why?
- Ask: How much water does a 1000lb steer need?
- Ask: How much water does a 200lb hog need?
- Ask: How much water does a 100lb lamb need?
- Ask: What happens if your animal goes off feed?

#### Why is that important? (APPLY)

- Ask: What could happen if your animal does not get enough water? How do you feel if you don't have water?
- Ask: How does nutrition impact your life?
- Ask: Why is it important to observe and record your animal's daily eating habits?

## Resources

- Kuhl, G., Adams, J.P., and Astroth, K. (n.d.). How Much Water? –Kansas 4-H Beef Leader Notebook (S100). (pages 66-69). Kansas State University.
- National 4-H Council. (2005). Bite Into Beef. BU-08143 (pages 16-17).
- Ohio State University Extension. (2011). Nutrition and Feeding. *Beef resource handbook* (pages 7-1 through 7-7).
- Ohio State University Extension. (2008). Nutrition. *Goat resource handbook* (pages 51-55).
- Ohio State University Extension. (2011). Nutrition. *Sheep resource handbook for market and breeding projects* (pages 49-50).
- Ohio State University Extension. (2000). Nutrition. *Swine resource handbook for market and breeding projects* (pages 8-1 through 8-3).

## **BEEF Nutrition and Feeding: The Essential Nutrients Handout**

**Source:** Beef Resource Handbook 4-H 117R. (2001). The Ohio State University Extension. Chapter 7. Pages 7-1 through 7-7.

### ***Water***

Water is an extremely important part of an animal's diet. It is found in every cell in the body. It helps keep the body cool and carries other nutrients throughout the body. Water also helps the body form waste materials.

Be sure cattle have plenty of fresh water every day. Limitations on water intake depress animal performance more quickly and more drastically than any other nutrient deficiency. Domesticated animals can live about sixty days without food but only seven days without water. Hearing and sight are impaired without water.

Cattle will drink up to 20 gallons or more of water in one day, depending on their weight and the environmental temperature. For example, a calf that drinks three gallons a day in the winter, will drink nine gallons a day in the summer.

Water should be at a comfortable temperature. Drinkable water is usually between 40°F and 65°F. Steers that have access to cool drinking water will gain between 0.3 to 0.4 pounds more per day than those drinking warm water.

Therefore, you may want to occasionally check water temperature. Dip a thermometer into the water. Do not allow the thermometer to rest on the bottom. Touching the heated bottom of the pan can result in higher temperatures. Check the temperature over several cold days. Water temperatures of at least 40°F should minimize mechanical water system problems and maintain animal performance.

### ***Energy***

Energy is used for growing and also for producing a calf. Carbohydrates and fats give beef cattle most of the energy they need. Examples of carbohydrates that you eat are bread and potatoes. Grains cattle eat which are high in energy include corn, barley, wheat, and oats. Other feeds, like hay, are intermediate in energy while corn stalks are low in energy.

There are several different ways to measure energy levels. The two most common methods are Total Digestible Nutrients (TDN) and the Net Energy (NE) systems. The Net Energy system is becoming more common. While you may still use the older TDB system, some labs are now only reporting feed energy in Net Energy values.

### ***Protein***

Beef cattle use protein to build muscles, hair, hooves, and tissues inside their bodies. Protein works with carbohydrates so the animal will grow properly. Proteins are made up of small building blocks called "amino acids". We eat meat and eggs, which are high in protein. Soybean oil meal and alfalfa hay (legumes) are examples of livestock feeds that are high in protein.

Cattle protein supplements may be composed of a natural protein source or may contain some Non-Protein Nitrogen (NPN). For example, a common natural protein supplement is soybean meal, and a common NPN source is urea. Urea is better suited for older cattle on higher energy diets.

Note: Urea cannot be given to calves until their rumens are developed, so calves must be older than four months. Animals under 450 pounds generally gain more efficiently on natural protein sources. The amount of urea fed in the rations should not exceed one percent of the total ration or three percent of the concentrate mixture.

### ***Minerals***

Minerals are needed to build strong bones and teeth and to make blood, muscle, and nerves. Some minerals may need to be supplemented directly in the ration. Salt, calcium, and phosphorus are minerals needed in larger amounts than other minerals. (*Table 7.01*) Cattle should have a salt-mineral box to supply them with the extra minerals they do not get from their feed. This box should be accessible to cattle at all times. Minerals needed in smaller amounts are called trace minerals. Examples of trace minerals are calcium and phosphorus. We eat cheese and drink milk to get calcium and phosphorus. For beef cattle, grass and hay can be a source of calcium, while grains are high in phosphorus. Beef is an excellent source of many trace minerals for us.

### ***Salt***

Feeds generally do not contain adequate amounts of salt, the main source of sodium. Sodium can be supplemented as sodium chloride or sodium bicarbonate, and both forms are easily absorbed by the animal. Iodized salt should always be used to avoid an iodine deficiency. Cattle fed maintenance rations while confined in a dry lot often consumer high levels of mineral mixtures, perhaps from boredom.

### ***Calcium and Phosphorus***

A calcium to phosphorus ratio of less than 1:1 or more than 8:1 may reduce performance. The typical calcium to phosphorus ratio is 1.5 to 2.0:1 for beef cattle. However, high levels of calcium from legumes do not appear to depress gains in growing rations. Calcium supplementation will probably be needed for growing steers and heifers receiving some grain.

### ***Phosphorus***

Phosphorus is often deficient in forage diets. Around calving time, cows should have free-choice access to 10-12% phosphorus mineral. An example would be ½ dicalcium phosphate. At other times of the year, cows and stockers would need a mineral consisting of 25-35% dicalcium phosphate or 7-8% phosphorus.

### ***Magnesium***

A mineral that may be deficient in feed is magnesium. The result of such a deficiency is called grass tetany, grass staggers, or magnesium tetany.

***Magnesium tetany*** results when cattle, particularly cows that are milking and grazing on lush pastures, use up their existing body supplies of magnesium without a steady replacement from their diet. Another likely group to get magnesium tetany is cows in late gestation because of the nutritional requirements of the growing fetus. However, any animal that is grazing lush, green pastures of either grass or small

grain is running the risk of magnesium tetany. A high level of calcium will also tie up the availability of magnesium. Therefore, you should use dolomitic lime if magnesium is deficient in your area.

Symptoms of magnesium tetany include nervousness and irritability. Often, muscle twitching, usually in the face, eyelids, ears or flanks, will occur. Animals may bellow loudly while in the pasture or do some frenzied galloping. Later, animals will exhibit a staggering gait and fall down. After falling, they go into convulsions and eventually die. Mineral supplements containing magnesium and grain should be readily available to encourage consumption.

### ***Vitamins***

There are two categories of vitamins, water-soluble and fat-soluble. Produced in the rumen of the animal. Produced in the rumen of the animal, B complex vitamins are soluble. Fat-soluble vitamins of importance to cattle are A, D, E, and K. Cattle usually receive enough vitamin D from sunlight or from sun-cured hay. Vitamin E is usually received through feed, while vitamin K is produced in the rumen.

Vitamin A may need to be supplemented if green, leafy forages are not available. Vitamin A can be supplemented in the diet or by an injection. One million International Units of vitamin A palmitate injected intramuscularly (for example, when cows are palpated for pregnancy) will meet their vitamin A needs for two to four months. In the mineral mix, add 10,000 to 50,000 International Units per 0.1 to 0.2 lbs. of mineral mix. Be very cautious if you are mixing your own vitamin-mineral mix. Only a very small amount of vitamin A pre-mix is needed and mistakes in mixing can lead to toxicity situations. Vitamin A will not remain stable very long in homemade mineral mixes (approximately 2-3 weeks). Utilize or request protected forms of vitamin A for your vitamin-mineral mix.

## **SHEEP Nutrition Handout**

**Source:** Sheep Resource Handbook 4-H 194R. (2000). The Ohio State University Extension. Chapter 4. Pages 49 through 50.

Nutrients are elements in feed that are used by the animal for growth and production. Nutrients are normally divided into five categories: Water, protein, carbohydrates, minerals, and vitamins.

### ***Water***

Water is the main constituent of the body. Two-thirds of the body is water, thus, an animal can live much longer without feed than water. Water helps the body digest food and carries nutrients to body tissues. It also helps get rid of wastes and keeps the body regulated. Sheep should always have access to a supply of clean, fresh water.

### ***Protein***

Proteins are the building blocks of the body. They are very complex chemicals, made up of amino acids that are used to build muscle, blood, internal organs, and skin. They also help form parts of the nervous system and the skeleton. Proteins can be used as energy too. When feed contains too much protein, the extra protein is used as energy. Soybean oil meal and fish meal are high in protein. Corn and barley are lower in protein.

### ***Energy***

Carbohydrates and fats are used to supply energy for lambs. The main use of energy is to make chemical reactions, resulting in conversion of feed to meat. Energy nutrients that are not used are stored as fat until needed. Sugar, starch, and fiber are carbohydrates. Corn oil and tallow are fats. Fat furnishes two and one-fourth times more energy than equal amounts of carbohydrates.

### ***Minerals***

Minerals are needed in small amounts and are used to build bones and teeth and in chemical reactions necessary for many life processes. Salt (NaCl) is a regulator in the body and sheep need 7-11 grams daily. Salt should only be fed in loose form to ensure that sheep can get enough to eat. Calcium is essential for bone growth and maintenance. Legumes (alfalfa) are high in calcium. Calcium can be supplemented by adding limestone to the ration. Phosphorus is needed in bone growth also. Phosphorus deficiencies can be overcome by feeding dicalcium phosphate. Iodine is another important mineral and is best supplied by feeding. There are minor minerals that are important such as copper and selenium. Feeding a trace mineral salt will help avoid deficiencies or toxicities.

### ***Vitamins***

Vitamins are needed in small amounts by sheep. All the necessary vitamins except for Vitamin A, D, and E are produced in the rumen of the mature sheep. Vitamin A is available from green feeds, such as hay, and stored in the liver for 3-4 months. Vitamin D is made available from the sun shining on the skin. Vitamin E and the mineral selenium are important for the prevention of white muscle disease. Selenium should be supplied in the diet in areas that are selenium deficient, like some parts of Idaho. Vitamin E is important for maintaining the healthiness of body cells, and thus, is important for reproduction because it maintains the cells of the reproductive organs. Wheat germ meal, dehydrated alfalfa meal, and some green feeds are good sources of Vitamin E.

## **SWINE Nutrition Handout**

**Source:** Swine Resource Handbook 4-H 134R. (2001). The Ohio State University Extension. Chapter 8. Pages 8-1 through 8-3.

In general, nutrients are divided into five categories: Water, protein, carbohydrates, minerals, and vitamins. Except for water, which is largely supplied separately, nutrients are supplied to animals in the food materials we provide them (known as feedstuffs).

### **Water**

Water is so common that we seldom think of it as a true nutrient, but it is the most essential and the cheapest of all nutrients. Water is the largest single component of a pig's body. It also passes through the body, transporting nutrients and removing wastes. Depriving pigs of water reduces feed consumption and limits growth and feed efficiency. Therefore, ample water should be provided continuously. A pig needs to drink two to three pounds of water for every pound of feed it eats.

Water is usually taken into the body at a lower temperature than the body itself, therefore, a portion of the body's heat or energy must be used in the warming of the water. In hot weather, this can be a comforting advantage, but in the winter, it can be a serious disadvantage. If the water is ice cold, the pig will drink less. Reduced water consumption will limit performance as significantly as a lack of any other nutrient.

It is important that you make certain your animals always have all the fresh, clean water they need and that it is relatively cool in the summer and warmer in the winter.

### **Protein**

Proteins are composed of 20 simpler building blocks called amino acids, and it is actually the amino acids that are the essential nutrients. Pigs, in fact, do not specifically need protein, but rather require amino acids for the formation of muscle and other body proteins.

Ten of the amino acids are called essential, because these cannot be produced within the pig's body. The pig's growth or performance can be limited by a lack of even one of the essential amino acids, even if the other nine are adequately supplied. The ten essential amino acids that must be provided in swine diets are: lysine, threonine, tryptophan, methionine, cysteine, isoleucine, histidine, valine, arginine, and phenylalanine. Most cereal grains are limiting in lysine, threonine, tryptophan, and methionine. Therefore, when one evaluates feed ingredients, these amino acids are most important in determining protein quality.

### **Energy**

Energy is technically not a nutrient, but is a result of metabolism of carbohydrates (starch) and fats that are in a pig's diet. Carbohydrates and fats are the main source of energy in the diet. They are the primary fuels that are used in maintaining body temperature and producing muscular movement.

Energy must be provided in large amounts over what is needed for maintenance to achieve optimum growth and reproduction responses. Energy is needed in many chemical changes that occur within the body. Because energy is needed constantly by a growing pig, the body stores some energy in the form of fat. The major source of dietary energy for the growing pig is from the carbohydrate component of grains in their feed.

### ***Minerals***

Minerals are needed in body tissues and to assist in some of the body's chemical reactions. In particular, calcium, phosphorus, and salt (often referred to as macro-minerals) are major needs. Calcium is important in bone formation. Phosphorus is also involved in bone building and assists in energy utilization. Salt is important for maintaining good appetites and water consumption in hogs.

Other minerals are needed in small amounts and are called trace minerals (or micro-minerals). These include iron, copper, zinc, magnesium, manganese, iodine, and selenium.

Of all farm animals, the pig is the most likely to suffer from mineral deficiencies. This is due to the following:

1. Hogs are primarily fed cereal grains which are low in minerals (except calcium).
2. The skeleton of a pig, in contrast to those of other animals, supports greater weight in proportion to its size, which means it needs more mineral content than most animals.
3. Hogs do not consume great amounts of roughages, which would balance the mineral deficiencies of grain.
4. Hogs are fed to grow at a maximum rate and are marketed before they reach full maturity. Emphasis on rapid growth and lean meat production requires adequate mineral concentrations, yet under these conditions, minerals are often overlooked in diet formulations. Most minerals are supplied in purchased supplements.

### ***Vitamins***

Vitamins are compounds that assist the body in the assimilation and use of the other nutrients. They are described in two classes, fat soluble (A, D, E, K), and water soluble (the B vitamins). The body can keep reserves of the fat soluble vitamins for a time, but the water soluble vitamins must be supplied in the diet daily.

#### **Fat Soluble Vitamins:**

- Vitamin A (carotene) is found in feedstuffs like alfalfa and corn. Converted by the body from carotene, it assists in maintaining the surface or epithelial cells. Such cells make up the outer skin as well as the lining of the digestive and respiratory tracts.
- Vitamin D is in compounds that have been exposed to sunlight. Some Vitamin D is fixed in the animal itself during exposure to sunlight. This vitamin assists in the utilization of calcium.
- Vitamin E's function is for normal muscle activity and reproduction. It helps to prevent the membrane surrounding individual cells from deteriorating, influences the production of various hormones, and defends against infection.
- Vitamin K's function is to help calcium and Vitamin D metabolism. The blood requires Vitamin K to form clots.

Water Soluble Vitamins:

- These vitamins occur or are supplied as chemical compounds in feeds. They assist particularly in the changes of nutrients into energy for growth. They may also assist in maintaining the health and soundness of the lining of the digestive organs. This group is also called the B-complex group. The B Vitamins generally added to swine diets include thiamine, riboflavin, niacin, pantothenic acid, B<sub>12</sub>, and pyridoxine.

## **GOAT Nutrition Handout**

**Source:** Goat Resource Handbook 4-H 135R. (2016). The Ohio State University Extension. Chapter 5. Pages 51 through 55.

Different nutrients are required in different amounts to allow for proper animal growth, milk production and bodily functions. The essential nutrients for goats are: water, energy (carbohydrates and fats), minerals and vitamins.

### ***Water***

Water is the most important nutrient needed to survive. The goat's body is composed of from 50% to 80% water. Water helps with digestion of food and transportation of nutrients throughout the body. It also helps to rid the body of waste and regulate body temperature. A goat may consume up to 4 gallons of water per day, depending on its age and reproductive state, the environmental temperature and the type of feed being consumed. A goat weighing about 100 pounds and not producing milk consumes about 1 gallon of water per day.

### ***Energy (carbohydrates and fats)***

Carbohydrates and fats are used to supply energy for goats. The main use of energy is to make chemical reactions, resulting in conversion of feed to meat. Energy nutrients that are not used are stored as fat until needed. Sugar, starch, and fiber are carbohydrates. The main sources of carbohydrates are forages such as pastures grasses and roughages such as hay. These are considered fibers. High concentrate grains like corn, oats and barley are sugars and starches.

Commonly fed natural sources of fats are whole cottonseed, whole soybeans and tallow. Fat furnishes two and one-fourth times more energy than equal amounts of carbohydrates. Fats come in the form of oils, fatty acids and tallow. Several by-products sometimes fed to goats are higher in fat concentration than forages and cereal grains, such as hominy and distillers grains.

### ***Protein***

Protein is needed for maintenance, growth, pregnancy and lactation. They are the building blocks of the body. Proteins are very complex chemicals, made up of amino acids that are used to build muscle, blood, internal organs, and skin. They also help form parts of the nervous system and the skeleton. Proteins can be used as energy too. When feed contains too much protein, the extra protein is used as energy. Soybean oil meal and fish meal are high in protein. Corn and barley are lower in protein.

### ***Minerals***

Minerals are required to help build strong bones and teeth. They are also required for chemical reactions necessary for many of life's processes. The major minerals, also called macro minerals are called macro because they are required in larger quantities and are denoted as a percentage of the diet. Calcium, magnesium, phosphorus, potassium and salt are some of the important macro minerals.

Micro minerals or trace minerals are required in lesser quantities than macro minerals and are usually designated in parts per million (ppm). Copper, manganese, selenium and zinc are a few examples of

trace minerals. See table 5.1 on page 53 of the Ohio Goat Resource Handbook for more information about minerals.

### ***Vitamins***

Vitamins are organic compounds that are needed in very small amounts and are required for growth, production of milk and fiber and reproduction. There are two classes of vitamins: fat-soluble and water-soluble. The fat-soluble vitamins are A, D, E and K. They are called fat-soluble because they can dissolve in fat solvents such as ether or chloroform and are usually stored in the fat tissues in the body. The water-soluble vitamins are B-complex vitamins and vitamin C. They are called water-soluble because they dissolve in water.

#### *Fat Soluble Vitamins:*

- Vitamin A (carotene) is found in feedstuffs like alfalfa and corn. Converted by the body from carotene, it assists in maintaining the surface or epithelial cells. Such cells make up the outer skin as well as the lining of the digestive and respiratory tracts.
- Vitamin D is in compounds that have been exposed to sunlight. Some Vitamin D is fixed in the animal itself during exposure to sunlight. This vitamin assists in the utilization of calcium.
- Vitamin E's function is for normal muscle activity and reproduction. It helps to prevent the membrane surrounding individual cells from deteriorating, influences the production of various hormones, and defends against infection.
- Vitamin K's function is to help calcium and Vitamin D metabolism. The blood requires Vitamin K to form clots.
- 

#### *Water Soluble Vitamins:*

These vitamins occur or are supplied as chemical compounds in feeds. They assist particularly in the changes of nutrients into energy for growth. They may also assist in maintaining the health and soundness of the lining of the digestive organs.

## Feed Word Bank

| Feed Ingredient                              | Nutrient Category |         |         |         |       |
|----------------------------------------------|-------------------|---------|---------|---------|-------|
|                                              | Energy            | Protein | Mineral | Vitamin | Water |
| <input type="checkbox"/> Alfalfa Hay         |                   |         |         |         |       |
| <input type="checkbox"/> Barley              |                   |         |         |         |       |
| <input type="checkbox"/> Beet Pulp           |                   |         |         |         |       |
| <input type="checkbox"/> Calcium             |                   |         |         |         |       |
| <input type="checkbox"/> Cobalt              |                   |         |         |         |       |
| <input type="checkbox"/> Copper              |                   |         |         |         |       |
| <input type="checkbox"/> Corn                |                   |         |         |         |       |
| <input type="checkbox"/> Cottonseed Meal     |                   |         |         |         |       |
| <input type="checkbox"/> Dicalcium Phosphate |                   |         |         |         |       |
| <input type="checkbox"/> Grass Hay           |                   |         |         |         |       |
| <input type="checkbox"/> Grass/Pasture       |                   |         |         |         |       |
| <input type="checkbox"/> Iodine              |                   |         |         |         |       |
| <input type="checkbox"/> Milo                |                   |         |         |         |       |
| <input type="checkbox"/> Molasses            |                   |         |         |         |       |
| <input type="checkbox"/> Oats                |                   |         |         |         |       |
| <input type="checkbox"/> Salt                |                   |         |         |         |       |
| <input type="checkbox"/> Soybean Meal        |                   |         |         |         |       |
| <input type="checkbox"/> Straw               |                   |         |         |         |       |
| <input type="checkbox"/> Wheat               |                   |         |         |         |       |
| <input type="checkbox"/> Water               |                   |         |         |         |       |
|                                              |                   |         |         |         |       |
|                                              |                   |         |         |         |       |
|                                              |                   |         |         |         |       |

**Instructions:**

1. Check the box next to each feed ingredient that you feed to your animal.
2. List any additional feed ingredients you feed your steer that are not listed in the black rows at the bottom of the Ingredient list.
3. Place an X in the column to represent which nutrient category your feed ingredient is.



# Average Daily Gain (ADG)

Cindy Kinder, Idaho Extension Educator

## Goal (learning objective)

*Note: Conduct the Frame Size & Market Ready Weights lesson first*

Youth will:

- Learn about feeding to market ready weights
- Learn to monitor feed rations during feeding periods
- Learn what “market ready” means
- Learn how to monitor if their animal is on track to be market ready

## Supplies

Members will need to bring the following items:

- Animal initial weight information and timely weight information (every 30, 15, or 7 days depending on species) during the feeding period
- Beginning Planning & Record Worksheet (from the Frame Size and Market Ready Weights activity)
- Side photo of their market animal at the beginning of their project
- Copies of Market Animal Growth Charts (distribute the appropriate growth chart to what each member is raising)
  - a. Handout 1 - “Market Beef Growth Chart”
  - b. Handout 2 - “Market Goat Growth Chart”
  - c. Handout 3 - “Market Lamb Growth Chart”
  - d. Handout 4 - “Market Swine Growth Chart”
- Handout 5 “Market Projects Photo Page” (enough copies for group)
- Pencils, pens (enough for group)
- Rulers and calculators (enough for groups to share )

## Pre-lesson preparation

- Average Daily Gain (ADG) can be defined as the average amount of weight a market animal will gain each day during the feeding period.
- ADG can be calculated by taking the amount of weight an animal has gained since the last weight and dividing the weight by the number of days since that last weight.
- Conduct the Frame Size and Market Ready Weights Activity first to determine animals target market weight.
- Have members bring a side-view photo of each project animal, preferably from the beginning of the project. Side view images will help members see the change in their animal over time.
- Make copies of the Handouts 1-5.
- Review the activity and refer to the resources section to familiarize yourself with the activity and information covered.

## Lesson directions and outline

Begin by asking members what they think “Average Daily Gain: is (if they youth struggle, define each word separately. Share the definition from the pre-lesson preparation section before moving on). Discuss what information is needed to calculate ADB (see pre-lesson preparation).

Share the following information with the youth:

Plotting change in weight over time will help you determine if your market animal is on track to be what is called “market ready” at fair time. It is important to set project goals and identify a target final weight.

Weight gained should be monitored and documented (on the growth chart) from the beginning of the project to fair time. Regular weighing intervals are typically every 10, 15, or 30 days depending on the species.

Monitoring weight gain can help you determine if feed rations need to be adjusted so that animals make it to fair, market ready.

Industry average for average daily gain (adg) for each species is as follows: Beef 2.5 lbs/day, Swine 1.7 lbs/day, Sheep .5 lbs/day and Meat Goat .3lbs/day.

### **Conducting the activity (DO)**

1. Follow the directions on the growth chart to determine a predicted growth rate using the initial weight and estimated final weight of each animal.
2. Have youth calculate what his/her animal's required average daily gain needs to be to reach the estimated final weight.
3. Encourage members to determine which feeds help animals grow faster; which results in slower growth rates?
4. Have members attach his/her animal's beginning side-view picture to Handout 5; have them share how his/her animal's condition has changed since the beginning picture was taken.
5. As part of an ongoing activity, have members weigh project animals every 10, 15 or 30 days (depending on species), record those weights on the Market Growth Chart and plot the "actual" growth of each animal.
6. Help members determine if animals are above or below the predicted growth rate and what changes (if any) are needed in their feeding program.
7. Work with members to finish the growth chart and take an ending photo of their animal.

### **What did we learn? (REFLECT)**

- Ask: What is ADG and how is it calculated?
- Ask: What are some factors that influence how fast an individual animal will grow?
- Ask: What can a livestock producer do to speed up or slow down an animal's growth rate?
- Ask: What is your species minimum industry standard for ADG

### **For the on-going activity**

- Ask: Is your predicted ADG fromt he Market Growth Chart achievable?
- Ask: Why might your animal's actual growth be above or below the predicted ADG?
- Ask: How should you adjust your feeding if they are below your predicted ADG?
- Ask: How did your animal change over the feeding period? Are there any changes you would make next year?

### **Why is that important? (APPLY)**

- Ask: What could happen if you try to change your animal's ration too quickly?
- Ask: Besides raising livestock, where else might you need to track change and make gradual changes over time?

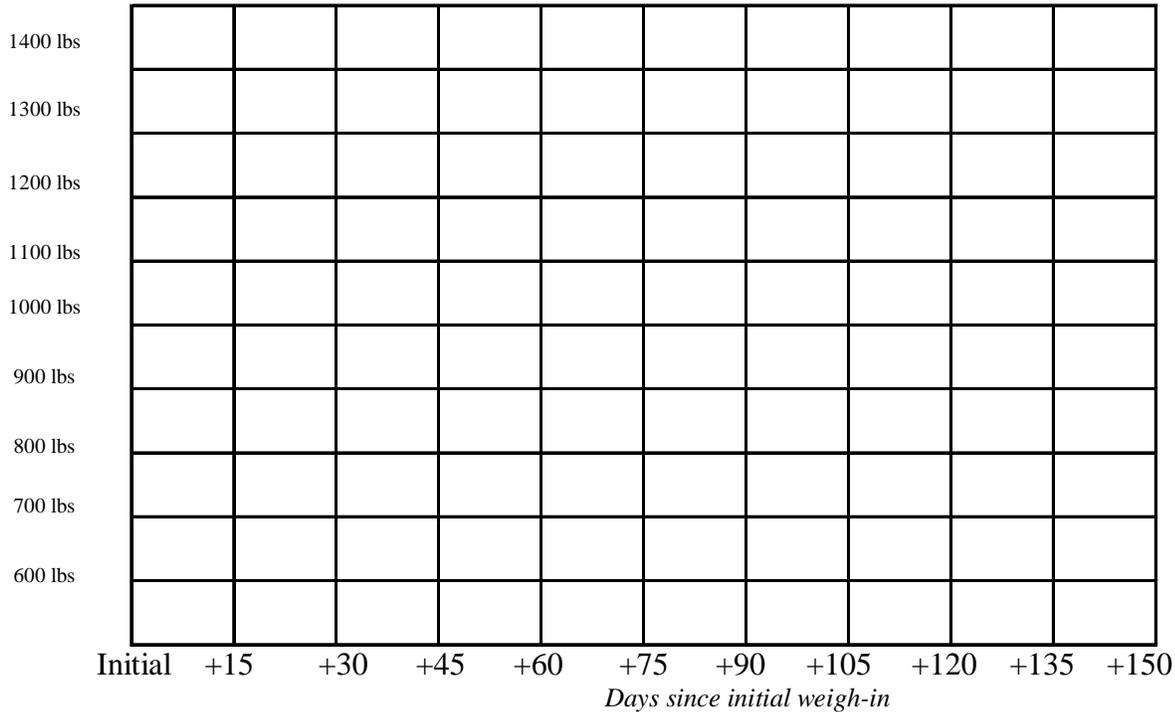
Monitoring and adjusting the feed program, based on actual growth, is important to insure that a member's project animal is in market ready condition come fair time.

## Resources

- Kinder, C.A. & Williams, S. (2013). Livestock Science Experiment. *Average Daily Gain (ADG) Market Weight, Feed Conversion*. University of Idaho Extension. Retrieved from <https://www.uidaho.edu/~media/UIIdaho-Responsive/Files/Extension/county/Gooding/4-H/animal-science/Experiment-Topics-for-club-work.ashx>
- Ohio State University Extension. (2011). Nutrition and Feeding. *Beef resource handbook* (pages 7-19 through 7-30).
- Ohio State University Extension. (2008). Nutrition. *Goat resource handbook* (pages 55-66).
- Ohio State University Extension. (2011). Nutrition. *Sheep resource handbook for market and breeding projects* (page 51-56).
- Ohio State University Extension. (2000). Nutrition. *Swine resource handbook for market and breeding projects* (pages 8-11 through 8-13).

## Market Beef Growth Chart

To achieve success with your 4-H Market Beef project, it is important you know the estimated final weight of your animal and your progress toward that goal throughout the feeding period. The chart below enables you to plot the predicted growth curve (immediately after the initial weigh-in) and then plot the actual weight of your animal at various times during the feeding period to determine if you are “on target.”



Initial weight: \_\_\_\_\_ Estimated final weight: \_\_\_\_\_

1. Mark the initial weight at the appropriate location on the left-hand side of the table.
2. Mark the estimated final weight at the appropriate location for the number of days in the feeding period.
3. Connect these two points with a straight line. Label this your “predicted” rate of growth.
4. Record your animal’s weight in the table below and the chart above each time it is weighed during the feeding period. Connect this point with the previous actual weight. Is the actual growth curve above or below your predicted growth line? Why?

## Progressive Project Weight Record

|                                       |        |  |  |  |  |  |  |  |  |
|---------------------------------------|--------|--|--|--|--|--|--|--|--|
| <b>Weigh date</b>                     |        |  |  |  |  |  |  |  |  |
| <b>Days since last weigh day</b>      | XXXXXX |  |  |  |  |  |  |  |  |
| <b>Current weight</b>                 |        |  |  |  |  |  |  |  |  |
| <b>A.D.G. (since last weigh date)</b> | XXXXXX |  |  |  |  |  |  |  |  |
|                                       |        |  |  |  |  |  |  |  |  |

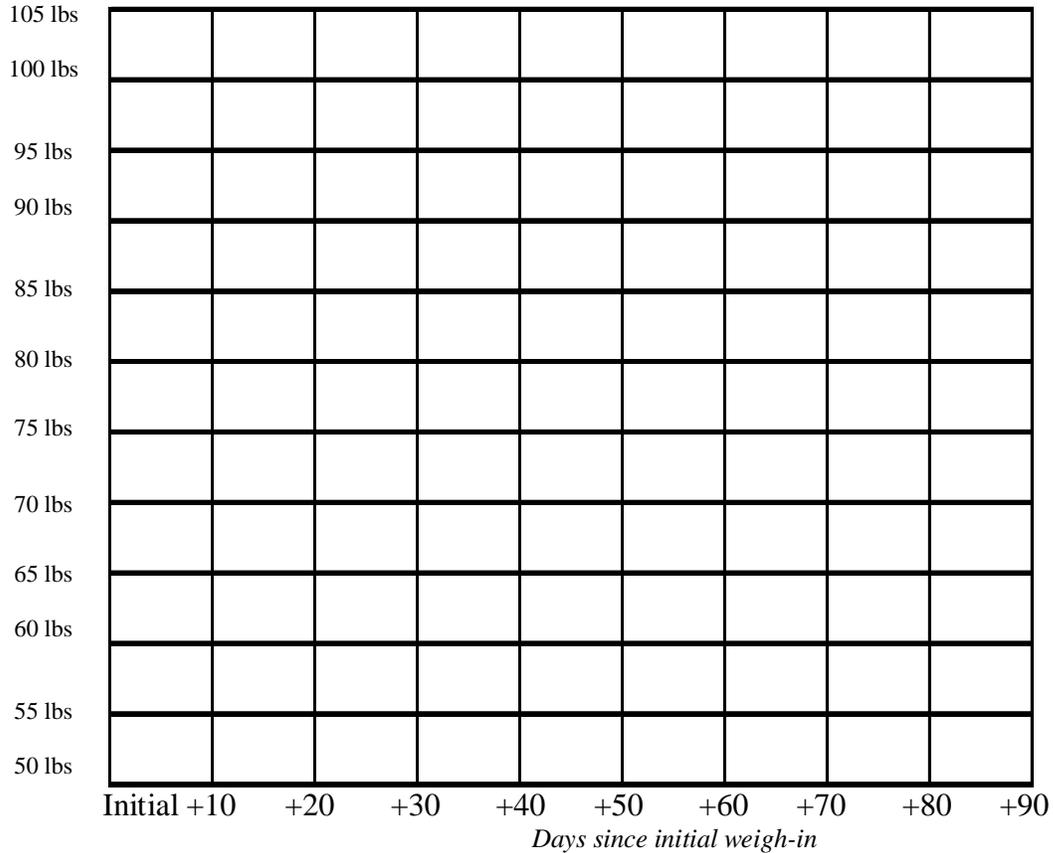
Tracking animal weight can tell you where your animal is compared to your goal. After each weigh day ask yourself; do you need to feed more grain or hay?

Typical influences in A.D.G. can be feed, water, weather, and illness. Ask yourself is the A.D.G. normal? What caused any problems?

**NUTRITION: AVERAGE DAILY GAIN – HANDOUT 2**

## Market Goat Growth Chart

To achieve success with your 4-H Market Goat project, it is important you know the estimated final weight of your animal and your progress toward that goal throughout the feeding period. The chart below enables you to plot the predicted growth curve (immediately after the initial weigh-in) and then plot the actual weight of your animal at various times during the feeding period to determine if you are “on target.”



Initial weight: \_\_\_\_\_ Estimated final weight: \_\_\_\_\_

1. Mark the initial weight at the appropriate location on the left-hand side of the table.
2. Mark the estimated final weight at the appropriate location for the number of days in the feeding period.
3. Connect these two points with a straight line. Label this your “predicted” rate of growth.
4. Record your animal’s weight in the table below and the chart above each time it is weighed during the feeding period. Connect this point with the previous actual weight. Is the actual growth curve above or below your predicted growth line? Why?

## Progressive Project Weight Record

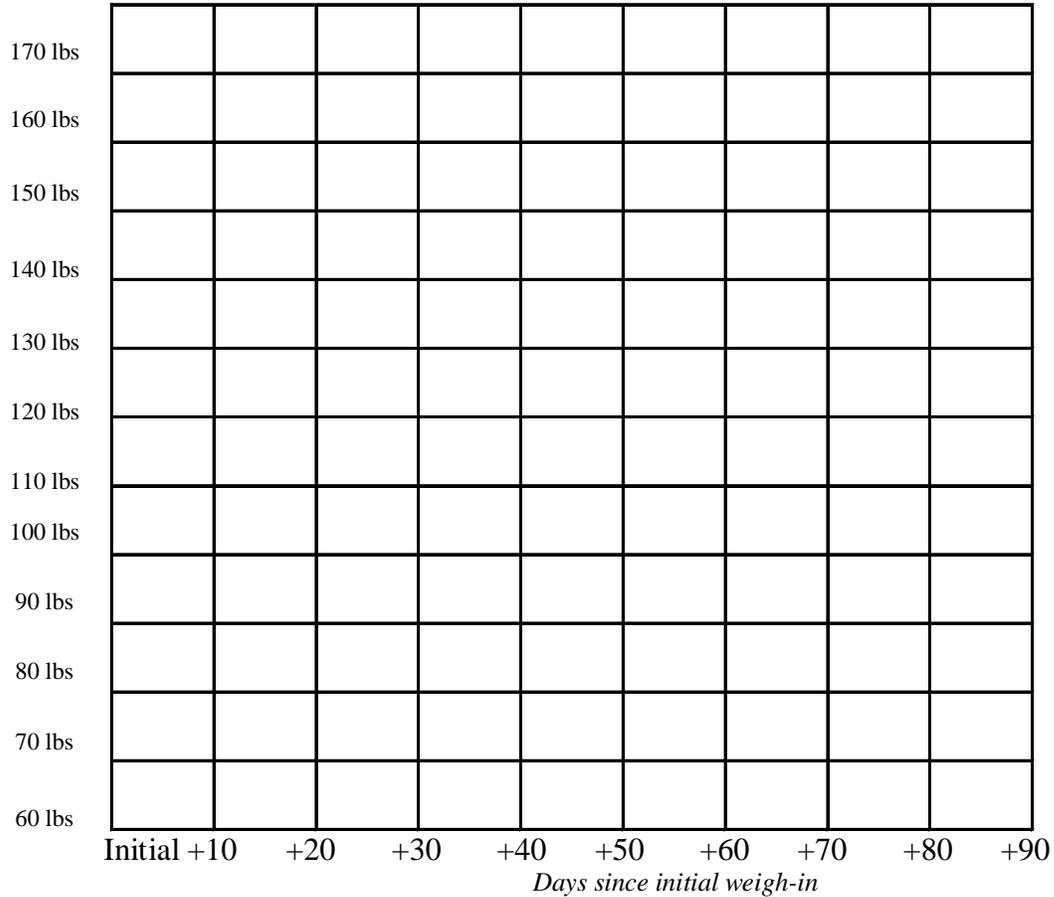
|                                       |       |  |  |  |  |  |  |  |  |
|---------------------------------------|-------|--|--|--|--|--|--|--|--|
| <b>Weigh date</b>                     |       |  |  |  |  |  |  |  |  |
| <b>Days since last weigh date</b>     | XXXXX |  |  |  |  |  |  |  |  |
| <b>Current weight</b>                 |       |  |  |  |  |  |  |  |  |
| <b>A.D.G. (since last weigh date)</b> | XXXXX |  |  |  |  |  |  |  |  |
|                                       |       |  |  |  |  |  |  |  |  |

Tracking animal weight can tell you where your animal is compared to your goal. After each weigh day ask yourself; do you need to feed more grain or hay? Typical influences in A.D.G. can be feed, water, weather, and illness. Ask yourself is the A.D.G. normal? What caused any problems?

**NUTRITION: AVERAGE DAILY GAIN – HANDOUT 3**

## Market Lamb Growth Chart

To achieve success with your 4-H Market Lamb project, it is important you know the estimated final weight of your animal and your progress toward that goal throughout the feeding period. The chart below enables you to plot the predicted growth curve (immediately after the initial weigh-in) and then plot the actual weight of your animal at various times during the feeding period to determine if you are “on target.”



Initial weight: \_\_\_\_\_ Estimated final weight: \_\_\_\_\_

1. Mark the initial weight at the appropriate location on the left-hand side of the table.
2. Mark the estimated final weight at the appropriate location for the number of days in the feeding period.
3. Connect these two points with a straight line. Label this your “predicted” rate of growth.
4. Record your animal’s weight in the table below and the chart above each time it is weighed during the feeding period. Connect this point with the previous actual weight. Is the actual growth curve above or below your predicted growth line? Why?

## Progressive Project Weight Record

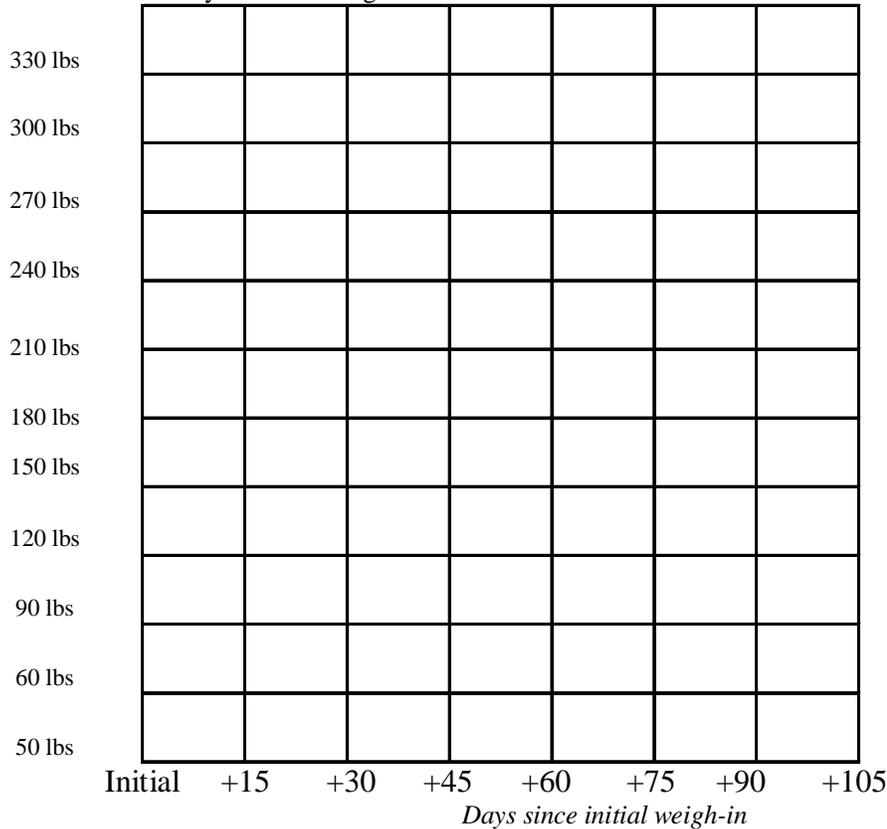
|                                       |       |  |  |  |  |  |  |  |  |
|---------------------------------------|-------|--|--|--|--|--|--|--|--|
| <b>Weigh date</b>                     |       |  |  |  |  |  |  |  |  |
| <b>Days since last weigh date</b>     | XXXXX |  |  |  |  |  |  |  |  |
| <b>Current weight</b>                 |       |  |  |  |  |  |  |  |  |
| <b>A.D.G. (since last weigh date)</b> | XXXXX |  |  |  |  |  |  |  |  |
|                                       |       |  |  |  |  |  |  |  |  |

Tracking animal weight can tell you where your animal is compared to your goal. After each weigh day ask yourself; do you need to feed more grain or hay? Typical influences in A.D.G. can be feed, water, weather, and illness. Ask yourself is the A.D.G. normal? What caused any problems?

**NUTRITION: AVERAGE DAILY GAIN – HANDOUT 4**

## Market Swine Growth Chart

To achieve success with your 4-H Market Swine project, it is important you know the estimated final weight of your animal and your progress toward that goal throughout the feeding period. The chart below enables you to plot the predicted growth curve (immediately after the initial weigh-in) and then plot the actual weight of your animal at various times during the feeding period to determine if you are “on target.”



Initial weight: \_\_\_\_\_ Estimated final weight: \_\_\_\_\_

1. Mark the initial weight at the appropriate location on the left-hand side of the table.
2. Mark the estimated final weight at the appropriate location for the number of days in the feeding period.
3. Connect these two points with a straight line. Label this your “predicted” rate of growth.
4. Record your animal’s weight in the table below and the chart above each time it is weighed during the feeding period. Connect this point with the previous actual weight. Is the actual growth curve above or below your predicted growth line? Why?

## Progressive Project Weight Record

|                                       |        |  |  |  |  |  |  |  |  |
|---------------------------------------|--------|--|--|--|--|--|--|--|--|
| <b>Weigh date</b>                     |        |  |  |  |  |  |  |  |  |
| <b>Days since last weigh date</b>     | XXXXXX |  |  |  |  |  |  |  |  |
| <b>Current weight</b>                 |        |  |  |  |  |  |  |  |  |
| <b>A.D.G. (since last weigh date)</b> | XXXXXX |  |  |  |  |  |  |  |  |
|                                       |        |  |  |  |  |  |  |  |  |

Tracking animal weight can tell you where your animal is compared to your goal. After each weigh day ask yourself; do you need to feed more grain or add any supplements? Typical influences in A.D.G. can be feed, water, weather, and illness. Ask yourself is the A.D.G. normal? What caused any problems?

## Market Projects Photo Page

Place Beginning Photo Here

**Beginning Weigh-in Date** \_\_\_\_\_ **Beginning Weight** \_\_\_\_\_  
**Ending Weigh-in Date** \_\_\_\_\_ **Ending Weight** \_\_\_\_\_  
**Average Daily Gain** \_\_\_\_\_

Place Ending Photo Here



# Basic Nutritional Requirements - Ruminant

Samantha Graf, Idaho Extension Educator

## Goal (learning objective)

Youth will:

- Learn basic vocabulary as it relates to ruminant nutrition
- Learn how to classify basic feed ingredients into nutrient groups
- Learn why different ruminant growth stages have different nutritional requirements
- Sheep: ewe, ram, lamb, lactation, gestation (See “Classifying Feed Ingredients Into Nutrient Groups” in *Sheep Resource Handbook for Market and Breeding Projects*, chapter 4, pages 50 - 51).
- Goat: doe, buck, kid, lactation, gestation (See “Feedstuffs” in *Goat Resource Handbook*, chapter 5, pages 56-57).

## Supplies

*Note: A matching set of cards is needed PER GROUP (each group of members and a set for activity leader)*

- Member flash cards (green)
- Leader flash cards (black)
- Member matching categories (green)
- Leader matching categories (black)
- Tape

Additional supplies

- Bag of assorted candy

## Pre-lesson preparation

- Be able to discuss vocabulary relative to ruminant nutrition - roughage, concentrate, salt, vitamins, fats, carbohydrates, minerals, energy, proteins and water.
- Be able to discuss specific species terms as follows:
  - Beef: heifer, cow, steer, calf, lactation, gestation (See “Classifying Feed Ingredients Into Nutrient Groups” in *Beef Resource Handbook*, chapter 7, pages 7-2 through 7-7).

- Print off sets (enough of flash and matching category cards for each group of members and a set for activity leader). Each ‘group’ should have a set of green and black cards (flash and matching category).
- Play the game with family members.

## Lesson directions and outline.

Introduction

Proper nutrition for ruminants is the foundation to a healthy animal. This lesson will lead members to understand the vocabulary as it relates to ruminant nutrition. The proper vocabulary in nutrition is important due to the complicated concept of creating a balanced feed ration (discussed in later lessons).

Categorizing and a solid understanding of vocabulary allows members to build up to a level of knowledge required to utilize the Pearson square to build a complete ration, recognizing differences in nutritional requirements at various growth stages.

### Conducting the activity (DO)

1. Have youth form into groups of three or four.
2. Provide each group a set of green flash cards and black matching category cards.
3. Explain how the game works:
 

The game is similar to black-out bingo. Black cards go across the top to make the categories (Energy, Protein, Vitamins etc.). The green cards are to be taped to it.

Organize black cards first (member and leader) before green cards are called out.

The leader shuffles their set of green cards and will randomly select and call out what is on the green card drawn.

Teams need to correctly place the called-out card in the correct category. Steps repeat until the team has completed a 3 x 3 grid of cards and calls out “Yummy”.
4. Check for understanding.
5. Play game.
6. Award candy to winning team.
7. Repeat game, beginning from start, as many times as desired.

### What did we learn? (REFLECT)

- Ask: What new vocabulary terms did you learn?
- Ask: What are the 5 nutrient groups that feed can be classified into?
- Ask: BEEF (Refer to *Bite into Beef*, page 16, “Feed Word Bank” activity)
  - a. What category does corn fit into? (energy)
  - b. Where does grass hay fit? (energy)
  - c. Where does oats fit? (energy)

- Ask: SHEEP (Refer to *Rams, Lambs & You*, page 15, “Feeding Your Market Lamb” activity)
  - a. What category does cracked corn fit into? (energy)
  - b. Where does soybean meal fit? (protein)
  - c. Where does chopped alfalfa hay fit? (energy)
- Ask: GOAT (Refer to *Just Browsing*, page 24, “My Word!” activity)
  - a. What category does forage fit into? (energy)
  - b. Where does phosphorus fit? (vitamins & minerals)
  - c. Where does silage fit? (energy)

### Why is that important? (APPLY)

- Ask: Why is it important for us to know this classification system? (Proper nutrition is the foundation to a healthy animal. Members will know what to feed their ruminant animal.)
- Ask: Are there any other areas where this information can be applied? (Future careers such as animal nutritionist, Extension agent, rancher, etc.; other ruminant animal nutritional needs.)

### Resources

- National 4-H Council. (2005). *Bite into Beef*. (pages 6-7).
- National 4-H Council. (2003). *Just Browsing*. (page 24).
- National 4-H Council. (2003). *Rams, Lambs & You*. (page 15).
- Ohio State University Extension. (2011). Nutrition and Feeding. *Beef resource handbook*. (pages 7-1 through 7-7).
- Ohio State University Extension. (2008). Nutrition. *Goat resource handbook*.(pages 56-57).
- Ohio State University Extension. (2011). Nutrition. *Sheep resource handbook for market and breeding projects*.(pages 50-51).

|                                           |                                         |                                         |
|-------------------------------------------|-----------------------------------------|-----------------------------------------|
| <b>Whole Grain Barely</b><br><br>(Energy) | <b>Whole Grain Oats</b><br><br>(Energy) | <b>Wheat</b><br><br>(Energy)            |
| <b>Corn</b><br><br>(Energy)               | <b>Milo</b><br><br>(Energy)             | <b>Beet Pulp</b><br><br>(Energy)        |
| <b>Molasses</b><br><br>(Energy)           | <b>Whole Grain Rye</b><br><br>(Energy)  | <b>Buckwheat</b><br><br>(Energy)        |
| <b>Soybean Hulls</b><br><br>(Energy)      | <b>Dried Whey</b><br><br>(Energy)       | <b>Cottonseed Meal</b><br><br>(Protein) |

|                                                                    |                                                                |                                                                         |
|--------------------------------------------------------------------|----------------------------------------------------------------|-------------------------------------------------------------------------|
| <p><b>Linseed Meal</b></p> <p>(Protein)</p>                        | <p><b>Corn Gluten Meal</b></p> <p>(Protein)</p>                | <p><b>Distillers Grain</b></p> <p>(Protein)</p>                         |
| <p><b>Brewers Grain</b></p> <p>(Protein)</p>                       | <p><b>Blood Meal</b></p> <p>(Protein)</p>                      | <p><b>Fish Meal</b></p> <p>(Protein)</p>                                |
| <p><b>Dicalcium Phosphate</b></p> <p>(Vitamins &amp; Minerals)</p> | <p><b>White Salt</b></p> <p>(Vitamins &amp; Minerals)</p>      | <p><b>Trace Mineral Salt</b></p> <p>(Vitamins &amp; Minerals)</p>       |
| <p><b>Ground Limestone</b></p> <p>(Vitamins &amp; Minerals)</p>    | <p><b>Vitamin Pre-Mix</b></p> <p>(Vitamins &amp; Minerals)</p> | <p><b>Forages</b><br/>(hay, pasture, alfalfa cubes)</p> <p>(Energy)</p> |

|                                         |                                               |                                        |
|-----------------------------------------|-----------------------------------------------|----------------------------------------|
| <b>Corn Gluten Feed</b><br><br>(Energy) | <b>Whole Soybeans</b><br><br>(Protein)        | <b>Soybean Meal</b><br><br>(Protein)   |
| <b>Whole Cottonseed</b><br><br>(Energy) | <b>Bone Meal</b><br><br>(Vitamins & Minerals) | <b>Wheat Middlings</b><br><br>(Energy) |

|                           |                         |                        |
|---------------------------|-------------------------|------------------------|
| <b>Whole Grain Barely</b> | <b>Whole Grain Oats</b> | <b>Wheat</b>           |
| <b>Corn</b>               | <b>Milo</b>             | <b>Beet Pulp</b>       |
| <b>Molasses</b>           | <b>Whole Grain Rye</b>  | <b>Buckwheat</b>       |
| <b>Soybean Hulls</b>      | <b>Dried Whey</b>       | <b>Cottonseed Meal</b> |

|                            |                         |                           |
|----------------------------|-------------------------|---------------------------|
| <b>Linseed Meal</b>        | <b>Corn Gluten Meal</b> | <b>Distillers Grain</b>   |
| <b>Brewers Grain</b>       | <b>Blood Meal</b>       | <b>Fish Meal</b>          |
| <b>Dicalcium Phosphate</b> | <b>White Salt</b>       | <b>Trace Mineral Salt</b> |

|                         |                         |                                                 |
|-------------------------|-------------------------|-------------------------------------------------|
| <b>Ground Limestone</b> | <b>Vitamin Pre-Mix</b>  | <b>Forages</b><br>(hay, pasture, alfalfa cubes) |
| <b>Wheat Middlings</b>  | <b>Whole Cottonseed</b> | <b>Soybean Meal</b>                             |
| <b>Whole Soybeans</b>   | <b>Bone Meal</b>        | <b>Corn Gluten Feed</b>                         |

|                                                     |                                           |
|-----------------------------------------------------|-------------------------------------------|
| <p><b>Energy</b><br/>(Carbohydrates &amp; Fats)</p> | <p><b>Energy</b></p>                      |
| <p><b>Proteins</b></p>                              | <p><b>Proteins</b></p>                    |
| <p><b>Vitamins &amp;<br/>Minerals</b></p>           | <p><b>Vitamins &amp;<br/>Minerals</b></p> |



# Feed Labels

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Sarah D. Baker, Idaho Extension Educator

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## Goal (learning objective)

Youth will learn about ingredients and identify types of information found on feed labels.

## Supplies

- Handout 1 “Feed Tag Worksheet” (enough copies for group)
- Handout 2 “Cereal Box Worksheet” (enough copies for group)
- Several, different examples of cereal boxes (enough for when group breaks up into small groups)
- Handout 3 “Calf Starter” feed label
- Handout 4 “Lamb Grower” feed label
- Handout 5 “Pig Grower” feed label
- Handout 6 “Goat Grower” feed label
- Pencils and paper (enough for group)
- Flip chart and marker

## Pre-lesson preparation

- Make copies of the handouts
- Practice the activity
- Read through handouts and resources listed to familiarize yourself with the concepts and vocabulary

## Lesson directions and outline

- Share the following information with the youth:

Proper animal nutrition is the key to a successful livestock business and a 4-H livestock project. Animals require proper nutrition for growth and development. Feed tags provide us important information about nutrients and ingredients to help us choose a feed that will meet the animal’s needs and give us the performance we expect.

Anyone selling feed commercially must supply a label or tag with each bag of feed. You should always read the tag to make sure you are getting what you want in the product and that you are not getting something that you don’t want. Unless you can understand what is written on these tags, you won’t know if you are providing your animal with the proper nutrition.

Processed livestock feeds are grouped into two primary categories:

- **Complete feed** are those products containing all of the nutrients (except water and roughages) required by your animal. You can open the bag and empty the contents directly into the feeder.
- **Supplements** are products that are added or mixed into feed. They supply things such as additional protein, vitamins, minerals, and other ingredients that may be lacking in the base feed. Supplements are usually added in small, specified amounts and are not to be fed as the total ration.

Now let’s take a closer look at what we can find on feed tags and cereal box labels.

### Conducting the activity (DO)

1. Divide members into small groups
2. Have youth take out copies they brought from home and/or distribute samples to each group:
  - a. Cereal box labels
  - b. Feed tags
3. Have groups examine and compare information on the cereal boxes and feed tag as a group; record what similarities they find.
4. Distribute and have groups complete Handout 2 “Cereal Box Worksheet.”
5. When done, distribute and have groups complete Handout 1 “Feed Tag Worksheet.”

### What did we learn? (REFLECT)

- Ask: What did you discover while doing this activity?
- Ask: What similar information did you find on feed tags and cereal box labels? (record answers on flip chart)
- Ask: By law, feed tags must include some specific details, what types of information did you find on the feed tag? (record answers on flip chart; reference outline below regarding primary points)

#### Key Feed Tag Information:

**Product Name and Brand Name:** A product name is always present and a brand name may also be present. A feed tag usually contains a unique name to identify the feed (Beef Start, Calf Starter, etc.).

**Purpose of Feed:** A statement specifying the species and animal classes for which the feed is intended (Starting/Preconditioned Beef Cattle, Growing/Finishing Beef Heifers, etc.)

**Medication and Active Drug Ingredients:** If a drug is used in the feed, the word MEDICATED must appear below the name with a statement and purpose of medication (claim statement), followed by a listing of the active drug ingredients and the amount of drug in the product.

**Guaranteed analysis:** Gives information on various

nutrients present in the feed. This will include:

- a. Minimum percentage of crude protein (percentage of equivalent protein from non-protein nitrogen, if any): The amount of crude or total protein in a feed is guaranteed. Crude protein is determined by multiplying the nitrogen content of a feed by the factor 6.25.
- b. Minimum percentage of crude fat: Fat has an energy value approximately 2.25 times the value of carbohydrate feedstuffs.
- c. Maximum percentage of crude fiber: Crude fiber is a measure of the indigestible or non-useful portion of a feed. Feeds having low fiber values tend to be higher in digestible energy or total digestible nutrients than those feeds having high fiber values.
- d. Minimum and maximum percentage of calcium.
- e. Minimum percentage of phosphorus.
- f. Minimum and maximum percentage of salt.
- g. Minimum Vitamin A in International Units (IU) per pound.

Note: The guarantees do not reflect the quality of feeding value of a feed. There is a difference in quality of various feed sources. For example, copper sulfate is 80-90% digestible, whereas copper oxide is only 0-10% digestible. Even different sites where the same mineral is collected will vary in digestibility.

**Ingredient Statement:** Lists ingredients used to manufacture the feed, starting with the highest concentration/amount. Similar types of ingredients may be listed individually or collectively.

Note: When non-protein nitrogen (NPN) is added to feedstuffs, a statement of “for ruminants only” must appear underneath the name of the feed. Additionally, it must also have a guarantee for crude protein which has been supplied from non-protein nitrogen.

**Feeding Instructions:** Directs how the product should be fed

**Warnings and Cautions:** Should be listed if any medications are added

**Distributor Name & Address:** Identifies the company

making or distributing the feed

Net Weight: Indicates weight of the feed in the bag

Ask: What are the sources of protein, energy, vitamins and minerals listed on your feed tag?

Ask: Why is it important to know what is in the feed we provide our animals?

### Why is that important? (APPLY)

- Ask: Where else might it be important to know the ingredients or nutritional value of a product?
- Ask: Besides feed or food, are there other settings where it is important to know about the quality of the various parts/components to insure you get a good value for the money you invest?

## Resources

Malone, B. & Schwartz, V. (n.d.). Lesson 3: Interpreting Feed Labels. *Putting Science into Animal Science Projects*. Ohio State University Extension. Retrieved from <http://www.ohio4h.org/statewide-programs/animal-sciences/livestock/livestock-resources>

National 4-H Council. (2005). Bite Into Beef. BU-08143 (page 11).

Ohio State University Extension. (2011). Nutrition and Feeding. *Beef resource handbook* (pages 7-1 through 7-16).

Ohio State University Extension. (2008). Nutrition. *Goat resource handbook* (pages 51-55).

Ohio State University Extension. (2011). Nutrition. *Sheep resource handbook for market and breeding projects* (pages 49-50).

Ohio State University Extension. (2000). Nutrition. *Swine resource handbook for market and breeding projects* (pages 8-1 through 8-3).

**NUTRITION: FEED LABELS – HANDOUT 1**

**Feed Tag Worksheet**

*Questions adapted from “Putting Science into Animal Science Projects” (The Ohio State University Extension) by Bonnie Malone & Vicki Schwartz.*

**Answer the following questions using the feed label provided for the species you raise.**

1. What is the major ingredient in this feed?
2. How many active ingredients are in this feed?
3. Is this feed medicated? If yes, what is the purpose of the medication?
4. If necessary, how many days prior to slaughter should you quit feeding this feed?
5. At what weight range should this ration be fed?
6. Can you feed this feed to all livestock, or is it only permitted for one species?
7. Fill in the following table for your feed tag:

|                             |  |
|-----------------------------|--|
| Minimum Crude Protein Level |  |
| Minimum Crude Fat Level     |  |
| Maximum Crude Fiber Level   |  |
| Range of Calcium Level      |  |
| Range of Phosphorus Level   |  |
| Range of Salt Level         |  |
| Minimum Selenium Level      |  |

## NUTRITION: FEED LABELS – HANDOUT 2

### Cereal Box Worksheet

*Adapted from: "How to Read Feed Tags" Beef, Level II, (University of Idaho Extension 4-H Beef Curriculum), 1994, Kirk Astroth, Extension Specialist, 4-H Youth Programs, Kansas State University.*

Cereals are required to include nutrition information on the box. The label includes a list of ingredients which appear in order from most to least. It also lists percentages of recommended daily allowances and amounts of some nutrients per serving.

1. Name of Cereal:
2. Main Ingredient:
3. Serving Size:
4. Servings per package:
5. What does U.S. RDA mean?
6. Which vitamins are listed?
7. Does this cereal provide all of your daily need (100%) for any of the nutrients? If so, which ones?
8. Which nutrients increase when milk is added?
9. Which nutrients are minerals?

**NUTRITION: FEED LABELS – HANDOUT 3**

**Calf Starter Formulated for Starting Calves**

**Medicated**

For the prevention of coccidiosis in ruminating and non-ruminating calves including veal calves, and cattle caused by *Eimeria bovis* and *Eimeria zornia*. Feed for at least 28 days during periods of coccidiosis exposure or when experience indicates that coccidiosis is likely to be a hazard. Coccidiostats are not indicated for use in adult animals due to continuous previous exposure.

**Active Drug Ingredients**

Decoquinatate.....27.2g/ton

**Guaranteed Analysis**

Crude Protein.....min 20.00%

Crude Fat.....min 3.00%

Crude Fiber.....max 6.00%

Acid Detergent Fiber (ADF).....min 7.00%

Calcium.....min 0.50%

Phosphorus.....min 0.60%

Selenium.....min 0.45 PPM

Vitamin A.....min 15,000 IU/lb.

Vitamin D.....min 4,000 IU/lb.

**Ingredients**

Corn, Corn Distillers Grains with Solubles, Dehulled Soybean Meal, Wheat Middlings, Dried Whey, Dehydrated Alfalfa Meal, Dicalcium and Monocalcium, Phosphate, Calcium Carbonate, Salt, Potassium Sulfate, Magnesium Sulfate, Choline Chloride, Vitamin A supplement, Vitamin E Supplement, D-Activated Animal Sterol (source of Vitamin D-3), Niacin, Vitamin B-12 Supplement, Riboflavin, d-Calcium Pantothenate, Menadione Dimethylpyrimidinol Bisulphite (source of Vitamin K Activity), d-Biotin, Thiamine Mononitrate, Pyridoxine Hydrochloride, Folic Acid, Zinc Sulfate, Ferrous Sulfate, Manganous Sulfate, Copper Sulfate, Ethylene Diamine Dihydriodide, Cobalt Sulfate and Sodium Selenite.

**Feeding Directions**

Feed 1.6 lbs. Per 100 lbs. body weight per day to deliver 22.7 mg Decoquinatate per 100 lbs. body weight per day. Feed this complete calf starter pellet free-choice along with hay and milk replacer for the first month. For the second through the third month, feed this starter free-choice with water and hay.

Starting at 120 days of age, gradually change from this starter feed to a growing program.

**Warning: DO NOT FEED TO COWS PRODUCING MILK FOR FOOD.**

Manufactured By:

Adventure Mills Livestock Feeds

Cowtown, OH 43210

Net Weight 50 pounds (22.7 Kilograms)

Or as shown on shipping document

**NUTRITION: FEED LABELS – HANDOUT 4**

**Net Weight 50 Pounds**

**GRO-MOR**

**16% Lamb Finisher B**

**Medicated**

For the prevention of coccidiosis caused by Eimeria ovina.  
E. crandallis. E. ovinoidalis, E. ninakohlyakimovae. E. parva  
and E. intricate

**Active Drug Ingredient**

Lasalocid.....30 gm/ton

**Guaranteed Analysis**

Crude Protein.....Min. 16.00%

(Includes not more than 1.0% Crude protein equivalent from nonprotein nitrogen)

Crude Fat.....Min 2.50%

Crude Fiber.....Max 4.75%

Calcium.....Min 0.40%.....Max 0.50%

Phosphorus.....Min 0.60%

Salt.....Min 0.40%.....Max 0.60%

**Ingredients**

Grain Products, Animal Protein Products, Plant Protein Products, Dicalcium Phosphate, Calcium Carbonate, Salt, Potassium Chloride, Magnesium Oxide, Vitamin A Acetate in Gelatin, D-Activated Animal Sterol (Source of Vitamin D3) Vitamin E Supplement, Menadione Dimethylprimidinol Bisulfite (Source of Vitamin K), Riboflavin Supplement, D-Calcium Pantothenate, Niacin, Vitamin B12 Supplement, Choline Chloride, Zinc Oxide, Ethylene Diamine Dihydroiodide, Cobalt Carbonate, and Sodium Selenite.

**Caution**

The safety of Lasalocid in unapproved species and breeding animals has not been established. Do not allow horses or other equines access to Lasalocid as ingestion may be fatal. Feeding undiluted or mixing errors resulting in excessive concentrations of Lasalocid could be fatal to sheep.

**Feeding Directions**

Feed as the sole ration to lambs from 80 pounds body weight to market. Feed continuously to provide not less than 15 mg. nor more 75 mg. of Lasalocid per head per day depending on body weight. Provide plenty of clean fresh water.

Manufactured by:  
XYZ Feed Company  
Sheep Division

**PIG GROWER  
MEDICATED**

For pigs from 30 pounds to 75 pounds

ADMINISTER TO SWINE IN A COMPLETE FEED FOR REDUCTION OF THE INCIDENCE OF CERVICAL ABCESES; TREATMENT OF BACTERIAL SWINE ENTERITIS (SALMONELLOSIS OR NECROTIC ENTERITIS CAUSED BY SALMONELLA CHOLERAEUIS AND VIBRIONIC DYSTENTERY). MAINTENANCE OF WEIGHT GAINS IN THE PRESENCE OF ATROPHIC RHINITIS.

**ACTIVE DRUG INGREDIENT**

CHLOROTETRACYCLINE.....100G/ton

**GUARANTEED ANALYSIS**

CRUDE PROTEIN.....MIN. 19.00%  
LYSINE.....MIN 1.10%  
CRUDE FAT.....MIN 5.0%  
CRUDE FIBER.....MAX 4.0%  
CALCIUM.....MIN 0.60%  
CALCIUM .....MAX 1.10%  
PHOSPHORUS.....MIN. 0.55%  
SALT.....MIN 0.40%  
SALT.....MAX 0.90%  
SELENIUM.....MIN 0.30 PPM  
ZINC .....MIN 140.00 PPM

**INGREDIENTS**

Grain Products, Plant Protein Products, Processed Grain By-Products, Animal Fat, Animal Protein products, Calcium Phosphate, Lignin Sulfonate, Ground Limestone, Salt, L-Lysine Monohydrochloride, Methionine Supplement, Zinc Oxide, Zinc Sulfate, Ferrous Sulphate, Manganous Oxide, Copper Sulfate, Calcium Iodate, Sodium Selenite, Vitamin A Acetate, Dimethylpyrimidinol Bisulphite, Riboflavin Supplement, Thiamine Mononitrate, Folic Acid, Choline Chloride, Pyridoxine Hydrochloride, Biotin, Ethoxyquin (as a preservative)

**FEEDING DIRECTIONS**

Feed as the only ration to pigs weighing from 30 pounds to 75 pounds bodyweight.

**WARNING**

Withdraw 10 days prior to slaughter; contains high levels of copper; do not feed to sheep.

MANUFACTURED BY SKILLATHON FEEDS  
NET WEIGHT 50 POUNDS (22.7 KILOGRAMS)  
OR AS SHOWN ON THE SHIPPING DOCUMENT

**NUTRITION: FEED LABELS – HANDOUT 6**

**Goat Starter**

**Medicated**

**Starter for Growing Kids**

For the prevention of coccidiosis caused by Eimeria ovina, E. crandallis, E. ovinoidalis, E. ninakohlyakimovae, E. parva and E. intricate in goats maintained in confinement.

**Active Drug Ingredient**

Lasalocid (As Lasalocid Sodium).....90 G/ton

**Guaranteed Analysis**

Crude Protein.....Min. 20.00%  
Crude Fat.....Min 2.50%  
Crude Fiber.....Max 10.0%  
Calcium.....Min 0.75%  
Calcium.....Max 1.25%  
Phosphorus.....Min 0.55%  
Salt.....Min 0.40%  
Salt.....Max 0.90%  
Selenium.....Min 0.30 ppm  
Vitamin A.....Min 2,000 IU/lb

**Ingredients**

Processed Grain By-Products, Grain Products, Plant Protein Products, Forage Products, Roughage Products, Molasses Products, Ground Limestone, Salt, Lignin Sulfonate, Potassium Sulfate, magnesium Sulfate, Magnesium Oxide, Sodium Selenite, Calcium Propionate, Vitamin E Supplement, Vitamin A Acetate, Vitamin D-3 Supplement, Zinc Sulfate, Zinc Oxide, Sodium Molybdate, Manganous Oxide, Calcium Iodate, Cobalt Carbonate, Ferrous Sulfate.

**Feeding Directions**

GOAT STARTER MEDICATED contains 45 mg of lasalocid per pound. Feed continuously as the sole ration to growing kids from 1 to 6 weeks of age at the rate of 0.33-1.55 pounds per head per day to provide not less than 15 mg and not more than 70 mg of lasalocid per head per day. Provide clean fresh water at all times.

**Caution**

The safety of lasalocid in unapproved species has not been established; do not allow horses or other equine access to lasalocid as ingestion may be fatal; feeding undiluted or mixing errors resulting in excessive concentrations of lasalocid could be fatal to sheep.

Manufactured by Skillathon Feeds  
Net Weight 50 Pounds (22.7 Kilograms)  
Or as shown on the shipping document



# Monogastric Nutrition

Nikola Dalton, Idaho Extension Educator

## Goal (learning objective)

Youth will:

- Understand basic vocabulary as it relates to monogastric nutrition
- Understand the different growth stages of monogastrics
- Understand why there are different nutritional requirements during different growth stages

## Supplies

- Handout 1 - "Vocabulary Definitions" (make enough copies for the group)
- Microwave

Supplies listed below are for each group (kitchen and treats), adjust accordingly if working as one large group

### Kitchen supplies

- 1 large microwave safe bowl
- 1 medium microwave safe bowl
- 1 9x13 cake pan
- 1 spatula or wooden spoon
- Tin foil
- Cooking spray (i.e. Pam)

### Treat supplies

- 4 cups "Rice Krispies" type cereal
- 2 cups "Cheerios" type cereal
- 1 cup "Trix" type cereal
- 1 cup "Fruit Loops" type cereal
- 1 bag (10 1/2 ounce) miniature marshmallows
- 1/4 cup butter or margarine

## Pre-lesson preparation

- Be able to discuss vocabulary relative to monogastric nutrition - roughage, concentrate, salt, vitamins, fats, carbohydrates, minerals, energy, proteins and water.
- Read "Digestive System" in *Swine Resource Handbook for Market and Breeding projects*, chapter 7, page 7-1.
- Review "Classifying Feed Ingredients Into Nutrient Groups" in *Swine Resource Handbook for Market and Breeding projects*, chapter 8, page 8-5.
- Read "Feeding Your Growing Pigs" in *Swine Resource Handbook for Market and Breeding projects*, chapter 8, pages 8-11 through 8-13.
- Practice activity with family members.

## Lesson directions and outline.

Proper nutrition in a monogastrics is the foundation to a healthy animal. This lesson will lead members to understand nutritional requirements for different growth and reproductive stages as it relates to monogastric nutrition. For all animals there are five essential nutrients that are required and that feed can be classified. They include: carbohydrates (or energy), protein, fats, vitamins and minerals, and water. In the lesson these will be discussed more in depth

A monogastric is defined as an animal with a simple stomach or as a non-ruminant. Monogastrics can be omnivores or carnivores. An omnivore is an animal that eats both plant and animal materials. A carnivore is defined as an animal that eats other animals. Examples of a monogastric include swine, poultry, cats and dogs. Swine and poultry are considered omnivores while cats and dogs are both carnivores. Some special monogastrics such as rabbits and horses have a complex large intestine that allows them to digest plant materials. Rabbits and horses are herbivores; animals that only eat plants. To understand more about the differences between a monogastric and ruminants please see: Digestive Systems (Level 2, 3) Animal Science Lesson Plan under Nutrition.

The understanding of the nutritional requirements for the varied growth stages of a monogastric is important due to the complicated concept of creating a balanced feed ration (discussed in later lessons).

With this lesson youth should have a solid foundation to build upon and begin to evaluate feeding requirements as well as recognizing the differences in nutritional requirements in relation to the growth stages.

### Conducting the activity (DO)

1. Discuss the order of nutrition needs for a monogastric (for this lesson we will be referencing swine: as our monogastric):
  - a. Water - is an essential nutrient for all stages of growth. Different amounts of water are required at different stages of growth but usually a swine drinks about 2-3 pounds of water per pound of feed. A sow in lactation would require more water due to her production of milk. Water intake can also be dependent on environmental temperatures and stressors. Water should be clean and cool and have animals should have access at all times.
  - b. Fats – should be found in normal ingredients in pig feed and are essential to their diet. Fats are found in binders and palatability enhancers such as molasses or corn oil.
  - c. Maintenance –keeps the animal’s body functioning at normal levels. Roughly 50% of the animal’s food intake is used just for maintenance. This ration is comprised mainly of ENERGY feedstuffs.
  - d. Growth – This food intake is used to grow muscle, bone, and other body parts. This ration has mainly ENERGY feedstuffs in it, but also contains a small amount of PROTEIN. This is in addition to the Maintenance ration.
  - e. Reproduction - nutrition is important to health of the sow or gilt and for the proper development of the piglets during gestation. The reproduction ration has higher levels of PROTEIN as well as MINERALS & VITAMINS. This is in addition to the Maintenance and Growth rations.
  - f. Lactation - nutritional rations are used once a sow or gilt has farrowed. Lactation requires increased levels of PROTEIN and MINERALS & VITAMINS. This is in addition to the Maintenance and Reproduction rations.
2. Have youth get into groups of 3 or 4:
3. Provide each group a set of the kitchen and treat supplies.
4. Explain the activity to the members before

starting:

- a. Show members the cereal representations of the growth stages:
  - Maintenance - Rice Krispies type cereal
  - Growth - Cherrios type cereal
  - Reproduction - Fruit Loops type cereal
  - Lactation - Trix type cereal
  - Vitamins & Minerals - Marshmallows and butter
- b. Sample Question: Your breeding sow has farrowed and is lactating. What stage(s) of growth is she in? How many rations should be included in her daily feed ration?
5. For the above scenario all of the rations. Members should include small amounts of each ingredient (not all at once) over the course of the questions, all items should be in the pan by the last question.
6. Have members line pans with tin foil.
7. Scenario 1: Your market barrow is 100 pounds. What stage of growth is she in? How many rations should be included in her daily feed ration? (Maintenance and Growth)
8. Scenario 2: Your breeding gilt is at 220 pounds (assume this is your "ideal" weight for this animal). What stage of growth is he in? How many rations should be included in his daily feed ration? (Maintenance and Reproduction)
9. Scenario 3: Your sow has farrowed and lactating. What stage of growth is she in? How many rations should be included in her daily feed ration? (All - add all remaining cereals to pan)
10. Place butter and marshmallows into medium microwave bowl and cook until marshmallows are melted, stir well. These items represent minerals and vitamins which should be added (and mixed) to cereals in pan
11. Let cool for 10 minutes and enjoy!

### What did we learn? (REFLECT)

- Ask: How many growth stages are there for monogastrics and what are they called?
- Ask: What are the 5 nutrient groups that feed can be classified into?

### Why is that important? (APPLY)

- Ask: Why is it important for us to know the different growth stages? (Proper nutrition is the foundation to a healthy animal)
- Ask: Why should we care about feeding different rations in the separate growth stages?
- Are there other areas where this information can be applied? (Future careers, other monogastric animal nutritional needs)

### Resources

- Branch, A.(n.d.). *Beef nutrition web quest*. Ag 310 Applied Livestock Management Beef Nutrition. Retrieved March 25, 2015 from <http://communities.naae.org/thread/4170>
- National 4-H Council. (2004). *The Incredible Pig* (pages 19-20).
- National 4-H Council. (2004). *Putting the Oink in Pig*. (page 20).
- Ohio State University Extension. (2011). *Nutrition. Swine resource handbook for market and breeding projects.*(pages 8-1 through 8-18).
- U.S. Food and Drug Administration. (2014). *Animal Feed: See, Touch and Do A Hands-On Lesson Plan on the Basics of Animal Nutrition*. Retrieved March 25, 2015 from <http://www.fda.gov/AnimalVeterinary/ResourcesforYou/AnimalHealthLiteracy/ucm280837.htm>

# **HEALTH AND DISEASES**



# What Does a Healthy Animal Look Like?

Rikki Ruiz, Idaho Extension Educator

## Goal (learning objective)

Youth will learn about the differences between healthy and sick animals and the causes of sickness.

## Supplies

- Paper and pen (or pencils, enough for group)
- Flip chart paper (post-it) and 8 markers (enough so that each smaller group has 2 flip chart sheets and a marker)
- Handout 1 - "Pictures of Healthy and Unhealthy Animals" (enough copies for the group)

## Pre-lesson preparation

- Read/review the resources from the Ohio Resource Handbooks (see resources)
- Review the web resources (see resources)

## Lesson directions and outline

Share the following information with the youth:

Animal behavior is a significant factor in determining an animal's health. Normal animal behavior includes an animal who stays with the herd, eyes are bright, nose moist without discharge, no wounds, and is eating normally.

Signs of sick animals can include an animal that is irritable, listless, lame, fever, away from the group, not eating or drinking etc. Several factors can play a part in an animal's health. Some of these include; feed and feed storage, water trough, pasture condition, types of plants that animal has access too, weather conditions, etc.

Distribute Handout 1 and have youth share the differences they see from the pictures of healthy and unhealthy animals.

## Conducting the activity (DO)

1. Have youth count off into groups.
2. Have 1 group representative get 2 sheets of flip chart paper and a marker.
3. Have the group appoint a recorder, title 1 sheet of flip chart paper "Normal" the other sheet "Abnormal".
4. Have the groups discuss (and record) what they consider normal animal behaviors and physical conditions and what they consider as abnormal behaviors and physical conditions.
5. After groups have discussed and created their lists, have them share their findings with everyone.
6. Have members remain in smaller groups, after you read each scenario to the group, have the smaller groups determine if the animal is sick or not. Have groups note their findings to share with everyone after all the scenarios have been read.
7. Read the following scenarios to the groups:
  - a. Scenario 1: Sheep are usually curious and energetic animals, however your sheep is acting depressed. Your sheep is hanging its head, with droopy eyes. He is distant and not eating or drinking like usual. Your sheep doesn't want to socialize with others and is panting very rapidly. You have given your sheep fresh water and fresh hay, but he's not interested in either.
  - b. Scenario 2: Cattle are usually curious and energetic animals, however your steer or heifer is acting depressed. The animal has its head down and when it picks it up it has droopy ears. It is distant and not eating or drinking like usual. Your steer or heifer doesn't want to socialize with others and is panting very rapidly. You have given your animal fresh water and fresh hay, but it's not interested in either.

- c. Pigs are usually curious and energetic animals, however your pig is acting depressed. Your pig is moving slowly, with sunken eyes. The animal is distant and not eating or drinking like usual. Your pig doesn't want to socialize with others and is panting very rapidly. You have given your pig fresh water and feed, but it's not interested in either.
8. Lead a discussion as a larger group. Ask the following questions:
- Which animals were sick? Why or why not?
  - Did the scenarios provide enough information to help you decide if the animal is sick or not?

#### **What did we learn? (REFLECT)**

- Ask: What other things could cause an animal to not feel well?
- Ask: What's the best way for you to recognize if your animal is sick?

#### **Why is that important? (APPLY)**

- Ask: How can you apply this to your 4-H project?
- Ask: How can you apply this to your health or the health of your family?

## **Resources**

- Green, J.W., Black, L., & Willis, P. (2013). 4-H Science Inquiry Video Series. *Journal of Extension* [On-line], 51(3). Available at: <https://joe.org/joe/2013december/tt7.php>
- Jones, J. (2007). Keeping Your 4-H Market Animals Healthy (4-H 140). Oregon State University Extension Service. Available at: <https://catalog.extension.oregonstate.edu/sites/catalog.extension.oregonstate.edu/files/project/pdf/4-h140.pdf>
- Ohio State University Extension. (2011). Health Maintenance. *Beef resource handbook* (pages 5-2 through 5-6).
- Ohio State University Extension. (2008). Herd Management and Diseases. *Goat resource handbook* (pages 88-93).
- Ohio State University Extension. (2011). Health Maintenance and Diseases. *Sheep resource handbook for market and breeding projects* (67-70).
- Ohio State University Extension. (2000). Diseases and Their Control. *Swine resource handbook for market and breeding projects* (pages 9-1 through 9-13).
- Washington State University (n.d.). Cattle, Swine, and Small Ruminants. *Animal Disease Screening Tools*. Available at: <http://vetextension.wsu.edu/4-h-fair/>

HEALTH & DISEASES: WHAT DOES A HEALTHY ANIMAL LOOK LIKE – HANDOUT 1

Pictures of Healthy and Unhealthy Animals



*Picture of a healthy cow*



*Picture of an unhealthy calf*



*Picture of a healthy sheep*



*Picture of an unhealthy sheep*



*Picture of a healthy pig*



*Picture of an unhealthy pig*



*Picture of a healthy goat*



*Picture of an unhealthy goat*

*\*All photos are stock images found on the internet*



# Injection Sites and Techniques

Shannon Williams, Idaho Extension Educator

## Goal (learning objective)

Youth will learn about proper injection technique and appropriate locations to administer injections.

## Supplies

- 1 orange or 1/2 banana - one per youth
- Syringes - 6cc or 12cc - one per youth (can be shared)
- Needles - 18 x 1/2 or 3/4 - one per youth (can be shared)
- Dyed sterile water in vaccine bottles (can be shared)
- Sharp knives for use by adult volunteer
- Handout 1 - "Appropriate Injection Sites" (enough copies for group)

## Pre-lesson preparation

- Check with your local veterinarian early to have them save sterile water.
  - a. Draw some of the water out of each bottle and replace it with a SMALL amount of food coloring. Red or green works best.
- Study recommended injection sites for species (see resources).

## Lesson directions and outline

Share the following information with the youth:

At some point in time, it is necessary to give all animals an injection. This could be a vaccine to prevent a disease or a medication to treat a disease. It is important to use proper injection technique and to administer injections in recommended locations as not to damage the meat.

## Conducting the activity (DO)

1. Discuss with youth the importance of properly restraining the animal when giving an injection.
2. Discuss with youth the difference between subcutaneous (sq) and intermuscular (im) injections.
3. Show youth the correct locations for injections on the species they are interested in.
4. Demonstrate to the group how to correctly fill a syringe with "medication."
5. Have youth fill their syringe with 1cc of "medication."
6. Have youth inject the piece of fruit, administering:
  - a. One sq injection
  - b. One im injection
7. Cut the fruit to see if they administered the "medication" in the proper location.

## What did we learn? (REFLECT)

- Ask: What are some reasons why we would give an animal an injection?
- Ask: Where are the proper locations for injections on their animal? Why those locations?

## Why is that important? (APPLY)

- Ask: What could happen if an injection was given in the wrong location?
- Ask: What could happen if you were given an injection in the wrong location?

## Resources

Ohio State University Extension. (2011). Health Maintenance. *Beef resource handbook* (pages 5-7 through 5-8).

Ohio State University Extension. (2008). Caring for Animals *Goat resource handbook* (pages 165-166).

Ohio State University Extension. (2011). Health Maintenance and Diseases. *Sheep resource handbook for market and breeding projects* (pages 71-72).

Ohio State University Extension. (2000). Caring for Animals. *Swine resource handbook for market and breeding projects* (pages 24-7 through 24-9).

HEALTH & DISEASES: INJECTION SITES AND TECHNIQUES – HANDOUT 1

APPROPRIATE INJECTION SITES

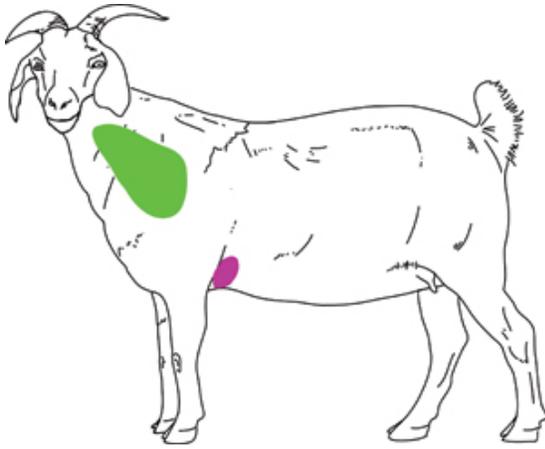
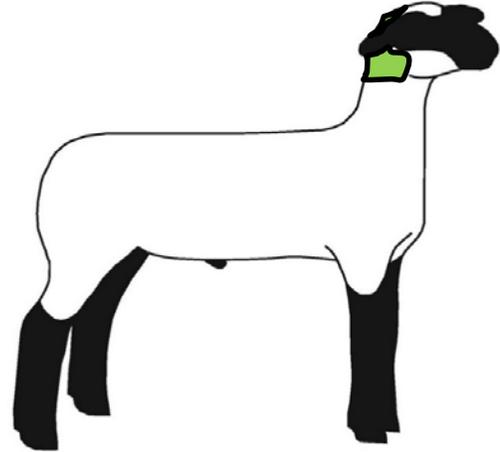
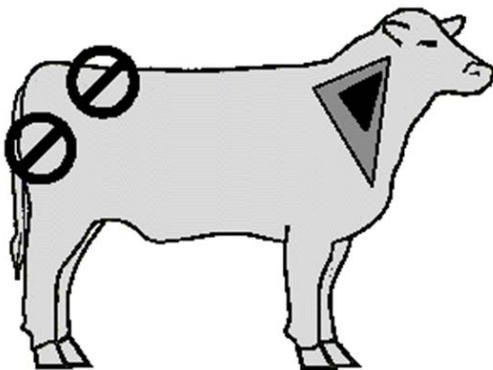


Photo courtesy of Langston University

Goats – correct placement is in the dark area in the neck and the area in the armpit



Sheep – correct placement is in the dark area in the neck



 Do Not Inject    Subcutaneous (SC)    Intramuscular (IM)

Cattle – correct placement is in the areas in the neck

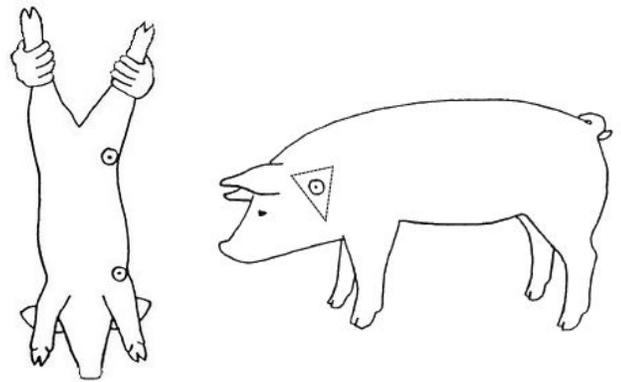


Photo courtesy of National Pork Board Fact Sheet

Swine – correct placement is the area in the neck and the areas in the armpit and flank



# Reading Medication Labels

Alaena Ruth, Idaho Extension Educator

## Goal (learning objective)

Youth will learn how to read, interpret, and identify all the parts of a medication label and insert.

## Supplies

- Handout 1 - “Medication Label” - enough copies for group.
- Handout 2 - “Medication Insert” - enough copies for group.
- Handout 3 - “Medication Insert and Medication Label Parts” - enough copies for group.
- Handout 4 - “Guide to Reading Drug Label; on Outside of Container” - enough copies for group.
- Handout 5 - “Medication Insert” - 1 copy - answer key for your reference
- Handout 6 - “Medication Label” - 1 copy - answer key for your reference
- Tape or glue sticks - enough for everyone to share
- Scissors - enough for everyone to share

## Pre-lesson preparation

- Make photo copies of the above handouts.
- Review the materials.
- Practice the lesson.

## Lesson directions and outline

Share the following information with the youth:

Many types of products have labels and it is important to read them before using the product. Using medication on animals is no different. It is crucial that you read a product and understand the label before using it on an animal.

There are many different parts to a medication label and finding each piece of information may be difficult. However, with some practice you can find each important part of the medication label you need.

## Conducting the activity (DO)

1. Review with the youth Handout 4.
2. Review with the youth Handouts 1, 2, and 3.  
Youth will be matching parts to the appropriate spots on the Medication Label and Medication Insert.
3. Have youth carefully cut out the medication label parts out first (bottom of Handout 3).
4. Have youth tape (or glue) medication label parts on Handout 1.
5. Have youth carefully cut out the medication insert parts (top of Handout 3).
6. Have youth tape (or glue) medication insert parts on Handout 2.
7. Once youth have finished both examples, discuss each part, use the answer key.

## What did we learn? (REFLECT)

- Ask: What is something you learned from the medication label that you did not know before you read it?
- Ask: Why should you administer medication to an animal according to the practice label?
- Ask: What are reasons why it is important to read a label before administering any type of medication?

**Why is that important? (APPLY)**

- Ask: How do you keep your animal safe by reading labels before administering medication to animals?
- Ask: How does following medication label information help you with Quality Assurance Practices? Why is that important?
- Ask: How can you apply what you learned when reading medicine labels on medicine that a doctor prescribes to you or a family member?

**Resources**

Ohio State University Extension. (2011). Caring for Animals. *Beef resource handbook* (pages 12-7 through 12-12 ).

Ohio State University Extension. (2008). Caring for Animals. *Goat resource handbook* (pages 164-170).

Ohio State University Extension. (2011). Caring for Animals. *Sheep resource handbook for market and breeding projects* (pages 140-144).

Ohio State University Extension. (2000). Caring for Animals. *Swine resource handbook for market and breeding projects* (pages 24-6 through 24-13).

Ohio State University Extension. (1999). Learning Lab Kits: Beef, Sheep, Swine, and Goat. Available from: <http://www.ohio4h.org/books-and-resources/learning-lab-kits> *Note: check first with your local county extension office on availability to check out*

# Medication Label

\_\_\_\_\_ **OMNIBIOTIC** \_\_\_\_\_

(hydrocillin) \_\_\_\_\_

**Directions for use: See package insert**

**Warning:** The use of this drug must be discontinued for 30 days before treated animals are slaughtered for food. Exceeding the highest recommended dosage level may result in antibiotic residues in meat or milk beyond the withdrawal time.

**Store between 2° and 8° C (36° and 46° F).** \_\_\_\_\_

**Keep dry and away from light.**

\_\_\_\_\_ Net Contents: 100 ml

Distributed by

**USA Animal Health, Inc.** \_\_\_\_\_

TAKE TIME



OBSERVE LABEL  
DIRECTIONS

# Medication Insert

## OMNIBIOTIC

(Hydrocillin in Aqueous Suspension)

For use in Beef Cattle, Lactating and Non-Lactating Dairy

Cattle, Swine and Sheep

*Read Entire Brochure Carefully*

*Before Using This Product*

**For Intramuscular Use Only**

**Active Ingredients:** Omnibiotic is an effective antimicrobial preparation containing hydrocillin hydrochloride. Each ml of this suspension contains 200,000 units of hydrocillin hydrochloride in an aqueous base.

**Indications:** **Cattle** - bronchitis, foot rot, leptospirosis, mastitis, metritis, pneumonia, wound infections; **Swine** - erysipelas, pneumonia; **Sheep** - foot rot, pneumonia, mastitis; and other infections in these species caused by or associated with hydrocillin-susceptible organisms.

### Recommended Daily Dosage

*The usual dose is 2 ml per 100 lb of body weight given once daily. Maximum dose is 15 ml/day.*

| Body Weight    | Dosage |
|----------------|--------|
| 100 lb         | 2 ml   |
| 300 lb         | 6 ml   |
| 500 lb         | 10 ml  |
| 750 lb or more | 15 ml  |

*Continue treatment for 1 to 2 days after symptoms disappear.*

**Caution:** 1. Omnibiotic should be injected deep within the fleshy muscle of the neck or thigh. Do not inject this material in the hip or rump, subcutaneously, into a blood vessel, or near a major nerve because it may cause tissue damage. 2. If improvement does not occur within 48 hours, the diagnosis should be reconsidered and appropriate treatment initiated. 3. Treated animals should be closely observed for at least 30 minutes. Should a reaction occur, discontinue treatment and immediately administer epinephrine and antihistamines. 4. Omnibiotic must be stored between 2° and 8° C (36° to 46° F). Warm to room temperature and shake well before using. Keep refrigerated when not in use.

**Warning:** Milk that has been taken from animals during treatment and for 48 hours (4 milkings) after the last treatment must not be used for food. The use of this drug must be discontinued for 30 days before treated animals are slaughtered for food.

**How Supplied:** Omnibiotic is available in vials of 100 ml.

TAKE TIME



OBSERVE LABEL  
DIRECTIONS

HEALTH AND DISEASES: READING MEDICATION LABELS – HANDOUT 3



Medication Insert Parts (10)

|                                 |                                |
|---------------------------------|--------------------------------|
| <b>Species and Animal Class</b> | <b>Approved Uses</b>           |
| <b>Dosage</b>                   | <b>Route of Administration</b> |
| <b>Cautions and Warnings</b>    | <b>Storage Requirements</b>    |
| <b>Withholding Times</b>        | <b>Sizes Available</b>         |
| <b>Name of Drug</b>             | <b>Active Ingredients</b>      |



Medication Label Parts (7)

|                           |                              |
|---------------------------|------------------------------|
| <b>Name of Drug</b>       | <b>Name of Distributor</b>   |
| <b>Storage</b>            | <b>Cautions and Warnings</b> |
| <b>Active Ingredients</b> | <b>Quantity of Contents</b>  |
| <b>Withholding Times</b>  |                              |

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## *Guide to Reading Drug Label on Outside of Container*

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**Active Ingredients:** Chemical name(s) of what is in the drug.

**Withholding/Withdrawal Times:** Withdrawal time is the period that must elapse after the last treatment and before processing (harvest/slaughter) of the animal for its meat or harvesting animal products (milk, eggs) for human consumption. It is the time it takes for the drug/chemical to be used up by the animal's body after it has been administered (or the time it takes a drug/chemical to wear off). A residue is a substance that remains in an animal's body tissues after the animal has been exposed to that substance. The substance can enter the animal's body as a feed or water additive, as an injection or external treatment.\*

**Cautions and Warnings:** Tells things to be cautious about when using the product. Examples: (a) Do not give to certain kinds of animals, (b) do not give too much, (c) pay attention to withholding times (see above).

**Storage:** Tells how the medication should be kept while not in actual use. Many medications may lose their potency when exposed to moisture, direct light, warm and/or freezing temperatures. Most also lose effectiveness with time. The label will indicate how the product should be stored to retain maximum strength.

**Quantity of Contents:** Tells how much is in the container. Usually in metric units [liquid measure: 1 fluid ounce = 29.6 milliliters (ml), 1 cubic centimeter (cc) = 1 milliliter (ml); dry measure: 1 pint = 551 milliliters (ml)].

**Lot Number:** (may also be referred to as serial number) A manufacturer's reference number indicating the day or batch in which this product was made. These numbers are needed if the product is recalled.

**Date of Expiration:** Discard (do not use) drugs when this date is reached.

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\*Remember, you are responsible for everything your animal consumes even if it is an accident.

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# Medication Insert

Name of Drug \_\_\_\_\_ **OMNIBIOTIC** \_\_\_\_\_ Active Ingredients  
 (Hydrocillin in Aqueous Suspension)

For use in Beef Cattle, Lactating and Non-Lactating Dairy \_\_\_\_\_ Species and  
 Cattle, Swine and Sheep \_\_\_\_\_ Animal Class

Read Entire Brochure Carefully  
 Before Using This Product

**For Intramuscular Use Only**

**Active Ingredients:** Omnibiotic is an effective antimicrobial preparation containing hydrocillin hydrochloride. Each ml of this suspension contains 200,000 units of hydrocillin hydrochloride in an aqueous base.

Approved  
 Uses \_\_\_\_\_

**Indications:** **Cattle** - bronchitis, foot rot, leptospirosis, mastitis, metritis, pneumonia, wound infections; **Swine** - erysipelas, pneumonia; **Sheep** - foot rot, pneumonia, mastitis; and other infections in these species caused by or associated with hydrocillin-susceptible organisms.

**Recommended Daily Dosage**

The usual dose is 2 ml per 100 lb of body weight given once daily. Maximum dose is 15 ml/day.

Dosage \_\_\_\_\_

| Body Weight    | Dosage |
|----------------|--------|
| 100 lb         | 2 ml   |
| 300 lb         | 6 ml   |
| 500 lb         | 10 ml  |
| 750 lb or more | 15 ml  |

Continue treatment for 1 to 2 days after symptoms disappear.

Cautions  
 and Warnings \_\_\_\_\_

**Caution:** 1. Omnibiotic should be injected deep within the fleshy muscle of the neck or thigh. Do not inject this material in the hip or rump, subcutaneously, into a blood vessel, or near a major nerve because it may cause tissue damage. 2. If improvement does not occur within 48 hours, the diagnosis should be reconsidered and appropriate treatment initiated. 3. Treated animals should be closely observed for at least 30 minutes. Should a reaction occur, discontinue treatment and immediately administer epinephrine and antihistamines. 4. Omnibiotic must be stored between 2° and 8° C (36° to 46° F). Warm to room temperature and shake well before using. Keep refrigerated when not in use.

Route of  
 Administration \_\_\_\_\_

Storage  
 Requirements \_\_\_\_\_

**Warning:** Milk that has been taken from animals during treatment and for 48 hours (4 milkings) after the last treatment must not be used for food. The use of this drug must be discontinued for 30 days before treated animals are slaughtered for food.

Withholding  
 Times \_\_\_\_\_

Sizes  
 Available \_\_\_\_\_

**How Supplied:** Omnibiotic is available in vials of 100 ml.



# Medication Label

Name of Drug \_\_\_\_\_

**OMNIBIOTIC**

Active Ingredients \_\_\_\_\_

(hydrocillin) \_\_\_\_\_

**Directions for use: See package insert**

Cautions  
and Warnings \_\_\_\_\_

**Warning:** The use of this drug must be discontinued for 30 days before treated animals are slaughtered for food. Exceeding the highest recommended dosage level may result in antibiotic residues in meat or milk beyond the withdrawal time.

Withholding  
Times \_\_\_\_\_

**Store between 2° and 8° C (36° and 46° F).  
Keep dry and away from light.**

Storage \_\_\_\_\_

Quantity  
of Contents \_\_\_\_\_

Net Contents: 100 ml

TAKE TIME



OBSERVE LABEL  
DIRECTIONS

Distributed by

**USA Animal Health, Inc.** \_\_\_\_\_

Name of Distributor \_\_\_\_\_

# Medication Label

\_\_\_\_\_ **OMNIBIOTIC** \_\_\_\_\_

(hydrocillin) \_\_\_\_\_

**Directions for use: See package insert**

**Warning:** The use of this drug must be discontinued for 30 days before treated animals are slaughtered for food. Exceeding the highest recommended dosage level may result in antibiotic residues in meat or milk beyond the withdrawal time.

**Store between 2° and 8° C (36° and 46° F).** \_\_\_\_\_

**Keep dry and away from light.**

\_\_\_\_\_ Net Contents: 100 ml

Distributed by

**USA Animal Health, Inc.** \_\_\_\_\_

TAKE TIME



OBSERVE LABEL  
DIRECTIONS

# Medication Insert

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Cattle, Swine and Sheep

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*Before Using This Product*

**For Intramuscular Use Only**

**Active Ingredients:** Omnibiotic is an effective antimicrobial preparation containing hydrocillin hydrochloride. Each ml of this suspension contains 200,000 units of hydrocillin hydrochloride in an aqueous base.

**Indications:** **Cattle** - bronchitis, foot rot, leptospirosis, mastitis, metritis, pneumonia, wound infections; **Swine** - erysipelas, pneumonia; **Sheep** - foot rot, pneumonia, mastitis; and other infections in these species caused by or associated with hydrocillin-susceptible organisms.

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| Body Weight    | Dosage |
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| 750 lb or more | 15 ml  |

*Continue treatment for 1 to 2 days after symptoms disappear.*

**Caution:** 1. Omnibiotic should be injected deep within the fleshy muscle of the neck or thigh. Do not inject this material in the hip or rump, subcutaneously, into a blood vessel, or near a major nerve because it may cause tissue damage. 2. If improvement does not occur within 48 hours, the diagnosis should be reconsidered and appropriate treatment initiated. 3. Treated animals should be closely observed for at least 30 minutes. Should a reaction occur, discontinue treatment and immediately administer epinephrine and antihistamines. 4. Omnibiotic must be stored between 2° and 8° C (36° to 46° F). Warm to room temperature and shake well before using. Keep refrigerated when not in use.

**Warning:** Milk that has been taken from animals during treatment and for 48 hours (4 milkings) after the last treatment must not be used for food. The use of this drug must be discontinued for 30 days before treated animals are slaughtered for food.

**How Supplied:** Omnibiotic is available in vials of 100 ml.

TAKE TIME



OBSERVE LABEL  
DIRECTIONS

HEALTH AND DISEASES: READING MEDICATION LABELS – HANDOUT 3



Medication Insert Parts (10)

|                                 |                                |
|---------------------------------|--------------------------------|
| <b>Species and Animal Class</b> | <b>Approved Uses</b>           |
| <b>Dosage</b>                   | <b>Route of Administration</b> |
| <b>Cautions and Warnings</b>    | <b>Storage Requirements</b>    |
| <b>Withholding Times</b>        | <b>Sizes Available</b>         |
| <b>Name of Drug</b>             | <b>Active Ingredients</b>      |



Medication Label Parts (7)

|                           |                              |
|---------------------------|------------------------------|
| <b>Name of Drug</b>       | <b>Name of Distributor</b>   |
| <b>Storage</b>            | <b>Cautions and Warnings</b> |
| <b>Active Ingredients</b> | <b>Quantity of Contents</b>  |
| <b>Withholding Times</b>  |                              |

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## *Guide to Reading Drug Label on Outside of Container*

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**Active Ingredients:** Chemical name(s) of what is in the drug.

**Withholding/Withdrawal Times:** Withdrawal time is the period that must elapse after the last treatment and before processing (harvest/slaughter) of the animal for its meat or harvesting animal products (milk, eggs) for human consumption. It is the time it takes for the drug/chemical to be used up by the animal's body after it has been administered (or the time it takes a drug/chemical to wear off). A residue is a substance that remains in an animal's body tissues after the animal has been exposed to that substance. The substance can enter the animal's body as a feed or water additive, as an injection or external treatment.\*

**Cautions and Warnings:** Tells things to be cautious about when using the product. Examples: (a) Do not give to certain kinds of animals, (b) do not give too much, (c) pay attention to withholding times (see above).

**Storage:** Tells how the medication should be kept while not in actual use. Many medications may lose their potency when exposed to moisture, direct light, warm and/or freezing temperatures. Most also lose effectiveness with time. The label will indicate how the product should be stored to retain maximum strength.

**Quantity of Contents:** Tells how much is in the container. Usually in metric units [liquid measure: 1 fluid ounce = 29.6 milliliters (ml), 1 cubic centimeter (cc) = 1 milliliter (ml); dry measure: 1 pint = 551 milliliters (ml)].

**Lot Number:** (may also be referred to as serial number) A manufacturer's reference number indicating the day or batch in which this product was made. These numbers are needed if the product is recalled.

**Date of Expiration:** Discard (do not use) drugs when this date is reached.

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\*Remember, you are responsible for everything your animal consumes even if it is an accident.

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# Medication Insert

Name of Drug \_\_\_\_\_ **OMNIBIOTIC** \_\_\_\_\_ Active Ingredients  
 (Hydrocillin in Aqueous Suspension)

For use in Beef Cattle, Lactating and Non-Lactating Dairy \_\_\_\_\_ Species and  
 Cattle, Swine and Sheep \_\_\_\_\_ Animal Class

Read Entire Brochure Carefully  
 Before Using This Product

**For Intramuscular Use Only**

**Active Ingredients:** Omnibiotic is an effective antimicrobial preparation containing hydrocillin hydrochloride. Each ml of this suspension contains 200,000 units of hydrocillin hydrochloride in an aqueous base.

Approved Uses \_\_\_\_\_

**Indications:** **Cattle** - bronchitis, foot rot, leptospirosis, mastitis, metritis, pneumonia, wound infections; **Swine** - erysipelas, pneumonia; **Sheep** - foot rot, pneumonia, mastitis; and other infections in these species caused by or associated with hydrocillin-susceptible organisms.

**Recommended Daily Dosage**

The usual dose is 2 ml per 100 lb of body weight given once daily. Maximum dose is 15 ml/day.

Dosage \_\_\_\_\_

| Body Weight    | Dosage |
|----------------|--------|
| 100 lb         | 2 ml   |
| 300 lb         | 6 ml   |
| 500 lb         | 10 ml  |
| 750 lb or more | 15 ml  |

Continue treatment for 1 to 2 days after symptoms disappear.

Cautions and Warnings \_\_\_\_\_

**Caution:** 1. Omnibiotic should be injected deep within the fleshy muscle of the neck or thigh. Do not inject this material in the hip or rump, subcutaneously, into a blood vessel, or near a major nerve because it may cause tissue damage. 2. If improvement does not occur within 48 hours, the diagnosis should be reconsidered and appropriate treatment initiated. 3. Treated animals should be closely observed for at least 30 minutes. Should a reaction occur, discontinue treatment and immediately administer epinephrine and antihistamines. 4. Omnibiotic must be stored between 2° and 8° C (36° to 46° F). Warm to room temperature and shake well before using. Keep refrigerated when not in use.

Route of Administration \_\_\_\_\_

Storage Requirements \_\_\_\_\_

Sizes Available \_\_\_\_\_

**Warning:** Milk that has been taken from animals during treatment and for 48 hours (4 milkings) after the last treatment must not be used for food. The use of this drug must be discontinued for 30 days before treated animals are slaughtered for food.

Withholding Times \_\_\_\_\_

**How Supplied:** Omnibiotic is available in vials of 100 ml.



# Medication Label

Name of Drug \_\_\_\_\_

**OMNIBIOTIC**

Active Ingredients \_\_\_\_\_  
(hydrocillin)

**Directions for use: See package insert**

Cautions  
and Warnings \_\_\_\_\_

**Warning:** The use of this drug must be discontinued for 30 days before treated animals are slaughtered for food. Exceeding the highest recommended dosage level may result in antibiotic residues in meat or milk beyond the withdrawal time.

Withholding  
Times \_\_\_\_\_

**Store between 2° and 8° C (36° and 46° F).** \_\_\_\_\_ Storage  
**Keep dry and away from light.**

Quantity  
of Contents \_\_\_\_\_

Net Contents: 100 ml

TAKE TIME



OBSERVE LABEL  
DIRECTIONS

Distributed by

**USA Animal Health, Inc.** \_\_\_\_\_ Name of Distributor



# Preventable Practices

Alaena Ruth, Idaho Extension Educator

## Goal (learning objective)

Youth will learn common precautions to take to prevent diseases with their animals and how to keep records of these measures.

## Supplies

- Handout 1 - "Treatment Record Worksheet for Beef" (enough copies for group)
- Handout 2 - "Treatment Record Worksheet for Sheep" (enough copies for group)
- Handout 3 - "Treatment Record Worksheet for Swine" (enough copies for group)
- Handout 4 - "Show Records Worksheet" (enough copies for group)
- Handout 5 - "Treatment Records Worksheet Answer Key" (one copy for you)
- Paper and pencils (enough for group)

## Pre-lesson preparation

- Read/review lesson and resources.
- Practice the activity.
- Make copies of the handouts listed above.

## Lesson directions and outline

Share the following information with the youth:

The health of any animal or herd of animals should be a top priority for an animal owner. It is important to take precautionary measures to ensure your animal(s) do not get diseases. There are several ways that an animal owner can prevent or control health problems. It is also important to document activities that are done with any animal.

Preventable Practices:

- Keep your animal's space and living conditions clean. Livestock will always perform better in a comfortable and clean area. Keeping their area clean will also help to keep animals from picking up organisms that cause disease. (Ask youth to name a couple diseases that can be prevented by keeping living areas clean. Ringworm or hoof/foot rot).
- Separate new animals on the farm from existing animals for at least 30 days. Also, separate animals you may have taken to a show from the animals you did not take to the show. Keeping animals that have been in contact with other livestock that are not on your farm is important for disease prevention. When you take an animal to a show it is in contact with many different animals that could harbour diseases that might be transmitted to your animals.
- Vaccinate animals as part of your health program. Many diseases can be prevented before they have a chance to cause harm to your animal using vaccinations. It is also extremely important to keep records of these vaccinations to manage the health of your animals. (Ask youth to name some diseases that veterinarians recommend vaccinating for, then name all examples listed here. Brucellosis, bovine viral diarrhea, tetanus, rabies, pneumonia, black leg.)
- Ensure animals are being fed a proper ration. When there is a lack of certain nutrients in a ration, some health problems may occur.
- Keep movement in and out of the animal's area to a minimum. Tracking mud and other debris from pen to pen with equipment or shoes may increase disease spread. It is also important to keep visitors and other animals out of the land your animal is on due to organisms being carried on skin, clothes,

feet, hair, manure, and hides.

- Use clean tools and equipment to clean or treat animals. This includes dehorning tools, tractors, needles, gloves and syringes. Diseases can easily be spread through blood and feces, so when using any tools that encounter either, make sure to replace or clean with disinfectant before use on another animal.
- Make sure equipment like tractors, pitch forks, apple forks, feed scoops, feed pans and water buckets are cleaned regularly. Diseases can easily be spread through blood and feces, so when using any tools or equipment that encounter either spend the time to make sure things are clean.
- Maintain records. From the day you receive your animal to the day it leaves your care, you should maintain feed and health records of your animal. This is the very best way to keep track of expenses, vaccinations, and well-being of your animal. Records are also important if the plan is to sell your animal to a buyer and they need to know the history of the animal before purchase.

### Conducting the activity (DO)

#### Activity 1

1. Make a list of ways to limit outside contact in and around your animal's area.
2. Make a list of ways to keep tools and equipment used on and around animals clean.
3. Share your ideas with the group.

#### Activity 2

1. Have youth complete each treatment activity (Handouts 1, 2, and 3) IM= Intramuscular - in the muscle, SQ = Subcutaneous - below the skin, not in the muscle.
2. Have youth complete Handout 4, at least one show they would take their animal to.
3. Review answers with the group, go through correct answers using the answer key (Handout 5).

### What did we learn? (REFLECT)

- Ask: What is one new way you learned about to control disease spread in your herd?
- Ask: What are the benefits of using preventable practices with your animals?
- Ask: Why is keeping records crucial for more than just medications and treatments?

### Why is that important? (APPLY)

- Ask: Why is it important to keep records to maintain your health?
- Ask: What benefits do you see by using preventable practices for your animals?
- Ask: How does preventable practices and record-keeping impact consumers? How does it make you feel as a producer?

## Resources

- Ohio State University Extension. (2011). Health Maintenance. *Beef resource handbook* (pages 5-1 through 5-6 and 12-1 through 12-15).
- Ohio State University Extension. (2008). Herd Management and Diseases. *Goat resource handbook* (pages 85-93).
- Ohio State University Extension. (2011). Health Maintenance and Diseases. *Sheep resource handbook for market and breeding projects* (pages 67-72).
- Ohio State University Extension. (2000). Diseases & Their Control. *Swine resource handbook for market and breeding projects* (pages 9-1 through 9-14 and 24-5 through 24-17).









HEALTH AND DISEASES: PREVENTABLE PRACTICES – HANDOUT 5

Answer Keys

Beef:

| Treatment Record             |                                                                          |                               |                     |                                                                                                                                                     |                                                 |                                                             |                                             |                                            |
|------------------------------|--------------------------------------------------------------------------|-------------------------------|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|-------------------------------------------------------------|---------------------------------------------|--------------------------------------------|
| Treatment<br>(date and time) | Animal Identification<br>(name, species, sex,<br>ID number, description) | Condition<br>being<br>treated | Estimated<br>weight | Treatment given<br>(medication dispensed, amount<br>and route of administration)<br>>>> also include product lot/<br>serial number if available <<< | Person<br>who gave<br>treatment<br>(print name) | Instructed<br>(meat/milk/egg)<br>Withdrawal<br>(days/hours) | Results<br>(recovered,<br>sold, or<br>died) | Withdrawal<br>Completed<br>(date and time) |
| Apr 03, 'XX<br>@ 5:00 p.m.   | Ben · Beef Steer<br>#123<br>Hereford                                     | Foot Rot                      | 1,000 lbs.          | Hydrocillin, 10cc IM                                                                                                                                | Emily<br>Edwards                                | 14 days<br>meat                                             | X                                           | 04-17-XX<br>5:00 p.m.                      |
| Apr 04, 'XX<br>@ 5:00 p.m.   | Ben · Beef Steer<br>#123<br>Hereford                                     | Foot Rot                      | 1,000 lbs.          | Hydrocillin, 10cc IM                                                                                                                                | Roger<br>Wilson                                 | 14 days<br>meat                                             | X                                           | 04-18-XX<br>5:00 p.m.                      |
| Apr 05, 'XX<br>@ 5:00 p.m.   | Ben · Beef Steer<br>#123<br>Hereford                                     | Foot Rot                      | 1,000 lbs.          | Hydrocillin, 10cc IM                                                                                                                                | Roger<br>Wilson                                 | 14 days<br>meat                                             | X                                           | 04-19-XX<br>5:00 p.m.                      |
| Apr 06, 'XX<br>@ 5:00 p.m.   | Ben · Beef Steer<br>#123<br>Hereford                                     | Foot Rot                      | 1,000 lbs.          | Hydrocillin, 10cc IM                                                                                                                                | Roger<br>Wilson                                 | 14 days<br>meat                                             | X                                           | 04-20-XX<br>5:00 p.m.                      |

Lamb:

| Treatment<br>Date<br>&<br>Time | Animal ID<br>• Name<br>• Species<br>• ID Number<br>• Description | Condition<br>Being<br>Treated | Estimated<br>Weight | Treatment Given<br>(Medication Dispensed,<br>Amount and Route of<br>Administration)<br>Also include product<br>lot/serial # if available | Print Name of<br>Person Who<br>Gave Treatment | Instructed<br>Milk/Meat<br>Withdrawal | Results/<br>Comments<br>(recovered,<br>sold, or<br>died) | Date & Time<br>Withdrawal<br>Complete |
|--------------------------------|------------------------------------------------------------------|-------------------------------|---------------------|------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|---------------------------------------|----------------------------------------------------------|---------------------------------------|
| May 15,<br>2001<br>3:00 p.m.   | Elmo<br>Mkt lamb<br>#3159 Suffolk                                | Foot rot                      | 100 lbs.            | Biomycin 5 ml IM                                                                                                                         | Lynn Monroe                                   | 10 days<br>Meat                       | X                                                        | May 25,<br>2001-<br>3:00 p.m.         |

Swine:

## Treatment Record

*for Vaccines, Drugs/Medications, and Medicated Feeds*

| Treatment<br>(date and time)    | Animal Identification<br>(name, species, sex,<br>ID number, description) | Condition<br>being<br>treated | Estimated<br>weight | Treatment given<br>(medication dispensed, amount<br>and route of administration ---<br>also include product lot/serial<br>number if available) | Person<br>who gave<br>treatment<br>(print name) | Instructed<br>(meat/milk/egg)<br>Withdrawal<br>(days/hours) | Results<br>(recovered,<br>sold, or<br>died) | Withdrawal<br>Completed<br>(date and time) |
|---------------------------------|--------------------------------------------------------------------------|-------------------------------|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|-------------------------------------------------------------|---------------------------------------------|--------------------------------------------|
| July 12, 'XX<br><br>@ 2:00 p.m. | Spot • Market Hog<br>#36-7 • Barrow<br>Blue-Butt                         | Pneumonia                     | 200 lbs.            | Biomycin<br>5 ml (cc) SQ                                                                                                                       | Jenny<br>Jones                                  | 7 days<br>meat                                              | X                                           | 07-19-XX<br>2:00 p.m.                      |



# Animal Recordkeeping for Disease Prevention

Gail Silkwood, Idaho Extension Educator

## Goal (learning objective)

Youth will:

- Learn why keeping records is necessary for disease prevention
- Learn about the various ways and methods of keeping records
- Practice using different recordkeeping types

## Supplies

- Handout 1 “Scenarios” (make 2 copies)
- Handouts 2-6 (combine into a packet, make enough copies for smaller groups)
  - Handout 2 “Sample Animal Health Record #1”
  - Handout 3 “Sample Animal Health Record #2”
  - Handout 4 “Sample Animal Health Record #3”
  - Handout 5 “Sample Animal Health Record #4”
  - Handout 6 “Smartphone Applications for Recordkeeping”
- Paper and Pencils (enough for everyone)
- Medication and feed label samples (enough for smaller groups have 1 of each)

## Pre-lesson preparation

- Make 2 copies of Handout 1 - save 1 copy for your reference, cut up the other copy so that each smaller group has at least 1 scenario.
- Make photocopies of the packet of Handouts 2-6 - make enough so each smaller group has a set.
- Read and review the handouts.
- Practice the lesson.

## Lesson directions and outline

Share the following information with the youth:

Records can assist you in assuring that you are producing a product that is safe for consumers to eat. It is critical to maintain detailed, accurate records of information about your animal such as:

- Medications (type, frequency, withdrawal)
- Diseases
- Injury
- Vaccinations
- Feed
- Financial

Records tell you about the financial success or failure of your project. They tell you how well your animal performed, how successful you were with the project, and what changes you need to make in management to improve performance.

Have the youth share any information they have on Smartphone Apps that can be used to keep records or track activities. Have a discussion on ways that Smartphone Apps could be used to track animal records.

### Conducting the activity (DO)

1. Have members count off into smaller groups.
2. Provide each group with:
  - a. Handout 1
  - b. The packet of Handouts 2-6
  - c. Feed label samples
  - d. Medication label samples
  - e. Paper and Pencils - enough for every member
3. Provide 10-15 minutes for the groups to review the scenarios and labels. Groups need to discuss and decide what information needs to be recorded and which record sheet or application they would use. Have members record the appropriate information on the chosen record.
4. Have groups share their scenario, a brief summary of their discussion and what record they decided to use.

### What did we learn? (REFLECT)

- Ask: What did you learn about recordkeeping?
- Ask: Why is it important to keep detailed record?
- Ask: Is recordkeeping something that can be done quickly?
- Ask: What are some ways to help track or save records?

### Why is that important? (APPLY)

- Ask: What are some other examples of detailed records?
- Ask: How does recordkeeping impact Quality Assurance?

### Resources

Boleman, C., Chilek, K., Coufal, D., Kiet, L., & Sterle, J. (2010). Medication Labels and Feed Tags. *Quality Counts: Quality Assurance Character Education*. (pages 3-51 through 3-57). The Texas A&M University System. Retrieved from: [http://agrifecdn.tamu.edu/qualitycounts/files/2010/11/E4H-010\\_editproof3.pdf](http://agrifecdn.tamu.edu/qualitycounts/files/2010/11/E4H-010_editproof3.pdf)

Ohio State University Extension. (2011). Caring for Animals. *Beef resource handbook* (pages 12-1 through 12-6 and 11-12 through 11-13).

Ohio State University Extension. (2008). Caring for Animals. *Goat resource handbook* (pages 159-169, 155).

Ohio State University Extension. (2011). Caring for Animals. *Sheep resource handbook for market and breeding projects* (pages 135-139).

Ohio State University Extension. (2000). Caring for Animals. *Swine resource handbook for market and breeding projects* (pages 24-1 through 24-5).

## HEALTH AND DISEASES: ANIMAL RECORDKEEPING FOR DISEASE PREVENTION – HANDOUT 1

### Scenario 1

Tiffany has just purchased 25 bred Suffolk ewes to start her flock. She plans to raise crossbred lambs for local 4-H members. Which animal health records should she expect to receive from the farm where she purchased these animals? Which record keeping forms below would you recommend for her? Why?

### Scenario 2

George owns a large ranch (5,000 acres) with a herd of 500 commercial cows. He has not kept very good records in the past, but is now looking to update his records to make better management decisions. He has a brother, 2 sons and 2 ranch hands that help with the farming and cattle. The ranch is in an isolated area of Idaho with little to no cell phone or Internet service available while away from the ranch house. Which record keeping form or app would you recommend for George. Why?

### Scenario 3

Keeley has just purchased a property that has empty swine barns on it. She has secured an FHA Farm Loan to start a swine breeding operation and plans to stock it with 200 head of gilts to begin her business. She also plans to hire a herd manager, and three ranch hands What record keeping form or app would you recommend for Keeley? Why?

### Scenario 4

Colleen has purchase two dairy goats that she plans to milk for her own family's use. One goat is already milking and the other is due to kid in 30 days. What record keeping form or app would you recommend for Colleen? Why?

### Scenario 5

Carl is the manager for a grass fed steer program. The calves arrive to his facility just after weaning and will stay for 90 – 120 days before being shipped to a finishing feedlot. What record keeping form or app would you recommend for him? Why?

### Scenario 6

John and his brother Jason are raising 5 whether goats that will be sold by the whole, half or quarter to private individuals for custom processing. What record keeping form or app would you recommend to them? Why?

### Scenario 7

Carla is raising 4 market hogs that she got as weaner pigs. These animals will be raised and butchered by her for family and friends. What record keeping form or app would you recommend to her? Why?

















## SMARTPHONE APPLICATIONS FOR RECORDKEEPING

### Android

Angus Mobile App from American Angus Association

Cattle Manager from CDI – Apps for Good

Cattle Tracker from JJ Stitt

### Apple

4-H Livestock Record by Learning Games Lab, NM State University

iCattleMgrpro by RGResources

iLivestockMgr by RGResources

Ranch Records from University of Wyoming

Angus Mobile App from American Angus Association

Cattle Tracker from JJ Stitt

Show Pig from Zoetis, Inc

SMARTSoft iFarm by CPF IT Center (Swine)



# Veterinary Client Relationships

Gail Silkwood, Idaho Extension Educator

## Goal (learning objective)

Youth will learn how to establish a sound veterinarian-client-patient relationship and why it is important.

## Supplies

- Handout 1 - “Scenarios” (enough copies for group)

## Pre-lesson preparation

- Read/review Handout 1.
- Understand what a valid veterinarian-client-patient relationship (VCPR) is and how it is created.

## Lesson directions and outline

Begin by asking youth what they think a Veterinarian-Client-Patient relationship is: If they struggle, see if they can define each element (veterinarian, client and patient) separately, then come back to the original question. Once they have their definition, share the following information with them:

According to the American Veterinary Medical Association a VCPR is: “Veterinarian-Client-Patient relationship (VCPR). A VCPR means that all of the following are required:

1. The veterinarian has assumed the responsibility for making medical judgments regarding the health of the patient and the client has agreed to follow the veterinarian’s instructions.
2. The veterinarian has sufficient knowledge of the patient to initiate at least a general or preliminary diagnosis of the medical condition of the patient. This means that the veterinarian is personally acquainted with the keeping and care of the patient by virtue of:
  - a. A timely examination of the patient by the veterinarian, or
  - b. Medically appropriate and timely visits by the veterinarian to the operation where the patient is managed.
3. The veterinarian is readily available for follow-up evaluation or has arranged for the following:
  - a. Veterinary emergency coverage, and
  - b. Continuing care and treatment.
4. The veterinarian provides oversight of treatment, compliance and outcome.
5. Patient records are maintained.”

It is important to establish a valid veterinarian-client-patient relationship (VCPR) for any animal. Without this relationship, a veterinarian will be unable to provide medication or diagnosis which are important in maintaining your animal’s health.

### Conducting the activity (DO)

1. Review what a valid Veterinarian-Client-Patient Relationship (VCPR) is with the group.
2. Have youth break up into either smaller groups or teams.
3. Distribute Handout 1.
4. Have groups review the scenarios in Handout 1 and decide if it is a valid VCPR, why or why not? If it is not a valid VCPR what would they do to make a valid VCPR in the scenario?

### What did we learn? (REFLECT)

- Ask: How would you establish a valid VCPR?
- Ask: Why is it important to maintain a valid VCPR?

### Why is that important? (APPLY)

- Ask: How can this relationship impact your animal?
- Ask: Why is a valid VCPR important from a quality assurance standpoint?

### Resources

American Veterinary Medical Association. (2016). <https://www.avma.org/>

Ohio State University Extension. (2011). Caring for Animals. *Beef resource handbook* (pages 12-5 through 12-8).

Ohio State University Extension. (2008). Caring for Animals. *Goat resource handbook* (pages 159-164).

Ohio State University Extension. (2011). Caring for Animals. *Sheep resource handbook for market and breeding projects* (pages 135-140).

Ohio State University Extension. (2000). Caring for Animals. *Swine resource handbook for market and breeding projects* (pages 24-1 through 24-6).

## HEALTH AND DISEASES: VETERINARY CLIENT RELATIONSHIPS – HANDOUT 1

### SCENARIOS

#### Scenario 1

Jen has three dairy goats that she milks for her family's personal use. One of her does seems to be lethargic and losing weight. She uses an internet search to identify what might be wrong based on the symptoms the goat is displaying and creates a treatment plan based on these search results. Is this a valid Veterinarian-Client-Patient Relationship (VCPR)?

#### Scenario 2

Tiffany's 4-H lamb appears to be lame. She takes him to a local veterinary clinic for examination. The veterinarian completed a general health exam and discovered the lamb is suffering from a plugged sweat gland. The veterinarian provided treatment to Tiffany's lamb and gave her directions to care for the lamb at home. Is this a valid VCPR?

#### Scenario 3

Brett's market steer appears to be suffering from bloat. His family raises cattle and has dealt with this issue before. Brett calls the local veterinarian who has been their family vet for nearly 15 years for confirmation of his diagnosis. The veterinarian listens to Brett explain the symptoms and situation before giving him a treatment plan over the phone. Is this a valid VCPR?

#### Scenario 4

Breanna's pig has spent the hot summer day wallowing in his mud hole. When Breanna goes to feed him, the pig is in his shelter but he is listless and warmer to the touch than normal. Breanna takes the pig's temperature, which is elevated and notices that his skin is pinker than normal. She suspects he is suffering from sunburn. It is late Saturday and the veterinary clinic is already closed for the day. She uses an internet search to find an online veterinary clinic that has a live chat option. She explains the situation, the pig's temperature and answers other health details to the chat operator, who then gives Breanna a treatment plan. Is this a valid VCPR?

#### Scenario 5

Amy's lamb appears to be scratching her body on whatever objects she can and appears to be very uncomfortable. She isn't eating regularly and is beginning to lose body condition. Amy examines the animal closer, including taking her temperature and finds the lamb is covered with small brown wingless pests. She calls a friend who is more experienced with sheep and the friend explains that her veterinarian calls these Sheep Keds and gives Amy the directions that her vet gave to her. Is this a valid VCPR?

**SHOWRING**



# Equipment

Cindy Kinder, Idaho Extension Educator

## Goal (learning objective)

Youth will learn about correct, working equipment needed for livestock showmanship and quality classes at the fair

## Supplies

Provide examples of equipment that are in working and non-working order.

Clothing:

- Show Clothes that are clean and pressed. Jeans, long-sleeved, collared shirt, belt, polished boots
- Work clothes
- Tank tops and shorts

Animal equipment:

- Beef: Scotch comb, show halter, show stick, nose lead
- Sheep: Cloth
- Goat: Show collar, choke chain collar
- Swine: Cloth or brush (small, with handle), driving device, spray bottle
- Dairy: Show halter

Table

Beach ball - 1 for each group

3x5 index cards for each species (write Beef, Sheep, Goat, Swine, Dairy on 1 card each)

Flipchart paper and markers

## Pre-lesson preparation

- Review Beef, Sheep, Swine Showmanship videos posted at <https://www.uidaho.edu/extension/4h/projects>
- Familiarize yourself with the showmanship equipment needed for each species
- Check your county's exhibitor guidelines regarding clothing (i.e. sleeve length, foot wear, etc.)

## Lesson directions and outline

Introduction

Showmanship equipment in the showing should be clean, properly adjusted, and in working order. It is important for exhibitors to look the part in the arena as well.

Ask the youth to brainstorm proper show ring dress. Write the responses on the flip chart:

Clothing: When youth step into the show ring, he/she has one chance at making a first impression with the judge (and the public). Clothes should be clean and presentable. Most counties have an exhibitor dress code which outlines specifics regarding sleeve length, collars, fabric type, foot wear, etc. It is important youth know the expectations before stepping into the ring.

Ask the youth to identify show equipment needed for the species they will be exhibiting. List them on the flipchart.

Scotch comb, cloth, brush: These items should be carried in the exhibitor's right back pocket or in a specially designed holder. It is used during the show to "adjust" the animal's coat after the judge has handled it.

**Beef or Dairy Show halter:** A medium show halter is the most useful size because it can be adjusted larger or smaller, fitting most show animals. A properly fitted halter should sit on the bridge of the animal's nose, evenly spaced below the eyes and above the muzzle. The lead strap should be held in the right hand (left hand for Dairy) about 6 to 12 inches from the animal's head. This is usually at the junction of the chain and leather portion of the lead strap. Often, exhibitors will shorten the leather strap a little so it can hang down gracefully without touching the ground. Do not wrap lead straps around your fingers or your hand.

**Goat Show collar:** A show collar has a chain with a leather handle. The collar should be properly adjusted to the size of your animal, not too loose or too tight. Choke chain collars are not recommended.

**Show sticks and driving devices:** For beef exhibitors there are several types of show sticks (wood, fiberglass, aluminium, aluminium alloy, or plastic pipe). Beef show sticks have four sizes (small, medium, large and extra-large). The most commonly used is the large show stick. When selecting a stick the size of the showman and the animal should be taken into consideration. A short stick should not be used by a young exhibitor. The showman must be able to remain in control at the head of the animal and the stick should be long enough so the stick can be used to set hind feet. The skill of the showman guides the decision as to the length and type of end hook needed.

For swine exhibitors, driving devices come in a variety of styles and are typically 36" long.

**Spray bottle:** Spray bottles are used by swine exhibitors to help cool the pig down. These are usually used only once the pig has been penned. However, they can be used if an animal becomes unruly at the out gate. Exhibitors don't carry their spray bottle into the showring but it can be available at ring side when needed.

### **Conducting the activity (DO)**

1. Conduct a relay race. Have your group split up into teams so that there are 6 to 8 members per team.
2. Provide each team with a beach ball
3. At the far end of the room (or area) have a table with all of the equipment on it (both working and non-working) and species cards.
4. From the starting line have 2 members from each team run down to the table. Pick up a species card, and a total of 3 to 4 items of equipment and run back.
5. The next 2 members use the equipment to "show" the beach ball. They have to show the beach ball based on the species card drawn, using all equipment as well.
6. The beach ball is "shown" to the equipment table where the species card and equipment is returned.
7. Run back to the starting line and the next two members take a turn. Repeat the activity until all team members have participated.

### **What did we learn? (REFLECT)**

- Ask: What did you learn?
- Ask: Was there special equipment for some species and not others? Why?
- Ask: Are there special uses of the equipment for some species and not others (i.e. beef show stick is different than the swine show stick)? Why?

### **Why is that important? (APPLY)**

- Ask: Can you do a job if you don't have the correct equipment?
- Ask: What is the importance of making a positive first impression?
- Ask: Why is safety important during showmanship classes?
- Ask: What lifeskills does showmanship teach?

## Resources

Ohio State University Extension. (2011). Getting Ready for the Show. *Beef resource handbook*. (pages 9-12 through 9-18).

Ohio State University Extension. (2008). Preparing Your Animal for Show. *Goat resource handbook* (pages 175-176).

Ohio State University Extension. (2011). Showing and Selling. *Sheep resource handbook for market and breeding projects* (pages 91-93).

Ohio State University Extension. (2000). Showing Your 4-H Market Hog. *Swine resource handbook for market and breeding projects* (pages 12-1 through 12-5)

University of Idaho Extension Beef Showmanship video (#72999) available at: <https://youtu.be/E-7UF-qiSjS4>

University of Idaho Extension Sheep Showmanship video (#72898) available at: <https://youtu.be/2B-VEegUchds>

University of Idaho Extension Swine Showmanship video (#72998) available at: <https://youtu.be/22e-p02oH08>



# Getting Ready for the Show

Cindy Kinder, Idaho Extension Educator

## Goal (learning objective)

Youth will learn about the importance of preparation.

## Supplies

- Three “mystery” sacks or boxes containing the following items:
  - a. Sack 1: Beef show items including: adhesive, foam, show halter, stick, comb
  - b. Sack 2: Loaf of bread, peanut butter, jelly, plate, butter knife
  - c. Sack 3: Swine show items including: water bottle, cane or show stick, brush or rag
  - d. Sack 4: Sheep and goat show items, cloth, show collar, spray bottle, small brush
- Livestock show supply catalogs

## Pre-lesson preparation

- Review the information in the Ohio Resource Handbook for each species (see resources).
- Obtain livestock show supply catalogs

## Lesson directions and outline

Share the following information with the youth:

Most fairs are held in late summer and fall. Ask the youth to share ideas of why fairs are held at that time of the year.

Members have a certain number of days to prepare their exhibit for fair. Typically the time frame is 150 days for beef, 100 days for swine and 60 days for sheep and goats, 90 days for horse and 100 days for dairy.

Have the youth list the items they need to have to be ready to show. If you have access to livestock show supply catalogs have them make a wish list of items they would like to have to help them prepare for the show.

## Conducting the activity (DO)

1. Split the youth into four groups, have a volunteer come to the front to get a sack, do not let them open/look into the sack initially.
2. Announce to the teams that they have to get ready for a “Beef Show.”
3. Have teams open their sack and prepare for the show.
4. Call on each team to perform their class at the “Beef Show”. The teams that received sack 2, 3 or 4 will not be prepared.
5. Now have the teams get ready for a “Picnic at the Park.”
6. Call on each team to quickly showcase their picnic. The teams that received sack 1, 3 or 4 will not be prepared.
7. Lastly, have the teams get ready for a “Swine Show.” The teams that received sack 1, 2 or 4 will not be prepared.
8. Have the teams perform their class at the “Swine Show.”
9. Now have the groups get ready for the “Sheep or Goat Show.”
10. Have the groups showcase their sheep or goat show. The groups that received sack 1, 2 or 3 will not be prepared.

**What did we learn? (REFLECT)**

- Ask: What team was ready for the Beef Show? Swine Show? Picnic at the Park?
- Ask: Although there was not a sack with sheep/ goat items what materials are needed to prepare for their show?
- Ask: Could all teams be successful at each show? Why or why not?
- Ask: How did it feel to not be prepared for the show?

**Why is that important? (APPLY)**

- Ask: What types of things would be considered “preparation” for the fair?
- Ask: Does preparation take time? What are some things that could happen without preparation?
- Ask: How can you relate this activity to a job interview? Who is going to get the job?

**Resources**

Ohio State University Extension. (2011). Getting Ready for the Show. *Beef resource handbook* (pages 9-2 through 9-5 and 9-13 through 9-19).

Ohio State University Extension. (2008). Preparing Your Animal for Show. *Goat resource handbook* (pages 175-177).

Ohio State University Extension. (2011). Showing and Selling. *Sheep resource handbook for market and breeding projects* (pages 91-96).

Ohio State University Extension. (2000). Showing Your 4-H Market Hog. *Swine resource handbook for market and breeding projects* (pages 12-1 through 12-5).

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# Grooming - Beef

Cindy Kinder, Idaho Extension Educator

## Goal (learning objective)

Youth will learn about fitting their beef project for show.

## Supplies

- Copies of Handout 1 - *Grooming Beef Cattle* (enough for group)
- Copies of Handout 2 - *Beef Worksheet* (enough for group)
- Copies of *Fitting for Showtime*
- Flipchart paper and markers
- Colored pencils - enough for 3, different colored pencils for each member of the group
- Show Foam
- Show Adhesive
- Light finishing oil (Final Bloom or Pink Oil)

## Pre-lesson preparation

- Read/review Ohio State University Extension. (2011). Beef resource handbook, Getting Ready for the Show. (pages 9-3 through 9-12).
- Become familiar with Handout 1 – Grooming Beef Cattle

## Lesson directions and outline

Ask the youth why grooming livestock is important. Discuss potential advantages and disadvantages. List the answers on the flipchart.

There are several basic products needed for the show. Have the youth list the products and equipment that can be used. Write the answers on the flipchart.

The main products that will be discussed in the activity are show foam, spray adhesive and light finishing oil.

## Conducting the activity (DO)

1. Distribute Handout 1 and Handout 2 and Fitting for Showtime.
2. Provide three colored pencils (be sure all are different colors) to the group.
3. Teach to the resource materials in the Ohio Beef Resource Handbook.
4. Talk to the youth about the difference between a type of spray sheen, show foam, adhesive and a light finishing oil. Have a volunteer spray each of them so members have an opportunity to see and feel the difference.
5. Have youth color on the worksheet with one colored pencil, the areas where show foam should be applied on the animal.
6. Next, have members use a different colored pencil, coloring the worksheet where adhesive should be applied.
7. Using the third colored pencil, draw arrows on the animal the directions the hair should be combed for both the show foam and adhesive.

## What did we learn? (REFLECT)

- Ask: What are two basic products used in fitting beef for show?
- Ask: What does “boned” mean, as it applies to fitting animals?
- Ask: Why is hair combed forward?
- Ask: What does show foam and adhesive feel like? Are there differences in their uses?

**Why is that important? (APPLY)**

- Ask: Why is it important to select the right product for the use? What are some examples of product choices you make?
- Ask: What safety considerations need to be made when fitting your animal?

**Resources**

Kinder, C. (2013). *Fitting for Showtime*. University of Idaho Extension. Retrieved from <http://extension.uidaho.edu/gooding/files/2013/04/6-beef-fitting.pdf>

Ohio State University Extension. (2011). Getting Ready for the Show. *Beef resource handbook* (pages 9-3 through 9-12).

Steer clipart retrieved from <http://www.showsteers.com/art%20work/>

Preparing beef cattle for exhibition at livestock shows is done by many people in many different ways. The techniques used are based on individual preference, skill, and knowledge. No matter who does it or how it is done, there are four key steps to grooming beef cattle for exhibition at livestock shows. This handout is a guideline that will describe the steps. They are as follows: **Washing, Drying, Clipping or Trimming, and Fitting.**

### Step 1

#### **Washing**

*Equipment needed:* Soap, Brush, Insect Repellent, Conditioner, Bucket, Water Hose.

To be able to do a nice job preparing the animal for the show, it needs to be clean. The hair needs to be washed. Wet the animal thoroughly. Keep the water away from the ears of the beef. Use a type of soap that will lather well and rinse easily. Apply the soap to the hair. Use a soft brush to scrub the animal and remove excess dirt. Rinse the soap from the animal. **Leaving soap in the hair will burn the hide and cause dandruff.**

To control insects you can use a repellent. Some type of conditioner will make the hair softer and more manageable. Put a small amount of repellent and conditioner in a bucket, mix with water and pour over the animal.

### Step 2

#### **Drying**

*Equipment needed:* Comb, Brush, Water-based Sheen, Spray Bottle, Blower.

Now the beef is clean it is time to get the hair prepared. Generously spray some type of sheen on the hair coat of the animal. This will add shine and bloom to the haircoat. Using a comb and a brush, work the hair in the direction you desire it to go to make the animal look its best. This will also work the repellent, conditioner and sheen into the hair. After the hair has been combed, use the blower to dry the hair. Make sure you blow the hair in the direction you want it because once it dries it is difficult to get it back in place. The hair should be free from cowlicks, curls, and lines; leaving a smooth hair coat when dry. The recommended technique is to start at the head and work toward the rear. Keep the comb handy; you may need to use it while you are drying. **For safety purposes, keep the blower hose away from the legs of the animal.** Proper drying is an important factor in the appearance of the animal.

### Step 3

#### **Clipping or Trimming**

*Equipment needed:* Comb, Flathead Clippers, Sheep-head Clippers, Small Clippers, Clipper Oil, and Grooming Chute.

The animal needs to be **completely** dry when you begin clipping or the blades will dull quickly and the hair won't cut off evenly. **Use extreme care** when using the clippers because they are sharp and can injure you and the animal if used carelessly. If a chute is available, put the beef in it. This will restrain the animal safely.

When you start clipping, use the flathead clippers and start at the tail. Clip the hair in an upward motion starting near the stifle muscle and stopping before the tail head begins to round. By starting at the tail the animal will get used to the sound and feel of the clippers, helping them to relax. Clip excess hair off the sheath or navel. Using a downward motion, clip the hair off the neck starting just in front of the neck and shoulder junction, working toward the head (exact starting and ending points are determined by the conformation of the animal). Make sure you blend the hair in this area. Don't leave a distinct line. If your skill level is high, you may wish to block the neck with the sheep head clippers. Using the flathead

clippers on the neck for summer shows is recommended. This depends on the amount hair on the beef. Clip the hair upward from the brisket to the chin, one clipper width wide. Clip the hair on the head in an upward motion beginning at the cheek, just in front of the ear. Remove all of the hair off the head, leaving a little on the poll if desired. Clip the hair off of the face last. If the animal is not already upset, clipping the face will usually upset them.

The sheep head or small clippers are used next to trim excess hair off of the animal to provide a smooth, neat appearance. Before you begin using them make sure the animal's hair is combed into place. They can be used on the topline, underline, legs, or any other place to blend the excess hair, providing an attractive, balanced look. **Be very careful with sheep head clippers, they are dangerous.** They are recommended for those with a high level of clipping skill. Make sure you have clipper oil. Use it periodically to keep the clippers cool and prolong the life of the blades.

#### **Step 4**

##### **Fitting**

*Equipment needed:* Blower, Comb, Adhesive, Hair Styling Mousse (Show Foam), Final Bloom or light oil, Sheep-head and Small Clippers, Grooming Chute, after show product to remove adhesive.

When you fit the animal begin by blowing the hair. This will remove any dirt and put the hair into place if Step 1 was followed correctly. Using an adhesive, start at the bottom of the rear leg and work toward the hock, combing the hair up at an angle. Apply a small amount of adhesive to a small area at a time. Too much adhesive will cause the hair to get very sticky and unmanageable. This adds the appearance of more bone and appears to straighten the leg. The front legs can be done to the knee in this manner.

The tail head needs to have a square appearance. Apply an adhesive to the tail head to hold it into place. The tail has been groomed in various ways. The most natural way is to make sure the tail is clean and combed to remove snarls or "rats". The tail can be clipped into the shape of a teardrop or cut straight across the bottom. The tail should hang even with the hock of the beef when it is finished.

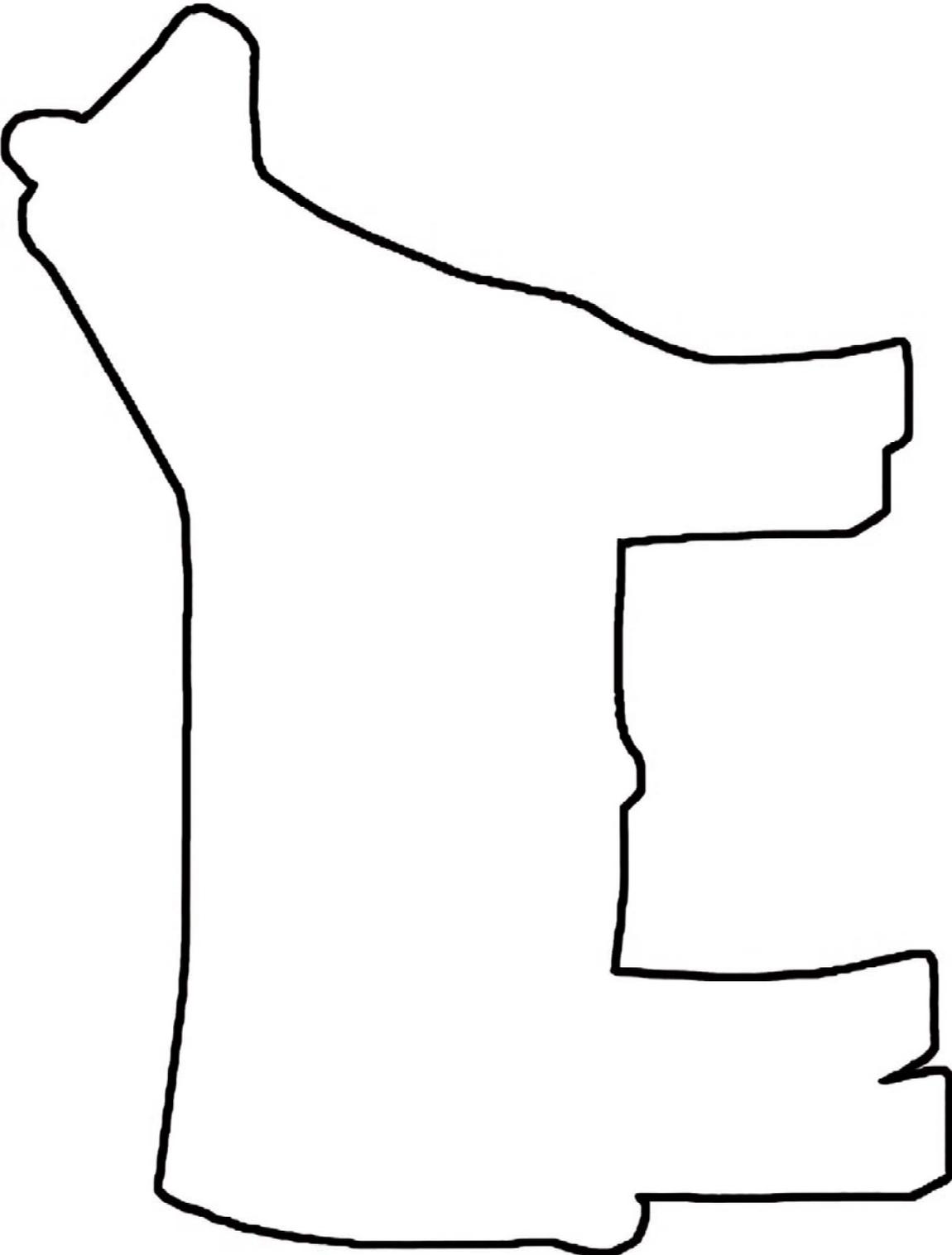
Using the sheep-head or small clippers, trim any excess hair off the legs or tail head to provide a straight, smooth appearance. Spray some type of hair styling mousse (show foam) to the hair to give it set and shine. You may wish to use a blower at this point to give the hair some more body. Prior to entering the show ring, apply final bloom or some type of light oil to provide extra gloss and shine to the hair. Be careful not to spray the areas that have adhesive because the oil will cause the adhesive to lose its holding power. When you finish showing your animal, use an after show product to remove the adhesive, then wash the animal thoroughly. This will help your animal to rest comfortably, reduce stress and keep the hair manageable.

##### **Showing**

Now the beef animal is ready to go into the show ring. Leaving the rope halter on and while still in the chute put the show halter on the beef. Slip the rope halter off and then put it on over the top of the show halter. This will allow you to tie the animal prior to going into the ring if needed. When you remove the animal from the chute, comb the hair and apply the necessary finishing touches.

Make sure your hair is combed, your clothes are clean, and don't chew gum. Have a show stick of the proper length, in your hand (this depends on exhibitor size and animal size) and a comb in your back pocket. Be courteous to the judge and fellow exhibitors, smile, and have fun.

For more information contact, Scott Nash, Regional 4-H Youth Development Educator, University of Idaho Extension, 500 Pocatello Ave., American Falls. ID 83211, 208-317-4375, snash@uidaho.edu





## Fitting for Showtime

The steer is put in the fitting chute and show foam (styling mousse) is applied to the whole side and back. The foam is brushed into the hair in a forward motion. The show foam gives body to the haircoat. Brushing forward helps the steer look smoother and longer

(Photo: Applying show foam)

Next the legs of the steer are “boned”.

Spray adhesive is applied to the hair on the legs to help the hair stand up and give the appearance of more bone as well as potentially make the legs look straighter. The adhesive is sprayed on the on the leg hairs and then are combed on an angle forward and up. Start at the hoof line and moved up to the hock on the rear legs and the knee on the front leg. The legs are on all sides. Long hairs can be trimmed.

(Photo: Front leg)



(Photo: Rear legs)



(Photo: Topline)

At the top line the hair is brushed forward and depending if the animal’s topline is not straight adhesive can be applied to the hair so the back looks level or straight. The clippers can be used to trim the glued hair so it does not look so obvious.

At the tail head adhesive is applied to make hair stand up and out. The tail head needs to be square so the hip appears level. The clippers can be used to trim the long hair.

(Photo: Clipping tail head hair)





# Halter Breaking and Gentling

Cindy Kinder, Idaho Extension Educator

## Goal (learning objective)

Youth will:

- Learn about different types of halters and appropriate uses
- Learn about one method of haltering and gentling cattle (beef or dairy), a lamb or goat and gentling a swine

## Supplies

- Flipchart paper and markers
- Rope halter
- Show halter
- Lamb rope halter
- Goat collar
- Horse halter
- Plastic calf head
- Stuffed animal (dog, sheep, calf, etc.)
- Handout 1 - "Halter Breaking" (make enough copies for group)
- Handout 2 - "Halters" (make enough copies for group)

## Pre-lesson preparation

- Make photocopies of Handout 1 and Handout 2
- Gather halters and plastic roping calf head
- Read/review handouts, have an understanding of pressure points used with halters
- Review Ohio State University Extension. (2011). Beef resource handbook Breaking and Training, (pages 3-8 and 3-9) and Getting Ready for the Show. (pages 9-2 through 9-3).
- Review Ohio State University Extension. (2011).

Sheep resource handbook for market and breeding projects, Chapter 8, Showing and Selling(pages 91-93).

- Review Ohio State University Extension. (2008). Goat resource handbook, Chapter 15, Preparing Your Animal for Show. (pages 175-176).
- Review Ohio State University Extension. (2000). Swine resource handbook for market and breeding projects, Showing Your 4-H Market Hog. (pages 12-1 through 12-8).

## Lesson directions and outline

Have the youth brainstorm and discuss the steps necessary to help a first time 4-H member gentle and halter break the project animal they plan to show. List the ideas on flip chart paper. When all the ideas are listed, share the following information with the youth. Take time to recognize the ideas the youth listed.

Halter breaking and gentling is very important for your animals' safety and your own. It plays a critical part to the success of your animal project. Your animal needs to be broke to the halter allowing you to tie the animal up and lead it. Using the proper equipment and method will set you up for success by fair time.

Beef – this first step in breaking and gentling a beef animal is to allow it to settle in to new surroundings for a few days before trying to halter break. Make sure you work with the animal in about a 12' X 12' solid pen. A solid pen can be described as one where the panels holding the pen together are secured to posts with one end of the posts buried in the ground. You can use a long handled broom to rub the back (topline) of the animal to get it used to being touched. As the animal calms down you can move slowly closer until you can scratch the topline of the animal with your hand or a brush. This will help the

animal get used to you. It's best if an adult or older youth helps during this process to keep younger members safe. Once the animal is used to standing you can try to corner the animal using a panel or gate or if available, put in a chute with a head catch to place the halter on the head of the animal.

Depending on your situation you can tie the animal up to a solid post or secure panel (make sure one end of the post is buried in the ground). If you are not ready to tie the animal you may want to let it drag the halter lead rope for a few days allowing the animal to get used to the halter before tying it up. Tie the animal up for a few hours at a time making sure not to leave the animal unattended until it learns how to stand quietly. While the animal is tied try to use a comb and brush on it so it will get used to you rubbing and brushing the hair. Most animals will respond positively when they are scratched in a pleasant manner. Repeat this gentling process until you are able to get the animal to respond when you pull on the halter. As you pull on the halter it will tighten, making the animal move forward to release the pressure. This helps the animal learn to lead when you pull.

As you begin to teach the animal to walk in response to the halter, it is important not to let the animal know it is strong enough to go where it wants to. Control the head and the nose with the halter. When leading the animal keep the head up instead of down. When the head is held up it won't have as much leverage to pull away as when it puts its' head down towards the ground.

Sheep – can be trained to respond to a halter in a similar manner as beef. Typically sheep will gentle down quicker and learn to lead faster than a beef animal.

Goats – can be broke to tie as well in a manner similar to sheep. It can be helpful to teach the goats how to tie and lead with a halter. Goats are generally shown in a collar. Make sure the collar is fitted to the goat. Be careful not to choke the goat when teaching it to work on a collar.

Swine – can be gentled as you spend time letting the pig get used to you. Make sure as you come in contact with the pig your movements are slow and

deliberate. Work to get your pig tame enough so that you can put your hands on it. Use a brush or a rag to help your pig get used to being touched. You don't want you animal to become a pet but you want it to respond favorably when you use a brush or rag to groom and clean it. Train your animal to walk or drive in the direction you want it to move. Use a driving device that you will use in the show ring for consistency. Once your pig is trained to drive start taking it out the pen to get it used to new surroundings, provide exercise and increase the stamina of the pig. Some show classes can take 15 to 30 minutes to complete.

All of these processes take time and repeated practice. Make sure you are consistent and patient. Animals learn from the behavior and treatment of the handler.

### **Conducting the activity (DO)**

1. Demonstrate putting the halter on the plastic calf head or the stuffed animal head.
2. Have members practice putting on the halter on the plastic calf head or stuffed animal model. (It is a common mistake for youth and adults to put halters on wrong - upside down or backwards).
3. Have youth practice putting the coat collar on the stuffed animal.
4. Have a volunteer distribute the handouts to the group.
5. Review with members the parts of the halter:
  - a. Headstall
  - b. Nose piece
  - c. Chin rope or strap
  - d. Lead rope
6. Review proper fitting of the halter on the animal's head. The lead strap should always be on the animal's left side.
7. Discuss with members how pressure is applied at the cheek and show where the pressure is placed when the halter is put on upside down (the pressure is at the ear).

8. Show the difference between a horse halter and a rope halter. Demonstrate how the horse halter does not put pressure at the cheek whereas the rope halter does.
9. Show the difference between a chain strap and a rope strap under the chin, explain how that can cause an animal to move and react differently.
10. Review Handout 1, discuss the method of halter breaking a calf or lamb.

Ohio State University Extension. (2000). Showing Your 4-H Market Hog. *Swine resource handbook for market and breeding projects* (pages 12-1 through 12-8).

### What did we learn? (REFLECT)

- Ask: What are the differences between a horse halter and a beef halter?
- Ask: Where is pressure applied to teach your animal to lead?
- Ask: What are the similarities between a beef halter and a lamb halter?

### Why is that important? (APPLY)

- Ask: Why is it important to practice leading and working with your animal?
- Ask: Why is it important to work with the appropriate equipment? What can happen if you have the wrong equipment?
- Ask: Where else in life is having the right equipment important?

## Resources

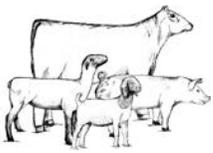
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Kinder, C.A. (2016). Halters. *Champion of Knowledge: 802*. University of Idaho Extension.

Ohio State University Extension. (2011). Getting Ready for the Show. *Beef resource handbook* (pages 9-2 through 9-3).

Ohio State University Extension. (2008). Preparing Your Animal for Show. *Goat resource handbook* (pages 175-176).

Ohio State University Extension. (2011). Showing and Selling *Sheep resource handbook for market and breeding projects* (pages 91-93).



# Champion of Knowledge

Publication  
No.  
CK BEEF:  
801

## **Halter Breaking**

*By:*

*Cindy*

*Kinder,*

*University of*

*Idaho*

*Extension*

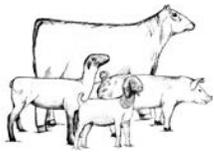
After members have selected their animal they need to halter break it as soon as possible. Some animals are not fit for being a show animal. Their temperament does not allow them to be gentle and worked with in a close manner. Some animals like working only with their owners and do not like crowds or loud noises. Members need to find out as soon as possible what kind of temperament their animal has. It will take about two weeks to properly gentle a calf however, members will be able to tell in 3 or 4 days if their animal will gentle down. There are many ways to halter break your animal. The following has been very successful. Make sure an adult or older member helps younger members during the halter breaking process.

1. Halter and let the calf drag the halter for a couple days, this way the calf understands the rope will stop them, as they step on it.
2. Tie the calf to a secure post. Approximately two feet from the ground leaving about two feet of space between the calf and post.
3. If the calf throws himself, and is not in danger, let him lay and think the situation over. Don't yell at or frighten him.
4. Assuming the calf is not in danger of hurting himself, leave the calf tied up, for several hours, making sure not to leave them unattended.
5. Continue this practice, taking time to comb and brush the animal each time it is tied up. This will get it used to you and help to calm it down because the animal will realize you are there not to hurt it. Pull on the halter as you are working with the animal to determine when it is ready to start trying to get it to lead.
6. Repeat this process until the calf is able to be untied and led around the pen without risk of trying to get away. You can practice leading your animal to and from water when you have had it tied up for several hours. Members will be able to tell when the calf understands and respects them as a safe handler.
7. Members can also start practicing stopping with the calf's head up, when stopping at the post or panel. This is good showmanship practice.

### Tips for success:

- When having calves tied, up be mindful of how long the rope is between the post and the calf. Having it too long will allow the calf to get tangled up in the rope and injured. Also having the rope too high is a problem, if they fall. Some calves will pull back against the post and not release. Make sure your calf learns to release.
- Members and families should have a quite gentle manner around the calves. This reduces the stress of people and animals.
- Understanding animal flight zones is important as the animal becomes tamer those zones get smaller.

This procedure and time schedule can be adjusted to fit the temperament of the calf. Remember, some animals are NOT suitable as project calves. Find out early so there is time to get another calf.



# Champion of Knowledge

Publication  
No.  
CK BEEF:  
802

Halters are a “tool” to use when halter breaking livestock. There are many kinds of halters, using the correct one and using it properly is important.

You should know the parts of the halter, their purpose, and where it is located when placed on the animal. Understanding the relationship of the halter parts and the underlying pressure points is helpful when teaching your calf to be respectful of the halter. Teaching them to lead when they are young or smaller in weight is easier and less stressful on you and the calf and insures success at show time.



**Headstall:** Is used to keep the halter on top of the head; it is set over the poll and behind the ears of your animal. Pressure points under the headstall and behind the ears causes your animal to move forward when leading.

**Nose piece:** Keeps the halter on the face of the animal; goes over the bridge of the animal’s nose approximately one inch below the eyes. Pressure points on top of the nose causes your animal to move backward. Be careful because sore/rub spots can form here.

**Adjustment loop:** Allows the halter to be adjusted smaller or larger and allows the halter to ‘fit’; it should be on the right side of the head. Pressure points under the loop causes the animal to turn.

**Chin rope or strap:** Keeps the halter from coming off the nose; goes under the animal’s chin and cheek area, is made of rope or chain. Pressure points under the chin rope cause the animal to move forward. Chain straps are found on show halters and are used if you need more pressure after the animal has been trained to lead. Jerking on the chain is strongly discouraged because it causes more harm than good.

**Eye Loop:** Holds the lead of the halter and is located on the left side of the head.

## *Halter Breaking*

*By:  
Cindy  
Kinder,  
University of  
Idaho  
Extension*

# Champion of Knowledge

Publication  
No.  
CK BEEF:  
802

**Lead:** Is used to tie up and hold onto the animal; is located on the left side of the animal's cheek. The lead is used to provide pressure on all pressure points found on the animal's head.

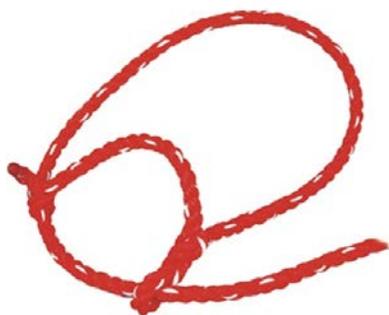
Halter breaking is teaching your animal to respond to pressure. Applying pressure with the halter causes your animal to move so that the pressure is released. The release of constant pressure is the reward that teaches your animal to lead.

There are three main halter types.

Rope type halter: Made with three strand nylon or sisal rope. A rope halter is used for the initial halter breaking because rope does not pinch the animals. Caution should be taken when using the nylon rope because it is slippery and hard to hold onto when tying the animal for the first time. Wearing gloves is recommended when using this rope. Leads can be different lengths. Having a short lead when halter breaking for the first time can make it difficult to tie up. Too long of leads can be dangerous as you or your calf can get tangled in the rope. A good length for the lead for cattle is 12 to 14 feet. For lambs the lead is 4 to 6 feet.

Show type halter: Made of leather or nylon material and has a chain chin strap. One to two weeks before your show you should introduce the show halter and practice with it. Some animals don't like the chain feeling and must get used to it. The chain adds more pressure and with that comes more response from your animal. If your animal cannot absolutely work with the chain strap you could cover it with vet wrap.

Horse type halter: This halter should never be used for cattle because it does not provide the pressure points to aid in the animal learning to walk when pressure is applied to the points.



Rope Halter



Cattle Show Halter



Horse Halter



# Showmanship

Cindy Kinder, Idaho Extension Educator

## Goal (learning objective)

Youth will:

- Learn about showmanship
- Learn about showring etiquette and sportsmanship
- Learn exhibiting tips to help them handle their animal and be successful in the showring

## Supplies

- Access to the internet and a TV
- A laptop or computer that can be connected to the TV
- An HDMI cable or compatible cable with the TV and computer you are using.
- Check out the showmanship DVD from the county extension office (you will need a DVD player and a TV if you use the DVD)
- 5' piece of string (bailing twine) for each team of two members (beef, sheep, and goat)
- Swine members will use their hand and arm or pig show stick
- Swine driving devices (optional)
- Area large enough to represent the showring full of animals and showmen.

## Pre-lesson preparation

- Review Livestock Showmanship DVD for each species to become familiar with showing of livestock

- This activity can be done with:
  - Goat members as they need to practice leading, stopping, and setting up with the collar.
  - Sheep members as they need to practice leading, turning, stopping, and setting up without a halter.
  - Swine members as they need to practice moving and directing their hog to demonstrate control while positioning themselves appropriately (animal always between them and the judge).
  - Beef members as they need to practice leading, spacing, stopping, and setting up with the halter.

## Lesson directions and outline

### Introduction

Showmanship contests are a fun way to demonstrate skills and knowledge. It is important to realize that showmanship is used every time an exhibitor enters a quality class. The object is to present your animal to the judge using methods that will make your animal look its' best. This will require a personal evaluation of the animal being shown prior to entry into its class.

Showmanship success begins at home. It takes time to halter break or train an animal so that it is responsive to an exhibitor's commands. The methods used are not difficult to learn, but it does take effort, patience and animal cooperation.

Have experienced youth share what they have learned that has helped them prepare for showing an animal.

A show animal should be trained to walk, stop, set up quickly or drive in the show ring when asked. When preparing for a show, it is important to practice using

several short periods of time rather than a few long, drawn-out sessions. It is also wise to know information about the project and animal should a judge decide to use questions as a tie breaker.

After the introduction discussion, view the showmanship video that pertains to the species club you are leading. You may want to stop the video periodically to have the youth share the positives or the negatives they see during the video. Then conduct the activity.

### Conducting the activity (DO)

1. Explain to youth that they will be participating in a mock show, ask the group to pair off so they have a partner.
2. Give each team a piece of string or pig stick. One teammate will be the showman and one will be the project animal.
3. Have the “animal” hold the string as if it was a halter. Holding the string in their left hand. Do not tie the string on the member.
4. Have the exhibitor stand next to the animal (facing the same direction) hold the string in one hand next to the “animals” head and the other hand as if holding the lead strap of a show halter. (Goat members as if holding the collar, sheep members as if holding their sheep and swine members should direct their animal with their hands or stick).
5. Have all the teams practice circling, stopping and setting up, as if in a mock show.
6. Have the beef members hold their animal’s heads “very close” on the string (next to their cheek) and “far away” on the string (2 ft. gap between them).
7. Once they have practiced then have the members switch roles and practice the mock show again.
8. Teach members the following showing tips:
  - The importance of making a good first impression as soon as they step into the arena (don’t stop showing).
  - Keeping an animal set up and its’ head up (cat-

tle, sheep and goats).

- Keeping their eyes on the judge and their animal at all times (it is important that exhibitors are aware of where the judge is in the arena and what their animal is doing).
- The importance of keeping the animal between them and the judge at all times (Beef members do not stand on the opposite side).
- Spacing animals while working in the arena and in the lineup.
- Show ring etiquette and sportsmanship.

### What did we learn? (REFLECT)

- Ask: Why is showmanship important?
- Ask: How can showmanship be practiced at home?
- Ask: How does it feel to be the animal? How can that help you be a better showman?
- Ask: What can you do differently in handling your animal?

### Why is that important? (APPLY)

- Ask: Why is having knowledge about your livestock project important?
- Ask: Why is good sportsmanship important in showmanship?
- Ask: What do showman reflect to the community about the industry? 4-H?

### Resources

- Ohio State University Extension. (2011). Getting Ready for the Show. *Beef resource handbook*. (pages 9-13 through 9-18).
- Ohio State University Extension. (2008). Preparing Your Animal for Show. *Goat resource handbook* (pages 175-176).
- Ohio State University Extension. (2011). Showing and Selling. *Sheep resource handbook for market and breeding projects* (pages 97-98).
- Ohio State University Extension. (2000). Showing your 4-H Market Hog. *Swine resource handbook for*

*market and breeding projects* (pages 12-4 and 12-5)

University of Idaho Extension Beef Showmanship video (#72999) available at: <https://youtu.be/E-7UF-qiSjS4>

University of Idaho Extension Sheep Showmanship video (#72898) available at: <https://youtu.be/2B-VEegUchds>

University of Idaho Extension Swine Showmanship video (#72998) available at: <https://youtu.be/22e-p02oH08>

# **ADVOCACY**



# Career Exploration

Alaena Ruth, Idaho Extension Educator

## Goal (learning objective)

Youth will learn about animal agricultural careers and how they connect to each other to make the industry function.

## Supplies

- Handout 1- “Animal Agriculture Career Description Cards” (one copy for instructor and make enough copies so each child gets one career card once they have been cut up)
- Handout 2- “Career Bank” (one for each member)
- Handout 3 - “Description of Agricultural Areas (one copy)
- Handout 4 - “Animal Agriculture Careers” (one copy for instructor)
- Four bowls (buckets or bins)
- Pencils (or pens) enough for group
- Flip chart paper and marker or chalkboard and chalk

## Pre-lesson preparation

- Make copies of Handouts:
- Cut out Animal Agriculture Areas from Handout 3, tape one to each bowl (bucket or bin)
- Cut out Career Description Cards from Handout 1
- Read/review lesson and resource materials

## Lesson directions and outline

Share the following information with the youth:

There are a wide variety of animal agricultural careers that many people do not know or think about when searching for a field to enter in to. If you are involved in 4-H animal science project, it shows interest in the animal science field. There are many potential careers

in animal agriculture and learning about all the options may help you decide what field to enter in to.

These careers can be separated into four major areas:

- **Production-management:** This area is for individuals who enjoy the opportunity to work directly with animals. These careers allow you to be involved with the production of animals for human use or consumption. Some careers may involve most of your time being outdoors. Other options in production-management pertain to the health treatment and care of animals.
- **Agribusiness:** Careers in this area can be for individuals who enjoy being around animals but not the direct production or treatment of them. Many people are employed to produced goods and services that are necessary to produce livestock.
- **Government Agencies:** Opportunities in government agency careers are varied. Government agencies careers are best fit for individuals who want to assist and service producers and consumers. This area does not provide direct connections to animals but allows an individual to help people in all disciplines of animal science.
- **Research and Teaching:** Research and teaching careers are for individuals who enjoy speaking and helping others learn about animal agriculture. These careers offer opportunity to advance agriculture through technology, information, and even the potential to help others discover their passion for animal agriculture.

## Conducting the activity (DO)

### Activity 1

1. Ask for a volunteer to handout to each member one Career Description Card (from Handout 1) and a Career Bank (Handout 2).
2. Make sure every member has a pen/pencil. Ask the youth write any additional things that they believe a person in that career does.
3. Have youth come up one by one and share just the facts about their career without revealing what the career is. Have the rest of the group guess what the career is based on the Career Bank provided (Handout 2).
4. Once the group has guessed their career, have the youth who has the card determine what area of agriculture (Production Management, Agribusiness, Government Agencies, or Research & Teaching) their career belongs in and drop it into the respective receptacle (help the youth as needed).
5. Go through as many different careers as possible.

### Activity 2

1. Once the youth have placed their career cards into the correct place, the next step is to place the careers into a logical order of how they are all connected.
2. You may split the youth into groups (make as many groups as you are comfortable with).
3. Provide groups with scissors, have one youth cut out each of the careers from their word bank for their group.
4. Once the group has identified the order ask members how each career is connected to the career behind and in front of it.

## What did we learn? (REFLECT)

- Ask: What are careers in agriculture that you learned about that you didn't know before?
- Ask: How are careers in animal agriculture influenced by other careers?

## Why is that important? (APPLY)

- Ask: How can you contribute to animal agriculture with your career choice?
- Ask: What are other areas of agriculture besides animal based, that you may be able to start a career in?
- Ask: How can you begin preparing for a career in agriculture?

## Resources

Agriculture Council of America. (2017). National Ag Day. *Careers in Agriculture*. Retrieved from: <https://www.agday.org/careers-in-agriculture>

Ohio State University Extension. (2011). Careers in Animal Science. *Beef resource handbook* (page 15-1 through 15-5).

Ohio State University Extension. (2008). Careers in Animal Science. *Goat resource handbook* (pages 173-174).

Ohio State University Extension. (2011). Careers in Animal Science. *Sheep resource handbook for market and breeding projects* (pages 131-133).

Ohio State University Extension. (2000). Careers in Animal Science. *Swine resource handbook for market and breeding projects* (pages 25-1 through 25-4).

## ADVOCACY: CAREER EXPLORATION – HANDOUT 1

### Animal Agriculture Career Description Cards:

#### **Livestock Producer**

A person that raises animals to sell to others interested in raising livestock. A person is considered a producer whether they have one or many animals.

#### **Agricultural Broadcaster**

they use radio or television to report on stories that will be found relevant by agricultural viewers, but that also may be used by regional and national outlets reaching non-ag viewers.

#### **Artificial Insemination (AI) Technician**

Someone trained to use semen collected from the male animal and used to breed a female animal. This person usually uses semen that has been frozen. The technician thaws the semen and uses the proper tools to inseminate or breed the female,

#### **Veterinarian**

A person that has received a college degree to be able to provide animal care. A vet is similar to a medical doctor for people except they only work to keep animals healthy.

#### **Animal Geneticist**

Analyzes the genetic makeup of animals to discover which genes cause them to behave certain ways. Geneticists may also study animal health to determine what causes animals be immune to specific diseases or fail to thrive in certain environments.

#### **Nutritionist**

A person with a college degree that determines the types of feed ingredients and feed formulations that will help animals grow the most efficiently.

#### **Feed Salesperson**

A person that works for a feed company to sell feed to feed stores, large ranches and feedlots. This person usually travels to places that sell feed to let them know about the product he has available.

#### **Herd Manager**

This person is usually hired by a farm or ranch owner to see that the animals are provided the proper daily care. This would include proper feed, proper health care and make sure there are good facilities to house the animals.

#### **Extension Educator or Specialist**

A person with a college degree that works for the state university to provided educational, researched based information to the local community. They may have a knowledge in agriculture or home and family issues.

**Breed Association Representative** A person that works for animal breed associations to help breeders with knowledge about those animals and to promote the breed to other people that may be interested.

#### **Ag Magazine Editor**

A person that puts together an agriculture information magazine to share latest products, successful practices, etc. This person may assign writers to research and write stories based on current industry topics.

#### **Ag Loan Officer**

This person has experience in the banking industry. They work with farmers and ranchers or others involved in agriculture to provide funding. They help producers determine the best ways to repay loaned monies.

#### **Waste Disposal Specialist**

This person works with owners of livestock facilities to help them determine how to manage the animal waste (manure and feed) from the farm, ranch or feedlot.

#### **Livestock Transporter**

This person has a truck and trailer to haul animals for other people. They provide the opportunity for people to buy animals and then have them hauled to the new location.

#### **Livestock Buyer**

A person that buys livestock for his own operation, buys livestock for others to feed, buys livestock for other producers. The buyer usually has an order of what livestock is needed and an acceptable price range to pay.

#### **Processing Plant Manager**

This person works to make sure that the agriculture product or commodity processed by the plant is done efficiently. They may manage employees and oversee all aspects of getting the product ready to be used or marketed.

**USDA Meat Inspector** A Meat Inspector ensures that meat is safe from contamination and that the process it goes through follows quality assurance regulations. They inspect all meat products including, poultry, seafood, beef, pork, etc. before the initial packaging.

#### **Meat Cutter**

A person that works in a meat packing plant or grocery store. This person knows how to break down animal carcasses into wholesale and retail cuts. They may also prepare and package the meat to be sold.

**Food Technologist**

Food technologists oversee all aspects of product development, reviewing and approving nutritional data, writing product specifications and enforcing USDA labeling regulations on new and modified food products.

**Quality Assurance Auditor**

Monitors companies' production process to ensure they are in compliance with governmental regulations.

**Restaurant Manager**

Oversee the day to management of a restaurant for the owner. They make sure the commodities needed to make food are available and the employees are trained to take care of customers.

**Feedlot Manager**

oversee daily operations of feed yards. They provide knowledge and support for heard nutrition, marketing, and environmental conditions for livestock in feedlots.

**Social Media Strategist**

Develop, manage and track internet content on their employer's social media pages. Because of the popularity of social media, social media strategists play a crucial role in defining agriculture's brand to the masses.

**Marketing Specialists**

Are responsible for getting the appropriate communication message and medium delivered to the public. By doing so, they ensure that the company meets their sales goals. Marketing Specialists also watch over companies'/clients promotions for their products and services through their marketing skill sets.

**Veterinary Technician**

Responsible for the well-being of animals. They work hand-in-hand with veterinarians providing the essential medical procedures to ensure that animals are healthy.

**Embryologist**

An embryologist provides reproductive services and research in the areas of embryo creation, IVF (in vitro fertilization), cloning, and transgenic animal production.

**Food Safety Specialist**

Food Safety Specialists are responsible for meeting food safety standards. They oversee that foods are processed, packaged, and prepared according to those specific standards. he standards can be implemented by their company or regulatory organizations.

**Agricultural Science Teacher**

Responsible for the education of agriculture, food science, and natural resources for students. Using these topics, agricultural science teachers can give students vital skills that are important in the ag industry. These skills include: math, science, leadership, technology, communications, and management. They can also go the extra step in providing strong agricultural education by advising their school's FFA Chapter.

**Brand Inspector** Brand Inspectors must check brands on livestock. They check any documents that show ownership such as bills of sale and shipping manifest. They issue brand inspection papers when cattle are sold or are going to be transported they are a law enforcement official.

**Game Warden**

Game wardens work at the state or federal level, enforcing laws related to hunting and fishing. Work to arrest offenders as well as assist with wildlife conservation efforts.

**Agricultural Lobbyist** Agriculture lobbyists work to make sure government officials hear the voice and position of companies, organizations, industries or even communities. It is their goal to influence policy development and look out for the interests of the individuals they represent.

**ADVOCACY: CAREER EXPLORATION – HANDOUT 2**

**Career Bank**

**Livestock Producer**

**Agricultural Broadcaster**

**Restaurant Manager**

**Livestock Buyer**

**Food Safety Specialist**

**Food Technologist**

**Feedlot Manager**

**Agriculture Science Teacher**

**Feed Salesperson**

**Embryologist**

**Quality Assurance Auditor**

**Marketing Specialist**

**Artificial Insemination Technician**

**Ag Loan Officer**

**Agricultural Lobbyist**

**Brand Inspector**

**Game Warden**

**Veterinary Technician**

**Waste Disposal Specialist**

**Livestock Transporter**

**Meat Cutter**

**Livestock Producer**

**Nutritionist**

**Herd Manager**

**Veterinarian**

**Social Media Strategist**

**Ag Magazine Editor**

**Animal Geneticist**

**USDA Meat Inspector**

**Breed Association Representative**

**Extension Educator or Specialist**

**Processing Plant Manager**

Descriptions of Agricultural Career Areas

# Production Management

This area is for individuals who enjoy the opportunity to work directly with animals. These careers allow you to be involved with the production of animals for human use or consumption. Some careers may involve most of your time being outdoors. Other options in production-management pertain to the health treatment and care of animals.

# Agribusiness

Careers in this area can be for individuals who enjoy being around animals but not the direct production or treatment of them. Many people are employed to produced goods and services that are necessary to produce livestock.

# Government Agencies

Opportunities in government agency careers are varied. Government agencies careers are best fit for individuals who want to assist and service producers and consumers. This area does not provide direct connections to animals but allows an individual to help people in all disciplines of animal science.

# Research & Teaching

Research and teaching careers are for individuals who enjoy speaking and helping others learn about animal agriculture. These careers offer opportunity to advance agriculture through technology, information, and even the potential to help others discover their passion for animal agriculture.

ADVOCACY: CAREER EXPLORATION – HANDOUT 4

Animal Agriculture Careers



(Figure 15.01)



# Connecting with the Public through a Positive Image

Brandy Kay, Idaho Extension Educator

## Goal (learning objective)

Youth will:

- Learn to understand agriculture from other points of view
- Learn how to create a positive public image
- Learn how to connect with the general public

## Supplies

- Items to demonstrate an extremely well-cared-for dog or cat. Keep it simple, but enough so the youth understand.
  - Soft, comfortable bed
  - Canned pet food
  - Pet clothes—sweater, rain coat, etc. (One item will work.)
  - “Nice” pet carrier
  - Personalized, very nice food/water dish, maybe with name decorations on it
  - Fancy collar with bling and tags
  - Fun pet toys
- Items to demonstrate adequately cared for pet (nice but not as fancy or over-the-top as those previously listed)
  - Shelter
  - Food and water
  - Collar with tags
  - Nice, clean regular pet carrier
  - Appropriate dishes/feeders for food and water
  - Chew toy or bone
- Blank paper
- Markers, color crayons, or colored pencils
- Large pad paper/chart for you to write on

- Items for alternative option (these will depend on the species the members are showing).
  - Feeder and feed
  - Water bucket and water
  - Halter/lead rope
  - Show stick or driving device
  - Blankets (sheep)
  - Bedding
  - Appropriate way to decorate the stall/pen area so livestock cannot eat fair decorations/signs
  - Rakes, brooms, shovels

## Pre-lesson preparation

- Read “Animal Well-being” in the *Swine resource handbook for market and breeding projects*, chapter 24, page 24-2.
- Read “Caring for Animals” in the *Beef resource handbook*, chapter 12, pages 12-2 and 12-16.
- Read “Caring for Animals” in the *Goat resource handbook*, pages 159-160 and 162-163.
- Read “Showing and Selling, and Caring for Animals” in the *Sheep resource handbook for market and breeding projects*, pages 100 and 136-138.
- Be able to recognize the different views members of the public may have toward fairs, youth raising livestock, and the livestock industries (beef, sheep, swine, goat).
- Become familiar with how the livestock industries promote a positive public image.

## Lesson directions and outline

Ask youth to list the type of care they think they should provide for their animal projects. Have them list the type of facilities they recommend for housing their animal. Write down the answers.

### Introduction

Many people are now three or four generations removed from the farm. They do not have a concept of normal conditions for raising livestock. When it comes to raising animals, they know only what they have experienced, and for many of them, their experience is with pet cats and dogs. Pet stores provide a huge range of products providing “quality care” for pets.

### Conducting the activity (DO)

1. Show an example of a very pampered dog or cat and an example of a pet that is cared for (food, water, shelter, clean living area, etc.) but not pampered.
2. Ask youth to identify the differences and discuss what is important for a healthy pet.
3. Ask youth to draw or describe pampered livestock. Discuss why this is not necessary, but why the general public may feel that it is. Write the responses or display the drawings on a board or pad so the group can see them.
4. Ask youth to draw or describe the requirements for having healthy livestock. Include animal handling. Have them give examples of what they can do at fair to provide a positive image to the public, showing that the animals are well cared for just like their pets. Write the responses or display the drawings on a board or pad so the group can see them.

### Alternate activity

As an alternative to having the youth draw, you could bring in a wide variety of supplies used to care for livestock and have them pull together the items that are needed to keep their livestock healthy.

### What did we learn? (REFLECT)

- Ask: Why it is not necessary or always healthy to pamper livestock? How and why may the general public feel differently?
- Ask: How do you keep your animals healthy at home?
- Ask: How can you keep your animals healthy and comfortable at fair? What can you do to make sure your care provides a positive image to the public?
- Ask: How can you educate the public about caring for livestock?

### Why is that important? (APPLY)

- Ask: Why is it important to provide the public with a positive image of animal health and handling?
- Ask: What organizations or industries may you be representing to the public when at fair?
- Ask: What are examples of a positive image that is not related to livestock or the fair?
- Ask: Why is having a personal positive image important?

## Resources

- American Farm Bureau Federation. The Voice of Agriculture. <http://www.fb.org>
- Ohio State University Extension. (2011). Caring for Animals. *Beef resource handbook* (pages 12-2 and 12-16).
- Ohio State University Extension. (2008). Caring for Animals. *Goat resource handbook* (pages 159-160, 162-163).
- Ohio State University Extension. (2011). Showing and Selling, and Caring for Animals. *Sheep resource handbook for market and breeding projects* (pages 100 and 136-138).
- Ohio State University Extension. (2000). Caring for Animals. *Swine resource handbook for market and breeding projects* (pages 24-1-24-2)
- Payn-Knoper, M. (2013). *No more food fights!* Indianapolis: Dog Ear Publishing.



# Where Our Food Comes From

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Nikola Dalton, Idaho Extension Educator

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## Goal (learning objective)

Youth will learn where their food comes from.

## Supplies

- Room that has enough space for your members to move around in small groups
- Paper and pencils (enough for group)
- Crayons, markers or colored pencils (enough for group)
- Copies of the following handouts
  - Handout 1 - “US Map” (make enough copies for group)
  - Handout 2 - “Food Production Chain (make enough copies for group)
  - Handouts 3 -7 - “Animal Inventories” make 1 copy for your reference/leader packet

## Pre-lesson preparation

- Obtain a copy of the Ohio resource handbook for the species you lead (see resources below)
- Read/review handouts
- Read/review tips with dealing with the general public and the media
  - Beef Resource Handbook page 14-1
  - Swine Resource Handbook page 23-1
  - Sheep Resource Handbook page 100
  - Goat Resource Handbook page 153-154
- Make copies of the handouts

## Lesson directions and outline

Have youth list foods that they like and ask them to share where they come from. List the answers on the flip chart.

Share the following information with the youth:

Whether you raise livestock or not, understanding where our food comes from is important to understanding the industry and how it is crucial to feeding the world. Most of the products we use every day come from agriculture. A big part of this is the livestock industry.

Where our food comes from is also based on areas where the climate is ideal, there is necessary space, and necessary resources for those animals. Census maps for each production species show where they are more highly concentrated.

Understanding where our food comes from how it is raised can help us become better advocates for the agricultural industry. Tip sheets are in each of the species resource handbooks listed in the resources section of this lesson. Take time to review them for ways to practice good public relations.

## Conducting the activity (DO)

### Activity 1

1. Distribute and review Handout 2 with the group.
2. Have members pick a food item, work your way back through the Food Production Chain to determine how it came to be on your table.
3. Review with group tips on dealing with the general public and media. Review basic messages to communicate with everyone about your animals and the agricultural industry.
4. Have members divide into 3 small groups. Have them practice talking about how their animals are raised and how they move through the food production chain to feed the population. After each member has presented have each person in the group as a question as if they were interested, concerned citizen, activist, or protester.

### Activity 2

1. List or use different colors for each species to color in the blank US map where the top 10 states for production of each species are located. (Refer to Handouts 3-7).
2. Further activity make arrangements to do a tour of a farm with a local producer.

## What did we learn? (REFLECT)

- Ask: How did you feel when someone questioned how you raised your animals or the industry you're in?
- Ask: What are some effective tips that you can use when being questioned?

## Why is that important? (APPLY)

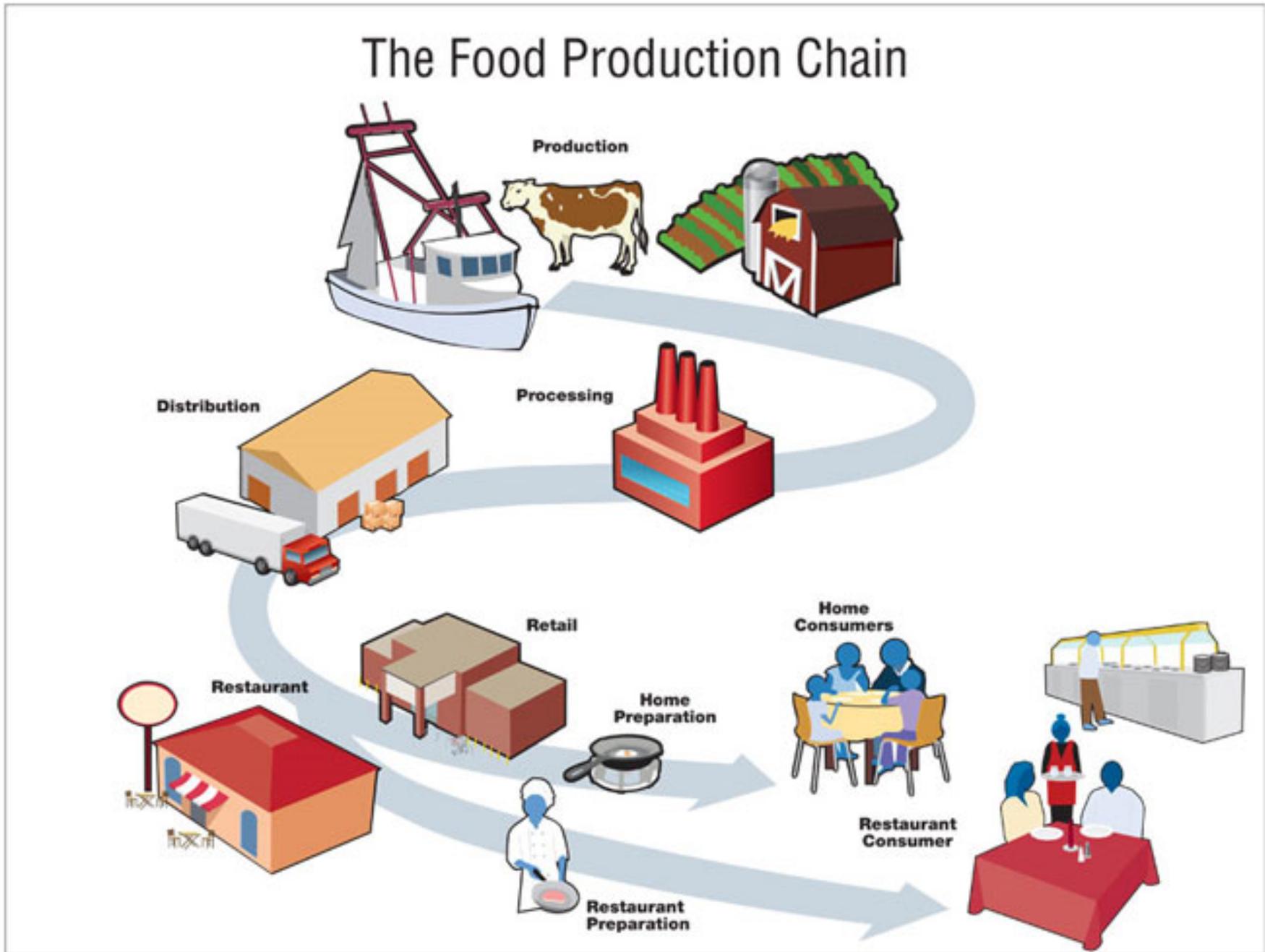
- Ask: Why is it important to know where our food comes from and how it gets to our plate?
- Ask: Why is it important to understand how our food choices can provide us with a healthy lifestyle?

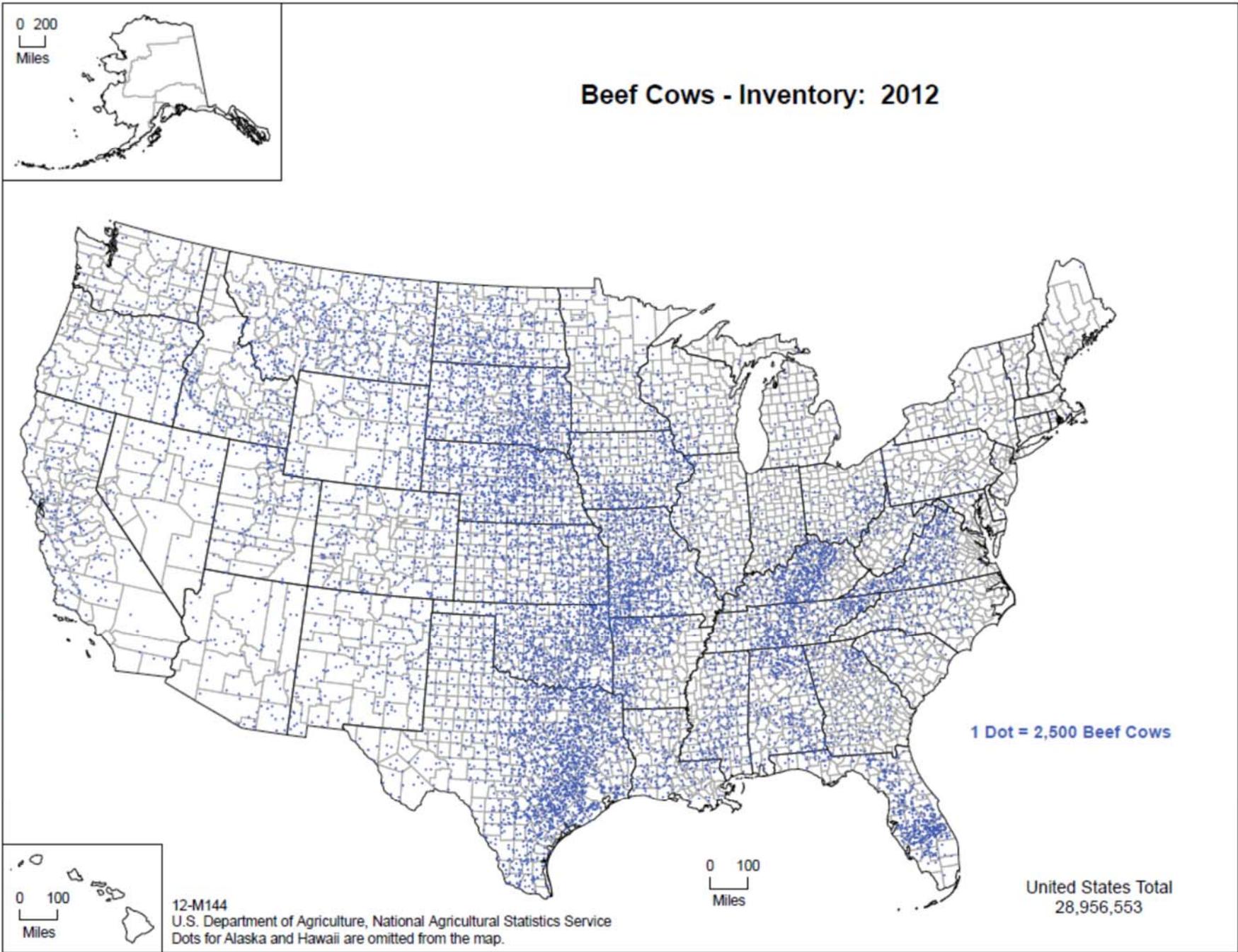
## Resources

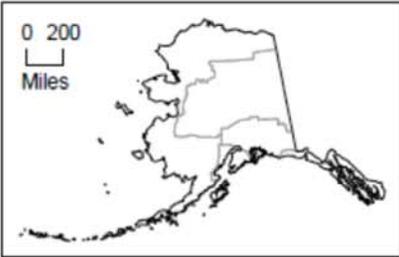
- Centers for Disease control and Prevention. (2015). The Food Production Chain - How Food Gets Contaminated. *Centers for Disease Control and Prevention*. Available at: <https://www.cdc.gov/food-safety/outbreaks/investigating-outbreaks/production-chain.html>
- Ohio State University Extension. (2011). Public Relations. *Beef resource handbook* (page 14-1).
- Ohio State University Extension. (2008). Manure Management and Environmental Quality. *Goat resource handbook* (pages 153-154).
- Ohio State University Extension. (2011). Showing and Selling. *Sheep resource handbook for market and breeding projects* (page 100).
- Ohio State University Extension. (2000). Dealing with the General Public and the Media. *Swine resource handbook for market and breeding projects* (page 23-1).
- United States Department of Agriculture. (2014). 2012 Census Ag Atlas Maps. *Livestock and Animals*. Available at: [https://www.agcensus.usda.gov/Publications/2012/Online\\_Resources/Ag\\_Atlas\\_Maps/Livestock\\_and\\_Animals/](https://www.agcensus.usda.gov/Publications/2012/Online_Resources/Ag_Atlas_Maps/Livestock_and_Animals/)

ADVOCACY: WHERE OUR FOOD COMES FROM - HANDOUT 1

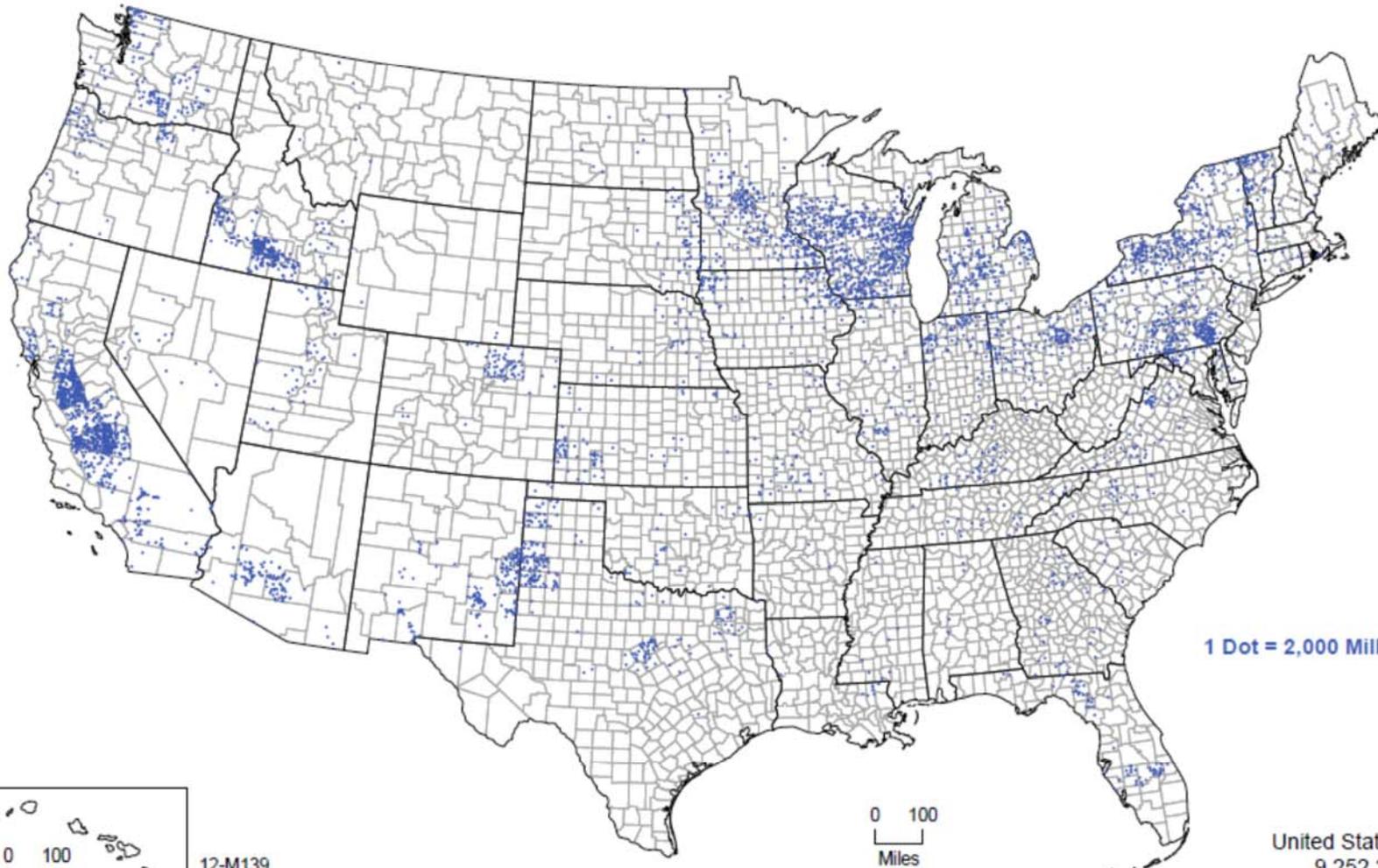




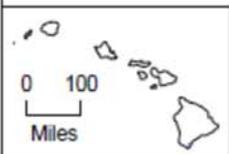




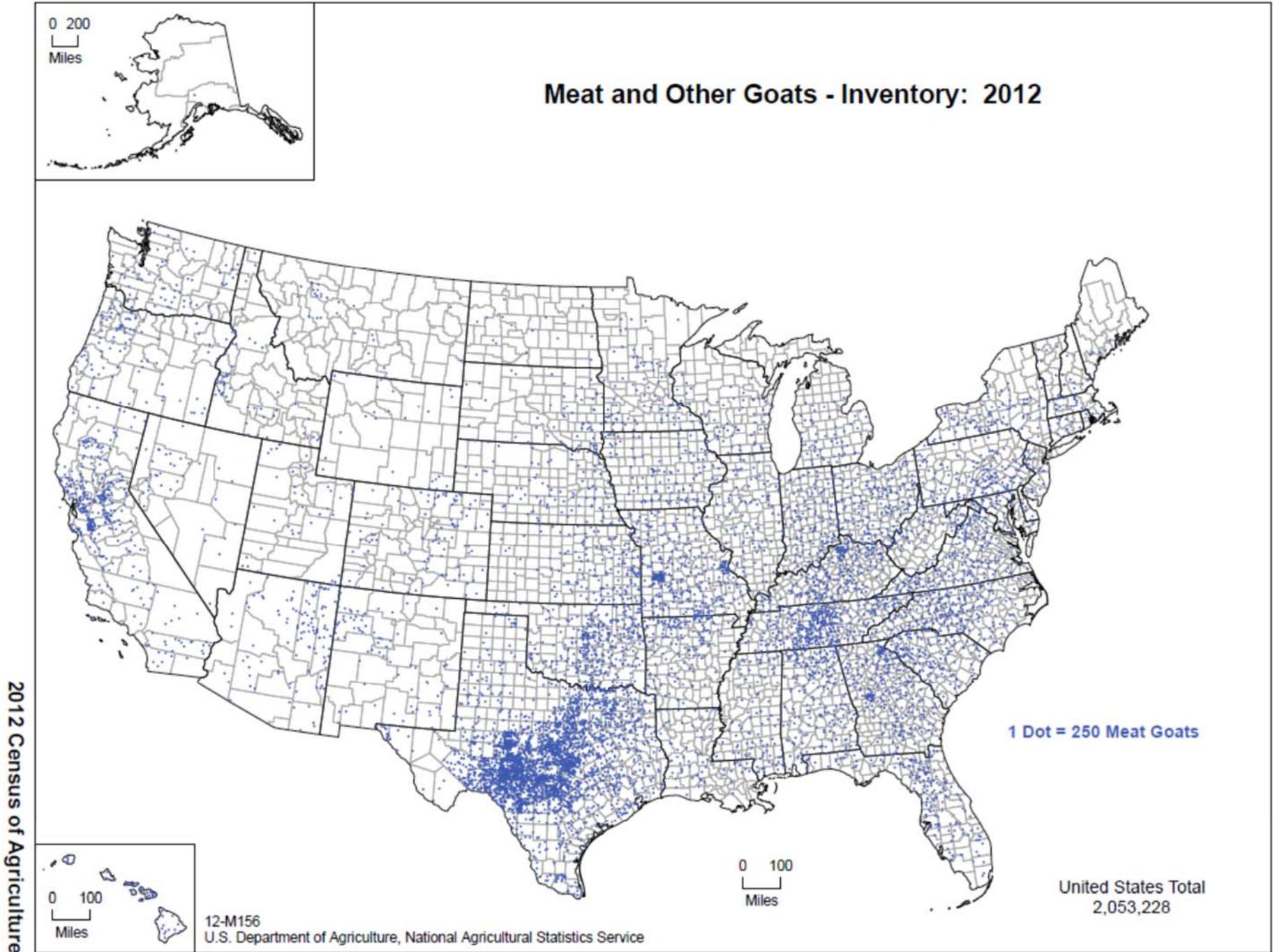
### Milk Cows - Inventory: 2012



United States Total  
9,252,272

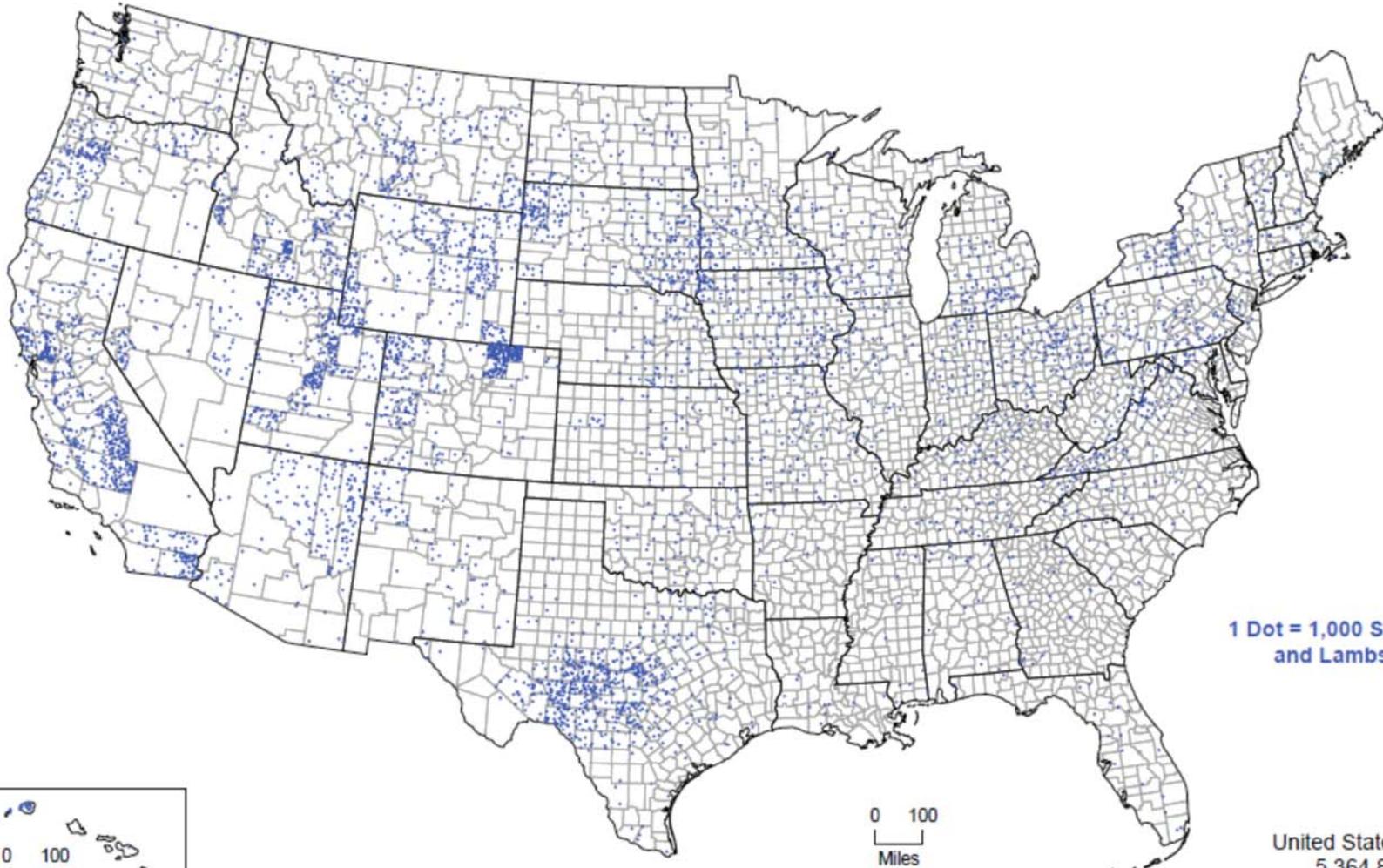


12-M139  
U.S. Department of Agriculture, National Agricultural Statistics Service  
Dots for Alaska and Hawaii are omitted from the map.





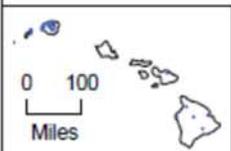
### Sheep and Lambs - Inventory: 2012



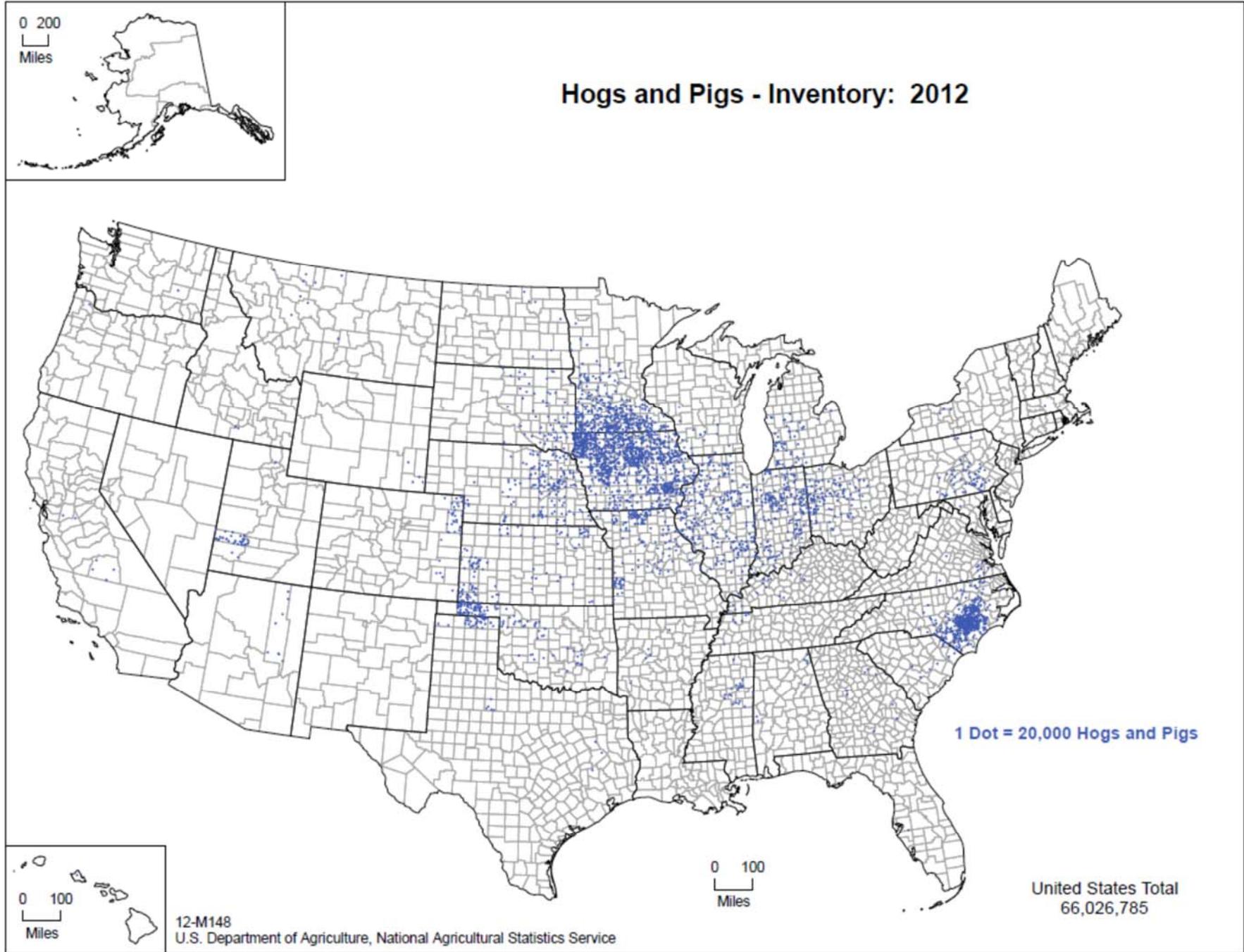
1 Dot = 1,000 Sheep  
and Lambs

United States Total  
5,364,844

2012 Census of Agriculture



12-M151  
U.S. Department of Agriculture, National Agricultural Statistics Service



# MARKETING



# Thank You Letters

Steve Harrison, Idaho Extension Educator

## Goal (learning objective)

Youth will learn how to construct a thank you letter to show appreciation to project supporters.

## Supplies

- Small thank you cards (enough for group)
- Blue or black pens
- Copies of Handout 1 - *Thank You Samples* (enough for group)
- Copies of Handout 2 - *Guide to writing thank you notes for 4-H awards and animals sold at auction* (enough for group)
- Meeting space with table and chairs

## Pre-lesson preparation

- Review Handout 1 and Handout 2
- Make photocopies of Handout 1 and Handout 2 - enough for group

## Lesson directions and outline

### Introduction

Each contribution, from the smallest donation to the largest, are gifts that donors (individuals or companies) feel they are able to give.

Receiving a sincere thank-you will go a long way towards making sure the donor includes the 4-H program in their plans for next year's donations. Sponsorship does not just "happen," it is something that donors budget and plan for all year long.

## Conducting the activity (DO)

1. Have youth brainstorm a list of what items they think should be included in a thank you letter. Then review to see if they captured the key elements of a thank you letter listed below:
  - Greet the donor
  - Express your gratitude
  - Discuss the use of the donation; say something nice about it and how you will use it
  - Thank the donor again
  - Closing salutation/regards
2. Distribute copies of Handout 1, allow enough time for members to read/review the two samples
3. Ask: Which note would you prefer receiving?
4. Ask: Which individual (Jason or Jeffrey) would be more likely to receive support in the future? Why?
5. Distribute copies of Handout 2, recap the elements of a thank-you letter while going through the handout
6. Have youth write a practice thank-you note

## What did we learn? (REFLECT)

- Ask: How do you feel when you receive thanks for something you have given or done?
- Ask: What other ways can you think of to thank others?

## Why is that important? (APPLY)

- Ask: Why is it important to write thank-you letters?
- Ask: Where else is giving thanks important in your life? Why?

## Resources

- Anderson, E. (n.d.). *Guide to writing thank-you notes for 4-H awards and animals sold at auction*. Oregon State University Extension. Retrieved from: [http://oregonstate.edu/dept/kbrec/sites/default/files/documents/4h/How\\_to\\_Write\\_TY.pdf](http://oregonstate.edu/dept/kbrec/sites/default/files/documents/4h/How_to_Write_TY.pdf)
- Ohio State University Extension. (2011). Marketing. *Beef resource handbook* (pages 10-10 through 10-11).
- Ohio State University Extension. (2008). Preparing Your Animal for Show. *Goat resource handbook* (pages 177-178).
- Ohio State University Extension. (2011). Showing and Selling. *Sheep resource handbook for market and breeding projects* (page 101).
- Ohio State University Extension. (2000). Selling the Project Animal. *Swine resource handbook for market and breeding projects* (pages 13-1 through 13-2)
- Ohio State University Extension. (1999). *Quality Assurance and Animal Care: Youth Education Program Curriculum Guide*. Unit 3, Level 1.
- Wilson, J. (2013). *Writing Stock Sale Buyer Thank you Notes*. University of Idaho Extension. Retrieved from <https://www.uidaho.edu/~media/UIIdaho-Responsive/Files/Extension/county/Kootenai/Writing-Buyer-Thank-You-Notes.ashx>

## MARKETING: THANK YOU LETTERS – Handout 1

### Thank You Note Samples

Below are two examples of buyer thank you notes. Carefully compare the content and place yourself in the buyer's position.

*August 28, 2013*

*Dear Mr. Jones,*

*Thank you for buying my animal. While I didn't get as much as some of the other members, I appreciate your support. I plan to take a market hog again next year.*

*Jason Clover*

*August 28, 2013*

*Dear Mr. Jones,*

*Thank you very much for buying my market hog at the 4-H Stock Sale. I know that economic times are difficult and appreciate you generously bidding \$1.30/pound which was well above the floor price.*

*As a result, I have been able to reimburse my parents for the animal purchase and feed costs. I placed the remaining money into savings to help with purchasing next year's project animal, and to help towards my college education.*

*This year I learned a great deal about responsibility from the daily care and management of my project animal. I really enjoyed learning more about the different amino acids related to swine nutrition.*

*Thanks again for your wonderful support. I hope to see you again at the 2014 North Idaho Fair. Your ongoing support of our local 4-H members and programs is truly appreciated.*

*Sincerely  
Jeffrey Clover*

## MARKETING: THANK YOU LETTERS – Handout 2

### Guide to writing thank-you notes for 4-H awards and animals sold at auction

- Use stationery or plain note cards and proper postage. Avoid the pre-inscribed 'Thank you!' cards, there are more appropriate choices for this time. Stay away from full-size sheets - note cards are best, as your message will be brief, and would look silly swimming around on a full-size page.
- When you are writing a thank you note, always plan ahead. Be sure the message is clear and that all the information needed is in a logical sequence--you don't want to confuse the reader.
- Use blue or black ink. Colored ink or markers are not the best choices.
- Hand-write the notes, even if your handwriting is not so good. Thank-you notes are traditionally written in cursive, unless the sender is a young writer in which case printing may be a better choice.
- Take the time to write as neatly as possible.
- Keep it short and sweet yet vivid and complete.
- *Think of how you would feel to receive a thank-you note like the one you are sending.*

#### 1. Greet the Giver

- ✓ Dear Mr. Smith,

#### 2. Express Your Gratitude

- ✓ Thank you so much for purchasing my 4-H market hog at the auction.  
OR
- ✓ Thank you so much for sponsoring the embroidered jacket for the Best Female Beef.  
ETC.

From the smallest donation to the largest, each individual and company gives what they feel they are able to and receiving a sincere thank-you will go a long way towards making sure they include the 4-H program in their plans for next year's donations. Sponsorship does not just "happen," it is something that donors budget and plan for all year long.

#### 3. Discuss Use

- ✓ I plan to start a savings account for college.  
OR
- ✓ I will be proud to wear this jacket; I have worked very hard on my beef project.  
ETC.

Say something nice about the item and how you will use it. Let's say it's something you actually love and will use a lot - then say so.

Be a little personal. Is this your first year of 4-H or first year in this project? Write something about that. Is this your last year of 4-H and you are heading to college? Write something about that, perhaps telling the donor where you are going to college and what you plan to study, maybe even how 4-H has helped prepare you for your college endeavors.

#### 5. Thanks again

- ✓ Thanks again for attending the auction.
- OR
- ✓ Thanks again for your generous donation.

It's not overkill to say thanks again. So say it.

#### 6. Regards

Simply wrap it up. Use whatever works for you: *Yours Truly, With Thanks, Sincerely, Regards*. Then sign your name and you're done.

Now get it in the mail! Make sure the envelope is properly and neatly addressed to ensure it will be delivered to the recipient.

Adapted from "How to Write a Thank-You Note" by Leslie Harpold and "How to Write a Thank-You Note" on e-How.com.

# **RECORDKEEPING**



# Making A Plan - Costs to Raise Market Animals

Steve Harrison, Idaho Extension Educator

## Goal (learning objective)

Youth will learn how to construct a budget to plan for expenses and revenues for a meat animal project.

## Supplies

- A copy of the Idaho 4-H Livestock Costs and Returns Estimate (budget) for each market species – one copy for each youth in your group (see Resources section on page 2)
- Pencils (enough for group)

## Pre-lesson preparation

- Obtain a copy of the Idaho 4-H Livestock Costs and Returns Estimate for each market species (see Resources section on page 2).
- Study the background and assumptions so you will be familiar with the information in the publications.
- Obtain prices of feed that youth commonly feed.

## Lesson directions and outline

Share the following information with the youth:

One of the most important aspects of a business including market animal projects is building a budget. Budgets help a business monitor expenses and revenues. Tracking expenses and revenue helps a business make a profit.

## Conducting the activity (DO)

Using the flipchart paper and markers, have the youth make a list of things they will need to successfully raise a livestock project. Have the youth list the things they want to help them raise a livestock project. Ask the youth if there are any items on each list that are the same?

1. Discuss the difference between wants and needs. Can I afford a new show box? Do I need to buy a \$500 feeder pig or is \$150-\$200 all I need to spend?
2. Help youth estimate their anticipated revenue. Each cost and return estimate provides an average amount on the money it takes to raise a project animal. Determine your county average or a reasonable projection for your youth to use.
3. Look over the list of operating costs and determine which ones make sense for your youth. (Feed, cost of animal, health costs, and show supplies are the most common).
4. Look at the ownership costs and determine how much should be charged for each one. (It may help to spread major expenses such as a pen, clippers or show box over several years. These items are normally used for the entire length of the project).
5. Have youth fill in the values they decide to use for the expenses and revenues on their copy of the budget worksheet.
6. Add the operation and ownership costs to get a total of all costs.
7. Subtract the total costs from total revenue to determine Net profit.

## Activity 2

Help youth develop a personal budget. This could include an allowance or job for income and entertainment, food and clothes for expenses.

**What did we learn? (REFLECT)**

- Ask: What would be a “break even” sale price to cover feed costs?
- Ask How can a youth decrease expenses? (i.e. borrow equipment, barter or help adults with chores in exchange for other services such as hauling).
- Ask: How can youth increase income? Sell product at a higher price? Sell other by-products such as manure or wool etc.?
- Ask: Is there any value added because it is a 4-H animal? Example, the customer might want to know what animal was fed and how it was treated or how livestock benefit the environment.
- Ask: How do you feel when you have enough money to meet your needs? Why did you feel that way?

**Why is that important? (APPLY)**

- Ask: Why is it important to make a budget?
- Ask: Where else is budgeting important in your life? Why?

**Resources**

- Harrison, S. and Eborn, B. (2012). *Market Hog Project - Idaho 4-H Livestock Costs and Returns Estimate (#72995)*. University of Idaho Extension. Available at <https://www.uidaho.edu/extension/4h/projects>.
- Nash, S. and Eborn, B. (2012). *Market Steer Project - Idaho 4-H Livestock Costs and Returns Estimate (#72295)*. University of Idaho Extension. Available at <https://www.uidaho.edu/extension/4h/projects>.
- Nash, S. and Eborn, B. (2012). *Market Goat Project - Idaho 4-H Livestock Costs and Returns Estimate (#72596)*. University of Idaho Extension. Available at <https://www.uidaho.edu/extension/4h/projects>.
- Ohio State University Extension. (2011). Introduction. *Beef resource handbook* (page 1-1 through 1-3).
- Ohio State University Extension. (2008). Records and Budgeting. *Goat resource handbook* (pages 155-156).
- Ohio State University Extension. (2011). Management Practices. *Sheep resource handbook for market and breeding projects* (page 28).
- Ohio State University Extension. (2000). Caring for Animals. *Swine resource handbook for market and breeding projects* (pages 24-1 through 24-3).
- Panting, R. and Eborn, B. (2012). *Market Lamb Project - Idaho 4-H Livestock Costs and Returns Estimate (#72895)*. University of Idaho Extension. Available at <https://www.uidaho.edu/extension/4h/projects>.

# 4-H Livestock Income Statement

| Item                                                              | Date  | Amount     |
|-------------------------------------------------------------------|-------|------------|
| <b>Gross Receipts</b>                                             |       |            |
| (example) Steer                                                   | 1-Aug | \$2,500.00 |
|                                                                   |       |            |
|                                                                   |       |            |
|                                                                   |       |            |
| <b>Total Income</b>                                               |       | \$0.00     |
| <b>Operating Expense</b>                                          |       |            |
| <b>Animal</b>                                                     |       |            |
| (example) Steer                                                   | 1-Nov | \$1,500.00 |
|                                                                   |       |            |
|                                                                   |       |            |
|                                                                   |       |            |
| <b>Total Animal Expense</b>                                       |       | \$0.00     |
| <b>Feed</b>                                                       |       |            |
| (example) Show Feed                                               | 1-Nov | \$150.00   |
|                                                                   |       |            |
|                                                                   |       |            |
|                                                                   |       |            |
|                                                                   |       |            |
|                                                                   |       |            |
|                                                                   |       |            |
| <b>Total Feed Expense</b>                                         |       | \$0.00     |
| <b>Equipment/misc.</b>                                            |       |            |
| (example) Pen                                                     |       | \$475.00   |
|                                                                   |       |            |
|                                                                   |       |            |
|                                                                   |       |            |
| <b>Total Equipment/misc. Expense</b>                              |       | \$0.00     |
| <b>Total Expenses</b> total all animal, feed, and equipment/misc. |       | \$0.00     |
| <b>Total (Gain or loss)</b> total income-total expense            |       | \$0.00     |

# **QUALITY ASSURANCE**



# Animal By-Products

Rikki Ruiz, Idaho Extension Educator

## Goal (learning objective)

Youth will identify products they use in daily life that contain animal by-products.

## Supplies

- Copies of Handouts 1-3 (as a packet, enough for group)
  - Handout 1 - “Sheep By-Products Worksheet”
  - Handout 2 - “Cow By-Products Worksheet”
  - Handout 3 - “Pig By-Products Worksheet”
- Copies of Handouts 4-6 (as a packet, enough for group)
  - Handout 4- “By-Products from Sheep”
  - Handout 5 - “By-Products from Cows”
  - Handout 6 - “By-Products from Pigs”
- Copies of Handouts 7-9 (1 copy for you)
  - Handout 7 - “Sheep By-Products Worksheet Answer Key”
  - Handout 8 - “Cow By-Products Worksheet Answer Key”
  - Handout 9 - “Pig By-Products Worksheet Answer Key”
- Pencils - enough for group

## Pre-lesson preparation

- Make photocopies of the handouts above.
- Read/review the handouts and terminology.

## Lesson directions and outline

Share the following information with the youth:

Livestock by-products are a part of many manufactured items that we use daily. Utilizing by-products enables us to use 99% of every animal. There are animal by-products in toothpaste, baseball equipment, clothing, items in your medicine cabinet, paint brushes and more.

### Conducting the activity (DO)

1. As a warm up, brainstorm with the group by-products that come from sheep, cows and pigs.
2. Have a volunteer distribute to each member a packet of Handouts 1-3.
3. Provide 10-15 minutes for members to work through the packet. Remember, they are working from the worksheet first so be prepared for questions, have them answer it to the best of their ability.
4. Once the group has completed the packet to the best of their ability, distribute the packet of Handouts 4-6.
5. Go through Handouts 1-3, reference your answer key (Handouts 7-9).
6. Ask: Were there any surprises as you worked through the worksheet?
7. Ask: Did anyone get all of the questions right for species that you don't work with?
8. Ask: Are there any similar by-products among the species?

**What did we learn? (REFLECT)**

- Ask: Why are by-products important?
- Ask: Why do we need to be knowledgeable about by-products?
- Ask: Are there any items that you use regularly that you didn't know were a by-product?

**Why is that important? (APPLY)**

- Ask: What are some specific ways consumers would be impacted, if by-products were not available?
- Ask: How might your understanding of by-products impact your decisions as a producer?
- Ask: What are some other settings where by-products are generated and put to good use?

**Resources**

Farm Credit. (2014). Everything But the Baa...*Knowledge Center: Education and Awareness*. Available at: <https://farmcreditknowledgecenter.com/Education-and-Awareness/Teaching-Materials/Educator-Resources-Blog/July-2014/Everything-But-the-Baaa.aspx>

Farm Credit. (2014). Everything But the Moo...*Knowledge Center: Education and Awareness*. Available at: <https://farmcreditknowledgecenter.com/Education-and-Awareness/Teaching-Materials/Educator-Resources-Blog/July-2014/Everything-But-the-Moo.aspx>

Farm Credit. (2014). Everything But the Oink...*Knowledge Center: Education and Awareness*. Available at: <https://farmcreditknowledgecenter.com/Education-and-Awareness/Teaching-Materials/Educator-Resources-Blog/July-2014/Everything-But-the-Oink.aspx>

National Agriculture in the Classroom (n.d). Teacher Center. *Ag-Knowledge*. Available at: <http://www.ag-classroom.org/teacher/agknow.htm>

Ohio State University Extension. (2011). Beef Carcass Evaluation. *Beef resource handbook* (pages 8-14 through 8-16).

Ohio State University Extension. (2008). Dairy Goats, Meat Goats, Fibert, Utility, and Pygmy Goats. *Goat resource handbook* (pages 112, 120, 127).

Ohio State University Extension. (2011). Sheep Products. *Sheep resource handbook for market and breeding projects* (pages 81-90).

Ohio State University Extension. (2000). Pork Products. *Swine resource handbook for market and breeding projects* (pages 5-1 through 5-8).

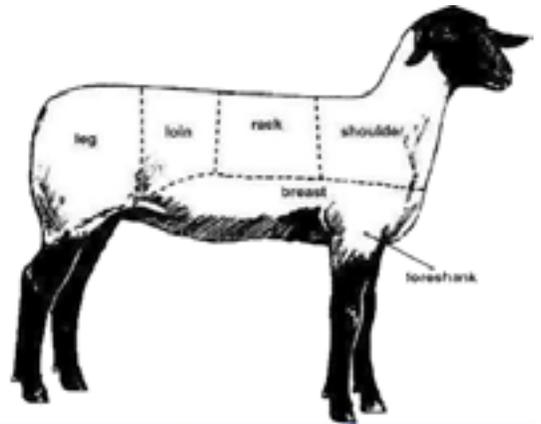
# Everything But the Baaaa.....

## Sheep By-Products Worksheet

Name: \_\_\_\_\_

### True or False?

Do the products listed below come from sheep? Write true next to the products you think come from sheep and false after the ones that you don't think come from sheep.



- \_\_\_\_\_ 1. Lanolin
- \_\_\_\_\_ 2. Lamb chops
- \_\_\_\_\_ 3. Peanut butter
- \_\_\_\_\_ 4. Yarn
- \_\_\_\_\_ 5. Baseballs
- \_\_\_\_\_ 6. Paper
- \_\_\_\_\_ 7. Paints

- \_\_\_\_\_ 8. Lumber
- \_\_\_\_\_ 9. Concrete
- \_\_\_\_\_ 10. Tennis balls
- \_\_\_\_\_ 11. Instrument strings
- \_\_\_\_\_ 12. Leg of Lamb
- \_\_\_\_\_ 13. Artists' brushes
- \_\_\_\_\_ 14. Drum heads

### Matching

Match the product on the left to the part of the sheep that you think it came from on the right. You may use the parts of the sheep more than once.

#### Products

- \_\_\_\_\_ 1. Surgical sutures
- \_\_\_\_\_ 2. Fabrics
- \_\_\_\_\_ 3. Rack of lamb
- \_\_\_\_\_ 4. Nitrogen fertilizer
- \_\_\_\_\_ 5. Chewing gum
- \_\_\_\_\_ 6. Clothing
- \_\_\_\_\_ 7. Solvents

#### Parts of the Sheep

- a. Intestines
- b. Hide and Wool
- c. Retail Meats
- d. Manure
- e. Fats and Fatty Acids



# Everything But the Oink.....

## Pig By-Products Worksheet

Name: \_\_\_\_\_

### True or False?

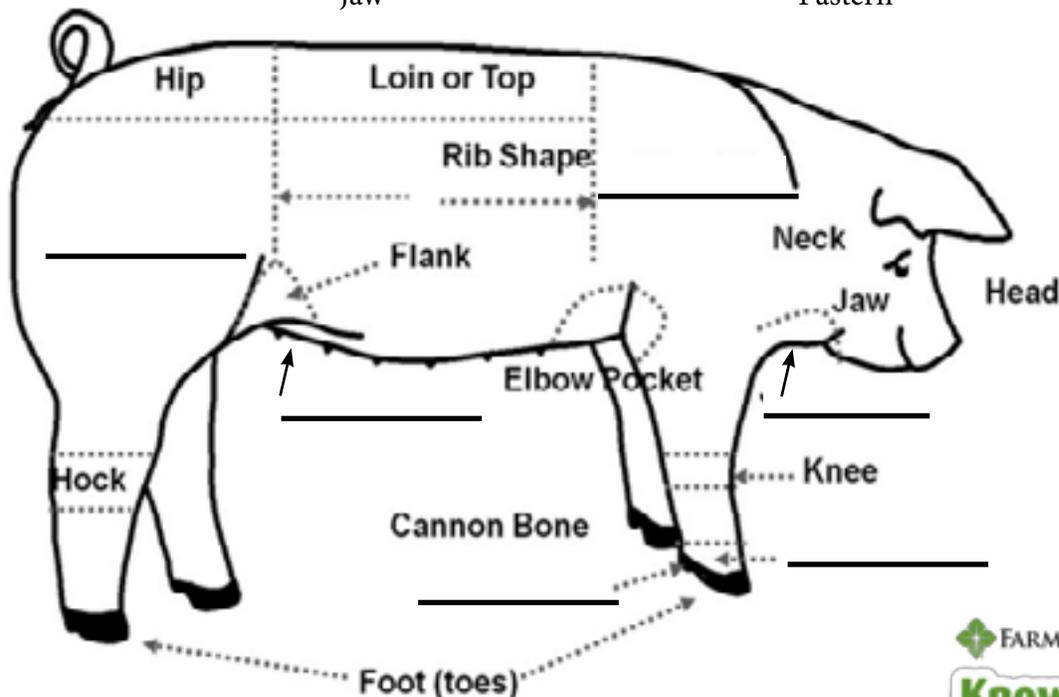
Do the products listed below come from pigs? Write true next to the products you think come from pigs and false after the ones that you don't think come from pigs.

- |       |    |              |       |     |                  |
|-------|----|--------------|-------|-----|------------------|
| _____ | 1. | Footballs    | _____ | 8.  | Lumber           |
| _____ | 2. | Bacon        | _____ | 9.  | Yarn             |
| _____ | 3. | Carrots      | _____ | 10. | Bone China       |
| _____ | 4. | Insecticides | _____ | 11. | Insulin          |
| _____ | 5. | Heart Valves | _____ | 12. | Pork Chops       |
| _____ | 6. | Paper        | _____ | 13. | Artists' brushes |
| _____ | 7. | Crayons      | _____ | 14. | Drum heads       |

### Label

Using the word bank below, label the missing parts of the pig. Not all words will be used.

- |         |          |           |
|---------|----------|-----------|
| Ham     | Loin     | Head      |
| Hock    | Flank    | Underline |
| Foot    | Shoulder | Neck      |
| Dewclaw | Jowl     | Knee      |
| Hip     | Jaw      | Pastern   |



# Everything But the Baaaa.....

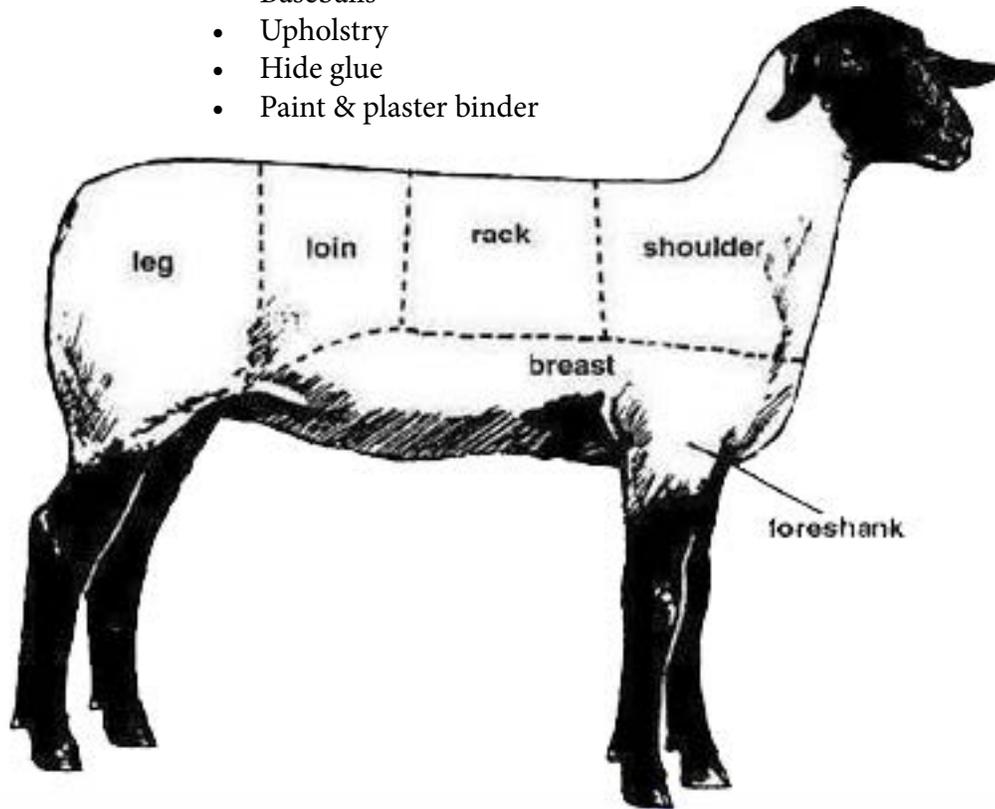
## By-Products from Sheep

### From Hide and Wool...

- Lanolin
- Clothing
- Drum heads
- Luggage
- Yarns
- Artists' brushes
- Sports equipment
- Fabrics
- Rouge base
- Insulation
- Rug pads
- Asphalt binder
- Textiles
- Ointment base
- Tennis balls
- Worsted fabric
- Felt
- Carpet
- Footwear
- Woolen goods
- Baseballs
- Upholstry
- Hide glue
- Paint & plaster binder

### From Fats and Fatty Acids...

- Explosives
- Solvents
- Chewing Gum
- Paints



### From Manure...

- Nitrogen fertilizer
- Potash
- Phosphorus
- Minor minerals

### From Intestines...

- Sausage casings
- Instrument strings
- Surgical sutures
- Tennis racquet strings

### And Of Course the Retail Meats....

- Leg of Lamb
- Lamb shoulder roasts
- Lamb chops
- Rack of lamb
- Lamb riblets and spareribs
- Lamb burgers
- Lamb kabobs
- Lamb shanks

*so many products come from sheep  
that we really do use everthing but  
the baaa!*

# Everything But the Moooo.....

## By-Products from Cows

### From Brain...

- Anti-aging cream medicines

### From Blood...

- Pasta
- Cake mixes
- Dyes & inks
- Adhesives
- Minerals
- Medicines
- Laboratory research materials

### From Bones...

- Refined sugar
- Charcoal
- Fertilizer
- Glass

### From Hair...

- Air filters
- Brushes
- Felt
- Isulation
- Plaster
- Textiles

### From Manure...

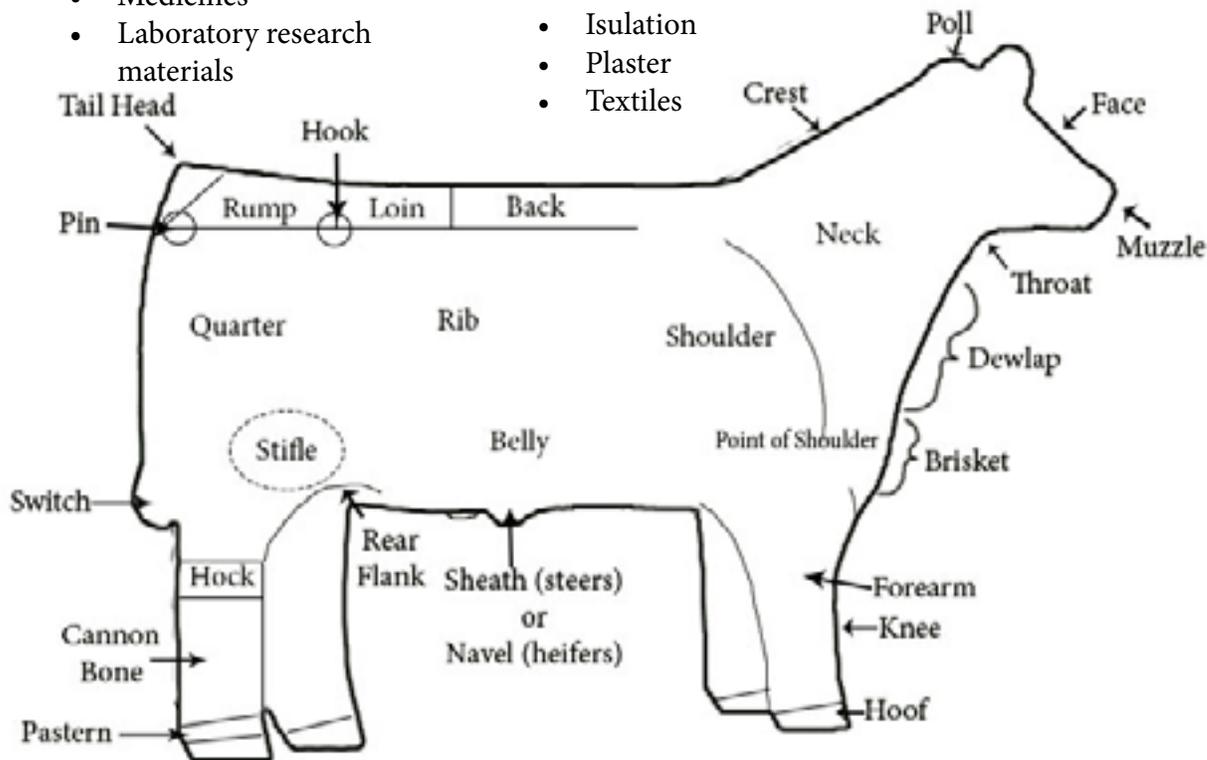
- Fertilizer
- Nitrogen
- Phosphorus

### From Internal Organs...

- Instrument strings
- Tennis racquet strings
- Hormones, enzymes, vitamins & other medical material

### From Fat...

- Chewing gum
- Candles
- Detergents
- Fabric softner
- Deodorant
- Shaving cream
- Perfume
- Pet food
- Cosmetics
- Creams & lotions
- Crayons
- Paint
- Oil & lubricants
- Biodiesel
- Plastics
- Waterproofing agents
- Cement
- Ceramics
- Chalk
- Explosives
- Fireworks
- Matches
- Fertilizer
- Antifreeze
- Insulation
- Linoleum
- Rubber
- Textiles
- Medicines



### From Hooves and Horns...

- Adhesives
- Plastics
- Pet food
- Plant food
- Photo film
- Shampoo & conditioner
- Emery boards
- Lamination
- Wallpaper
- Plywood

### From Milk...

- Adhesives
- Plastics
- Cosmetics
- Medicines

### From Skin...

- Gelatin
- Flavorings
- Emery boards
- Sheet rock
- Wallpaper
- Adhesives
- Medicines
- Candies & confectionary

so many products come from cows  
that we really do use everthing but  
the moooo!

# Everything But the Oink.....

## By-Products from Pigs

### From Blood...

- Medicines
- Sticking agent
- Leather treating agent
- Plywood Adhesive
- Protein source in feeds
- Fabric printing and dyeing

### From Brain...

- Cholesterol
- Other medicines

### From Hair...

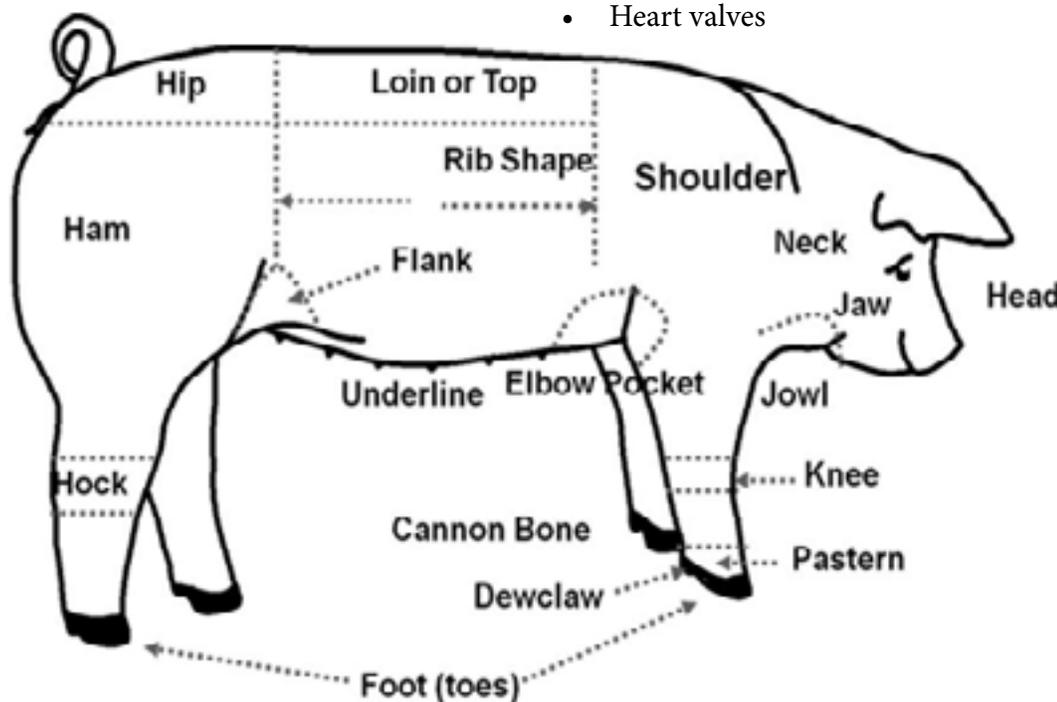
- Artist's brushes
- Insulation
- Upholstery

### From Internal Organs...

- Isulin
- A variety of medicines
- Surgical sutures
- Heart valves

### From Skin...

- Gelatin
- Footballs
- Porcine Burn Dressings
- Luggage, purses
- Gloves and shoes
- Pigskin garmets
- Drumheads



### From Bones...

- Glue
- Buttons
- Bone China
- Bone Meal
- Minerals for feed
- Fertilizer
- Porcelain enamel
- Glass
- Water filters

### From Fatty Acids and Glycerine...

- |                |                    |                        |             |
|----------------|--------------------|------------------------|-------------|
| • Insecticides | • Nitroglycerine   | • Waterproofing agents | • Matches   |
| • Weed killers | • Plastics         | • Fiber softeners      | • Putty     |
| • Lubricants   | • Plasticizers     | • Crayons              | • Inulation |
| • Oil polishes | • Printing rollers | • Chalk                | • Linoleum  |
| • Rubber       | • Cellophane       | • Phonograph records   |             |
| • Cosmetics    | • Floor waxes      |                        |             |
| • Antifreeze   | • Cement           |                        |             |

### From Meat Scraps...

- Commercial feeds
- Pet food

AND OF COURSE: bacon, ham, sausage, pork chops, ribs, BBQ and more!

so many products come from pigs that we really do use everthing but the oink!

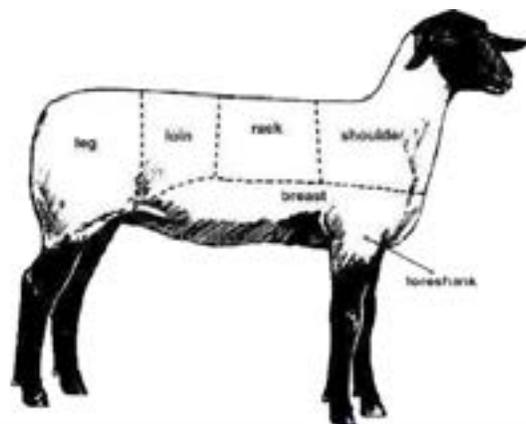
# Everything But the Baaaa.....

## Sheep By-Products Worksheet

Name: Answer Key

### True or False?

Do the products listed below come from sheep? Write true next to the products you think come from sheep and false after the ones that you don't think come from sheep.



- |              |    |               |              |     |                    |
|--------------|----|---------------|--------------|-----|--------------------|
| <u>True</u>  | 1. | Lanolin       | <u>False</u> | 8.  | Lumber             |
| <u>True</u>  | 2. | Lamb chops    | <u>False</u> | 9.  | Concrete           |
| <u>False</u> | 3. | Peanut butter | <u>True</u>  | 10. | Tennis balls       |
| <u>True</u>  | 4. | Yarn          | <u>True</u>  | 11. | Instrument strings |
| <u>True</u>  | 5. | Baseballs     | <u>True</u>  | 12. | Leg of Lamb        |
| <u>False</u> | 6. | Paper         | <u>True</u>  | 13. | Artists' brushes   |
| <u>True</u>  | 7. | Paints        | <u>True</u>  | 14. | Drum heads         |

### Matching

Match the product on the left to the part of the sheep that you think it came from on the right. You may use the parts of the sheep more than once.

#### Products

- c 1. Rack of lamb
- a 2. Surgical sutures
- b 3. Fabrics
- e 4. Chewing gum
- b 5. Clothing
- e 6. Solvents
- d 7. Nitrogen fertilizer

#### Parts of the Sheep

- a. Intestines
- b. Hide and Wool
- c. Retail Meats
- d. Manure
- e. Fats and Fatty Acids

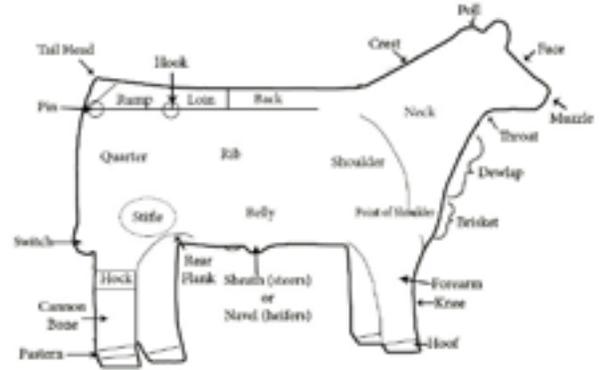
# Everything But the Moo.....

## Cow By-Products Worksheet

Name: Answer Key

### True or False?

Do the products listed below come from cows? Write true next to the products you think come from cows and false after the ones that you don't think come from cows.



- |              |    |                  |              |     |                         |
|--------------|----|------------------|--------------|-----|-------------------------|
| <u>True</u>  | 1. | Medicine         | <u>False</u> | 8.  | Solid wood fence boards |
| <u>True</u>  | 2. | Anti-aging cream | <u>False</u> | 9.  | Salt                    |
| <u>False</u> | 3. | Mashed potatoes  | <u>True</u>  | 10. | Deodorant               |
| <u>True</u>  | 4. | Felt             | <u>True</u>  | 11. | Instrument strings      |
| <u>True</u>  | 5. | Chewing gum      | <u>True</u>  | 12. | Fertilizer              |
| <u>False</u> | 6. | Paper            | <u>True</u>  | 13. | Plastics                |
| <u>True</u>  | 7. | Cosmetics        | <u>True</u>  | 14. | Rubber                  |

### Matching

Match the product on the left to the part of the cows that you think it came from on the right. You may use the parts of the cows more than once.

#### Products

- b 1. Pasta
- e 2. Candles
- h 3. Sheet rock
- g 4. Phosphorus
- e 5. Chewing gum
- j 6. Refined sugar
- c 7. Shampoo
- b 8. Dyes & inks
- i 9. Air filters
- d 10. Hormones

#### Parts of the Cow

- a. Brain
- b. Blood
- c. Hooves/Horns
- d. Internal Organs
- e. Fat
- f. Milk
- g. Manure
- h. Skin
- i. Hair
- j. Bones

# Everything But the Oink.....

## Pig By-Products Worksheet

Name: Answer Key

### True or False?

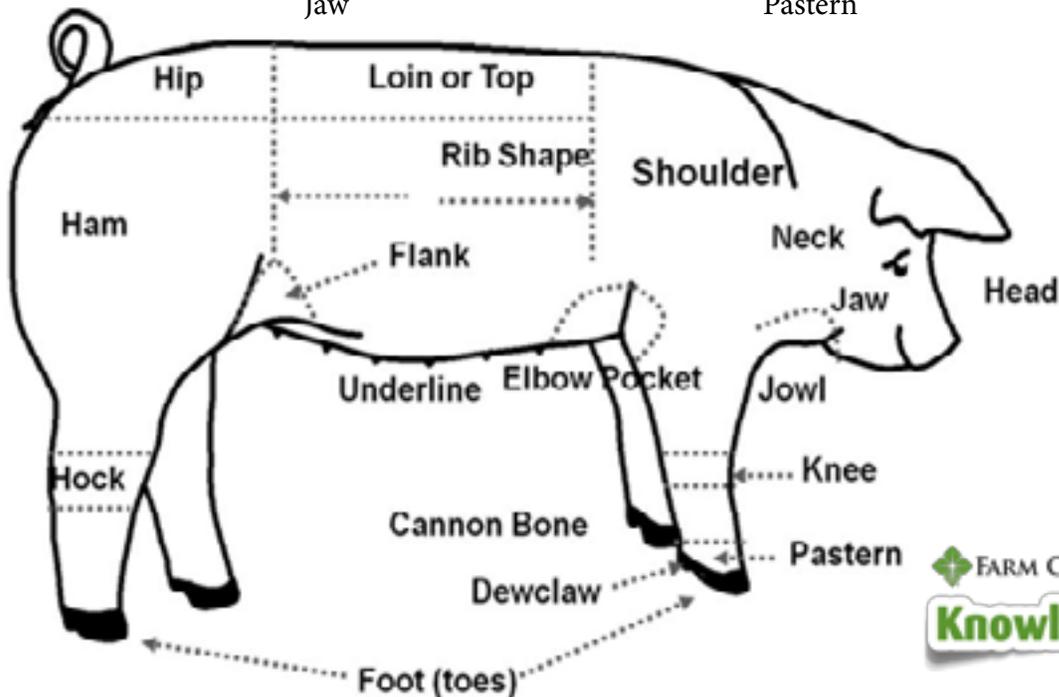
Do the products listed below come from pigs? Write true next to the products you think come from pigs and false after the ones that you don't think come from pigs.

- |              |    |              |              |     |                  |
|--------------|----|--------------|--------------|-----|------------------|
| <u>True</u>  | 1. | Footballs    | <u>False</u> | 8.  | Lumber           |
| <u>True</u>  | 2. | Bacon        | <u>False</u> | 9.  | Yarn             |
| <u>False</u> | 3. | Carrots      | <u>True</u>  | 10. | Bone China       |
| <u>True</u>  | 4. | Insecticides | <u>True</u>  | 11. | Insulin          |
| <u>True</u>  | 5. | Heart Valves | <u>True</u>  | 12. | Pork Chops       |
| <u>False</u> | 6. | Paper        | <u>True</u>  | 13. | Artists' brushes |
| <u>True</u>  | 7. | Crayons      | <u>True</u>  | 14. | Drum heads       |

### Label

Using the word bank below, label the missing parts of the pig. Not all words will be used.

- |         |          |           |
|---------|----------|-----------|
| Ham     | Loin     | Head      |
| Hock    | Flank    | Underline |
| Foot    | Shoulder | Neck      |
| Dewclaw | Jowl     | Knee      |
| Hip     | Jaw      | Pastern   |





# Animal Welfare - Handling

Rikki Ruiz, Idaho Extension Educator

## Goal (learning objective)

Youth will learn how to move livestock safely by using animal behaviors (blind spot, flight zone and point of balance).

## Supplies

None

## Pre-lesson preparation

- Study the flight zone diagram available at:
  - Understanding Flight Zone and Point of Balance for Low Stress Handling of Cattle, Sheep and Pigs available at: <http://www.grandin.com/behaviour/principles/flight.zone.html>
  - Youth Beef Quality Assurance Program Manual for the Pacific Northwest (Chapter 1, page 5) available at: <https://pubs.wsu.edu/ItemDetail.aspx?ProductID=14995>
- Read/review lesson

## Lesson directions and outline

Ask the youth to share the meaning of a flight zone or personal space. Have them share examples.

Share the following information with the youth:

Understanding animal behavior can help prevent injury, undue stress, and physical exertion for both animals and their handlers.

Animals have natural instincts which may be used to one's advantage when they need to be moved. A key to moving livestock safely is utilizing the animal's blind spot, flight zone, and point of balance.

Flight zone is the distance you are from an animal before it moves away. It is similar to what humans refer to as "personal space". If someone enters your personal space, you tend to move away far enough to feel comfortable again. If you enter a livestock's flight zone, it will move away until it feels comfortable again.

## Conducting the activity (DO)

1. Divide the room into groups of two and have each person stand, facing each other approximately 15 feet apart.
2. Have each person take one step towards each other and stop.
3. Ask: Do they feel comfortable at this distance?
4. Repeat steps 2 and 3 until one of the pair feels uncomfortable.
5. When both participants have reached a point to where they both feel uncomfortable, have them discuss the variance in space between them.
6. Have each group report back:
  - a. How much space is between them?
  - b. How they feel about the distance?
  - c. Do both members feel uncomfortable at the same distance?

## What did we learn? (REFLECT)

- Ask: Why is it important to work with your animal?
- Ask: Do animals have larger flight zones if they are not use to people? What can you do at home to work with your animal?
- Ask: Are animal's flight zones the same? Why? Why not?
- Ask: How does stress impact an animal's flight zone?

### Why is that important? (APPLY)

- Ask: Why is animal safety important? How does this impact Quality Assurance?
- Ask: How can understanding an animal's flight zone be helpful when moving livestock?

### Resources

Grandin, T. (2015). *Understanding Flight Zone and Point of Balance for Low Stress Handling of Cattle, Sheep, and Pigs*. Colorado State University. Available from: <http://www.grandin.com/behaviour/principles/flight.zone.html>

Kinder, C.A., Glaze, J.B., Church, J.A., Jensen, S., Williams, S., and Nash, S.(2008). *Youth Beef Quality Assurance: Program Manual for the Pacific Northwest*. PNW593. University of Idaho, Oregon State University Extension, and Washington State University. Available at: <https://pubs.wsu.edu/ItemDetail.aspx?ProductID=14995>

Ohio State University Extension. (2011). Working Safely with Livestock. *Beef resource handbook* (pages 4-1 through 4-5 and 12-2 through 12-3).

Ohio State University Extension. (2008). Working Safely with Goats. *Goat resource handbook* (pages 31-34, and 159).

Ohio State University Extension. (2011). Working Safely with Sheep. *Sheep resource handbook for market and breeding projects* (pages 103-105 and 136).

Ohio State University Extension. (2000). Working Safely with Swine. *Swine resource handbook for market and breeding projects* (pages 14-1 through 14-2 and 24-2).



# Biosecurity

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Sarah D. Baker, Idaho Extension Educator

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## Goal (learning objective)

Youth will:

- Learn the definition of biosecurity
- Learn how to create a biosecurity plan
- Learn the differences between external and internal biosecurity procedures

## Supplies

- Handout 1, “How to Develop a Simple Biosecurity Plan”. Make the appropriate number of copies for your group
- Handout 2, “Internal and External Biosecurity Worksheet”. Make the appropriate number of copies for your group
- Handout 3, “Did you know?” Make the appropriate number of copies for your group
- Handout 4, “Internal and External Biosecurity Worksheet Questions” Make the appropriate number of copies for your group
- Pens or Pencils (enough for group)

## Pre-lesson preparation

Background information:

*Quality Assurance:* Market livestock projects bring new responsibilities for 4-H youth. Members are providing a product for consumers to eat. Consumers will choose to buy, not to buy, a product from their perception of the value of that product. If your product (steak, roast, etc.) wasn't “good”, the consumer will not purchase it again. What would happen to a business if no one purchased its products again? This pertains to you as a livestock producer, or producer of food. When quality is high, consumers will buy your product again. Livestock products must be safe, wholesome, and produced in a way that meets consumer approval.

Who is in charge of quality assurance in the livestock industry? When you feed a steer, sheep, pig or goat and sell it in the Livestock Sale at the fair, who is responsible for assuring that the meat eaten by the consumer is a high-quality and safe product? The retailer? The packer? The member? The breeder? Everyone involved in the livestock industry is obligated to do their part to provide a safe, wholesome, and quality product to the consumer.

*Biosecurity:* Biosecurity is a combination of management practices designed to prevent the introduction and transmission of diseases and disease-causing agents into a herd. The goal of biosecurity is to prevent, minimize, or control cross-contamination of body fluids (feces, urine, saliva, etc) between animals, between animals to feed and between animals to equipment that may directly or indirectly contact animals.

Biosecurity can be either external or internal. External biosecurity is keeping diseases out of a herd, whereas internal biosecurity is keeping diseases already in one more segments of the herd from

spreading to other segments. However, all biosecurity measures should be focused on the prevention of the entry of unwanted diseases!

Maintaining a biosecurity program is the cheapest, most effective means to control disease, and no disease prevention program will be effective without it.

According to the National Beef Quality Assurance Program (NCBA, 2012), implementation of a good biosecurity program should focus on the following:

- Controlling disease within the herd
  - Vaccinate the herd against all endemic diseases
  - Use low stress management for movement and processing
  - Isolate sick animals
  - Maintain a closed herd, if possible
  - Purchase feed from reputable sources
  - Minimize fence line contact with neighboring animals
  - Do not place cattle of different ages in the same pen
  - Keep records of all disease occurrences
- Purchasing replacement animals
  - Quarantine all new animals for 30-60 days
  - Test new animals for disease
  - Purchase animals from healthy and reputable herds
- Environmental and pest control
  - Provide human foot baths at entrances and exits of confinement facilities
  - Provide timely manure and dead animal removal
  - Keep grounds and feed bunks as dry as possible
  - Have an insect control program in practice
  - Have a rodent control program

- Disinfection
  - Clean and remove as much organic material as possible, before disinfecting
  - Chose a disinfectant that will work against the pathogen you want to control
  - Be aware of any toxic, harmful or corrosive effects of the disinfectant
  - Follow the label on the disinfectant package
- Visitors
  - Minimize the number of visitors to the facility and their contact with animals
  - Be sure all visitors have clean clothing/coveralls, boots, and hands
  - Be sure all vehicles or equipment brought on the farm are disinfected
  - Do not allow foreign visitors on the farm until they have been in the country for 5 days. Do not allow foreign visitors to bring clothing, foods, or accessories they have had in another country onto the farm
- Employees
  - Be sure all employees understand and follow the biosecurity protocol
  - Realize that employee owned animals (horses, dogs, etc) can be a possible source of contamination to your facility.

These statements can be applied to swine, as well as sheep and goats.

## Conducting the activity (DO)

### Activity 1 - Developing a Biosecurity Plan

1. Distribute Handout 1 “How to Develop a Simple Biosecurity Plan”
2. Have youth share the definition of biosecurity
3. Lead a discussion by asking the following questions (have members write answers on the worksheet):
  - a. What are possible diseases that your animal may come into contact with?
  - b. What is the critical control point or monitoring location for that possible disease?
  - c. What is the corrective action needed to stop or prevent the spread of the potential disease?
  - d. What records should you keep to implement your biosecurity plan?
4. Each biosecurity plan should have the following:
  - a. List of possible diseases
  - b. List of critical control points
  - c. List of methods of protection or corrective action
  - d. List of records to be kept
5. Have members share their plan with others.

### Activity 2 - Internal & External Biosecurity Measures

1. Distribute Handout 2 “Internal & External Biosecurity Worksheet”
2. Distribute Handout 3 “Did you know?”

3. Have members volunteer to read out loud the information on both handouts.
4. Discuss the examples.
5. Distribute Handout 4 “Internal & External Biosecurity Worksheet Questions”.
6. Have members provide examples of internal and external biosecurity measures and complete the table on the worksheet.
7. Encourage members to share examples with others in the group.

### Activity 3- Spreading Disease One Touch at a Time

*Adapted from Dr. Susan Kerr, WSU Extension, What Goes Around Comes Around Biosecurity Activity.*

1. Mark off an area that will contain the entire group. Use rope, chairs or land marks to make boundaries.
2. Have the group assemble themselves inside the boundary. There should be enough room so that everyone can move around freely and not bump into each other too much.
3. Have participants raise both hands above their heads.
4. Choose one participant to be the ‘disease carrier’. Make sure the participant is identifiable (wearing a certain color shirt, or have them carry something to identify themselves as the ‘carrier’).
5. The ‘carrier’ will enter the boundary and wander around randomly. Each time the ‘carrier’ touches a member of the group member, that member drops one arm. If a member is touched twice by the ‘carrier’, they must stop moving around and stand still. Each participant standing still represents a sick individual.
6. The activity continues until all participants within the boundary are sick or the time available has run out (the concept will become apparent within 5-10 minutes).

7. Ask participants the following questions:
- What did they see happening?
  - How is this activity similar to what happens when an animal carrying a disease is introduced into a herd?
  - Why should we be concerned about biosecurity and animal health?
  - Are there any similarities between disease transmission amongst animals and disease transmission amongst humans (i.e. catching a cold at school)?
  - How can they reduce the risk of contracting a disease (cold) at school? Is this the same for animals?

#### What did we learn? (REFLECT)

- Ask: What is your definition of biosecurity?
- Ask: What is the difference between external and internal biosecurity?
- Ask: How is animal biosecurity similar to keeping ourselves healthy?

#### Why is that important? (APPLY)

- Ask: Why is it important to prevent diseases rather than treat them? Costs?
- Ask: Do you let your friends borrow your supplies at the Fair (brushes, water buckets, etc.)? Why or why not?
- Ask: Can you spread a disease from your animal to your friend's animal?
- Ask: Evaluating quality assurance of your project is something like looking into a mirror - reflect on your project for a moment. Do you like what you see? More importantly, will the person who purchases your animal like it?

## Resources

- Beef Quality Assurance. (2010). National BQA Manual (pages 14-15).
- Kerr, S. (2015). Biosecurity Activity: What Goes Around Comes Around. Washington State University Extension. <http://vetextension.wsu.edu/wp-content/uploads/sites/8/2015/05/Biosecurity-Activity-What-Goes-Around-Comes-Around1.pdf>
- National 4-H Council. (2005). Beef Helper's Guide. National 4-H Curriculum. BU-08146 (page 17).
- National Cattlemen's Beef Association. (2010).
- Ohio State University Extension. (2011). Management Practices. *Beef resource handbook* (page 12-2 through 12-5).
- Ohio State University Extension. (2008). Caring for Animals. *Goat resource handbook* (pages 159-163).
- Ohio State University Extension. (2011). Caring for Animals. *Sheep resource handbook for market and breeding projects* (pages 136-139).
- Ohio State University Extension. (2000). Quality, Caring for Animals, and Swine Resources. *Swine resource handbook for market and breeding projects* (pages 4-1, 24-1 through 24-4, and Resources 3)
- Pork.org. (2014). Establish and Implement an Effective Health Management Plan. *Youth Pork Quality Assurance Plus Handbook Version 2.0*. Chapter 2 (pages 27-39). <http://old.pork.org/filelibrary/youthpqaplus/2014/ypqahandbook.pdf>

## How to Develop a Simple Biosecurity Plan

*Adapted from: Youth Beef Quality Assurance Program Manual for the Pacific Northwest, PNW 593.  
Chapter 5. Biosecurity. Page 32.*

- 1. Conduct a disease potential analysis.**
  - a. Develop a list of possible diseases that your animal(s) may come into contact with. For example, possible diseases may include ringworm, lice, pneumonia, or foot rot, etc.
  
- 2. Determine monitoring locations/critical control points.**
  - a. Critical control points (CCP) are places at which control or prevention can be applied and are essential to prevent, eliminate, or reduce a disease. The identification of CCP is important in controlling the spread of a disease. An example of a CCP may include the receiving area for new livestock, fence line, feed bunk, or water tank.
  
- 3. Prevent disease spread.**
  - a. The goal of a biosecurity plan is to keep the disease agent from entering and spreading among the herd. Protection may be done in a variety of methods depending on the CCP. For example: increasing immunity of the herd, isolating new animals, quarantining sick animals, using disinfectants, and/or cleaning equipment or clothing. Producers need to determine at each CCP what the correct mode of action is. These actions also need to be understood by all workers within the operation.
  
- 4. Record keeping.**
  - a. Keep records of what was done to facilities and animals. Examples of records may include animal identification, vaccinations given, medications given, visitors, and date of facility cleaning.

**Biosecurity Table 1.** Examples of monitoring locations, causes of disease spread, and corrective actions.

From: *Youth Beef Quality Assurance Program Manual for the Pacific Northwest, PNW 593, Chapter 5. Biosecurity. Page 30.*

| Monitoring locations/CCP                                         | Disease & Mode of spread                                                                                                  | Corrective action                                                                                                                                                                                                         |
|------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Fence line                                                       | Entry of stray animals<br>Entry of people / visitors<br>Example: respiratory and reproductive diseases                    | - Maintain fences to keep out strays and unknown animals.<br>- Establish fences, gates, signs to stop and inform people.                                                                                                  |
| Facility entrance                                                | Visitors, clothes, footwear<br><br>Example: foot-and-mouth disease                                                        | - Allow public to enter designated areas away from livestock. Restrict visitors who have been out of the US in the past two weeks.<br>- Provide protective covers for footwear or on-farm boots and/or on-farm coveralls. |
| Barn/Receiving pen for newly arrived animals                     | Animal carrying disease<br>Example: respiratory diseases, lice                                                            | - Isolate for 3-4 weeks.<br>- Know status of herd of origin.                                                                                                                                                              |
| Vehicles – cars, trucks, motorbikes, and trailers<br>Parking lot | Manure on or in vehicle (including tires & undercarriage)<br>Example: <i>E.coli</i> , <i>Salmonella</i> , enterotoxaemia. | - Restrict vehicles to public area only.<br>- Wash vehicle and tires.                                                                                                                                                     |
| Farm personnel                                                   | Clothes, footwear<br>Example: <i>E.coli</i> , <i>Salmonella</i>                                                           | Wear boots, clothes or coveralls specific for this farm only.                                                                                                                                                             |
| Raw feed products and standing water in pen/pasture              | Contaminated feed and water<br><br>Example: <i>BSE</i> , beef measles, liver flukes, foot rot                             | - Don't feed ruminant-derived protein.<br>- Remove standing water.<br>- Keep dogs, cats, rodents and wildlife out of feed and feeding areas.                                                                              |
| Feed bunks and water tanks                                       | Personnel<br>Contaminated feed and water<br>Example: beef measles, <i>Salmonella</i> and <i>E. coli</i>                   | Provide clean feed, clean out water source often, and provide restrooms for personnel,                                                                                                                                    |
| Manure/bedding pile                                              | Contaminated manure in feed and water<br>Example: <i>E.coli</i> , flies                                                   | Use separate tractor bucket to move feed than manure. Don't apply lagoon water to hay or grazing areas.                                                                                                                   |
| Equipment box/tack room                                          | Brushes, combs, etc.<br>Example: ringworm, lice                                                                           | Clean equipment.                                                                                                                                                                                                          |
| Pastures/common allotments                                       | Animals<br>Example: brucellosis, leptospirosis, BVD                                                                       | Vaccinate.                                                                                                                                                                                                                |
| Squeeze chute<br>Clip chute                                      | Needles and equipment<br>Example: anaplasmosis                                                                            | Exchange needles and clean equipment.                                                                                                                                                                                     |

Use Table 1 above to help fill in the following blanks to make your own Biosecurity Plan for your livestock animal:

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### BIOSECURITY PLAN

(insert your name)

- What are possible diseases that your animal may come into contact with?
  - *Examples: Blackleg, Brucellosis, BSE, BVD, Enterotoxaemia, Flies, Foot Rot, Lice, Liver Fluke, Trichomoniasis, Ringworm, Warts, Other?*
  
- What is the critical control point or monitoring location for that possible disease?
  - *Examples: Feed bunk/pan, water tank, fence line, barn, squeeze/clip chute, manure pile, pasture, vehicles, equipment box, other?*
  
- What is the corrective action needed to stop or prevent the spread of the potential disease?
  - *Examples: Vaccinations, isolating new animals, quarantining sick animals, using disinfectants, cleaning equipment, wear clean clothing, feed proper and clean feed, cleaning feed storage area, clean water, other?*
  
- What records should you keep to implement your biosecurity plan (attach records to this plan)?
  - *Examples: vaccinations given, date equipment was cleaned, etc.*

## QUALITY ASSURANCE: BIOSECURITY – HANDOUT 2

### **Internal and External Biosecurity Worksheet**

*Adapted from: Establish and Implement an Efficient and Effective Health Management Plan. Youth Pork Quality Assurance Plus Handbook Version 2.0. Chapter 2. Pages 30-32.*

#### **External Biosecurity:**

- Control wildlife and pests to prevent contact with your animal(s) by including the use of perimeter fencing and bird screening.
- When contemplating the purchase of new animals, ask your veterinarian to discuss the health maintenance program you should start when the new animals get to your home.
- When possible, establish an isolation facility for quarantining new animals at your home that is remote and/or isolated from the existing herd. During the quarantine period, observe and test for diseases, vaccinate, medicate, and acclimate the new animal as recommended by your veterinarian
- Limit the number of visitors to your facility and minimize their contact with your animals. Question visitors about recent contact with other animals.
- Consider supplying disposable plastic boots to all visitors. Require everyone to at least wash hands, before entry to animal areas.
- Change clothes and boots after visiting other farms, livestock markets, or fairs.
- Limit use of equipment and tools, including scales, to those that have been cleaned and disinfected if they have been used on another farm or ranch.
- Clean and disinfect your truck and trailer after each use.

#### **Internal Biosecurity:**

- Work with your veterinarian to periodically survey your animals for different disease challenges.
- When possible, operate all-in/all-out (AIAO) with cleaning and disinfecting between groups of animals.
- Establish a traffic pattern for both animals and people that prevents exposure of younger animals to older animals, their manure or people who have recently been in contact with them.
- Develop a routine check of all equipment and have an emergency plan for feed and water delivery.
- Provide dedicated boots and coveralls at strategic sites in the pen. Wash hands when boots and coveralls are changed. Because boot disinfection is sometimes difficult, disposable boots may be better if regular boots cannot be dedicated to a single site.

## **Did You Know?**

*Adapted from: National Beef Quality Assurance Program Manual, page 15*

### **Infectious Disease can be spread by:**

- The introduction of diseased animals or healthy animals incubating a disease.
- Introduction of healthy animals who have recovered from disease but are now carriers
- Vehicles, equipment, clothing, and shoes of visitors or employees who move between herds.
- Contact with inanimate objects that are contaminated with disease organisms.
- Carcasses of dead livestock that have not been disposed of properly.
- Feedstuffs, especially high risk feedstuffs which could be contaminated with feces.
- Contaminated water (surface drainage water, etc.)
- Manure handling and aerosolized manure and dust.
- Non-livestock (horses, dogs, cats, coyotes, raccoons, other wildlife, rodents, birds, and insects).

**QUALITY ASSURANCE: BIOSECURITY – HANDOUT 4**

**Internal and External Biosecurity Worksheet Questions:**

*Adapted from: Establish and Implement an Efficient and Effective Health Management Plan. Youth Pork Quality Assurance Plus Handbook Version 2.0. Chapter 2. Pages 30-32.*

**Name an example of External Biosecurity:** *Isolation of new animals to test for unwanted diseases that are not already in your herd.*

**Name an example of Internal Biosecurity:** *Stopping the movement or cross-fostering of baby piglets that have diarrhea.*

**Read the description below and identify the statement as an internal or external biosecurity measure:**

| <b>Biosecurity Measure</b>                                                                                                                                                               | <b>External</b> | <b>Internal</b> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------|
| Locate new animals away from livestock herds and major transportation routes                                                                                                             |                 |                 |
| Work with your veterinarian to regularly survey your animals for different diseases challenges                                                                                           |                 |                 |
| Control wildlife and pests to prevent contact with your animal(s).                                                                                                                       |                 |                 |
| Establish an isolation facility for quarantining new animals to your home, farm, or ranch.                                                                                               |                 |                 |
| Operate all-in/all-out with cleaning and disinfecting between groups of animals.                                                                                                         |                 |                 |
| Limit the number of visitors to your facility.                                                                                                                                           |                 |                 |
| Establish a traffic pattern for both animals and people that prevents exposure of younger animals to older animals, their manure, or people who have recently been in contact with them. |                 |                 |
| Develop a routine check of all equipment and have an emergency plan for feed and water delivery.                                                                                         |                 |                 |
| Minimize visitors' contact with your animals.                                                                                                                                            |                 |                 |
| Supply disposable plastic boots to all visitors.                                                                                                                                         |                 |                 |
| Change clothes and boots after visiting other farms, livestock markets, or Fairs.                                                                                                        |                 |                 |
| Wash hands when boots and coveralls are changed.                                                                                                                                         |                 |                 |
| Use disposable boots if regular boots cannot be dedicated to a single site at your home, farm, or ranch.                                                                                 |                 |                 |
| Limit use of equipment and tools to those that have been cleaned and disinfected if they have been used on another farm or ranch.                                                        |                 |                 |
| Clean and disinfect your truck and trailer after each use.                                                                                                                               |                 |                 |



# Ethics: Pillars of Character

Erika Jeffries, Idaho IT & Curriculum Specialist

## Goal (learning objective)

Youth will:

- Learn about the six pillars of character: respect, responsibility, trustworthiness, fairness, caring, and citizenship
- Discern the need for good character and safe food products and the relationship between the two
- Understand the ethical implications of the decisions one makes while raising livestock

## Supplies

- Handout 1, “Learning by example”. Make the appropriate number of copies for your group (double-sided document)
- One print of each of the character images – Handouts 2–7 (intended to display around room)
- Tape
- Chalkboard with chalk or easel pad with marker

## Pre-lesson preparation

Note: This lesson can be facilitated fully in 1 hour or split into two sessions.

- Read/review the following sections in *Quality Counts* (see resources list below):

Chapter 1, lesson 1 - Activity 1

Chapter 1, lesson 5 - Activities 1-3

- Visit the Character Counts! website and review information about the six pillars of character at <https://charactercounts.org/program-overview/six-pillars>
- Arrive early to the meeting area to allow time to hang up character images around the room

## Lesson directions and outline

### Conducting the activity (DO)

1. Read, “Learning by example” (handout 1, page 1) to the group or have someone else read it.
2. Lead a discussion, asking questions such as:
  - What was the first bad decision that was made?
  - What other bad decisions were there?
  - What could they do if they were in Tommy’s situation?
  - How do you go about making those decisions?
  - What would it be like if there were no rules?
  - What responsibilities do we have to the animals we own?
3. Read “Ethical expectations of 4-H participants” (handout 1, page 2) to the group.
4. Lead a discussion about the pillars, asking questions such as:
  - How do you define good character?
  - How do you know a person is someone you can trust and respect? Is it based on what that person says, does, or both?
  - How does a person’s character affect the decisions he or she makes?
  - Why are these traits important in a person who raises or exhibits livestock?
5. Ask participants to name ways that they can demonstrate each trait in carrying out their livestock projects. Have someone capture responses on the chalkboard or easel pad.
6. Read the first scenario (below), and ask the group what should be done. After the group has provided their answers, ask the group:

- Which pillars of character are important in making this decision?
- Are any of the pillars in conflict?
- Are there any other solutions to this dilemma?

Scenario 1: It is December 23, and when you go out to feed your show pigs you notice that you do not have enough feed to last through the holidays. You and your father go to the feed store to pick up some more feed. Since your show is not far away, you can no longer feed the medicated feed because of the withdrawal time. But the feed store clerk tells you they're out of non-medicated feed. He offers to sell you the medicated feed at the same price as non-medicated feed. (Correct answer is C)

You should:

- A. Take the medicated feed. The show doesn't do drug tests anyway.
  - B. Turn down the offer of medicated feed, thinking that you can find a neighbor who can let you borrow enough feed to last through the holidays.
  - C. Decline the feed and politely inform the store clerk that it's important to follow the rules about using medicines and drugs.
  - D. Tell the clerk that what they are suggesting is illegal.
7. Repeat with each scenario, identifying the most correct answer after the group discussion.

Scenario 2: Before you can make a decision about the feed, the store owner comes along. He's overheard the conversation and tells you that your neighbor Bob, whose son also has show pigs, has just bought a ton of non-medicated feed and might share with you. When you get home your dad calls Bob, who says you're welcome to as much as you need until the feed store gets some more. He says that he and his family are going out of town and tells you where to find the feed. You and your little brother hop on the four-wheeler and go to get the feed. After loading it, you admire the fine-quality pigs Bob's son has. While looking at them, you realize that some of the pigs are validated to another exhibitor in the county. (Correct answers B and C)

You should:

- A. Get your brother and leave.
- B. Point out to your little brother what you see and tell him that it is wrong and why.
- C. Tell your dad what you saw and have him call the county Extension office.
- D. Call Bob and ask him what the deal is.

Scenario 3: The fun at Bob's hasn't ended yet. While loading the feed, your little brother knocks over a storage cabinet in the barn. What comes out of the cabinet is a surprise: illegal drugs. There are no animals in Bob's pens that these drugs could legally be given to. (Correct answer is B)

You should:

- A. Call Bob and ask him what is going on.
- B. Tell your dad and ask him to call your county Extension office.
- C. Tell all of your friends what you saw in Bob's barn and let them know that he is cheating and using illegal drugs to make his show pigs better.
- D. Unload the feed into Bob's barn and leave as soon as possible to try to erase all evidence that you were there.

Scenario 4: Your father recently agreed to be the project leader for your 4-H club. One of his duties is to locate swine projects for the members of the club. He wants to do this as fairly as he can, so he finds a breeder who has enough high-quality pigs for everyone. He schedules a day to go pick up the pigs and you decide to ride with him. When you get there the breeder shows you a pig he has set aside for you. He knows that you are a good feeder so he wants you to have this pig that is better than the rest. (Correct answers are A and D)

You should:

- A. Politely decline the pig.
- B. Take the pig. You should get first choice anyway because your dad is the one who went and purchased the pigs for everyone.
- C. Take the pig. If you don't someone else will, and you will have to show against a better pig.

D. Take the good pig back and draw for the pig with the other members. You may get lucky and draw this one anyway.

Scenario 5: The pig you've raised for the county show is overweight and the show is just 2 days away. A buddy offers to help with some sort-of-legal practice that will get the weight off the pig in time for the show. If you don't take the help, your pig probably won't qualify. (Correct answers are C and D)

You should:

A. Take the help. You have spent a great deal of time with your pig and really want to show.

B. Take the help. The practice is sort-of legal. It hasn't been identified as illegal. Besides, others are sure to be cheating, and this practice isn't considered cheating yet.

C. Decline the help and look for an alternative that is sort-of-more legal.

D. Decline the help. Try to naturally and legally get the weight off and hope that your pig can lose the weight for the show. Learn from this mistake and do better with your next swine project.

### What did we learn? (REFLECT)

- Ask: What are some of the ethical decisions that you face when raising livestock for a 4-H project?
- Ask: Do you know the rules at your fair?
- Ask: Are the rules fair? Why or why not?

### Why is that important? (APPLY)

- Ask: Why are there rules for raising and showing livestock projects?
- Ask: Do we expect the meat and the other food products we purchase to be safe to eat? Whose job is it to make sure food is safe?

## Resources

Boleman, C., Chitek, K., Coufal, D., Keith, L., & Sterle, J. (2011). Quality counts. Texas A&M AgriLife Extension. Retrieved from [http://agriflifecd.tamu.edu/qualitycounts/files/2010/11/pdf\\_1733.pdf](http://agriflifecd.tamu.edu/qualitycounts/files/2010/11/pdf_1733.pdf)

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University of Idaho Extension. (2006). Ethical expectations of 4-H participants. *4-H animal project record book* (page 2). Retrieved from <http://www.uidaho.edu/extension/4h/documents-records>

## **ETHICS: PILLARS OF CHARACTER - HANDOUT 1**

### **Learning by Example by Larry Mrozinski**

When Tommy was 8 years old, his father registered a lamb born on December 24 as being born on January 2. His father said to Tommy, "It's okay, kid; everybody does it."

When Tommy was 9 years old, his father bred the family's flock of purebred ewes with a ram of another breed and registered the lambs as purebreds. His father said to Tommy, "It's okay, kid; everybody does it."

When Tommy was 10 years old, his 4-H leader and county agent tagged and weighed newly purchased lambs a month after the ownership deadline. They both told him, "It's okay, kid; everybody does it."

When Tommy was 11 years old, his parents bought him a registered ewe lamb to show at the county fair and changed the ear tag to their own flock tag. His parents said, "It's okay, kid; everybody does it."

When Tommy was 12 years old, his grandparents bought him a show lamb and left it with the breeder who fed and fit the lamb until the day before the county fair. The breeder and his grandparents said, "It's okay, kid; everybody does it."

When Tommy was 13 years old, his veterinarian issued health papers for sheep he never inspected and that had foot rot and lamb fungus. He said, "It's okay, kid; everybody does it."

When Tommy was 14 years old, his neighbor used an electric animal prod on his lamb to get it to brace. He told Tommy, "It's okay, kid; everybody does it."

When Tommy was 15 years old and after winning the Grand Champion Market Lamb at the county fair, he saw his dad having a beer with the judge and paying the judge \$200 for making his son's lamb champion. The judge and his father said, "It's okay, kid; everybody does it."

When Tommy was 16 years old, his FFA advisor falsified the number of Tommy's winning sheep proficiency award entry. His advisor said, "It's okay, kid; everybody does it."

When Tommy was 17 years old, his uncle used Lasix on his market lamb at the state fair to make it weigh into a lighter class. His uncle said, "It's okay, kid; everybody does it."

When Tommy was 18 years old, his brother pumped the loin of his lamb at a national sheep show. His brother said, "It's okay, kid; everybody does it."

When Tommy was 19 years old, his entire family knew that he'd given clenbuterol to his market lambs. They told him, "It's okay, kid; everybody does it."

When Tommy was 20 years old, a friend offered him cocaine. His friend said, "It's okay, kid; everybody does it."

When Tommy was arrested later that night for using cocaine and called his family to ask them to bail him out of jail they told him, "How could you have brought such a disgrace to your family? You never learned any of that at home. Where did you go wrong?" After hearing of his arrest, Tommy's 4-H leader, FFA advisor, county agent, grandparents, uncle, veterinarian and neighbors were also shocked. If there's one thing the adult world can't stand it's a kid who breaks the rules.

## **ETHICS: PILLARS OF CHARACTER - HANDOUT 1, PAGE 2**

### **Ethical Expectations of 4-H Participants**

All participants within the Idaho 4-H program (Extension staff, volunteers, parents, members, etc.) are expected to conduct themselves in an ethical manner at all times. Ethics are principles of accepted behavior that outline how individuals should act. Ethics deals with the ability to tell right from wrong and being committed to do what is right. While some situations may occur where there is not a “clear cut” answer to whether the action or practice is ethical, an ethical alternative always exists. Using the Six Pillars of Character (established by the Josephson Institute) can help guide you in making ethical decisions.

### **The Six Pillars of Character**

**Trustworthiness** – Be honest. Don’t deceive, cheat, or steal. Be reliable. Do what you say you’ll do. Have the courage to do the right thing. Build a good reputation. Be loyal. Stand by your family, friends, and country.

**Respect** – Treat others with respect. Be tolerant of differences. Use good manners, not bad language. Be considerate of the feelings of others. Don’t threaten, hit, or hurt anyone. Deal peacefully with anger, insults, and disagreements.

**Responsibility** – Do what you are supposed to do. Persevere: keep on trying! Always do your best. Use self-control. Be self-disciplined. Think before you act; consider the consequences.

**Fairness** – Play by the rules. Take turns and share. Be open-minded; listen to others. Don’t take advantage of others. Don’t blame others carelessly.

**Caring** – Be kind. Be compassionate and show you care. Express gratitude. Forgive others. Help people in need.

**Citizenship** – Do your share to make your school and community better. Cooperate. Get involved in community affairs. Stay informed; vote. Be a good neighbor. Obey laws and rules. Respect authority. Protect the environment.

\* Use this acronym to help you remember that people with good character are terrific: (TRRFCC)

Ethics is an important part of everyday life. If you choose to act unethically or allow others around you to do so, you not only tarnish your reputation but also discredit your family, club, and the 4-H program. No prize or award is worth this in the long run. Remember, only one person ultimately controls the decisions you make—you. As a 4-H participant, we trust you will make ethical choices not only within the program, but in everyday life, too.

<https://charactercounts.org/program-overview/six-pillars/>















# Ethics: Sportsmanship

Erika Jeffries, Idaho IT & Curriculum Specialist

## Goal (learning objective)

Youth will:

- Learn the importance of setting personal goals
- Explain and understand the difference between gamesmanship and sportsmanship
- Commit to exhibiting good sportsmanship at all times

## Supplies

- Handout 1, “Steps for writing goals”—appropriate number of copies for group
- Handout 2, “Gamesmanship or sportsmanship”—appropriate number of copies for group
- Pens or pencils
- Paper
- Chalkboard with chalk or easel pad with marker

## Pre-lesson preparation

- Read/review the following sections in *Quality Counts* (see resources list). Note: This is a 164 page document, specific pages are as follows:

Chapter 4, lesson 1 - Activities 1 and 3

Chapter 4, lesson 2 - Activities 1 and 2

## Lesson directions and outline

## Conducting the activity (DO)

1. Ask youth to think about their motivations for having a livestock project and to write their thoughts on paper.
2. Explain that there are usually two main reasons why people do extracurricular activities: to have fun and/or to feel worthy or successful.
3. Write these two categories on the easel pad or board and ask participants to share the motivations they have written down. Write their responses under one of the categories. Ask youth which category they think is appropriate? How do you define good character?
4. Discuss their various motivations with the participants. Be sure to ask why caring for and exhibiting livestock is much more than winning and losing. Explain the connection with and importance of personal growth, becoming mature and responsible, and increasing knowledge.
5. Ask participants to share how their personal motivations might affect decisions made while raising or showing their project animals. How might an individual's motivations cause them to take actions that many people would not see as being appropriate?
6. Ask participants, What is sportsmanship? Sportsmanship is exhibiting livestock with honor.
7. Ask participants, What is gamesmanship? Gamesmanship is all about winning for gain or glory. Discuss the difference between sportsmanship and gamesmanship.

8. Read the following: **Success is the achievement of**  
Read each statement in handout 2 and ask whether it represents gamesmanship (G) or sportsmanship (S)

- Picking up a show stick that someone drops in the show ring **S**
- Jabbing someone else's animal in the show ring **G**
- Being dishonest about an animal's age when registering **G**
- Teaching a younger exhibitor how to clip and fit a steer **S**
- Opening a gate for someone who has had a pig penned **S**
- Showing an animal in the wrong breed or division **G**
- Letting another exhibitor borrow a brush **S**
- Telling the judge that your animal weighs a different amount than what the card says **G**
- Taking leadership of the county showmanship training to help others **S**
- Blocking the judge's view of another animal in the class **G**
- Sharing your knowledge about selecting projects with others **S**
- Depriving your animal of the appropriate amount of feed and water to get its weight down **G**
- Helping a younger exhibitor carry a bucket of water **S**

#### What did we learn? (REFLECT)

- Ask: Why should we strive for sportsmanship, not gamesmanship?
- Ask: What can you do at the club or at the show to promote sportsmanship?

#### Why is that important? (APPLY)

- Ask: What character traits connect to sportsmanship?
- Ask: How does sportsmanship impact the industry? How?

#### Resources

Boleman, C., Chilek, K., Coufal, D., Keith, L., & Sterle, J. (2003). Quality counts. Texas A&M AgriLife Extension. Retrieved from [http://agriflifecd.n.tamu.edu/qualitycounts/files/2010/11/pdf\\_1733.pdf](http://agriflifecd.n.tamu.edu/qualitycounts/files/2010/11/pdf_1733.pdf)

University of Idaho Extension. (2006). Ethical expectations of 4-H participants. *4-H animal project record book* (page 2). Retrieved from <http://www.uidaho.edu/extension/4h/documents-records>

## **ETHICS: SPORTSMANSHIP - HANDOUT 1**

### **Steps for Writing Goals**

1. Make sure the goal is something you really want, not just something that sounds good.
2. Write a goal in the positive instead of the negative (for example, "I will. . .").
3. Write your goal in complete detail.
4. Make sure you set your goal high enough.
5. WRITE IT DOWN!

#### **Example:**

##### **My personal goals are:**

- To practice showing my steer four times a week
- To brush my steer twice a week
- To clean the pig pen three times a week
- To help my younger sister feed her calf
- To participate in at least three shows this year
- To improve my math grades
- To lead a showmanship clinic this year for my club

##### **My personal goals are:**

## ETHICS: SPORTSMANSHIP - HANDOUT 2

### Gamesmanship OR Sportsmanship?

*Read each statement below. Does it represent gamesmanship or sportsmanship?*

- Picking up a show stick that someone drops in the show ring
- Jabbing someone else's animal in the show ring
- Being dishonest about an animal's age when registering
- Teaching a younger exhibitor how to clip and fit a steer
- Opening a gate for someone who has had a pig penned
- Showing an animal in the wrong breed or division
- Letting another exhibitor borrow a brush
- Telling the judge that your animal weighs a different amount than what the card says
- Taking leadership of the county showmanship training to help others
- Blocking the judge's view of another animal in the class
- Sharing your knowledge about selecting projects with others
- Depriving your animal of the appropriate amount of feed and water to get its weight down
- Helping a younger exhibitor carry a bucket of water

## **SPORTSMANSHIP**

**is about exhibiting livestock with honor**

**Sportsmanship = livestock exhibition is a contest governed by high standards of integrity and ethics.**

## **GAMESMANSHIP**

**is all about winning for gain and glory**

**Gamesmanship = livestock exhibition is a chance to win by doing whatever you can get away with.**



# Recognizing Wholesale and Retail Cuts

Scott Nash, Idaho Extension Educator

## Goal (learning objective)

Youth will learn the differences between wholesale meat cuts and retail meat cuts.

## Supplies

Please visit with your Extension Office on the availability of Learning Lab Kits.

- Wholesale Cuts of Beef chart (Beef Learning Lab Kit)
- Wholesale Cuts of Pork chart (Swine Learning Lab Kit)
- Wholesale Cuts of Lamb chart (Sheep Learning Lab Kit)
- Wholesale Cuts of Goat chart (Goat Learning Lab Kit)
- Retail Cuts of Beef chart (Beef Learning Lab Kit)
- Retail Cuts of Pork chart (Swine Learning Lab Kit)
- Retail Cuts of Lamb chart (Sheep Learning Lab Kit)
- Retail Cuts of Goat chart (Goat Learning Lab Kit)
- Copies of Handouts 2, 4, 6, 8 - Wholesale Cuts - Unlabeled. Enough copies for your group, provide them the handout of the animal(s) they are raising. Handouts are attached to this lesson
- Copies of Handouts 1, 3, 5, 7 - Wholesale Cuts - Labeled. Enough copies for your group, provide them the handout of the animal(s) they are raising. Handouts are attached to this lesson
- Pencils (enough for group)
- Tape

## Pre-lesson preparation

- Read/review the handouts and resources.
- Check on Learning Lab Kit availability with your local Extension Office.
- Learn the different wholesale cuts for each species. Be prepared to share with the youth your favorite retail cuts and which wholesale cut it comes from. (It may be a good idea to purchase the actual retail cut to show to the youth).
- Make copies of the handouts.
- Hang-up the Wholesale Cuts Charts for each species - towards the front of the room.

## Lesson directions and outline

Have youth share the differences between wholesale and retail cuts.

Share the following information with the youth:

Wholesale cuts are large meat cuts that the animal carcass is cut into for ease in handling and shipping. Some wholesale cuts are higher in value.

The wholesale cuts in the middle part of the animal are called the “middle meats” and include the loin, rib or rack and are worth more money than shoulder, picnic, chuck or round. Those cuts on either end of the body are called “end meats” such as the shoulder or round and they provide movement so they are a little tougher than the middle meats. The loin doesn’t move in the same way or work like the shoulder so it is more tender.

The retail cuts are the specific cuts that come from the large wholesale cut and are those displayed for sale in the grocery store. It is possible that many different retail cuts come from a large wholesale cut. For example the loin wholesale cut can be cut into retail cuts that include; steaks, chops and roasts.

**Conducting the activity (DO)**

1. Have a volunteer distribute the copies of the unlabeled wholesale cuts handouts (Handouts 2, 4, 6, and 8).
2. Referring to the displayed Wholesale Cuts Charts (for each species) have youth take turns selecting a wholesale cut to discuss.
3. On the handout provided, have youth write the correct wholesale cut name.
4. On the same handout provided, have youth list at least two retail cuts from the wholesale cut identifying with a dollar sign \$ the cuts that are more expensive.
5. Distribute copies of the labeled wholesale cuts handouts (Handouts 1, 3, 7, 7).
6. Have youth share their results.
7. Ask: Have youth share their favorite retail cut. Why?

**What did we learn? (REFLECT)**

- Ask: Which retail cuts are more expensive? Why?
- Ask: Are there similarities or differences where the more expensive retail cuts come from amongst the species?

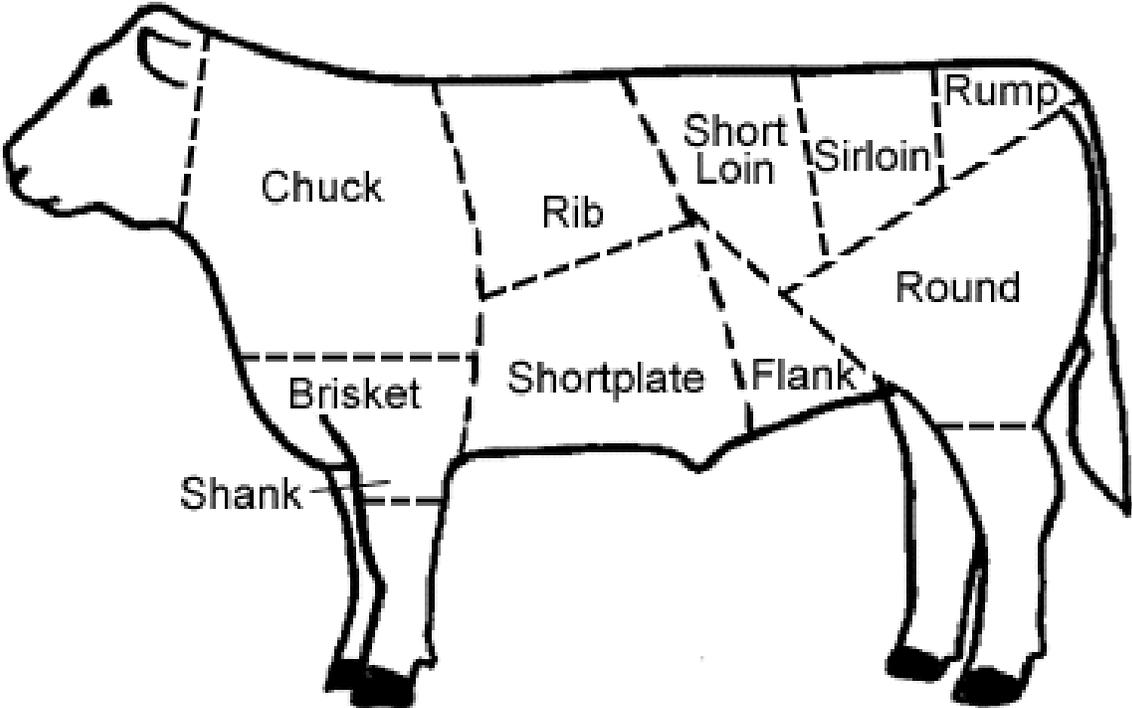
**Why is that important? (APPLY)**

- Ask: Why is it important to know the difference between wholesale and retail cuts? How does this knowledge help them as a producer?
- Ask: How will this help you when you shop for meat at the grocery store?
- Ask: What can you share with other consumers to help them understand why meat cuts have different prices?

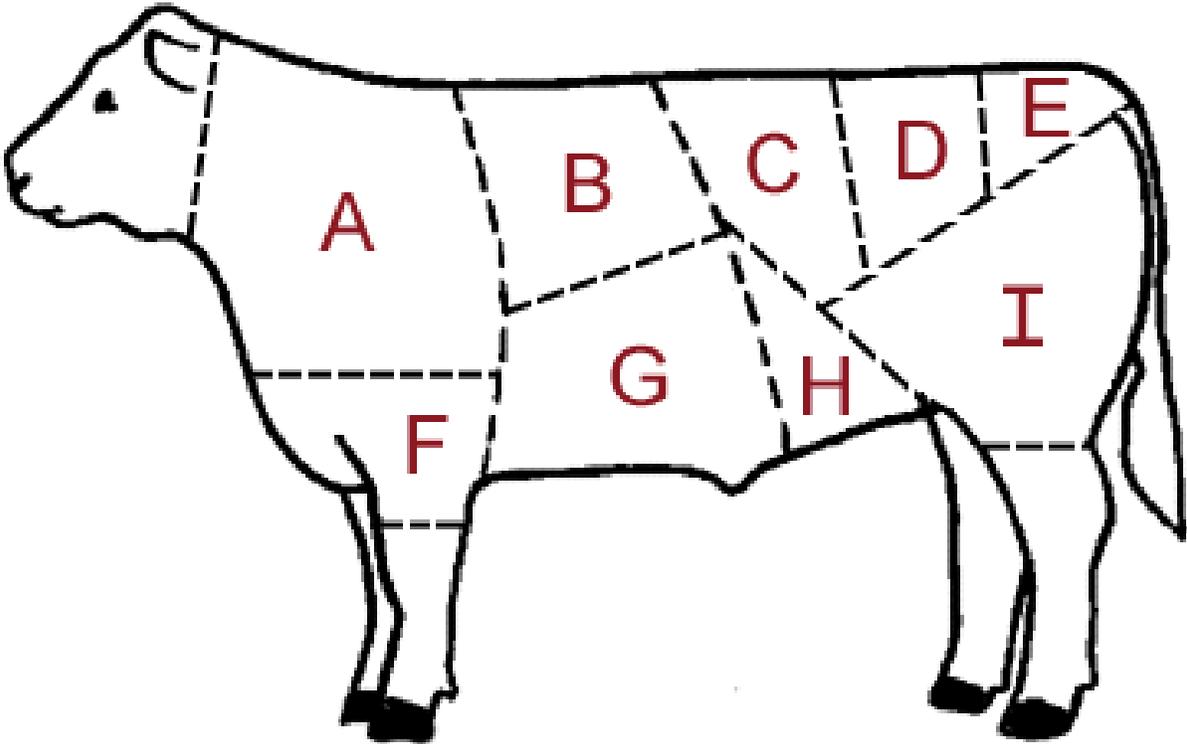
**Resources**

- Ohio State University Extension. (2011). Beef Carcass Evaluation. *Beef resource handbook* (pages 8-11 through 8-12 and Color Photos (CP) CP-14 and CP-15).
- Ohio State University Extension. (2008). Meat Goats. *Goat resource handbook* (pages 121-125).
- Ohio State University Extension. (2011). Carcass Evaluation and Meats. *Sheep resource handbook for market and breeding projects* (pages 77-83).
- Ohio State University Extension. (2000). Pork Products. *Swine resource handbook for market and breeding projects* (pages 5-1 through 5-3).
- Ohio State University Extension. (1999). Learning Lab Kits: Beef, Sheep, Swine, and Goat. Available from: <http://www.ohio4h.org/books-and-resources/learning-lab-kits>

**Wholesale Cuts of Beef**

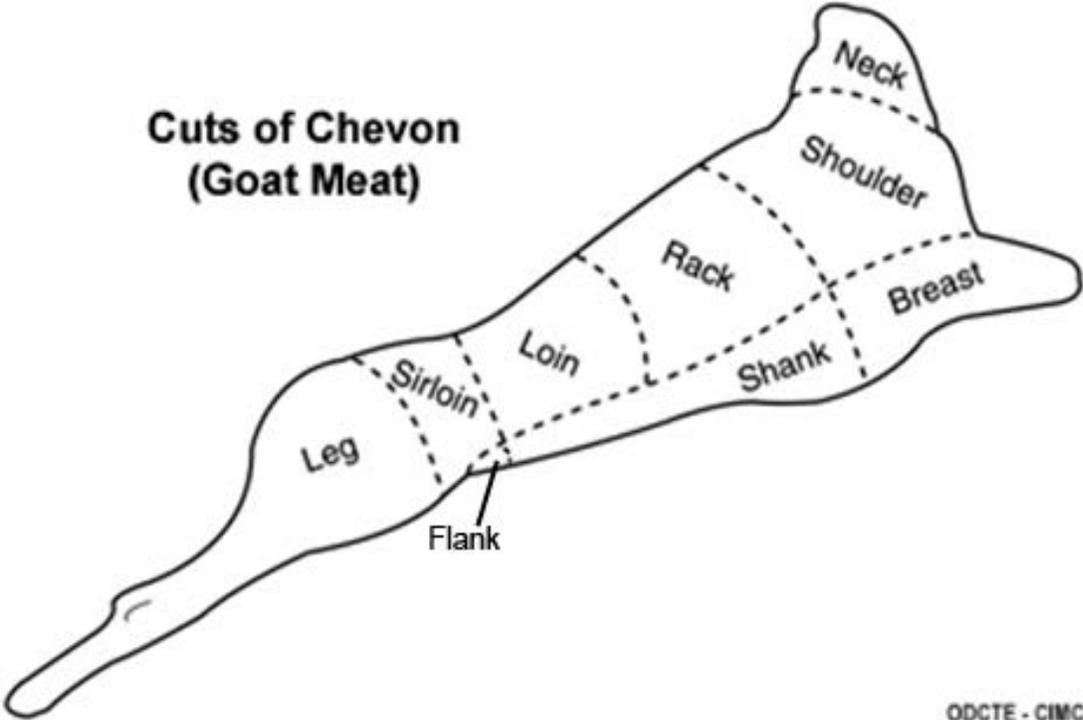


Wholesale Cuts of Beef

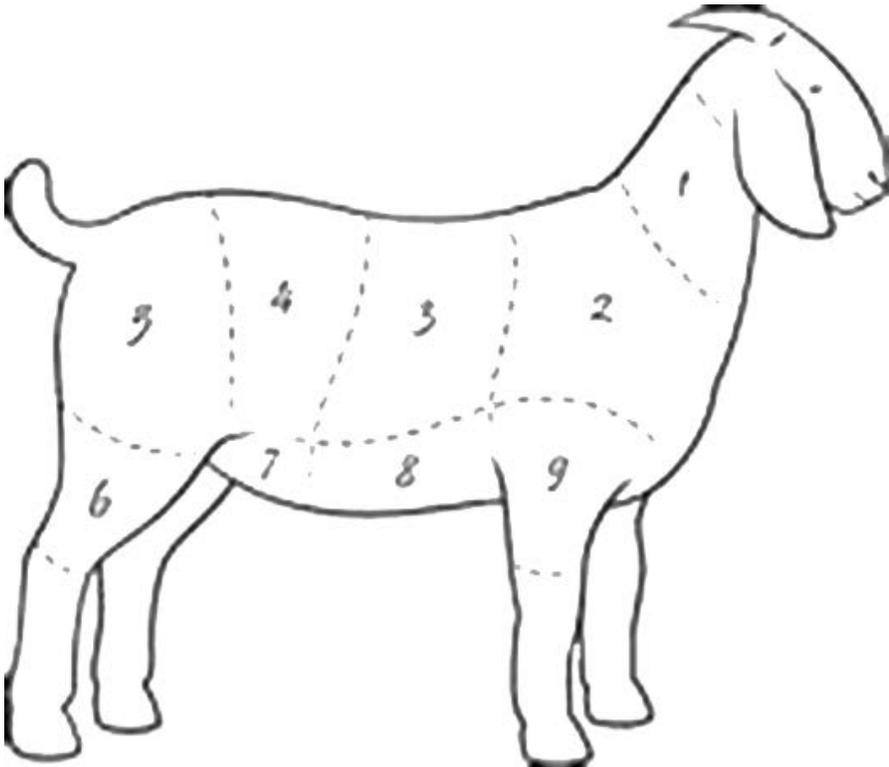


### Wholesale Cuts of Chevon (Goat)

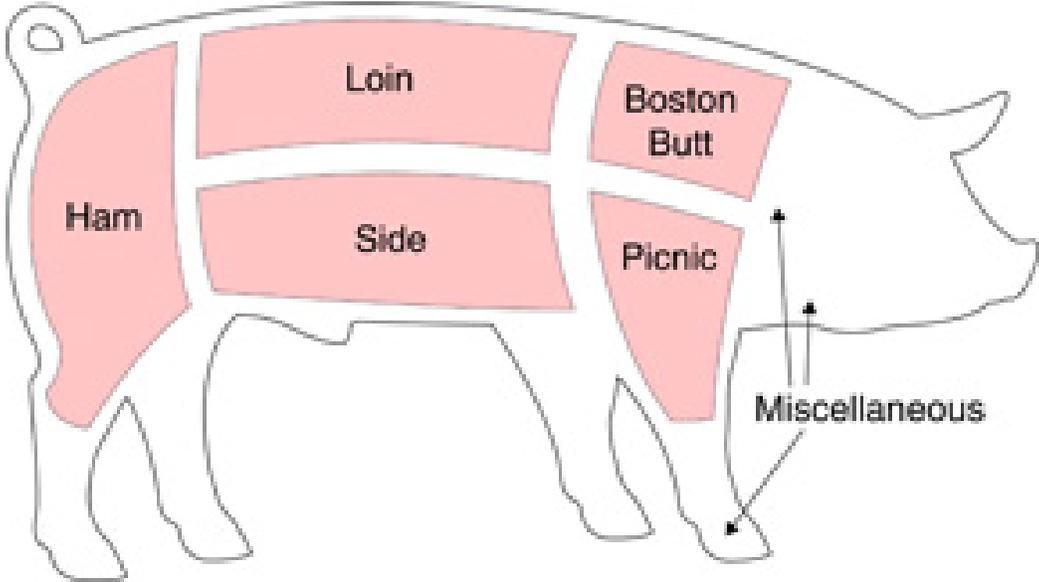
**Cuts of Chevon  
(Goat Meat)**



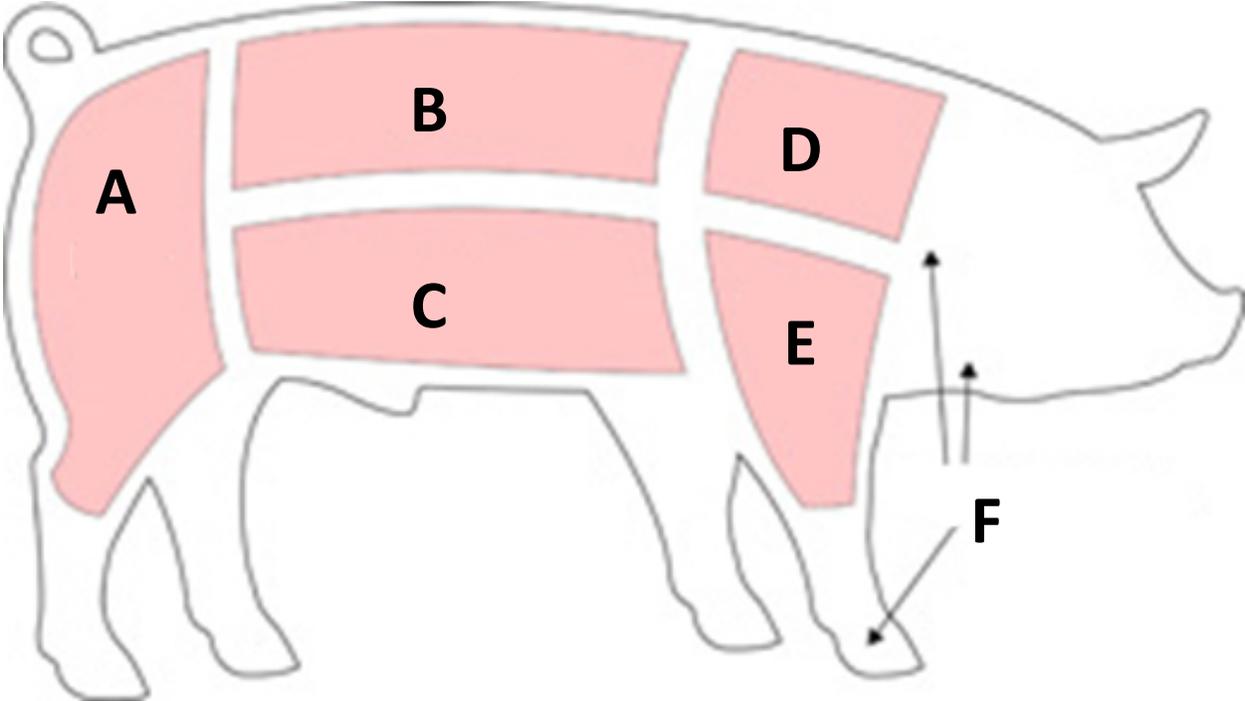
**Wholesale Cuts of Chevon (Goat)**



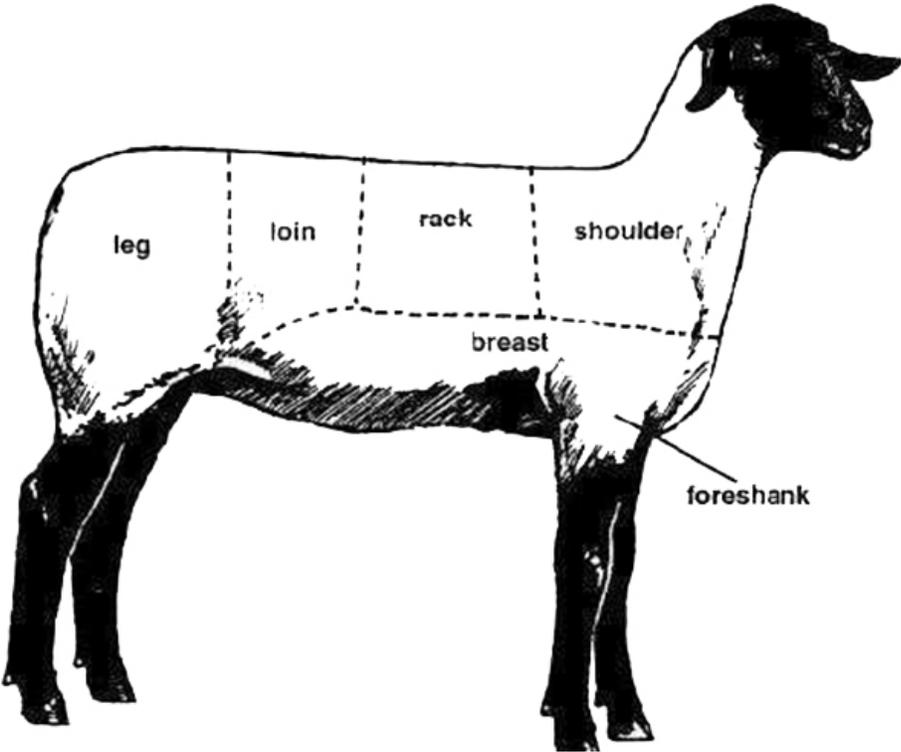
### Wholesale Cuts of Pork



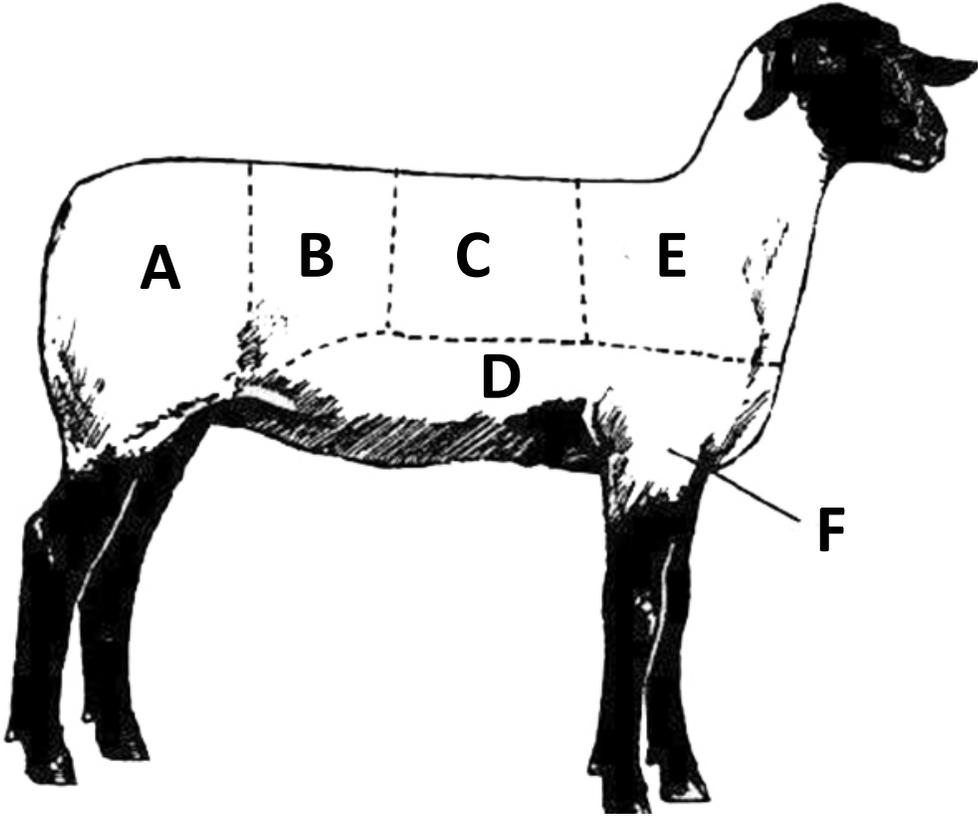
Wholesale Cuts of Pork



### Wholesale Cuts of Lamb



### Wholesale Cuts of Lamb





# Why is Quality Assurance Important?

Alaena Ruth & Sarah D. Baker, Idaho Extension Educators

## Goal (learning objective)

Youth will learn about their role in quality assurance and why quality should be important to each one of them, as producers and consumers of animal products.

## Supplies

- Chocolate cupcakes for each participant plus five extra
- Basic recipe for 24-28 cupcakes
  - Cupcake liners
  - 1 box chocolate cake mix
  - 1 1/4 Cups water
  - 1/2 Cup vegetable oil
  - 3 eggs
- Combine all ingredients, bake for 14-19 minutes at 350 degrees. Let cupcakes cool before frosting
- 1 can of prepared chocolate frosting.
- Mustard
- Solid food injector
- Napkins
- Disposable gloves for serving cupcakes.

## Pre-lesson preparation

- Bake cupcakes and frost cupcakes
- Take the five extra cupcakes and inject them with mustard, using the solid food injector.
- Replace five normal cupcakes with five mustard cupcakes.

## Lesson directions and outline

Share the following information with the youth:

Once you get your livestock project, you are now a member of the livestock industry. Your project animal will become food for a consumer in your county, state, or maybe even nation.

It is your responsibility as the producer of that livestock project to ensure that the product you are selling at the sale will end up a safe, wholesome, and quality product on someone's plate.

What is quality assurance? A promise you make by being involved in the livestock industry is the animal you raise for consumer use will be a safe, wholesome product.

Think back to when you received a product that made you disappointed in it. Would you consider purchasing the same product if it did not meet your expectations? When consumers consider a product to be high quality, they will choose to buy that product over another. If consumers purchase a product that does not meet their standards, they will buy a different product instead.

In the livestock industry, the products that we produce for consumers are also expected to be of high-quality, safe, and that they were produced in and harvested in a humane way.

Ask: When you raise an animal for the county fair and sell it, who's job is it to ensure that the products from your animal, such as meat, are safe and high quality? (The retailer? The processor? The breeder? You?)

Everyone who is a part of the livestock industry plays an integral role in helping to provide safe and wholesome products to consumers. This is known as quality assurance.

Quality Assurance begins for livestock producers from the moment an animal is conceived inside its mother to the time that a product reaches the consumer. There are many aspects to raising and caring for livestock and each aspect has quality assurance tied into it.

Quality Assurance for the producer includes the following:

- Genetics – ensuring the right breeding combinations for the end goal.
- Management - guaranteeing that your animals are comfortable and have all their needs met.
- Nutrition – providing the proper nutrients and balancing rations to meet your animal's needs.
- Animal Husbandry – allowing the proper housing size to permit the animal to grow properly and safely as well as follow safe handling practices.
- Veterinary Health – prevention of disease, injection techniques, drug usage and dosage, and residues and withdrawal times.

### Conducting the activity (DO)

1. Discuss with the group what quality assurance is.
2. Hand out one cupcake to each member, randomly including the mustard cupcakes.
3. Have the youth eat the cupcakes. After the youth have eaten the cupcakes, provide the youth who received a mustard cupcake a normal cupcake.

### What did we learn? (REFLECT)

- Ask: How did you feel when you ate the mustard filled cupcake? Did that product meet your expectations? Would you buy that product again?
- Ask: What are some factors that may influence the quality of the product we produce?
- Ask: What is your role in assuring safe animal products to consumers?

### Why is that important? (APPLY)

- Ask: Why is it important that you contribute safe products to the food chain?
- Ask: What is a negative effect that improper quality assurance could lead to?
- Ask: How does it feel when you buy a product that breaks the first time you use it?
- Ask: How will this activity affect other things you do? At school? At home? At work?

### Resources

Ohio State University Extension. (2011). Caring for Animals. *Beef resource handbook* (pages 12-5 through 12-6).

Ohio State University Extension. (2008). Caring for Animals. *Goat resource handbook* (pages 115, 162-163).

Ohio State University Extension. (2011). Caring for Animals. *Sheep resource handbook for market and breeding projects* (pages 136-139).

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Pederson, L., and Buckley, J. (2015). Hands On Youth Quality Assurance Training. *Making A Difference*. North Dakota State University. Available at: <https://www.ag.ndsu.edu/impactstatements/impact-statements/2015-statements/15area-l-pederson-lm.pdf/view>

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