



## 4-H Livestock Judging Workshop

Presented by:  
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August 11, 2010

## List of Potential Classes

- Heifers and/or bulls
- Steers
- Breeding and market hogs
- Breeding and market sheep
- Market does and/or wethers

## Benefits of Livestock Judging

- Build self confidence
- Public speaking skills
- Learn ability to make quick decisions and defend those decisions
- Team work
- Strengthen their knowledge in animal science area
- Networking - meet many of the nation's best livestock producers during workouts
- Enhance internship and full-time job opportunities

## Why Livestock Judging?

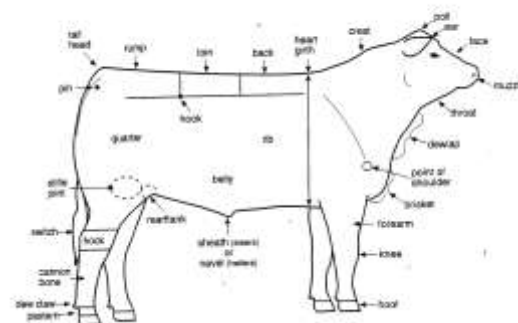
- "Judging instills confidence in those people who may be timid and humbles those who tend to be conceited."  
- Harlan Ritchie, Michigan State University

## Visual Criteria for Beef Heifers

1. Structural Correctness
2. Body volume, fleshing ability
3. Femininity
4. Style & balance
5. Muscle mass and correctness
6. Frame size, maturity pattern



Parts of a Beef Animal

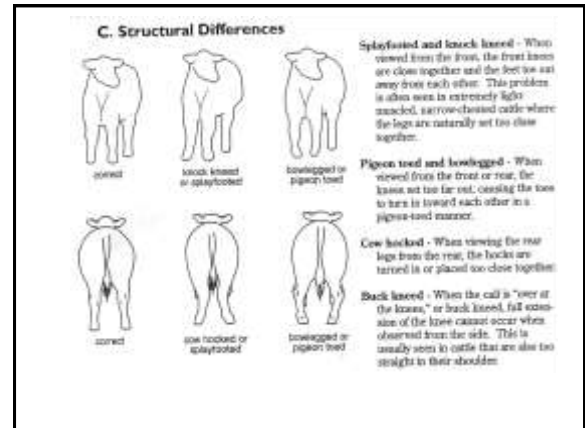
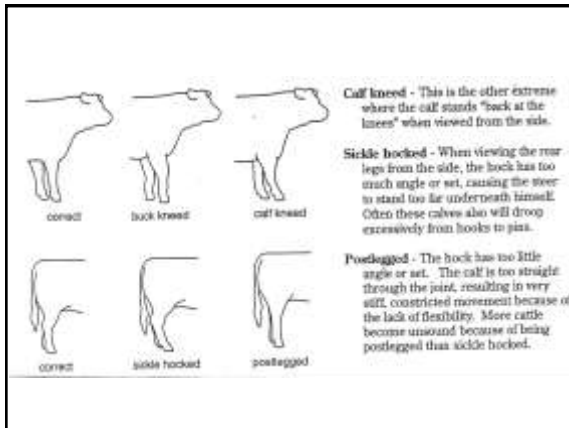


## Structural Soundness

- Important for Longevity
  - Alternative = culling
- Rear legs
  - Want "give" when animal walks

## Structural Soundness

- When evaluating structure and soundness, attention should be given to the following areas:
  1. Feet
  2. Pasterns
  3. Hocks
  4. Knees
  5. Rump
  6. Shoulder



**Desirable Structure**



**Post-legged - Back legs too straight**

## Ideal Phenotype



## Performance Data

- May include birth date, live weights, ADG, wt. per day of age, etc.
- EPDs for Beef Cattle:
  - Birth Weight (BW)
  - Weaning Weight (WW)
  - Yearling Weight (YW)
  - Milk
  - Calving Ease
  - Maternal Milk or Maternal weaning wt.
  - Gestation Length
  - Scrotal Circumference (SC)
- Carcass EPDs for Beef Cattle:
  - Carcass weight (CW)
  - Ribeye area (REA)
  - Back Fat thickness (BF)
  - Marbling (Marb).

## Scenario

- Short paragraph that indicates the primary criteria for placing the class.
- Usually gives information on feed and labor resources, breeding objectives, and marketing plan for resulting offspring.
- Performance classes will include a scenario and list of EPDs/ performance data on each animal.

## Market Steers

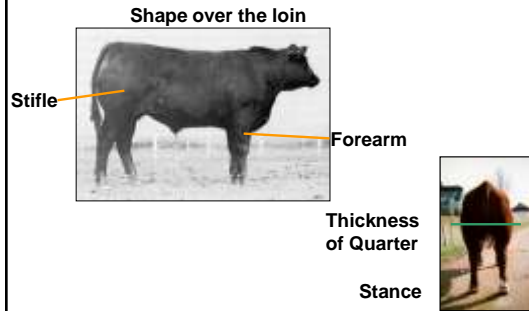
Criteria for Evaluation

## Visual Criteria for Market Steers

1. Muscling
2. Leanness / Finish
3. Proportional size
4. Structural correctness / body volume



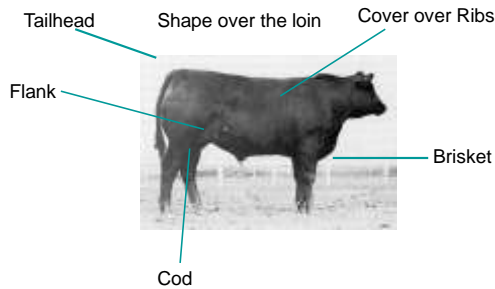
## Predictors of Muscle



## Ribeye Area

- Highly correlated with lean yield
- Predictor of total carcass muscle
- Dependant of carcass weight
- Range: 9.0 - 18.0 sq. in.
- Avg: 12.5 sq. in. for 1150 lb steer
- Rule of thumb: 1.1 sq. in. for 100 lb live wt

## Predictors of Fat



## Why are we so concerned about Fat?

- Consumer
  - More calories per oz
  - Unhealthy
- Packer
  - Fat decreases cutability. Fat is worth less than lean.
- Producer
  - As animals fatten, they become less efficient

## Types of Fat

- Subcutaneous
- Intermuscular
- Intramuscular
- Abdominal fat (Kidney, Pelvic, & Heart Fat)

## 12th Rib Fat Thickness

- Highly correlated to retail yield
- Predictor of total carcass fatness
- Range: .15 in. to .80 in.
- Avg: .40
- .25 in. considered minimum

## Quality and Yield Grades

- **Yield Grades:** calculated to predict yield of boneless, closely trimmed, retail cuts from the round, loin, rib and chuck
  - Range: 1 through 5
    - 1 = Lean and/or Muscular; High cutability
    - 5 = Fat and/or Light Muscled; Low cutability
- **Quality Grades:** indication of palatability (tenderness, juiciness, flavor)
  - Prime, Choice, Select & Standard for young beef

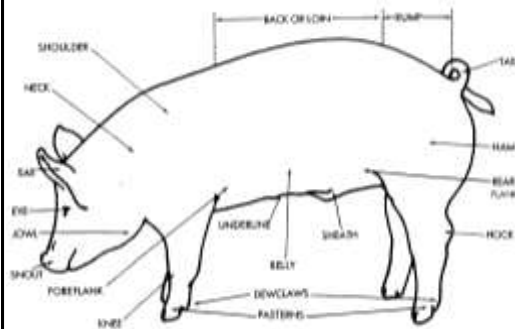


<b>Live weight:</b>	1,274 lb
<b>Carcass weight:</b>	777.5 lb
<b>Dressing percent:</b>	61.0%
<b>Adjusted Fat thickness:</b>	0.28 in.
<b>Ribeye area:</b>	15.2 sq. in.
<b>Marbling score:</b>	Small 00
<b>USDA Yield Grade:</b>	1.59
<b>USDA Quality Grade:</b>	Choice

## Swine

Breeding gilts & boars  
Market hogs

## Parts of a Hog



## Criteria for Market Swine

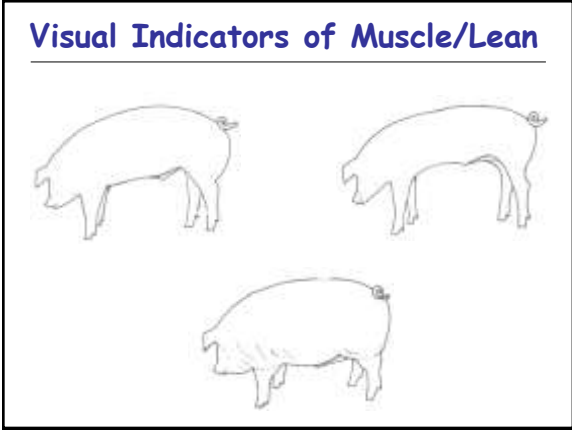
- Muscling
- Leanness
- Structure
- Size/frame



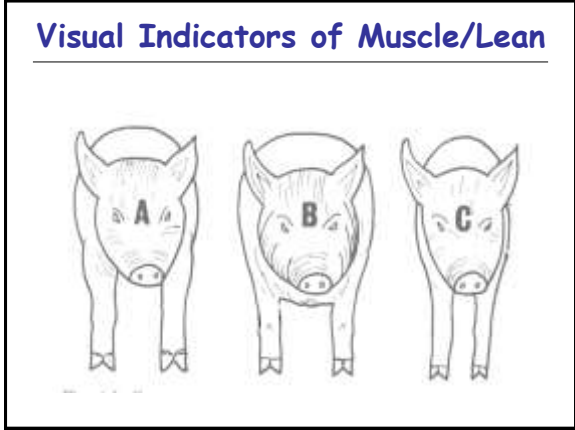
## Weight

- **Live Weight**
  - Range: 210 lb - 300 lb
  - Average: 250 to 260 lb
- **Carcass Weight**
  - Weight of dressed carcass (hot or chilled)
    - Chilled 1.5% less than hot
  - Range: 150 - 215 lb
  - Avg: 180 lb

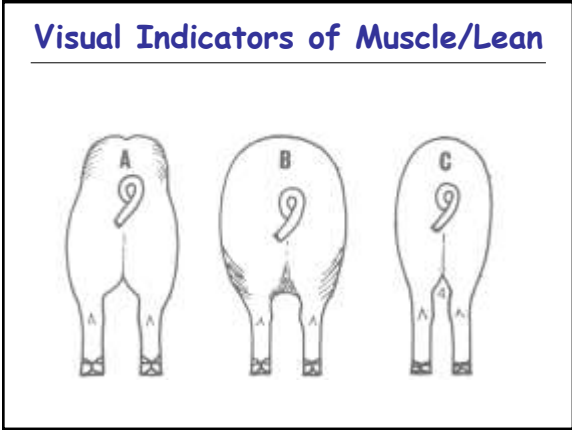
**Visual Indicators of Muscle/Lean**



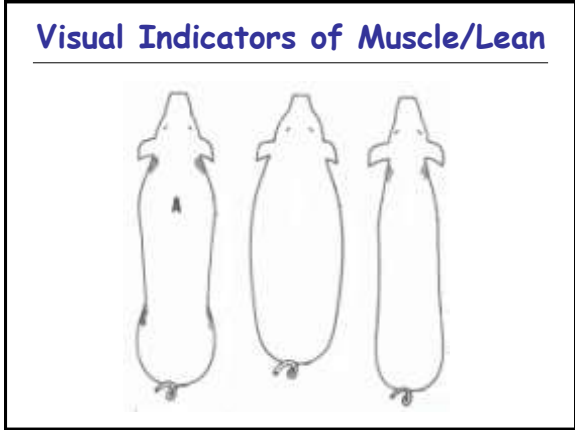
**Visual Indicators of Muscle/Lean**



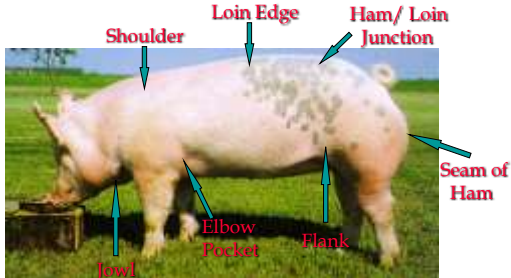
**Visual Indicators of Muscle/Lean**



**Visual Indicators of Muscle/Lean**

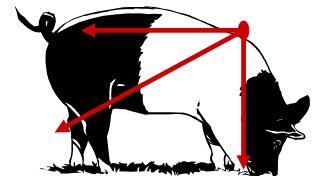


**Swine Evaluation:  
Fat Indicators**



**How Do Animals Get Fat?**

- Top to Bottom
- Front to Rear
- Gender Effects
  - Gilts leaner than barrows



### 10th Rib Fat

- Used in % Muscle Formula
- Range: .50 - 1.50 in.
- Avg.: .90 in

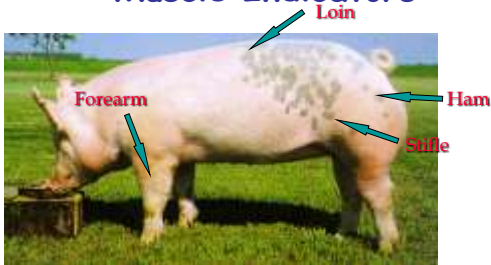


### Last Rib Fat

- Used in USDA Grade calculation
- Range: .40 - 1.40 in.
- Avg: .80 in.



### Swine Evaluation: Muscle Indicators



### Loineye Area

- Estimated at the 10th rib
- Range: 3.8 - 9.0 sq. in.
- Avg: 5.5 ↑



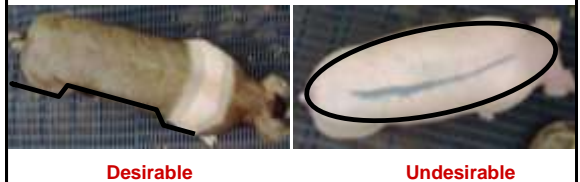
### Body Shapes - Rear View

- Heavy muscled, lean hogs are wide based



### Body Shapes - Top View

- Lean hogs = "hourglass shape"
- Fat hogs = "boat shape"



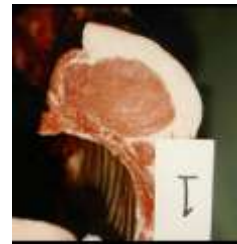
### Reading Top Shape



### Reading Top Shape



BF = .90 inches



### Reading Top Shape



BF = 1.5 inches



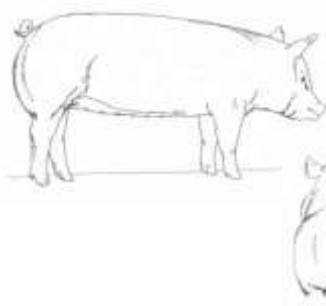
### Reading Top Shape



BF = .20



### Ideal Market Hog



Weight	275 lbs
Back fat	.8"
LEA	6.0 +
Muscle	2+
USDA Grade	#1


### Ideal Market Hog

#### Packers response:


- 270 lbs
- White hogs preferred
- Hogs that can walk
- Minimum fat depth of .6"
- Swift/Hormel .8", export market higher
- Loin eye 7"
- Minimum 54% lean
- Stress Free





**Future**



Complete  
With  
Muscle



Trend to Heavier constructed  
Bigger boned &  
Heavier muscled hogs

## Criteria for Gilts

K. J. Stalder<sup>1</sup>, C. Johnson<sup>1</sup>, D. P. Miller<sup>2</sup>, T. J. Baas<sup>1</sup>, N. Berry<sup>1</sup>, A. E. Christian<sup>1</sup>, and T. V. Serenius.<sup>1</sup> <sup>1</sup>Iowa State University, Ames, and <sup>2</sup>National Hog Farmer, Minneapolis, MN

The authors wish to credit the National Hog Farmer magazine, Belstra Milling, and Howard Miller / The American Yorkshire Club for the use of the pictures and illustrations in this educational piece.

## Selection of Maternal Line Gilts

- Growth Rate
- Maternal Ability
  - Number born alive
  - Milking ability, 21-day litter weight
  - Regularity of Production
  - Longevity
- Feet and Leg Soundness
- Underlines
- Disposition
- Composition-Muscle/Fat, (optimal, not minimum or maximum)

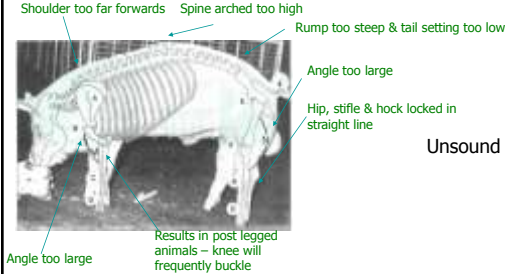
## Gilt Selection Criteria - Soundness

**Why is it important?**

- Poor rear leg structures
  - Sows spend a lot of time sitting
- Poor front leg structure
  - Sows become buck kneed
- Poor rib shape
  - Sows have difficulty getting up
  - Shoulder abrasions prevalent

All will contribute to a sows early removal from the breeding herd


## Gilt and Boar Selection Criteria - Soundness




**Unsound**

## Feet and leg evaluation


- Replacement gilts should move freely with their legs stationed soundly at the corners with adequate width between them. They should have proper set to their hock and pasterns. Their feet should be big and their toes should be spread apart.



Good base width



Good width of chest, proper set to the front leg and foot, and good foot size



Good length of body, proper set to the rear legs, and level bodied with good hip structure

## Feet and leg evaluation



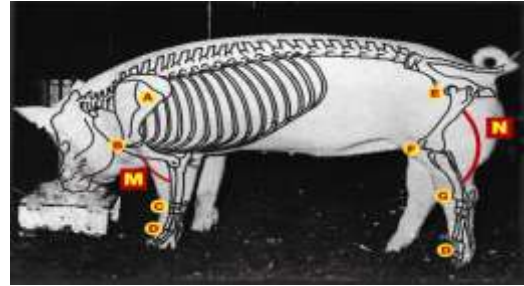
Narrow based



Tight muscled –  
"goose steps" on  
her rear legs

- Gilts that are "narrow based" should be culled whenever possible-these are most often "flat sided"
- Likewise, gilts that are excessively muscled or "tight muscled" do not move free and easy and should be culled

## Desirable Structure



## Examples of replacement gilt candidates that should be culled.



This gilt has a steep rump and is shallow bodied



This gilt is straight fronted and is weak behind her shoulder (broken topped)



This gilt has undesirable rear leg structure and is excessively muscled

## Feet evaluation



Ideal toe size and spacing

- It is critical to also evaluate toe size
- Leg conformation tends to conform to the shape and size of the toes
- Ideal toes
  - Big toes
  - Evenly sized
  - Spread apart
- Above attributes result in better weight distribution

## Gilt Selection Criteria - Underlines

- Both rows of teats should be pointed downward so they are accessible when sow lies down
- Ideal size should be approximately the size of a pencil eraser
- At least 12 (6 per side) evenly spaced nipples and no pin or inverted nipples



## Reproductive Soundness - Underlines



- Discrimination should be applied when
  - Fewer than seven functional nipples are present on each side
  - Blind or pin nipples exist
  - Poor spacing and / or placement are present
  - Inverted nipples are present

## Reproductive soundness - External genitalia



Example of a well developed, normal vulva

- The external genitalia should also be evaluated on all replacement gilt candidates.
- Gilts should have a well developed vulva that is not tipped up

## Reproductive soundness - External genitalia



- Cull gilts having an infantile vulva
  - These animals frequently have an under-developed reproductive tract
- Gilts having a small vulva should be avoided
  - Could have difficulty mating (particularly in a natural mating setting)
  - Once mated, these animals could have farrowing difficulties
- Tipped vulvas should be avoided
  - It is thought that tipped vulvas may contribute to a higher incidence of metritis and cystitis.

## Criteria for Market Lambs

### Ideal Market Lamb

- Yields a high amount of boneless trimmed retail cuts
- Trim and free of excess condition (indicators include breast, middle, over ribs and top)
- Ribs and top should be firm to the touch, (indicates a combination of muscle and trimness)
- Muscular top, deep loin
- Square and level rump
- Muscular leg, ample amount of shape & expression
- Stylish and well-balanced (length of body and front)

### Ideal Market Lamb



### Live Lamb Evaluation

- Weight
- Dressing percent
- 12th rib fat
- Ribeye area
- Yield grade
- Quality grade

## Weight

- Live weight
  - Range: 90 - 150 lb
  - Avg: 125 lb
- Carcass weight
  - Weight of dressed carcass with kidney and pelvic fat removed

## Dressing Percent

- Percentage of live weight that ends up as carcass
- Range: 45 - 58%
- Avg:
  - 53% for shorn lambs
  - 50% for unshorn lambs

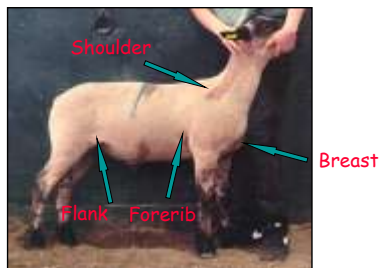
## Factors Affecting Dressing Percent of Lamb

- Pelt weight
  - Unshorn lambs will dress 1-5% lower than shorn
- Fill
- Muscling
- Fat cover

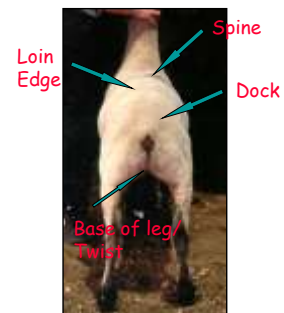
## Fat Thickness

- Taken at the 12th rib
- Normally adjusted up to a .1 inch due to body wall fat
- Used in YG equation
- Range: .05 - .50 in.
- Avg: .25 in.
- Minimum requirement: .15 in.

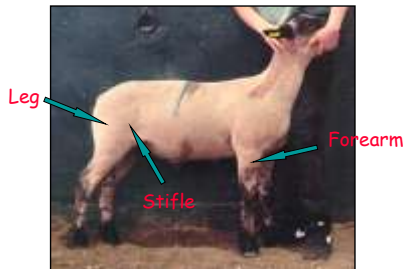
## Lamb Evaluation: Fat Indicators



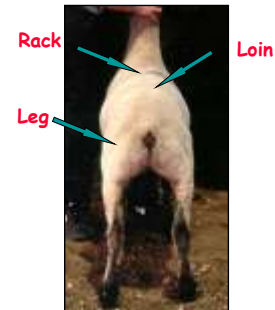
## Lamb Evaluation: Fat Indicators



## Lamb Evaluation: Muscle Indicators



## Lamb Evaluation: Muscle Indicators



## Ribeye Area

- Measured at 12th rib
- Indicator of total muscle in carcass but not used in YG equation
- Range: 1.5 - 4.5 sq. in.
- Avg: 2.5 sq. in.

## Yield Grade

- Predicts the yield of boneless, closely trimmed retail cuts from the leg, loin, rib, and shoulder
- Only includes adjusted 12th rib fat thickness
- $YG = 0.4 + (10 * \text{Adj. fat thickness})$

## Quality Grade

- Predictor of eating quality based on three factors:
  - Maturity
  - Lean Quality (texture, firmness, and marbling)
  - Conformation
- Range: Good to Prime, Avg: Choice
- Majority of market lambs will grade Choice

<b>Live weight:</b>	148 lb
<b>Carcass weight:</b>	93.3 lb
<b>Dressing percent:</b>	63.0%
<b>Adjusted fat thickness:</b>	0.14 in.
<b>Ribeye area:</b>	3.80 sq. in.
<b>USDA Yield Grade:</b>	1.80
<b>USDA Quality Grade:</b>	Choice

## Criteria for Breeding Sheep

### Ewes and Rams

## Ideal

- Structurally correct
  - Feet & legs placed square, with adequate width between them
  - Heavy boned, large foot
- Exceptional sex characteristics
- Breed characteristics, more important in sheep
- Long bodied
- Strong, level top
- Rib cage with spring and arch
- Deep, long loin, square rump, smooth muscle pattern
- Frame size

## Breed Character Descriptions for Sheep

- |                                     |                             |
|-------------------------------------|-----------------------------|
| <b>Advantages:</b>                  | • Disadvantages:            |
| • More breed character              | • Long, narrow head         |
| • More open faced (Hamps & Suffolk) | • Plain (coarse) headed     |
| • More correct set to ear           | • Roman-nosed               |
| • More femininity                   | • Wooly headed              |
| • More complete wool cap            | • Parrot mouth              |
| • Longer, more bell-shaped ear      | • Short-eared (Suffolks)    |
| • Longer-headed                     | • Black in the poll (Hamps) |

## Suffolk Breed Character

- Advantages:
  - Blacker about points
  - Longer, more bell-shaped ear
- Disadvantages
  - Brown legged/headed
  - Small



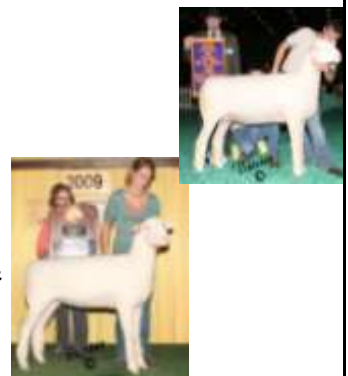
## Hampshire Breed Character

- Advantages:
  - Fuller wool cap
  - Smaller, thicker ear
- Disadvantages
  - Broken wool cap/bare headed
  - Large ear



## Dorset Breed Character

- Advantages:
  - Shorter, thicker ear
  - Shorter muzzle
- Disadvantages
  - Large ear
  - Longer muzzle



### Southdown Breed Character

- Grayish to mouse brown face and legs
- polled



### Breed Character



FIGURE 16.6 | Illustration of an open-faced ram.



FIGURE 16.7 | Illustration of a closed-faced, wool blind eye.

### Jaw Defects are Highly Heritable



FIGURE 16.8 | Illustration showing extreme (A) and excessive jaw structures (overbit jaw or parrot mouth B, and underbit jaw or monkey mouth C).

### Rams should be Masculine & Ewes should be feminine



FIGURE 16.9 | Illustration of a masculine head.



FIGURE 16.10 | Illustration of a feminine head.



FIGURE 16.11 | Illustration of a very lean, muscular goat that has desirable shape down his legs.



FIGURE 16.12 | Illustration of a fat, square-topped goat.

### Criteria for Meat Goats





## Criteria

- Degree of Muscling
- Soundness and structural correctness
- Degree of finish
- Capacity
- Balance
- Style
- Freshness (healthy, slick hair coat)

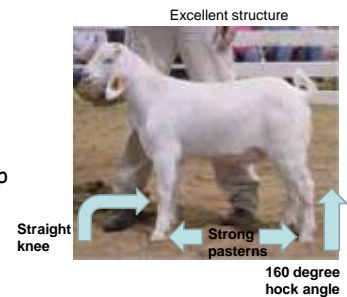
## Evaluating Degree of Muscling

- Best evaluated by considering:
  - Thickness through the center of the leg
  - Width between rear feet
  - Width, depth, and length of loin



## Evaluating Structural Soundness

- Feet & toes
- Knees
- Hocks
- Pasterns
- Levelness of top



## Evaluating Finish

- Unique characteristics of meat goats:
  - They deposit fat from the inside to the outside.
  - Goats do not marble
- Meat goats should be lean and trim
  - They should also have bloom
  - Lean meat goats that are unthrifty are discounted

## Evaluating Capacity

- Refer to the combined volume of:
  - Body width
    - Open rib shape and good base width desired
  - Body depth
  - Body length





## Evaluating Balance

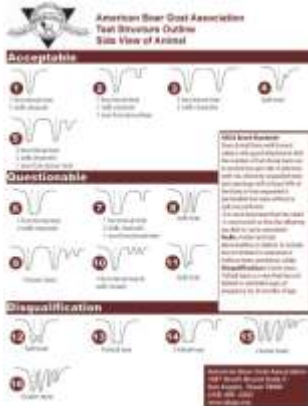
- Should have the correct proportions of:
  - Body width
  - Body depth
  - Body length



## Evaluating Style



- Meat goats with style will exhibit the following:
  - A long, level top line
  - A long neck that sits high on the shoulder
  - A clean breast
  - A smooth, neat shoulder that blends smoothly from neck to forerib



## What are Oral Reasons??

- A 2 minute speech (or less) explaining your placing on the class.
- You are giving your opinion on how you "saw" the class, especially on a close pair.
- What skills do learn from giving oral reasons?
  - Makes you a better thinker, a keen observer, improves speaking ability, and increases confidence (all of these a critical skills needed to be successful in a career).

## Note Taking

- 15-minutes per class are allowed for note taking and marking the card.
- Most important: note taking and taking a mental picture of the class.
- ID's, points to help remember the class
- Just take notes, don't write out an entire set of reasons.

## What Notes to Take?

- ID's
  - Ex: belted gilt, white-uddered heifer, pelty hided wether, black baldy heifer, #7 littermates, etc.
- Individual notes
  - Use "est" and "er" whenever possible
  - Ex: fattest barrow, lightest muscled heifer, leanest wether, poorest balance ewe
  - Should only use if obvious

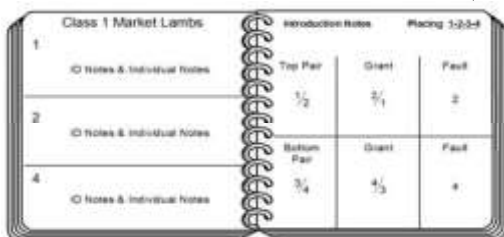
## What notes to take?

- Coupling of Statements
  - Used to introduce pairs that are similar in either ID traits or individual traits.
  - Ex: "In my top pair of heavier muscled, wider based heifers, I chose 1 over 4 because ....."
  - Since this top pair is coupled on muscling, use comparative terms ("er") for structure, volume, and/or balance.

## Organizing your Notes

- Introduction - includes name of the class and placing plus a short opening statement (not canned!)
- Top pair - advantages of the 1<sup>st</sup> place animal over the 2<sup>nd</sup>, grants, and faults.
- Middle pair - advantages of the 2<sup>nd</sup> place animal over the 3<sup>rd</sup>, grants, and faults.
- Bottom pair - advantages of the 3<sup>rd</sup> place animal over the 4<sup>th</sup>, grants and faults.

## Notebook Layout



Class 1 Market Lambs		Introduction Notes		Placing 1-2-3-4	
1	© Notes & Individual Notes	Top Pair	Grant	Fault	
2	© Notes & Individual Notes	1/2	2/1	3	
4	© Notes & Individual Notes	Bottom Pair	Grant	Fault	
		3/4	4/3	4	

## Delivery and Presentation

- Prepare your notes
- Develop a mental picture
- Be familiar with the reasons format
- Practice your delivery
- Talk a little louder than conversational tone
- Use voice inflections at the proper places

## Hints for Earning a High Score on Reasons Classes

- Don't use your notes in the delivery room
- Don't memorize a canned set of reasons
- Tell the truth
- Use terminology that is appropriate for that species
- On a market animal class, mention carcass quality (or take each animal "to the rail")

## Hints for Earning a High Score on Reasons Classes

- Don't stand too close to the official (~ 8-10 feet is about right)
- Keep both hands behind your back
- Look the official squarely in the eye when speaking
- Don't chew gum, dress neatly, no caps
- Relax and have fun!

## Even Though Visual Appraisal is Subjective:

- Most livestock are bought and sold with visual appraisal influencing the value
- Performance records of individual animals are important
  - Growth Rates
  - Efficiency of Gain
  - Ultrasound measurements
    - Backfat
    - Ribeye area
    - Marbling

Questions?



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