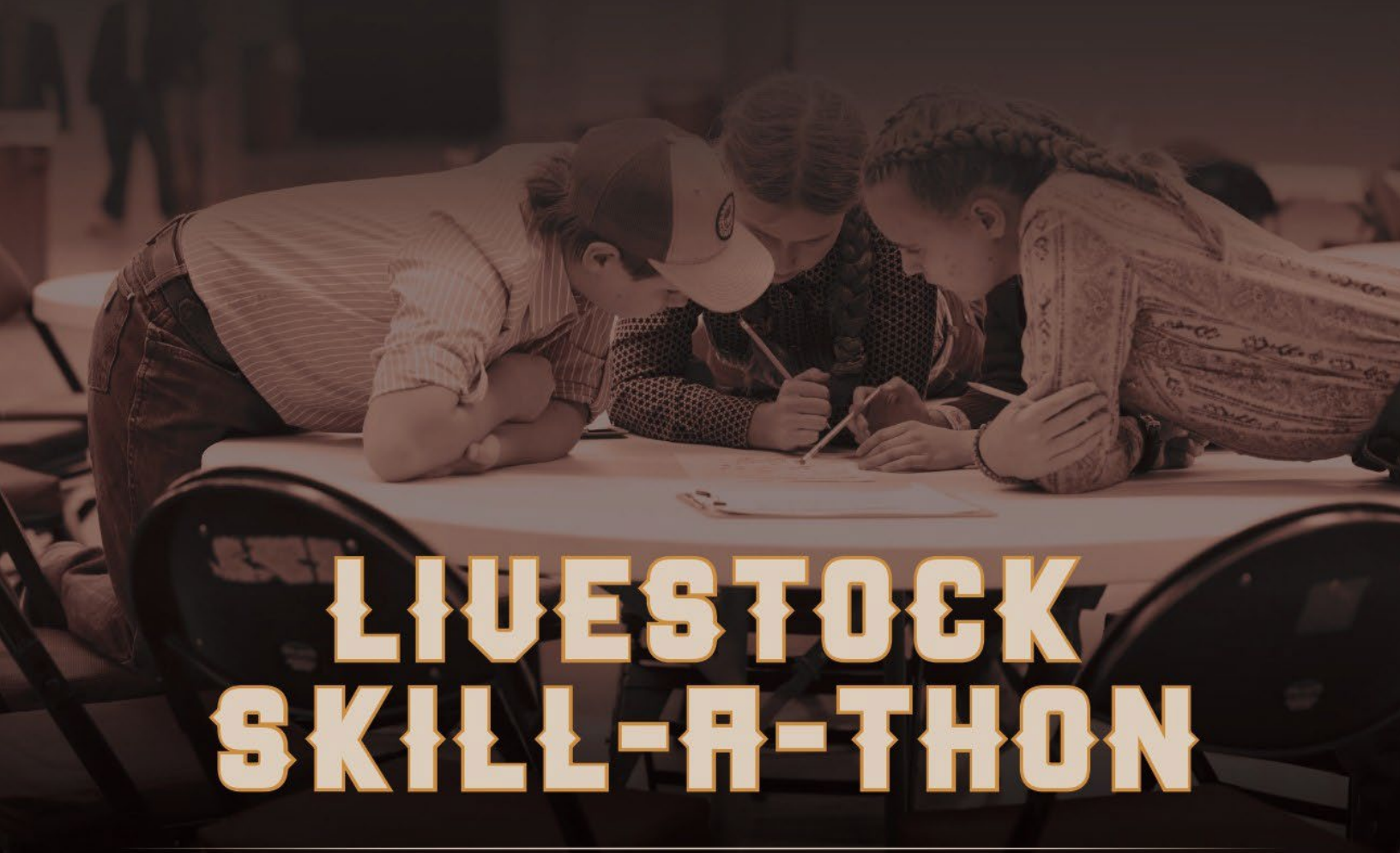




**ARIZONA  
NATIONAL**  
*Livestock Show*



**LIVESTOCK  
SKILL-A-THON**

For more information, contact Arizona National at:  
[information@aznational.org](mailto:information@aznational.org) | (602) 258-8568 | [www.aznational.org](http://www.aznational.org)

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## **CONTEST ROTATION LIST**

### **JUNIOR CONTEST:**

#### **Team Rotations – 100 points possible**

1. Practicum 1 – 50 points possible
2. Practicum 2– 50 Points possible

#### **Individual Rotations – 150 points possible**

1. Breed Identification List (10 breeds) – 20 points possible
2. Equipment Identification List (10 items) – 20 points possible
3. Feed Identification List (10 samples) – 20 points possible
4. Meat Identification List (10 cuts – retail names only) – 20 points possible
5. Knowledge Test (10 matching questions) – 20 points possible
6. Livestock Judging – 50 points possible

### **SENIOR CONTEST:**

#### **Team Rotations – 100 points possible**

1. Practicum 1 – 50 points possible
2. Practicum 2– 50 Points possible

#### **Individual Rotations – 400 points possible**

1. Breed Identification List (15 breeds with 5 questions) – 60 points possible
2. Equipment Identification List (15 items with 5 questions) – 60 points possible
3. Feed Identification List (15 samples with 5 questions) – 60 points possible
4. Meat Identification List (10 cuts – Species (1pt), Wholesale (2pts) and Retail (3pts)) – 60 points possible
5. Knowledge Test (20 multiple choice, 10 matching questions) – 60 points possible
6. Livestock Judging – 100 points possible
  - a. Placing – 50 points possible
  - b. Questions – 50 points possible

**TENTATIVE CONTEST SCHEDULE**

Time							
3:00-3:30 PM	Contest Check-In						
3:30-3:40 PM	Junior & Senior: Livestock Judging						
	<i>Junior and senior divisions separate. Both divisions will follow the same format for the rotation portion of the contest.</i>						
	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7
4:00-4:15 PM	Knowledge Test Part 1	Practicum 2	Practicum 1	Equipment ID	Breed ID	Feed ID	Meat ID
4:15-4:30 PM	Knowledge Test Part 2	Knowledge Test Part 1	Practicum 2	Practicum 1	Equipment ID	Breed ID	Feed ID
4:30-4:45 PM	Meat ID	Knowledge Test Part 2	Knowledge Test Part 1	Practicum 2	Practicum 1	Equipment ID	Breed ID
4:45-5:00 PM	Feed ID	Meat ID	Knowledge Test Part 2	Knowledge Test Part 1	Practicum 2	Practicum 1	Equipment ID
5:00-5:15 PM	Breed ID	Feed ID	Meat ID	Knowledge Test Part 2	Knowledge Test Part 1	Practicum 2	Practicum 1
5:15-5:30 PM	Equipment ID	Breed ID	Feed ID	Meat ID	Knowledge Test Part 2	Knowledge Test Part 1	Practicum 2
5:30-5:45 PM	Practicum 1	Equipment ID	Breed ID	Feed ID	Meat ID	Knowledge Test Part 2	Knowledge Test Part 1
5:45-6:00 PM	Practicum 2	Practicum 1	Equipment ID	Breed ID	Feed ID	Meat ID	Knowledge Test Part 2
6:00-6:45 PM	Scoring/Dinner						
6:45-7:15 PM	Awards						

**BREED IDENTIFICATION LIST**

**BEEF**

**BLACK ANGUS**

**Origins**

- Developed in the early part of the 19th century from the polled and predominantly black cattle of Northeast Scotland.

**Characteristics**

- Naturally polled, predominantly black
- Adaptable, early maturing, resistant to harsh weather, easy calving



**BLACK HEREFORD**

**Origins**

- Derived mainly from Red Hereford cattle with some mix from black Angus cattle.

**Characteristics**

- Like red Herefords, black Herefords are known for their feed efficiency and docile temperament.
- Black in color with a white head and underline



**BRAHMAN**

**Origins**

- Originated from Bos Indicus cattle from India, the "sacred cattle of India."
- Bred in United States beginning in 1885.

**Characteristics**

- Large hump over top of the shoulder and neck
- Vary in color from very light grey or red to almost black
- Good mothers, hardy, adaptable, heat tolerant



## **BRAUNVIEH**

### **Origins**

- Braunvieh is a German word meaning 'Brown Cattle.'
- There were at least 12 types of brown cattle found in the mountains of Switzerland during the 1600s, including the Braunvieh

### **Characteristics**

- Dual purpose breed
- Various shades of brown, predominantly mousy brown, but ranging from light brown/ grey to dark brown.
- Skin is pigmented, black muzzle, and dark hard hooves.



## **BRITISH WHITE**

### **Origins**

- One of the oldest breeds in Britain with direct links with the ancient indigenous wild white cattle of Britain.
- Originated in Whaley Abbey, Lancashire.

### **Characteristics**

- Large framed, naturally polled, dual-purpose
- White in color with black points and skin pigmented pink or blue.



## **CHAROLAIS**

### **Origins**

- Originated in west-central France.
- White cattle were first noticed in the region as early as 878 A.D., and were popular in markets by the sixteenth and seventeenth centuries.

### **Characteristics**

- White in color with a pink muzzle and pale hooves, horned, good milking
- Medium to large frame, short broad head, deep broad, long body.



## CHIANINA

### Origins

- May be one of the oldest breeds of cattle in existence.
- Bred primarily in the west central part of Italy.

### Characteristics

- One of the largest framed breeds of cattle.
- Short hair that varies from white to steel grey, black skin, black mucosa, well-defined muscling, long legs, valued for draft and meat production.



## GELBIEH

### Origins

- Originated in the three Franconian districts of Northern Bavaria in Southern Germany.

### Characteristics

- Reddish gold to russet or black in color, strong skin pigmentation, fine hair, ideal in temperate to arid conditions
- Medium to large in size, long body, above average muscling, medium to late maturing, docile disposition
- It was once a triple purpose breed (milk, meat, draft)



## HEREFORD

### Origins

- Origin of the Hereford has been lost over time. Generally agreed that it was founded along the border of England and Wales.

### Characteristics

- Bred for high yield beef and efficiency of production.
- Dark red-yellow, white face, crest, dewlap, underline.
- Known for their vigor and foraging ability and longevity



## LIMOUSIN

### Origins

- Originated in the West of the Massif Central between Central and South West France, a rainy region with harsh climatic conditions and poor granite soil.
- Limousin cattle evolved into a breed of unusual sturdiness, health, and adaptability.

### Characteristics

- Large frame, strong-boned, small head, broad forehead.
- Originally golden-red in color, coloration has evolved to include black genes



## LONGHORN

### Origins

- Stemming from ancestors that were the first cattle to set foot on American soil almost 500 years ago.

### Characteristics

- Color varies widely, usually variegated color pattern, slow to mature, reproductive period is twice as long as that of other breeds. Natural resistance to most common cattle diseases and parasites.
- Most notable for horn size which can reach 100 inches.



## MAINE ANJOU

### Origins

- The breed origination in the northwestern part of France at the beginning of the 19th century.

### Characteristics

- Originally dark red with white markings, modern Maine Anjou cattle are black in color and can have white markings.



## RED ANGUS

### Origins

- Red Angus has the same origins as the Aberdeen Angus.
- Originally, it was brought in by the Vikings from Europe and introduced to England and Scotland, these cattle were small, dun-colored, and polled.

### Characteristics

- Similar in conformation to the Aberdeen Angus
- Medium in size, beefy carcass, red in color with pigmented skin.



## SANTA GERTRUDIS

### Origins

- Developed in South Texas brush country.
- Referred to as America's original beef breed.

### Characteristics

- Red in color, short slick coat, red pigmented skin
- Broad, strong, well-muscled, may be polled or horned



## SHORTHORN

### Origins

- Evolved over the last two centuries from Teeswater and Durham cattle found in the Northeast of England.
- Breed was used primarily as a dual-purpose breed

### Characteristics

- Come in three colors: Red, White, and Roan. Cattle may be horned or polled.
- Excellent rate of gain, good feed conversion, increased marbling, and tenderness.



## **SIMMENTAL**

### **Origins**

- History dates back to the Middle Ages. Early records indicate that they were the result of a cross between large German cattle and a smaller breed from Switzerland.
- Original selection criteria in Europe included milk, meat, and draft.

### **Characteristics**

- Originally varied from gold to red with white. Modern Simmental are black, may have white on underline of face.
- Highly adaptable, heavily muscled, and well conformed



## **TARENTEISE**

### **Origins**

- Developed in the French Alps in the 1800's, due to geographic isolation of the mountains they developed separately from any other cattle breeds, and became incredibly hardy

### **Characteristics**

- Reddish brown color dark pigmentation nose eyes and ears
- Early maturing
- Moderate frame size, heavy marbling



## **BREED IDENTIFICATION LIST**

### **SWINE**

#### **BERKSHIRE**

##### **Origins**

- Named after Berkshire County, England, where they were first discovered.
- First brought to the US in the 1820's.

##### **Characteristics**

- Terminal Breed
- Medium size, black with six white points (four white socks, white snout, and white tipped tail), erect ears, well marbled, highly palatable meat



#### **CHESTER WHITE**

##### **Origins**

- Originated in Chester County, Pennsylvania around 1815-1818.
- Developed using strains of large, white pigs common to the Northeast US and a white boar imported from Bedfordshire County, England.

##### **Characteristics**

- Dual purpose breed. Versatile, most durable of white breeds
- Solid white, drooping ears



## **DUROC**

### **Origins**

- In 1812, early large “Red Hogs” were bred in New York and New Jersey.
- Large litters and the ability to grow quickly were prominent characteristics.

### **Characteristics**

- Terminal Breed
- Reddish-brown and light golden to dark-red, large-frame, muscular, drooping ears.
- Tend to be one of the least aggressive breeds, large litters, quick to grow.



## **HAMPSHIRE**

### **Origins**

- Originated in Hampshire, Wessex, UK in 1832

### **Characteristics**

- Terminal Breed
- Erect ears, black body with a full white belt around the middle covering the front legs.
- Muscled and rapid growers, longevity, lean, high carcass quality



## **HEREFORD**

### **Origins**

- Originating in the United States, the Hereford was created from a synthesis of Duroc and Poland China.
- First developed in 1920-1925.

### **Characteristics**

- Dual purpose breed
- Red-brown and white coloration that resembles Hereford cattle, drooping ears
- Emphasized early maturation, grain efficient, large litters, excellent mothers.



## LANDRACE

### Origins

- Established from the Danish Landrace that had its origin in 1895.

### Characteristics

- Maternal Breed
- Solid white in color, ears are large, drooped and slanted forward, long bodied.
- Noted for ability to farrow and raise large litters, high percentage of carcass weight
- Crosses well with other breeds,



## PIETRAIN

### Origins

- Developed in Pietrain, Belgium around 1950-51

### Characteristics

- Terminal Breed
- Medium size, erect ears, white with black spots, rings with light pigmentation that carries white hair.
- Lean, extremely muscular, production oriented, carries the Porcine Stress Syndrome gene.



## POLAND CHINA

### Origins

- Developed between 1835 and 1870 in Butler and Warren counties in Ohio by crossing Polish pigs and Big Chinas.

### Characteristics

- Terminal Breed
- Black with a white face and feet and a white-tipped tail, drooped ears
- Known for their large size, excellent feeders, quiet disposition, sound feet and legs



**SPOTTED**

**Origins**

- Descended from the Spotted Hogs which trace their ancestry to the original Poland China

**Characteristics**

- Terminal Breed
- Black and white spots with no red or brown tints, drooping ears
- Fast-gaining, feed efficient, early maturing.



**TAMWORTH**

**Origins**

- Originated in Ireland, brought to Tamworth, England in 1812 where its name is derived.
- One of the oldest and purest breeds
- English breed of hog that was of distinctly "bacon-type."

**Characteristics**

- Rugged, thrifty, lean-type hog.
- Excellent mothers, long deep sides erect ears
- Colors range from a light red to dark mahogany red.



**YORKSHIRE**

**Origins**

- Developed in the county of York, England.
- The first Yorkshires in the United States were brought into Ohio around 1830.

**Characteristics**

- Maternal breed
- White in color with erect ears
- Productive and performance oriented, durable mothers



## BREED IDENTIFICATION LIST

### SHEEP – MEAT BREEDS

#### CHEVIOT

##### Origins

- In the Cheviot Hills, on the border of England and Scotland.

##### Characteristics

- Distinctive white face, wool-free head and legs, pricked ears, black muzzle and black feet
- Highly alert, long-wool breed, hornless, reasonable frame.
- Thrived in the bleak, windswept conditions with their easy lambing and fast maturity.



#### DORSET

##### Origins

- During Spain's attempt to conquer England, Merino sheep were brought into the Southwest England and were crossed with the horned sheep of Wales, producing a desirable all-purpose sheep.

##### Characteristics

- Solid white sheep, medium size, good body length and muscle conformation. Fleece is very white, strong, close, and free from dark fiber.
- Ewes are good milkers, good mothers, and multiple births are not uncommon.



#### HAMPSHIRE

##### Origins

- Acquired its name from the county of Hampshire in Southern England where they were developed.

##### Characteristics

- Large, open faced, active, mild disposition. Ears and face should be dark of color and practically free of wool from the eyes down. An unbroken wool cap should extend from the neck over the forehead. Legs below the knee and hock should be relatively free of wool.



## **MONTDALE**

### **Origins**

- Developed in the 1930s by E.H. Mattingly, a Midwestern commercial lamb buyer.
- Mattingly selected the Cheviot and Columbia breeds as the basis for his project.

### **Characteristics**

- Small head, open face, clean legs, heavy fleece, prolific, good mothers, strong, healthy and vigorous.
- Bare legs and heads with white wool and black nostrils and hooves.



## **ROMNEY**

### **Origins**

- Traces beginnings to the marshy area of Kent in England in the 1800s.
- Evolved from medieval long wool types.

### **Characteristics**

- Large-sized breed, wide head, large prominent eyes, wide and deep chest,
- Can be either white or colored, generally open-faced with long wool that grows over the legs in full.



## **SHROPSHIRE**

### **Origins**

- Dual-purpose breed of domestic sheep from the United Kingdom.
- Originated in the hills of Shropshire, and North Staffordshire, England.

### **Characteristics**

- Medium to large sized breed with stylish carriage, covered in fine dense wool.
- Robust, wide and deep chest, well-fleshed, symmetrical
- Can be open faced or have some wool along eye channels



## **SOUTHDOWN**

### **Origins**

- Developed in Sussex, England during the late 1700 and early 1800s.
- Best suited for farm flock production

### **Characteristics**

- Small to medium sized breed with gray to mouse-brown face and lower legs and is polled.
- Early maturing breed, good lambing ability, average milk production.
- Adaptable to varied and wet climates, best suited for farm flock production.



## **SUFFOLK**

### **Origins**

- Result of crossing Southdown rams on Norfolk Horned ewes.
- Adapted for traveling great distances for food, developing a superbly muscular body

### **Characteristics**

- Large framed sheep, polled, dark face and legs, fine boned.
- Derives meatiness and quality of wool from the old original British Southdown.



## **TUNIS**

### **Origins**

- Evolved from a number of importations of fat-tailed sheep from Africa and the Middle East in the late 18th and early 19th centuries.

### **Characteristics**

- Born red or tan in color, sometimes with a white spot on the forehead and tip of the tail. Gradually turn white as the wool grows, however the hair on the face and legs retain their red color.



## **BREED IDENTIFICATION LIST**

### **SHEEP - WOOL BREEDS**

#### **COLUMBIA**

##### **Origins**

- Developed by the United States Department of Agriculture as a true breeding type to replace cross breeding on the range.
- In 1912, rams of the long wool breeds were crossed with high quality Rambouillet ewes to produce large ewes yielding more pounds of wool and more pounds of lamb.

##### **Characteristics**

- Large frame, phenomenal growth, hornless, heavy white fleece
- Superior mothering ability, heavy milk production, lambs make larger gains on grass and less feed, more pounds of wool and pounds of lamb.



#### **CORRIEDALE**

##### **Origins**

- Developed in New Zealand and Australia during the late 1800s' from crossing Lincoln or Leicester rams with Merino females.

##### **Characteristics**

- Dual-purpose sheep. Large framed, polled with good carcass quality.
- Solid white, black nose and hooves, heavy wool cap



## **COTSWOLD**

### **Origins**

- Long wool sheep breed developed on the Cotswold Hills in the west of England.

### **Characteristics**

- Large framed sheep, efficient grazers, known for their docile dispositions, excellent mothers.
- Primarily solid white, however black Cotswold have begun to appear recently. Fleece is long, thick, and curly. Polled



## **FINNSHEEP**

### **Origins**

- Native to Finland, were first imported to North America by the University of Manitoba, Canada in 1966.
- Considered to be several hundred years old, descending from the Mouflon that live in the wild on Sardinia and Corsica.

### **Characteristics**

- Known for multiple births of three, four, even five lambs at a time. Lambs are often small but are vigorous at birth and grow well.
- Most often white, but are seen in all colors, solid or spotted, wool is medium to fine. Usually polled, dual purpose breed



## **LINCOLN**

### **Origins**

- Said to be the result of crossing the Leicester and the native sheep of Lincolnshire in the early 1900s.

### **Characteristics**

- Large sized breed with a deep body, straight and strong in the back and covered thickly in wool as mature sheep.
- May be completely white in color, but can also be shades of black, charcoal, gray and silver.
- Heavy long fleece, Dual purpose breed



**MERINO**

**Origins**

- Founded in Spain near the beginning of the 12th century.

**Characteristics**

- Known for excellent, fine wool quality
- Medium-sized with white legs and faces



**RAMBOUILLET**

**Origins**

- Originated with Spain's Merino flocks, which were known to have the world's finest wool.

**Characteristics**

- Largest of fine wool sheep, white face and legs, heavy fleece
- Well known for its wool, but also for its meat, both lamb and mutton.



## **BREED IDENTIFICATION LIST**

### **SHEEP - HAIR BREEDS**

#### **DORPER**

##### **Origins**

- South African mutton breed developed in the 1930s from the Dorset Horn and the Blackheaded Persian.

##### **Characteristics**

- Adaptable, does well in various range and feeding conditions
- Easy to care for, required minimum labor.
- Its skin covering is a mix of hair and wool and will drop off naturally if not shorn to keep tidy.



#### **KATAHDIN**

##### **Origins**

- A breed of hair sheep developed in the United States at the Piel Farm in north central Maine in the 1950s.

##### **Characteristics**

- Hardy, adaptable, low maintenance sheep, produces superior lamb crops, lean meaty carcasses. Can be any color or color combination.
- Medium-sized, efficient, bred for utility and for production.
- Exceptional mothering ability and lambing ease.
- Their smooth hair coat allows them to tolerate heat and humidity well, and are significantly tolerant of internal and external parasites, requiring only minimal parasite treatment.



## BREED IDENTIFICATION LIST

### GOATS

#### ANGORA

##### Origins

- Originated in the district of Angora in Asia Minor. Dates back to early biblical history

##### Characteristics

- Bucks have a pronounced spiral to their horns, which comes back and away from their head.
- Except for the face, the breed is entirely covered in a coat of long ringlets of fine mohair. The face and coat are normally white, but black, brown, and grey also occur.



#### BOER

##### Origins

- An improved indigenous breed with some infusion of European, Angora, and Indian goat

##### Characteristics

- Largest meat breed goat
- Horned breed with lop ears and showing a variety of color patterns, however white with a reddish-brown head and ears is most common.



#### KIKO

##### Origins

- Breed of meat goat originating from New Zealand.
- Developed in the 1980s by crossbreeding local feral goats with imported dairy goat bucks.

##### Characteristics

- Generally solid white or cream in color, however darker colors, including black, can be seen.
- Rapid growth, meat breed
- Tolerant of rustic conditions, resistant to internal parasites.



## SPANISH

### Origins

- Developed through natural selection from goats first placed in Texas in the early 1540s by Spanish explorers.

### Characteristics

- Can be any color or color pattern. Moderate in size and growth rate.
- Especially tolerant of difficult conditions and forage well on local plants. Used often from meat and brush clearing
- Spanish does are prolific milk producers for the moderate growth rate of their kids.



**EQUIPMENT IDENTIFICATION LIST**

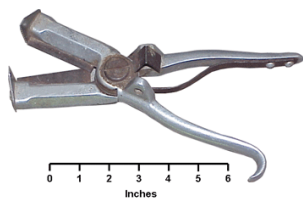
**AI MANUAL THAW UNIT**

Used to rapidly and precisely thaw frozen semen samples, typically in the form of straws, by placing them in a controlled warm water bath at a specific temperature.



**ALL-IN-ONE CASTRATOR/DOCKER**

A combination lamb castrator and tail ducker. The blades are used to cut off the end of the scrotum and dock tails, and the teeth on the end are used to remove the testicles.



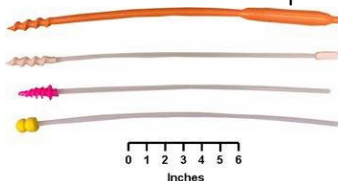
**ALL WEATHER PAINT STICK**

A nontoxic, weather-resistant marking crayon for temporary identification of livestock.



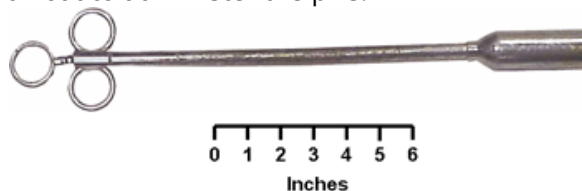
**A. I. PIPETTES (SWINE)**

A device used to deposit boar semen into reproductive tract of a gilt or sow. The spiral tip or button end of the pipette is inserted into the cervix where the semen is deposited.



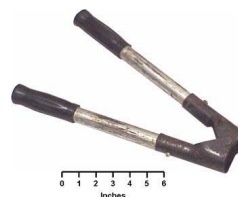
**BALLING GUN**

Used to administer various pills (medications) to cattle and horses. It is placed down the throat to administer the pills.



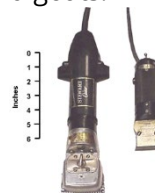
**BARNES DEHORNER**

Used to dehorn calves, sheep, and goats.



**CATTLE CLIPPERS**

Used to clip and groom the hair on cattle, sheep, horses, and goats.



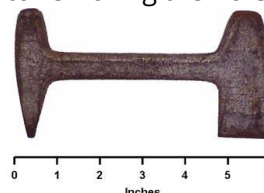
**CHAIN END TWITCH**

The twitch is placed on the horse's nose to restrain the horse as required



**CLINCH CUTTER**

Used by farriers to remove nail clinches prior to removing the horse shoe.



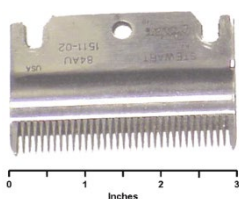
**EAR TAG**

Placed in an animal's ear to provide an easy to read form of individual identification.



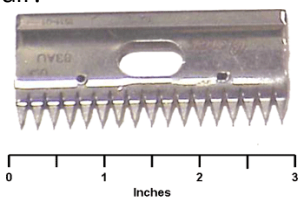
**CLIPPER COMB**

The part of cattle clippers that guides the hair towards the clipper cutter.



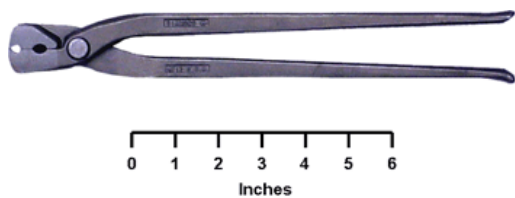
**CLIPPER CUTTER**

The part of the cattle clippers that rapidly slides back and forth across the clipper comb to cut the hair.



**CREASE NAIL PULLER**

Used by farriers to remove nails from hoof one at a time. It reduces damage to the hoof wall.



**CURRYCOMB**

Used to remove dirt and loose hair from cattle when grooming.



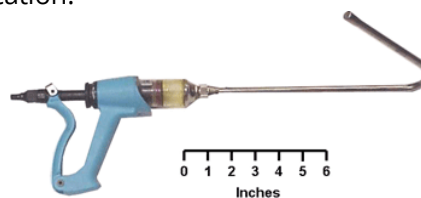
**DISPOSABLE SYRINGES**

Used to measure precise amounts of a vaccine and to administer vaccines to livestock and horses.



**DRENCH GUN**

Used to administer precise amounts of liquid medications to cattle, sheep, goats, and horses. The hooked portion is placed in the animal's mouth to administer the liquid medication.



**DRENCH SYRINGE**

Used to orally administer precise doses of liquid medications, nutritional supplements, or fluids to livestock and other animals. Typically smaller than a drench gun with a straight mouth piece and a traditional plunger instead of a trigger.



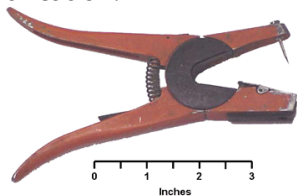
**EAR NOTCHERS**

Used to clip small notches in a pig's ear to provide a form of permanent, individual pig identification.



**EAR TAG PLIERS**

Used to place ear tags into the ears of cattle, sheep, goats, and pigs to provide a means of animal identification.



**ELASTRATOR**

An instrument used for the bloodless castration (young male calves, lambs, and goats) and docking of tails (young lambs and goats). It is used to place a small rubber ring over the scrotum or tail to shut off circulation.



**ELECTRIC BRANDING IRON**

Used to brand cattle. The branding iron can be designed to brand numbers, letters, or a unique farm brand.



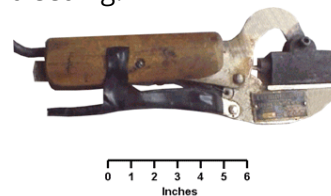
**ELECTRIC DEHORNER**

Used to dehorn calves, sheep, and goats with no loss of blood. It applies high temperature to all cells at the base of the horn button, and in 4-6 weeks the horn button will drop off.



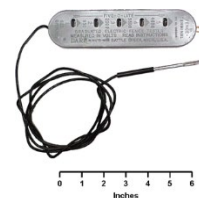
**ELECTRIC DOCKER**

Used to dock the tails of lambs and piglets. It cauterizes as it cuts the tail to eliminate excessive bleeding.



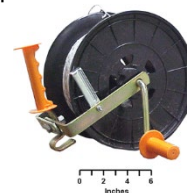
**ELECTRIC FENCE TESTER**

A device used to test the strength of the electrical current running through an electric fence.



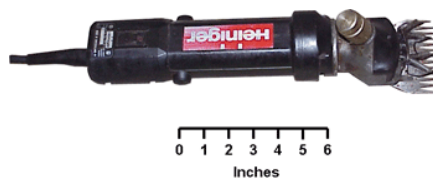
**ELECTRIC FENCE WIRE ROLLER**

Used to quickly roll up electric fence wire for storage, or to quickly let out electric fence wire when putting up an electric fence.



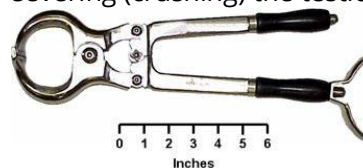
**ELECTRIC SHEEP SHEARS**

Used to shear and groom the wool from sheep.



**EMASCULATOME (BURDIZZO)**

An instrument used for the bloodless castration of young male calves, lambs, and goats by severing (crushing) the testicular cord.



**EMASCULATOR**

An instrument used for castrating young calves, lambs, goats, and piglets. It both crushes and cuts at the same time to minimize blood loss. Can also be used to dock tails.



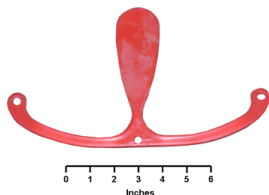
**EQUINE ARTIFICIAL VAGINA**

Used to collect semen from stallions. This particular style (Colorado Artificial Vagina) is heavier than other styles, but is preferred in colder climates to prevent cold shock to the semen.



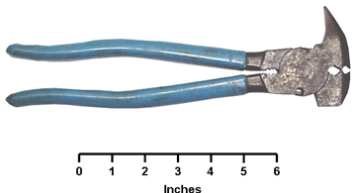
**EWE PROLAPSE RETAINER**

An instrument used to control vaginal prolapse in ewes.



**FENCING PLIERS**

Used when building fences. These pliers will cut, splice, and stretch wire, and drive and pull staples.



**FOOT ROT SHEARS**

Used to trim hooves of cattle, sheep, and goats to help prevent foot disease.



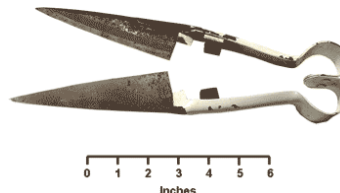
**FREEZE BRANDING SHEARS**

Used to freeze brand cattle to provide a form of identification.



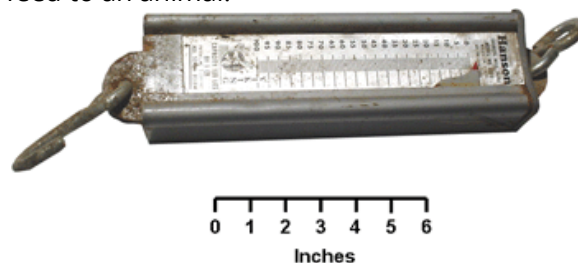
**HAND SHEEP SHEARS**

Used to shear and groom the wool from sheep. Blade lengths typically range from 3 to 6-1/2 inches.



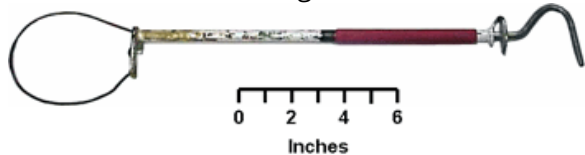
**HANGING SCALE**

Used to weigh young animals, feed ingredients to include in a diet, or the amount of feed to feed to an animal.



**HOG CATCHER**

Used to restrain hogs that are too big to catch and hold by hand. The cable portion of the hog catcher (snare) is placed over the hog's snout to restrain the hog.



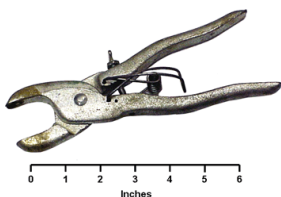
**HOG NOSE RING**

Placed in the tip of the snout or in the flesh between the two nostrils to prevent hogs grown outdoors from rooting holes in the ground.



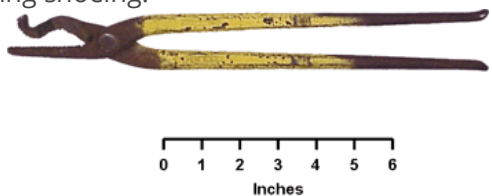
**HOG NOSE RING PLIERS**

Used to place nose rings in pigs (in the tip of the snout or in the flesh between the two nostrils) to prevent outdoor-grown hogs from rooting holes in the ground.



**HOOF CLINCHER**

Used by farriers to clinch nails to the hoof wall during shoeing.



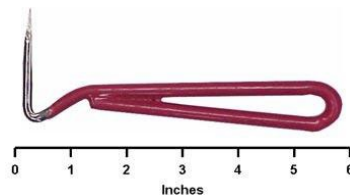
**HOOF KNIFE**

Used by farriers to trim the excess sole and frog from the hoof.



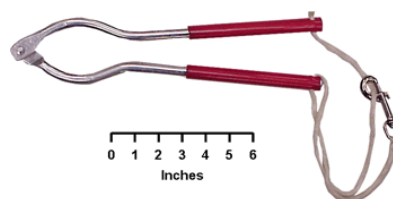
**HOOF PICK**

Used for the regular daily cleaning of a horse's foot.



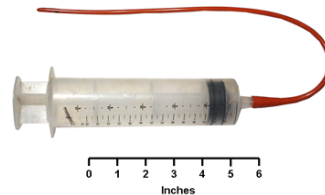
**HUMANE TWITCH**

Also called a one-person twitch, the twitch is placed on the horse's nose to restrain the horse as required.



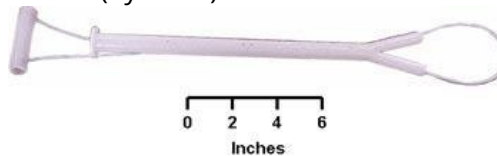
**LAMB FEEDING TUBE**

A device used to effectively feed newborn lambs the ewe's colostrum. Primarily used for newborn lambs suffering from exposure and weakness.



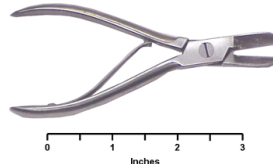
**LAMBING O.B. SNARE**

An instrument used to assist in pulling lambs from ewes that are experiencing lambing difficulties (dystocia).



**NEEDLE TEETH NIPPERS**

Used to clip off the very sharp, small needle teeth (4 pair) in the mouths of newborn piglets to prevent damage to the sow's udder as the piglets nurse.



**NIPPLE WATERER**

An automatic waterer used to provide clean, fresh water to pigs.



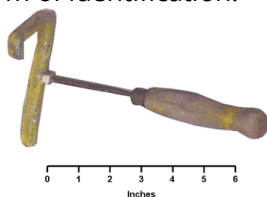
**OBSTETRICAL (O.B.) CHAIN**

Used to help pull unborn calves from cows that are experiencing calving problems (dystocia).



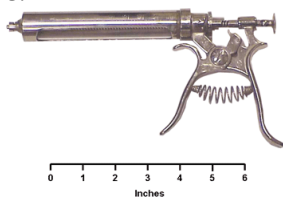
**PAINT BRANDING IRON**

Used to paint (stencil) a number on livestock to provide a form of identification.



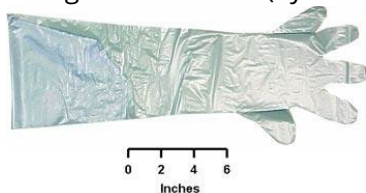
**PISTOL GRIP SYRINGE**

Used to give vaccinations to multiple animals without needing to reload the syringe with more vaccine.



**PLASTIC SLEEVE**

Placed over the hand and arm when artificially breeding cattle or when pulling newborn animals during difficult births (dystocia).



**POLY TAPE ELECTRIC FENCE**

A non-rusting, electric fencing tape made of some type of plastic material (such as polyvinyl or polyester) with 5 to 10 very thin metal wire strands running the entire length of the tape for electrical conductivity. Widths of the tape range from 1/2-inch to 1-1/2 inches.



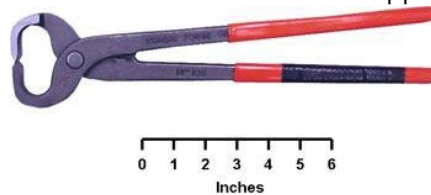
**POLY WIRE ELECTRIC FENCE**

A non-rusting, electric fencing wire made of some type of plastic material (such as polyvinyl or polyester) with 3 to 10 very thin metal wire strands running the entire length of the poly wire for electrical conductivity. Typical width is about 1/8-inch.



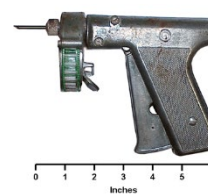
**PULL OFF**

Used by farriers to remove horse shoes when a nail puller is not available. Note the beveled end which is different from a hoof nipper.



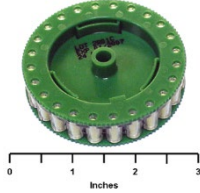
**RALGRO PELLETT INJECTOR**

Used to insert a RALGRO pellet (for growth promotion) under the loose skin and above the cartilage on the back side of a beef calf's ear.



**RALGRO IMPLANT CARTRIDGE**

The cartridge containing the RALGRO pellets (for growth promotion) that is placed in the RALGRO Pellet Injector for placing implants in beef calves' ears.



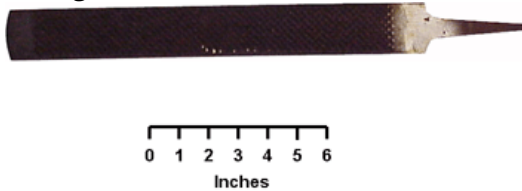
**RAM MARKING HARNESS**

A device placed on rams that shows when an ewe has been serviced. It is equipped with a marking crayon that places a mark on the ewe when the ram mounts her.



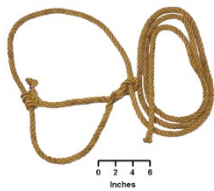
**RASP**

Used by farriers to smooth the foot after the excess hoof wall has been removed during trimming.



**ROPE CATTLE HALTER**

Used to lead (walk) cattle. Typically made of 1/2-inch to 3/4-inch diameter rope with a 4 to 8-foot lead rope.



**ROPE END TWITCH**

The twitch is placed on the horse's nose to restrain the horse as required.



**ROPE SHEEP HALTER**

Used to lead (walk) sheep. Typically made of 1/2-inch to 5/8-inch diameter rope with a 3 to 5-foot lead rope.



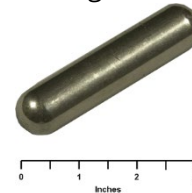
**ROUND PORCELAIN ELECTRIC FENCE INSULATOR**

A non-rusting, electric fence insulator made from porcelain. Used to make corner turns.



**RUMEN MAGNATE**

A magnate used to remove metal from the stomach of cattle that they inadvertently consumed while eating.



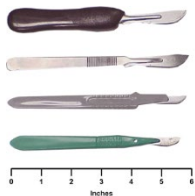
**SABOTEN HOOF TRIMMER**

Device used to trim the hooves of sheep and goats.



**SCALPELS**

Used by veterinarians for various surgical procedures, and by farmers for various health related and management practices (such as castration).



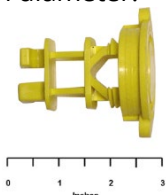
**SCOTCH COMB**

Used to comb (groom) the hair of cattle.



**SCREW TIGHT ELECTRIC FENCE INSULATOR**

A non-rusting, round post electric fence insulator. Will work on round posts up to about 1/2-inch diameter.



**SEMEN BOTTLE (SWINE)**

Disposable bottle used to store a single dose of fresh boar semen until the semen is artificially deposited into the gilt or sow.



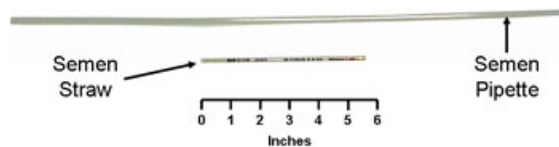
**SEMEN STORAGE TANK**

Used to store frozen semen until it is ready for use. The tank holds liquid nitrogen to keep the semen frozen.



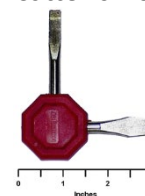
**SEMEN STRAW & A.I. PIPETTE (CATTLE)**

The Straw is what the semen is stored in (while placed in the semen storage tank), and the A.I. Pipette is the device used to deposit the semen in the cow's uterus.



**SHEARER'S SCREWDRIVER**

Used by shearers to quickly replace the clipper comb and clipper cutter on cable clippers.



**SHEEP BOOT**

Used for sheep to protect injured hoofs during healing process by providing a clean and waterproof protection with additional cushioning.



**SHOEING HAMMER**

Used by farriers for driving nails when shoeing a horse.



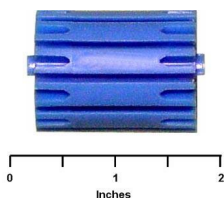
**SLAP TATTOO**

Used to place tattoo numbers on pigs (typically on the side or on the side of the shoulder) as a form of permanent identification that will remain on the carcass after the pig is slaughtered.



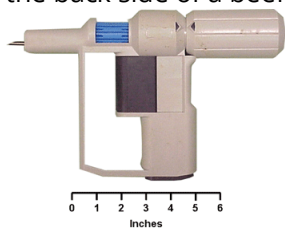
**SYNOVEX IMPLANT CARTRIDGE**

The cartridge containing the SYNOVEX implant (for growth promotion) that is placed in the SYNOVEX Implant Gun for placing the implants in beef calves' ears.



**SYNOVEX IMPLANT GUN**

Used to insert a SYNOVEX implant (for growth promotion) under the loose skin and above the cartilage on the back side of a beef calf's ear.



**WATER HEATER**

Can be placed in a watering trough or an unheated waterer to prevent water from freezing in wintertime.



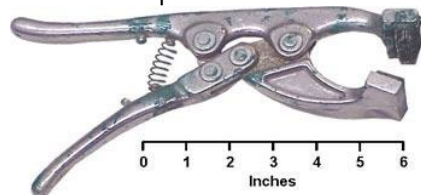
**SYRINGE NEEDLES**

Used for injecting vaccines and medication (intramuscularly, subcutaneously, intraperitoneally) into livestock and horses. The most typical lengths are 1/2-inch to 1-1/2 inches long, and typical diameters range from 20 to 16 gauge. Needle hubs can be made of metal or some type of plastic.



**TATTOO PLIERS**

Used to place tattoo numbers on a pig's ear to serve as a form of permanent identification.



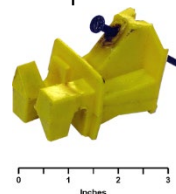
**T-POST ELECTRIC FENCE INSULATORS**

A non-rusting, electric fence insulator that fits snugly around the web and flange of T-posts.



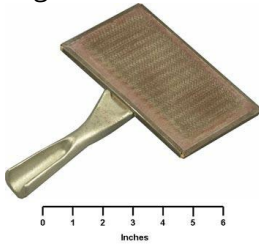
**WOOD POST ELECTRIC FENCE INSULATOR**

A non-rusting, electric fence insulator that can be nailed to wooden posts.



**WOOL CARD**

Used to card (comb or rake) the wool on sheep prior to shearing.



## FEED IDENTIFICATION LIST

### CEREAL GRAINS AND PROCESSED CEREAL GRAINS



**BUCKWHEAT**

- With its high contents of starch, buckwheat grain can be a valuable source of carbohydrates in diets for any kind of livestock and poultry.
- In many regions with temperate climate conditions it is possible to cultivate buckwheat as a catch crop, for example, after the harvest of barley, in the same season. This makes the crop a second harvest from a given arable land within the same year.
- As a flowering crop, buckwheat positively contributes to the insect ecosystems including honey bees, particularly if it is cultivated as a second crop in late summer.

**Average Nutrient Content**

- Ruminant TDN = 40%
- Crude Protein = 12%

**Physical Description** - a typical triangular, winged nutlet, 5-7.5 mm x 3 mm, grey-brown, dark brown to black in color



**WHOLE MILLET**

- Not widely grown in U.S.
- Compared to corn, it contains less energy and more protein.
- Except when fed to poultry, it is typically ground or rolled prior to feeding.
- Bulk density = 50 lbs/bushel

**Average Nutrient Content**

- Ruminant TDN = 90%
- Monogastric ME = 1300 Kcal/lb
- Crude Protein = 12.5%

**Physical Description** - brown color, small and round or slightly oblong shape, and a smooth texture.



**WHOLE MILO (GRAIN SORGHUM)**

- Grown primarily in dry regions of U.S., where there is not enough rain for corn production.
- Compared to corn in feeding value.
- Due to very hard seed coat, it is usually processed prior to feeding (coarsely ground, rolled, crimped, etc.).
- Bulk density = 55 lbs/bush

**Average Nutrient Content**

- Ruminant TDN = 82%
- Monogastric ME = 1520 Kcal/lb
- Crude Protein = 10%

**Physical Description** - reddish-brown color, round and bead-like shape, and a smooth texture.



**WHOLE RYE**

- Not a major feed grain in the U.S.
- Lower palatability than most other cereal grains.
- Compared to corn, it is slightly lower in energy and higher in protein.
- Except when fed to sheep, it should be processed prior to feeding (ground, cracked, etc.).
- Bulk density = 56 lbs/bushel

Average Nutrient Content

- Ruminant TDN = 88%
- Monogastric ME = 1375 Kcal/lb
- Crude Protein = 12.5%

Physical Description - brownish-gray color, long and full shape, rounded edges, and a smooth texture.



**WHOLE TRITICALE**

- Not widely grown in the U.S.
- A synthetic cereal grain, derived by crossing wheat with rye.
- Compared to corn, it is slightly lower in energy and higher in protein.
- Usually processed in some way prior to feeding (coarsely ground, cracked, etc.).
- Bulk density = 56 lbs/bushel

Average Nutrient Content

- Ruminant TDN = 90%
- Monogastric ME = 1425 Kcal/lb
- Crude Protein = 14%

Physical Description - brown color, short and oblong shape (plumper than wheat), round edges, crease down middle of one side, and a smooth texture.



**WHOLE WHEAT**

- Widely grown in the U.S.
- Primarily used in human food, but can be fed to livestock.
- Compared to corn, it is slightly lower in energy and higher in protein.
- Usually processed in some way prior to feeding (coarsely ground, rolled, cracked, etc.).
- Bulk density = 60 lbs/bushel

Average Nutrient Content

- Ruminant TDN = 88%
- Monogastric ME = 1450 Kcal/lb
- Crude Protein = 13.5%

Physical Description - brown color, short and oblong shape, round edges, crease down middle of one side, and smooth texture



**SHELLED CORN**

- Most extensively produced feed grain in U.S.
- Typically the energy standard to which other grains are compared.
- High energy content, but low in protein.
- Low fiber content.
- Usually processed in some way prior to feeding (ground, cracked, steam-flaked, etc.).
- Bulk density = 56 lbs/bushel

Average Nutrient Content

- Ruminant TDN = 90%
- Monogastric ME = 1550 Kcal/lb
- Crude Protein = 8.5%

Physical Description - yellow color, somewhat tear-shaped, and a smooth texture.



**GROUND SHELLED CORN**

- Shelled corn that has been mechanically processed through a hammer mill.
- Reduces the particle size, increases surface area, and improves energy utilization.
- Actual particle size of ground corn will depend on screen size and power of the hammer mill.
- Coarser grinds are preferred for ruminants, and finer grinds are generally preferred for monogastrics.

Average Nutrient Content

- Ruminant TDN = 90%
- Monogastric ME = 1550 Kcal/lb
- Crude Protein = 8.5%

Physical Description - yellow and white color, fine to coarse particle size, and a granular to powdery texture.



**CRACKED SHELLED CORN**

- Shelled corn that has been mechanically processed through a hammer mill.
- Reduces the particle size, increases surface area, and improves energy utilization.
- Actual particle size of ground corn will depend on screen size and power of the hammer mill.
- Coarser grinds are preferred for ruminants, and finer grinds are generally preferred for monogastrics.

Average Nutrient Content

- Ruminant TDN = 90%
- Monogastric ME = 1550 Kcal/lb
- Crude Protein = 8.5%

Physical Description - yellow and white color, fine to coarse particle size, and a granular to powdery texture.



**GROUND EAR CORN**

- The entire ear of corn (grain and cob) that has been ground through a hammer mill or burr mill.
- Reduces particle size, increases the surface area, and improves starch digestibility.
- Due to high fiber content, it is fed primarily to ruminant animals

Average Nutrient Content

- Ruminant TDN = 78%
- Monogastric ME = 1400 Kcal/lb
- Crude Protein = 8.0%

Physical Description - white and yellow color, various particle sizes, and a rough texture



**STEAM FLAKED CORN**

- Shelled corn that is subject to high-moisture steam for a long period of time (15-30 minutes) and then rolled to produce a flat flake.
- Increases the surface area and gelatinizes some of the starch making it more digestible.
- Primarily fed to cattle and horses

Average Nutrient Content

- Ruminant TDN = 90%
- Monogastric ME = 1550 Kcal/lb
- Crude Protein = 8.5%

Physical Description - yellow and white color, flat shape, and a flaky texture.



**WHOLE BARLEY**

- Not as widely available in western U.S. as corn, wheat, and oats.
- Compared to corn, it contains less energy but has more protein, lysine, and fiber.
- Usually processed in some way prior to feeding (coarsely ground, steam-rolled, crimped, etc.).
- Bulk density = 48 lbs/bushel

Average Nutrient Content

- Ruminant TDN = 88%
- Monogastric ME = 1320 Kcal/lb
- Crude Protein = 12.5%

Physical Description - brown color, oblong shape, irregular edges, and a slightly rough texture.



**STEAM ROLLED BARLEY**

- Whole barley that is subjected to high-moisture steam for a short period of time (1-8 minutes) and then rolled to produce a flat flake.
- Increases the surface area and improves energy utilization.
- Used primarily in horse diets and feedlot diets.

Average Nutrient Content

- Ruminant TDN = 88%
- Monogastric ME = 1320 Kcal/lb
- Crude Protein = 12.5%

Physical Description - brown color, flat shape, and a flaky texture.



**WHOLE OATS**

- Widely grown in cool, moist climates of the U.S.
- Compared to corn, it is lower in energy and higher in protein.
- Used extensively in horse feeds and feeds for starting young animals.
- Can be fed whole, but usually processed prior to feeding (rolled, ground, crushed, crimped, steamed, etc.).
- Bulk density = 32 lbs/bushel

Average Nutrient Content

- Ruminant TDN = 77%
- Monogastric ME = 1200 Kcal/lb
- Crude Protein = 12%

Physical Description - light brown color, long and thin shape, and a slightly rough texture with irregular edges.



**CRIMPED OATS**

- Whole oats that have been passed between a set of closely fitted, corrugated rollers to produce a flake.
- Increases the surface area and improves energy utilization.
- Used primarily in horse diets or diets for young animals.

Average Nutrient Content

- Ruminant TDN = 77%
- Monogastric ME = 1200 Kcal/lb
- Crude Protein = 12%

Physical Description - light brown color, long flat shape, and a flaky texture.



**STEAM ROLLED OATS**

- Whole oats that are subjected to high-moisture steam for a short period of time (1-8 minutes) and then rolled to produce a flat flake.
- Increases the surface area and improves energy utilization.
- Used primarily in horse diets or diets of young animals.

Average Nutrient Content

- Ruminant TDN = 77%
- Monogastric ME = 1200 Kcal/lb
- Crude Protein = 12%

Physical Description - light color, flat shape, and a flaky texture

## FEED IDENTIFICATION LIST

### PROTEIN SOURCES OF PLANT ORIGIN



**DEHYDRATED ALFALFA MEAL**

- Excellent feedstuff for horses and ruminants (high in protein, minerals, and vitamins).
- Lower fiber content than traditional alfalfa hay.
- Limited use in monogastric diets (sometimes used as a laxative in pre-farrowing sow diets).
- Often pelleted prior to feeding.

**Average Nutrient Content**

- Crude Protein = 17-20%
- Lysine = 0.7-0.9%
- Ruminant TDN = 57%
- Monogastric ME = 1000 Kcal/lb

Physical Description - varies from light to dark green, small particle size, and a granularly to powdery texture.



**DEHYDR. ALFALFA PELLETS**

- Excellent feedstuff for horses and ruminants (high in protein, minerals, and vitamins).
- Lower fiber content than traditional alfalfa hay.
- Limited use in monogastric diets (sometimes used as a laxative in pre-farrowing sow diets).

**Average Nutrient Content**

- Crude Protein = 17-20%
- Lysine = 0.7-0.9%
- Ruminant TDN = 57%
- Monogastric ME = 1000 Kcal/lb

Physical Description - varies from light to dark green and is in a pelleted form.



**WHOLE SOYBEANS**

- Widely grown in the U.S.
- Rarely fed in the whole, full-fat form, but can be if first heated to destroy anti-nutritional factors (trypsin inhibitor).
- Can be a valuable source of protein and energy.
- Usually processed (oil removed and ground) into soybean meal for livestock feeding.

**Average Nutrient Content**

- Crude Protein = 35-38%
- Lysine - 2.2=2.4%
- Ruminant TDN = 85%
- Monogastric ME = 1600 Kcal/lb

Physical Description - light brown color with a black "eye", fairly round shape, and a smooth texture.



**SOYBEAN MEAL**

- Most widely used protein supplement in the U.S.
- Produced by grinding the flakes that remain after oil is extracted from whole soybean.
- Very palatable with the highest nutritional value of any plant protein source.
- Excellent source of protein and amino acids.

Average Nutrient Content

- Crude Protein = 44-48%
- Lysine = 2.8-3.0%
- Ruminant TDN = 78%
- Monogastric ME = 1400 Kcal/lb

Physical Description - light brown color, irregular shape, and a granular to flaky texture.



**WHOLE COTTONSEED**

- Widely grown in the southern U.S.
- Used as a feed source for dairy and beef cattle, and does not require processing prior to feeding.
- Not used in monogastric feeds due to toxicity problems associated with gossypol (a yellow pigment).
- High in protein, energy, and fiber.

Average Nutrient Content

- Crude Protein = 23%
- Lysine = 1.0%
- Ruminant TDN = 96%
- Monogastric ME = N/A

Physical Description - white color, roundish oblong shape, and a fuzzy texture.



**COTTONSEED MEAL**

- Widely grown in the southern U.S.
- Produced by grinding the flakes that remain after oil is extracted from whole cottonseeds.
- Excellent protein source for ruminants, but only limited use in monogastrics (gossypol toxicity).
- Low in lysine and tryptophan.

Average Nutrient Content

- Crude Protein = 38-41%
- Lysine = 1.5-1.7%
- Ruminant TDN = 71%
- Monogastric ME = 1200

Physical Description - brown color with black flecks, and a granular to powdery texture.

## SKILL-A-THON RESOURCE GUIDE

[Full Rules in Premium Book](#)



**CANOLA MEAL**

- Grown primarily in cooler climates where other oil seeds cannot be grown.
- Produced by grinding the flakes that remain after oil is extracted from whole canola seeds.
- Canola is a crop derived from rapeseed, but unlike traditional rapeseed is low in both erucic acid and glucosinolates.
- Lower in digestible energy than soybean meal.

### Average Nutrient Content

- Crude Protein = 35-38%
- Lysine = 2.0-2.3%
- Ruminant TDN = 64%
- Monogastric ME = 1100 Kcal/lb

Physical Description - yellowish brown to brown color, small particle size, and a granular to powdery texture.



**LINSEED MEAL**

- Grown primarily in north-central U.S.
- Produced by grinding the flakes that remain after oil is extracted from whole flaxseed.
- Used primarily in diets for ruminants and horses, with limited use in monogastric diets due to poor amino acid distribution.
- Has a laxative effect.

### Average Nutrient Content

- Crude Protein = 32-35%
- Lysine = 1.0-1.2%
- Ruminant TDN = 73%
- Monogastric ME = 900 Kcal/lb

Physical Description - varies from light to dark brown color, small particle size, and a granular texture.



**PEANUT MEAL**

- Produced by grinding the oil extracted peanut kernels.
- Highly palatable and high in protein.
- Protein is somewhat low in digestibility due to tannins found in the skin, and has poor amino acid balance.
- Somewhat susceptible to aflatoxin contamination.

### Average Nutrient Content

- Crude Protein = 45-48%
- Lysine = 1.5-1.8%
- Ruminant TDN = 73%
- Monogastric ME = 1250 Kcal/lb

Physical Description - light brown to brown color, and a granular to powdery texture.



**SUNFLOWER MEAL**

- Produced by grinding the oil extracted sunflower seeds.
- High in protein, but low in the amino acid lysine.
- High fiber content (11-13%) limits its use in monogastric diets.

Average Nutrient Content

- Crude Protein = 34-41%
- Lysine = 1.4-2.0%
- Ruminant TDN = 61%
- Monogastric ME = 1125 Kcal/lb

Physical Description - brown to brownish-black color with light gray flecks, small particle size, and granular to powdery texture.

## FEED IDENTIFICATION LIST

### PROTEIN SOURCE OF ANIMAL ORIGIN



**BLOOD MEAL**

- By-product of the meat packing industry that is produced by grinding dried blood into a meal.
- Very high in protein, but low in the amino acid isoleucine.
- Lower in palatability and digestibility than many other protein sources.
- Good source of ruminant bypass protein, and used in limited amounts in young pig diets.

Average Nutrient Content

- Crude Protein = 80%
- Lysine = 7.0%
- Ruminant TDN = 60%
- Monogastric ME = 900 Kcal/lb

Physical Description - dark brown to dull red color and a granular to powdery texture.



**DRIED SKIM MILK**

- Produced by drying milk after fat is removed.
- Good source of digestible protein, but usually deficient in fat soluble vitamins and some minerals.
- High cost limits widespread use.
- Primarily used in milk replacers and starter diets for young animals.

Average Nutrient Content

- Crude Protein = 33%
- Lysine = 2.6%
- Ruminant TDN = 80%
- Monogastric ME = 1500 Kcal/lb

Physical Description - creamy to light tan color and a powdery texture.



**SPRAY-DRIED WHEY**

- By-product from making cheese that is produced by spray-drying the liquid that remains after the casein and most of the fat has been removed.
- Good source of digestible protein and energy (high in lactose).
- High cost limits its widespread use.
- Primarily used in diets for newly weaned pigs to increase feed intake.

Average Nutrient Content

- Crude Protein = 12%
- Lysine = 1.1%
- Ruminant TDN = 79%
- Monogastric ME = 1450 Kcal/lb

Physical Description - creamy to light brown color and a powdery texture.



**ROLLER-DRIED WHEY**

- By-product from making cheese that is produced by roller-drying the liquid that remains after the casein and most of the fat has been removed.
- Good source of digestible protein and energy (high in lactose).
- High cost limits its widespread use.
- Primarily used in diets for newly weaned pigs to increase feed intake.
- Average Nutrient Content
- Crude Protein = 12%
- Lysine = 1.1%
- Ruminant TDN = 79%
- Monogastric ME = 1450 Kcal/lb

Physical Description - tan to light brown color, and a granular to powdery texture.



**FEATHER MEAL (HYDROLYZED)**

- By-product from poultry slaughtering industry that is produced by grinding the cleaned, dried, and hydrolyzed feathers.
- Very high in protein, but very low in most other nutrients.
- Palatability can be a problem.
- Primarily used in diets for mature ruminants, and will rarely exceed more than 5% of the diets for monogastrics.
- Average Nutrient Content
- Crude Protein = 85%
- Lysine = 1.0%
- Ruminant TDN = 63%
- Monogastric ME = 1050 Kcal/lb

Physical Description - brown color with flecks of white and a granular to powdery texture.



**FISH MEAL**

- Fishery industry by-product, produced by grinding the cleaned, dried tissue of fish cuttings, with or without extraction of the oil.
  - Excellent source of digestible protein, B vitamins, and minerals.
  - Used extensively in poultry diets, but also used in weanling pig diets and in rumen bypass feeds.
  - Palatability can be a problem.
- Average Nutrient Content
- Crude Protein = 60%
  - Lysine = 4.7%
  - Ruminant TDN = 71%
  - Monogastric ME = 1460 Kcal/lb

Physical Description - brown color with tiny white bone chips and a powdery texture.



**MEAT AND BONE MEAL**

- Rendering industry by-product, produced by grinding the dried mammalian tissue (excludes blood, hair, hoof, horn, hide trimmings, stomach, and rumen).
- Good source of protein, energy, calcium, and phosphorus.
- Primarily used as a partial source of supplemental protein for monogastrics (limited use in ruminant and horse diets).
- Low palpability (hard to handle).

**Average Nutrient Content**

- Crude Protein = 45-50%
- Lysine = 2.2-2.6%
- Ruminant TDN = 67%
- Monogastric ME = 1150 Kcal/lb

Physical Description - light brown color with tiny white bone chips and a powdery texture.



**SPRAY-DRIED ANIMAL PLASMA**

- Meat packing industry by-product, produced by adding anticoagulant to freshly collected blood, separating the plasma from the red blood cells by centrifugation, and spray-drying the plasma
- High in protein, and contains active immunoglobulins.
- Primarily used as a protein source for early weaned pigs.
- High cost limits its use.

**Average Nutrient Content**

- Crude Protein = 78%
- Lysine = 6.8%
- Ruminant TDN = N/A
- Monogastric ME = N/A

Physical Description - off white to tan color and a fine powdery texture.

## FEED IDENTIFICATION LIST

### CEREAL GRAIN BY-PRODUCTS



**BREWERS DRIED GRAIN**

- By-product of the beer making industry.
- Consists of the dried extracted residue of barley malt (alone or in mixtures with other grains) that have been used to provide maltose and dextrins for fermenting.
- Primarily used as a ruminant feed, but may be fed in limited amounts to monogastrics.

Average Nutrient Content

- Ruminant TDN = 73%
- Monogastric ME = 900 Kcal/lb
- Crude Fiber = 12%
- Crude Protein = 27%

Physical Description - brown color, oblong particles, and a flaky texture.



**OAT HULLS**

- Consists of the outer covering of oat grain after it has been processed to separate the groat (kernel) from the hull.
- A source of fiber that is low in energy and protein.
- Primarily used as a ruminant roughage extender during times when forages are in short supply.

Average Nutrient Content

- Ruminant TDN = 37%
- Monogastric ME = 300 Kcal/lb
- Crude Fiber = 30%
- Crude Protein = 3.5%

Physical Description - light brown color and smooth, stem-like to flaky texture.



**WHEAT BRAN**

- By-product of the wheat flour milling industry.
- Consists of the coarse outer covering of the wheat kernel.
- Rich in niacin, vitamin B1, phosphorus, and iron.
- Used to provide bulk to diets and as a mild laxative.
- Used primarily in diets for horses and in diets for gestating cows, sheep, and swine.

Average Nutrient Content

- Ruminant TDN = 62%
- Monogastric ME = 1055 Kcal/lb
- Crude Fiber = 10%
- Crude Protein = 16%

Physical Description - light brown color with spots of white, fairly large particle size, and a flaky texture.



**WHEAT MIDDLING'S**

- By-product of the wheat flour milling industry.
- Consists of the fine particles of wheat bran, wheat shorts, wheat germ, wheat flour, and some of the offal from the "tail of the mill".
- Rich in niacin, vitamin B1, phosphorus, and iron.
- A palatable feedstuff commonly added to cattle diets.
- Has a mild laxative effect

Average Nutrient Content

- Ruminant TDN = 81%
- Monogastric ME = 1000 Kcal/lb
- Crude Fiber = 8.5%
- Crude Protein = 15%

Physical Description - light brownish color, small particle size, and a lightly flaky to finely ground texture.



**CORN DISTILLERS DRIED GRAIN**

- By-product of the distiller's industry.
- Consists of the dried, screened coarse grain fraction that remains after the removal of the alcohol from a yeast fermented mash.
- Primarily used as a protein and energy source in ruminant and horse feeds, but may be fed in limited amounts to monogastrics.

Average Nutrient Content

- Ruminant TDN = 79%
- Monogastric ME = 1450 Kcal/lb
- Crude Fiber = 13%
- Crude Protein = 27%

Physical Description - light to dark brown color, coarse particle size, and a flaky to powdery texture.



**CORN DISTILLERS DRIED GRAIN  
WITH SOLUBLE**

- By-product of the distiller's industry.
- Obtained by drying and blending together both the screened, coarse grain fraction and the condensed screened stillage remaining after the removal of the alcohol from a yeast fermented mash.
- Primarily used as a protein and energy source in ruminant and horse feeds, but may be fed in limited amounts to monogastrics.

Average Nutrient Content

- Ruminant TDN = 82%
- Monogastric ME = 1500 Kcal/lb
- Crude Fiber = 8.5%
- Crude Protein = 27%

Physical Description - light to dark brown color, varying particle size, and a flaky to powdery texture.



**CORN GLUTEN FEED**

- By-product of the wet corn milling industry.
- Consists of the dried residue remaining after the removal of most of the starch, gluten, and germ from corn.
- Contains corn bran and soluble protein.
- Primarily fed to ruminants as a source of protein and energy (high fiber content limits its use in monogastrics).

Average Nutrient Content

- Ruminant TDN = 75%
- Monogastric ME = 1050 Kcal/lb
- Crude Fiber = 10%
- Crude Protein = 21%

Physical Description - brown color with a flaky to powdery texture.



**CORN GLUTEN MEAL**

- By-product of the wet corn milling industry.
- Consists of the dried residue remaining after the removal of most of the starch, germ, and bran from corn.
- Marketed as a 41 or 60% crude protein feed ingredient.
- Primarily fed to poultry and dairy as a protein source, and is a good rumen bypass feed.

Average Nutrient Content

- Ruminant TDN = 76-86%
- Monogastric ME = 1400 Kcal/lb
- Crude Fiber = 2.5-4.0%
- Crude Protein = 41 or 60%

Physical Description - yellowish brown color with a granular to powdery texture.

**FEED IDENTIFICATION LIST**

**MISCELLANEOUS BY-PRODUCTS**



**DRIED BEET PULP**

- Produced by extracting the sugar from sugar beets and drying the remaining pulp.
- Good source of digestible fiber for ruminants and horses.
- Sometimes added to sow diets to prevent constipation.

Average Nutrient Content

- Ruminant TDN = 68%
- Monogastric ME = 1050 Kcal/lb
- Crude Fiber = 21%
- Crude Protein = 8%

Physical Description - grayish-brown color, irregular particle size, and a rough texture.



**ALMOND HULLS**

- Almond hulls are classified as a feedstuff with a moderate neutral detergent fiber (NDF) level, low crude protein (CP) level and high soluble carbohydrate level – thereby leading to a moderate net energy for lactation (NEI) level

Average Nutrient Content

- Ruminant TDN = 68.56%
- Monogastric ME = N/A
- Crude Fiber = 15.3%
- Crude Protein = 5.7%

Physical Description - The fleshy pericarp and mesocarp form the fibrous green-gray hull, and the mature stony endocarp forms the light brown shell. Inside the shell, the kernel is surrounded by a light-brown colored and thin tegument called testa or skin.



**COTTONSEED HULLS**

- By-product of the cottonseed oil manufacturing industry.
- Consists of the outer covering of the cottonseed that is removed prior to oil extraction.
- A high fiber, palatable feedstuff used as a roughage for cattle, especially in areas where good quality forages are scarce.
- Occasionally added in grain mixes to increase the bulk density and crude fiber content.

Average Nutrient Content

- Ruminant TDN = 47%
- Monogastric ME = N/A
- Crude Fiber = 43%
- Crude Protein = 4%

Physical Description - white colored cotton fibers and brown to brownish-black colored hulls, and a mixed rough and fuzzy texture.



**SOYBEAN HULLS**

- By-product of the soybean oil and meal manufacturing industry.
- Consists of the outer covering of the soybean that is removed prior to oil extraction.
- A palatable source of digestible fiber for ruminants and horses.

Average Nutrient Content

- Ruminant TDN = 71%
- Monogastric ME = N/A
- Crude Fiber = 36%
- Crude Protein = 10%

Physical Description - light brown color with dark specks, and a flaky texture.

## **FEED IDENTIFICATION LIST**

### **MINERAL AND VITAMIN SOURCES**



**DE FLUORINATED ROCK  
PHOSPHATE**

- A natural source of calcium and phosphorus.
- Derived from rock phosphates that have been heated to drive off fluorine.
- Must have less than 1 part fluorine to 100 parts phosphorus

Average Nutrient Content

- Calcium = 33%
- Phosphorus = 18%

Physical Description - dark gray color, small gravel shape, and a granular to powdery texture.



**DICALCIUM PHOSPHATE**

- A synthetic source of calcium and phosphorus.
- Obtained by processing rock phosphates into phosphoric acid, which is then reacted with calcium carbonate (limestone).
- Commonly used source of calcium and phosphorus in livestock, horse, and poultry feeds.

Average Nutrient Content

- Calcium = 22%
- Phosphorus = 18.5%

Physical Description - gray color, small rock-like shape of varying size, and a granular texture.



**GROUND LIMESTONE**

- A natural source of calcium.
- Obtained by grinding mined, calcitic limestone's.
- Also called calcium carbonate.
- A relatively inexpensive source of calcium used in livestock, horse, and poultry diets.

Average Nutrient Content

- Calcium = 38%

Physical Description - light gray color and a granular to floury texture.



**STEAMED BONE MEAL**

- A by-product source of calcium and phosphorus.
- Prepared from bones by cooking with steam under pressure, grinding, and drying.
- An excellent source of calcium and phosphorus in livestock, horse, and poultry feeds.
- More expensive than other calcium and phosphorus sources.

Average Nutrient Content

- Calcium = 24%
- Phosphorus = 12%

Physical Description - off-white to light gray color and a powdery texture.



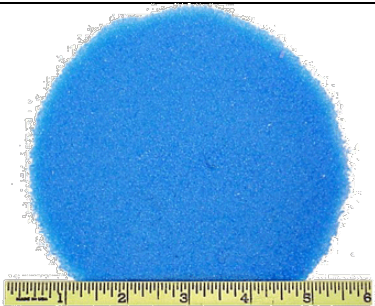
**OYSTER SHELLS**

- Produced by coarsely grinding oyster shells (sometimes finely ground to produce oyster flour).
- Consists of approximately 94% calcium carbonate.
- An excellent source of calcium used primarily in poultry feeds.

Average Nutrient Content

- Calcium = 38%

Physical Description - off-white to gray color, rock-like shape, and a coarse texture.



**COPPER SULFATE**

- Also referred to as bluestone.
- Source of copper for mineral supplements added to livestock, horse, and poultry feeds.
- Also included at high levels (250 ppm) in swine diets where it acts as a growth promotant.

Average Nutrient Content

- Copper = 25.4%
- Sulfur = 12.8%

Physical Description - light blue color, a tiny crystal shape, and a granular to grainy texture.



**WHITE SALT**

- Comprised of almost pure sodium chloride.
  - Most common mineral supplement added to livestock, horse, and poultry feeds.
  - May be provided in block, granulated, or rock form.
- Average Nutrient Content

- Sodium = 39.5%
- Chloride = 59%

Physical Description - white color, a tiny uniform crystal shape, and a granular to grainy texture.



**TRACE-MINERALIZED SALT**

- Consists of salt and one or more trace minerals (such as cobalt, copper, iodine, iron, manganese, sulfur, selenium and zinc).
  - Commonly fed free-choice to grazing animals in either loose or block form.
- Average Nutrient Content

- Varies depending on added trace minerals.

Physical Description - bronze to reddish color, a tiny uniform crystal shape, and a granular to grainy texture.



**TRACE MINERAL PREMIX**

- May contain the trace minerals cobalt, copper, iodine, iron, manganese, magnesium, potassium, sulfur, selenium, and (or) zinc.
  - Various inert products or feedstuffs (such as calcium carbonate, soy flour, protein meals, or rice hulls) are used as carriers in trace mineral premixes.
- Average Nutrient Content

- Varies depending on added trace minerals.

Physical Description - light brown color and a flaky to very fine, powdery texture.



**VITAMIN PREMIX**

- May contain both fat soluble and water soluble vitamins.
- Fat soluble vitamins are vitamin A, vitamin D, vitamin E, and vitamin K.
- Water soluble vitamins are biotin, choline, folic acid, niacin, pyridoxine (vitamin B6), pantothenic acid, riboflavin (vitamin B2), thiamine (vitamin B1), vitamin B12 and vitamin C.
- Various feedstuffs (such as rice hulls, soybean meal, corn gluten meal, and wheat middling's) are used as carriers in vitamin premixes.

**Average Nutrient Content**

- Varies depending on added vitamins

**Physical Description** - light brown to yellowish brown color, small particle size, and a flaky to powdery texture.

## FEED IDENTIFICATION LIST

### MISCELLANEOUS FEEDSTUFFS



**UREA**

- A source of nitrogen (not a protein supplement) also referred to as non-protein nitrogen.
- Should only be fed to ruminants.
- Can be toxic if fed at excessive levels (should provide no more than 1/3 of the total nitrogen in the diet).
- Diets with added urea should also contain a readily available source of carbon (energy).

Average Nutrient Content

- Nitrogen = 42-45%

Physical Description - white color, small beadlike particles, and a granular texture.



**VEGETABLE OIL**

- A very potent energy source supplying about 2.25 times more energy than starch or sugar.
- Used primarily to increase the caloric density of the diet.
- Increases diet palatability.
- Sometimes added to diets to reduce dustiness.

Average Nutrient Content

- Ruminant TDN = 175%
- Monogastric ME = 3300 Kcal/lb

Physical Description - a somewhat viscous liquid with a light yellow to yellowish-brown color.



**L-LYSINE HCl (FEED GRADE)**

- Synthetic source of the amino acid lysine.
- Produced by bacterial fermentation.
- Used primarily in monogastric diets (especially swine diets) to lower total crude protein and meet the lysine requirements.

Average Nutrient Content

- Lysine = 78%

Physical Description - off-white to cream color and a granular to powdery texture.



**DL-METHIONINE (FEED GRADE)**

- Synthetic source of the amino acid methionine.
- Produced by bacterial fermentation.
- Used primarily in monogastric diets (especially poultry diets) to lower total crude protein and meet the methionine requirements.

Average Nutrient Content

- Methionine = 99%

Physical Description - white color and a crystalline to powdery texture.



**L-THREONINE (FEED GRADE)**

- Synthetic source of the amino acid threonine.
- Produced by bacterial fermentation.
- Used primarily in monogastric diets to lower total crude protein and meet the threonine requirement.

Average Nutrient Content

- Threonine = 98%

Physical Description - tan to light brown color and a granular to powdery texture.



**L-TRYPTOPHAN (FEED GRADE)**

- Synthetic source of the amino acid tryptophan.
- Produced by bacterial fermentation.
- Used primarily in monogastric diets to lower total crude protein and meet the tryptophan requirements.

Average Nutrient Content

- Tryptophan = 98%

Physical Description - white to creamy color and a powdery texture.



**TRYPTOSINE (FEED GRADE)**

- Synthetic source of the amino acid tryptophan and lysine.
- Produced by bacterial fermentation.
- Used primarily in monogastric diets to lower total crude protein and meet the tryptophan and lysine requirement

Average Nutrient Content

- Tryptophan = 16.1%
- Lysine = 56.3%

Physical Description - light brown color and a granular to powdery texture.



**SANTOQUIN**

- An antioxidant (feed preservative).
- Included in diets with added fat (or diets with high fat ingredients) to retard the oxidative destruction of nutrients.

Average Nutrient Content

- No nutritive value

Physical Description - black color, small bead-like shape, and a granular texture.



**DRIED MOLASSES**

- Dried by-product of the manufacture of sugar from either sugar beets, or more commonly, sugarcane.
- Highly palatable, readily available source of energy.
- Most commonly added to ruminant and horse diets.

Average Nutrient Content

- Ruminant TDN = 80%
- Crude Protein = 7%

Physical Description - dark brown color and a flaky and (or) granular texture.



**LIQUID MOLASSES**

- Liquid by-product of the manufacture of sugar from either sugar beets, or more commonly, sugarcane.
- Highly palatable, readily available source of energy.
- Most commonly added to ruminant and horse diets.

Average Nutrient Content

- Ruminant TDN = 80%
- Crude Protein = 7%

Physical Description - A viscous (thick) liquid with a dark brown to black color

## FEED IDENTIFICATION LIST

### PASTURE AND HAY FORAGES



**ALFALFA**

- High quality, cool season perennial legume with an extensive root system that makes it drought resistant.
- Can grow to heights of 2 to 3 feet.
- Grows best in hot, dry climates in soils that are deep, fertile, and well drained.
- As a pasture forage it is not very tolerant to continuous grazing ruminants.
- As hay it is very palatable, high in protein, and excellent for general feeding purposes.
- Annual yields = 3-6 tons DM/acre

**Average Nutrient Content**

- Ruminant TDN = 55-60%
- Crude Protein = 15-25%

**Physical Description** - erect growing with many leafy stems arising from large crowns at solid surface; compound leaves with three long, narrow leaflets, no prominent watermark or V-shaped pattern, and serrated only at tip; can have purple or yellow flowers.



**KENTUCKY BLUEGRASS**

- High quality, highly palatable, cool season perennial grass with rhizomes that produce a dense sod.
- Can grow to heights of 1 to 3 feet in seed head stage.
- Can withstand close, heavy grazing better than most other grasses.
- Very sensitive to heat and summer drought (becomes dormant and brown during hot, dry summers).
- Not widely used as a hay grass because of its low yield, and if mixed with other grasses and legumes it matures before other plants are ready to cut.
- Annual yield = 1-3 tons DM/acre

**Average Nutrient Content**

- Ruminant TDN = 60-75%
- Crude Protein = 12-17%

**Physical Description** - leaves are dark green color, narrow and fine bladed with tips shaped like a boats bow; no auricles and low ligule; seed heads smaller than those for fall fescue.



**TALL FESCUE**

- Deeply rooted, strongly tufted, cool season perennial bunchgrass with short rhizomes.
- Can grow to heights of 2 to 4 feet in seed head stage.
- Tolerant of soil acidity, low fertility, and poor drainage, and relatively tolerant of drought and overgrazing.
- Susceptible to endophyte fungus infection which aids in plant survival, but reduces animal performance.
- Most widely used for pasture especially winter grazing.
- Annual yields = 2-4 tons DM/acre

**Average Nutrient Content**

- Ruminant TDN - 45-60%
- Crude Protein = 10-15%

**Physical Description** - leaves are shiny, dark green, thick, wide, and ribbed with prominent veins and no obvious ligule; emerging leaves are rolled in the bud.



**ORCHARD GRASS**

- Long-lived perennial bunchgrass that forms dense circular bunches.
- Can grow to heights of 2 to 4 feet in seed head stage.
- High quality, high yielding, palatable forage that is well-suited for use in mixtures with Alfalfa and Red Clover.
- Shade tolerant, moderately heat and cold resistant, but not tolerant of close cutting or continuous grazing.
- Annual yields = 2-4 tons DM/acre

Average Nutrient Content

- Ruminant TDN = 55-70%
- Crude Protein = 8-12%

Physical Description - bluish color leaves with veins less prominent than those for tall fescue; stems are flattened at base; leaves emerge along the midrib of the leaf folded in half.

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**TIMOTHY**

- Perennial bunchgrass with a fairly shallow and fibrous root system.
- Can grow to heights of 2 to 5 feet in seed head stage.
- Primarily a hay plant, but can be used for pasture when part of a mixture - grows well with Alfalfa and (or) Red Clover.
- Disadvantages include a short stand life, low quality when cut late, clumpy growth habits, and sensitivity to hot temperatures.
- Annual yields = 2 - 4 tons DM/acre

Average Nutrient Content

- Ruminant TDN = 55-65%
- Crude Protein = 8-12%

Physical Description - leaves have a bluish green color; swollen, bulb-like structure at base of stem; cylindrical seed head.

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**WHITE (LADINO) CLOVER**

- Long-lived perennial cool season legume that spreads by stolons.
- Can grow to heights of 8 to 12 inches.
- Ladino is a taller growing type of white clover.
- Highly palatable and nutritious, it is used primarily as a pasture forage in mixtures with Kentucky Bluegrass or Tall Fescue.
- Disadvantage is the potential for bloat, especially in the spring and with thick, lush strands.
- Annual yields = 1-3 tons DM/acre

Average Nutrient Content

- Ruminant TDN = 60-70%
- Crude Protein = 15-28%

Physical Description - leafy plant with leaves that are shiny underneath and sometimes watermarked with a V-shaped pattern; stems often grooved; unlike red cover, no hairs on leaves and stems; white flowers.



**RED CLOVER**

- Widely adapted, high yielding, cool season perennial legume.
- Can grow to heights of 2 to 3 feet.
- Used as both a hay and pasture forage, usually in mixtures with Tall Fescue, Kentucky Bluegrass, Timothy, or other cool season grasses.
- Best suited to regions with abundant rainfall.
- Has a shorter stand life than Alfalfa or White Clover.
- Disadvantages are the hay is dusty, and over-mature cuttings contain a fungus that causes animals to slobber.
- Annual yields = 2-5 tons DM/acre

Average Nutrient Content

- Ruminant TDN = 55-70%
- Crude Protein = 12-22%

Physical Description - erect, leafy plant with large leaves that almost always have a prominent V-shaped pattern or watermark on leaflets; very hairy, fleshy stems; pink flowers.

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**OAT HAY**

- Annual or perennial grass that grows in dense, upright clumps.
- Can reach heights of 2 to 4 feet at maturity.
- High-quality, palatable forage that is well-suited for grazing and hay production, especially in cooler climates.
- Drought tolerant and resistant to cold, but not tolerant of excessive heat or frequent cutting.
- Annual yields = 1.5-3 tons DM/acre

Average Nutrient Content

- Ruminant TDN = 50-65%
- Crude Protein = 6-12%

Physical Description - soft, light green leaves with fine texture; leaves are narrower and tend to be more erect compared to other grasses; produces a large seed head with long awns.

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**BERMUDA HAY**

- Long-lived perennial warm-season grass that spreads by stolons and rhizomes.
- Can grow to heights of 1 to 3 feet when mature.
- Highly palatable and high-quality forage, well-suited for grazing and hay production in warmer climates.
- Drought tolerant, heat resistant, and responds well to frequent cutting or grazing, but less tolerant of cold.
- Annual yields = 3-7 tons DM/acre

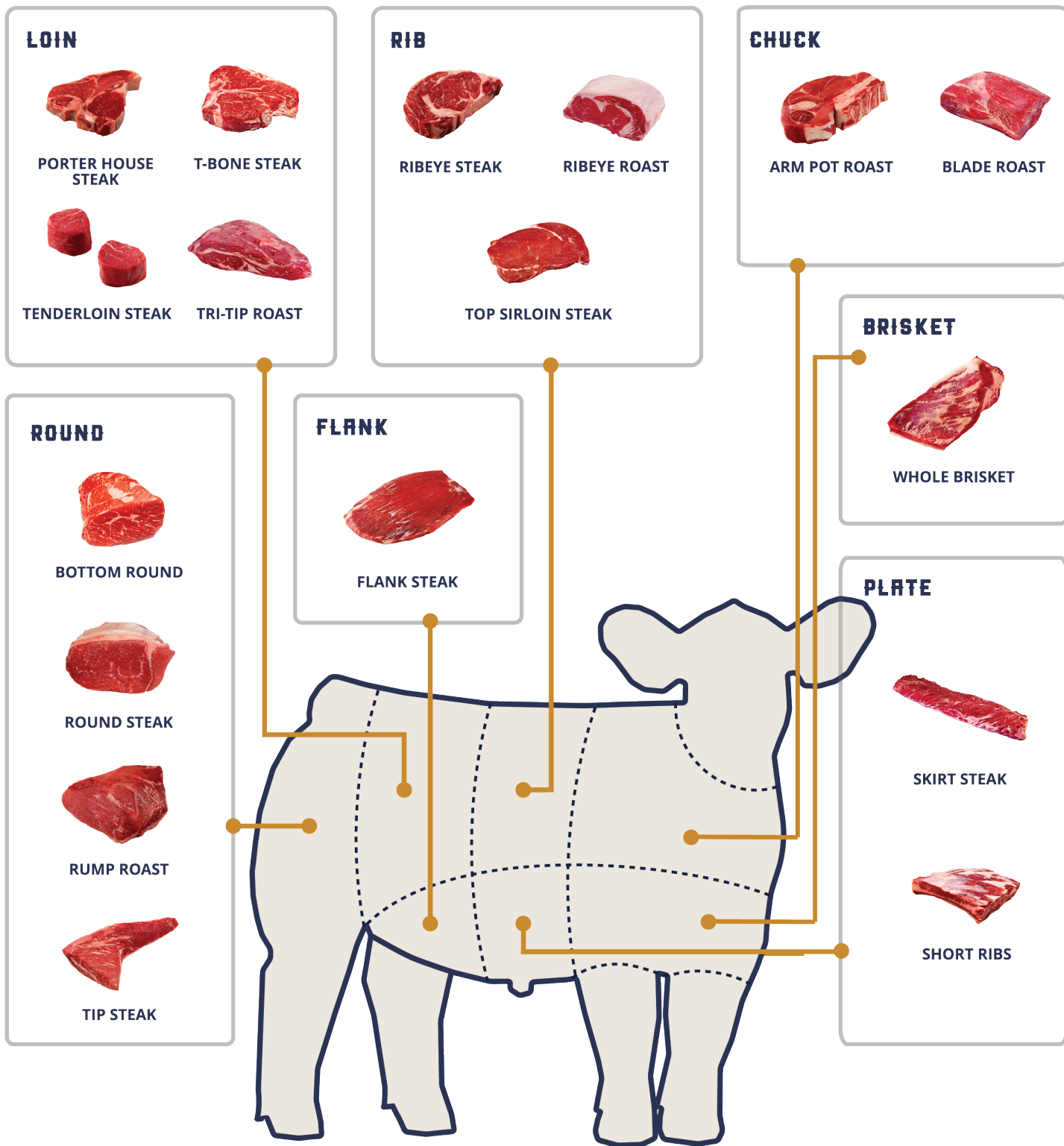
Average Nutrient Content

- Ruminant TDN = 55-65%
- Crude Protein = 8-14%

Physical Description - fine-textured, bright green leaves with short internodes; forms dense mats; produces slender seed heads with 3 to 5 spikes arranged in a star pattern at the tip.

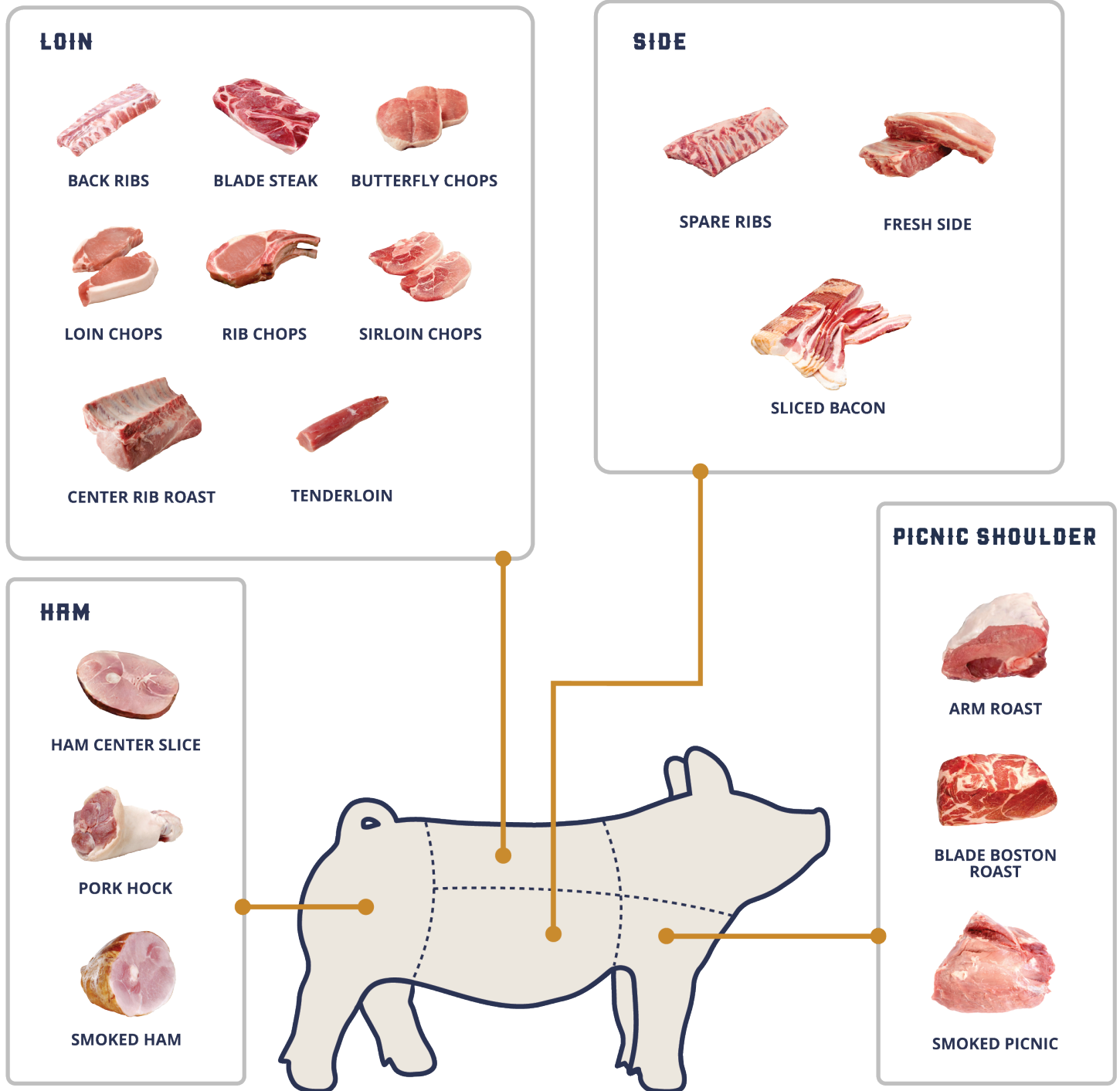
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**BEEF PRIMAL AND RETAIL CUTS**



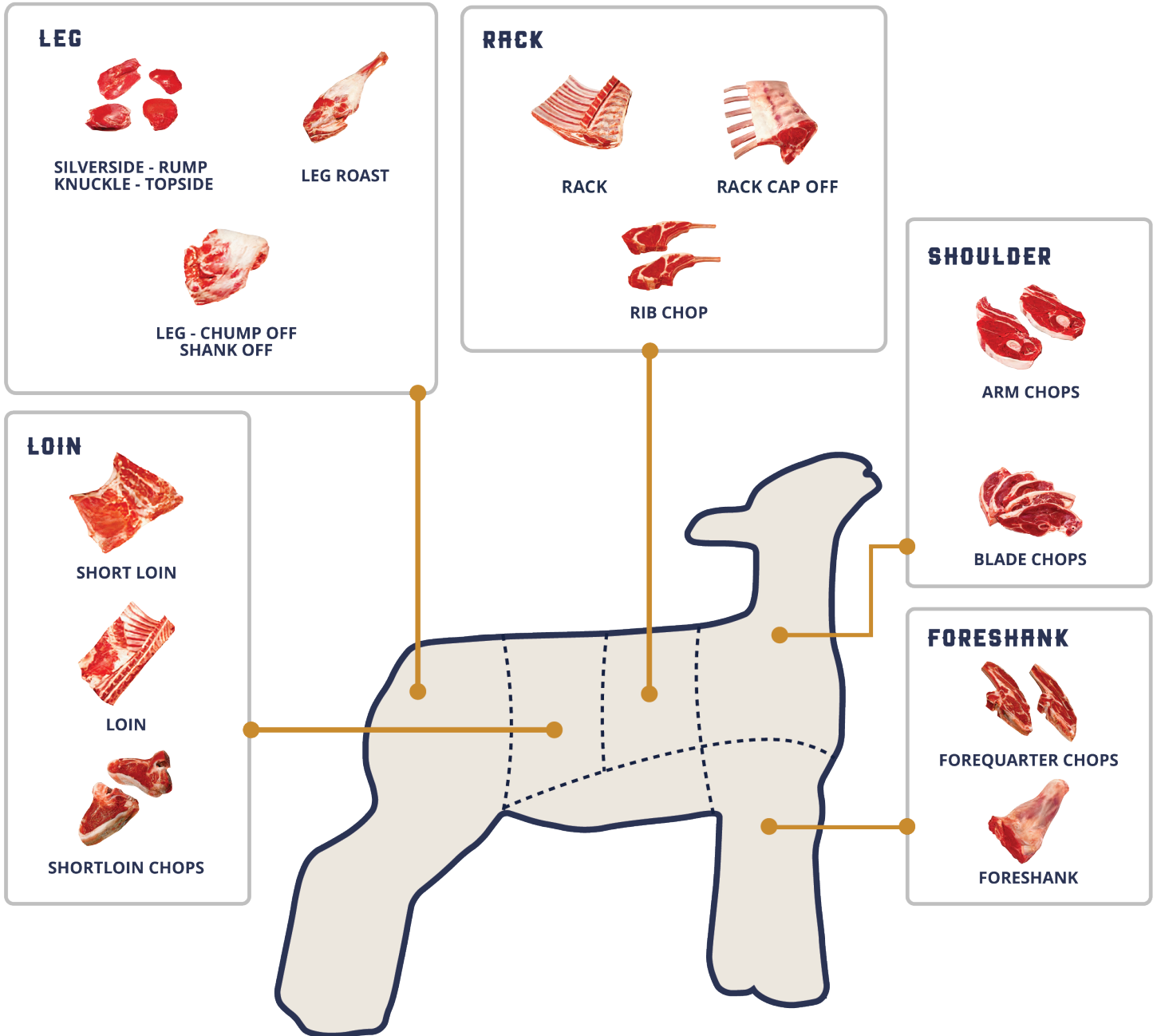
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**PORK PRIMAL AND RETAIL CUTS**



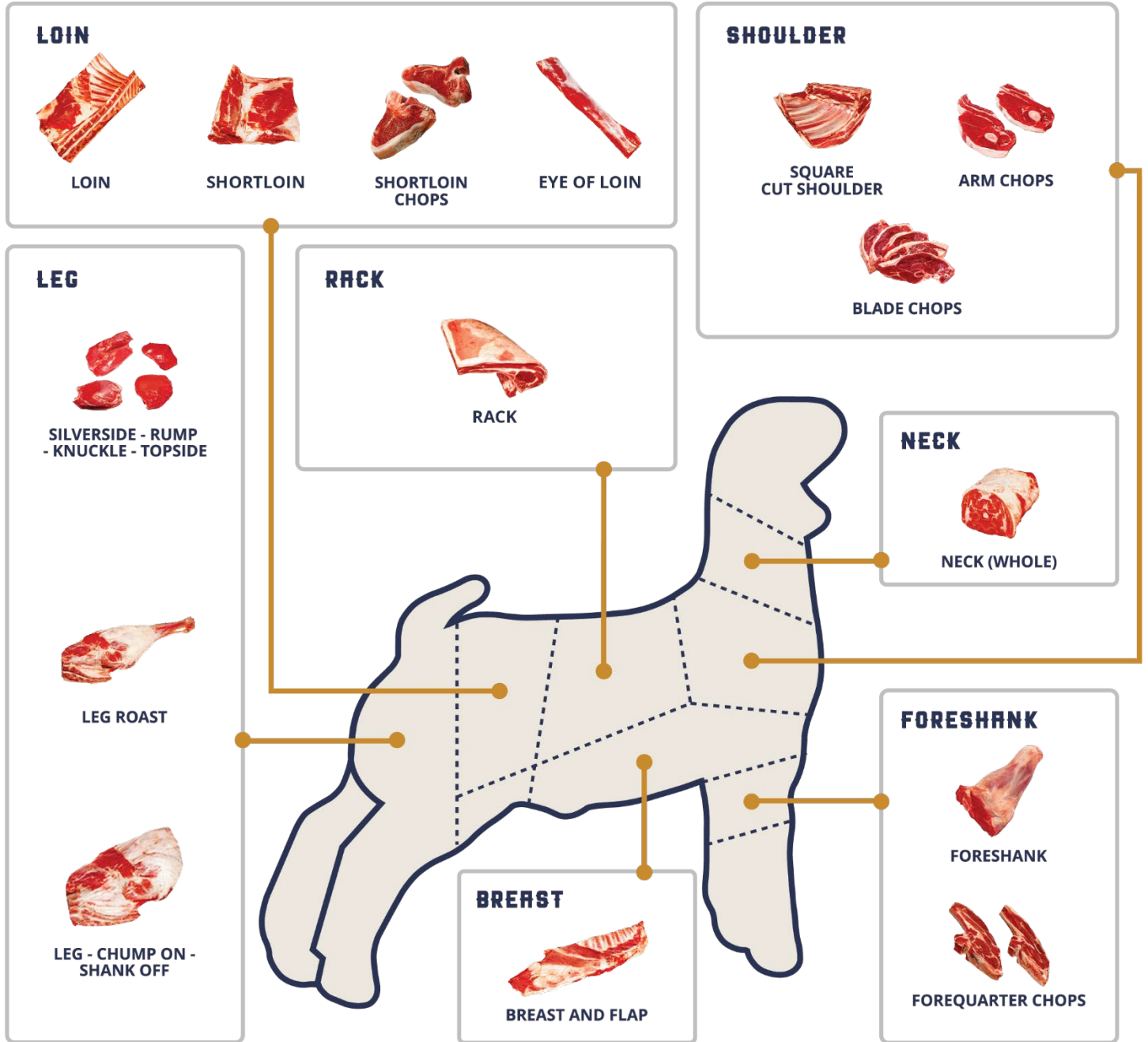
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**LAMB PRIMAL AND RETAIL CUTS**



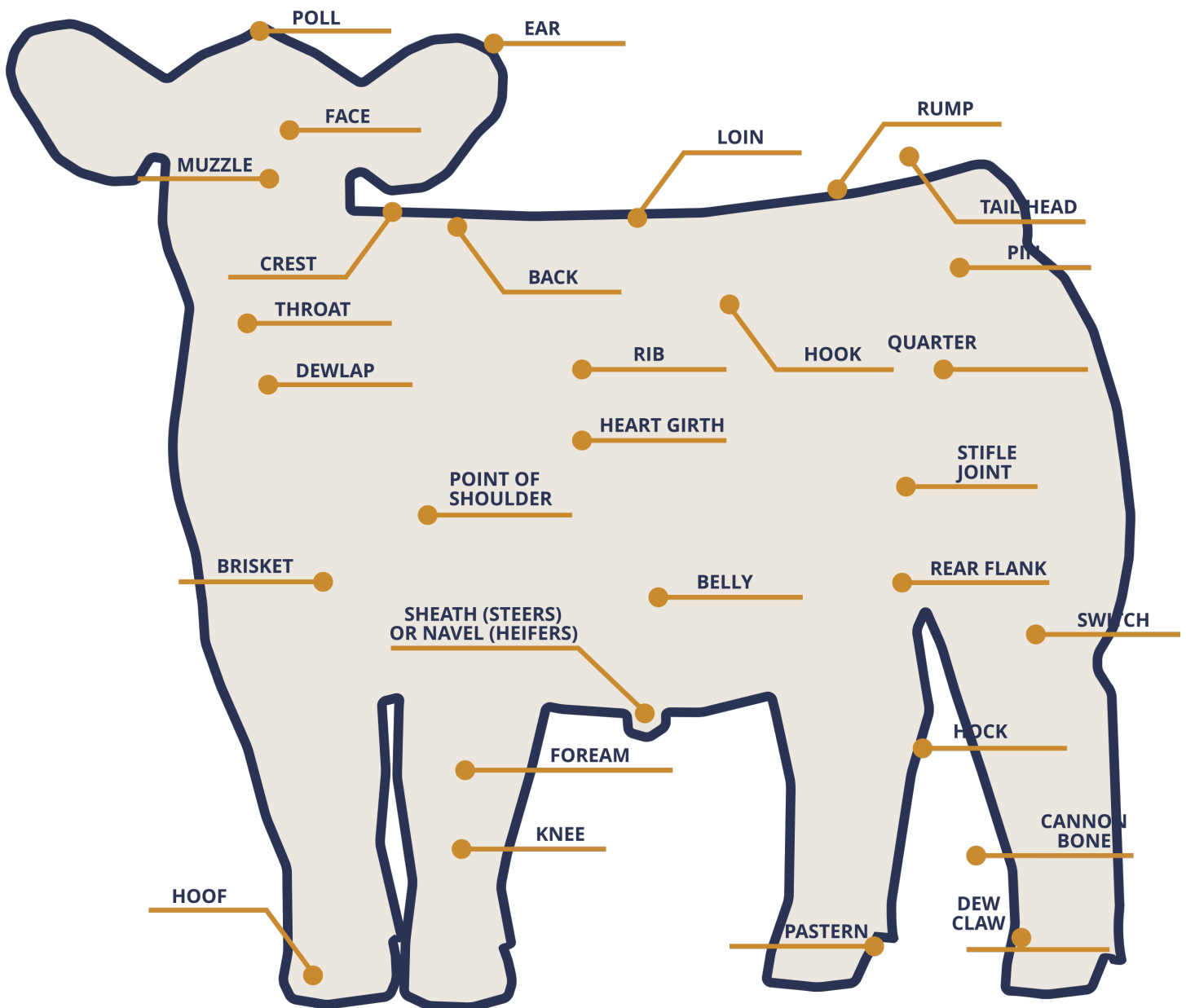
**MEATS IDENTIFICATION LIST**

**GOAT PRIMAL AND RETAIL CUTS**



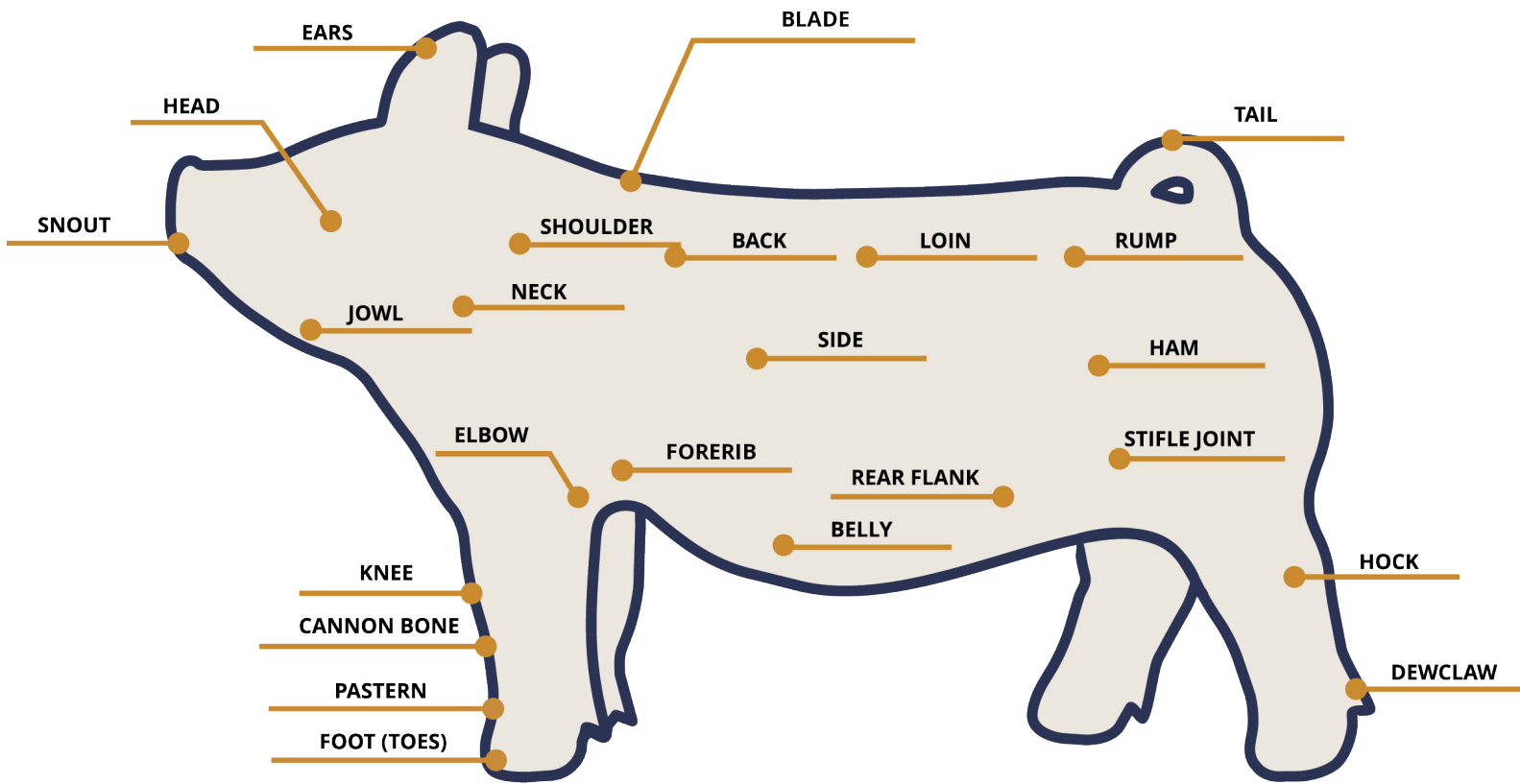
**PARTS OF THE BODY**

**CATTLE**



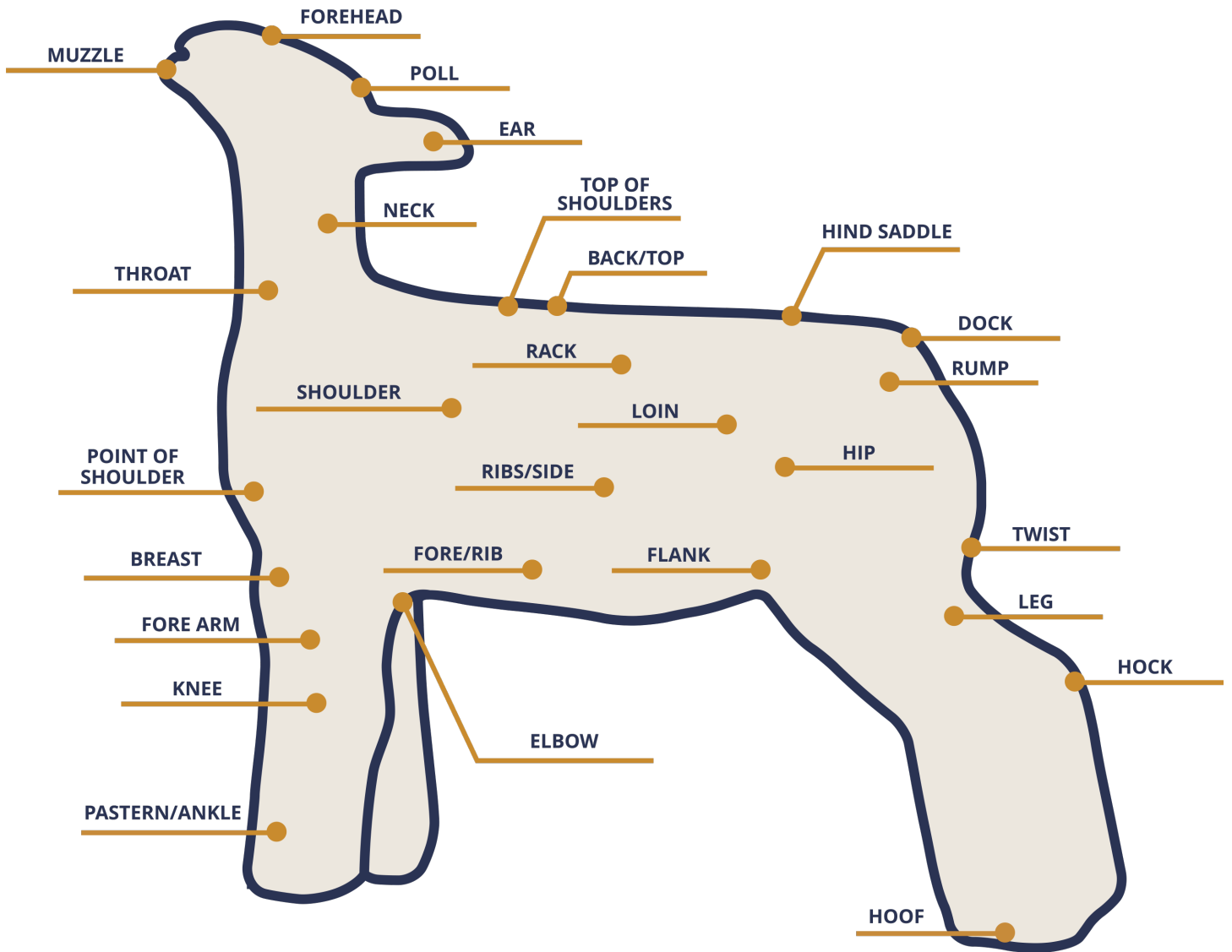
**PARTS OF THE BODY**

**SWINE**



**PARTS OF THE BODY**

**SHEEP**





## TEST QUESTIONS

### MULTIPLE CHOICE SAMPLE QUESTIONS

1. If sheep are fed broiler litter, it may cause a mineral toxicity of which mineral? (D)
  - A. Sulfur
  - B. Selenium
  - C. Magnesium
  - D. Copper
2. Which substance is used to treat a disease? (C)
  - A. Fertilizer
  - B. Vaccine
  - C. Antibiotic
  - D. Implant
3. What is creeping? (B)
  - A. Locking a ram up at night
  - B. Providing extra feed for nursing lambs
  - C. Exercising market lambs
  - D. Bagging a ewe
4. What is a prolapse? (C)
  - A. A feed additive
  - B. A medicine
  - C. When the vagina becomes inverted and sticks out
  - D. Lamb born backwards
5. When a lamb is born, you should... (D)
  - A. Check the ewes' udder
  - B. Identify the lamb
  - C. Dip the naval in an iodine solution
  - D. All of the above
6. A large, muscular, fast growing sheep breed: (D)
  - A. Southdown
  - B. Polypay
  - C. Rambouillet
  - D. Suffolk
7. Which is the most serious hoof problem in sheep? (C)
  - A. Clogged Oil Duct
  - B. Foot Scald
  - C. Foot Rot
  - D. Thrush
8. Which class of animal is currently selling for the lowest price per pound? (D)
  - A. Choice
  - B. 750 Lb. M1 Steer
  - C. Choice Market Lamb
  - D. #1 Market Hog
9. Which of the following is not a legume? (B)
  - A. Alfalfa
  - B. Bluegrass
  - C. Clover
  - D. Soybeans
10. What are the top 5 USDA beef carcass at utility grades, from leanest to fattest? (B)
  - A. Prime, choice, select, standard, utility
  - B. 1, 2, 3, 4, 5
  - C. Utility standard, select choice, prime
  - D. 5, 4, 3, 2, 1
11. Which sheep breed is actually a composite? (D)
  - A. Suffolk
  - B. Southdown
  - C. Dorset
  - D. Polypay

12. Your steer has gained 100 pounds in the last 30 days, consuming 750 pounds of feed which costs a total of \$50. What was the steer's average daily gain? (C)

- A. .50 lb.
- B. 3.0 lb.
- C. 3.3 lb.
- D. 7.5 lb.

13. Using the information in question #30, what was the steer's feed conversion per pound of gain? (B)

- A. 3.3 lb.
- B. 7.5 lb.
- C. 15 lb.
- D. 30 lb.

14. Which breed of bull would be most appropriate to use as a terminal sire on mature black baldie cows to maximize weaning weights? (D)

- A. Angus
- B. Hereford
- C. Longhorn
- D. Charolais

15. "Spider lamb" is a problem most often associated with which breed? (C)

- A. Finn
- B. Dorset
- C. Suffolk
- D. Polypay

16. Which sex tends to be the heaviest in a group of hogs that are the same age? (B)

- A. Gilt
- B. Barrow
- C. Boar
- D. No difference

17. When feeding corn silage to lactating beef cows, which two nutrients are usually deficient? (B)

- A. Calcium & phosphorous
- B. Calcium & protein
- C. Protein & energy
- D. Protein & phosphorous

18. When are the nutritional demands the highest during the production cycle of a cow, mare, ewe or sow? (C)

- A. Early gestation
- B. Late gestation
- C. Early lactation
- D. Late lactation

19. If we are to give a steer an intramuscular injection of a product which causes tissues irritation, which is the preferred injection site? (D)

- A. Rump
- B. Quarter
- C. Loin
- D. Neck

20. Which of the following requires the least amount of feed to produce a pound of gain? (D)

- A. Steer
- B. Lamb
- C. Barrow
- D. Broiler

21. Which of the following is not a factor in determining beef yield grade? (D)

- A. Rib eye area
- B. Back fat
- C. Hot carcass weight
- D. Live weight

22. If a heifer appears to be low headed, "broken" behind her shoulder and moves with a short stride, what is the most likely structural defect? (C)
- A. Sickie hocked
  - B. Droopy rump
  - C. Straight Shouldered
  - D. Ugly
23. Which swine breed could be added to a rotational crossbreeding program to improve maternal traits? (B)
- A. Duroc
  - B. Yorkshire
  - C. Hampshire
  - D. Spot
24. When selecting a bull to breed to heifers, which piece of information would be helpful in predicting the birth weight of his calves? (C)
- A. his birth weight
  - B. his sire's birth weight
  - C. his birth weight EPD
  - D. his frame size
25. What type of lamb would have the highest dressing percent? (A)
- A. Large, fat lamb
  - B. Large, trim lamb
  - C. Small, trim lamb
  - D. Large, trim, long tailed lamb
26. Which of the following chemicals would not be used in a foot bath to treat foot rot? (C)
- A. Copper Sulfate
  - B. Formaldehyde
  - C. Wormer
  - D. All of the above
27. A two-year sheep will have how many permanent front teeth? (B)
- A. 2
  - B. 4
  - C. 6
  - D. 8
28. The time between estrous or heat periods in a ewe is roughly how many days? (D)
- A. 147 days
  - B. 30 days
  - C. 21 days
  - D. 17 days
29. Which of the following will grow the fastest as a lamb? (C)
- A. Wether
  - B. Ewe
  - C. Ram
  - D. No difference
30. Which two types of twine should not be used to tie wool bags? (B)
- A. Jute and sisal
  - B. Plastic and Sisal
  - C. Plastic and cotton
  - D. Jute and Cotton
31. Which meat type breed has a white face and erect ears? (B)
- A. Southdown
  - B. Dorset
  - C. Rambouillet
  - D. Suffolk
32. What is another name for white muscle disease? (D)
- A. Grass Tetany
  - B. Bloat
  - C. Hypomagnesemia
  - D. Stiff lamb disease

33. Which of the following growth implants may be used on feeder lambs? (A)
- A. Ralgro
  - B. Compudose
  - C. Synovex S
  - D. Steer-oid
34. Which of the following is not an example of internal parasites? (B)
- A. Lung Worms
  - B. Ticks
  - C. Tape Worms
  - D. Flukes
35. Which of the following is a legume? (C)
- A. Orchard grass
  - B. Roughages
  - C. Soybean Meal
  - D. Concentrates
36. What is the main source of antibodies for a young lamb? (D)
- A. Vitamin A
  - B. Calcium
  - C. Protein Supplement
  - D. Colostrum
37. Which breed of sheep would have the finer wool? (C)
- A. Suffolk
  - B. Dorset
  - C. Rambouillet
  - D. Columbia
38. The loin and leg of the lamb carcass is also called the... (A)
- A. Hind saddle
  - B. American style leg of lamb
  - C. French style leg of lamb
  - D. Rear quarter
39. A deficiency of which mineral can cause "white muscle disease"? (A)
- A. Selenium
  - B. Magnesium
  - C. Calcium
  - D. Phosphorus
40. Which breed is noted for having large numbers of lambs? (C)
- A. Dorset
  - B. Hampshire
  - C. Finnsheep
  - D. Southdown
41. A lamb sirloin chop comes from the... (C)
- A. Shoulder
  - B. Rib
  - C. Loin
  - D. Leg
42. Which of the following would not be considered a meat type breed? (D)
- A. Suffolk
  - B. Hampshire
  - C. Dorset
  - D. Rambouillet
43. Meat from sheep less than 12 months of age is called? (A)
- A. Lamb
  - B. Veal
  - C. Mutton
  - D. Steak
44. What is the approximate length of gestation in the ewe? (C)
- A. 1 month
  - B. 3 months
  - C. 5 months
  - D. 9 months

45. Which term refers to sheep? (A)
- A. Ovine
  - B. Bovine
  - C. Porcine
  - D. Equine
46. What type of pasture would be most desirable for sheep? (B)
- A. fescue and white clover
  - B. bluegrass and white clover
  - C. orchard grass and red clover
  - D. timothy and red clover
47. Which would not be an acceptable cooking method for lamb rib chops? (C)
- A. Broil
  - B. Braise
  - C. Pan Fry
  - D. Pan Broil
48. What is the term used to describe a castrated male sheep? (B)
- A. Steer
  - B. Wether
  - C. Gelding
  - D. Buck
49. Shelled corn is used in rations primarily as a source of? (C)
- A. Protein
  - B. Fat
  - C. Energy
  - D. Minerals
50. At what stage of growth does grass have the lowest protein? (A)
- A. Full bloom
  - B. Mid-bloom
  - C. Early bloom
  - D. Pre-bloom
51. Which of the following occurrences can be prevented by vaccination? (D)
- A. Foot Rot
  - B. Founder
  - C. Bloat
  - D. Overeating Disease
52. What is the normal body temperature of a sheep? (C)
- A. 98.6
  - B. 100
  - C. 101
  - D. 102.5
53. TDN or Total Digestible Nutrients is a measure of what in a feed? (B)
- A. Protein
  - B. Energy
  - C. Feed Consumption
  - D. Carbohydrates
54. What is another name for the wingless flies (sometimes called ticks) which affect sheep? (D)
- A. Lice
  - B. Stable Flies
  - C. Bots
  - D. Keds
55. Which is higher in protein? (A)
- A. Soybean Meal
  - B. Cottonseed Meal
  - C. Alfalfa Pellets
  - D. Straw
56. Which quality grade of beef is most commonly sold in grocery stores? (B)
- A. Prime
  - B. Choice
  - C. Good
  - D. Standard

57. The average gestation period of swine is? (B)  
A. 21 days  
B. 114 days  
C. 150 days  
D. 130 days
58. Feeder pigs normally weigh how many pounds when sold? (B)  
A. 20 to 30 lbs.  
B. 40 to 50 lbs.  
C. 220 to 230 lbs.  
D. 230 to 250 lbs.
59. The loin and leg of the lamb carcass is also called? (A)  
A. The hindsaddle  
B. American style leg of lamb  
C. French style leg of lamb  
D. Rear-quarter
60. Which of the following is not a deworming agent for sheep? (C)  
A. Phenothiazine  
B. Thibenzole  
C. Paint  
D. Atgard
61. A symptom of bloat is? (C)  
A. Lameness  
B. Abortion  
C. Bulging on the left side  
D. Severe bulging on the right side
62. At what three points do we measure the back fat thickness on a market hog? (B)  
A. First rib, fourth rib, first lumbar vertebra  
B. First rib, last rib, last lumbar vertebra  
C. Last rib, first lumbar vertebra, last lumbar vertebra  
D. First rib, last rib, first lumbar vertebra
63. The mating of animals of different breeds is known as? (C)  
A. Inbreeding  
B. Rebreeding  
C. Crossbreeding  
D. None of the above
64. At what age should a heifer be bred? (C)  
A. 9 months  
B. 12 months  
C. 15 months  
D. 20 months
65. An intramuscular injection should be given (A)  
A. In the muscle  
B. Under the skin  
C. In the vein  
D. In the bone joints
66. On which ration should an 800-pound steer have the fastest rate of gain? (B)  
A. Corn silage + supplement  
B. Whole shelled corn + supplement  
C. Orchard grass pasture  
D. Full-feed oats + 4 lbs. hay
67. What is another word for calving difficulty? (D)  
A. Laminitis  
B. Founder  
C. Enterotoxemia  
D. Dystocia
68. When the term "hot" is applied to a ration, the ration is? (A)  
A. High in concentrates  
B. Low in concentrates  
C. Warmed in an oven  
D. High in protein

69. What is the common name for the disease Listeriosis which appears in cattle and sheep? (B)
- A. Bloat
  - B. Circling disease
  - C. Foot rot
  - D. Overeating
70. What 2 breeds of cattle were used to develop the Santa Gertrudis breed? (B)
- A. Angus and Murray Grey
  - B. Shorthorn and Brahman
  - C. Brahman and Limousin
  - D. Shorthorn and Angus
71. Which breed of swine has erect ears? (A)
- A. Tamworth
  - B. Poland China
  - C. Chester White
  - D. Landrace
72. A feed low in fiber and high in food value is? (D)
- A. Roughage
  - B. Silage
  - C. Haylage
  - D. Concentrate
73. The average dressing percent of a market hog is? (D)
- A. 40%
  - B. 50%
  - C. 60%
  - D. 70%
74. The largest compartment of the 4-part stomach of cattle or sheep is the? (D)
- A. Cecum
  - B. Reticulum
  - C. Abomasum
  - D. Rumen
75. The most desirable color for retail beef is? (A)
- A. Cherry Red
  - B. Grayish Pink
  - C. Pink
  - D. Dark Brown
76. To increase fall lambing rates which breed would you include in your flock? (C)
- A. Suffolk
  - B. Hampshire
  - C. Dorset
  - D. Cotswold
77. A castrated male pig is called a? (C)
- A. Steer
  - B. Wether
  - C. Barrow
  - D. Gilt
78. How old should a gilt be when she first farrows? (B)
- A. 6 months
  - B. 1 year
  - C. 2 years
  - D. 3 years
79. If you were to go out into a lush green pasture and see a cow with her left side all bulged out what would you suspect? (B)
- A. Overeating
  - B. Bloat
  - C. Grass tetany
  - D. Pregnancy
80. How does an elastrator work? (B)
- A. Clamps & crushes cord
  - B. Cuts off circulation
  - C. Cuts scrotum on one side
  - D. Shoots elastic bands

81. A good source of protein for beef and sheep rations is: (C)
- A. Corn
  - B. Trace mineral salt
  - C. Soybean meal
  - D. Steak
82. What does the term intradermal mean:(C)
- A. Under the skin
  - B. In the Vein
  - C. In the skin
  - D. To warm something
83. Why would we flush ewes? (B)
- A. To rid them of parasites
  - B. To stimulate estrus and increase ovulation rate
  - C. To increase feed efficiency
  - D. To encourage
84. Providing extra feed for nursing lambs and calves is called: (C)
- A. Flushing
  - B. Foundering
  - C. Creeping
  - D. Plumping
85. When the term burly is used in livestock judging it means:(C)
- A. Close at the knees
  - B. Upstanding
  - C. Rugged and masculine
  - D. More feminine
86. What frequent drought problem do we have with feeding green-chop corn silage: (D)
- A. Bloat
  - B. Prussic Acid Poisoning
  - C. White Muscling Disease
  - D. Nitrate Poisoning
87. The small flecks of fat in a cut of beef which gives meat its flavor and is also one of the factors indicating quality is called: (B)
- A. Seam Fat
  - B. Marbling
  - C. External Fat
  - D. Speck Fat
88. One of the factors affecting the dressing percent of an animal is the amount of fill. Fill is: (B)
- A. The amount of digestive tract and vital organs.
  - B. The amount of water and feed in the animal.
  - C. The amount of time a carcass is in storage.
  - D. The method of dressing.
89. Corn is usually used as the standard of energy in a ration. However, during a drought corn may become scarce and expensive. Choose the best energy source to use in replacing your corn:(A)
- A. Barley
  - B. Peanut Meal
  - C. Urea
  - D. Alfalfa
90. The largest compartment of a ruminant stomach can store some 30 gallons of food and water. It is called the: (A)
- A. Rumen
  - B. Reticulum
  - C. Omasum
  - D. Abomasum
91. One of our objectives is to have our replacement heifers calve as two year olds and then calve at the same time as the mature cows the next year. To do this they must weigh how much as 14-15 months of age when bred: (C)
- A. 200-400 lbs.
  - B. 400-600 lbs.
  - C. 600-800 lbs.
  - D. 1000-1200 lbs.

92. Rotating animals to eat from one pasture for a time, to another pasture and so on is called: (B)

- A. Intravenous Feeding
- B. Controlled Grazing
- C. Choice Feeding
- D. Self-Feeding

93. Which of the following is not considered to be a British breed: (D)

- A. Hereford
- B. Shorthorn
- C. Angus
- D. Chianina

94. Dystocia in beef cattle is: (D)

- A. An Infectious Disease
- B. A Hormone
- C. A Vitamin Deficiency
- D. Calving Difficulty

95. Feeds which build bones and teeth and are necessary for important body processes are:(C)

- A. Protein
- B. Fats
- C. Minerals
- D. M & M's

96. Which class of cattle would require the highest protein level in their ration? (B)

- A. Cows Nursing Calves
- B. 400-500 Lbs. Steers
- C. 1000 Lbs. Steers
- D. Dry Cows

97. A lamb carcass weighs 60 pounds, has a 3.0 square inch loin eye, has a 0.30-inch back fat, and grades Choice+ - this carcass is? (C)

- A. Too light
- B. Light Muscled
- C. Too Fat
- D. Really Good

98. What is the term for removing sperm from a bull and putting that sperm into a female when she is in heat? (A)

- A. Artificial Insemination
- B. Pregnancy Sharing
- C. Embryo Transfer
- D. Estrous Synchronization

99. Which sex grows slowest, even when fed the same as the others? (C)

- A. Bull
- B. Steer
- C. Heifer
- D. They're the same

100. How much dry feed would you expect a 1000-pound steer to eat, if he can eat all he wants? (C)

- A. 10 pounds
- B. 17 pounds
- C. 24 pounds
- D. 31 pounds

101. Which product is used to treat a disease once an animal already has it? (C)

- A. Vaccine
- B. Implant
- C. Antibiotic
- D. Bacterin

102. How can you tell if two hogs are littermates? (B)

- A. Left ear notch
- B. Right ear notch
- C. The pigs are all the same color
- D. The information written on their ear tag

103. The information on an injection product label says to administer the injection either subcutaneously or intramuscularly. Where would you give it? (B)

- A. Deep in the muscle of the neck
- B. Under the skin of the neck
- C. Deep in the muscle of the hip
- D. It doesn't matter, so any of these is OK

104. What type of grade or score is not related to fatness of the animal? (D)

- A. Condition Score
- B. Yield Grade
- C. Quality Grade
- D. Frame Score

105. If you want your steer or lamb to grow faster and finish more quickly, which nutrient do you need to increase in the ration fed? (A)

- A. Energy
- B. Protein
- C. Vitamin A
- D. Calcium

106. A pig grew from 40 pounds to 240 pounds in 100 days and ate 600 pounds of feed. What was his Average Daily Gain (pounds per day)? (D)

- A. 100
- B. 200
- C. 6.0
- D. 2.0

107. A calf is having trouble being born. What piece of equipment do you need? (B)

- A. Esophageal Feeder
- B. Obstetrical Chain
- C. Emasculator
- D. Drench Gun

108. Which factor is most closely related to whether a beef carcass grades Choice or Select? (D)

- A. Back fat
- B. Amount of muscle
- C. Whether it's a steer or heifer
- D. Amount of marbling

109. If a cow is in heat today when would be expected to be in heat again? (B)

- A. 17 days from now
- B. 21 days from now
- C. 283 days from now
- D. 365 days from now

110. What method is used to administer dewormers? (D)

- A. Oral
- B. Topical
- C. Injected
- D. All of the above

111. Maternal milk EPD is a measurement of? (B)

- A. Pounds of milk produced
- B. Pounds of weaning weight that is due to milk production
- C. Pounds of milk produced before birth
- D. Pounds of milk produced at weaning

112. What wholesale cut corresponds to the shoulder of cattle? (B)

- A. Shoulder
- B. Chuck
- C. Round
- D. Plate

113. Which market animal now sells for the highest price per pound (live basis)? (B)

- A. Hog
- B. Steer
- C. Lamb
- D. Steers and Lambs are the same

114. Which breed is tolerant of high temperatures, resistant to parasites, but is late maturing and has lower quality beef? (A)

- A. Brangus
- B. Angus
- C. Simmental
- D. Limousin

115. The time between when a drug is administered and the animal can safely be sold for slaughter is called? (B)

- A. Waiting Period
- B. Withdrawal Period
- C. Medicinal Interval
- D. Safety Period

116. From the profile, an animal straight in the hock and walking with a naturally short, stiff stride is called? (D)

- A. Cow Hocked
- B. Stiff Legged
- C. Sickie Hocked
- D. Post Legged

117. What in the name of the technology used to measure fat and amount of muscle in a live animal? (B)

- A. Magnetic Resonance Imaging
- B. Ultrasound
- C. Endoscopy
- D. Ultraviolet

118. Which vitamin is related to green forage consumption by cattle and sheep? (A)

- A. Vitamin A
- B. Vitamin C
- C. Vitamin D
- D. Vitamin B-6

119. Which of the following is a major problem with quality of pork? (B)

- A. EPD
- B. PSE
- C. ESP
- D. SPI

120. After calving, the cow expels the afterbirth. What is the afterbirth officially called? (C)

- A. Pasturella
- B. Progesterone
- C. Placenta
- D. Platyus

121. On average, when a black cow that carries the horned gene is mated to a black bull that is polled, a polled calf will be produced how often? (A)

- A. All the time
- B. Half the time
- C. 25% of the time
- D. None of the time

122. If you want to select highly productive replacement gilts that excel in the maternal traits, which piece of data is most useful? (A)

- A. Dam's SPI
- B. Days to 250
- C. Back fat depth
- D. Number born alive in her own litter

123. Where do we measure back fat thickness and ribeye area on beef and lamb carcasses? (C)

- A. Between 4th and 5th ribs
- B. Between 10th and 11th ribs
- C. Between 12th and 13th ribs
- D. Any of these are acceptable locations

124. We want to feed a group of calves 300 pounds of dry matter from corn. High moisture corn is 75% dry matter. How much high moisture corn should be fed to these calves? (C)

- A. 225 pounds
- B. 300 pounds
- C. 400 pounds
- D. 450 pounds

125. Which structure is not a part of the reproductive tract of a female? (B)

- A. Ovary
- B. Esophagus
- C. Cervix
- D. Uterus

126. What is a problem that can result from lambs being docked very close to the body? (D)

- A. Internal parasites
- B. Limp when they walk
- C. Meat quality is reduced
- D. Rectal prolapse

127. What is the problem with extremely large framed steers in the industry? (D)

- A. Produce carcasses that are too big
- B. Take a long time to finish properly
- C. Have a low average daily gain
- D. Both a and b

128. Farmers often add urea to corn silage as it goes from the field to the silo. Why? (A)

- A. Increase protein content
- B. Increase energy content
- C. Adds calcium and phosphorous
- D. Keeps it from spoiling

129. Which hormone is associated with females showing standing heat? (D)

- A. Progesterone
- B. Prolactin
- C. Prostaglandin
- D. Estrogen

130. Ultrasound technology cannot determine which meat characteristics? (A)

- A. Firmness and color
- B. Marbling score
- C. Back fat thickness
- D. Loin eye area

131. Which view is best to determine if an animal is too straight in the shoulder? (B)

- A. Rear View
- B. Side View
- C. Front View
- D. Looking down from above

132. Which of the following diseases is very contagious, meaning that it can be spread from one animal to others in the same group? (C)

- A. Listeriosis, also known as circling disease
- B. Hypothermia, or low body temp.
- C. Foot Rot
- D. Enterotoxaemia/Overeating disease

133. Which retail cut contains a piece of spine? (A)

- A. Porterhouse steak
- B. Ribeye steak
- C. Top Round steak
- D. Flank Steak

134. A pork carcass weighs 135 pounds, has 0.7 inch of back fat and a loin eye area of 6.5 square inches. This carcass is? (C)

- A. Too fat
- B. Too light muscled
- C. Too light
- D. Very desirable

135. Which important things are contained in colostrum? (A)

- A. Antibodies
- B. Fat
- C. Protein
- D. All of these

136. Which feed can be used as a protein source for cattle and sheep, but provides no energy at all? (A)

- A. Urea
- B. Corn gluten feed
- C. Soybean Meal
- D. Cottonseed Meal

137. What does the term gestation mean? (C)  
A. The time during which the mating process to take place.  
B. The period of time after the offspring has been weaned.  
C. The time period measured from conception to birth of the animal.  
D. The amount of time it takes for the birthing process to be completed.

138. The good pre-breeding reproductive management tool for the ewe flock and ram involve which of the following: (A)

- A. Flushing
- B. Washing
- C. Castrating
- D. Cleaning the lambing barn

139. Which of the following sheep breeds is most likely to be used for out-of-season breeding and early fall lambing? (B)

- A. Hampshire
- B. Dorset
- C. Columbia
- D. Suffolk

140. The ability of an animal to pass their genetic traits on to their offspring is called what? (C)

- A. Heterosis
- B. Genealogy
- C. Heritability
- D. Backgrounding

141. Shelled corn is used in rations primarily as a source of? (C)

- A. Protein
- B. Fat
- C. Energy
- D. Minerals

142. Which of the following is the smallest framed breed? (A)

- A. Southdown
- B. Suffolk
- C. Dorset
- D. Hampshire

143. When does a ewe have the highest feed requirements? (D)

- A. Pregnancy
- B. When nursing one lamb
- C. Just after shearing
- D. When nursing twins

144. When is grass at its most nutritious stage? (A)

- A. Vegetative
- B. Early bloom
- C. Full bloom
- D. Mature

145. Feed additives are put in rations to? (D)

- A. Increase rate of gain
- B. Improve feed efficiency
- C. Treat diseases
- D. All of these

146. Which of the following vitamin-mineral combination is associated with stiff lamb disease? (B)

- A. Calcium, phosphorus, vitamin d
- B. Selenium, vitamin e
- C. Sodium, vitamin c
- D. Potassium, vitamin b-12

147. Which of the following would be considered a concentrate feed? (D)

- A. Alfalfa hay
- B. Corn silage
- C. Ryegrass pasture
- D. Shelled corn

148. A sheep producer has a 5% lamb crop. If he has 100 ewes, how many lambs did his ewes have? (B)

- A. 100
- B. 125
- C. 150
- D. 50

149. When we slaughter a lamb, approximately how much back fat should the carcass have? (C)

- A. None
- B. 0.5 inches
- C. 0.15 inches
- D. 1 inch

150. What does the term creeping mean? (B)

- A. Locking a ram up at night
- B. Providing extra feed for nursing lambs
- C. Exercising market lambs
- D. Bagging a ewe

151. A feed low in fiber and high in food value is? (D)

- A. Roughage
- B. Silage
- C. Haylage
- D. Concentrate

152. A good source of protein for beef and sheep rations is (C)

- A. Corn
- B. Trace mineral salt
- C. Soybean meal
- D. White Salt

153. Purified wool grease used in salves, cosmetics, and ointments is called? (B)

- A. Woolite
- B. Lanolin
- C. Margin
- D. Crimp

154. A fatal, degenerative disease affecting the central nervous system known as transmissible spongiform encephalopathies (TSE's) is called: (B)

- A. Ringworm
- B. Scrapie
- C. Shipping fever
- D. Postpartum

155. A male animal that has only one normal size testicle descended into the scrotum is called what? (C)

- A. Hermaphrodite
- B. Freemartin
- C. Cryptorchid
- D. Mulefoot

156. When cattle twins are born and they are of different sex, the female is called a: (B)

- A. Cryptorchid
- B. Freemartin
- C. Hermaphrodite
- D. Mulefoot

157. Pigs born at the same time from the same sow are called: (D)

- A. Piglets
- B. Shoats
- C. Feeder Pigs
- D. Littermates

158. Which of the following products is used to synchronize cattle: (D)

- A. Bovatec
- B. Synovex
- C. Ivomec
- D. Lutalyse

159. What type of examination is used to determine if heifers are big enough to breed? (C)

- A. Pregnancy Exam
- B. Blood Pressure Test
- C. Pelvic Exam
- D. Soundness Exam

160. What does EPD stand for? (C)

- A. Early Pregnancy Diagnosis
- B. European Popular Demand
- C. Expected Progeny Difference
- D. Eastern Police Department

161. What does heterosis refer to in a crossbreeding program? (B)

- A. Heredity
- B. Hybrid Vigor
- C. Genealogy
- D. Hypertension

162. The ability of an animal to pass their genetic traits on to their offspring is called what? (C)

- A. Heterosis
- B. Genealogy
- C. Heritability
- D. Backgrounding

163. Which of the following is not considered to be a British breed? (D)

- A. Hereford
- B. Shorthorn
- C. Angus
- D. Chianina

164. TDN or Total Digestible Nutrients is a measure of what in a feed? (B)

- A. Protein
- B. Energy
- C. Palatability
- D. Feed Consumption

165. The instructions on an injectable medication recommend it be given subcutaneously. This means the injection is given where? (B)

- A. Orally
- B. Under the skin
- C. In the muscle
- D. In the vein

166. Which animal is most efficient in converting forage into human food? (D)

- A. Steer
- B. Hog
- C. Chicken
- D. Lamb

167. Which feed additive is used to prevent heifers from coming into heat? (D)

- A. Bovatec
- B. Aureomycin
- C. Decoquate
- D. MGA

168. Your vet has a balling gun in his hand. What is he going to do? (C)

- A. Remove horns
- B. Castrate
- C. Give a big pill
- D. Vaccinate

169. The most tender beef steak is the? (D)

- A. Porterhouse steak
- B. Top loin steak
- C. Round steak
- D. Filet mignon

170. The term bovine relates to which animal? (A)

- A. Cattle
- B. Sheep
- C. Swine
- D. Horses

171. The average dressing percent of a market lamb is? (B)

- A. 40 percent
- B. 50 percent
- C. 60 percent
- D. 70 percent

172. Your market lambs are on good pasture but are not growing well and have dirty tails. What is most likely the problem? (A)

- A. The lambs need to be dewormed
- B. Listeriosis
- C. White muscle disease
- D. The lambs are not eating

173. A 240-pound barrow has 5.5 square inches of loin eye area and 0.8 inches of back fat. This is? (D)

- A. Too light muscled
- B. Too fat
- C. Too heavy
- D. Really good

174. What other trait is improved in addition to semen-production by having bulls with larger scrotal circumference? (B)

- A. Rate of gain
- B. Age at puberty of daughters
- C. Amount of muscle
- D. Disposition

175. What specie requires an iron supplement shortly after birth? (C)

- A. Cattle
- B. Sheep
- C. Swine
- D. Horse

176. For a swine producer with a farrow-to-finish program, what factor is most important in his profitability? (A)

- A. Feed cost
- B. Pigs per sow per year
- C. Rate of gain
- D. Back fat thickness

177. Which of the following breeds do not have any Brahman influence? (A)

- A. Longhorn
- B. Beefmaster
- C. Santa Gertrudis
- D. Brangus

178. Which of the following is an internal parasite that is not controlled with any deworming product? (B)

- A. Stomach worms
- B. Coccidian
- C. Lungworms
- D. Grubs

179. A ewe that is bred on October 1 should lamb on: (B)

- A. February 1
- B. March 1
- C. March 15
- D. April 1

180. Which of the following feeds is higher in energy content? (C)

- A. Oats
- B. Barley
- C. Wheat
- D. Alfalfa pellets

181. Which is the main source of disease-protection for the newborn animal? (B)

- A. Vaccination
- B. Colostrum milk
- C. Vitamin injection
- D. Creep feed

182. Which of these bulls is most likely to cause calving difficulty? (D)

- A. Bull with an actual birthweight of 85 lbs.
- B. Bull whose mother was a first-calf heifer
- C. Bull with a yearling weight of 1150 pounds
- D. Bull with a birthweight EPD of +8.6 pounds

183. Ear notching of swine is used to identify? (D)

- A. The breeder
- B. The litter number
- C. Pig number within the litter
- D. Both b and c

184. In normal slaughter operations, which specie does not have the skin removed from the carcass? (B)

- A. Cattle
- B. Pigs
- C. Sheep
- D. All have it removed

185. Which of the following lamb cuts comes from the same part of the carcass as a porterhouse steak of beef? (C)

- A. Blade chop
- B. Rib chop
- C. Loin chop
- D. Sirloin chop

186. Your pig has eaten 450 pounds of feed and has gained 150 pounds. What is his feed efficiency (pounds of feed per pound of gain)? (C)

- A. 450
- B. 150
- C. 3.0
- D. Need more information

187. With which specie are the following terms associated: percent muscle, days to 230, litter size, needle teeth? (B)

- A. Cattle
- B. Pigs
- C. Sheep
- D. Horse

188. Giving injections in which way causes the greatest problem for the beef industry with injection site reactions? (B)

- A. Intravenous
- B. Intramuscular
- C. Subcutaneous
- D. Intradermal

189. When should a cow be artificially bred if she is seen in "standing heat" tomorrow morning? (B)

- A. Tomorrow morning
- B. Tomorrow evening
- C. The day after tomorrow
- D. Sunday night

190. A lamb carcass weighs 60 pounds, has a 3.0 squire inch loin eye, and has 0.30-inch back fat and grades Choice+. The carcass is? (C)

- A. Too light
- B. Light muscled
- C. Too fat
- D. Really good

191. If you want your steer or lamb to grow faster and finish more quickly, which nutrient do you need to increase in the ration fed? (A)

- A. Energy
- B. Protein
- C. Quality Grade
- D. Frame Score

192. Meat from sheep less than 12 months of age is called: (A)

- A. Lamb
- B. Veal
- C. Mutton
- D. Steak

193. The amount of lamb eaten per person in the United States is approximately: (A)

- A. 2 pounds
- B. 5 pounds
- C. 10 pounds
- D. 25 pounds

194. What breed or breed-cross makes the typical "black-baldie" (black body, white face) beef calf? (A)

- A. Angus X Hereford
- B. Angus X Charolais
- C. Hereford X Charolais
- D. Purebred Hereford

195. In using livestock medications, you should: (D)

- A. Read and follow label instructions
- B. Obey withdrawal requirements
- C. Use the proper dose or amount
- D. All of the above

196. What type of examination is used to determine if heifers are big enough to breed? (C)

- A. Pregnancy Exam
- B. Blood Pressure Test
- C. Pelvic Exam
- D. Soundness Test

197. When your steer weighed 600 pounds he was fed a ration containing 13% protein. He now weighs 1000 pounds. What protein level should he be fed now? (B)

- A. More
- B. Less
- C. The same
- D. It doesn't matter

198. You take the temperature of your ewe and find the temperature to be 106 degrees, what does this mean? (A)

- A. The ewe is probably sick
- B. The ewe is chilled
- C. The ewe needs to be fed more
- D. Everything is normal

199. You sold a market hog that weighed 220 pounds, what would you expect the carcass weight to be? (B)

- A. 100 lb.
- B. 150 lb.
- C. 180 lb.
- D. 200 lb.

**TEST QUESTIONS**

**WORD MATCHING SAMPLE QUESTIONS**

1. Match the species name with the scientific name
  - a. Horse – Equine
  - b. Swine – Porcine
  - c. Cattle – Bovine
  - d. Sheep – Ovine
2. Match the correct gestation period of the species
  - a. ewe – 147 days
  - b. sow – 114 days
  - c. cow – 283 days
  - d. doe – 150 days
3. Match the desirable birth weight with the specie
  - a. Cattle – 80 lbs.
  - b. Sheep – 12 lbs.
  - c. Hogs – 3 lbs.
  - d. Goats – 8 lbs.
4. Match with the protein amounts
  - a. Soybean Meal – 44%
  - b. Cottonseed Meal – 33%
  - c. Clover Hay – 10-14%
  - d. Alfalfa Pellets – 18-20%
5. How much should each specie gain per day.
  - a. Sheep – 0.7 lbs.
  - b. Cattle – 3 lbs.
  - c. Hogs – 2 lbs.
  - d. Goats – 0.25 lbs.
6. Match the following disease with an appropriate description
  - a. Pneumonia - Infection in the lung
  - b. Coccidiosis - Parasitic disease of the gut
  - c. Enterotoxemia – Gastrointestinal tract disease caused by a bacterium that can be fatal
  - d. Leptospirosis - Reproductive disease most often affecting cattle

7. Match the product with use. Options can be used more than once.
  - a. Ivomec- Deworming product
  - b. Lutalyse - Used in estrous synchronization
  - c. Bovatec - Feed additive – increase efficiency
  - d. Synovex – Growth implant – increase rate of weight gain and feed efficiency
  - e. Synchronate B - Used in estrous synchronization
  - f. Rumensin - Feed additive – increase efficiency
  - g. Tramisol - Deworming product
  - h. MGA- Used in estrous synchronization or feed additive – prevents estrous
8. Match the term for a castrated male with the appropriate species.
  - a. Swine – Barrow
  - b. Cattle – Steer
  - c. Horse - Gelding
  - d. Sheep - Wether
9. Match the cattle breed with its description
  - a. Limousin - French breed noted for high cutability
  - b. Angus - British breed noted for marbling
  - c. Santa Gertrudis - Cross of Brahman and Shorthorn
  - d. Simmental - Austrian breed noted for high growth rate and milk production
10. Match the mineral deficiency with the problem it causes
  - a. Selenium - White muscle disease
  - b. Magnesium - Grass tetany
  - c. Iron - Baby pig anemia
  - d. Calcium; Phosphorous ratio - Urinary calculi
11. Match the feed additive with its function.
  - a. MGA - Prevent heifers from coming into heat
  - b. Bovatec/Rumensin - Improve feed efficiency
  - c. Urea - Increase protein level of feed ration
  - d. Bicarbonate of Soda - Increase rumen pH, prevent acidosis
12. Match the products with their use
  - a. Ralgro, Synovex, Compudose - Growth promotant implant
  - b. Warbex, Spotton - Control cattle grubs
  - c. Tramisol, Ivomec – Dewormer
  - d. Lutalyse, Synchronate B - Estrous synchronization

13. Match the rectal body temps of each species
  - a. Sheep – 100.9-103.8
  - b. Beef – 100-102.5
  - c. Swine – 101.6-103.6
  - d. Goat – 101.3-103.5
14. Match the breed with the most appropriate description
  - a. Charolais - High growth French breed, noted for cutability
  - b. Longhorn - Light muscled noted for calving ease
  - c. Angus - British breed noted for marbling
  - d. Beefmaster - Composite Breed
15. Match the sheep breed with the appropriate characteristics:
  - a. Dorset - Year round breeding, meat type
  - b. Finnsheep – Prolific
  - c. Columbia - Developed from Lincoln and Rambouillet
  - d. Polypay - Developed from Finnseep, Dorset, Rambouillet, Targee
16. Match the mineral with the condition it is associated with
  - a. Copper – copper toxicity
  - b. Calcium & Phosphorous - urinary calculi
  - c. Magnesium - grass tetany
  - d. Selenium - white muscle disease
17. Match the nutritional disease with the cause
  - a. Grass tetany - Magnesium deficiency
  - b. White muscle disease - Selenium deficiency
  - c. Pregnancy toxemia – nutritional deficiency
  - d. Milk fever – Calcium deficiency
18. Match the product with the intended use
  - a. Bovatec - Feed additive, improves feed efficiency
  - b. Synovex - Growth promotant implant
  - c. Ivomec - Use to synchronize estrus
  - d. Lutalyse - Use to synchronize estrus

## **POTENTIAL TEAM PRACTICUMS**

The following are potential practicums that could be used in the Team Activity portion of the contest. For each practicum the contestants will be given the “Scenario” however the full “Criteria” will only be provided to the judges when applicable.

### List of Current Practicums

- Artificial Insemination
- Artificial Insemination vs Live Cover Cost Analysis
- Bandaging
- Bovine Pregnancy Check
- Cuts of Meat Identification
- Ear Notching
- Electric Fence Building
- Foot Rot Treatment
- Halter Tying
- Medication Injection
- Parts of the Pig Identification
- Sheep Aging
- Bovine Injections
- Parts of the Lamb Identification
- Preparing Lamb Colostrum
- Medication Label Analysis
- Performing Livestock Sutures
- Breeding Decision Analysis

**POTENTIAL TEAM PRACTICUM**

**ARTIFICIAL INSEMINATION PRACTICUM (50 POINTS TOTAL)**

**Scenario**

Today is Artificial Insemination (AI) day on the ranch where you and your friends are helping work cattle. This year you will take a more active role in the process and each team member will be assigned a role.

**Each contestant must do one of the following tasks**

- Prep and Load AI Gun for the Angus Cow
- Follow AI Procedure for the Angus Cow
- Prep and Load AI Gun for the Hereford Cow
- Follow AI Procedure for the Hereford Cow

<b>Criteria</b>	<b>Points Possible</b>	<b>Points Earned</b>
Team works together to assign each individual a task		
<b>Prep and Load AI Gun:</b> Follow the steps outlined to properly load an AI gun <ul style="list-style-type: none"> <li>• Remove the correct semen straw from tank <b>(1pt)</b></li> <li>• Place straw in warming bath for 30 to 60 secs <b>(1pt)</b></li> <li>• Warm AI gun to body temp <b>(1pt)</b></li> <li>• Take straw out of water dry with paper towel <b>(1pt)</b></li> <li>• Use sidle cutter to remove the tip of the semen straw (opposite cotton plug) <b>(1pt)</b></li> <li>• Insert straw into sheath keeping the cow end of the sheath sterile <b>(1pt)</b></li> <li>• Insert AI gun (at Body Temp) into the straw/ sheath <b>(1pt)</b></li> <li>• Push straw and gun to the top of the sheath making sure not to depress plunger or remove sterile packaging <b>(1pt)</b></li> <li>• Lock the gun <b>(1pt)</b></li> <li>• Keep gun warm and sheath sterile until ready to be used <b>(1pt)</b></li> </ul>	<b>10</b>	
Angus Cow	<b>10</b>	
Hereford Cow	<b>10</b>	
<b>Follow AI Procedure:</b> Identify key landmarks in the female reproduction system and the follow the steps outlined below for AI procedure <ul style="list-style-type: none"> <li>• ID from the side               <ul style="list-style-type: none"> <li>○ Vagina <b>(1pt)</b></li> <li>○ Cervix <b>(1pt)</b></li> <li>○ Uterine Horn <b>(1pt)</b></li> <li>○ Bladder <b>(1pt)</b></li> </ul> </li> <li>• AI Procedure               <ul style="list-style-type: none"> <li>○ Apply palpation glove and (pretend) lube <b>(1pt)</b></li> <li>○ Remove feces from digestive tract <b>(1pt)</b></li> <li>○ Insert the AI gun into the vagina and locate rectally with opposite hand <b>(1pt)</b></li> <li>○ Locate cervix <b>(1pt)</b></li> <li>○ Manipulate and pass the AI gun through the cervix <b>(1pt)</b></li> <li>○ Deposit Semen <b>(1pt)</b></li> </ul> </li> </ul>	<b>10</b>	
Angus Cow	<b>10</b>	
Hereford Cow	<b>10</b>	
<b>Total</b>	<b>50</b>	

**POTENTIAL TEAM PRACTICUM**

**ARTIFICIAL INSEMINATION VS LIVE COVER COST ANALYSIS PRACTICUM (50 POINTS TOTAL)**

**Scenario**

You and your team run a moderate sized cow calf operation with 100 cows and 15 first time heifers. You are trying to determine if it will be more cost effective to purchase bulls for live cover or use artificial insemination to breed your females (leasing bulls is not an option for your operation). Using the information below answer the following questions.

Live Cover Costs	
Average purchase price of bulls	\$2,750/ head
Salvage value of bulls	\$1,700/ head
Useful life of bulls	3 years
Annual bull maintenance	\$650/ head
Bull to cow ratio	1:25

Artificial Insemination Cost	
Drug cost for Synchronization	\$15/ head
Semen cost	\$25/ straw
Technician cost	\$10/ head
Semen tank cost	\$950/ 20 yrs
Liquid Nitrogen	\$30/ month

- Determine how much it will cost you for live cover per year knowing that you will own the bull for multiple years and expecting your herd size to stay the same. Be sure to include a risk of loss factor using the following formula:  $0.2[(\text{Average Purchase Price of Bull} + \text{Salvage Value})/2]$ . **(15 points possible)**

	Per Bull	Per Year
Bulls needed is (cows + heifer) times bull to cow ratio $(100 + 15)/25 = 4.6 = 5$		(Per bull x 5)
Bull Cost is (Purchase-Salvage)/years of use $(2750-1700)/3$	\$350	\$1750
Maintenance	\$650	\$3250
Risk of loss $0.2[(\text{Avg Price of Bull} + \text{Salvage Value})/2]$ $0.2[(2750+1700)/2]$ $0.2(4450/2)$ $0.2(2225)$	\$445	\$2225
<b>Total</b>	<b>\$1445</b>	<b>\$7225</b>

- Determine the cost of AI per year for the next three years. **(15 points possible)**

Drug cost for Synchronization	\$15/ head	\$1725
Semen cost	\$25/ straw	\$2875
Technician cost	\$10/ head	\$1150
Semen tank cost	\$960/ 20 yrs	\$48
Liquid Nitrogen	\$30/ month	\$360
<b>Total</b>		<b>\$6158</b>

- Based on the values found in answers 1 and 2 what is the more cost effective route for your operation. **(5 points possible)**
  - Artificial insemination is cheaper by 1,067
- Verbally explain to your stake holders which direction you would like to take your operation and why? **(15 points possible)**
  - Feel free to be creative in your answers. You can choose not to go with the cheapest route as well especially if you explain your reasoning!

**POTENTIAL TEAM PRACTICUM**

**BANDAGING PRACTICUM (50 POINTS TOTAL)**

**Scenario**

You and your team work in a small community vet clinic and you have been called out on a farm check. Once you arrive, the ranch hand tells you that he has two injured sheep that need attention. The first is a 3-year-old ewe that cut both of her front legs on some barbed wire fencing. The large animal veterinarian from your clinic has already been out to suture and treat this ewe when she was injured and now the bandages need to be removed. The second sheep is a yearling ram that was bitten by a neighbor’s dog. Your clinic’s veterinarian has already treated this buck as well, since then the ram has managed to tear off the bandages and re-open the wounds.

**You and your team must split into pairs and treat the two sheep at the same time. One sheep needs bandages removed on two legs while the other needs re-banded on two legs. Decide which team member will do each leg on each animal. Note your animal’s ID number and what treatment was performed on each animal in the “Animal Record”. Be sure to include the Contestant #s for both members that worked on the same sheep. The team that removes bandages will be given bandage scissors and gloves and will be graded on their removal technique. The team that applies bandages will be given gloves, cleaning supplies, and fresh bandages and will be graded on their application.**

Criteria	Points Possible	Points Earned
Team works together (with equal effort) to determine what each team member does and all participate in the scenario.	5	
Note the treatment that was performed on each sheep in the “Animal Record”.	10	
Cleans up work area.	5	
Gently swipe the area clean with fresh gauze soaked in a chlorhexidine solution (clean the wound up and down, then side to side, then in circles) before patting dry with dry gauze.	5	
Unroll the Vet-Wrap in a loose roll around hand and cut to appropriate length. Apply fresh gauze to the wound and gently wrap over the wound and gauze with unrolled Vet-Wrap. Should be able to fit two fingers comfortably between the animal’s leg and bandaging tape.	10	
Keep the bandage scissors’ blade flush against the leg and keep the tip raised upward in contact with the bandage.	5	
Gently cut the bandages away from the leg and removed old bandages and gauze.	10	
<b>Total</b>	<b>50</b>	

**POTENTIAL TEAM PRACTICUM**

**BOVINE PREGNANCY CHECK PRACTICUM (50 POINTS TOTAL)**

**Scenario**

You work in a small community vet clinic and you and your coworkers have been called out to do a farm visit. When you arrive, the farm owner informs you that they need a cow preg-checked.

**With your team, plan out a procedure to check the cow for pregnancy. Then, once your procedure is planned, each member of your team must use the palpation dummy to check the cow for pregnancy. Use proper gloving while palpating. You will be scored on how you determine the cow's pregnancy and your teamwork as a group.**

<b>Criteria</b>	<b>Points Possible</b>	<b>Points Earned</b>
The four students work together (with equal effort) to create a procedure.	<b>10</b>	
All four students participate in the palpating.	<b>10</b>	
Each student calls the cow correctly pregnant or open.	<b>20</b>	
Each student demonstrates correct gloving technique.	<b>10</b>	
<b>Total</b>	<b>50</b>	

**POTENTIAL TEAM PRACTICUM**

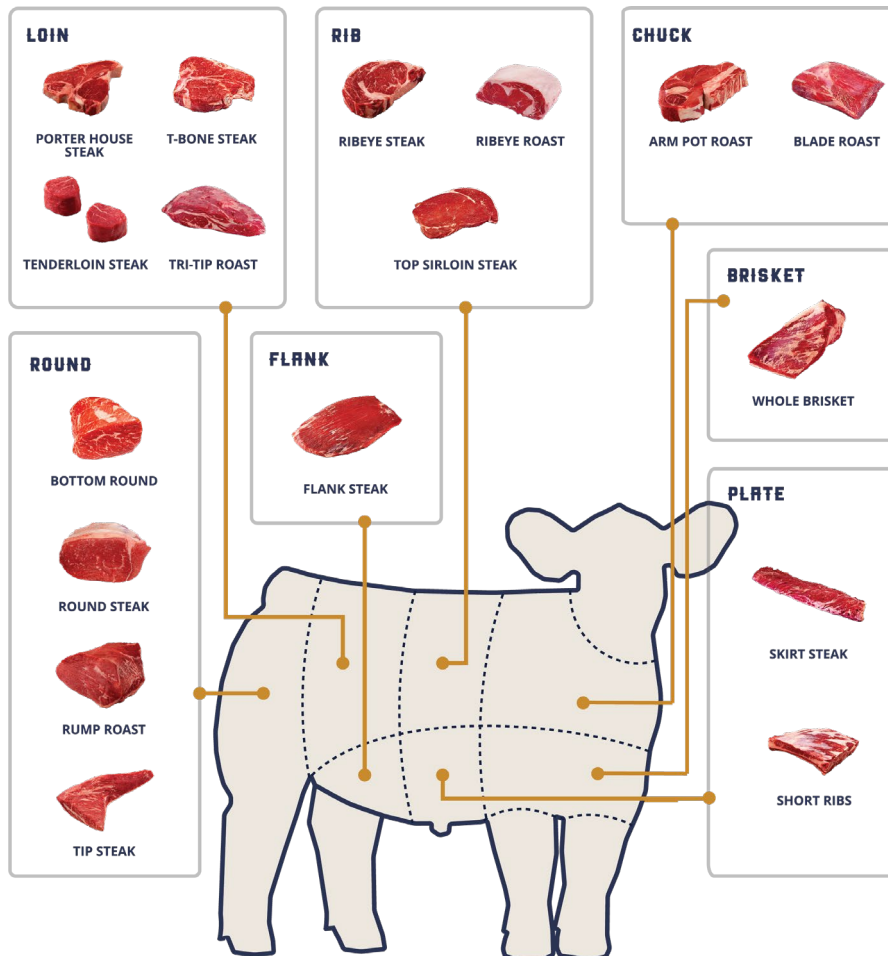
**CUTS OF MEAT IDENTIFICATION PRACTICUM (50 POINTS TOTAL)**

Requirements	Points Available	Points Received
Equal Participation	10	
Arm Pot Roast	2	
Blade Roast	2	
Bottom Round	2	
Flank Steak	2	
Mock Tender Roast	2	
Petite Tender	2	
Porter House Steak	2	
Ribeye Roast	2	
Ribeye Steak	2	

Requirements	Points Available	Points Received
Rump Roast	2	
Shank Cross Cut	2	
Short Ribs	2	
Skirt Steak	2	
T-Bone Steak	2	
Tenderloin Steak	2	
Tip Steak	2	
Top Sirloin Steak	2	
Tri-Tip Roast	2	
Whole Brisket	2	

**Scenario**

Together with your team you will correctly ID the following cuts of the beef



**POTENTIAL TEAM PRACTICUM**

**EAR NOTCHING PRACTICUM (50 POINTS TOTAL)**

**Scenario**

You are students who work part time for a local swine breeder to help cover the cost of your next county fair project and today you are processing litters.

**Part 1** - Each student will notch one pig based on the breeder's information.

**Part 2** - After working in the nursery you go and take a look at the show pig prospects and each identify one hog you would like your advisor/ 4-H Leader to take a look at while you're at school next week.

**Part 1 - Each member will ear notch a piglet based on the information provided below**

Piglet 1 4<sup>th</sup> born in the 2<sup>nd</sup> litter

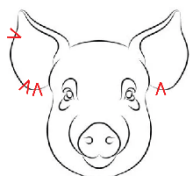
Piglet 2 6<sup>th</sup> born in the 3<sup>rd</sup> litter

Piglet 3 9<sup>th</sup> born in the 3<sup>rd</sup> litter

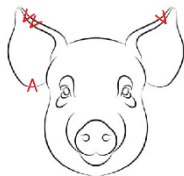
Piglet 4 1<sup>st</sup> born in the 5<sup>th</sup> litter

**Part 2 - Each member will correctly read and label a prospect hog's ear notches**

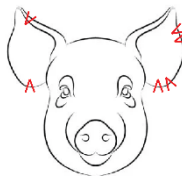
Hog 1



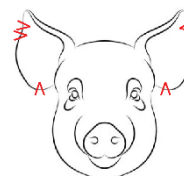
Hog 2



Hog 3



Hog 4



Criteria	Points Possible	Points Earned
Team works together (with equal effort) to determine what each team member does and all participate in the scenario.	5	
Each team member correctly notch the appropriate piglet	20 (5/ea)	
Each team member correctly ID's the appropriate prospect hog	20 (5/ea)	
All Items are cleaned and returned to their proper places	5	
<b>Total</b>	<b>50</b>	

**POTENTIAL TEAM PRACTICUM**

**ELECTRIC FENCE BUILDING PRACTICUM (50 POINTS TOTAL)**

**Scenario**

You work weekends for a local rancher who is in the process of building an electric fence. The equipment has all been purchased and the fence posts and grounding post have already been set. The rancher must run to town to pick up more equipment and your job is to finish building this 3 wire electric fence to completion. Once the rancher returns he will plug in the fence and will ask you to test to make sure it is functioning and grounded properly.

<b>Criteria</b>	<b>Points Possible</b>	<b>Points Earned</b>
Team works together (with equal effort) to determine what each team member does and all participate in the scenario.	<b>5</b>	
Place unit on fence post	<b>5</b>	
Connect 3 grounding rods in the ground	<b>5</b>	
Attach Grounding wire to unit using clamps	<b>5</b>	
Run 3 lines of electrical fencing the length of the posts	<b>5</b>	
Stretch and attach lines	<b>5</b>	
Connect the 3 wires with 10 -14 ga wire	<b>5</b>	
Run insulated wire from the top wire to the control panel	<b>5</b>	
Check fence line then ask the rancher to turn on the charger	<b>5</b>	
Use volt meter to check the line	<b>5</b>	
<b>Total</b>	<b>50</b>	

**POTENTIAL TEAM PRACTICUM**

**FOOT ROT PRACTICUM (50 POINTS TOTAL)**

**Scenario**

You run a small family farm raising a flock of 25 head of Suffolk sheep. While you are out feeding for the night, you notice some of your sheep displaying signs of lameness. After further examination of the sheep, you find that in the interdigital cleft (the space between the two claws of a cloven-hoofed animal) there is a grey pasty scum, separation of horn around heel, sole and toe, along with inflammation. You recognize this to be *Dichelobacter nodosus* (or footrot). Of the affected sheep, one is pregnant and one is a market lamb headed to slaughter in 30 days. You have several treatment options on hand.

- Sheep 1            Pregnant with lambs, weighs 165 lbs.
- Sheep 2            Market lamb heading to slaughter in 30 days, weighs 180 lbs.
- Sheep 3            Open and dry ewe, weighs 150 lbs.
- Sheep 4            Ram, weighs 230 lbs.

**Each member will evaluate one sheep and record in the “Animal Records” the course of treatment or health of animal. Two sheep will require treatment. Splitting into pairs use the label of the chosen treatment, calculate the correct dosage for each sheep’s weight, and the correct way to administer said treatment. Inform herdsman of proper care and follow up.**

Criteria	Points Possible	Points Earned
Team works together (with equal effort) to determine what each team member does and all participate in the scenario.	5	
Note the treatment that was performed on each sheep in the “Animal Record”.	20 (5/ea)	
Mix the solution in the correct ratio <ul style="list-style-type: none"> <li>• 9L water:1kg ZnSO4 10%</li> </ul> Place effected area in the solution	20 (10/gr)	
Tell the herdsman the required soak time as well as the immediate after care <ul style="list-style-type: none"> <li>• 5-10 minutes soaking</li> <li>• 1 hour clean hard surface to dry</li> </ul>	5	
<b>Total</b>	<b>50</b>	

**Additional sources:**

[Foot Bathing Fact Sheet](#)

**POTENTIAL TEAM PRACTICUM**

**HALTER TYING PRACTICUM (50 POINTS TOTAL)**

**Scenario**

You and your team are getting ready to wash your goats at the Arizona National Livestock Show. You have decided that the best course of action to prepare your goat to be washed is to tie them up at the wash rack. It was decided that a quick release knot would work best. (To ensure that there is not a loose goat running around the grounds use the extra steps)

**Each member of the team will need to tie a goat up at an appropriate height and distance away from the fence. After the goat has been tied, each team member will also untie the halter.**

<b>Criteria</b>	<b>Points Possible</b>	<b>Points Earned</b>
The correct knot was used	<b>20 (5/ea)</b>	
The goat is tied at an acceptable height and distance from the fence	<b>20 (5/ea)</b>	
Was able to be released quickly	<b>5</b>	
The goats were tied in a timely manner	<b>5</b>	
<b>Total</b>	<b>50</b>	

**POTENTIAL TEAM PRACTICUM**

**MEDICATION INJECTION PRACTICUM (50 POINTS TOTAL)**

**Scenario**

You run a small family farm raising a flock of 30 Shropshire ewes and lambs. While you are out feeding for the night, you notice four of your sheep have diarrhea and seem to be extremely stiff and are limping. You recognize this to be White Muscle Disease. Of the affected sheep, one is pregnant and one is a market lamb headed to slaughter in 30 days. The only appropriate medication you have on hand is Bo-Se, but you have enough needles and syringes to administer to the affected sheep immediately.

- Sheep 1           Pregnant with lambs, weighs 165 lbs.
- Sheep 2           Market lamb heading to slaughter in 30 days, weighs 180 lbs.
- Sheep 3           Open and dry ewe, weighs 150 lbs.
- Sheep 4           Ram, weighs 230 lbs.

**Read the given label for Bo-Se and determine a treatment plan for your affected sheep. Using the Bo-Se label, calculate the correct dosage for each sheep's weight and if the medication should be given subcutaneous, intramuscular, or intravenous. Write out your treatment plan in the "Animal Record". Once you have determined a treatment plan, draw out the appropriate dosage of Bo- Se to give to each sheep. Each member of your team will dose one sheep.**

<b>Criteria</b>	<b>Points Possible</b>	<b>Points Earned</b>
Team works together (with equal effort) to determine treatment plan.	<b>10</b>	
Determines an appropriate treatment plan for each sheep, including calculating the appropriate amount of medication for each sheep. Note this treatment plan in the "Animal Record".	<b>10</b>	
Clean top of bottle with an alcohol wipe. Insert the appropriate air to the bottle of Bo-Se before drawing out the correct amount into the syringe. Remove air from syringe and inject orange intramuscularly (at a 90-degree angle).	<b>20</b>	
Correctly recap and remove needle from syringe, then place in sharps container after use.	<b>10</b>	
<b>Total</b>	<b>50</b>	

**POTENTIAL TEAM PRACTICUM**

**PARTS OF THE PIG PRACTICUM (50 POINTS TOTAL)**

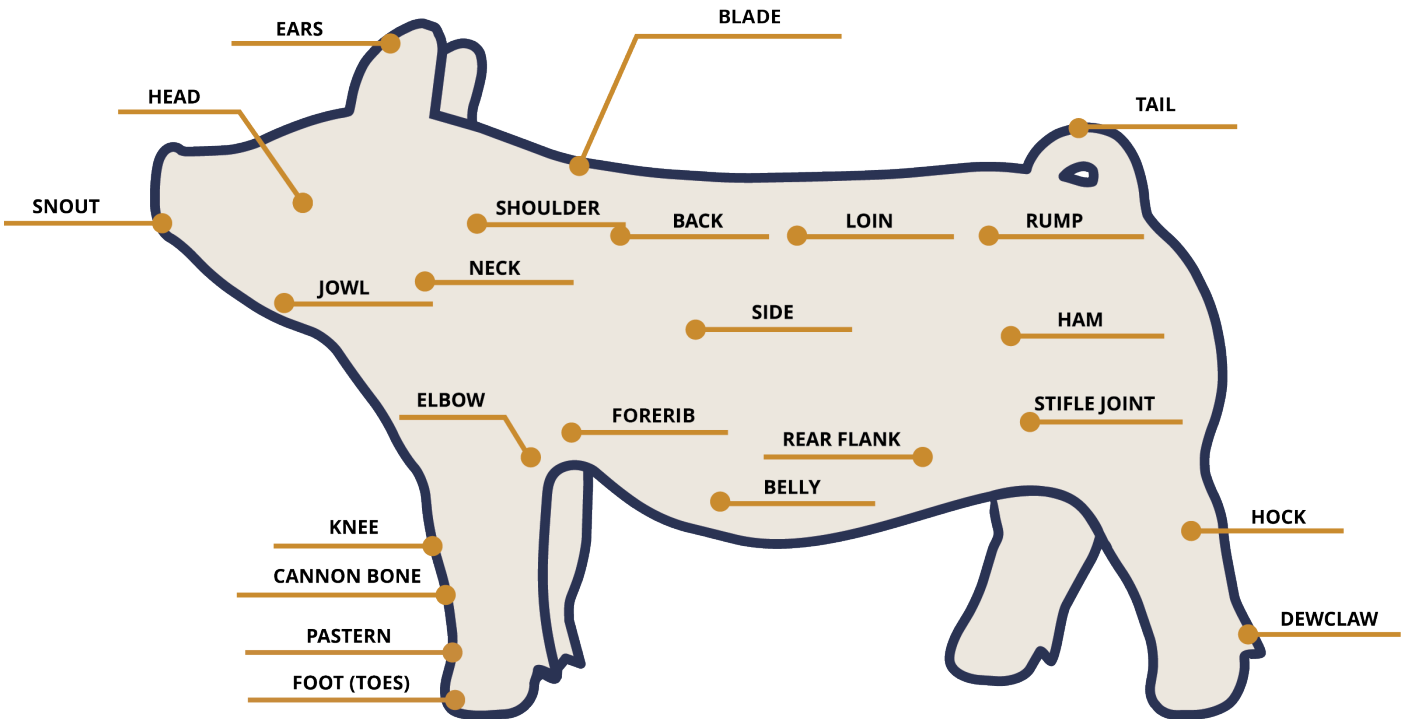
**Scenario**

Together with your team you will correctly identify the following parts of the pig

**Criteria**

Requirements	Points Available	Points Received
Equal Participation	4	
Back	2	
Belly	2	
Blade	2	
Cannon Bone	2	
Dewclaw	2	
Ears	2	
Elbow	2	
Foot	2	
Forerib	2	
Ham	2	
Hock	2	

Requirements	Points Available	Points Received
Jowl	2	
Knee	2	
Loin	2	
Neck	2	
Pastern	2	
Rear Flank	2	
Rump	2	
Shoulder	2	
Side	2	
Snout	2	
Stifle Joint	2	
Tail	2	
Total		



**POTENTIAL TEAM PRACTICUM**

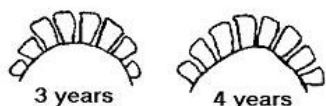
**SHEEP AGING PRACTICUM (50 POINTS TOTAL)**

**Scenario**

You help manage a flock of 175 Hampshire ewes and you have been experiencing a severe drought. It was decided that a cull of 10% of the flock should be made. The first cull criteria will be based on is age. Some of your records have been lost, so you will have to physically age a group of your ewes.

**You will be given a sample group from the flock. Each team member will use proper gloving technique and check the age of each of the ewes. Once the age has been determined, record the results in your “Animal Records”. Then specify which ewe if any that you will be culling. Using the scenario above determine how many total ewes from the whole flock will be culled.**

Criteria	Points Possible	Points Earned
Determine the total number of ewes that will culled from the flock	5	
Each team member ages 1 sheep with accuracy	20 (5/ea)	
Each team member makes a note in the “Animal Records”	20 (5/ea)	
Correctly determine which ewe should be culled	5	
<b>Total</b>	<b>50</b>	



**POTENTIAL TEAM PRACTICUM**

**BOVINE INJECTION PRACTICUM (50 POINTS TOTAL)**

**Scenario**

You are a veterinary technician at your local clinic. The office received a call from a worried local farmer about an extremely sick five-month-old beef calf. The farmer informed you that the calf weighed 617 pounds 7 days ago, and now weighs 613 pounds. Upon arrival you examine the beef calf and note that the calf is lethargic, coughing, draining mucus, and has a fever. You come to the conclusion that the calf has Bovine Respiratory Disease (BRD). The calf must be treated immediately. You have DECTOMAX (Doramextin), DRAXXIN (Tulathromycin), and Vitamin E+AD Tocopherol on hand. Decide on the best medication for treatment.

**Read the given label for the medication chosen and determine a treatment plan for your calf. Using the label, calculate the correct dosage for the calf's weight and if the medication should be given subcutaneous, intramuscular, or intravenous. Once you have determined a treatment plan, draw out the appropriate dosage of solution and administer it to the calf. Each member of your team will complete one major task.**

- 1. Prepare injection site for treatment**
- 2. Prepare and draw medication from vial**
- 3. Administer dose and dispose of needle**
- 4. Clean work area and document treatment for records**

<b>Criteria</b>	<b>Points Possible</b>	<b>Points Earned</b>
Team works together (with equal effort) to determine treatment plan. Work together to analyze and decide which medication on hand will be best for treatment of BRD and the proper injection site. Then, decide which team member will perform each of the tasks below.	<b>10</b>	
<i>Member #1:</i> Calculate correct dosage of chosen medication. Additionally, select an appropriate needle size based on the species, size, and type of injection. Then, attach the needle to the syringe.	<b>10</b>	
<i>Member #2:</i> Clean the top of the medication bottle with an alcohol wipe. Pull the plunger to fill the syringe with air equal to the needed amount of medication. Remove the needle cap and insert the needle into the bottle. Inject the air into the bottle to offset pressure, then pull the plunger to fill the syringe with the solution. Hold the syringe upright, tap it to move any air bubbles to the top, and expel them. Ensure the correct dosage before proceeding.	<b>10</b>	
<i>Member #3:</i> Inject the calf with medication using the decided dosage and injection type. Remove the needle from the calf and correctly recap. Separate needle from syringe, then place in sharps container after use.	<b>10</b>	
<i>Member #4:</i> Clean work area properly. Document the procedure by completing the Animal Records document. This documentation will help monitor the animal's response to the treatment and ensure proper follow-up for any additional treatments.	<b>7 (Animal Record) 3 (Clean Up)</b>	
<b>Total</b>	<b>50</b>	

**POTENTIAL TEAM PRACTICUM**

**PARTS OF THE LAMB PRACTICUM (50 POINTS TOTAL)**

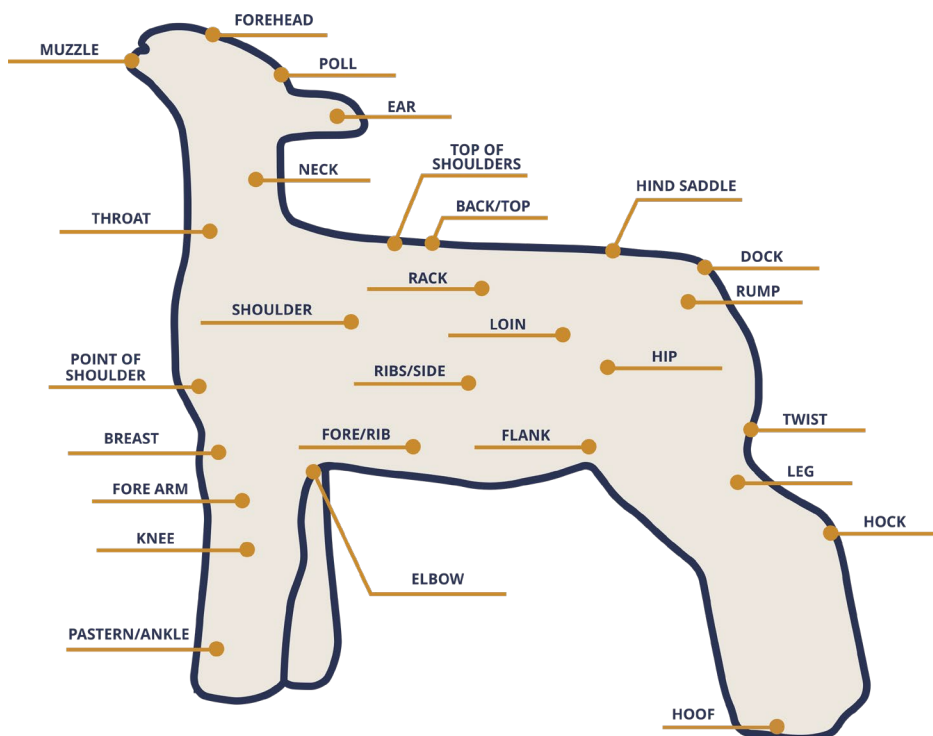
**Scenario**

Together with your team you will correctly identify the following parts of the lamb

**Criteria**

Requirements	Points Available	Points Received
Equal Participation	8	
Muzzle	1.5	
Throat	1.5	
Forehead	1.5	
Point of Shoulder	1.5	
Breast	1.5	
Fore Arm	1.5	
Knee	1.5	
Pastern/Ankle	1.5	
Neck	1.5	
Shoulder	1.5	
Fore/Rib	1.5	
Elbow	1.5	
Poll	1.5	
Ear	1.5	

Requirements	Points Available	Points Received
Top of Shoulders	1.5	
Back/Top	1.5	
Rack	1.5	
Loin	1.5	
Rib/Side	1.5	
Flank	1.5	
Hind Saddle	1.5	
Hip	1.5	
Hoof	1.5	
Dock	1.5	
Rump	1.5	
Twist	1.5	
Leg	1.5	
Hock	1.5	
<b>Total</b>	<b>50</b>	



**POTENTIAL TEAM PRACTICUM**

**CATTLE EAR TAGGING (50 POINTS TOTAL)**

**Scenario**

You and your team need to ear tag a show steer for the local county fair. The upcoming show is only a week away so it is important that you follow proper technique when tagging to ensure a smooth tag application. Work together with your team to discuss the process that you will follow to correctly tag the steer.

**Once a procedure has been established between your team, decide which team member will be assigned to the major tasks below:**

- 1. Prepare equipment and tagging site**
- 2. Identify/mark tagging site on the ear**
- 3. Load tagging gun**
- 4. Insert tag in ear**

**Criteria**

Criteria	Points Possible	Points Earned
Team members work together (in equal effort) to establish a procedure and assign individual team members to the listed tasks	5	
<i>Member #1 - Identify and mark tagging site on the ear:</i> Tags should be applied in the middle third of the ear between the upper and lower ribs	10	
<i>Member #2 - Prepare equipment and tagging site:</i> Use rubbing alcohol or a disinfectant solution to clean the jaw of the applicator. Also, clean the tagging site of the animal's ear.	10	
<i>Member #3 - Load tagging gun:</i> Place each half of the tag onto the applicator. The stud must be inserted completely onto the applicator pin and the panel/button portion placed under the opposite clip	10	
<i>Member #4 - Insert tag in ear:</i> Position the applicator in the identified tagging site on the animal's ear. Firmly close the applicator in a fast manner and release.	10	
All items are cleaned and returned to their proper places	5	
<b>Total</b>	<b>50</b>	

**Additional sources:**

[Livestock Tagging Guide](#)

**POTENTIAL TEAM PRACTICUM**

**CATTLE FEEDING ANALYSIS (50 POINTS TOTAL)**

**Scenario**

You and your team are the managers of a 100-head beef cattle operation and your goal is to maximize profitability by optimizing the feed plan while keeping your herd healthy and productive. The current market price for finished cattle is \$1.80 per pound, and your cattle are averaging 1,250 pounds at market time. You have a total of 100 days before your cattle need to be sold at market, and you must decide how to balance your feed options to achieve the best financial outcome. Complete the analysis below to forecast feed amounts, costs, and market weights of your steers in their finishing 100 days. Note: your cattle are currently weighing 1,000 pounds and you have a budget of \$22,000 to cover feed costs for the 100 days.

**You have two main options for feeding your cattle:**

<b>Corn-based Feed</b>	<b>Hay-based Feed</b>
Cost: \$200 per ton	Cost: \$120 per ton
Daily intake per head: 25 pounds	Daily intake per head: 30 pounds
Average daily gain (ADG): 3.0 pounds per day	Average daily gain (ADG): 2.0 pounds per day

1. Calculate the total weight gain for the herd if you were to use only corn-based feed for the 100 days. **(5 points)**

Total weight gain per head in 100 days:  $3.0 \text{ lbs/day} \times 100 \text{ days} = 300 \text{ pounds}$   
 Total weight gain for the herd:  $300 \text{ pounds} \times 100 \text{ head} = 30,000 \text{ pounds}$

2. Calculate the total weight gain for the herd if you were to use only hay-based feed for the 100 days. **(10 points)**

Total weight gain per head in 100 days:  $2.0 \text{ lbs/day} \times 100 \text{ days} = 200 \text{ pounds}$   
 Total weight gain for the herd:  $200 \text{ pounds} \times 100 \text{ head} = 20,000 \text{ pounds}$

3. What is the total feed cost for each feeding option if fed for the full 100 days (corn-based vs. hay-based)? **(10 points)**

**CORN**

Total Intake for 100 Cattle:  $25 \text{ lbs/head} \times 100 \text{ head} = 2,500 \text{ lbs/day}$   
 Convert to Tons:  $2,500 \text{ lbs} / 2,000 \text{ lbs} = 1.25 \text{ tons/day}$   
 Daily Feed Cost:  $1.25 \text{ tons} \times \$200/\text{ton} = \$250/\text{day}$   
 Total Corn Feed Cost:  $\$250/\text{day} \times 100 \text{ days} = \$25,000$

**HAY**

Total Intake for 100 Cattle:  $30\text{lbs/head} \times 100 \text{ head} = 3,000\text{lbs/day}$

Convert to Tons:  $3,000\text{lbs}/2,000 = 1.5 \text{ tons/day}$

Daily Feed Cost:  $1.5 \text{ tons} \times \$120/\text{ton} = \$180/\text{day}$

Total Hay Feed Cost:  $\$180/\text{day} \times 100 \text{ days} = \$18,000$

4. You have determined that you want to feed your herd corn for the first 43 days. Calculate the remaining number of days you will feed hay. Additionally, calculate the total cost for each feed according to this feeding agenda and the difference in total cost to the budget. **(10 points)**

Days Remaining for Hay:  $100 \text{ days} - 43 \text{ (corn) days} = 57 \text{ (hay) days}$

Total Cost for 43 Days on Corn:  $\$250/\text{day} \times 43 \text{ days} = \$10,750$

Total Cost for 57 Days on Hay:  $\$180/\text{day} \times 57 \text{ days} = \$10,260$

Total Feed Cost for 100 Days:  $\$10,750 + \$10,260 = \$21,010$

Difference From Budget:  $\$22,000 - \$21,010 = \$990$

5. Based on the feeding agenda determined above calculate the anticipated market weight of each steer and the total weight gain for the entire herd. **(15 points)**

Weight Gain from Corn:  $3\text{lbs/day} \times 43 \text{ days} = 129\text{lbs}$

Weight Gain from Hay:  $2\text{lbs/day} \times 57 \text{ days} = 114\text{lbs}$

Total Weight Gain per Steer:  $129\text{lbs} + 114\text{lbs} = 243\text{lbs}$

Anticipated Market Weight:  $1,000\text{lbs} + 243\text{lbs} = 1,243\text{lbs}$

Total Weight Gain for Entire Herd:  $243\text{lbs} \times 100 \text{ head} = 24,300\text{lbs}$

**POTENTIAL TEAM PRACTICUM**

**PREPARING LAMB COLOSTRUM (50 POINTS TOTAL)**

**Scenario**

At 6:19 this morning on your family’s ranch, your favorite ewe gave birth to a set of triplets. Two of the lambs are strong and already nursing, but the other is weak and unable to rise on its own. You know that newborn lambs must receive colostrum within the first few hours to gain both energy and essential antibodies. Upon examining the weaker lamb, you identify her as a Rambouillet Ewe weighing 2 pounds. You tag her with the lucky ID tag, #AN6719.

To give her the best chance of survival, your team must prepare a colostrum replacer and have it ready for feeding, replacing the maternal colostrum she cannot drink on her own. You also remember the importance of completing a lambing record to track everything that has been done and what has been fed to a weak/sick lamb, ensuring nothing is overlooked.

**Objective**

Working as a team, prepare enough colostrum replacer for two feedings, and get the syringe ready for one feeding. Additionally, complete the lambing record for the weak lamb.

**2025 LAMBING RECORD**

<b>Date Born</b> 1 point	<b>Tag #</b> 1 point	<b>Ewe/Ram</b> 1 point	<b>Breed</b> 1 point	<b>Birth Weight</b> 1 point	<b>Treatment/Supplement Notes</b> 5 points
12/28/2025	#AN6719	Ewe	Rambouillet	2 lbs.	Prepared 3.5 ounces of colostrum replacer. Prepared to feed/fed 1.75 ounces.

<b>Criteria</b>	<b>Points Possible</b>	<b>Points Earned</b>
Team works together with equal effort. Smoothly delegates tasks to all members. Performs the practicum with excellent team work. <ul style="list-style-type: none"> <li>• <b>10 points:</b> Excellent team work</li> </ul>	<b>10</b>	

<ul style="list-style-type: none"> <li>• <b>7 points:</b> Good team work</li> <li>• <b>5 points:</b> Average team work</li> <li>• <b>3 points:</b> Below average team work</li> <li>• <b>0 points:</b> No team work</li> </ul>		
Prepare the colostrum: <ul style="list-style-type: none"> <li>• <b>5 points:</b> Add 2 scoops of colostrum powder</li> <li>• <b>5 points:</b> Add 3.5 ounces of water</li> <li>• <b>5 points:</b> Mix well until no clumps remain</li> </ul>	<b>15</b>	
Draw up/prepare syringe: <ul style="list-style-type: none"> <li>• <b>5 points:</b> Draw 1.75 ounces (half) of the colostrum into the syringe</li> <li>• <b>5 points:</b> Expel excess air from syringe</li> <li>• <b>5 points:</b> Securely attach the feeding tube to the syringe</li> </ul>	<b>15</b>	
Completed lambing record: <ul style="list-style-type: none"> <li>• <b>1 point:</b> Date born</li> <li>• <b>1 point:</b> Tag #</li> <li>• <b>1 point:</b> Ewe/Ram</li> <li>• <b>1 point:</b> Breed</li> <li>• <b>1 point:</b> Birth weight</li> <li>• <b>5 points:</b> Treatment/Supplement Notes</li> </ul>	<b>10</b>	
<b>Total</b>	<b>50</b>	

**Additional Sources:**

[Durvet Lamb & Kid Colostrum Replacer](#)

**POTENTIAL TEAM PRACTICUM**

**MEDICATION LABEL ANALYSIS (50 POINTS TOTAL)**

**Scenario**

You and your livestock team are preparing for the annual farm health check. Today, your task is to treat a group of cattle for parasites using Valcor. Before you start, your team gathers around the medication label to make sure everyone understands how to use the drug safely and effectively.

One of the calves weighs 290 pounds, and another weighs 480 pounds. Your team needs to figure out how much medication each calf should get and make sure the doses are measured accurately and administered properly.

**Task**

You and your team will use the drug label to analyze the drug information to properly treat your calves.

**Drug Information**

1. Between what temperatures (in °F) should this medication be stored? **5 points.**

Below 77°F

2. What are the active ingredients in this medication? **5 points.**

Doramectin and Levamisole

3. How many milligrams (mg) of the active ingredients are in 1 milliliter (mL) of this medication? **5 points.**

Doramectin – 5mg & Levamisole – 150mg

4. Which injection type is used for this medication? *(Check the box to the left of the correct injection type.)* **5 points.**

Subcutaneous (SQ or SC)	<b>X</b>
Intramuscular (IM)	
Intravenous (IV)	

5. How old should beef cattle be before being treated with Valcor? **5 points.**

2 Months

### Treating Your Calves

6. What is the meat withdrawal time for cattle (in days)? **5 points.**

15 days

7. How many milliliters should be given to your 290-pound calf? **5 points.**

5.2 milliliters (mL)

8. How many milliliters should be given to your 480-pound calf? **5 points.**

8.7 milliliters (mL)

9. What gauge of needle is suggested to use when administering this medication to cattle? **5 points.**

18 gauge

10. What is the maximum amount of milliliters (mL) permitted per injection site in cattle? **5 points.**

10 milliliters (mL)

### Additional sources:

[Valcor Prescribing Information](#)

**POTENTIAL TEAM PRACTICUM**

**PERFORMING LIVESTOCK SUTURES (50 POINTS TOTAL)**

**Scenario**

You are a veterinary technician in training at a local clinic, working under the supervision of the head veterinarian. Early this morning, a nearby pig farmer called to report that one of his gilts cut her leg on a piece of loose wire in the pen. The wound is clean, but it is deep enough that it will not heal properly on its own.

The veterinarian has arrived at the farm, sedated the gilt, and now asks your team to assist with suturing the injury. Your task is to work together to properly close the wound using a series of simple interrupted sutures. The head veterinarian explains that it will take a total of 4 sutures to close this wound. You only have 15 minutes to complete the sutures before the sedation wears off. Your team must work quickly and carefully.

**Objective**

Assign each team member a number (1–4). Each member will complete the role listed below:

- Member 1: Prepare the wound site for suturing and prepare the instruments and suture materials.
- Member 2: Place the first two simple interrupted sutures.
- Member 3: Place the final two simple interrupted sutures.
- Member 4: Perform final sterilization of wound/suture site. Clean and return instruments to where they belong. Communicate with the farmer after the procedure. Explain what has been done and give clear aftercare instructions.

Criteria	Points Possible	Points Earned
Team works together with equal effort. Smoothly assigns tasks to each member. Performs the practicum with excellent team work. <ul style="list-style-type: none"> <li>• <b>10 points:</b> Excellent team work</li> <li>• <b>7 points:</b> Good team work</li> <li>• <b>5 points:</b> Average team work</li> <li>• <b>3 points:</b> Below average team work</li> <li>• <b>0 points:</b> No team work</li> </ul>	<b>10</b>	
<i>Member #1: Preparation</i> <ul style="list-style-type: none"> <li>• <b>2 Points:</b> Puts on new, sterile gloves before starting the procedure.</li> <li>• <b>2 Points:</b> Lay out instruments and suturing materials. Proper opening of suture kit.</li> <li>• <b>6 Points:</b> Prepare the site for suturing.               <ul style="list-style-type: none"> <li>○ Irrigate the wound using clean water. Clean exterior of wound with antiseptic and gauze.</li> <li>○ Dry excess saline with sterile gauze.</li> </ul> </li> </ul>	<b>10</b>	

<p><i>Member #2:</i> Perform 2 simple interrupted sutures.</p> <ul style="list-style-type: none"> <li>• <b>2 Points:</b> Proper gloving. Use needle holder with dominant hand, and curved tip forceps with non-dominant hand.</li> <li>• <b>3 Points:</b> Uses tools correctly to lift/separate skin and to hold needle; needle inserted completely through first side of incision, then opposing side; suture pulled through leaving ~3 cm on opposing side for knot.</li> <li>• <b>3 Points:</b> Ties first knot by looping thread twice around forceps, then ties two additional single-loop knots (total three stacked knots); knot positioned to side of wound, not on incision.</li> <li>• <b>2 Points:</b> Excess thread trimmed to 5–6 mm.</li> </ul>	<b>10</b>	
<p><i>Member #3:</i> Perform 2 simple interrupted sutures.</p> <ul style="list-style-type: none"> <li>• <b>2 Points:</b> Proper gloving. Use needle holder to hold needle with dominant hand, and curved tip forceps with non-dominant hand to grab the skin.</li> <li>• <b>3 Points:</b> Uses tools correctly to lift/separate skin and to hold needle; needle inserted completely through first side of incision, then opposing side; suture pulled through leaving ~3 cm on opposing side for knot.</li> <li>• <b>3 Points:</b> Ties first knot by looping thread twice around forceps, then ties two additional single-loop knots (total three stacked knots); knot positioned to side of wound, not on incision.</li> <li>• <b>2 Points:</b> Excess thread trimmed to 5–6 mm.</li> <li>•</li> </ul>	<b>10</b>	
<p><i>Member #4:</i> Communicate with farmer (judge)</p> <ul style="list-style-type: none"> <li>• <b>4 Points:</b> Apply antiseptic spray to exterior of wound. Clean instruments and return them to the basket.</li> <li>• <b>3 Points:</b> Explains procedure performed, clearly summarizing what was done (suturing type, number of sutures placed)</li> <li>• <b>3 Points:</b> Provide aftercare instructions, like keeping the wound clean, monitoring for swelling/infection, and when to remove sutures at home or through vet.</li> </ul>	<b>10</b>	
<b>Total</b>	<b>50</b>	

**Additional Sources:** <https://www.youtube.com/watch?v=z8oWv-nVO6g&t=53s>

**POTENTIAL TEAM PRACTICUM**

**BREEDING DECISION ANALYSIS (50 POINTS TOTAL)**

**Scenario**

You and your team manage a commercial beef operation and have been tasked with improving the growth rate (weaning weight) and meat quality (marbling) of your herd to meet market demands. The market value is \$0.73 per pound of weaning weight. Calves are expected to have a base weaning weight of 515 lbs, which is adjusted depending on the sire's EPD for growth. For carcass quality, the market values marbling at \$82 for every +0.20 marbling score (for example, +0.60 marbling would equal three increments of +0.20, or \$246 in added value).

**Objective**

Select the best bull to breed to the selected cow, balancing growth and marbling traits while also following the rule of no pairings with inbreeding coefficients above 12%.

**Data**

**Cow:** AaBb (A/a = growth, B/b = marbling)

**Bulls:**

Bull	Genotype	EPD Growth (lbs)	EPD Marbling	Related to Cow?	Inbreeding Coefficient
1	AABb	+35	+0.50	No	0%
2	AaBB	+25	+0.40	Yes	17%
3	aabb	+15	+0.15	Yes	13%

Use the information above to answer the following questions.

- Determine the expected percent of offspring with AA and BB for each pairing, and complete the table below. **(3 points each, 18 points total)**

**Tip: Use Punnett squares!**

	Growth Locus (A/a)	Marbling Locus (B/b)
<b>Bull 1</b>	50%	25%
<b>Bull 2</b>	25%	25%
<b>Bull 3</b>	0%	0%

- Calculate the total probability of a homozygous dominant pairing (AA and BB). **(3 points each, 9 points total)**

**Formula:**  $P(AA \text{ and } BB) = P(AA) \times P(BB)$

	Double-Positive
<b>Bull 1</b>	12.5%

<b>Bull 2</b>	6.25%
<b>Bull 3</b>	0%

3. Calculate the approximate profit for each bull-cow pairing. **(4 points each, 12 points total)**

**Formula:** Profit = Market Value + Carcass Quality

Profit = (Base Weight + EPD Growth) \* 0.73 + (EPD Marbling / 0.20) \* 82

- Bull 1:  $(515+35) 0.73 + (0.50/0.20)82 = 401.5 + 205 = \$606.5$
- Bull 2:  $(515+25) 0.73 + (0.40/0.20)82 = 394.2 + 164 = \$558.2$
- Bull 3:  $(515+15) 0.73 + (0.15/0.20)82 = 386.9 + 61.5 = \$448.4$

	<b>Profit</b>
<b>Bull 1</b>	\$606.5
<b>Bull 2</b>	\$558.2
<b>Bull 3</b>	\$448.4

4. Which bull is the best option for your operations goal of improving the herd's growth rate and meat quality? **(11 points total)**

**Check the box next to the bull of your teams choosing.**

<b>Bull 1</b>	<b>X</b>
<b>Bull 2</b>	
<b>Bull 3</b>	

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