

# Kansas Junior Beef Producer Day Educational Materials



Kansas State University  
Youth Livestock Program  
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# Contributions

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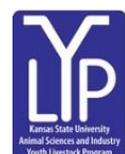
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# Selecting Your Youth Beef Project

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Success in the show ring is generally a result of proper selection, excellent management, experience, and a little luck. Beef cattle selection is not an exact science and usually requires some training. It is important to understand the anatomy of both the live animal and carcass and its terminology. A good evaluator of livestock has a keen sense of observation and is able to relate form to function.

Selection of the beef animal should be based on a few general criteria. Regardless the purpose (market vs. breeding), “**structural soundness**” is very important for proper growth, reproductive performance, and animal longevity. Animals that demonstrate structural defects will have impaired mobility, pain, and unsoundness that can lead to decreased performance. Structural problems can be caused by either genetic or environmental factors. To fully understand structural correctness, one should be familiar with the skeleton of animals and the correct angulation to the joints.

Skeletal correctness is best evaluated from the ground up. Proper foot and hoof development is necessary and serves as a foundation to the skeleton. The pasterns of livestock serve as one of the shock absorbing mechanisms to both the front and rear limbs. The ideal slope to the pastern should fall around 45° - 47°. As the pastern becomes straighter (approaching 90°) it has less of a cushioning effect when the hoof hits the ground. The ideal front limb should have a long, sloping shoulder. The angle to the scapula should be approximately 45° to the ground, which is similar to the correct angle through the pastern. As the scapula becomes more vertical (approaches 90°) the length of step out of the front end is shortened. In most cases, straight pasterns and straight shoulders go hand in hand.

Structural soundness of the hind limb is critical to the function of breeding animals, especially the males. The length of step associated with the hind leg is dependent upon the angle of the femur bone, hock joint, and pastern. The simplest way to evaluate the structure of the hind leg is to drop a line from the pin bone down through the cap of the hock to the ground. This line should be perpendicular to the ground and a correctly structured hind leg will be parallel to that line. Common defects of the hind limb include a post-legged condition (too straight) or sickle hocked (too much set).

Most cattle breeders in the United States prefer a straight, level top line. The hip should be long and nearly level from hooks to pins, with a wide pin placement. Keep in mind some breeds of cattle (i.e. Brahman influenced) naturally have a sloping rump. This may not be considered “ideal” but rather a breed characteristic.

A second selection criteria includes “**body capacity**” and is typically evaluated with a three dimensional view. These dimensions include the depth of rib, spring of rib, and length of rib cage or length of body. Body capacity is important to both market cattle and breeding animals alike and generally indicates the animal’s ability to convert feedstuffs to fleshing ability.

All meat animals, regardless of the classification (market vs. breeding) should display some degree of “**muscling**”. Of course, more emphasis will be placed on muscling in market animal classes. The best indication of muscling should be evaluated through the hind quarter from a rear view. A muscular shaped beef animal should have a thick, square rump with a wide pin bone placement. Muscle thickness should be maintained through the center and lower parts of the rear quarter, requiring some shape or bulge to it. The next best indication of muscling can be seen along the animal topline. Be cautious and do not confuse fat with muscle. A heavy muscled animal will be thick just behind the shoulder (back) and demonstrate a full, muscular shaped loin. A light muscled animal will be narrow topped, in particular they will be pinched just behind the shoulder.

Traits associated with “**sex character**” (femininity and masculinity) are also important to consider when selecting a breeding animal. A heifer regarded as feminine will have a fairly long, refined head, a neck that is long, lean, and free of excess waste and a flat smoothly blended shoulder. The bone work should be flat, and clean joints that are free of swelling. Of course, some body condition (fat) is acceptable, but heifers that are too fat are considered unfeminine and nonproductive in their appearance. Bulls should be masculine and this includes a stouter appearance and large testicle size. The minimum scrotal circumference for most breeds of cattle at one year of age is 32 cm.

Today “**frame size**” is the least important trait to consider. The term frame size includes both length and height, of which length is the most important. It is important for an animal’s mature frame size and weight fit the environmental they will be placed in. In other words, as mature size increases, so does the nutrient requirements for maintenance.

It is important to keep the general picture of form and function in mind when selecting your next show animal. Never become single trait minded and be cautious when selecting for extremes. The animal with the best combination of structural correctness, body volume, sex character, muscling, and correct frame size should prove to be the winning kind.

# Selecting Your Next Show Heifer to Be a Great Cow

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For many junior livestock participants, the purchase of a breeding heifer is a significant investment in the future. Breeding projects are meant to serve a number of goals. First, they enable the junior livestock exhibitor to learn more about the commercial and seedstock sectors of the beef industry. Second, these projects foster the development of beef cattle husbandry skills including feeding, nutrition, genetics, reproductive physiology and visual appraisal. Third, the heifers are typically selected for conformational attributes viewed to be desirable in the show ring. Fourth, the heifers are retained as breeding females to build a cow herd that will help finance many youth's college education. It's easy for the visual appraisal component to dominate the selection decision when evaluating a group of heifer calves for purchase. However, if your goal includes keeping that heifer as a breeding female to produce seedstock or other heifer or steers suitable for future projects, some care should be taken to evaluate the genetic merit for a number of economically important traits. The tools you should use to judge the genetic merit of a selection candidate are Expected Progeny Differences (EPD).

## What are EPDs?

EPDs are estimates or predictions of the difference in performance that are expected to be observed between the average performance of sire progeny groups for a given trait when given an equal opportunity to perform. EPDs are relative measures of genetic merit and allow the effective comparison of animals across herds. EPDs are the most effective selection tool available. Research suggest that EPD are 7 to 9 times more effective as predictors of genetic merit than an animal's actual or adjust performance record or within contemporary group ratio.

While EPDs are not the only selection information you should consider, EPDs are the most effective tools available to describe the genetic differences between animals within and across herds. EPDs are much more effective genetic predictors than actual or adjusted performance records. If an EPD is available for a trait it should be used instead of an animal's own performance record for that trait. The EPD removes age and environmental effects that can bias a decision based on actual or adjusted performance records. Use Calving Ease (CE or CED) EPD, rather than birth weight (BW) EPD, if it's available to select bulls that minimize calving difficulty. CE EPD calculations include BW data and other sources of information that affect dystocia.

Not all EPDs are the same, so make sure you know the appropriate information for the breed of cattle you are purchasing. For a useful reference on EPDs and other genetic topics see the Beef Sire Selection Manual (<http://www.nbcec.org/producers/sire.html>) Obtain the breed average EPDs and a percentile rank table available from the most current genetic evaluation for the breed of interest. Percentile rank tables can be found on most breed association websites but the current Angus (non-parent females) and Simmental percentiles are included at the end of this document. These tools will enable you to compare the relative genetic merit of individual animals to other animals in the breed.

Finally, not all EPDs should be used for selection of replacement or breeding females. Some traits like marbling score, carcass weight, or terminally oriented selection indexes focus on progeny performance for marketing endpoints. These traits are not economically relevant to a replacement selection decision. Traits that affect a cow's ability to conceive a calf, give birth to the calf with no dystocia, rear that calf to weaning and do it year after year are the traits of importance. A list of suggested traits to consider when purchasing a heifer is listed below. Setting criteria for lots of traits rather than just a few important ones dilutes your selection intensity and often clouds your decision making ability.

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### **Trait Definitions for EPD to Consider in Heifer Selection**

(Adapted from Cowley, 1998; <http://simmental.org/site/index.php/genetic-evaluation/epds>)

**Calving Ease Direct** - Predict the average difference in ease with which a sire's calves will be born when bred to first-calf heifers. Expressed as percentage of unassisted births with a higher value indicating greater calving ease.

**Calving Ease Maternal** - Predict the average ease with which a sire's daughters will calve as first-calf heifers when compared to the daughters of another sire in the same evaluation. Expressed as percentage of unassisted births.

**Weaning Weight** - Weaning Weight EPDs are expressed in pounds and predict the average differences in weight that can be expected between the progeny of animals in the same genetic evaluation at 205 days of age. Weaning Weight EPDs do not account for differences in weaning weight that are due to milk.

**Yearling Weight** - Like Birth and Weaning Weight EPDs, Yearling Weight EPDs are expressed in pounds and predict the average differences that can be expected between the progeny of animals at one year of age.

**Milk** - Milk EPDs are expressed as pounds of calf weaned by a bull's daughters. They reflect the average differences in weaning weight that can be expected in grand-progeny due to the milking ability of a bull's daughters. Available feed resources will dictate the extent to which milking ability should be selected.

**Total Maternal (Maternal Weaning Weight)** - Like Milk EPD, Total Maternal EPDs are also measured in pounds of calf weaned by an animal's daughters. They account for average differences that can be expected from both weaning weight direct as well as from milk, and measure a sire's ability to transmit milk production and growth rate through his daughters. They are calculated by adding an animal's Milk EPD to one-half of its Weaning Weight EPD.

**Heifer Pregnancy** - Predict the additional percentage of heifer progeny that conceived a calf during a specified breeding season.

**Docility** - Predict the percentage of an animal's offspring that are expected to score favorably (1 or 2) on a five-point scoring system when compared to the offspring of another animal. Expressed as a percentage with higher values being favorable

**Stayability** - Expressed as the probability that an animal's daughters will remain in production to at least six years of age when compared to the daughters of another animal. A measure of sustained fertility that probably reflects traits such as fleshing ability and structural soundness. Expressed as deviations from a 50% probability, a higher value indicates increased stayability.

Percentile Breakdown  
**American Angus Association Spring 2016 Non-Parent Cows**

Top Pct	Production						Maternal		\$Values	
	CED	BW	WW	YW	DOC	HP	CEM	Milk	\$EN	\$W
1%	16	-2.6	69	120	32	20.4	16	34	30.29	74.27
2%	15	-2.1	66	116	30	19.5	15	33	23.58	70.08
3%	14	-1.8	65	114	29	18.8	14	32	19.30	67.46
4%	13	-1.5	64	112	28	18.3	14	31	16.36	65.53
5%	13	-1.3	63	111	27	17.8	13	31	14.28	64.05
10%	11	-0.7	60	106	24	16.4	12	29	7.91	59.08
15%	10	-0.3	58	103	23	15.4	11	28	4.22	55.92
20%	9	0.1	56	100	21	14.6	11	27	1.59	53.57
25%	9	0.3	55	98	20	13.9	10	26	-0.57	51.56
30%	8	0.6	54	96	19	13.2	10	26	-2.53	49.77
35%	7	0.8	53	94	17	12.6	10	25	-4.31	48.11
40%	7	1.0	51	92	16	11.9	9	24	-5.92	46.56
45%	6	1.2	50	90	15	11.4	9	24	-7.49	45.05
50%	6	1.4	49	89	14	10.8	8	23	-8.90	43.53
55%	5	1.6	48	87	13	10.2	8	23	-10.34	42.01
60%	5	1.8	47	85	12	9.6	8	22	-11.90	40.42
65%	4	2.0	46	83	10	8.9	7	21	-13.53	38.74
70%	3	2.2	45	81	9	8.2	7	21	-15.18	36.98
75%	3	2.4	43	79	7	7.4	6	20	-16.85	34.99
80%	2	2.7	42	76	6	6.6	6	19	-18.95	32.79
85%	1	3.0	40	72	4	5.6	5	18	-21.24	30.16
90%	0	3.4	37	68	1	4.4	4	17	-23.95	26.58
95%	-2	4.0	33	60	-3	2.5	3	15	-27.98	21.10
Total										
Animals	96,338	100,290	100,290	100,290	18,125	13,621	96,338	100,290	102,282	102,282
Avg	6	1.4	49	87	13	10.5	8	23	-8.16	43.13

American Simmental Association  
**Purebred Simmental Percentile Table--Spring 2016**

%	CE	BW	WW	YW	MCE	MLK	MW	STY	DOC	API
							W			
1	17	-2.4	84	128	16	33	68	28	16	159.7
2	16	-1.9	82	124	16	31	66	28	15	155.1
3	16	-1.6	80	121	15	31	65	27	15	152.2
4	15	-1.4	79	119	15	30	64	27	15	150.0
5	15	-1.2	78	118	14	29	64	26	14	148.3
10	14	-0.5	75	112	13	28	61	25	14	142.2
15	13	-0.1	73	108	13	27	60	24	13	138.1
20	12	0.3	71	105	12	26	59	23	13	134.9
25	11	0.6	69	103	11	25	58	23	12	132.1
30	11	0.9	68	100	11	24	57	22	12	129.6
35	10	1.1	67	98	11	24	56	22	12	127.3
40	10	1.3	65	96	10	23	55	21	11	125.0
45	9	1.6	64	94	10	22	54	21	11	122.9
50	9	1.8	63	92	9	22	53	21	11	120.8
55	9	2	62	90	9	21	53	20	10	118.7
60	8	2.3	61	88	9	21	52	20	10	116.6
65	8	2.5	60	86	8	20	51	19	10	114.4
70	7	2.7	58	84	8	19	50	19	10	112.1
75	7	3	57	82	7	19	49	18	9	109.5
80	6	3.3	55	79	7	18	48	18	9	106.7
85	5	3.7	54	76	6	17	47	17	8	103.5
90	5	4.1	51	72	6	16	45	16	8	99.4
95	3	4.8	48	67	5	14	43	15	7	93.3
Avg	9	1.8	63	92	9	22	53	21	11	120.8

# Nutrition Nuggets for the Beef Animal

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Nutrition is one of the important components of a successful 4-H beef project. **Nutrition** is the process in which animals consume, digest, absorb, and use food for maintenance, growth, fetal development or milk production. **Nutrients** are the components of feeds that have specific functions within the animal to meet important metabolic processes. Nutrients include energy sources (sugar, starch, cellulose, fat), protein, minerals, vitamins, and water. Feeding costs are a large but necessary expense in managing beef cattle, so understanding how cattle gain and the nutrients they require will make the most “bang for your buck” so to speak.

Nutrient requirements for varying levels of performance have been researched for years and the requirements are published by the National Research Council. These recommendations have been determined to be accurate for groups of cattle, but for your individual animal, if you are not happy with performance then consider making minute changes to protein, minerals, and vitamin levels. Cattle require nutrients in actual amount (weight) so some math will need to be used to determine if a commercial feed and/or your hay supplement are providing enough of the individual nutrients. When determining the actual amount of nutrients offered in feed an estimate of dry matter needs to be determined. The nutrients are located in the dry part of the feed and are called dry matter (DM). Dry matter is determined by taking a sample of the feed and drying it until there is zero moisture remaining. In general most dry feeds contain 7 to 13 percent moisture while molasses is 25% water. You can also gather exact dry matter by sending your feed to a testing laboratory or with the permission of your parents, placing a sample in an oven or microwave. Before trying to determine the dry content of your feed at home, research specific methods to determine dry matter content, and then follow directions.

Energy is very important for growth and fat deposition for all cattle. Energy is reported as total digestible nutrients (TDN) or net energy (NE). Net energy is further broken down into net energy for maintenance (NEM) or net energy for gain (NEg). As the names indicate, NEM tells you how many calories (energy) need to be supplied for maintenance (no change in weight or body fat), while NEg indicates the calories that will be used for putting on weight and body fat. Unfortunately, when reading the commercial labels for most feeds, they do not provide values for energy, but if you are concerned about this value, take a sample of your feed and submit to a laboratory for feed analysis. This will provide energy values for your feed and can help with determining how much to offer to your cattle to meet your goals. Energy from feed ingredients is often split into two categories: concentrate and roughage. Concentrate is typically very high energy grains with starch while roughage is typically hays or “hulls”.

Protein is measured as crude protein (CP). It is expressed as a percentage and for all commercial rations will be listed in the nutrient profile. Protein is required to aid in rumen microbial digestion, maintenance of feed intake and lean growth. Protein sources vary in location of digestion within the animal and understanding the basics about protein digestion will help provide the requirements for successful growth and “look” for your show animal. Protein sources offered to cattle will first have to feed the rumen microbes. Feed protein that is digested by the rumen microbes is called rumen degradable protein (RDP). Once the rumen microbes digest the protein they generate microbial crude protein (MCP) in the rumen that then gets passed through the rest of the stomachs to the small intestine where it is finally used by the animal as a protein source. Microbial crude protein, if the rumen environment is balanced, is an ideal protein source for the ruminant. This is the reason why in ruminant nutrition we say “Feed

the rumen microbes first”. Another form of protein is by-pass protein or rumen undegradable protein (RUP). This protein passes through the rumen without digestion by the microbes and then can be used by the animal in the small intestine. Small amounts of by-pass protein have been shown to help with cattle performance. However, it is MOST important that nearly 80% of the protein offered to the animal is rumen degradable. In general protein from grains, fresh grasses, and hays are primarily rumen degradable, while by-product feeds are about 50% by-pass protein. Non-protein nitrogen (NPN) is essentially 100% rumen degradable if adequate energy is supplied in the diet.

From a mineral perspective, there are two broad classes of minerals; macrominerals which are fed at higher levels and micromineral which are fed at lower levels. Calcium and phosphorus are the two primary macrominerals that need to be included and balanced in the diet. Both of these are involved in bone development and many other body functions. Important microminerals include selenium, zinc, copper, and magnesium. These are important for the “healthy look” of the cattle and for reproduction in heifers. Amounts of these minerals will be listed on the feed tag.

### Understanding Feed Label

Since it is important to make sure nutrient requirements are met, reading and understanding a feed label becomes a must for feeding success. Some basics to help with understanding your feed label include understanding that the values reported on the label are described on an “as-is” basis. Within the feed label, the amounts of important nutrients will be listed. For example, crude protein is listed as a percentage, whereas zinc is listed as parts per million (ppm). This becomes important so that you can accurately calculate the appropriate protein and minerals to offer your cattle. Antibiotics and ionophores are also listed on your feed label along with proper feeding directions associated with these ingredients. The final component of the feed label includes the list of ingredients. These are reported as the ingredient with the highest inclusion amount to the lowest. This in turn tells you predominantly what ingredient is being offered to your cattle. An example of a feed label is shown in figure 1.

**Figure 1: Example of a feed label.**  
**CAUTION...this is completely made up and by no means is an actual label or recommendation to feed to any cattle!**

Net Weight 50 lbs (22.68 kg)

## Farney's Fine Heifer Feed

**PURPOSE**  
Feed to growing replacement heifers for exhibition

**\* ACTIVE DRUG INGREDIENT \***

Monensin.....X gm/ton

**\* GUARANTEED ANALYSIS \***

Crude Protein (min.).....	16.00%
Crude Fat (min.).....	3.20%
Crude Fiber (max.).....	10.00%
Calcium (min.).....	0.75% (max.)
Phosphorus (min.).....	0.85%
Salt (min.).....	0.50% (max.)
Copper (min.).....	0.75% (max.)
Selenium, ppm, (min.).....	22
Vitamin A, IU/lb (min.).....	150,000
Vitamin D, IU/lb (min.).....	12,000
Vitamin E, IU/lb (min.).....	60

**\* INGREDIENTS \***

Cottonseed hulls, corn by-products, corn, beet pulp pellets, molasses, fat products (feed grade), ferrous sulfate, manganous oxide, zinc sulfate, vitamin E supplement, vitamin A supplement, copper sulfate, sodium selenite, calcium iodate, and cobalt carbonate.

**\* FEEDING DIRECTIONS \***

Feed at a rate of 1 to 2% of body weight along with free choice good quality hay. Provide ample feeder space and plenty of clean, fresh water at all times.

**\* CAUTION \***

Read me because I am very important!! Especially since some feeds can't be fed in the same pasture as horses and sheep.

Manufactured by  
Farney's Fake Extension Mill  
Anytown, US 00000

### Feed Ingredients

**Grains** – These feed ingredients are high in energy and will fatten cattle. The most common grain included in cattle diets is corn. Processing of corn increases the digestibility and the most common processed corn fed to ruminants is cracked, rolled, and steam flaked. Processing of the grain allows the rumen microbes greater access to the starch for microbial digestion. In a finishing ration, corn can be included between 42 to 58% of the total ration. Whole shelled corn can be fed to calves weighing up to 450 pounds because they can digest this grain efficiently but at heavier weights, processing will result in greater average daily gains.

Sorghum grain provides energy, but must be processed prior to feeding since the external seed coating is restrictive for the rumen microbes. Properly processed grain sorghum can replace corn, pound-for-pound in the ration.

Oats are another excellent grain source for steers and heifers. Oats offer energy and fiber therefore providing a dual purpose feed source. One issue with oats is the cost for the grain sometimes makes feeding of oats cost prohibitive. An alternative mixture that provides equal nutrition as oats and often is a cheaper alternative is 70-75% corn, 15-20% cottonseed hulls, and 10-15% cottonseed meal.

Barley and wheat are other grain options to feed to cattle. Barley can be used to replace up to 50% of the corn or sorghum in the ration. Barley is often included because of perception of improving handle on finished cattle. However, water consumption and thus moisture content of tissues plays a larger role in handle than feeding of barley. Wheat is a very high energy feed but is difficult to feed because of the potential for acidosis and bloat. Barley also is a high risk bloating grain when fed at high levels of the diet.

*Protein Supplements* - Common protein supplements fed to cattle include many grain by-product feeds. Typically a by-product feed has had the energy components removed for other industrial uses and what is left over is high protein, high fiber feeds that make great supplements for cattle. Examples of high protein feeds include soybean meal, cottonseed meal, linseed meal, distillers grains, corn gluten meal, and brewers grains. Other high protein feeds that can be included in cattle diets are fish meal and non-protein nitrogen. Non-protein nitrogen sources such as urea and biuret are very cheap feed ingredients and work well with corn rations to meet cattle protein requirements and are used quite extensively in large commercial cattle feeding operations. However, “natural” or plant protein sources (aka not non-protein nitrogen) are a better feeding option for show cattle because they tend to provide extra bloom. Additionally, feeding urea to cattle weighing less than 600 pounds is not advisable because they cannot use this source of protein to meet requirements.

Younger cattle require higher levels of protein than older heavier cattle, as illustrated in table 1. Additionally, for greater lean muscle gains, higher protein is required. All feed labels will provide a crude protein value of the feed. Crude protein is expressed as a percentage, so to determine if you are supplying enough protein to your animal you need to multiply the amount of feed by the percentage crude protein to determine how many pounds of crude protein you are providing your animal. If it matches the required amount in Table 1, your ration is sufficient. Here is an example of how to calculate the amount of protein fed from a complete feed that is 12% crude protein with the steer eating 15 pounds and the dry matter of the feed is 96%.

$$15 \text{ lbs feed} \times (96/100) \times (12/100) = 1.73 \text{ lbs of protein on a DM basis}$$

*Roughages* - Cattle are designed to be able to convert fiber from grass to a product that people can use – meat...therefore all cattle diets need to include a source of roughage (fiber). Common sources of roughages include cottonseed hulls, hays, peanut and rice hulls. In younger cattle, when starting on concentrate diets, a higher roughage feed needs to be included so that chances of acidosis and bloat are reduced. When feeding your cattle, you do not want to cause digestive upsets because in most instances, a steer or heifer who bloats early in life will continually bloat and have reduced performance.

Acidosis is when too much starch is offered to the rumen microbes and it causes them to produce an acid that can cause damage to the rumen and potentially founder. Bloat is when too much gas is produced in the rumen and cannot escape. This is easy to see on the animal because the left side of their body will be expanded. Acidosis is hard to diagnose visually, unless the animal is really sick. Often times it can be manifested as diarrhea and the animal going off-feed.

If bloat or acidosis occurs, then take the concentrate feed (corn or complete ration) out of the diet and place the animal on hay for a few days, then gradually start adding back the grain component. Properly stepping-up your steer or heifer to consuming concentrate will minimize the chance of acidosis and bloat. A typical method includes starting the steer or heifer with two to three pounds of grain with free choice hay for a couple of days, then increase the amount by 1-1.5 pounds a day for the next 10 to 15 days. At this point, they should be completely “on-feed” and this is what will be fed until you determine that a diet change is needed to meet your goals.

For a starting/growing ration, crude fiber needs 20-25% while a finishing ration needs to have about 12-16% fiber. Even in large commercial feeding operations there is at least 5% of the animal’s total diet that is a roughage/hay source. For younger animals a higher quality hay is recommended since such a large percentage of their diet is hay. Examples of high quality hay can include prairie, Bermuda, brome, and alfalfa. Alfalfa is the highest quality hay of that list, however, it is often not recommended to feed alfalfa to your show animals because it can very easily cause bloat. Dehydrated alfalfa pellets, on the other hand have a much lower chance of causing bloat issues and that is why they are often included in commercial mixes along with cottonseed hulls to meet the fiber requirements.

*Additives* – Special “ingredients” are not necessary to successfully feeding your show animal as long as requirements are met, however there are some feed additives that are useful to help with health, palatability, and conditioning of the feed and hair coat.

Medicated feeds are available if you have issues with coccidiosis or respiratory issues. Beginning January of 2017, if feeding medicated feeds to your cattle, you must work with a veterinarian to get a valid veterinary feed directive (VFD) to be able to feed certain products.

All cattle feeds should include an ionophore. Ionophores not only help with feed efficiency, but help with minimizing coccidiosis and bloat. There are several quality ionophores on the market and all work well for feed efficiency. Sometimes ionophores can cause a reduction in daily feed consumption, but the cattle performance should not be impacted. If intake is restricted enough adding some feed conditioners to help with palatability can help. Examples of feed conditioners that increase palatability and reduce dust issues include molasses, fat, and oil. Some fats and oils can also increase the shine to the hair coat of your show animal, as long as there is less than 4% fat in the total ration. If there is more than 4% fat then intake is reduced.

In instances when digestive upset occurs, sometimes products like yeasts, direct-fed microbials, buffers, and enzymes can be used, but overall, if cattle are well-fed and well-managed the need for these potentially expensive additives are not needed, especially on a daily basis.

## Feeding Market Steer

Weight gain and fat thickness are the two primary points of concern with feeding your market steer. Knowing what your steer weighs at several times through the season will help you determine the diets that need to be offered. Based on your steers weight, days, and final weight, you can determine the appropriate average daily gain to meet your objectives. You should have two sets of average daily gain goals; one for the steers growing ration and one for the finishing ration. Typically the finishing ration will be fed for 4-5 months prior to show. The equation below shows how to calculate the appropriate gains your animal needs. From there you can use Table 1 to determine the amount of energy and protein to meet that average daily gain goal.

*Steer weighs 600 pounds at purchase 9 months from show date. The plan is to grow the steer to 850 pounds on the growing ration in 120 days. The average daily gain needs to be 2.08 lbs/d.*

$$(850 \text{ lbs final weight} - 600 \text{ lbs beginning weight}) \div 120 \text{ days} = 2.08 \text{ lbs/d}$$

*Finishing ration will start when steer weighs 850 pounds and you want show weight at 1300 lbs in 150 days. The average daily gain needs to be 3 lbs/d*

$$(1300 \text{ lbs final weight} - 850 \text{ lbs beginning weight}) \div 150 \text{ days} = 3.00 \text{ lbs/d}$$

## Feeding Replacement Heifer

Show heifers are not only used as a 4-H project, but they must be able to become a reproductive animal that can survive on a foraging system as a cow, once the show season is finished. As such, show heifers need to be in a good body condition for showing, but not so overly conditioned that their milk potential is severely reduced. Heifers that are too fat also have issues breeding, calving, milking, and then re-breeding as a first calf heifer. Heifer daily gains will be much lower than steer gains because a show heifer does not need to be mature at show time. Depending on age of heifer and show time, your heifer's targeted weights should correspond to when you plan on making the heifer a reproductive female. In general heifers need to weigh about 85% of their mature weight at 2-years of age, and if you are planning on breeding your heifer as a yearling, she needs to weigh ~60% of her mature weight. If you have a large framed continental heifer, her mature weight will probably be around 1400 pounds. Therefore as a 2-year old, you would like her to weigh ~1190 pounds and have a breeding weight at a year of age of ~840 pounds.

Once again you can do the calculations as described in the feeding market steer section to determine appropriate average daily gains for your heifers and use Table 2 to determine nutrient requirements to meet your objectives.

## Example rations

The table below provides some example cattle rations to be fed as a supplement to hay (for example a heifer diet) or as a complete ration. Please read the footnotes prior to having a feed mill make any of these rations to aid in determining how to feed these rations. The amounts of feed to include are the batch-sheet which makes a ton of feed. Additionally, working with your extension professional or ruminant nutritionist can be a useful way to develop a ration to meet your animal's requirements, and before using any of these example diets, work with a nutritionist to determine best methods of feeding.

Feed Ingredient	<u>Starter/Grower (1)</u>		<u>Grower/Finisher (2)</u>		<u>Finisher (3)</u>	<u>Finisher (7)</u>
	Supplement (4)	Ration (5)	Supplement (6)	Ration (5)	Ration (5)	Ration (5)
Corn	1150	425	1350	845	1160	1275
Oats	400	200	250	200	200	--
SBM – 44%	300	320	250	265	220	--
Dried Distillers Grains	--	--	--	--	--	437
Cottonseed Hulls	--	920	--	560	290	100
Soy Hull pellet	--	--	--	--	--	72
Molasses	100	100	100	100	100	75
Limestone	20	20	30	20	20	20
TM Salt	20	10	20	10	10	20
Dicalcium phosphate	10	5	--	--	--	--
ADE (4 mil IU A/lb)	1.5	0.50	1	0.50	0.50	0.50
<b>Ration Diet Composition (% as-is basis)</b>						
Dry Matter	88.3	89.5	88.2	88.9	88.4	
Crude Protein	14.3	12.1	13.2	12.0	11.9	11.5
TDN	73.9	58.2	75.1	65.5	70.8	73.8
Calcium	0.60	0.58	0.68	0.50	0.49	0.49
Phosphorus	0.43	0.28	0.33	0.27	0.29	0.36
Fat	3.1	2.0	3.1	2.5	2.9	3.9
Crude Fiber	4.2	22.5	3.4	14.9	9.2	6.7

Rations 1-3 adapted from George V. Davis Jr. Beef Cattle Nutrition, Arkansas 4-H Beef Clinic. Ration 7 developed for example purposes within K-State system with estimated steer gains between 2.75 and 3.5 lbs/d.

- (1) For steers over 500 lbs expect 1.75 to 2.25 lbs average daily gain. For heifers over 500 lbs expect 1.25 to 1.75 lbs/d.
- (2) For steers expect 2.5 to 3.0 lbs/d gain. For heifers 1.75 to 2.25 lbs/d.
- (3) For steers expect 2.75 to 3.5 lbs/d gain. Excellent feeding management is needed with this ration.
- (4) Feed supplement at 1% of cattle body weight with good quality hay or pasture to be consumed at 1.5% of body weight.
- (5) Feed twice daily all cattle with consume in 30 to 45 minutes. Start feeding with hay and then gradually remove hay as adaption occurs, as described in roughages section.
- (6) Feed at 1.5% of body weight with good quality hay to be consumed at 1% of body weight.

**Table 1. Nutrient Requirements of Growing Steer and Heifer Calves with finishing weight of 1,300 lb**

Wt <sup>a</sup> (lbs)	Gain <sup>b</sup> (lb/d)	DMI <sup>c</sup> (lbs)	Diet Nutrient Density						Daily Nutrients per Animal			
			TDN (%DM)	NEm (Mcal/lb)	NEg (Mcal/lb)	CP (%DM)	Ca (%DM)	P (%DM)	TDN (lbs)	NEm (Mcal/d)	NEg (Mcal/d)	CP (lbs)
Pregnant yearling heifers - Last third of pregnancy												
715	0.76	18.5	50	0.45	0.20	7.3	0.22	0.13	9.3	5.89	1.13	1.35
	2.11	19.6	60	0.61	0.35	10.2	0.36	0.19	11.8	5.89	3.45	2.00
	3.21	19.1	70	0.76	0.48	13.0	0.49	0.24	13.4	5.89	5.47	2.48
845	0.76	18.5	50	0.45	0.20	6.9	0.21	0.13	10.5	6.67	1.28	1.45
	2.11	22.2	60	0.61	0.35	9.1	0.32	0.17	13.3	6.67	3.91	2.02
	3.21	21.7	70	0.76	0.48	11.4	0.42	0.22	15.2	6.67	6.20	2.47
975	2.11	24.7	60	0.61	0.35	8.3	0.28	0.16	14.8	7.43	4.35	2.05
	3.21	24.1	70	0.76	0.48	10.2	0.37	0.19	16.9	7.43	6.90	2.46
	3.99	22.8	80	0.90	0.61	11.9	0.44	0.23	18.2	7.43	8.76	2.71

Finishing weight is based on 28% percent body fat. This table is a small representation of nutrient requirements of beef cattle. Values are from the Beef Nutrient Requirement Council (NRC).

**Table 2. Nutrient Requirements of Breeding Heifers**

Wt <sup>a</sup> (lbs)	Gain <sup>b</sup> (lb/d)	DMI <sup>c</sup> (lbs)	Diet Nutrient Density						Daily Nutrients per Animal			
			TDN (%DM)	NEm (Mcal/lb)	NEg (Mcal/lb)	CP (%DM)	Ca (%DM)	P (%DM)	TDN (lbs)	NEm (Mcal/d)	CP (lbs)	Vit. A <sup>d</sup> (1000 IU)
Pregnant yearling heifers - Last third of pregnancy												
700	1.4	15.8	60.3	0.60	0.34	9.0	0.33	0.21	9.6	7.95	1.4	20
700	1.9	15.8	67.0	0.70	0.43	9.8	0.33	0.21	10.6	7.95	1.5	20
800	1.4	17.4	59.6	0.59	0.33	8.8	0.33	0.21	10.4	8.56	1.5	22
800	1.9	17.5	66.1	0.69	0.42	9.3	0.35	0.21	11.6	8.56	1.6	22
900	0.9	18.3	54.3	0.51	NA	8.1	0.26	0.20	9.9	9.15	1.5	23
900	1.4	19.0	59.1	0.58	0.32	8.5	0.30	0.21	11.3	9.15	1.6	24
900	1.9	19.2	65.4	0.68	0.41	9.0	0.32	0.21	12.5	9.15	1.7	24
Two-year-old heifers nursing calves - First 3-4 months post-partum - 10 lbs milk/day												
700	0.5	15.9	65.1	0.67	0.4	11.3	0.36	0.24	10.3	9.20 <sup>f</sup>	1.8 <sup>g</sup>	28
800	0.5	17.6	63.8	0.66	0.39	10.8	0.34	0.24	11.2	9.81 <sup>f</sup>	1.9 <sup>g</sup>	31
900	0.5	19.2	62.7	0.64	0.37	10.4	0.32	0.23	12.0	10.40 <sup>f</sup>	2.0 <sup>g</sup>	34
1000	0.5	20.8	61.9	0.62	0.36	10	0.31	0.23	12.9	10.98 <sup>f</sup>	2.1 <sup>g</sup>	37

<sup>a</sup>Average weight for a feeding period.

<sup>b</sup> Approximately 0.9 + 0.2 pound of weight gain/day over the last third of pregnancy is accounted for by the products of conception. Daily 2.15 Mcal of NEm and 0.1 pound of protein are provided for this requirement for a calf with a birth weight of 80 pounds.

<sup>c</sup> Dry matter consumption should vary depending on the energy concentration of the diet and environmental conditions. These intakes are based on the energy concentration shown in the table and assuming a thermoneutral environment without snow or mud conditions. If the energy concentrations of the diet to be fed exceeds the tabular value, limit feeding may be required.

<sup>d</sup> Vitamin A requirements per pound of diet are 1,273 IU for pregnant heifers and cows and 1,773 for lactating cows and breeding bulls.

<sup>e</sup> Not applicable.

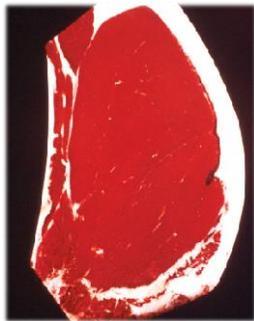
<sup>f</sup> Includes 0.34 Mcal NEm/pound of milk produced.

<sup>g</sup> Includes 0.03 pound protein/pound of milk produced.

# Beef Quality and Yield Grading

Maryann Matney, M.S. Graduate Student  
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 Kansas State University

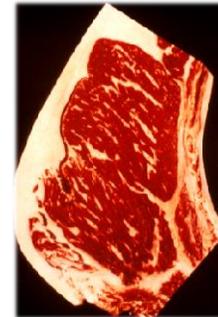
The American beef cattle production cycle begins in the pasture, goes to the feedlot, onto the packing plant and finally ends on the plate of the consumer. Integrity in the beef business is exemplified in each of these steps. Beef grading is a marketing tool for beef packers to gain more value from the carcass. Beef grading has two components, quality and yield grading.



USDA Select



USDA Choice



USDA Prime

Quality grading - Used to predict eating quality, takes into account the overall maturity of an animal and the amount of marbling in a ribeye. The maturity of an animal is determined using bone ossification and lean maturity. Animals harvested under the age of 30 months are considered A maturity. The other component of quality grading is marbling, which is the amount of intramuscular fat in the ribeye. Using the marbling and maturity of the carcass the final quality grade is determined. There are seven different quality grades in the United States System.

**RELATIONSHIP BETWEEN MARBLING, MATURITY, AND CARCASS QUALITY GRADE<sup>1</sup>**

Degrees of Marbling	Maturity				
	A	B	C	D	E
Slightly Abundant	<b>PRIME</b>				
Moderate			<b>COMMERCIAL</b>		
Modest	<b>CHOICE</b>				
Small					
Slight	<b>SELECT</b>		<b>UTILITY</b>		
Traces					
Practically Devoid	<b>STANDARD</b>			<b>CUTTER</b>	

USDA Quality Grading Chart

Yield Grade	Retail Cut %
1.0	54.6
2.0	52.3
3.0	50.0
4.0	47.7
5.0	45.4

Expected yield percentage based on USDA yield grade

Yield grading - The prediction of the percentage of boneless closely trimmed retail cuts a carcass will yield. The lower the yield grade, the higher yield percentage is expected. Yield grading takes into account hot carcass weight, fat thickness, ribeye area, and percentage of kidney, pelvic and heart fat. Each of the factors are weighted differently according to the equation below.

Yield Grading Equation	
Yield grade = $2.5 + (2.5 * FT) + (0.0038 * HCW) + (0.2 * \% KPH) - (0.32 * REA)$	
Fat Thickness (FT)	Measured between 12 <sup>th</sup> and 13 <sup>th</sup> rib, adjusted to include overall fat distribution
Ribeye Area	Measured in square inches between 12 <sup>th</sup> and 13 <sup>th</sup> rib
Hot Carcass Weight (HCW)	Weight of the carcass after hide, head, hooves, and internal organs removed
Kidney Pelvic and Heart fat (KPH%)	Estimated percentage of the carcass weight that is internal fat

# BBQ 101

Dr. Travis O'Quinn, Assistant Professor, Meat Extension Specialist  
Department of Animal Sciences and Industry  
Kansas State University

## Barbeque Tips

- Use fatter cuts of meat, enhanced products or marinades/injections to avoid dry smoked meats
  - Pork Butts/Boston Butt
  - Pork Ribs
  - Beef Brisket
  - Chicken ¼'s or whole chickens
  - Pork Loins (Enhanced)
- Mops of sauces can be used but should be applied at 80-90% of cooking time to increase flavor and keep the meat moist
- Use Indirect Heat
  - Separate smoke box
  - Can be accomplished with gas grills by lighting one burner and placing meat on opposite side of the lit burner with a pan of water over the lit burner
- Cook and smoke at lower temperatures 200-300°F
- Use hard woods for smoke and flavor
  - Common woods
    - Hickory
    - Oak
    - Mesquite
    - Pecan
    - Apple
    - Cherry
  - Experiment with different woods and combinations to see what you prefer
- Practice with your cooker/smoker/grill
  - Every cooker/grill has hot/cold spots
  - Use areas of most even heating or rotate to ensure even heating
- Don't check too often
  - Let the meats smoke and cook (check hourly)
  - Estimated times
    - Pork Butts/Boston Butt – 8-10 hours
    - Pork Ribs – 4-6 hours
    - Beef Brisket – 10-12 hours
    - Chicken ¼'s or whole chickens – 2-3 hours
    - Pork Loins (Enhanced) – 3-4 hours
- Slice large roasts across the grain to maximize tenderness

## Grilling Tips

- USE A FOOD THERMOMETER!!!
- Apply seasoning to meats 1 – 2 hrs in advance to allow for optimum flavoring
- Preheat your grill and monitor and maintain desired temperature throughout cooking (> 500°F for grilling)
- Have everything you need on hand before starting. Time spent running in and out of the house for tongs and sauces allows for more opportunity for meats to burn
- Make sure your grill is clean of all cooked on grease and char prior to cooking. Grease remaining on the grate allows for more flame-ups during cooking.
- Grease your cooking grates to prevent food from sticking and to allow for easier cleanup.
- Use a chimney to start charcoal grills
- Add chunks of hard wood to chimney starter for extra smoke flavor
- Meat should be completely thawed prior to cooking (except hamburger patties)
  - Steaks and chops grilled frozen will be tougher and dryer
- Use tongs that will allow for easy gripping of meats
- Decide if direct heat or indirect heat cooking fits your needs
- Leave an unheated space on your grill for placing items cooking too fast or for moving items when a flame-up occurs
- Insert temperature probe from the side, in middle of steak to determine degree of doneness
- Temperature will rise 5 – 10 degrees after removal from grill
  - Thicker cuts will rise more than thinner cuts
  - Covering cooked meats will cause greater temperature rise, so cover loosely
  - Higher grill temperatures (faster cooking) will cause a greater temperature rise
  - Thus, remove meat 5 – 10 degrees below target temperature and leave uncovered for first five minutes, then cover loosely to keep warm
- Sauce in the final few minutes of cooking to prevent burning
- Don't use the same utensils (tongs, sauce brushes, serving platters, etc.) for both raw and cooked product. Using the same utensils for both raw and cooked product allow for the transfer of foodborne pathogens to cooked product and increased risk of food poisoning.
- Use baking soda to put out a grease fire, not water
- Never use any grill other than electric grills indoors. Burning fuels such as propane and charcoal produce invisible carbon monoxide gas, which can be lethal at even low amounts
- Do not worry about poking the cut with a fork or temperature probe while cooking as it does not result in any significant juice loss
- Depending on your grill, temperature drop due to lid opening is quickly recovered once the lid is reclosed.
- No evidence that allowing a meat cut to “rest” for an extended period of time produces a juicier cut

## Grilling Degrees of Doneness

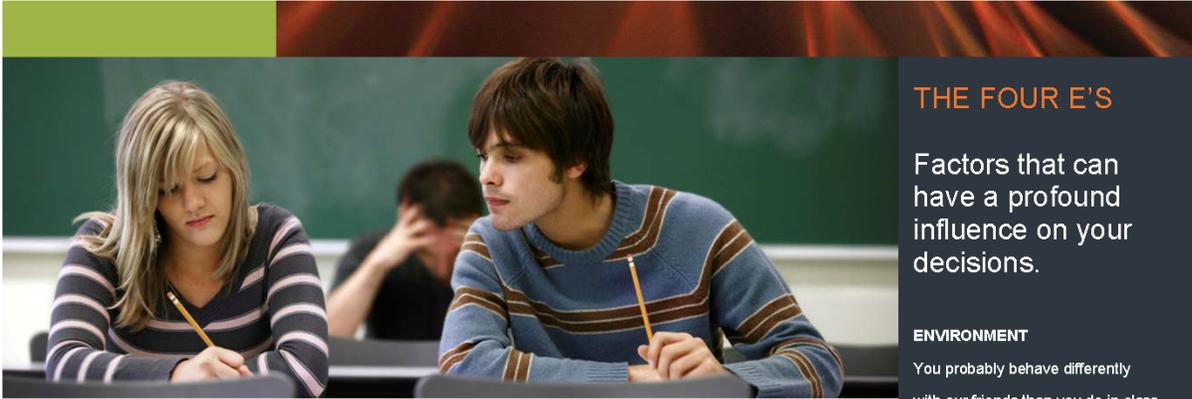
Degree of Doneness	Final Temperature (°F)
USDA Recommended Temperature for Food Safety (whole muscle cuts)	140
USDA Recommended Temperature for Food Safety (ground products)	160
Rare	140
Medium-Rare	150
Medium	160
Medium-Well	165
Well-Done	170
Ground Products	165
Poultry	160

## Smoking Timetable (225°F)

Meat	Final Temperature (°F)	Approximate Time (hrs)
<i>Pork</i>		
Baby Back Ribs	180	4 – 6
Spareribs	180	5 – 7
St. Louis Style Ribs	180	5 - 7
Whole Shoulder	185	18 - 20
Boston Butt (for pulling)	185	10 - 12
Pork Loin	145 – 160	8 - 10
Whole Hog	185	16 - 24
Sausage	160	1 - 3
<i>Beef</i>		
Brisket	200	12 - 18
Tri-tip	140	2.5 – 3
Prime Rib	140	6 – 8
Tenderloin	140	3 – 4
Clod	185 – 200	12 – 18
Chuck Eye Roll	185 – 200	12 – 18
<i>Poultry</i>		
Whole Chicken	160	3 – 5
Whole Turkey	160	7 - 8
Chicken Thighs	160	1 - 2
<i>Other Meats</i>		
Lamb Leg	140 – 160	4 – 8
Cabrito (goat)	170 – 180	4 – 5
Fish (filets)	160	1 - 2

# Decision Making

Dr. Michael Johll  
C.O.O., Suther Feeds  
Principal, The Johll Consulting Group



## Why Do People Make Bad Decisions?

All of us make literally thousands of small decisions each day: Which pair of jeans to wear, what to eat for breakfast, which movie to see with friends. Our minds are in the habit of making quick decisions to conserve energy. We want to jump to action, fix the problem, and move on, because lingering in decision limbo can make us feel anxious and stressed.

For small stuff, this approach works well. The trouble comes when you need to make a more important decision, such as choosing your college major. For issues like this, a rush to

action might lead to a choice that isn't truly aligned with your values and interests. Choosing your major deserves a more involved process of focused attention and contemplation.

Besides the problem of making snap judgments (which psychologists call "making decisions based on heuristics"), other predictable patterns of thought lead to errors in decision making. Psychologists have spent the last 40 years studying these errors. All these errors (over 50 documented types) have the same effect: They make us more

susceptible to poor choices. We become even more vulnerable when we're under stress, influenced by other people, and in period of transition like the transition between high school and college.

Through DecisionPrep, you'll learn how to approach each big decision in your life by applying our unique learning model: Awareness, Knowledge, and Action. You'll learn how to tune into your core values and apply them to important issues so you feel confident that your making the right choice.

### THE FOUR E'S

Factors that can have a profound influence on your decisions.

#### ENVIRONMENT

You probably behave differently with our friends than you do in class or at work. Your decisions are very likely influenced by your immediate environment and the people around you.

#### EXPERIENCE

Your past and current experiences color your views and perceptions of the world. In this course, you'll explore the people, places, and events that have proved influential in shaping who you are.

#### EMOTIONS

Your emotions often influence your decisions without your awareness. To make decisions effectively, you must understand how and why you feel what you do and be able to assess which emotion help and which hinder your decision-making process

#### ETHICS

Ethics and values guide your thoughts, behaviors, and ultimately, your actions. Many young people may not yet be aware of their values, or they might sometimes make decisions that go against core values that they hold.

## DecisionPrep® Good decisions can change your life...

### LEARN TO MAKE DECISIONS FROM A PLACE OF PURPOSE AND CONFIDENCE

It's normal to struggle with decision making. Especially when you reach an important crossroads in your life, such as your late high school and early college years. You find yourself facing new levels of responsibility and decisions that affect your future: which college to attend, what to major in, which career path to choose, whether to marry your girlfriend or boyfriend, and how to spend your money wisely.

Often we learn "the hard way" because we don't know what else to do. We're not born knowing how to make good decisions and school doesn't teach this essential life skill



# Health

Dr. Nora Schrag, DVM, Assistant Clinical Professor Field Service  
College of Veterinary Medicine  
Kansas State University

Many health problems are preventable and treatable, especially if addressed early. If you are not sure if your animal needs to be seen by your veterinarian, it is best to simply call them and ask. Your veterinarian is an excellent resource for information and can often answer your questions over the phone. A relationship with your local veterinarian is the best way to maintain your animals' health.

<b>Problem</b>	<b>Causes</b>	<b>What to Watch For</b>	<b>Extra Notes</b>
<b>Warts</b>	Virus	Crusty lesions – often of face but can be anywhere on body	Most shows prohibit animals with warts
<b>Ringworm</b>	Fungus	Loss of hair in small, circular areas	Treat ASAP! The sooner appropriate treatment begins, the more likely you will be able to show the animal. Do not share halters or other equipment between affected and unaffected animals.
<b>Foot Rot</b>	Wet conditions, untrimmed feet	Lameness, Bad odor from hoof	If the condition does not resolve with treatment in 3 days consult your veterinarian. This can quickly become an infection of deeper structures that can be costly and even irreversible.
<b>“Scours” or Diarrhea</b>	Stress or feed change, parasites, viruses (younger animals)	Diarrhea (can be bloody but not usually)	If animal acts sick, or if a diet of only prairie hay fails to correct the problem in 48 hrs, call your veterinarian.
<b>Coccidiosis</b>	Parasite	Bloody diarrhea, or chronic weight loss.	These animals are usually greater than one month of age.
<b>Urinary Calculi</b>	High grain rations	Straining, standing “stretched out”, kicking at belly, general discomfort and depression.	Call Veterinarian Immediately!! The signs of a blocked animal are often very subtle, and if left unaddressed can result in a ruptured bladder or urethra which can be life threatening
<b>Bloat</b>	Multiple causes	Enlarged abdomen, difficulty breathing	Consult an experienced person or your veterinarian. This condition can be life threatening if not treated in a timely manner.
<b>Respiratory Disease (BRD), Pneumonia</b>	Viruses and Bacteria	Fever, depression, increased rate of breathing.	Discuss a vaccination program with your veterinarian for prevention. Also follow their recommendations for treatment.

# Beef Reproduction – Ultrasonography

Scott Hill, Ph.D. Graduate Student  
Department of Animal Sciences and Industry  
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## \* Ultrasonography

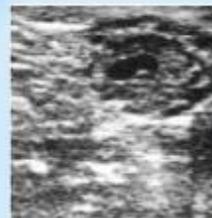
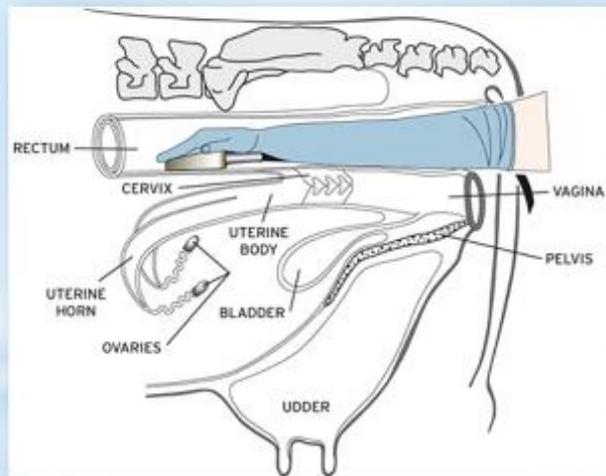
Scott Hill, PhD Candidate  
Department of Animal Sciences and Industry  
Kansas State University

### Pregnancy diagnosis

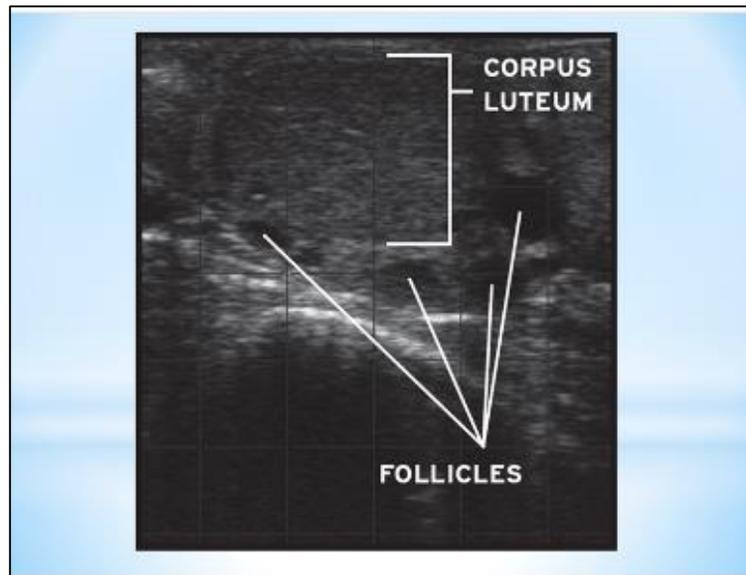
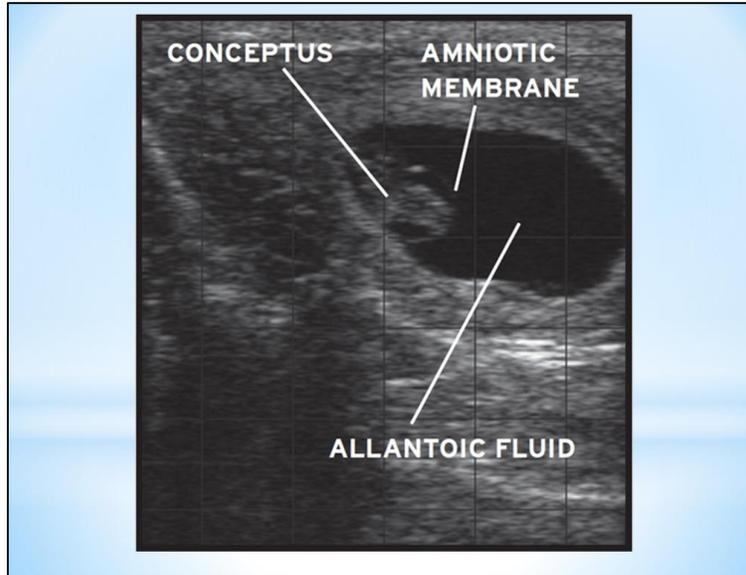
- Why?
- How?
  - Rectal palpation
  - Bio markers (PAG)
  - Ultrasound

# Ultrasound

- What is it?
- Who invented it?
  - Bats 1794 (Lazzaro Spallanzani)
  - Whistle 1893 (Sir Francis Galton)
  - Submarines 1917 (Paul Langevin)
  - Medical 1950s (Ian Donald)



(Virginia herd health services)



# Beef Cattle Showmanship

Beef cattle, like other species require handling and training that starts at home. In order for you to have an animal that works properly in the show ring, you must put in many hours of hard work in order to maximize your animal's strong points and minimize the weaker points. Halter breaking, feeding, washing, clipping, and practicing showing are all things that should be completed at home, prior to going to any show.

A good showman is clean and well presented, aware of the judge and your surroundings, courteous at all times, pays attention, and knows how to properly set up your animal to show its best physical attributes.

## Showman's Attire

A showman should be neat and clean just as your animal should be well groomed. It is recommended that you wear appropriate clothing consisting of a tucked-in collared shirt, leather boots, jeans and a belt. Fancy and flashy clothing are not needed to look professional and can cause a distraction. A baseball cap has no place in the show ring.

In addition to being properly dressed, you should have the necessary equipment. A comb in your back pocket with the teeth turned to the inside as well as a show stick and show halter are necessary.

## Show Time

- Check the show schedule and be ready when your class is called
- Lead the calf from the left side
- Your show stick should be in your left hand
- Don't coil the lead strap up around your hand or let drag
- Be aware of the judge and ring stewards
- Use the entire space provided
- Do not crowd other livestock

## Setting Up Your Animal:

Always allow space between your calf and the calf next to you. Generally, you will set your animal up in a rear profile position after you walk into the ring. In order to set up in rear profile correctly, all feet should be set at all four corners under the animal. You will then lead your animal around the ring so the judge can view structural correctness and the side profile of your animal. A correct side profile position consists of the front feet set even while the back feet are staggered with the judge's side back foot being further back. Remember to stay calm while setting up and scratching your animal. Quick, rough movements show nervousness on your part and can make your animal uneasy.

Good sportsmanship is an important part of showmanship. Remember that you are always being watched and often judged by your actions. Work hard, practice before the show, always try to do better next time, gain from your mistakes and above all, always have fun!

# 2016 Kansas Youth Livestock Nomination Guidelines

*In order to show at the Kansas State Fair (KSF) or Kansas Junior Livestock Show (KJLS), you must first nominate your animal.*

**What is a nomination?** A nomination is documentation that you have owned, possessed and cared for your animal since a certain date in order to show at a state show.

**How are the nomination dates set?** The nomination dates are set by minimal guidelines set forth by Kansas 4-H on how long you should own, possess and care for your animal to have gained the optimal experience. In addition, the KSF and KJLS Board of Directors agree on these dates.

**What are the nomination dates?**

May 1 Market Steers and Market Heifers (May 2 postmarks will be accepted for 2016; May 1 is a Sunday)  
June 15 Commercial Heifers, Market Lambs, Commercial Ewes, Market Hogs, Commercial Gilts, and ALL Meat Goats (Market Goats, Commercial Does, and Registered Does)

**How do I know what to turn in?** The Youth Livestock Program has compiled a list of requirements (checklist) for each species.

**How much does it cost?** The nomination fee is \$8.00 per animal, for all species.

**What is the Nomination Declaration form?** The nomination declaration form is required by all families/households wishing to show at Kansas State Shows. This form states the family/household name along with who is able to show within that family/household. In addition, it lists the physical location of where the animals are kept, and also has a statement about possession, ownership and care of the animals. It must be signed by all individual exhibitors, a parent/guardian, and extension agent/advisor. ALL exhibitors must complete a family nomination declaration form.

**Is a Nomination the same as an entry for the show?** NO. You must first nominate your animal in order to declare that you own, possess and care for them. Then, you must actually enter that animal for the show following the specific entry processes set forth by the Kansas State Fair (KSF) and Kansas Junior Livestock Show (KJLS). You must do both of these things in order to show. *Nominations are sent to the K-State Youth Livestock Program office, but the entries for KSF and KJLS are sent directly to and managed by the respective Livestock Show offices.*

**How will I know if my Nomination is complete?** Once your nomination is put into the nomination database, you will receive a letter in the mail from the Youth Livestock Program. This letter will list all of the animals that we have in the system from you. A family/household will receive a separate letter for each species nominated. If you are missing information, it will tell you what you are missing and how to fix that issue. In addition, we post the nomination information on our website [www.YouthLivestock.KSU.edu](http://www.YouthLivestock.KSU.edu) under Nominated Livestock so you can see if your nomination is complete. We update this very often during the nomination process and highly recommend that you use this tool.

**What if I don't get everything in the first time?** If your confirmation letter states that something is missing or wrong, **there is a one-time fee of \$20.00**. This includes declaration form, DNA Envelope, and signatures (exhibitor, parent and agent/advisor). The \$20.00 incomplete fee must be submitted with the missing or corrected information for the nomination to be complete.

**Where do I get ear tags and DNA envelopes?** Ear tags and DNA Hair Sample envelopes can be obtained from your local Extension Office. Make sure you communicate with your local Extension Office far enough in advance for them to have enough tags and official envelopes available for the number of animals you plan to nominate. DNA must be submitted in an official DNA envelope. One type of envelope is available for all species. Please refer to the Step-by-Step page in the "Rookie Guide" for detailed information on obtaining DNA samples from your animals.



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# 2016 Kansas Livestock Nomination Checklists:

I have a **market steer or market heifer** to nominate, what do I need to turn in?

- Household Declaration Form
- Tag Your Animal by May 1 with a Kansas 4-H Electronic Identification (EID) tag.
- Completed Market Beef Nomination form ([www.YouthLivestock.KSU.edu](http://www.YouthLivestock.KSU.edu)) including all contact information and signatures.
- Completed official, sealed DNA Hair Sample Envelope, hair must be pulled, not cut. Obtain at least 40 follicles. All family exhibitors and a parent/guardian must sign the front of the DNA envelope.
- \$8.00 per animal nomination fee.
- All of the above must be completed by **May 2**. Certified Mail highly encouraged. Nominations postmarked by May 2 will be accepted only in 2016 – May 1 is a Sunday.

I have a heifer that I would like to nominate as both a **commercial heifer and a market heifer**, what do I need to turn in?

- Household Declaration Form
- Tag your animal by May 1 with a Kansas 4-H Electronic Identification (EID) tag.
- Completed Market Beef Nomination form AND Commercial Heifer Nomination Form ([www.YouthLivestock.KSU.edu](http://www.YouthLivestock.KSU.edu)) including all contact information and signatures.
- Completed official, sealed DNA Hair Sample Envelope, hair must be pulled, not cut. Obtain at least 40 follicles. All family exhibitors and a parent/ guardian must sign the front of the DNA envelope.
- \$8.00 per animal nomination fee.
- Must be identified with an individual, unique, permanent tattoo and listed on commercial nomination form
- All of the above must be completed by **May 2** for no additional nomination fee.
- If commercial materials are submitted separately by **June 15**, will incur one additional nomination fee. Certified Mail highly encouraged.

I have a **commercial heifer** to nominate, what do I need to turn in?

- Household Declaration Form
- Tag Your Animal by June 15 with a Kansas 4-H Electronic Identification (EID) tag.
- Completed Commercial Heifer Nomination Form ([www.YouthLivestock.KSU.edu](http://www.YouthLivestock.KSU.edu)) including all contact information and signatures.
- Completed official, sealed DNA Hair Sample Envelope, hair must be pulled, not cut. Obtain at least 40 follicles. All family exhibitors and a parent/guardian must sign the front of the DNA envelope.
- Must be identified with an individual, unique permanent tattoo and listed on commercial nomination form
- \$8.00 per animal nomination fee.
- All of the above must be completed by **June 15**. Certified Mail highly encouraged.

I have a **registered breeding heifer**, what do I need to turn in?

- Heifers must be registered in exhibitor's name no later than June 15 of the current year.
- Registered Heifers must be identified with a permanent tattoo corresponding with registration papers.
- No nomination materials are required for Registered Heifers.
- Registered Heifers *do not* need DNA hair samples.
- Some form of ear tag is encouraged for show management purposes

**CATTLE HAIR SAMPLE COLLECTION INSTRUCTIONS**



**1** Check the ear tag number of the animal, and record it on the hair sample envelope.

We strongly recommend that you collect tail switch hair. If this is not an option, then collect hair from the poll, neck or tail head. Clean the sample area with a paper towel to remove excess dirt if necessary.

Use bent nose, long nose or needle nose pliers to collect the sample.



**2** Grasp the hair close to the skin with pliers and pull directly away from the skin. Take at least two pulls. Make sure that the sample has at least 40 hair roots. If tail switch is not available, then take at least 5 pulls from the poll, neck or tail head.



**3** Inspect the hair sample to ensure at least 40 hair follicles.

Do NOT cut the hair from the animal. The hair MUST CONTAIN ROOTS for DNA testing. Avoid touching the roots and make sure the hair

is dry.

Place hairs in the sample envelope and seal the envelope. Do not put hairs in a plastic bag.



**4** Fill out the remaining information lines on the envelope, and have the witnesses sign.

REMEMBER: Cleanse hands and pliers between animal samples to ensure that hairs from different animals are not mixed.



**CATTLE HAIR SAMPLE CHECKLIST**

- ✓ Record ear tag number on the envelope
- ✓ Collect hair from tail switch
- ✓ Obtain at least 40 hairs with follicles
- ✓ Take at least 2 pulls
- ✓ Inspect for follicles—do NOT touch follicles
- ✓ Obtain exhibitor signature & seal envelope
- ✓ Clean pliers and hands between animals

\*Instructional videos available on the DNA page of the KSU Youth Livestock website ([www.youthlivestock.ksu.edu](http://www.youthlivestock.ksu.edu)).  
If viewing this resource book electronically, click here: [DNA Videos](#).

## **Notes:**

# KSU Youth Livestock Program

## ***Website:***

[www.youthlivestock.ksu.edu](http://www.youthlivestock.ksu.edu)

## ***Facebook:***

Kansas State Youth Livestock Program

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