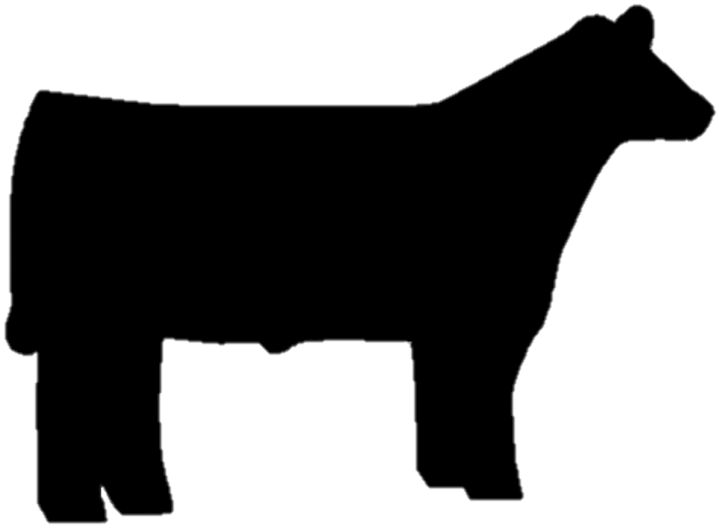

Kansas Junior Beef Producer Day Educational Materials

Kansas State University
Youth Livestock Program
214 Weber Hall
Manhattan, KS 66506

12/7/2013

Kansas State University
Animal Sciences and Industry
Youth Livestock Program

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Selecting Your Youth Beef Project

Dr. Scott Schaake, Associate Professor
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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.

Facilities and General Care for Junior Beef Projects

Dr. Dan Moser, Associate Professor
Department of Animal Sciences and Industry
Kansas State University

While the highlights of most junior beef projects are in the show ring, to quote a young exhibitor and friend of mine, "Winning begins at home." Whether your goal is to show a champion at the state fair, or to simply have a positive experience at the county fair, the daily care of your animals is essential to achieving that goal. Appropriate facilities and good management of your animals lead to a positive outcome in the project.

Facilities for youth beef projects need not be fancy, but they do need to be functional. Rarely is there a chance to build a new facility from scratch, and most existing barns and pens can be adapted to provide adequate housing for show steers or heifers, perhaps with some simple modifications. For many families, time is a very scarce resource. Good facilities help maximize the benefit you gain from the time spent with your animals, and can maintain and increase the interest young people have in their projects.

Several factors impact your needs for facilities. Obviously, the number of animals in your project is an important factor. As you develop your facilities, planning for future expansion can save money in the long run. Heifer projects build a cow herd, so heifer exhibitors need to plan for breeding and calving. Your show season is also important. Many exhibitors in Kansas show from April to September, when the weather is reasonably temperate. For those exhibitors, having warm enclosed places to wash, dry and clip your cattle is not as important as those who plan to show in December, January and February. Finally, the level at which you plan to compete, whether local, regional, state or national, and the resources you wish to devote to the project are a consideration. Many exhibitors start locally but later show at the state level or higher. To compete at higher levels, you need better facilities as well as better cattle.

Cattle have fairly simple needs. They need shelter from extreme cold and extreme heat, and will grow and gain better in favorable temperatures. They need access to clean, fresh water at least twice a day, and more often during extreme heat. They need exercise for their own health and to maintain structural soundness, and they will benefit from social interaction with other cattle. They do best in a consistent environment, and dramatic changes and other stresses can have adverse effects.

Most show cattle facilities consist of holding pens within a barn, and a turnout area. Small pens allow calves to be easily caught and haltered, and to be fed individually. Pen sizes are typically 10' by 10' up to 16' by 16'. If halter breaking will be done in the pens, ties should be built from sturdy materials and well-anchored to the ground or the barn. For safety, pens should allow people to climb out of them if animals become aggressive. In winter, bedding such as straw may be provided, especially in open barns. In summer, pens may be bedded with wood chips or shavings, sand, or just dirt. Concrete floors should

be avoided, as cattle tend to slip, and can become lame or injured. Pens should be kept clean and dry, free of excessive manure or mud.

If pens are adjacent to the turnout area, the gate between the pen and holding area can be left open to give the cattle the choice of location when appropriate. On hot days, show cattle are usually kept in pens under industrial fans to allow hair retention and growth. Foggers and misters may be used to help keep cattle cool on hot days, especially where humidity is low, but bedding such as wood chips or sand is needed to absorb moisture.

The turnout area can be a dirt lot or a small grass pasture. Some show cattle are turned out in long narrow grass lots that are 75 yards long or longer. These long lots, often divided with electric fence, maximize the amount of exercise the cattle get as they walk from one end to the other. Cattle also socially interact with those across the fence. To encourage exercise, cattle can be fed hay or provided salt blocks at the far end of the pen. When building a turnout area, availability of shade and windbreaks may also be considered in the design and location. Ideally, the turnout is close to the pens for convenience, and is located so that cattle can be easily observed.

Show cattle need a place where they can be washed or rinsed. Some method of restraint, such as a working chute or alleyway will also be needed for vaccinations, artificial insemination of heifers, etc. A portable blocking chute is often not sufficient restraint for painful procedures like vaccination. Fans and blowers require significant amounts of electricity, often beyond what a typical barn built for other uses would have. Storage of feed bags and/or bulk feed, hay and show equipment will be needed either in the barn or nearby. Adequate lighting is necessary for observing animals in early mornings and late evenings. Early observation of problems allows for early treatment, so good lighting is essential, especially in the short days of the winter months. Manure management and fly control are also important considerations.

One of the keys to any livestock project is frequent observation of the animals. Abnormal behavior is often the first sign of a problem. Take the time to observe each animal eating at every feeding. Loss of appetite can indicate illness or other issues. Watch each animal walk every day, and learn their routine behaviors. Early identification of sickness or injury, along with early intervention, maximizes the chance of a good outcome.

When your calves first arrive, minimizing stress is important to avoid illness. If possible, obtain a small amount of the ration the calves were on, and start them with that, along with plenty of hay. Gradually change the ration to the one you will feed. Don’t start halter breaking or other handling until the cattle are adapted to their new environment.

In terms of management, it’s never a good idea to feed one calf alone. Cattle need social interaction with other cattle, and will often become nervous alone, and may lose appetite. Some juniors will purchase one top quality calf, and then buy or raise a less expensive “buddy” to feed along with the

other calf. It's best if the "buddy" goes along to the shows, as familiar animals will help minimize the stress of unfamiliar surroundings.

The most important aspect of general care is consistency. Changes to a calf's management, feeding, housing, care or environment cause stress, which can lead to loss of appetite, sickness and behavior problems. While other speakers will cover nutrition in depth, it is important to feed cattle a consistent ration at a consistent time each day. Show cattle need to be fed at least twice a day, with as close to equal time periods between feedings as possible. Develop a relationship with a feed supplier that you can count on to provide high quality, consistent products when you need them. Most show cattle will need to be fed individually. Otherwise, the more aggressive animals will consume too much feed and become overconditioned, while the timid eaters will not get enough feed. Changes to ration contents or amounts should be made gradually over several days.

Successful halter breaking starts early. The younger and smaller the calf at halter breaking, the easier the process is for both the calf and the people involved. While halter breaking techniques vary, the best approach is always to minimize stress, and gradually increase the degree of human interaction. Positive reinforcement goes a long way in developing trust of the calf. Safety of the calf and the people involved should always be the first priority. Never leave calves tied up during halter breaking when no one is there to watch them.

It's important to develop a relationship with a good veterinarian. Show cattle are "high-risk" in terms of potential for sickness, due to the additional stress of hauling and the exposure to numerous animals that may carry infectious agents. An aggressive vaccination program should be followed, and cattle need time after vaccination to develop immunity.

There are many strategies for encouraging hair growth in show cattle. Genetics, and to some extent, nutrition play a role. Hair growth can be encouraged by keeping cattle cool during the hot parts of the day in the summer, and by daily rinsing and vigorous brushing, using either a rice root brush or a plastic massage brush. The stimulation of the skin with brushing is likely as important as the cooling effect of rinsing. However, frequent washing with soaps and shampoos can dry the hair and skin.

Most show cattle will benefit from occasional hoof trimming. Trimming hooves on cattle requires specialized equipment and training, and is usually best left to professionals. Frequency of hoof trimming depends on the animal, the environment they are raised in, and the need to correct minor structural defects.

Regardless of the amount of contact the cattle have had at home, going to their first show is usually uncomfortable for the animal. New sights and sounds, and exposure to other cattle may be stressful. Anticipate that cattle may not behave as well at their first show as they did at home. Often cattle do not eat or drink well the first 24-48 hours at their first show, especially if they are changing from

well water to city water. One of the benefits of participating at prospect shows early in the show season is to get the cattle acclimated to a show environment, where they will eat, drink and lie down frequently later on, and be more cooperative in the show ring. Cattle usually acclimate and perform better at their second show than at their first.

Perhaps the biggest key to success in the project is building relationships with those that can provide advice and support. Fellow exhibitors are usually more than willing to help those that are new to the project, and cattle breeders and extension staff can provide information and guidance. If you are planning to build facilities, take the time to visit other farms to get ideas. Ask lots of questions, and you'll be well on your way to a successful project.

MANAGING YOUR SHOW HEIFER FOR THE SEASON AND BEYOND….

Dr. Jaymelynn Farney, Assistant Professor, Animal Science Department
Southeast Area Beef Systems Specialist

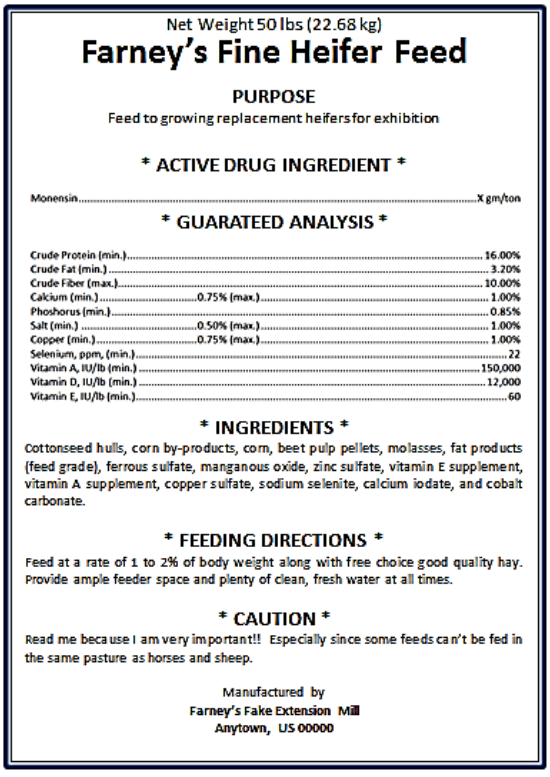
Selecting and showing a 4H heifer is a rewarding and often challenging experience, yet if done correctly can lead to several yearsô worth of pride and rewards. The showing component is often viewed as the fun, visual component of the heifer project, yet it is important to remember that the objective should be to manage each heifer so that she will become a good brood cow and produce a calf each year. Good management for both show and future breeding success is important in the show heifer project. This document will focus primarily on the nutritional component of raising your show heifer and getting her successfully bred the following season.

Show Season Feeding and Basic Understanding of Feeds and Nutrition

Heifers can be grown on pasture or in paddocks with limited grain feeding and reach acceptable weights for breeding with appropriate body condition. From a nutrition standpoint, a ration needs to provide the necessary amount of nutrients for body maintenance plus a rate of gain appropriate for her frame. These requirements are based on the National Research Council (NRC) which bases itôs guidelines from national research projects that determine appropriate energy, protein, vitamins, and minerals for proper performance of cattle. In order to accurately feed your heifer understanding the requirements of the heifer is important from an economic standpoint. A table demonstrating requirements for protein, energy, and macrominerals is illustrated in Table 1. This table is by no means comprehensive, but is included to illustrate differences based on weight, expected gain, and stage of production. Before elaborating on requirements a basic understanding of the important nutrients in feeds will be addressed.

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. Energy is very important for growth and fat deposition for heifers. Energy is reported as total digestable 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) needs 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 heifers to meet your goals. 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. All the minerals have important roles in normal body functions on heifers, but several also help with reproduction. Calcium and phosphorus are the two primary macrominerals that need to be included and balanced in the diet. Both of these are involved in

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 anv 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

*** GUARATEED ANALYSIS ***

Crude Protein (min.)	16.00%
Crude Fat (min.)	3.20%
Crude Fiber (max.)	10.00%
Calcium (min.)	0.75% (max.) 1.00%
Phoshorus (min.)	0.85%
Salt (min.)	0.50% (max.) 1.00%
Copper (min.)	0.75% (max.) 1.00%
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

bone development and many other body functions. Important microminerals include selenium, zinc, copper, and magnesium. These are important for the ñhealthy lookò of the heifer and for reproduction. Amounts of these minerals will be listed on the feed tag.

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 as ñas-isò. This means that the values include water plus the nutrients. When determining how much feed to be fed to cattle, we use dry matter (DM) values. Dry matter is determined by taking the sample and drying it until there is zero moisture remaining. So since we balance rations on a dry matter basis, to determine if your protein is adequate you much from figure out how much moisture is in your feed. Once again you can gather this information 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 matter content of your feed at home, research specific methods to determine dry matter content, and then follow directions. Other important information gathered from the feed label includes the nutrient and the reported measurement. 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 heifer. Antibiotics and ionophores are also listed on your feed label along with proper feeding directions associated with these ingredients. The last important component of the feed label includes the list of ingredients. These are reported as the ingredient with the highest amount included in the bag, to the lowest. This in turn tells you predominantly what ingredient is being offered to you heifers. An example of a feed label is shown in figure 1.

Roughage in the form of hay or grass is very important for heifer management. This really becomes important to get your heifers growing and the rumen becoming adapted for the grass that they will be spending the rest of their life consuming. Also, from a show perspective the roughage component will increase the rumen fill allowing your heifers to look like they have more body capacity. Roughage has to be included to reduce the risk of causing acidosis and bloat. 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 make the animal feel sick. 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 heifer going off-feed. If bloat or acidosis occurs, then take the concentrate feed (corn or complete ration) out of the diet and place the heifer on hay for a few days, then gradually start adding back the grain component. Properly stepping-up the heifer to consuming concentrate will minimize the chance of acidosis and bloat. A typical method includes starting the heifer with two to three points 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, she should be completely ñon-feedò and this is what she will be fed until you determine she either needs more concentrate to increase gain/body condition or she is too fat and needs less concentrate. Close daily observation and good eye judgement are important to determine how well your nutrition program is. 4H members should utilize extension personnel to help determine if your nutrition program is adequate.

Whenever possible, feeds should include an ionophore. These ionophores not only help with feed efficiency, by help with minimizing coccidiosis and bloat.

The purpose of feeding your heifer is to increase growth and for reproductive success. However, it is important to make sure that your heifer is not too fat. This will lead to calving difficulties and reduces milk production, which will decrease calf weaning weight. Also, from a cost-perspective it is cheaper to make sure your heifers are an ideal body condition because increasing body condition will cost more money. Pictures of acceptable body condition are illustrated in Figure 2.

Figure 2: Examples of acceptable body condition scores for cow/heifer reproductive success

The solid black 2-year-old heifer is an example of a body condition score (BCS) of a 5. This is the minimum body condition for reproductive success. A BCS 5 is a heifer that the last ribs might be visible, some of the spine is visible, and there is not fat in the brisket or around tailhead. From a show perspective, this might be too thin, but is a good condition to have a lactating brood cow.

The Simmental cross heifer is an example of a BCS of a 6. This is considered **IDEAL** for both heifers and cows. This will provide the opportunity for the cow/heifer to lose some body condition prior to breeding and still be above that BCS 5 threshold. A BCS 6 cow/heifer will not have any ribs visible, be smooth looking throughout, will not have fat in the brisket or around the tailhead.

The Charolais cow is an example of a BCS 7 cow. Most show heifers will be a 7 BCS. Ideally you do not want to get a heifer fatter than this because of issues with calving and deposition of fat in the udder which decreases milk production. A BCS cow/heifer will have no ribs showing, have noticeable fat deposited in the brisket and around the tailhead. Often times they will appear to "jiggle" as they are moving. Some researchers like a heifer to calve in a BCS of 7, so that by the time the breed they are in a BCS of 6, which is **IDEAL.**

Calculations to determine concentration of feed

To recap, it is important to meet heifer requirements and it is easy to determine amounts to feed with two ingredients. For example, if you are feeding hay and a grain then you can determine how much to feed of each ingredient.

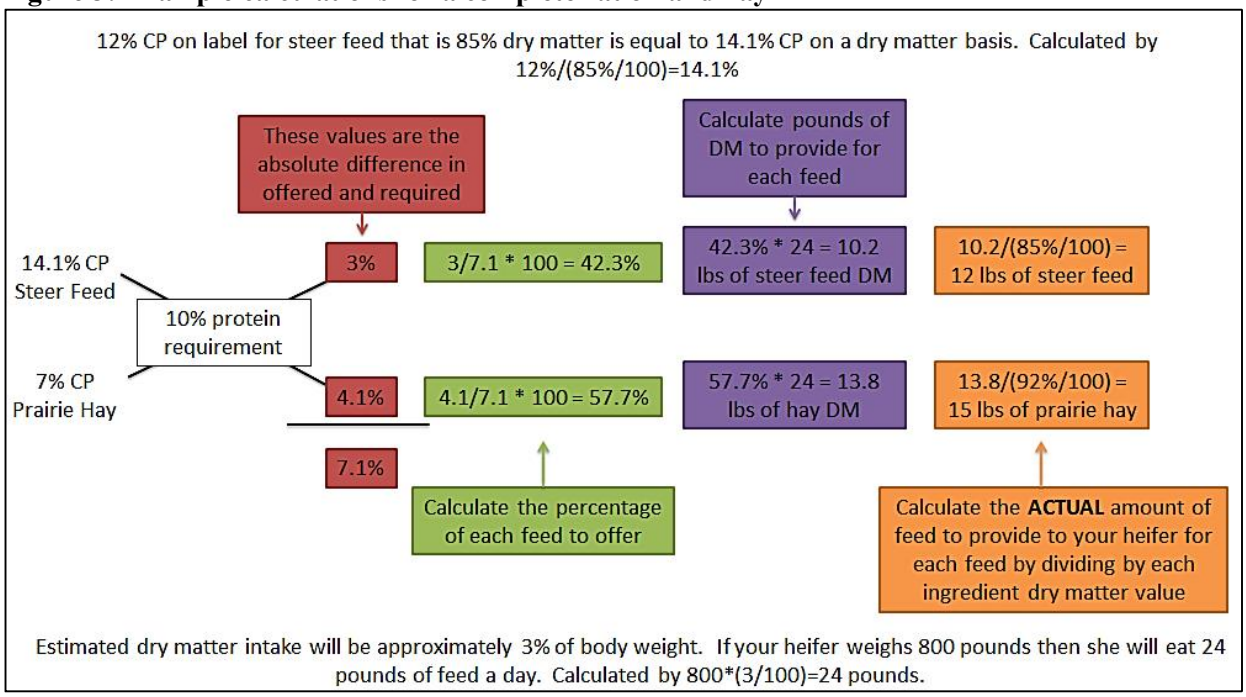
Steps as illustrated in Figure 3.

1. Convert protein and minerals to dry matter basis.
2. Determine requirements for your heifer based on values described in Table 1.
3. Calculate amounts to feed using cross-square values.
4. Determine dry matter intake and total pounds of each feed.
5. The calculations that were illustrated in the example are similar to what can be done with your bred heifer and your cow once she begins lactating.

Breeding to Calving

The first thing to be concerned with at breeding is that your heifer has the opportunity to cycle and be able to be bred. This is accomplished by making sure your heifer is the appropriate weight (~60% of mature weight), appropriate body condition (score of 5-7), and old enough to have reached puberty. From an age standpoint most heifers are able to be bred between 15 and 18 months so that they will calve at 24 to 27 months of age. Research shows that heifers that calve at two years of age will produce one extra calf in their lifetime, which will generate a greater profit from that cow. It is important to remember that the goal of a show heifer is for her to become a successful brood cow that will return a profit.

Figure 3: Example calculations for a complete ration and hay



More often than not, show heifers will have adequate body condition at breeding and this often corresponds with adequate weight. Therefore, these heifers should be cycling and have a greater chance of breeding success. Choosing the correct sire to breed to your heifer is important. The greatest time for calving risk is observed in first calf heifers and there are several valuable tools to use to help minimize your heiferôs chance of having issues at calving. The most reliable method to reduce calving issues is the utilization of calving ease (CE) expected progeny differences (EPDs) in selection of bulls. The calving ease EPD is the preferred indicator of the service sireôs genetic potential for reduced dystocia in first calf heifers because this EPD is calculated using calving ease scores from the progeny of 2-year-old females and birth weight data from progeny born to dams of any age. The calving ease EPD is a measure of percentage of unassisted births and provides a simple, yet very effective tool to reduce dystocia concerns. Currently, not all breeds associations utilize a CE EPD, so the next best measure is birth weight (BW) EPD. Birth weight EPD is expressed in points, and is the expected birth weight deviation of calves from this sire, excluding maternal influence. For example, is a bullôs BW EPD is +4.5 then on average his offspring should weigh 4.5 pounds more at birth than a bulls with a BW EPD of a 0. *Accuracy* is another important measure to evaluate when selecting sires for breeding replacement heifers. Accuracy is the amount of confidence a producer can place in that specified EPD. The higher the value the more confidence you have in that sire. Young, unproven bulls have low accuracy values, while older bulls with lots of progeny data reported will have higher accuracy values. Using a high accuracy bull will help minimize the ñRussian rouletteò risk of using the wrong sire and increasing calving difficulty.

Prior to breeding it is important that your heifer be vaccinated against reproductive pathogens. This will help maintain the pregnancy by reducing risk of abortion due to viral or bacterial infections. The most common reproductive pathogens to vaccinate against include Leptospirosis, Vibriosis, Bovine Viral Diarrhea, and Infectious Bovine Rhinotracheitis. Also, if you have not protected your heifer against blackleg and the respiratory pathogens of Bovine Respiratory disease, and Parainfluenza, then this is the time to do that. It will not only help protect the cow, but some of the antibodies will be passed via the colostrum to the calf. Working with your local veterinarian is strongly recommended to aid it health protocols for your heifer. It does not matter how good the nutrition is, if an animal is not protected

against pathogen infection, then they will not perform well. That being said, a comprehensive health and nutrition plan are a must for cattle production.

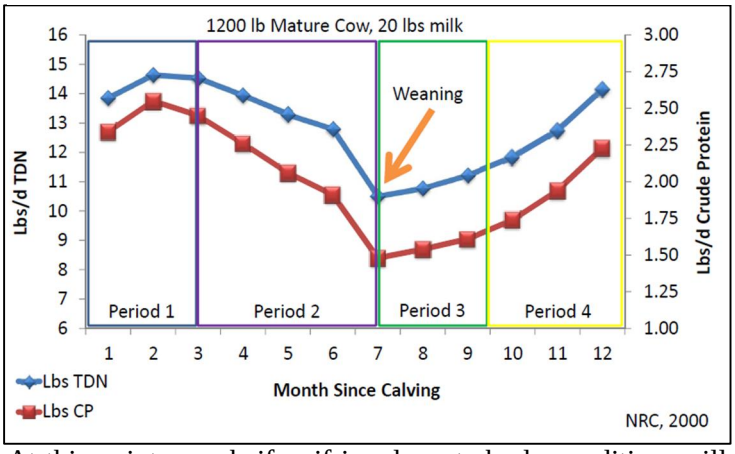
Also, during the period from breeding to calving, heifers need to be growing so adequate nutrition needs to be offered. Also, at this time, the heifers have a fetus which has nutrient requirements that need to be met as well. Heifers need to weight ~85% of their mature weight at calving so a diet that results in weight gain is required once a heifer is bred. From a nutrition and diet standpoint, that month before calving is the most important one to provide adequate minerals, vitamins, and energy. These are needed to help the heifer to maintain strong contractions to expel the calf, and improve the quality of the colostrum. Colostrum is the ñvaccinationò for the baby calf and needs to be rich in nutrients to minimize the risk of the baby calf getting sick before they are old enough to vaccinate. Some specific nutrients of concern prior to calving include calcium, selenium, zinc, and vitamin A. Vitamin A specifically can help minimize the chance of calf scours, in which calf scours are one of the primary reasons for calf death in cow-calf operations.

Post calving to breeding

Since heifers have never been through labor before, they might not transition into becoming a mom very easy, especially a show heifer that has limited to no pasture exposure. It is important to make sure your heifer calves in an area where you can easily move her to the chute (if she has trouble) or to a small pen to facilitate the bonding of mother and calf. It is VERY important to make sure the baby calf has suckled the mother within a couple hours of birth so that they will receive adequate colostrum. If not, then having a colostrum source available will be needed to make sure that calf has the best chance of survival.

A heiferôs nutrient requirements increase dramatically following calving. This occurs because of milk production. Producing milk is a high energy endeavor and nearly all cows will lose body condition after calving. As illustrated in Figure 4, 2-3 months after calving is when the highest nutrient requirements occur and it is important that your heifers receive adequate feed supplementation at this time. Another important even that occurs when peak lactation does is breeding. The first-calf heifer is the cow that is the most likely to not rebreed, primarily because adequate nutrition was not offered following calving. If you remember, earlier it was mentioned that at calving a heifer needs to be ~85% of her mature weight, that means that while she is milking, raising a calf, and needing to rebreed, she is still growing. All these combine to significantly increase nutrient requirements. Since the first calf heifer needs a lot more nutrients than other cows, it is a good management decision to place all first calf heifers in a separate pasture where you can supplement them separate from the rest of the herd.

Figure 4: Nutrient requirements by stage of production.



After peak lactation, the cows nutrient requirements are decreased until the lowest point, which occurs at weaning. At this point your heifer, if in adequate body condition, will need limited supplements, outside of a balanced mineral. Nutrition and management for your show heifer to become a financially contributing cow can be complex, so please work with your nutritionist, livestock specialist, or extension agent to help make sure your heifer can have a long, reproductively successful life in your operation.

Table 1. Nutrient Requirements of Breeding Cattle

			Diet Nutrient Density						Daily Nutrients per Animal			
Wt[a] (lbs)	Gain[b] (lb/d)	DMI[c] (lbs)	TDN (%DM)	NEm (Mcal/lb)	NEg (Mcal/lb)	CP (%DM)	Ca (%DM)	P (%DM)	TDN (lbs)	NEm (Mcal/d)	CP (lbs)	Vit. A[d] (1000 IU)
Pregnant yearling heifers - Last third of pregnancy												
700	0.9	15.3	55.4	0.52	NA[e]	8.4	0.27	0.20	8.5	7.95	1.3	19
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	0.9	16.8	54.8	0.51	NA	8.2	0.28	0.20	9.2	8.56	1.4	21
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[f]	1.8[g]	28
800	0.5	17.6	63.8	0.66	0.39	10.8	0.34	0.24	11.2	9.81[f]	1.9[g]	31
900	0.5	19.2	62.7	0.64	0.37	10.4	0.32	0.23	12.0	10.40[f]	2.0[g]	34
1000	0.5	20.8	61.9	0.62	0.36	10	0.31	0.23	12.9	10.98[f]	2.1[g]	37

[a]Average weight for a feeding period.
[b] 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.
[c] 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.
[d] 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.
[e] Not applicable.
[f] Includes 0.34 Mcal NEm/pound of milk produced.
[g] Includes 0.03 pound protein/pound of milk produced.

BEEF NUTRITION

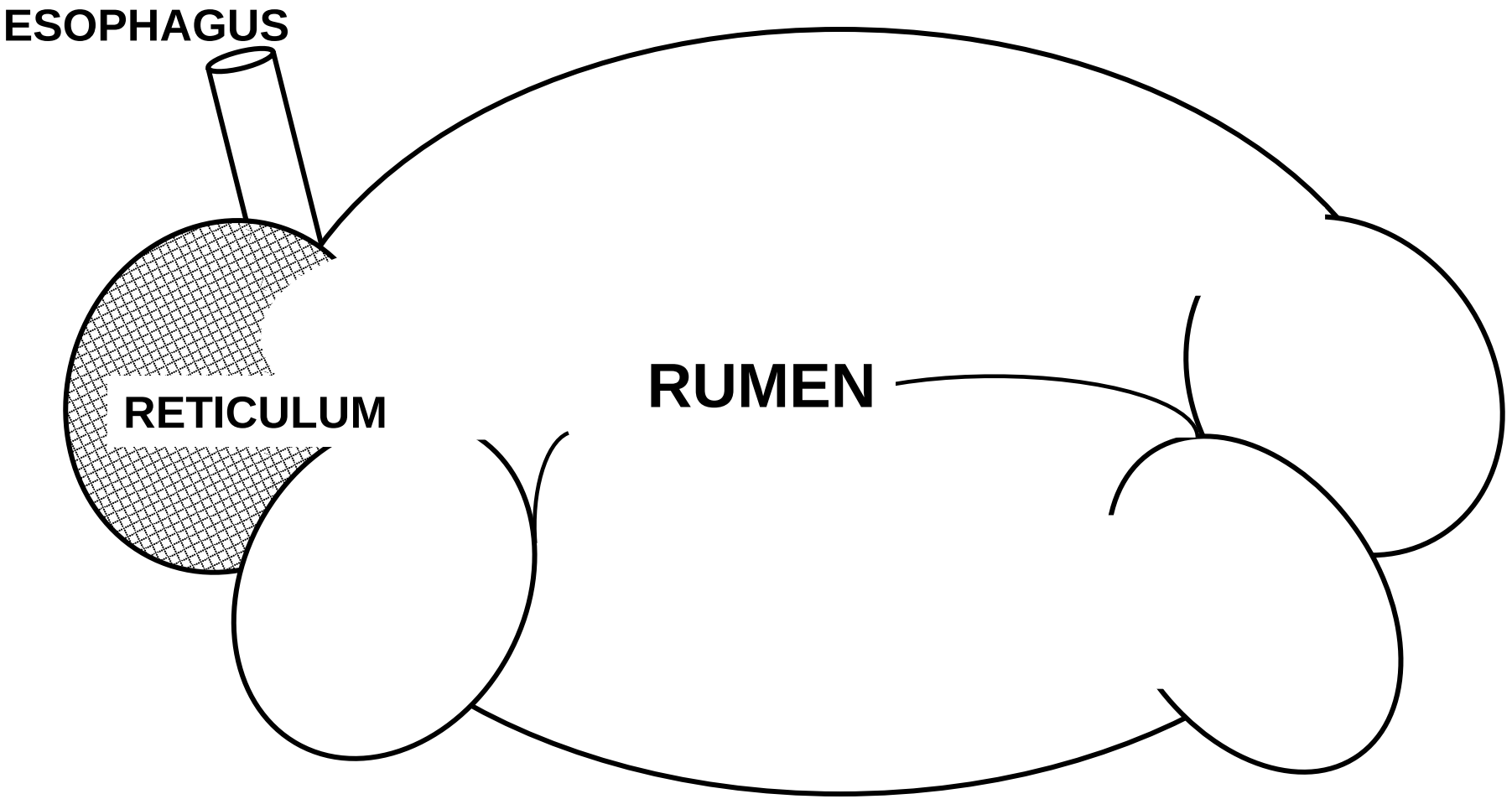
Kansas Junior Beef Producer Day

December 7, 201

Dr. Andrea Sexten

Introduction

- All animals have nutrient requirements for:
  - Maintenance
  - Reproduction
  - A specific level of growth
  - A specific level of work
- Feed is made up of nutrients that an animal needs.
- An animal's nutrient requirements are met when an animal eats enough of the correct feeds.


ESOPHAGUS
RETICULUM
RUMEN

To properly feed an animal you need to know…

1. Needs of the animal
2. What to feed
3. How much to feed

Needs of the animal

6 classes of nutrients:

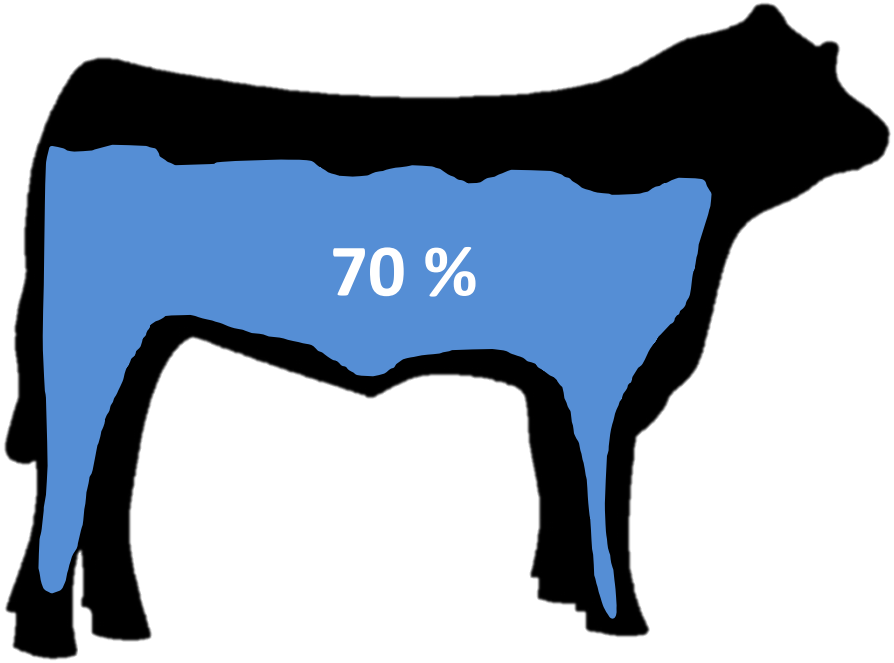
1. Water
2. Carbohydrates
3. Proteins
4. Lipids (Fats and Oils)
5. Minerals
6. Vitamins

Needs of the animal

Water

- Needed in the largest amount
- Animal's body is more than 70% water

Always provide plenty of fresh and clean water!



Needs of the animal

Carbohydrates

- Most important **ENERGY** source for your animal
- Will make up over 80% of your animal's diet
- Will come from roughages (hay) and concentrates (cereal grains)

What to feed

- Roughage
  - High in fiber (> 18%)
  - Lower in energy

- Concentrate
  - Energy
    - Low in fiber (< 18%)
    - High in energy
    - Less than 20% crude protein
  - Protein
    - More than 20% crude protein

What to feed - Energy

- Roughages
  - Provide “scratch factor” for rumen health
  - Generates saliva
  - Can help reduce bloat
  - Ex: Pasture, hay, and silage

What to feed – Energy Concentrates

- Corn
  - Most common feed grain in the US
  - Highest energy value
  - Low fiber
  - Low protein
  - Less than 20% roughage, corn can be fed whole
  - More than 20% roughage, corn should be processed to increase digestibility
  - Prone to mycotoxin contamination if stored too wet

What to feed – Energy Concentrates

- Milo
  - More common in southern US
  - Slightly lower in energy
  - Higher in protein
  - Should be processed prior to feeding (rolled, cracked, etc.)
  - May contain moderate amounts of tannins
    - Reduces palatability
    - Reduces protein digestion

What to feed – Energy Concentrates

- Oats
  - Fewer problems with digestive upset
  - Higher in fiber
  - Lower in energy
  - Higher in protein than most other grains
  - Good for starting young animals on feed
  - Can be used to maintain animals

What to feed – Energy Concentrates

- Barley
  - More common in the northern US
  - Lower energy
  - Higher fiber

- Beet Pulp
  - Very palatable and digestible
  - 85% the energy of corn
  - Higher fiber

What to feed – Energy Concentrates

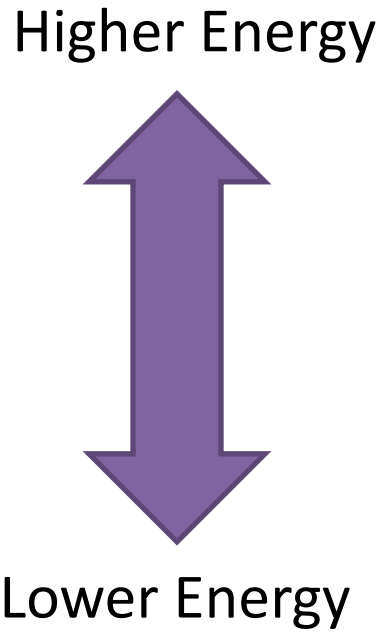
- Relative feed value in a complete diet

Corn

Milo

Barley

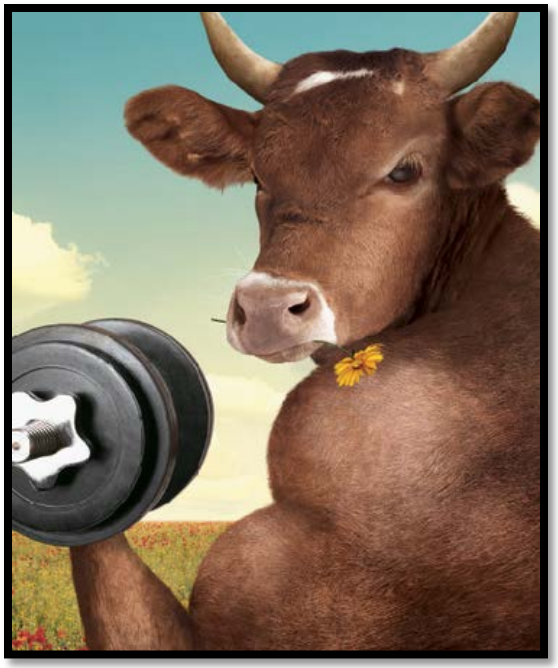
Oats



Needs of the animal

Proteins

- Needed for growth and development of **MUSCLE**
- Your animal will need 12-15% crude protein in its daily diet



What to feed - Protein

- Soybean meal
  - Most common protein source in US
  - Similar energy to corn
  - High in protein (44-48%)
  - Balances nutritional shortcomings of corn

- Cottonseed meal
  - More common in the southern US
  - Lower energy than corn
  - High in protein

Needs of the animal

Lipids

- Includes fats (solids) and oils (liquids)
- Source of **Energy**
- Too much (> 6% of the diet) can cause animal to stop eating
- Can help improve sheen of haircoat

Needs of the animal

Minerals

- Required for growth of animals
- Sodium chloride (salt), calcium, and phosphorus are the most important for a growing beef animal

Vitamins

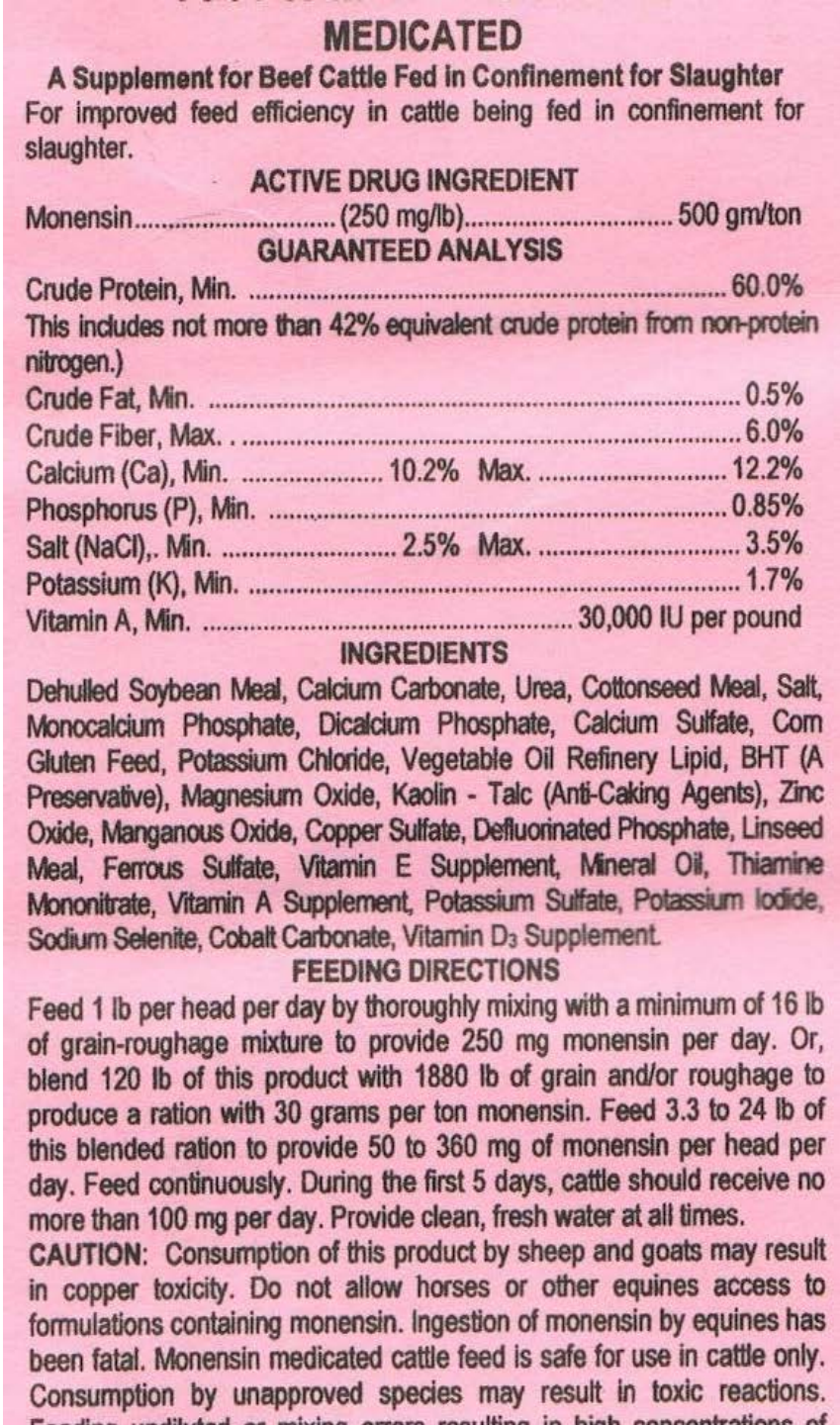
- May be needed: A, D, E, and K

Feed Additives

- Antibiotics
  - Medicine fed at low levels to reduce sickness and improve performance
- Ionophores
  - Can improve feed efficiency by 5-10%
  - Ex: Rumensin (monensin) & Bovatec (lasalocid)
- Beta agonists
  - Promote lean grow
  - Ex: Optaflexx (ractopamine) & Zilmax (zilpaterol hydrochloride)

Reading feed tags

- Product name and purpose
- Drug claim and active ingredient
- Guaranteed nutrient analysis
- Ingredient list
- Feeding directions
- Precautionary statement
- Name and address of manufacturer



MEDICATED

A Supplement for Beef Cattle Fed in Confinement for Slaughter

For improved feed efficiency in cattle being fed in confinement for slaughter.

ACTIVE DRUG INGREDIENT

Monensin.....(250 mg/lb).....500 gm/ton

GUARANTEED ANALYSIS

Crude Protein, Min. 60.0%
This includes not more than 42% equivalent crude protein from non-protein nitrogen.)
Crude Fat, Min. 0.5%
Crude Fiber, Max. 6.0%
Calcium (Ca), Min. ..... 10.2% Max. 12.2%
Phosphorus (P), Min. 0.85%
Salt (NaCl),. Min. ..... 2.5% Max. 3.5%
Potassium (K), Min. 1.7%
Vitamin A, Min. ..... 30,000 IU per pound

INGREDIENTS

Dehulled Soybean Meal, Calcium Carbonate, Urea, Cottonseed Meal, Salt, Monocalcium Phosphate, Dicalcium Phosphate, Calcium Sulfate, Corn Gluten Feed, Potassium Chloride, Vegetable Oil Refinery Lipid, BHT (A Preservative), Magnesium Oxide, Kaolin - Talc (Anti-Caking Agents), Zinc Oxide, Manganous Oxide, Copper Sulfate, Defluorinated Phosphate, Linseed Meal, Ferrous Sulfate, Vitamin E Supplement, Mineral Oil, Thiamine Mononitrate, Vitamin A Supplement, Potassium Sulfate, Potassium Iodide, Sodium Selenite, Cobalt Carbonate, Vitamin D_3 Supplement.

FEEDING DIRECTIONS

Feed 1 lb per head per day by thoroughly mixing with a minimum of 16 lb of grain-roughage mixture to provide 250 mg monensin per day. Or, blend 120 lb of this product with 1880 lb of grain and/or roughage to produce a ration with 30 grams per ton monensin. Feed 3.3 to 24 lb of this blended ration to provide 50 to 360 mg of monensin per head per day. Feed continuously. During the first 5 days, cattle should receive no more than 100 mg per day. Provide clean, fresh water at all times.

CAUTION: Consumption of this product by sheep and goats may result in copper toxicity. Do not allow horses or other equines access to formulations containing monensin. Ingestion of monensin by equines has been fatal. Monensin medicated cattle feed is safe for use in cattle only. Consumption by unapproved species may result in toxic reactions.

To properly feed an animal you need to know…

1. Needs of the animal ✓
2. What to feed ✓
3. How much to feed

How much to feed

- 2 feeding phases:
  - Growing Phase
  - Finishing Phase

How much to feed

- Growing phase
  - Want calf to grow not fatten
  - Usually feed a lower energy diet
  - Typical gains between 1.5 to 2.5 lbs. per day
  - More roughages (50-100% of diet)
  - Limited concentrates

How much to feed

- Growing Steer:
  - Limit concentrate to 1-1.5% of body weight
  - Full feed roughage
- Growing Heifer:
  - Limit concentrate to 0.5-1% of body weight
  - Full feed roughage

How much to feed

- Finishing Phase
  - Promote fattening
  - Usually feed a higher energy diet
  - Higher gains in excess of 2.5 lbs. per day
  - Limited in roughage (20% or less of diet)
  - More concentrates

How much to feed

- Finishing Calf:
  - Full feed concentrate 2-2.5% of body weight
  - Limit feed roughage at 3-5 lbs. per day

How much to feed

- Weigh your animal to track progress
- To slow gain reduce quantity of concentrate or change the amount of energy by using a different grain
- If a ration is working then continue feeding it!

To properly feed an animal you need to know…

1. Needs of the animal ✓
2. What to feed ✓
3. How much to feed ✓

General guidelines…

- Minimize stress during transition
- Start with palatable good quality hay
- Introduce grain **slowly** – no more than 1% body wt.
- Increase grain **gradually** over a week or 2
- Reduce roughage **gradually** – no less than 3-5 lbs. per day to maintain good rumen health

General guidelines…

- Feed regularly – 2 to 3 times per day
- Keep feed bunks clean
- Store feed in cool dry area
- Observe animal regularly
- Always have fresh and clean water available
- Talk to you neighbors

Thank you!

Dr. Andrea Sexten

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WHAT IS A NOMINATION?

In order to show at a state show in Kansas (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. Market/Commercial Beef, Market/Commercial Hog, Market Goat/Commercial Doe, Market Lamb/Commercial Ewe all need nominations submitted by the deadline in order to show at a state livestock show. Registered breeding heifers, registered breeding ewes, and pedigreed/purebred breeding gilts do not need a nomination but do need an official EID ear tag.

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
June 15 Commercial Heifers, Market Lambs, Commercial Ewes, Market Hogs, Commercial Gilts, Market Goats, and Commercial Does.

How do I know what to turn in? The Youth Livestock Program has compiled a list of everything needed by each species.

What is the Nomination Declaration form? The nomination declaration form is required by all families wishing to show at Kansas State Shows. This form states the family name along with who is able to show within that family. In addition, it lists 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 and extension agent/advisor.

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. 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 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. 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 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 $10.00**. This includes, declaration form, missing contact information, breed, sex, date of birth, DNA Envelope, ear tag number, and signatures (exhibitor, parent and agent/advisor).

Where do I get ear tags and DNA envelopes? Ear tags and DNA Hair Sample envelopes can be obtained from your local Extension Office. In the event that your local Extension Office does not have either on hand, please call 785-532-1264 or email clowers@ksu.edu. One type of envelope is available for all species. Be sure to circle the correct specie from which you pulled hair and write the ear tag number on the envelope. DO NOT CUT THE HAIR. DNA must be submitted in an official DNA envelope and must have at least one parent's signature in addition to the exhibitor's.

2013 Kansas Livestock Nomination Checklists:

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

- Nomination Household Declaration Form
- Tag Your Animal by May 1 with Kansas 4-H Electronic Identification (EID) tags.
- Completed Market Beef Nomination form (www.YouthLivestock.KSU.edu) including all contact information and signatures.
- Completed 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 1.

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

- Nomination Household Declaration Form
- Tag Your Animal by June 15 with Kansas 4-H Electronic Identification (EID) tags.
- Completed Commercial Heifer Nomination Form (www.YouthLivestock.KSU.edu) including all contact information and signatures.
- Completed 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 June 15.

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

- Heifers and gilts must be registered in exhibitor's name no later than June 15 of the current year.
- Ewes must be registered in exhibitor's name no later than July 1 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 Breeding Ewes, and Pedigreed/Purebred Breeding gilts.
- Registered Heifers, Registered Breeding Ewes, and Pedigreed/Purebred Breeding gilts *do not* need DNA hair samples

Acceptable Beef EID Tags for Nominations

ANIMAL ID
3720 Gattis School Road • Suite 800, No. 217 • Round Rock, TX 78664
Phone 512-567-1977 • www.WeDNAid.com

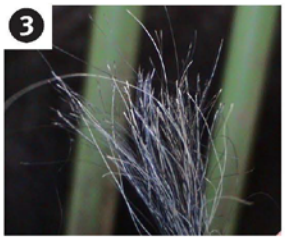
Cattle Hair Sample Collection Instructions

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.

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.



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.

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**

Cattle Hair Instructions.pdf (Rev 05/10)

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 it's 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!

Notes