Health and Nutrition of Show Calves – What You Need to Know

Whether you consider yourself an expert, or you are just beginning a project, there is always something you can learn when it comes to the proper care of your 4-H project animal. All too often people take on steer or heifer projects without any background information. It may look easy, but a great deal of health and nutrition knowledge is needed to take an animal from start to finish, and success in the show ring is rarely achieved the first time around or with the first animal. In fact, it usually takes years of work, learning and experience to produce a Grand Champion, and some people never do. You can spend lots of money to try to win, but you will also need to build your basic knowledge that includes: how to select an animal, how to manage health and nutrition, and how to work with the animal.

Basic Nutrition

All calves require the basic nutrients – protein, energy, minerals and vitamins. It goes without saying that they need water, but you need to make sure that they have clean, fresh water at all times. However, they do require different levels of nutrients depending on some different factors that include:

- **Class, sex or gestational stage of animal** – are you feeding a heifer, cow, bull or steer?
- **Size or age of the animal** – the nutrient needs of younger, smaller calves will be different than those of older, larger cattle. Younger cattle generally require higher protein levels in order to ensure structural growth (bone and muscle) and a lower level of energy (grains or starches and fat), to make sure they don’t lay down too much fat, too early.
- **Breed or Breed type** – genetics is a key factor and some breeds will require a greater intake of nutrients in order to achieve similar results as compared to other breeds. For example: the feeding regimen for a calf with an Angus influence will differ from that of a calf with Charolais influence.
- **Growth or gain rate** – what are your gain objectives? Design your feeding program based on what your plans are for the calf, when they will be shown and what your desired end weight is. Keep in mind also that if you are planning to compete in multiple
shows, your nutrition plan will need to keep up with the pace and be able to help the calf maintain proper body condition for its age.

- **Health and Level of Stress** – Show calves will come into contact with other animals at competitions. Since you have no background information on these other animals, a proper vaccination and de-worming regimen is imperative to the health of your calf. Generally, your calf will come into close contact with other calves, and could become susceptible to infections by organisms they have not been exposed to before, and don’t have any inherent immunity to. Stress due to the environment (weather – cold, hot, dry, wet), and the stress of being handled and hauled, will all have an effect on the health of your calf that will require an increase in nutrients, particularly vitamins and minerals, in order for the calf’s system to compensate.

**Nutrients**

Regardless of the brand of feed you use, the basic nutrients have different functions in the body of the calf, and if you have ever walked down the aisle of a feed store, you will see that there are many feeds that are available and marketed as show calf feeds. The most important thing to learn about what the basic needs of your calf are regarding nutrition is what the functions of protein, energy, vitamins and minerals are, and how to read a feed tag. A brief description of the functions in the calf of the various nutrients:

**Protein** – the building block of the body. Protein is made up of amino acids. These amino acids are broken down during the digestive process and used for body growth and development (muscle and bone), and make up enzymes, hormones, skin, and hair. The correct level of protein is critical for the growth and development of the show calf.

**Energy** – (carbohydrates, fat, and fiber) the “fuel” which controls growth (weight gain), and also controls the function of all the systems in the body. When carbohydrates (starches and fibers) and fat, are broken down, they produce energy. Energy is also released when proteins are broken down. The primary source of energy for a calf is starch, which is the primary carbohydrate in grains like corn, barley and oats. **Fat** is the next most abundant energy source. Almost all feed ingredients contain some fat. Fat can be added to the diet to increase the energy density of the feed and increase weight gain. One pound of fat added to the diet will provide 2.25 times more energy than a pound of corn, but should be monitored carefully. Over-feeding of fat can cause digestive problems (bloat) and can lead to over-conditioning (laying down too much fat). **Fiber** is also a source of energy, but is more difficult to digest and is not your first choice for energy. However, fiber is an important part of the diet, especially in ruminants, because it stimulates the digestive system and helps to keep it active. Fiber also helps to alleviate digestive problems such as bloat or founder, and acidosis.

**Minerals** – There are two groups of minerals. **Macro minerals** - calcium, phosphorus, potassium, magnesium, sulfur, sodium and chlorine (salt), which are required in larger amounts because of their role in body growth (teeth and bones), nerve function, etc. **Micro or trace minerals** - cobalt, copper, iodine, iron, manganese, selenium and zinc, which are required in
much smaller amounts, but are utilized in all parts of the body. Chromium and nickel are also required, but play much smaller roles.

**Vitamins** – Vitamins are similar to the micro or trace minerals and are required in very small quantities. However, they are essential to the normal operation of physiological processes. Vitamins A, D and E are normally the only vitamins supplemented in cattle. Other vitamins such as the B-Vitamins are not usually supplemented since cattle are ruminants, and the bacteria in the rumen normally produce adequate levels of these vitamins for the animal's needs. When feeding a high grain ration, such as is the case with most show calves, you may need to supplement B-Vitamins, as well as C and K.

**Feeding Rations**

There are many options for feeding a show calf. Whether you grow and/or mix your own, or use commercially mixed bagged feed, you need to understand the basic ingredients used in show calf feeds that may include:

**Oats** – commonly used as a main ingredient in show feed rations that are fairly high in protein and sufficient in fiber, and will promote growth without adding excessive condition (fat). Oats can be fed whole, rolled or crimped. Processed oats (rolled or crimped) are more digestible than whole oats.

**Barley** - higher in energy, and will put condition on the calf. Barley is a very good component of a show calf ration, and is normally fed rolled, crimped or steam-flaked.

**Corn** - high in energy and is used as a main ingredient in steer rations. Corn will induce rapid gains, and put on condition. Corn can be added to the show ration as ground, cracked, crimped or steam-flaked. Using processed corn, rather than whole corn, increases the digestibility and availability of the nutrient.

**Alfalfa Meal or Pellets** - used as a source of protein and fiber.

**Cottonseed Hulls** – fiber source that adds texture and palatability to the feed ration.

**Protein Supplements** – protein sources such as soybean meal, cottonseed meal, and protein supplement pellets, may be used, that contain sources such as those listed but may also include some urea. Urea can be used effectively in show cattle diets at low levels.

**By-Products** – feed by-products may include corn gluten feed (protein), soy hulls (fiber), hominy (energy), distiller’s grains (protein), etc. By-products can be effectively utilized in show feeds but you need to understand how to use them to avoid negative side-effects.

**Molasses** – molasses in liquid form is an important part of a quality show feed. It binds (sticks) feed particles together, and makes a ration more palatable.
Managing Feed Ration Intake

Feedings should be divided into at least two meals per day. Feed early in the morning and evening and try to stick to your time schedule, even at the show. Feed approximately half their daily allowance of feed in the morning and the other half in the evening. Some cattle are more difficult to keep on feed than others. Always offer clean, fresh water and at least some good quality hay. Make sure also, that your trough is clean before you add more. Remove contaminants such as manure, or feed that is moldy or wet. But if the feed is clean, do not add more until that feeding is cleaned up.

If a large amount of feed is seen to accumulate, remove this old feed from the trough and dispose of it. Reduce the next feeding amount by a pound or two and gradually begin to increase the amount provided again, until the feed is cleaned up. Never increase the amount of feed provided at a given feeding by more than two pounds per day (one pound in the morning and one pound in the evening). If you give them too much feed after they have backed off or stopped cleaning up their feed, they may come back to the trough and over-eat on the new fresh feed. Over-eating can cause bloat or acidosis.

As mentioned above, clean fresh water should be available at all times. Water troughs should be cleaned weekly and algae should not be present. This is extremely important to the health of the animal. Animals can live for several days without feed however, lack of water, especially in hot weather, may cause serious metabolic problems in a very short amount of time, sometimes in just hours. The amount of feed consumed is closely related to water intake.

It is important to closely monitor how much feed your calf eats, and weighing out the amount you are feeding, or need to feed, is critical. Having a set of scales will come in handy to weigh the amount of feed you offer the calf, especially if you are mixing your own feed. Many people feed their calves based on the volume in a coffee can or a five-gallon bucket rather than weighing it. However, feeds can vary a great deal and most people are not good judges of weight. It is important to keep a log of feed intake, so you can calculate the weight gain at the end of your project.

Managing Show Feedings

Anytime you haul your calf, you will expose him to factors that may cause stress. New surroundings, smells, water, and temperature changes are just a few factors that will affect your calf’s feeding routine. Your animal will be tied to one spot for the entire time you are at an event, except for when you’re preparing for the show or actually in the ring. It is important to expose your calf to being tied before you get to the show. Four to five days before going to the show, begin tying your calf up while he eats. Use the same feed pan you plan to use at the show and get the calf used to being tied and eating out the pan. You will also need to get the calf used to drinking out of a bucket, rather than a trough. Some calves stop drinking at shows, especially if they are used to well water. You may need to bring water with you. A 30 gallon plastic drum with a water spigot screwed into the top comes in handy. The day before you
leave for the show, you want to decrease the feed amounts by 1/2 to 2/3. This will help the calf travel better and reduce stress while hauling. Offer the calf extra hay at this time to offset the decrease in the feed ration. Calves commonly go off feed while at a show. If the calf goes off feed, keep the following things in mind:

- Adjust the lead rope length and make sure to use a neck tie, so the calf has plenty of rope to reach into the feed pan.
- Standing for long periods or lack of exercise can decrease a calf's appetite. Try walking the calf to help stimulate appetite.
- Check to see if the feed needs to be changed (feed tubs can get turned over or might have urine or feces in them), or if the calf has water.
- Don't bother the calf when it’s eating. Don't groom (comb or brush) when the calf is trying to eat.

Show Tips

Your feeding practices will be even more important when the calf is away from home. Pay close attention to the following:

- Feed that is not cleaned up in 30 minutes should be removed.
- Clean/wash feed pans after every feeding.
- Offer feed rations first, then hay.
- Offer clean fresh water after feeding.
- Leave hay in front of tie-outs at night so the calf can eat during the night.
- Stick to the same feeding schedule you use at home.

Once you get your calf back home, get back on the normal routine as soon as possible. Monitor your calf closely for any physical signs of stress or illness. Sometimes they may develop digestive problems that can be addressed with probiotics. Watch closely too, for any signs of upper respiratory stress such as a discharge from the nose that is not clear, or irregular respiration. This may need to be addressed with antibiotics, so be sure to consult with your veterinarian.

If you have further questions regarding your 4-H beef project, you may contact 4-H Agent, Angel Granger, at (850) 482-9620 or amgranger@ufl.edu.