Optimize Health Through Nutrition

This article outlines a plan to optimize herd health through proper nutrition. If you ask a successful cow-calf producer what makes a farm profitable, the answer is usually short and simply stated. Use good genetics, have a marketing plan, feed right, and let the cattle do the rest of the work. The previous sentence contains enough advice to generate at least 200 Ph.D. dissertations.

What is meant by "feed right"? As a veterinarian, I interpret this to mean feed the cattle to optimize health. Other people may interpret the term to mean optimize production. It is important to recognize that feeding for health and production means the same thing only to a point. This point of divergence is often a source of disagreement between the veterinarian and the nutritionist.

The cow-calf farmer must help bring these two people together in cooperative fashion so that "feed right" means optimal health and production.

**Nutrition Tip 1:** Get expert advice you can trust. Cattle are designed, first and foremost, to ingest forage. The forage is utilized by rumen microbes to grow, reproduce, and make nutrients for the animal. The bovine then passes some of the nutrients through and digests the rumen microbes for the remaining nutrients. If you keep the rumen bugs healthy, the cattle remain healthy. Rumen bugs stay healthy by providing good-quality forage in adequate amounts. If the forage meets all the energy, protein, mineral, and vitamin needs, the cattle will be healthy and produce.

**Nutrition Tip 2:** The only way to determine if the forage is of good quality is to test the forage. Most states have laboratories where forage testing is accomplished at a modest price. If the forage is deficient in energy, protein, minerals, or vitamins, production and health will be affected. Obviously, the greater the deficit, the more significant the negative impact.

Many forages will not meet all the nutrient standards for the level of production that you are trying to achieve. For example, the genetics of a herd dictates that calves should reach 725 pounds at weaning; however, average weaning weights are only 600 pounds. Analysis of the forage indicates that it is low in energy. Milk production is limited by energy, which in turn limits weaning weights. To increase energy, a supplement is introduced into the diet.

**Nutrient Tip 3:** Supplementation of forage increases management. A cost-benefit analysis should be done on each supplement based on the expected benefits. Many supplements are necessary to maintain health. Minerals like magnesium or selenium must be provided in areas that are deficient to prevent grass tetany and white muscle disease. Nitrogen for the microbes to generate protein can be provided by urea or poultry litter. Ionophores can be used to increase forage utilization. The list of possibilities is endless. Remember, increased supplementation increases management. Supplements are expensive if they are not needed and can adversely impact herd health if improperly administered. Without a forage analysis, accurate supplementation levels cannot be calculated.

These three tips are basics common to both production and health; however, there are some specific recommendations when you consider feeding specifically for disease prevention.
In addition to the basic principles of nutrition, several key areas deserve additional attention to optimize herd health. The first meal a calf ingests after birth is the most important meal, and an entire article will be devoted to colostrum management. The antibodies derived from that first meal will protect the calf against disease until the calf's own immune system develops. Generally, if the cows are fed a balanced diet the next six to eight months, the calves will need very little additional attention.

The next critical time to look at calf nutrition is at weaning. Due to convenience, many farmers vaccinate calves at weaning. The antibodies that are produced from vaccination are composed of proteins. The cows need to have provided enough protein subsequent to vaccination for the calf to respond adequately. In a fall weaning program in the northern United States, this time period may coincide with inadequate forage quality and quantity. If prevaccinated calves are not performing at the feedlot, special attention should be given to protein contents in the diet prior to weaning.

The diet fed to the calf at weaning is also critical. Diets fed on arrival at the feedlot usually dictate health. Calves remaining on the farm will become breeding replacements or given a diet to prepare for eventual feedlot entry. The calf retained for breeding is the critical animal for the cow-calf ranch. The nutrition of the replacement heifers will determine onset of estrus for calving as close to 24 months as possible. Since these animals are the farm's genetic future, they should be given increased attention and resources to ensure proper protein, energy, and minerals.

During this period the pregnant first-calf heifers need equal attention. If the heifers are not fed adequate protein and energy, they will experience increased calving problems. Calving difficulty will result in calf loss and injury to heifers.

The cows should not be ignored during this period, and evaluation of conditioning will determine the intensity of nutritional management. Cows that are overweight can have difficult calvings.

During the winter months on spring calving farms, the first-calf heifers and cows will be fed stored forages. Failure to provide adequate protein in this period will affect herd health dramatically. Decreased protein in late gestation has been shown to cause decreased gestation lengths and weak calves at birth. Also, protein malnutrition during gestation can lead to low levels of antibodies in the colostrum. Remember, proteins are essential components for building antibodies. Low colostrum quality will lead to an increased level of calf death and sickness. Although additional protein in the diet is expensive, it is unlikely that it will exceed the cost of calf death and sickness.

In summary, quality forage is the key to "feeding right" on cow-calf farms. Testing of forages is essential to determine if supplementation is necessary to prevent disease. Failure to provide a balanced diet with adequate protein levels to breeding animals will result in delayed onset of estrus, infertility, early calving, difficult calving, and poor colostrum production. Balanced diets will provide all the materials for the immune system to build the tools for disease prevention. If a farm is experiencing any of these health problems, professional advice from a veterinarian and/or nutritionist should be sought.