THE DIGESTIVE TRACT

Don't short-change herd nutrition

by Dan Shike, University of Illinois

Calving season is upon us — or right around the corner! I discussed in the last issue that a cow-calf operation's profitability was largely dependent on feed costs. However, nutrition prior to calving through the breeding season is critical for reproductive success and to ensure that the newborn calf gets a good start. So, now is not a time to skimp! I don't want to sound like a broken record, but understanding and managing the changing nutrient requirements of your cow herd is critical to success.

Again, the key to a successful nutritional management program is matching feed resources to cow requirements. You should *always* have your forages tested, but precalving through breeding is without question the most important time.

As a cow goes from 60 days precalving to 60 days postcalving, her energy requirement increases 35%-40%. A small part of this is met by her ability to increase her intake, but the majority needs to be met by increasing the energy density of her diet. Depending on calving dates and available forage resources, supplementation of protein and/or energy will be required to meet the increasing needs of the cow.

Match resources

The majority of producers make the decision on calving dates based on weather and forage availability. Shifting calving dates a month or two can significantly alter how peak forage availability matches up with the time of your cows' greatest requirements.

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If other factors dictate a calving season that results in a mismatch of resources and requirements, greater management will be required to ensure cows are in appropriate condition at calving and breeding.

Minimize anestrus

Success in the cow-calf sector is dependent on each cow producing a healthy, live calf each year. To maintain an appropriate calving interval (calve every 365 days), minimizing the postpartum anestrous period is crucial. Thin cows have longer postpartum anestrous periods and thus are much less likely to rebreed in an acceptable time frame the next season.

Cows should be in an ideal body condition score (BCS of 5-6 on a 9-point scale) going into calving. Cows that calve at a BCS of less than 5 are at a much greater risk of reproductive failure during the next breeding season.

Continued on page 44

 continued from page 42

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As calving season approaches (or is underway), take the time to assess your nutrition program. Yes, you need to manage feed costs to stay profitable. However, providing the proper nutrition to ensure cows enter the calving season in ideal condition is a must for long-term success. Research has consistently documented that BCS at calving is a reliable indicator of rebreeding performance.

As I discussed in the last issue, if your cows were thin at weaning time, hopefully you have added some condition during the winter in preparation for the coming production cycle. This is especially important for young females. Research has consistently documented that BCS at calving is a reliable indicator of rebreeding performance.

Now, with that said, caution should be given to making dramatic changes in the last few weeks prior to calving. It is not advised to greatly overfeed in an attempt to add substantial BCS right ahead of calving. The majority of fetal growth occurs during the final weeks of gestation. Thus, if cows are overfed during this time, there is a greater risk for increased birth weight and the potential for calving difficulties.

If you find yourself with a set of thin, young females right ahead of calving, I still recommend increasing the energy being fed to those heifers. Getting those young females into a positive energy balance and adding condition prior to calving will increase the likelihood of reproductive success. Just be aware that if you add substantial weight in the last few weeks of gestation, the potential exists for increased birth weights.

However, underfeeding or restricting cows in the last couple of months of pregnancy can be detrimental, as well. Weak, thin cows also have calving difficulties, and restricting cows during late gestation can lead to smaller or underdeveloped calves at birth. The effects of nutrient restriction during gestation have been widely investigated in the recent decade.

Effects on fetus

The concept of fetal programming is that a nutritional deficiency or environmental insult during gestation can have lifelong effects on the developing fetus. The majority of the work on fetal programming in beef cattle has focused on late gestation. One of the first reported "fetal programming" studies in beef cattle was work out of Nebraska that documented that supplementing protein during the final one-third of gestation to cows grazing winter range improves subsequent calf performance and carcass characteristics (marbling).

There have been several other trials around the country that have investigated the effects of energy restriction, source of energy, protein restriction and trace mineral supplementation to name a few. The results of these trials have varied. In many of the experiments that did not find effects on subsequent progeny (including some of the work here at the University of Illinois), cows used in the experiment were mature cows in ideal body condition and restrictions were mild and short-term.

So how does all of this work apply to your herd?

It depends. There is no doubt that nutrient restriction in the final weeks or months leading up to calving is detrimental to the cow and her ability to rebreed, and it can have lasting effects on her calf. Luckily, the beef cow is resilient. Mature cows in ideal condition (BCS 5-6) are often able to deal with short-term mild restrictions with minimal effects on the calf. Young females and thin cows are likely more susceptible to a nutritional restriction, especially if that restriction is severe or long-lasting.

Although meeting increasing energy and protein requirements prior to and after calving are the most important nutritional considerations, other nutrients should be considered as well. A quality vitamin/mineral supplement should always be part of the nutritional management plan of your cow herd. However, the most critical time is 30 days prior to calving through breeding.

Depending on your forage resources and the region of the country you are in, these needs vary. In some instances producers may want to consider a chelated, organic mineral as opposed to inorganic forms. The chelated minerals have greater bioavailability and are used more effectively by the animal.

Injectable trace minerals are a viable option, as well. The advantage of injectable trace mineral supplementation is that you ensure every cow gets the appropriate dose at the appropriate time. Additionally, some of the traditional ruminal antagonisms that can be problematic are avoided.

Environmental factors

Another factor that should not be overlooked around the time of calving is the environment. Weather can greatly affect nutritional requirements of cattle. The extent to which temperature and precipitation affect requirements depends on facilities and location of cattle. If cattle have shelter, wind blocks and solid ground to stand on, the weather has less effect than if they are wet, have no protection from the wind and are belly deep in mud.

While we know that environment has a significant effect on nutritional requirements, the cow's ability to adapt to her environment is less understood. We do know that taking a set of cows out of Texas and dumping them out in North Dakota in the winter is not a good idea. However, how long it takes cows to adapt and to what extent they can adapt needs further investigation.

As calving season approaches (or is underway), take the time to assess your nutrition program. Yes, you need to manage feed costs to stay profitable. However, providing the proper nutrition to ensure cows enter the calving season in ideal condition is a must for long-term success.

Editor's note: "The Digestive Tract" is a regular column in the *Angus Beef Bulletin* focused on nutrition for the beef cattle life cycle. Dan Shike is associate professor in animal sciences at the University of Illinois.