When And How Much To Feed?
Considerations When Feeding or Supplementing the Cow Herd

By Steve Paisley

As the holiday season approaches, temperatures drop, snow begins to accumulate, and everyone is preparing for the winter months and the upcoming calving season, here are a few considerations, regardless of when calving begins.

1) Providing adequate energy is critical during the winter. Providing that cows have adequate nutrition and are in adequate condition (BCS 5, minimum), for every 1 degree drop in wind chill below 20 degrees, the cow's feed requirements are increased by 1%. Therefore, if effective wind chill is –10 degrees, mature cows would require 30% more additional feed to maintain constant weight during the negative wind chill. Based on typical hay analysis, this ends up being approximately 6–7 lbs of additional hay.

2) Several recent research studies emphasize the importance of proper nutrition during gestation. This includes adequate nutrition during early pregnancy, to ensure proper fetal development, as well as late gestation. Providing adequate energy, protein, and mineral balance during late gestation is critical for getting the cow re-bred in the spring, insuring that calves will get up quickly and nurse, and essential for providing adequate, high-quality colostrum to the calf.

3) If cows are still consuming winter range, or stalks, consider supplementing to minimize any weight loss during late pregnancy, and to have cows in good condition heading into calving. When selecting protein supplements, begin by pricing the supplements per lb of protein. For example, 18% CP alfalfa hay, priced at $80/ton, would provide protein at approximately $0.26/lb of protein. A commercial 32% CP cube, priced at $180/ton, would provide protein at approximately $0.31/lb of protein. Solid blocks, lick tubs, and liquid supplements can also be compared in the same manner, but make sure to calculate everything on a similar dry matter basis, and to consider the amount of supplement required to deliver the same amount of protein/day.

Continued on Page 2
4) Late gestation is a good time to consider sorting cattle into 2 or 3 groups in order to better meet each group’s nutrient requirements. Typically, 1st and 2nd calf heifers are managed separately in order to address their additional requirements for growth, as well as give them a fighting chance to consume the right amount of feed. Consider sorting off thin and timid cows, and managing them with 1st and 2nd calf cows to improve their energy status and overall condition.

5) Managing cattle with their requirements in mind. Energy requirements for gestating cows increases approximately 25 to 30% during late gestation, and another 30 to 35% from calving through the peak of lactation. Adjusting feed amounts delivered will help ensure that cattle maintain condition throughout calving and re-breeding.

Continued studies at the University of Nebraska, as well as the University of Wyoming, have continued to focus on the importance of nutrition during late gestation, especially the last 90 days of pregnancy. For March calving herds, that last 90 day period starts now, in December. These studies indicate both short term and longer term benefits. Short term benefits include more rapid weight gain in calves, and improved carcass quality. Longer term benefits indicate that gestational management impacts when heifers reach puberty, and overall fertility. Strategic, cost-effective management of the cow when the cold weather hits can have lasting benefits.
Economic Impact of Youth Livestock Projects

Lance R. Miller

The goals of our 4-H programs often times center around the development of life skills that will help the youth involved become better citizens, leaders, and volunteers. While these goals are important, it is often times equally important to justify our programs to those who financially support them. Having information that shows how 4-H programs have an economic impact on our communities and state can help show a “return-on-investment.”

The Impact Analysis for Planning (IMPLAN) software is a method to calculate the economic impact of your local 4-H livestock projects on your region. The software not only takes into account the direct spending of the 4-H members (livestock purchases, feed, veterinary expenses, etc), but it also measures the total economic impact of the spending of the vendors.

It is easy for those of us involved with 4-H to see the impact livestock projects have on youth. It is more difficult to show those life-skill benefits to those who question if the financial support is justified. The IMPLAN approach could make it possible to show the economic impact, or return-on-investment, of that financial support.

Here is a link to a Journal of Extension article discussing the Economic Impact of Youth Livestock Projects:


Here is a link to the IMPLAN software website:


Here is a link to the research article on the economic impact of FFA livestock Supervised Agricultural Experience projects in Texas (pgs 135-147):

http://aaaeonline.org/uploads/allconferences/
The impact of wind. . .

By Steve Paisley

As the winter drags on and calving begins, I thought it might be worth discussing something that we fight, cuss, and endure every day. The wind. It’s important to discuss some of the obvious things, such as the impact of wind on coldness, or wind chill, and also it’s impact on the nutritional requirements of livestock. But I think we also need to think about wind’s other effects – such as the impact of wind on feed intake, calf vigor, and colostrum intake. If we believe that the wind affects the calf’s ability to get up and nurse, then certainly the wind is impacting not only nutritional requirements, but immune transfer and herd health as well.

1) Wind speed and lower critical temperature. Cattle with a heavy winter hair coat certainly have the ability to withstand very cold temperatures. However, as the coldness, or wind chill, decreases, the amount of energy they use, just to maintain normal body temperature, goes up. Most information suggests that the lower end of a cow’s comfort zone is 20°F. This means that as long as the wind chill is above 20°, the cow, heifer, feedlot steer, yearling, etc. is not using any additional energy to stay warm. Once the animal drops below 20°F, their energy requirements go up. Table 1 shows how wind speed (vertical column) dramatically affects wind chill. For example, if the temperature is 20°F outside, but there is a 20 mph wind, the effective temperature, or wind chill, is -1°.

The rule of thumb is, for every 1 degree below 20°, the cow’s energy requirements increase by 1%. This means that on a day when wind chill is -5°, the cow’s requirements have gone up approximately 25%. In feed terms, this roughly translates to another 4.5 to 5.0 lbs of alfalfa hay to meet that additional requirement. Certainly wind breaks and shelters reduce the effective wind speed, so the value of these windbreaks, expressed as feed savings each winter, are valuable and economical investments.

2) Wind and cold impacts digestibility and feedlot performance. Kansas State data suggests that feed digestibility and feedlot performance is affected during cold weather. Based on their prediction equations, the same -5° day could mean as much as a 25% decrease in performance for that day. This number sounds pretty formidable, but if we average these cold days over the entire feeding period, the overall, or average, impact is reduced.

Continued on Page 5
3) **Impact of wind on feed intake.** This is an issue that we discuss quite a bit, but is very difficult to measure. Wind impacts not only how well cattle come to the bunk, but it also may impact the quality of the feed. If we are feeding on the ground, wind will often affect the amount of hay waste, of hay that is not consumed. Often the fines and leaves are blown away, impacting the overall feed quality consumed by the animal.

4) **Impact of wind on immune transfer and calf immunity.** This is the area that I think we often overlook when thinking about the impacts of wind. I'll start with the obvious, and then speculate. We know that the calf receives a majority of its ability to fight disease through the transfer of immunoglobulins, or Ig, from the colostrum. Previous studies (Wittum and Perino, 1995) suggest that the transfer of IgG to calves is critical for their future health. This study in particular showed that calves with adequate colostrum (greater than 16 mg/ml IgG) had only a 5% sickness rate as calves. Calves with low colostrum intake (less than 8 mg/ml) had a 25% sickness rate as calves.

Colostrum intake is impacted by both the amount of colostrum produced by the cow (previous nutrition and management), as well as how much, and how quickly the calf nurses after he is born. We have actually measured the IgG levels in our calves at the University of Wyoming, finding that even though we closely manage our cows during calving, we still have approximately 40% of our calves with low (below 8.0 mg/ml) IgG levels. In our case, it’s made us re-evaluate how we manage during calving, and the importance of double-checking to make sure calves are up and nursing.

Wind and cold are a fact of life for cow herds in this region. Everyone has fought the wind for years, and wind remains one of the constants that we can bank on. I guess the more important issue is to recognize the impact of the wind, and maybe make a few small management decisions to minimize its impact on the cow herd. Windbreaks and shelters have a dramatically reduce the effect of wind on the herd. Considering wind direction when feeding, placing bunk lines and shelters, adjusting feed during cold and windy spells to match requirements, and providing and moving bedding areas are also considerations that will positively impact the herd.