Manage Hay Supply to Reduce Waste and Cost

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Feeding the cow-calf herd is likely to be more expensive this coming winter than anticipated last spring. Several areas of the state are experiencing dry weather, and both the quality and quantity of hay have been reduced. Thus, producers should be judicious in planning and carrying out the management of feeding their cow herd this winter.

One of the big cost items in winter feeding is wasted hay. Up to 30 percent of the hay fed to cows during the winter is wasted as a result of their having unlimited access to the hay fed in large round bales.

Wasted hay can be reduced by improving feeding management. The cattle must be fed and managed to reduce waste and therefore decrease cost. It is difficult to secure an estimate for the price of hay, but it can be expensive, ranging from eighty to one hundred dollars per ton. If the price is one hundred dollars per ton and a producer has 30 percent waste, the ton of hay has increased also in cost up to $130 per ton. Normally, approximately 1.5 tons of hay can meet the winter feed needs of a mature cow. The winter feed bill increases $60 per cow when waste is included because two tons of hay are required to winter a mature cow. For decades, the recommendation has been to feed hay in a way that limits the cows’ access to the hay. Research conducted during the past two decades at different locations across the country has demonstrated that certain types of feeders can reduce waste, some more than others.

Probably the most referenced research was that conducted by Michigan State University in which four types of hay feeders — cone, ring, trailer, and cradle — were tested. All of the feeders allowed approximately 14.5 inches per animal. Dry matter hay waste was 3.5 percent, 6.1 percent, 11.4 percent, and 14.6 percent for the cone, ring, trailer, and cradle feeders, respectively. The differences in the cattle’s behavior at the feeders may explain the differences in wastage. Cows eating from the cradle feeder experienced about three times as much butting and displacement and four times as many entrances compared to cows feeding at the other types of feeders. The researchers reported that the slanted bar designs encouraged the cattle to keep their heads in the feeder for longer periods.

Normally, when cattle are given unlimited access to large round bales (LRB), a large percentage of the hay will be wasted. Texas A&M trials showed that feeding LRB as free choice resulted in 24 percent hay loss, and Purdue workers reported up to 30 percent loss.

Larry Moorehead, Extension agent and county Extension director in Moore County, has conducted numerous demonstrations that measured hay waste. He reported a loss of less than 1 percent when cone feeders were used. This loss is quite a reduction in waste and the cost of feeding.

Research from North Dakota evaluated the effect of feeding methods on the performance of mature beef cows. The methods of feeding included (1) rolling round bales out on the ground, (2) a PTO-driven round bale processor that shredded round bales into windrows, and (3) a tapered-cone round bale feeder designed with a center tapered cone, creating a manger around the inner circumference of the feeder. Pregnant cows were fed for 58 days to document hay waste and cow performance, which included weight gain, gain in body condition, and the amount of hay consumed.
The ending weight of cows eating at the tapered-cone feeder increased, body condition score increased, and they used less hay. From an economic standpoint, using the tapered-cone feeder offered a substantial cost savings per cow, which was a result of reduced hay usage and less equipment operating time. Using a PTO-driven bale processor to shred the bales into windrows before feeding was the most expensive method due to the higher equipment costs and greater hay loss per cow compared to using a tapered-cone bale feeder. Rolling bales out on the ground or shredding them into windrows with a bale processor both resulted in increased hay usage and winter feeding costs without enhancing cow performance.

Some hay will always be wasted during feeding and storing. However, these losses can be reduced by employing good feeding management practices. This winter might be a good time to improve management to reduce hay wastage. Remember, hay wasted is profit lost.

Creep Feeding Calves: Is It Worth the Cost?

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During this time of year, most calves born in the spring no longer depend solely on nursing for all of their nutritional needs for growth and development. Most of them are learning to graze as the rumen has developed enough to convert forage fairly efficiently and contribute to the overall development and growth rate of calves. Some years the summer and fall forage is adequate enough to help calves meet their full growth potential, whereas in other years, forage availability is not adequate for growing calves. Thus, some producers creep feed calves using a commodity feed or grain to increase weaning weight since most cow-calf producers are in the business of marketing pounds.

Producers may ask a number of questions regarding creep feeding. However, from a marketing and money-making standpoint, the most important question is whether the value of gain is greater than the cost of gain. In other words, does it cost more to put weight on calves than the weight is worth? Often, creep feeding calves is beneficial during times when calf prices are high, feed prices are low, forage availability is low, the quality of forage is poor, or any combination of these factors.

The greatest variability in this decision may lie in feed conversion, or how many pounds of feed it takes to put 1 pound of gain on the calf. Feed conversion in calves is highly variable. It may be as low as 5:1 (5 pounds of feed for 1 pound of gain) to as high as 15:1. The variability is largely due to the cow’s ability to provide enough protein and energy through milk production and forage availability. Therefore, calves on cows with low milking ability will likely have a better feed conversion rate. Similarly, conversion rates will be more favorable when forage availability is limited compared to periods of time when adequate forage is available.

So, the question for producers is should they creep feed their calves or not this year? Here’s how a producer can answer this question for their particular operation. Assume the feed conversion rate is 8:1 and that a ton of feed costs $250.00 per ton, which is 12.5 cents per pound, and that consumption is 4 pounds of feed per day for a ninety-day period. In this scenario, the cost of gain is $1.00 per pound from creep feeding. Over the ninety-day creep feeding period, calves will gain 45 additional pounds, resulting in a total cost of $45.00 per head. Assuming the calf weaned at 525 pounds without creep feed and sold for $216.00 per hundredweight, then he would have brought $1,134.00, whereas the creep fed calf would have weighed 570 pounds and sold for a price of $208.00 per hundredweight, resulting in a total value of $1,185.60. Thus, creep feeding added an additional $51.60 worth of revenue (value of gain = $1.15 per pound) while costing $45.00 and resulted in a net gain in value of $6.60 per head.

The additional value gained from creep feeding in this case supports the idea of creep feeding, but the added value is not so overwhelming to convince a producer to creep feed calves. The decision to creep feed is largely dependent on the feed conversion rate and feed cost. It is generally fairly easy to calculate supplemental feed costs. However, it is more difficult to establish an accurate feed conversion rate since it can depend on forage quality and availability. The greatest benefit to creep feeding is generally realized if calves are marketed at weaning. However, research has shown that fed cattle that were creep fed as calves for at least eighty days have increased marbling at time of harvest. Thus, creep feeding adds an additional $51.60 worth of revenue (value of gain = $1.15 per pound) while costing $45.00 and resulted in a net gain in value of $6.60 per head.

The bottom line is that creep feeding is a year-to-year decision, and it tends to be most favorable when cattle prices are high, grain prices are low, forage quality is poor, and forage availability is short. The decision to creep feed fall-born calves may be easier than the decision to creep feed spring-born calves, since creep feeding fall-born calves would generally take place during winter months.

Educational Programs to “Add Value” to Beef Through Direct Marketing

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In recent years, an increased number of Tennessee cattle producers have been considering finishing, harvesting, processing, and marketing in addition to
Along with other agencies and organizations, the enterprises have discovered many challenges. Early developers of such value-added publications and other educational resources are available have been developed in support of the program. The Tennessee Value-Added Beef Program has leadership in four primary areas: (1) Production, (2) Processing and Meat Quality, (3) Marketing, and (4) Cost Analysis. These workshops address issues such as the permit and inspection requirements for making farm-based retail meat sales such as at farmers markets and direct from the farm. They also provide instruction about label approval and protocols when special marketing or production claims are made. Other topics addressed include cost analysis, break-even projections, and production possibilities for grass-fed and grain-finished systems.

The program has already reached a total of 1,579 participants. Additionally, more than 370 people are registered for the “Value-Added Beef” email group to receive email blasts with information about beef marketing and upcoming educational events. Those interested in joining the group can automatically subscribe to receive emails with information regarding upcoming educational events and available resources by sending an email to TN-Value-Added-Beef+subscribe@googlegroups.com. Participants may also submit questions to the group or answer questions asked by other group members.

Since October 2011, six different educational workshops have been offered in 29 counties. These programs are made up of a series of small, efficient and affordable educational workshops and online webinars. The program is designed to track and document enterprise analysis and business development issues in order to capture both decisions to be made and the results thereof. The program has leadership in four primary areas: (1) Production, (2) Processing and Meat Quality, (3) Marketing, and (4) Cost Analysis. These workshops address issues such as the permit and inspection requirements for making farm-based retail meat sales such as at farmers markets and direct from the farm. They also provide instruction about label approval and protocols when special marketing or production claims are made. Other topics addressed include cost analysis, break-even projections, and production possibilities for grass-fed and grain-finished systems.

To date, 53 educational sessions and online webinars have been conducted in 29 counties. These programs have already reached a total of 1,579 participants. Additionally, more than 370 people are registered for the “Value-Added Beef” email group to receive email blasts with information about beef marketing and upcoming educational programs. Those interested in joining the group can automatically subscribe to receive emails with the information regarding upcoming educational events and available resources by sending an email to TN-Value-Added-Beef+subscribe@googlegroups.com. Participants may also submit questions to the group or answer questions asked by other group members.

Since October 2011, six different educational workshops have been offered in 23 counties: “Scratching the Surface,” “Tennessee Value-Added Beef 101 On-Farm Workshops,” “What You Should Know About Beef Quality and Meat Cuts,” “Production and Cost Considerations for Finishing Animals for Direct Marketing,” “Beef Safety 101” and “Basic Regulations.” In addition, eleven Extension publications and reports have been developed in support of the program. The publications and other educational resources are available online at: ag.tennessee.edu/CPA/Pages/VABeef.aspx. Other agencies and organizations involved in the Value-Added Beef Program include the Tennessee Beef Industry Council, Tennessee Cattlemen’s Association, Tennessee Department of Agriculture, Tennessee Farm Bureau Federation, and UT AgResearch. Additional information is available at ag.tennessee.edu/CPA/Pages/VABeef.aspx.

### Fall Fertilization of Pastures and Hayfields

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**Director**  
**UT Beef and Forage Center**

A key component of a successful forage production program is a fertilization plan. To produce forage for grazing or hay, the nutrients that plants need must be provided in adequate quantities. Usually, fertilization occurs in the spring. However, there are many reasons to consider applying fertilizer in the fall.

1. **A stockpile of tall fescue can be made.** Applying nitrogen in the fall to tall fescue can increase the growth for grazing during the winter and can reduce hay feeding one or two months.

2. **Fertilizer is cheaper in the fall.** Often, the price for fertilizer is cheaper during the fall compared to spring. Because it is a slower season, fall may also ease the burden of fertilizing.

3. **Only one application is needed if clovers are used.** If clovers are utilized in a tall fescue, no nitrogen is needed during the spring. Only one fertilizer application is needed each year because all of the potash and phosphate required for a year can be applied at one time in addition to the nitrogen for stockpiling.

4. **The cold tolerance of bermudagrass can be improved.** Since Tennessee is on the northern border of the adaptation of bermudagrass, winterkill for most of the bermudagrass in the state may occur. Applying potash and phosphate in the fall will help improve the cold tolerance of bermudagrass.

The following are points to remember when fertilizing in the fall:

- **When to fertilize:** For stockpiling tall fescue, fertilize after the fall rains begin, when the fescue has begun to regrow after the summer heat and drought. Graze or clip the pasture to remove all summer growth from the field.

- **How much to fertilize:** For stockpiling tall fescue, use approximately 60 pounds of nitrogen per acre. Test soil samples in the fall to determine the fertility status of your pastures. The results will indicate which nutrients are needed and how much to apply. Not testing the soil will require you to guess, which may lead to unnecessary costs and inadequate nutrient application.
What to fertilize with: When trying to determine the best type of fertilizer to use, the biggest consideration is the form of nitrogen. The two main types of nitrogen fertilizer used in Tennessee are urea and ammonium nitrate. Urea is 46 percent nitrogen, whereas ammonium nitrate is 34 percent nitrogen. For fall fertilization, it is best to use ammonium nitrate because of the greater potential for nitrogen loss with urea. Nitrogen from urea can be lost to the atmosphere as ammonia when conditions are hot with moderate moisture. Temperatures 75 F or above with high soil pH and moisture can cause a loss of 20-30 percent of the nitrogen from urea when applied to the soil surface and not incorporated by rainfall, since all of the nitrogen is in ammonia form. If urea is used for fall fertilization, it is best to apply it when rain is expected within two to three days, or use a urease inhibitor to delay conversion of the urea to the ammonium form.

Fall fertilization is a management tool that can be utilized on cattle farms in Tennessee. Because phosphate and potash are stable in the soil, a once-a-year application is adequate. Applying these nutrients in the fall also fits well with stockpiling since nitrogen can be added with the potash and phosphate to make a balanced fertilizer application. Consider applying fertilizer this fall and using clovers next spring to provide the nitrogen needed for a forage production program.

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Beef Cattle Time
From:

Leader/Agent

Visit the UT Extension website at utextension.tennessee.edu.