

OFF THE HOOF

KENTUCKY BEEF CATTLE NEWSLETTER OCTOBER 2019



University of Kentucky
College of Agriculture,
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Cooperative Extension Service

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University of Kentucky

Beef IRM Team

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Timely Tips

Dr. Les Anderson, Beef Extension Professor, University of Kentucky

Spring-calving herds

- Schedule a pregnancy examination of cows if not done previously. Winter feeding costs can be minimized by eliminating open cows prior to winterfeeding. Pregnancy status (pregnant versus open) can be determined using palpation, transrectal ultrasonography, or blood sampling. Stage of pregnancy can only be determined by palpation or ultrasonography (performed by your veterinarian).
- Evaluate the body condition of your cows and improve their condition prior to winter. It takes about 75 pounds to increase body condition a full score.
- If you have already done a preweaning working, revaccinate (booster) calves as needed. Treat calves for internal and external parasites. If you vaccinate calves yourself, be sure to store, handle and administer vaccines properly.
- Wean calves before cows lose body condition.
- Obtain weaning weights of your calves and remember weaning is the time to do your first round of culling and selecting breeding stock. You can eliminate obviously inferior calves, especially those with wild or nervous dispositions. Consider the number of heifers that you will need to save for your cow herd. Bulls that are old, unsound, roguish, etc. can be culled now. It is not too early to begin thinking about replacements now.

Fall-calving herds

- The calving season should be in full swing for fall-calving cows. Check cows frequently. Identify calves and commercial males should be castrated and implanted.

- Put fall-calving cows on accumulated pasture before the breeding season. Until recently, this had generally been a good year for moisture. Be sure to save some grass in the breeding pastures.
- It is time to get everything ready for the fall-breeding season, too. Line-up semen, supplies, etc. now and get your bulls ready to go (don't forget their breeding soundness evaluation).
- Obtain yearling measurements (weight, hip height, scrotal circumference, etc.) on replacement animals—especially for registered ones, check pelvic areas, too.

Stockers

- If you are purchasing weaned/stressed calves, have your receiving/feeding program in place. Feed a stress ration which contains at least 13% protein and is fairly energy dense.
- Manage to keep newly weaned and/or purchased calves healthy. Calves should be penned in a small lot with adequate feed, water and shade to reduce stress. Careful handling and comfortable, uncrowded conditions can decrease stress.
- When newly-weaned calves are purchased in the fall, sickness and death loss can be a big problem. Work with your veterinarian on a health and receiving program. Consider purchasing CPH-45 feeder calves that are preweaned, vaccinated, bunk-adjusted and treated for parasites.
- Watch calves closely for a few weeks after their arrival. Have a treatment program ready for any health problems. Early recognition of sick cattle improves their chance of recovery. Watch for drooped ears, hollow appearance, reluctance to rise, stiff gait, coughing and dull or sunken eyes. A good “receiving” program is essential to profitability.

General Reminders

- Avoid prussic acid poisoning which can happen when frosts rupture the plant cells in sorghums, sorghum-sudan hybrids, sudangrass and johnsongrass releasing prussic (hydrocyanic) acid. Fields can be grazed after the plants have dried up after a frost. New growth that occurs in stalk fields is potentially dangerous whether frosted or not.
- Take soil samples for soil analysis to determine pasture fertility needs. Apply phosphate, potash and lime accordingly.
- Test hay quality and make inventory of hay supplies and needs. Make adjustments now - buy feed before you run out in the winter.
- Do not harvest or graze alfalfa now in order for it to replenish root reserves.
- Remove fly-control eartags from all animals, dispose of according to instructions on package. Treat for grubs/lice.

Searching for Opportunities

Kevin Laurent, Beef Extension Specialist, Princeton Research and Education Center, University of Kentucky

To say that 2019 has been a challenging year would be a huge understatement. From the excessive rain the first half of the year, to the drought and depressed markets of late, 2019 will definitely be remembered as one of those years much like 2007, 2009 and 2012. Like most challenges in life, there always seems to be an opportunity if we just look hard enough. Some may think these so called opportunities are dressed in camouflage and I wouldn't dare argue with you. However, there have been a few positive signs recently with the market trending higher and many areas receiving some rain. Although we are far from out of the woods on either front, there are a few strategies we can use to minimize losses now and improve our situation in the near future.

1. **Wean the calves and precondition them prior to sale.** Markets continue to reward weaned calves and preconditioning budgets look very favorable at this time. Two common preconditioning mistakes are not feeding enough concentrate and feeding poor quality hay. For short term feeding programs (<100 days) calves need to gain better than 2.5 lbs. per day to have the best chance of return. Feed the calves hay that is greater than 10-12% protein along with a 14% protein concentrate feed. Concentrate should be fed at a rate of at least 2% bodyweight. Also consider extending the feeding/preconditioning period to 60-90 days prior to marketing to increase pay weights. Finally, sell these calves in a CPH-45 sale or similar type sale where there will be other preconditioned calves. If you have never weaned calves before, talk to your local county ANR extension agent or KBN facilitator about enrolling in the new **PVAP-Precondition** program.
2. **Shut the gates and rest your pastures.** Closing gates and preventing the herd from roaming will allow the remainder of the farm to rest and recover prior to winter and will reduce the chances of cows eating noxious weeds that they would not normally consume. Concentrate the herd in either a drylot or better yet in a paddock or field that is low in fertility. Remember, roughly 80% of what a cow eats is excreted as manure and urine, so concentrating and feeding the herd on a weak pasture can serve to fertilize that area. For more pasture tips see Dr. Teutsch's article on "Reviving Drought Stressed Pastures".
3. **Test your hay and begin feeding dry cows.** Dry cows in mid – gestation have the lowest nutrient requirements of any class of cattle on the farm. Feed the lowest quality hay to dry cows at this time. Hay that is greater than 8% protein and 48-50% tdn will maintain or add condition to dry cows. To be sure, enter your hay test results in the **UK Beef Cow Forage Supplement Tool** (<http://forage-supplement-tool.ca.uky.edu/>) to easily determine your supplementation needs. If you are running short on hay, consider limiting the time that cows have access to the hay (6-8 hours) or unroll a set amount of hay each day. Realize that this is a viable option only when cows are in good condition (body condition score 5 or above) and hay quality is good. Do not consider this strategy if cows are thin and/or hay quality is poor.

These are just a few of the strategies that can be employed during these challenging times. For more information always remember to contact your local county ANR extension agent or KBN facilitator. In the meantime, let's pray for higher cattle prices, adequate rain and a late winter.

Stalks and Syrup

Dr. Jeff Lehmkuhler, Associate Extension Professor, University of Kentucky

This fall many producers are questioning if they will have enough hay to get through to spring. Tight hay supplies are making it difficult to find hay as well. Several folks were asking about baling soybeans that had empty pods and Dr. Teutsch addressed this in a previous article <http://news.ca.uky.edu/article/uk-offers-considerations-grazing-harvesting-drought-stressed-soybeans>. Now questions regarding options for corn stalks are beginning to surface. Stalks can be an option but you need to consider a few things.

The highest quality forage portions of corn crop residues are the leaves and husks. Residual corn left in the field is not going to be captured in the bales which lowers the feeding value compared to grazing the field. The cob and stalk are lower in digestibility than the husk and leaves. The stalk can comprise the majority of the bale. Protein levels can be variable in the 3-6% range which is insufficient for cattle. Protein supplementation will be needed when feeding stalks. The energy or Total Digestible Nutrient (TDN) level in corn stalk bales can also be variable ranging from 48-58% depending on the stalk to leaf/husk proportions. It is important that bales are tested for nutrient content. Stalks can retain a lot of moisture making baling and storing bales a challenge.

If corn stalks are being considered, they are best utilized when processed. Feeding stalk bales as one would hay bales in a ring feeder can lead to significant waste. I've seen as much as 50% of the bales left behind as cattle sort through bales consuming leaves, husks and the upper portion of the stalk leaving the coarse bottom half of the stalk. The best option for using baled corn crop residues for feed is having the bales processed or flail chopping the residue in the field to aid in drying before baling. This will improve utilization and allow for mixing in a total mixed ration (TMR). Processing the bales with a bale processor and feeding into a bunk is also an option rather than a TMR.

Corn stalks are best used in dry, mid-gestating cows. An example of using corn stalks for dry, gestating cows would be 15 lb of corn stalks, 1.5 gallons of condensed distillers solubles (distillers syrup) and 2 lb of soybean hulls plus minerals to meet requirements. This would be for cattle in good body condition and no environmental stress such as cold or mud. As cattle progress further into gestation, fetal nutrient needs will require additional supplementation. Environmental stress such as cold, rainy conditions and mud will also increase supplementation needs. Consult a nutritionist to balance the ration as syrup alone will not be able to meet needs as excessive fat intake from syrup could reduce fiber digestion and energy yield.

Significant energy and protein supplementation will be needed for lactating, fall calving cows. Special considerations would be needed for lactating cows and producers should work with a nutritionist to ensure nutrient needs are met. Hay would be preferred for lactating cows. Corn stalks may be worked into the diet on a limited basis to stretch hay supplies with adequate supplementation.

In summary, corn stalks may be able to replace a portion of hay needs this winter. Be sure to work with your nutritionist to develop a feeding program that meets nutritional requirements. Additionally, don't over pay for corn stalks as their nutrient content will require additional supplementation increasing daily feeding costs. Contact your county extension office for additional information.

Anaplasmosis in Beef Cattle - Frequently Asked Questions

Dr. Michelle Arnold, UK Veterinary Diagnostic Laboratory

What is Anaplasmosis? Anaplasmosis is a disease caused by *Anaplasma marginale*, an organism that invades cattle red blood cells (Figure 1) and causes severe anemia, often resulting in death. In Kentucky, the disease affects adult cattle in the fall of the year with nearly all cases occurring from late September through the first 1-2 weeks of November.

What are the symptoms of anaplasmosis? This organism causes anemia in adult cattle which means there is an abnormally low number of red blood cells circulating in the bloodstream. Lack of red blood cells results in oxygen deprivation to the vital organs but clinical signs are not noted until 40-50% of red blood cells are destroyed. Infected cattle will show signs of weakness, lagging behind the herd, staggering, rapid breathing and sometimes foaming from the mouth. Affected cattle quit eating and tend to rapidly lose weight. Most become very aggressive due to lack of oxygen to the brain. Mucous membranes will appear pale early in the course of disease and progressively turn yellow in color due to jaundice. Death can be sudden, especially with exercise, or cattle may be found dead with no prior symptoms. Typically, several adult animals in a herd will die within a short (1-2 week) span of time.

Do all cattle with anaplasmosis show these same symptoms of disease? No. Younger cattle, especially less than 6 months old, rarely exhibit signs of disease due to rapid and active production of new red blood cells (RBCs) in growing calves. Anaplasmosis in animals from 6 months to 2 years of age may be misdiagnosed as pneumonia because symptoms of both conditions include fever and increased respiratory rate. Older animals (> 2 years old and up) are at elevated risk for disease and death but some are able to mount an effective immune response without obvious signs of sickness.

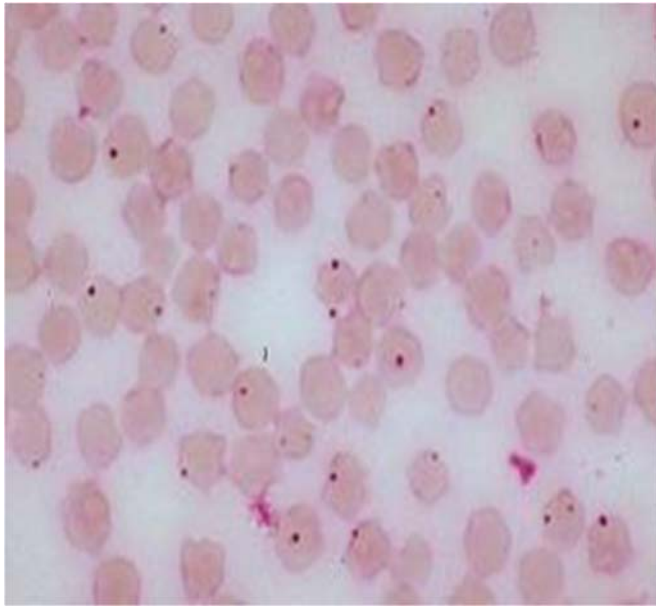


Figure 1: *Anaplasma marginale* organisms (small purple dots) in the red blood cells

severely affected cattle may die due to stress when walked to the barn or going through the working chute. In an outbreak situation, it is recommended to treat all adult cattle in the herd with injectable oxytetracycline (for example, LA-200®, LA-300®), then begin feeding chlortetracycline (CTC) at the control dose (0.5-2 mg CTC/lb BW/head/day) in medicated mineral or feed throughout the rest of the vector (fly) season. Medicated mineral may be offered free-choice assuming mineral consumption is consistent among the herd. Alternatively, hand feeding Aureomycin® daily in feed to deliver 0.5 mg/ lb BW/head/day will also control active infection.

If an animal survives the initial infection, then what? Will they get it again? If an animal (regardless of age) becomes infected with *Anaplasma marginale* and survives, that animal will become a “carrier” of the organism for life. As carriers, they are never sick due to Anaplasmosis again but serve as reservoirs of infection for other, naïve animals. Infected bulls that survive may be infertile for up to a year while pregnant cows that survive almost always abort during recovery from infection. Recovery takes at least 2-3 months to rebuild red blood cells and regain lost weight.

How is Anaplasmosis spread? Anaplasmosis is considered a “tick-borne” disease because they can spread the organism through feeding on cattle. Although ticks are important for this organism to survive and spread, transmission can be by any method that moves affected red blood cells from infected to susceptible cattle. In addition to ticks, the *Anaplasma* organism may be spread by biting insects (mosquitoes, horse flies, stable flies) and/or using blood-contaminated tools such as dehorers, ear taggers, castration tools, and implant guns without disinfection between animals. Probably the most common way it is transmitted is using the same hypodermic needle on multiple animals when administering vaccines to the herd. Once infected, there is a 4-8 week long incubation period before the animal develops signs of a problem. Transmission may also be from cow to calf while pregnant.

How is Anaplasmosis diagnosed? If an animal is found dead and no more than 24 hours (12 hours preferred) has passed since the time of death, the animal can be submitted to a veterinary diagnostic

How do you treat an animal showing signs of Anaplasmosis? Treatment with tetracycline is essential for survival if showing signs of disease. No injectable antibiotic is formally approved for treatment so any form is “extra label” and must be given under veterinary direction. A single intramuscular injection of long-acting oxytetracycline at 22 mg/kg of body weight (BW) or 10 mg/lb BW in the muscle will often stop the progression of anemia by slowing replication of the *Anaplasma* organism, allowing the immune system to take over and save the animal. However, be aware that

laboratory for necropsy or a veterinarian may perform a field necropsy to determine the cause of death. If an animal is alive and showing signs consistent with anaplasmosis, the UKVDL recommends a blood sample (both a red and a purple top tube) be submitted for an accurate diagnosis. Whole blood (purple top tube) is needed for a complete blood count (CBC) with differential in order to assess the degree of anemia and to possibly identify the organism in the red blood cells. The red top tube of blood is needed for a serum test (the Anaplasmosis cELISA) to detect antibodies indicating infection and/or carrier status. However, the serum test may be negative early in the disease process. Blood should be collected and transported to the lab as soon as possible (overnight ship with cold packs). Please visit the UKVDL web site for additional information at <http://www.vdl.uky.edu>

Is an effective vaccine available? Kentucky is among the list of states approved by the USDA for sale of the anaplasmosis vaccine marketed by University Products LLC of Baton Rouge, LA. Vaccination should keep animals from experiencing sickness and death but does not prevent infection and still allows development of the carrier state. The vaccine can be used during an outbreak and has been used in cows in all stages of pregnancy with no problems being reported. The recommendation is a two-dose regimen given 4 weeks apart with annual re-vaccination required. Immunity should develop within 7-10 days of the 2nd dose according to the manufacturer. Vaccination should ideally begin with yearlings. Bear in mind the vaccine does not prevent infection, it controls clinical disease. Again, vaccinated animals may still become infected and become carriers but should not get sick and/or die. More information may be found at: <http://www.anaplasmosis.com/home.html>

What is the best way to prevent problems due to Anaplasmosis? Preventing infection with *Anaplasma marginale* is actually very difficult due to the large number of infected herds throughout the state and the ease with which it is transmitted. In addition, antibiotics do not clear the infection and the vaccine still allows infection to occur. For these reasons, the goal is to prevent clinical disease and production losses when the herd is exposed to the *Anaplasma* organism and as it spreads within the herd. One effective means of control begins in the spring by feeding chlortetracycline (CTC) at the control dose of 0.5 mg-2mg/lb BW per head per day to beef cattle over 700 pounds throughout the vector (fly) season to the herd. Recent research has found it is equally effective to pulse feed CTC (offer CTC for 30 days, take a 30-day break then offer CTC for the next 30 days and so on) as offer CTC continuously for control of the disease. Many producers find it easiest to use CTC in free choice mineral rather than hand feeding CTC daily with Aureomycin®. However, with the advent of the Veterinary Feed Directive (VFD), what once was a quick trip to the feed supply store has become a far more complicated process to get medicated mineral or feed. In order to obtain CTC, a producer must have a written VFD from a licensed veterinarian to present to the feed store before purchase of the product. FDA states that “once a veterinarian has determined that anaplasmosis infection exists within a herd, whether or not clinical signs are apparent yet, he/she may write a VFD to direct the use of CTC for controlling the progression of the disease in that herd.” FDA leaves how to make this determination to the discretion of the veterinarian. How long to use the product is also left to the veterinarian’s discretion, based on his or her assessment of the disease risk. A VFD order can be issued for a maximum of 180-day duration of feeding; if needed for a longer period of time, a new VFD order must be written. On the actual VFD form for CTC, the veterinarian can only choose the #5 option (see example in Figure 2) for a free choice product. The FDA has approved several formulations for the use of CTC in free choice medicated minerals for anaplasmosis control that are effective if consumed consistently. Remember, **feeding CTC is worthless if the animals are not consuming sufficient amounts** so intake should be monitored. Even when feeding CTC throughout the vector season, some individual animals may still become infected and die if they do not eat enough. Using CTC or any feed additive in a manner not stated on the label is illegal and strictly prohibited for producers, veterinarians, and nutritionists.

If unable to obtain a VFD or feeding CTC is not an option, vaccination is another possible control measure available that can work but is a bit pricey at \$8-10 per dose. To reduce the cost, if willing to draw blood and submit for anaplasmosis testing, the vaccine can then be targeted for use in only the individuals who test negative for antibodies. Animals that test positive will not need vaccination nor CTC therapy. This Anaplasmosis cELISA blood test can be run on the same blood sample used for pregnancy testing, too.

Figure 2: Example VFD Form for Free Choice CTC

- 5. Beef and Non-lactating Dairy Cattle: As an aid in control of active infection of anaplasmosis caused by *Anaplasma marginale* susceptible to chlortetracycline when delivered in a free-choice feed.

Drug Concentration:

- 8000 g/ton (to provide 0.5 to 2.0 mg/lb body weight/day)
[Must use a FDA-approved proprietary formulation.]
- 6000 g/ton (to provide 0.5 to 2.0 mg/lb body weight/day)
[Must use a FDA-approved proprietary formulation or formulation in 21 CFR 558.128(e)(6).]
- 5000 g/ton (to provide 0.5 to 2.0 mg/lb body weight/day)
[Must use a FDA-approved proprietary formulation.]
- 700 g/ton (to provide 0.5 to 2.0 mg/lb body weight/day)
[Must use a FDA-approved proprietary formulation.]

Duration of Feeding: _____ days

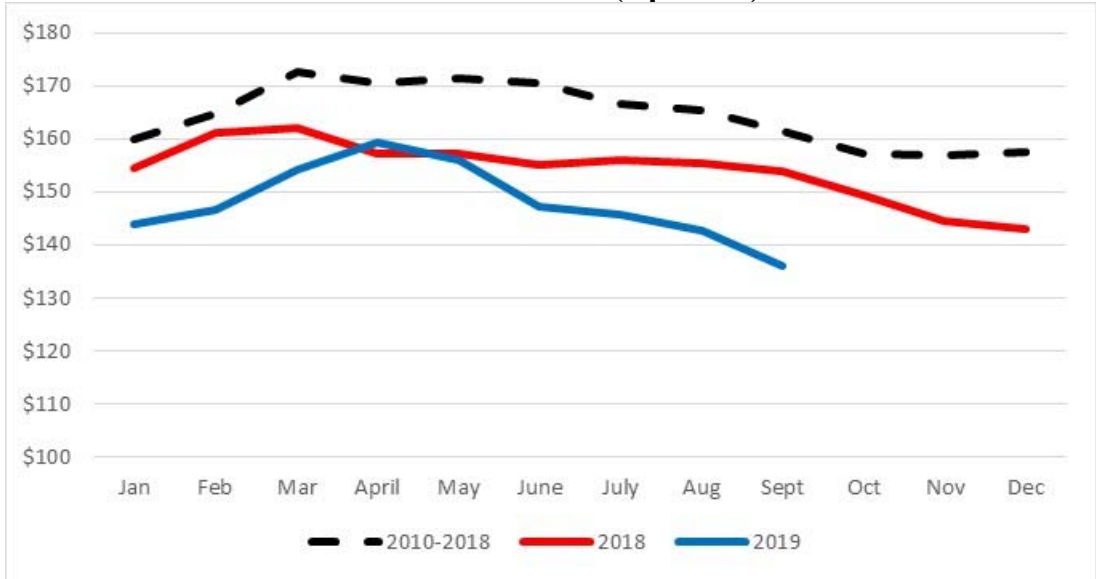
Will Anaplasmosis always be a problem for KY cattle herds? No, the disease will finally reach a point of “endemic stability”, meaning nearly all of the animals in herds have been exposed to the disease and are immune to its effects. However, new additions to the herd purchased from areas of the US without anaplasmosis and brought to KY will be at higher risk of disease and should be tested to determine if they have been previously exposed or are completely naïve and treated appropriately. Similarly, carriers may inadvertently be cleared of the organism with a consistent, high dose of tetracycline over a prolonged period of time (a technique known as “chemosterilization”) but cleared carriers are completely susceptible to re-infection and sickness/death in subsequent seasons. Attempting to clear the organism or eradicate the disease is usually limited to high value seedstock that require international movement. Consult your veterinarian for further information about testing and disease control recommendations for your area.

Kentucky Beef Cattle Market Update

Dr. Kenny Burdine, Livestock Marketing Specialist, University of Kentucky

The 2019 calf market does not appear to have found its bottom yet. As can be seen in figure 1 below, a 550 lb steer average averaged \$136.08 for the month of September, which was off over \$6 per cwt from August and over \$23 per cwt from the April high. However, the month of October has brought some improvement to the fall 2019 and spring 2020 CME © feeder cattle futures market, which should work to support calf prices if it holds. Similar to what I said last week, heavy feeder cattle prices remain relatively strong and are comparable on a price per cwt basis to calves in many markets. This is not atypical for fall, as heavy feeders placed on feed now can be priced on a stronger spring fed cattle market, prior to the seasonal drop that typically comes with summer.

**Figure 1. 550# Medium & Large Frame #1-2 Steers
KY Auction Prices (\$ per cwt)**



Source: USDA-AMS, Livestock Marketing Information Center, Author Calculations

The majority of Kentucky finally got some much needed rain in October, which has worked to green pastures up. It may also partially explain a slight improvement in calf prices during the second week of the month. However, the bulk of the damage is done as very limited pasture growth was seen in August and September. And even after the initial round of rain, most of Kentucky was still classified as “abnormally dry” or in “moderate drought”.

A lot of producers have already begun feeding hay and many pastures were also likely overgrazed, which will impact how much new growth occurs. Unfortunately, there are a limited number of forage growing days left, so things are setting up for a long winter hay feeding season. Hay already seemed to be in short supply, so I suspect this will only get worse as we move through fall. I would encourage producers to access their hay supply and estimate their winter feeding needs.

Winter feed is largest cost for a cow-calf operation and the cost of hay this year has certainly increased. Table 1 below is a quick way to estimate daily winter feeding costs per cow given assumptions about the cost of hay and estimated hay storage and feeding losses. Be aware that these estimates only include the cost of the hay and the waste rate. They do not include time or machinery expenses of actually feeding the hay.

First, note the difference in winter feeding costs per day associated with higher hay prices. A \$20 increase in hay price led to an increase in winter feed costs of \$0.40-\$0.52 per day, depending on waste rate. Secondly, note the increased importance of managing storage and feeding losses at higher hay prices. The higher hay prices are, the more important it is to limit waste rates to the extent possible.

Table 1. Estimated Winter Feed Costs per Day

Storage and Feeding Loss	Hay cost per ton		
	\$60	\$80	\$100
15%	\$1.19	\$1.59	\$1.99
25%	\$1.35	\$1.80	\$2.25
35%	\$1.56	\$2.08	\$2.60

Assumptions: 1,350 lb cow consumes 2.5% of her body weight per day