**HESTER’S EXTENSION HAPPENINGS**

**by Jeffrey Hester, UT Extension Agent**

**Spring Has Sprung!**

I know you’re thinking that winter still may have a few tricks up it’s sleeve, but personally I am packing up those insulated coveralls and trading them in for some overalls! Well spring is bringing some new opportunities for our producers in Sumner County. On page 6 of this newsletter you will see the flyer for the Livestock & Forage Field Day that will be taking place in Portland on April 20, 2019. What began with getting a small group of farmers to have breakfast at a local farm has grown into a promising event! Mark your calendars and spread the word! We will have sessions on forage, marketing beef, cattle working, feeds & minerals, heifer development, and did I mention FREE lunch and door prizes! We can’t wait to see you there! Call the Extension office to RSVP that way we can have an idea on the number for lunch!

**Hemp Is Hype**

Several people have visited the office the past few weeks interested in growing industrial Hemp. Just to give you an idea of the interest that has hit the state of Tennessee...as of the time of application deadline around 3,000 applications were submitted from potential producers. Extension Agent, Bob Ary, of Sumner County, is our agent that will be assisting those of Sumner County who submitted applications. This is something that both agents and specialists are working together to be able to work out any issues that may be faced in the months to come.

**The Life of Hester**

Like most of us, this time of year we find ourselves burning our lives at both ends of the candle. Since the first of the year my life has been full of 4-H horse bowl - hippology, horse judging, livestock judging, gearing up for 4-H horse shows and livestock expos, and let’s not forget college classes. Yes, I had decided last fall that I would get back in gear to finish my masters degree. My goal each week, no matter how crazy life gets, to be in control of my schedule and not let my schedule dictate me. I still find time in the afternoons to spend as much time with my family and on the weekends, plan some time to get out and do my own thing. Some of you have been asking me about a “woman update”. Well, Kyla is doing great and getting settled in nicely here in Tennessee. Last weekend, her friend was in from New York, so I took off and drove the both of them out to Kentucky to visit some Amish country. I am not sure what part I enjoyed more...watching Kyla enjoy the sites or answering her friend’s questions about agriculture.

**REPAIRING DAMAGE CAUSED BY HAY FEEDING**

*Dr. Gary Bates Director, UT Beef and Forage Center*

It is a pretty safe bet that you have some areas in your pastures that are a muddy mess. The excess rain during fall, coupled with having fed hay for the last several months has caused areas in many pastures to be destroyed, with very little grass left. This type of thing happens every year, but it seems like this year is especially bad. The question is, what can you do to get these areas back into shape? The first thing to realize is that there are no magic bullets. We can’t solve this problem overnight. But there are some options in the short and long-term that can reduce the problems that will arise from these areas.

**Option 1** – Seed a winter annual after hay feeding is complete.

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Once you have finished hay feeding, smooth this area back up with a harrow or disk. Seed some type of winter annual to provide some ground cover. Annual ryegrass or oats can work well in this situation. In mid to late May, you can graze this out and broadcast crabgrass to provide some summer grazing and cover. In September the area can be replanted with tall fescue. If you are going to feed hay on the same area again, you might choose to plant wheat or rye instead of tall fescue.

Option 2 – Skip the winter annual and just seed crabgrass in May. If hay feeding lasts until late March, you might be better off to wait until late April and seed crabgrass, skipping the seeding of the winter annual. Seeding a winter annual in April may not provide enough growth to make is worth the effort. Points to ponder It is difficult to feed hay in a single area without having large amounts of pasture damage. If you have the problem every winter, you might need to consider changing your hay feeding method. Some producers have moved to unrolling hay in different areas of the pasture, this spreads out the cattle over the winter, reducing pasture damage. To minimize hay waste in this type of feeding system, you will need to unroll only the amount of hay that will be consumed in a single day. You may also want to consider putting in some type of heavy use area that can be used to feed hay. Putting down geotextile fabric, then covering it with rock can create a much more stable area, and almost eliminate mud issues. These areas can be useful, but expensive. Contact your local NRCS office for options and plans for this. Forage conference in Jackson on March 5 The Tennessee Forage and Grassland Council will be sponsoring a forage conference in Jackson, TN on March 5. The conference will be held at the West TN Research and Education Center, with a meal starting at 5:30 pm CT and a program kicking off at 6 pm. Registration for the meeting will be $25. The program will focus on the latest research information on forage production. If you need more info, contact me at gbates@utk.edu.

Using Science to Increase Yield
Dr. Gary Bates, Professor and Director, UT Beef and Forage Center

Everyone wants to increase yield. Usually it means providing more of some type of input. Maybe more fertilizer, or irrigation, or some other thing that will make plants grow at a faster rate. But there is a simple way to make our pastures grow faster and produce greater yield. It involves simply understanding and manipulating a simple principle of plant physiology. That principle is controlling plant growth, as well as replace the stored energy used during phase 1. As the plant continues to grow, the leaves get older and less efficient at photosynthesis. The plant also produces a seedhead, which means it is trying to produce seed instead of leaves. This results in a decrease in the growth rate of the plant.

A simple way to increase the yield of a pasture is to concentrate on keeping your grasses in the phase 2 of plant growth. That means to make sure you leave enough leaf area so the plants can capture plenty of sunlight. But don’t let the plants go to a reproductive state, meaning they are producing seedheads. Staying in phase 2 will improve yield, because that is the phase where the growth rate is the highest.

How do you accomplish that? You have to have some type of rotational grazing program, where you control where the animals graze and how long they stay in the paddock. If you find that the forage growth is getting ahead of you in the spring, then cut hay from some of the fields. If you find forage growth is getting slow during the summer, you can do a better job preventing overgrazing.

There is no need to make rotational grazing extremely complicated. The principle is controlling plant growth through where the animals graze. This will ultimately improve yield, plant persistence, and the production of forage and beef on your farm.
Dr. Andrew Griffith, Assistant Professor, Department of Agricultural and Resource Economics

Cow-calf producers are constantly bombarded with decisions and challenges as it relates to herd health, nutrition, retaining versus purchasing heifers, sire selection, timing of cattle marketing and the list could continue. Decision making should come as no surprise because all business owners have to make short and long-term decisions to promote the success and longevity of the business. Many times, the decisions made today (this often comes in the form of not making a decision) can limit the alternatives in the future and lead to negative outcomes.

Starting with the current time period, many cow-calf operations are in the middle of calving season and the focus is live calves that get on their feet and start growing. The next focus is cow body condition prior to the breeding season which then leads to a focus on rebreeding so the operation will have a calving season next year. The next big decision is weaning and what to do with calves at weaning which may include marketing the calves immediately, backgrounding and then marketing feeder cattle, or sending the cattle to the feedlot and marketing them to a packer. All of these decisions can have a long term influence on the operation.

Breeding is the first major decision in a cow-calf operation. Given a group of cows, most of the focus is on sire selection, and sire selection is evaluated using expected progeny differences (EPDs), and/or physical examination of the potential herd sire. EPDs provide information on how the progeny of the sire will perform throughout their productive life. A producer has to know the intended market to know which EPDs will return the greatest value for the effort. For instance, a producer marketing all calves at weaning is likely to place more emphasis on the weaning weight EPD than a producer retaining ownership through the feedlot.

Similarly, the decision to breed a cow on a certain day influences the value of that animal when it is ready to be marketed. Thus, producers have to choose a breeding season based on the desired calving season. The calving season will influence when the calves are weaned, backgrounded, and enter the feedlot which will influence the price of the animal at the time of marketing. At the same time, the breeding and subsequent calving season influences feed costs which will influence profitability.

Once the breeding season and sire are selected and the calves are on the ground, there are several production decisions such as a health program or supplemental calf feeding program that will influence production cost and calf value. The health program may include vaccinations, deworming, and growth implants which may or may not pair well with creep feeding calves. The value of creep feeding calves is largely dependent on the quality and quantity of available forage and market signals.

Every calf is weaned! Weaning takes many forms but in most instances it involves the cattle producer weaning and backgrounding the calves or the cattle producer weaning and immediately marketing the calves which will influence production cost and value of the animal. In most instances, producers backgrounding calves provide a complete health program while attempting to add weight and capture additional value from the calves. In some instances, producers who background calves retain ownership and finish animals at home or in a custom feedlot. The decision of what stage of production to market the calf crop will influence total costs, total revenue, and can greatly influence cash flow. The inability to cash flow is one reason many producers market calves at weaning, because they do not have the financial ability to continue owning the animals.

This discussion could have included more specific examples of decisions on a cow-calf operation, but the intent was not to discuss every potential decision making point. The purpose of this discussion was to remind producers that decisions made today can and will influence their cattle operation down the road. It is similar to salvation. Choosing to follow the Lord today impacts today, tomorrow, and eternity. Ephesians 2:8-10 “For it is by grace you have been saved, through faith – and this is not from yourselves, it is the gift of God – not by works, so that one can boast. For we are God’s handiwork, created in Christ Jesus to do good works, which God prepared in advance for us to do.” In simple terms, this says a person is offered the gift of salvation, and created to do good works. Thus, if a person accepts salvation then God has good works prepared for that person to do.
Equine Pasture

Associated Laminitis

Good quality forage provides necessary nutrients to grazing equids, and should compose the majority of a horse’s diet. Most horses can handle the transition from consuming preserved forages (primarily hay) to rapidly growing grasses easily, yet certain conditions can pose concern for individual horses. Unfortunately, some horses are more sensitive to the amount of starches, simple sugars and fructans, also known as non-structural carbohydrates (NSC), in lush green pastures and thus warrant specific management attention.

Pasture-Associated Laminitis

Equine laminitis is a painful, debilitating disease affecting the laminae within the hoof. The laminae is a soft connective tissue responsible for holding the coffin bone within the hoof capsule securely to the hoof wall (image 1). In a horse suffering from laminitis, decreased blood flow to the laminae occurs resulting in inflammation, death of the laminae tissue, and ultimately separation of the coffin bone from the hoof wall in advanced cases. Lack of laminae integrity leads to downward rotation of the coffin bone, and in severe laminitis cases, the coffin bone can rotate through the sole of the horse’s hoof. This condition is also known as founder. While laminitis can be caused by many different scenarios, including repeated concussion on hard ground (road founder), hormone imbalance, and grain overload, lush pasture can cause pasture-associated laminitis or grass founder and be further complicated by obesity and insulin resistance.

Pasture-associated laminitis occurs when horses consume high levels of NSC. While NSC are present in all grasses during all growth stages, concentrations are highest during rapid growth, during times of direct sunlight, and after times of stress (ex. drought). When horses consume high amounts of NSC, some these carbohydrates pass through the small intestine and spillover into the hindgut where they are rapidly fermented. This rapid fermentation causes the cecum to become more acidic and triggers multiple events, ultimately leading to laminitis. Additionally, horses that are obese or those suffering from insulin resistance may be more susceptible to pasture-associated laminitis.

Factors Affecting NSC Levels in Grass

Different grass species can result in varying levels of NSC within pasture or hay. Cool season grass species tend to accumulate more NSC as fructans, where warm season grass species tend to accumulate more starches. As cool season grasses grow most during the cooler months, NSC concentrations of sugars, starches and fructans tend to be higher in these grasses during Spring and Fall months.

Numerous factors can cause NSC levels in grasses to change from day to day. The time of day can greatly impact NSC content in the grass, with the lowest concentrations from approximately 2AM till 9AM, and peak concentrations in the afternoon hours. Sunlight intensity will also cause an increase in NSC, as the sunnier the day, the more photosynthesis occurring in the plant, and thus higher amounts of NSC that are produced. Grasses in mostly shady areas will tend to have lower NSC content when compared to grasses in sunny locations. Cooler temperatures below 40 degrees F overnight can also cause higher concentrations of NSC. This is because the plant will not utilize NSC stores overnight in lower temperatures, and the NSC will remain in the leaves rather than being used for growth or for energy storage in the root. Stress conditions that restrict plant growth, such as killing frosts, drought, non-lethal herbicide application, and low soil fertility, can also increase NSC concentration in the plant.

Management Tips

Keeping horses healthy and minimizing their risk of pasture-associated laminitis can be achieved through good management techniques. Increasing awareness of the nutrients provided by pastures, dried forages and other diet components is essential in understanding how to keep your horses healthy through the changing seasons.

- Aim to keep your horses at a moderate body condition score (BCS, range from 4 to 6, image 2). Horses with an obese BCS ranging from 7 to 9 tend to display a predisposition for laminitis bouts. Reference UT Extension publication SP 782

Equine Welfare Series; The Body Condition Scoring System and SP 795 Equine Welfare Series; Evaluating Your Horse’s Weight and Condition for how to assess your horse’s BCS and estimate body weight.

- Current research shows NSC content is lowest in the overnight hours and peaks in the late afternoon to early evening hours; therefore, it is best to allow horses to turn out at night and remove from pasture by mid-morning.

- Use a grazing muzzle to limit your horse’s intake while out on pasture, especially during the Spring and fall months, when cool season grasses are growing quickly. If possible, limit grazing time or turnout in a dry lot pasture, especially for horses with predispositions to laminitis or with a history of laminitic incidents.

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Meat Goats Production: Nutrition

Meat goats are minimal care animals that are browsers by nature. Goats spread their grazing pressure more evenly over all vegetation classes than sheep or cattle. This allows them to utilize forage and browse (brush) that is otherwise wasted, while also providing biological control for unwanted vegetation in cattle pastures and forests. In Georgia, some of the weeds preferred by goats include blackberries, pig weed, thistles, honeysuckle, privet and kudzu. This brush control and pasture improvement provides real benefits often equaling $40 to $70 per breeding female per year. For unimproved pasture, goats are without equal. It is a common myth that goats are able to make use of poor quality and trash feeds; actually, goats appear to require more quality in their rations than larger ruminants. They are able to thrive under adverse conditions because they are more selective in feeding and better able to conserve critical nutrients. Thus, the ideal option is adequate year-round grazing with only mineral supplementation.

Remember that goats are active foragers that will cover a wide area in search of scarce plant materials. They are well suited to this form of grazing since their prehensile lips are able to choose only the most nutritious parts of available plants. While goats generally prefer- and select-browse, they do consume some other forages to compensate for the quality of their diet. These traits make goats a valuable asset in multi-species grazing pastures. Pasturing goats with sheep, cattle or other species maximizes productivity of the land. As a general rule, six mature goats equal one cow on improved pastures and 10 goats equal one cow on browse or brushy areas.

Meat goat nutrient requirements include energy, protein, minerals, vitamins and water. Utilization of all nutrients depends on an adequate supply of energy. Supplied by both carbohydrates and fat, energy is usually the most limiting nutrient. Energy deficiencies, which may result from inadequate feed intake or low quality feed, are noted by retarded kid growth, delayed puberty, reduced fertility, depressed milk production and a lowered resistance to disease and parasites. Age, body size, growth, pregnancy, lactation, weather, physical activity and stress influence energy requirements.

Proteins are essential in any diet, because proteins are the building blocks of all cells. Proteins consist of amino acids, which are required by cells of the body and by secretions such as enzymes, hormones and milk. Deficiencies of protein can lead to reduced rumen efficiency, retarded growth and fetal development, depressed milk production and, in extreme cases, serious or fatal ailments. Although goats are ruminant animals, they are less able to use non-protein nitrogen (e.g., urea) to synthesize protein because they recycle relatively high levels of urea in their saliva. Protein requirements depend on a variety of factors such as maintenance, growth, reproduction and lactation, but research suggests that a 14 percent crude protein diet is adequate for most classes of goats.

In general, mineral requirements for goats are similar to those of other ruminants. Seven major and nine minor (trace) minerals are essential for livestock. The major (macro) minerals that must be provided in large quantities include calcium, phosphorus, sodium, chlorine, magnesium, potassium and sulfur. Phosphorus is often deficient in pastured goats. The 1½ - 2 calcium to 1 phosphorus ratio is important to maintain in mineral supplements to aid in the prevention of urinary calculi. Calcium levels are usually sufficient in grazing conditions for meat goats, but dairy goats may need supplementation. Phosphorus will be high in grain-based diets. Sodium and chlorine are commonly provided as free choice salt. Goats not receiving enough of either may consume soil or debris. Placing salt in less frequently grazed areas can encourage them to move to these areas. Note that trace mineralized salt should not be used in this manner as trace elements could be oversupplied. The next macro mineral, magnesium, is required for nervous and enzyme system function, and is related to calcium and phosphorus metabolism. Magnesium deficiency is often associated with grass tetany, which is treated with intravenous calcium and magnesium administration. Potassium deficiencies are uncommon except in high concentrate diets in which supplements should be fed to correct this problem. The final major mineral, sulfur, is usually adequate in common feedstuffs.

Trace or micro minerals include iron, iodine, copper, molybdenum, zinc, manganese, cobalt, selenium and fluorine. Deficiencies of these minor minerals are rare if a trace mineral supplement is offered free choice.

Vitamins are essential for normal body processes. Typical pastures should contain adequate levels of vitamins. Vitamin A is the only one likely to be deficient, and then only during extended droughts when green forages are not available. Goats have an advantage over other ruminants in their ability to pick the most palatable green parts of forage. This allows them to consume the most vitamin-rich portions. Take care to supplement the diet of goats forced to consume low-quality diets and old, weathered hays.

Water is the most critical of all nutrients. Meat goats should be provided all the fresh, clear water they will consume. Generally they require 1 quart to 1½ gallons per head per day. Water intake depends on temperature, water content of forage, amount of dew, exercise level and the salt and mineral content of the diet. While goats are highly sensitive to water quality, they also are extremely efficient in water use. Goats approach the camel in the low rate of turnover per unit weight. In providing water, use common sense. Due to the playful nature and climbing of kid goats, they may fall in large troughs. Using smaller troughs is recommended to ensure adequate amounts of water for small animals and in keeping water fresh.
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- Have your pasture, hay, and other dietary components tested to gain a general understanding of the NSC content in your horse’s diet. Horses that are insulin resistant or have had issues with laminitis in the past should consume a diet that 10% or less in NSC when considering all sources of sugar and fructan.

- Generally speaking, as plants mature from the leafy to pre-bud stage, NSC levels decrease and fiber levels increase. The exact nutrient content of forages is dependent on many factors including pasture management, plant species, weather and geographic location. Remove grazing muzzles and increase grazing time gradually to avoid any unintentional overgrazing during this transition period. Typically, in Tennessee this transition can occur anytime between mid-May through early June.

- Use good pasture management including regular mowing and pasture rotation.

For more information on nutritional management, forage testing, pasture-associated laminitis or pasture management, contact your local County Extension Office.

Resources

Spring pasture, fructans and founder. Larry Lawrence, PhD and Stephanie Valberg, DVM. University of Minnesota Extension.


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I am sure you can imagine some of the ‘off the wall’ questions she was asking. Long story short, I want to leave you with a challenge. No matter how busy your life can get, always remember to take time to enjoy what you’ve been given.