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College of Agriculture, Food and Environment
Cooperative Extension Service

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Beef IRM Team

KENTUCKY BEEF CATTLE NEWSLETTER. NOVEMBER 3, 2023

Each article is peer-reviewed by UK Beef IRM Team and edited by Dr. Les Anderson, Beef Extension Specialist, Department of Animal & Food Science, University of Kentucky

Contents

This month's newsletter includes:

Timely Tips

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

Spring-calving cow herd

- If you need to replace cows, consider buying bred heifers in some of the Kentucky Certified Replacement Heifer sales that are being held across the state this month.
- Extend grazing for as long as possible to decrease the amount of stored feed needed. The drought is making this difficult for most of the state in 2023.
- Evaluate body condition of cows. Sort thin (less than body condition score 5) cows away from the cow herd and feed to improve their condition. Two and three-year olds may need extra attention now. These cattle can use the extra feed/nutrients.
- Dry cows in good condition can utilize crop residues and lower quality hay now (but don't let them lose any more body condition). Save higher quality feed until calving time. Keep a good mineral supplement with vitamin A available.
- Contact your herd veterinarian to schedule a pregnancy diagnosis for your cows if you have not already done so. Pregnancy diagnosis can also be accomplished using blood sampling. Several diagnostic labs will analyze blood samples for pregnancy and a chute-side test is on the market. Culling decisions should be made prior to winter feeding for best use of feed resources. Consider open, poor-producing, and aged cows as candidates for culling.
- A postweaning feeding period will allow you to put rapid, economical gains on weaned calves, keep them through the fall "runs" and allow you to participate in Kentucky CPH-45 sales. Consider this health and marketing program which is designed for producers which are doing a good job of producing high quality feeder calves.
- Replacement heifers require attention during the winter, too. Weaned heifer calves should gain at an adequate rate to attain their "target" breeding weight (2/3 of their mature weight) by May 1.

Fall-calving herd

- Continue to watch fall-calving cows. Catch up on processing of calves including identification, castration, and vaccinations.
- Cows that have calved need to go to the best pastures now! Help them maintain body condition prior to breeding in December.
- Vaccinate the cows while they are open and prior to the breeding season. Move cows to accumulated pasture or increase feed now. If at all possible, try to get animals vaccinated 45 days or longer before the breeding season.
- Start the breeding season in late November or early December for calving to begin in September. If you are using AI and/or estrous synchronization, get your supplies together now and schedule your technician. Don't forget Breeding Soundness Evaluations (BSE) on your bulls. Make final selection of replacement heifers now.

General

- Have your hay supply analyzed for nutritive quality and estimate the amount of supplementation needed. Consider purchasing feed now.
- Take soil tests and make fertility adjustments (phosphate, potash, and lime) to your pastures.
- This is a good time to freeze-brand bred yearling heifers and additions to the breeding herd.
- Graze alfalfa this month after a "freeze-down" (24 degrees for a few hours).
- Don't waste your feed resources. Avoid excessive mud in the feeding area. Hay feeding areas can be constructed by putting rock on geotextile fabric. Feed those large round bales in hay "rings" to avoid waste. Concrete feeding pads could be in your long-range plans.

A Single Decision

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

The Martin-Gatton College of Agriculture, Food & Environment, University of Kentucky Beef Research and Extension Team and the Kentucky Cattlemen's Association (KCA) had the pleasure of hosting our beef industry friends and colleagues at our annual Beef Bash. These events are always so much fun for us. We not only get to share our progress and plans with the industry, but we also just take a few minutes to visit with our friends. Beef Bash is a ton of fun and we encourage everyone to attend.

I had the distinct pleasure of chatting with Senator Robin Webb. Senator Webb represents District 18 (Boyd, Carter, Greenup and Lewis counties) and is the only legislator currently serving who took part in HB 611. HB 611 is more widely known as the "Tobacco Settlement Money" and Senator Webb was part of the group who helped Kentucky decide how to invest the funds received. It was fun to chat with her about the changes in the beef industry directly resulting from this monumental legislation.

Remember, prior to 2000, tobacco production dominated Kentucky agriculture. Most farmers grew some tobacco and agriculture in Kentucky revolved around it. But times were changing and, fortunately for Kentucky agriculture, many key legislators were farmers and understood agricultural crossroads facing the state. These brave men and women created revolutionary

legislation that, in retrospect, permanently changed agriculture. I am not a law historian, but I believe this was the first legislation in the U.S. of its kind. This legislation directed one-half of the settlement payment into a fund invested in the diversification and expansion of all agriculture in Kentucky. Frankly, it took guts to set this precedent. Other states simply allowed the funds to go directly into the general funds with no support for farmers who lost a crop production system. A few years later, many other "tobacco states" followed Kentucky's lead and used the tobacco settlement funds to invest in their agriculture.

It has been 23 years since this pivotal piece of legislation. To be blunt, it is impossible to ascertain the impact of this single decision, this single piece of legislation designed to help farmers sustain their livelihood. Under the direction of the Kentucky Agricultural Development Board and the Kentucky Office of Agricultural Policy, millions have been invested in county cost-share and state-led programs to help farmers diversify their operations, modernize their production systems and expand their available markets.

The funds were also invested in educational programs designed to keep farmers at the forefront of agriculture. This investment included most livestock, horticulture and many other aspects of farming. The return on the millions invested is impossible to calculate, but over 23 years, has been billions. Incalculable economic impact and hundreds of thousands of lives changed from a single decision, a single piece of legislation.

It is stunning to me to see the change, especially in beef. Kentucky is a leader in the U.S. beef industry. Our cattle have evolved from an undervalued commodity to an asset to cattle feeders across the country. The KCA is the second largest cattlemen's association in the U.S., but KCA and its offshoots (Kentucky Beef Network, Beef Solutions, Kentucky Cattlemen's Beef) easily create the most impact of any cattlemen's association in the nation. Our Cooperative Extension Service is strong, and our educational programs are a model for other land grant universities. Much of this is due to HB 611, the foresight of those farmer-legislators and the oversight of the Kentucky Ag Development Board.

On behalf of the beef industry, I want to thank our legislators for believing in agriculture and making an investment in our future. Like ripples in a pond, investment in agriculture affects every person in the commonwealth who consumes high-quality inexpensive food. I find it fascinating that this single decision, the decision to invest in agriculture, really was an investment in all of us.

UK Beef Webinar Series

Dr. Darrh Bullock, Beef Extension Professor, University of Kentucky

We will be restarting our UK Beef Webinar Series in December. These sessions are open to any beef producers, but a one-time registration is required. If you have received notices in the past then you are registered and should get the notification, if not, you can register by sending an email with your name and county to dbullock@uky.edu with the topic heading of UK Beef Webinar Registration. The dates and topics are:
December 12, 2023 – Shooting the Bull – UK Beef Specialists will provide information on a hot topic in the beef industry and answer any questions posed by the attendees.

January 9, 2024 – Prebreeding Vaccination Considerations – Dr. George Perry, Texas A&M University
February 13 – What's the Cost of a Cheap Mineral – Dr. Katie VanValin, University of Kentucky
All webinars start at 8:00 EST/7:00 CST. All registered members will receive a Zoom invitation the morning of the presentation with the link and password. For more information contact Darrh Bullock at dbullock@uky.edu

Fescue Toxicosis: What is it and what does it look like?

Dr. Michelle Arnold, UK Veterinary Diagnostic Laboratory

Tall fescue (*Schedonorus arundinaceus* (Schreb.) Dumort., nom. cons.) is the most important cool-season grass in the transition area between the temperate northern and subtropical southern United States. In most unimproved pastures, tall fescue is infected with the fungal endophyte *Epichloë coenophiala*, that imparts tolerance to abiotic and biotic stresses. An "endophyte" is a fungus or bacteria that lives entirely within the intercellular spaces of the leaf sheaths, stems, and seeds and is only visible microscopically. The grass and fungus enjoy a mutually beneficial relationship; the plant provides nutrients and a means for the endophyte to reproduce through infected seeds. The fungus, in turn, produces chemicals known as "ergot alkaloids" that function as chemical defenses, making the grass more vigorous, pest-resistant, drought-resistant, and tolerant of many adverse soil and environmental conditions. Often KY 31 tall fescue is the only grass that can survive and thrive in poor conditions or with poor grazing management. Importantly, the ergot alkaloids cause cattle to eat less, protecting tall fescue from overgrazing during its vulnerable decline in summer growth. Of the alkaloids produced by the endophyte, ergovaline is the predominant ergot alkaloid mycotoxin that significantly impacts livestock health and productivity. Ergovaline accounts for approximately 90% of the ergot alkaloids in tall fescue with the highest concentrations found within the seed head. "Fescue toxicosis" is the broad term used for the variety of clinical disorders that can affect cattle grazing endophyte-infected (E+) tall fescue. The most common and economically damaging manifestation of fescue toxicosis is "summer slump", a syndrome characterized by an increased sensitivity to heat stress due to hyperthermia (elevated core body temperature). External signs include rough hair coats during the summer, decreased grazing time and decreased liveweight gain, less milk production, lower calf weaning weights and poor reproductive performance. Two additional syndromes resulting from fescue toxicosis, "fescue foot" and "fat necrosis", are less commonly recognized and underdiagnosed so disease incidences and economic impacts from these two disorders are largely unknown.

Ergot alkaloids are structurally similar to the neurotransmitters serotonin, dopamine, and norepinephrine, allowing the alkaloids to bind to neurotransmitter receptors and thus interrupt biological processes. Symptoms observed in cattle depend on the type and location of these receptors, the quantity of alkaloids bound to the receptors, the level and duration of alkaloid exposure, the environmental conditions (temperature and humidity), and the individual animal's susceptibility to ergot alkaloids. Ergovaline strongly binds to receptors on blood vessels, resulting in vasoconstriction that reduces blood flow to peripheral tissues including the skin and extremities, to the digestive system, and to reproductive tissues, resulting in the wide variety of symptoms observed. Cattle may initiate the vasoconstrictive response to ergot alkaloids in as little as 1-2 days after exposure and accumulation of the alkaloids in the tissues may cause the

vessels to stay constricted for up to 6-7 weeks after removal of the animal from infected pasture. Early clinical signs are sometimes reversible if promptly removed from contaminated pastures or hay. The severity of observed symptoms may increase if tall fescue becomes infected (ergotized) with the fungus *Claviceps purpurea* which also produces alkaloids such as ergotamine and ergocristine that contribute to vasoconstriction.

Summer Slump-Photo M. Arnold (University of KY) The expected response to hot summer temperatures is an increase in blood flow to the skin and extremities in order to remove heat from the body core to the skin surface. However, with fescue toxicosis, the blood flow to the skin is reduced by the constrictive effects of the ergot alkaloids on the blood vessels, severely limiting the ability of the body to cool itself.

The visible signs of "summer slump" are due to the cattle's increased sensitivity to heat stress experienced during hot and humid weather. Ergovaline increases core body temperature (hyperthermia) by reducing blood flow from the body core to the skin surface, limiting the body's ability to dissipate heat and cool itself. Affected cattle fail to shed the winter hair coat, worsening the heat's effect. Cattle spend more time idling in shade, mudholes, ponds, and streams and less time grazing during the day. Those most severely affected exhibit rapid and labored respirations, open mouth breathing or panting, and excessive salivation. Simply stated, affected cattle graze less, eat less and therefore gain less weight, resulting in lower average daily gain (ADG) in stocker cattle, and lower calf weaning weights. Beyond the visible increase in heat stress from ergot alkaloids, grazing E+ tall fescue disrupts the release of the hormones prolactin and progesterone, decreases milk production, and negatively affects reproductive performance. Prolactin, a hormone linked to lactation and mammary gland development, is consistently low in livestock due to ergot alkaloids inhibiting the hormone's secretion from the anterior pituitary. Dams produce less milk, further contributing to lower calf weaning weights. Decreased reproductive performance is caused by the combined effects of less blood flow to reproductive tissues, less dry matter intake and the increase in core body temperature. In addition to lowered prolactin, females also have a lower level of the hormone progesterone that is necessary for establishment and maintenance of pregnancy. One study measured a 41% lower conception rate in cows grazing E+ infected pastures versus E- pastures. Bulls may have altered sperm motility parameters and reduced fertilization potential. Recent studies indicate embryo quality and subsequent embryo development are negatively affected as well. Economically, cow-calf producers can expect reduced pregnancy rates, longer breed back intervals and lighter calves at weaning when cattle graze E+ fescue pastures.

Photo by Eldon Cole, University of Missouri Extension-Fescue Foot

"Fescue foot" or dry gangrene of the extremities (hooves, ear tips, tail switches) occurs due to persistent vasoconstriction and damage to the blood vessels supplying oxygenated blood to these distant areas. Only small subsets of cattle develop this condition after an acute exposure to ergot alkaloids during environmental temperature changes towards cooler weather. Vasoconstriction typically affects the hind limbs first, appearing as swelling and redness at the coronary band and progressing to hind limb lameness. The tail may also become discolored. Later signs include "sloughing" or loss of affected portions of the hooves, ear tips, and/or the tail switch.

A third syndrome, fat necrosis or "abdominal lipomatosis" is the least studied manifestation of chronic fescue toxicosis. It has been associated with grazing tall fescue pastures receiving high nitrogen fertilization, particularly with poultry litter. Development of hard masses of necrotic fat causes a variety of symptoms depending on their location. Masses in the pelvic cavity can obstruct the birth canal and contribute to dystocia (difficult birth). Hard fat masses in the abdomen may impinge on abdominal organs and cause outflow obstructions and intestinal blockages with outward signs that may include chronic diarrhea and weight loss, trouble urinating, and loss of appetite. Fat necrosis is occasionally diagnosed by rectal palpation but is most often found at necropsy.

The diagnosis of ergot alkaloid-associated problems in cattle is based on clinical signs as well as knowledge of the geographical area, weather conditions, and testing forage for ergovaline from the pasture of the affected animals. Ergovaline testing can be performed by the University of Kentucky Veterinary Diagnostic Laboratory Toxicology section. Please see the UKVDL website http://vdl.uky.edu/ for submission forms and shipping information. Full sample collection instructions are available at http://vdl.uky.edu/sample-collection-guidelines-ergovaline-testing. Guidelines for how much ergovaline can be safely ingested by cattle are not well established. Some suggest that 100-300 ppb ergovaline on a dry matter basis in the total diet for cattle could result in clinical signs while other studies found that higher concentrations, up to 750 ppb dry matter, are required before clinical signs occur. With high heat and other environmental stressors, the lower-level guidelines are considered more appropriate. It is important to determine the percentage of tall fescue present in the pasture so the overall risk can be calculated. Currently, there are no tests commercially available to confirm fescue toxicosis in cattle from blood or tissue samples.

In summary, tall fescue toxicosis is one of the costliest livestock disorders in the southeastern United States but its impacts often go undetected on many livestock operations. Fescue toxicosis is due to a fungal endophyte within the tall fescue plant that produces ergot alkaloids, primarily ergovaline, a compound that causes profound constriction of blood vessels in cattle. The most common and economically damaging manifestation of fescue toxicosis is "summer slump", a syndrome resulting in decreased grazing time and decreased liveweight gain, lower calf weaning weights and poor reproductive performance including failure to conceive and early embryonic

loss. The first step in managing tall fescue toxicosis is to assess the levels of endophyte in pastures. Once the level of endophyte infection is known, an appropriate management strategy can be developed. However, the only way to completely eliminate the harmful effects of endophyte on livestock is to replace infected stands with other forages or novel endophyte tall fescue.

Toxic Tall Fescue: Recommendations and Reality

Dr. Chris Teutsch, Extension Associate Professor and Forage Specialist, University of Kentucky

I wrote this article several years ago for the forages session at the Kentucky Cattlemen's Annual Meeting. It is a summary of management strategies for utilizing tall fescue in grazing systems. How we approach tall fescue management in grazing systems is NOT black and white, but rather nuanced by a number of practical considerations. In some cases, replacement of toxic stands with improved novel endophyte (non-toxic endophyte) varieties does not always make sense. The objective of this article is to help you work through those considerations to determine the best path forward for managing tall fescue in your operation.

Tall fescue (*Schedonorus arundinaceus* (Schreb.) Dumort., nom. cons.) is the most important cool-season grass in the transition area between the temperate northern and subtropical southern United States. In most unimproved pastures, tall fescue is infected with a fungal endophyte that imparts tolerance to abiotic and biotic stresses. While this mutualistic relationship improves persistence in low input grazing systems, it also results in the production of alkaloids that cause tall fescue toxicosis. While there are a number of grotesque symptoms associated with this syndrome such as fescue foot, fat necrosis, and loss of ear tips and tail switches, symptoms that are not readily observed are the costliest. These include vasoconstriction resulting in high body temperature, lower forage intake, lower milk production, lower growth rates and weaning weights, compromised immune system, and lower conception/calving rates (Roberts and Andrae, 2004). This article will provide some practical approaches to mitigating the negative impact of tall fescue in grazing systems.

Assess endophyte levels. The first step in managing tall fescue toxicosis is to access the levels of endophyte in pastures. Since the endophyte cannot be seen with the naked eye, tiller samples must be collected and sent into a lab for screening. In Kentucky, the Division of Regulatory Services at the University of Kentucky provides this service. More information on collecting samples can be obtained by contacting your local extension office or consulting the following publication, *Sampling for the Tall Fescue Endophyte in Pastures and Hay Stands*, PPA-30.

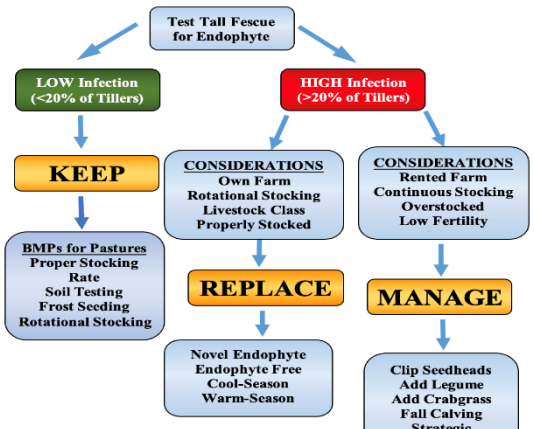

Figure 1. Decision making flow chart for the management and replacement of endophyte infected tall fescue.

Develop a management strategy. Once level of endophyte infection is known, an appropriate management strategy can be developed (Figure 1).

If the infection level is above 20 to 25%, then replacement of the stand is recommended. However, there are a number of factors that should be considered prior to replacement. For example, if the pasture is rented on a year to year lease, then investment in a novel endophyte tall fescue may not be wise. Other important considerations can be found in Figure 1.

Replacement of toxic stands. In cases where it is feasible to replace toxic stands with novel endophyte tall fescue, there are two approaches. The first is Spray-Wait-Spray. In this method tall fescue pastures are grazed or harvested for hay in the spring to keep viable seed from being produced. Pastures are then allowed to regrow (vegetative) and sprayed with a non-selective herbicide in mid-summer. Pastures are sprayed a second time with a non-selective herbicide just prior to planting in late summer. The second approach is Spray-Smother-Spray. In this method, pastures can be grazed in early spring and allowed to regrow. They are then sprayed with a non-selective herbicide in late spring and a summer annual smother crop is planted (sorghum-sudangrass or pearl millet). The smother crop can be grazed or hayed during the summer months. In late summer, pastures are sprayed a second time with a non-selective herbicide and the novel endophyte tall fescue is planted.

Managing existing tall fescue stands. In some cases, even with high infection rates, it may not make sense to replace tall fescue stands. These stands may be on land with short-term leases or high erosion potential (Figure 1). In these cases, managing existing stands may be the most practical approach. There are a number of management practices that can be implemented to mitigate the negative impacts of the toxic endophyte and together they can improve animal performance to a level almost equal to endophyte free or novel endophyte tall fescue (Figure 2).

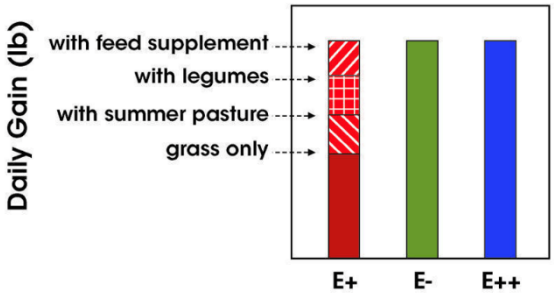

Figure 2. Incremental gains with multiple management inputs. Although production levels similar to novel endophyte tall fescue can be achieved, the cost of production can be high (*Roberts and Andrae, 2004*).

Dilution with other forages. The negative impact of the endophyte can be mitigated by adding non-toxic forages to pastures (Figure 3). Red and white clover can be frost seeded into tall fescue pastures in late winter. For more information on frost seeding please AGR-271, Frost Seeding Clover: A Recipe for Success. Pastures can also be interseeded with other cool- and warm-season grasses. Crabgrass can be incorporated into thinning tall fescue pastures to provide non-toxic forage during the summer months. For more information on crabgrass please see AGR-232, Crabgrass.

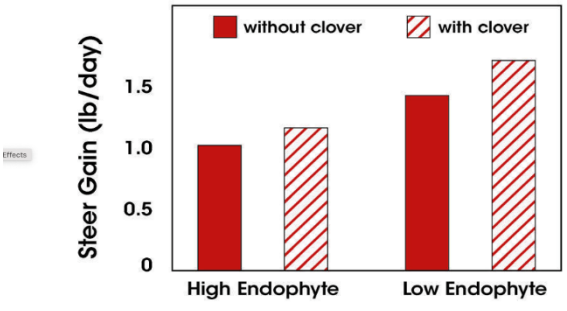

Figure 3. Impact of adding clover to high and low endophyte pastures. Adding clover increased production regardless of endophyte status (Thompson et al., 1993).

Inclusion of forages with bioactive compounds. Research from the USDA Forage-Animal Production Unit located in Lexington, KY has found that some forage species, primarily red clover, contain compounds that can reverse the vascular constriction that is caused be the toxins found in tall fescue infected with toxic endophyte. From a practical standpoint, frost

seeding red clover improves forage quality, converts nitrogen from the air into a plant available form, dilutes the toxins found in tall fescue, and reverses the effects of those compounds. The USDA is working on strategies to consistently supply red clover to animals grazing tall fescue pastures, including adding red clover leaves to mineral supplements. At this point in time, the best approach is frost seeding red clover into your pastures in February on an annual or biannual schedule.

Figure 4. Ergovaline levels in leaf blades, stems, and seedheads of tall fescue (Rottinhaus et al., 1991).

Clipping seedheads. Seedheads can contain five times more ergovaline (toxin in tall fescue) than leaf blades (Figure 4). Clipping seedheads in tall fescue pastures not only maintains forage quality, but also decrease ergovaline levels. Seedheads can also be controlled by plant growth regulators. Applied at the proper time, some herbicides can almost eliminate seedhead formation. More information of seehead suppression with Chaparral herbicide can be found at on the UK Forages Website.

Strategic avoidance. Avoiding tall fescue pastures during critical times of the year such as the summer months or late fall can reduce the negative impacts of the endophyte. For example, a summer annual or perennial forage could be incorporated into the grazing system, allowing cattle to avoid tall fescue during the summer months. Another example would be feeding hay during late fall to allow ergovaline levels in stockpiled tall fescue to decrease to a safe level (Figure 5).

Use local animal genetics. Herds that have been developed in the fescue belt have been indirectly selected for tolerance to tall fescue toxicosis. It is important to recognize that although some animals may have increased tolerance to tall fescue toxicosis it is not and will most likely never be complete tolerance. Genetic testing for tolerance to tall fescue toxicosis is in its infancy and one commercially available test is currently being marketed. A more practical approach may be closely observing animals and culling ones that exhibit signs of tall fescue toxicosis.

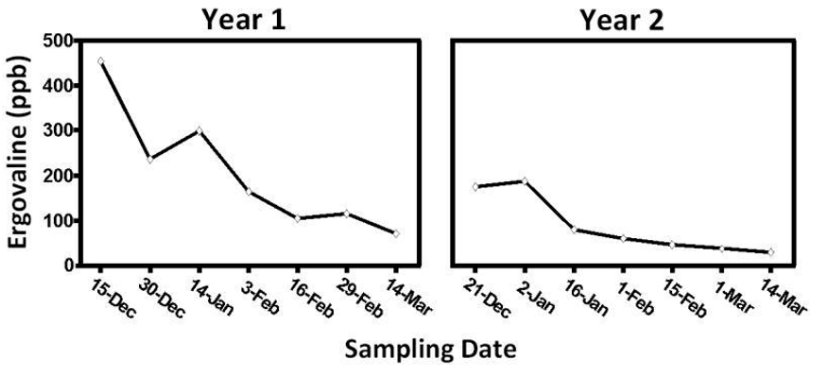

Figure 5. Ergovaline in stockpiled tall fescue as impacted harvest date (Kallenbach et al., 2003).

Supplement tall fescue pastures. Supplementation with energy and protein has been shown to partially alleviate tall fescue toxicosis (Figure 6), although the impact can be marginal, especially at lower supplementation levels. The impact of supplementation is likely two-fold. The first is decreased dietary toxins due to dilution and the second is increased levels of protein and energy

in the diet. As with other management strategies, there is a cost for both the supplement and feeding it.

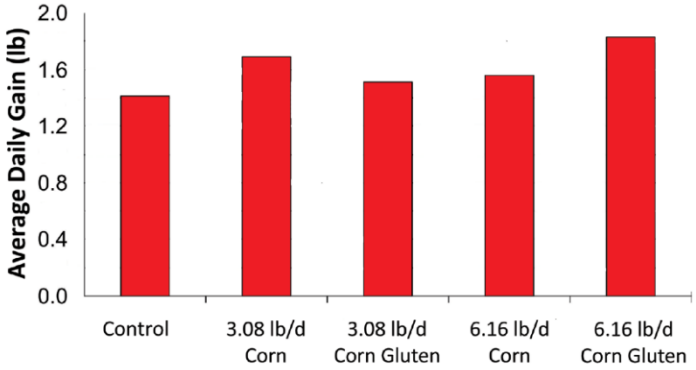

Figure 6. Impact of supplementation on average daily gain (Elizadle et al., 1998).

Tall fescue toxicosis is one of the costliest livestock disorders in the southeastern United States. Its impacts often go undetected on many livestock operations. Developing a management strategy starts with testing pastures for the endophyte. Once this is accomplished, appropriate management strategies can be implemented. While management strategies can mitigate impacts, the only way to completely eliminate the harmful effects of endophyte on livestock is to replace infected stands with other forages or novel endophyte tall fescue.

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Kallenbach, R.L., G.J. Bishop-Hurley, M.D. Massie, G.E. Rottinghaus, and C.P. West. 2003. Herbage mass, nutritive value, and ergovaline concentration of stockpiled tall fescue. Crop Sci. 43:1001–1005. doi:10.2135/cropsci2003.1001.

Roberts,C. and J. Andrae, editors, 2018. Fescue Toxicosis and Management. ASA, CSSA, Madison, WI. doi:10.2135/2018.fescuetoxicosis.

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Thompson, R. W., Fribourg, H. A., Waller, J. C., Sanders, W. L., Reynolds, J. H., Phillips, J. M., Schmidt, S. P., Crawford, R. J., JR., Allen, V. G., Faulkner, D. B., Hoveland, C. S., Fontenot, J. P., Carlisle, R. J., and Hunter, P. P. 1993. Combined analysis of tall fescue steer grazing studies in the eastern United States. J. Anim. Sci. 71:1940-1946.

FEATURED VIDEO

This month's featured video is Practical Considerations for Utilizing Tall Fescue in Grazing Systems-Chris Teutsch, University of Kentucky. This presentation was given at the 2020 Forage Symposium at the Kentucky Cattlemen's Association Annual Meeting, Tall Fescue: Past, Present, and Future, January 17, 2020, Owensboro, KY.

FEATURED PUBLICATION

This month's featured publication is: Comparison of Commercially Available Novel-Endophyte Tall Fescue Forage Varieties by Kendra Phipps, Charlotte Talbott, Madeline Newsome, Deidre Harmon, and Matt Poore. NC Extension, Raleigh, KY.

FENCING TIP

Use fault finder to monitor voltage and find shorts. For electric fencing to work properly, a voltage of approximately 5000 volts should be maintained at all times. Shorts in electric fences can cause reduced voltage and can often be difficult to find. A fault finder shows the direction and severity of the of the short. Purchasing a high-quality fault finder is money well spent!

FEATURED UPCOMING EVENTS

Forages at Kentucky Cattlemen's Association Annual Meeting
Where: Lexington, KY
When: January 12, 2023
More information at https://forages.ca.uky.edu/Events

Kentucky Alfalfa and Stored Forage Conference
Where: Bowling Green, KY
When: February 8, 2023
More information at https://forages.ca.uky.edu/Events

Heart of America Grazing Conference
Where: Cincinnati, OH
When: February 19-20, 2023
More information at https://forages.ca.uky.edu/Events

FORAGE MANAGEMENT TIPS
✓ Apply 30 to 40 lb N/A to strengthen cool-season pastures.
✓ Using a grazing stick or plate meter, estimate standing forage that is available for winter grazing.
✓ Inventory hay supplies.
✓ Adjust animal numbers or purchase additional hay to balance feed supply to livestock numbers.
✓ Test hay and develop supplementation strategies to maintain body condition of cows.
✓ If available, graze crop residues and cover crops that will not overwinter.
✓ Begin grazing winter annuals once they are 6-8 inches tall and root systems are well anchored.
✓ Utilize temporary electric fencing and solar chargers to more efficiently graze winter annuals and stockpiled forage.
✓ Delay use of stockpiled tall fescue until late fall or early winter. This will allow toxin levels (ergovaline) to decrease.

What is the Cost of a Cheap Mineral?

Dr. Katie VanValin, Assistant Extension Professor, University of Kentucky

The quality and cost of mineral supplements can vary greatly, and it can be overwhelming trying to make sense of all the numbers and information listed on the feed tag. While I am always a proponent of trying to manage feed costs, I caution producers against exchanging an adequate mineral for a poor-quality mineral. While saving a couple of dollars on a bag of mineral can certainly add up, it is important that the mineral being provided is still adequate to meet the needs of the herd to prevent mineral deficiencies which can become costly!

In the fescue belt, cattle are especially susceptible to selenium deficiency. Symptoms of selenium deficiency include white muscle disease in calves and decreased immune function and growth. Unfortunately, signs of mineral deficiency can be difficult to spot, and often producers may not realize they have an issue until testing is completed as part of a necropsy. Many complications from mineral deficiencies can be avoided all together by feeding an adequate mineral.

In the United States, concentrations of selenium in the feed are regulated by the Federal Drug Administration. This regulation exists to prevent selenium toxicity from occurring due to over supplementation which could have negative impacts on the health of livestock, wildlife, and humans. Since the inclusion rate of selenium is regulated not to exceed 3 mg per head per day, rarely will you see differences in selenium concentration in free-choice minerals formulated for a similar intake. For example, mineral supplements formulated to be consumed at 3 oz. per head per day will typically contain 35 parts per million of selenium. Since more selenium cannot be added to the mineral supplement, the type of selenium included in the supplement is especially important. Research from the University of Kentucky has shown that feeding a mix of selenium sources can be better than a single selenium source. For this reason, it is recommended that producers choose a mineral that provides 50% of the selenium from sodium selenite and 50% from a selenium yeast.

What is the cost of providing a better form of selenium in the mineral? Recent price comparisons have shown that the difference in price for providing a 50/50 blend of selenium sources increases the cost of the mineral by as little as $1 per bag, assuming all other inclusions were similar. If we assume that a cow typical consumes 1.4 50 lb. bags of mineral per year, that is a difference of $1.40 per cow per year. How does that compare that to cost of losing a single calf due to selenium deficiency?

Fortunately, it is possible to manage mineral costs while still providing a mineral that will meet the nutritional needs of the herd. Take some time to evaluate your mineral tag this year. What source of selenium is included? How much zinc or manganese is included in the mineral? Current recommendations from the UK Beef IRM Basic Cow-Calf Mineral are 3,200 ppm for zinc and 3,750 ppm for manganese. We rarely see deficiencies of these minerals in the state, so over feeding might be adding to your mineral cost without providing an added benefit. Producers can purchase the UK Beef IRM Mineral from local feed suppliers or use the sheet as a guide for selecting a mineral available locally. It is not uncommon for producers to show me a couple of mineral tags and ask me which they should be feeding. Much to their surprise, I don't always recommend the more expensive mineral. Sometimes the better mineral is cheaper, but this isn't

always the case. It is important to evaluate mineral choices and select the mineral that meets the needs of your herd, without providing excess quantities of minerals or other ingredients that may not be beneficial. For help evaluating mineral choices, please reach out to your local Cooperative Extension Service.