Bourbon County Cooperative Extension Service

AGRICULTURE & NATURAL RESOURCES NEWSLETTER

Martin-Gatton College of Agriculture, Food and Environment
University of Kentucky.

November & December 2023

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Upcoming Events:

- **December 5th – BQCA Training**
- **TBD – Master Cattleman Program**
- **December 25th– January 1st – Office Closed for Holidays**
- **January 9th—BQCA Training**

More details about events inside newsletter

PLEASE JOIN US FOR A SPECIAL AWARD PRESENTATION
FOR MR. CLARENCE ABNEY
5:30 PM

Cooperative Extension Service
Agriculture and Natural Resources
Family and Consumer Sciences
4-H Youth Development
Community and Economic Development

MARTIN-GATTON COLLEGE OF AGRICULTURE, FOOD AND ENVIRONMENT

Educational programs of Kentucky Cooperative Extension serve all people regardless of economic or social status and will not discriminate on the basis of race, color, ethnic origin, national origin, creed, religion, political belief, sex, sexual orientation, gender identity, gender expression, pregnancy, marital status, genetic information, age, veteran status, physical or mental disability or reprisal or retaliation for prior civil rights activity. Reasonable accommodation of disability may be available with prior notice. Program information may be made available in languages other than English. University of Kentucky, Kentucky State University, U.S. Department of Agriculture, and Kentucky Counties, Cooperating.

Lexington, KY 40506

Disabilities accommodated with prior notification.

BECOME A MASTER CATTLEMEN

The Master Cattlemen Program was created to give beef producers an in-depth educational course on beef cattle management. Producers completing the program will acquire knowledge that will help them make informed economic management decisions in their beef operations.

Participants receive classroom instruction divided equally among these 6 topic areas:

Reproduction and record keeping
Nutrition for Optimum Production
Facilities and Logistics of Winter Feeding
Genetics for the Beef Herd
Herd Health
Marketing and Profitability

Participants must complete all 6 of the 3 hour sessions

Registration fee: $125 includes all meals, class materials and a farm sign

TO REGISTER:

Call the Bourbon County Extension Office at 859-987-1895 or email Lindsay Arthur at lindsay.arthur@uky.edu

Sessions will begin in early 2024

All sessions will be held at 5:30 p.m. at the Bourbon, Harrison or Nicholas Extension Offices.

Couples are welcome; however, they may need to pay an additional registration fee to cover meal costs. Couples will receive only one set of materials and one farm gate sign. To receive a farm gate sign and complete the Master Cattleman Program, one person must complete all sessions.

College of Agriculture, Food and Environment
Animal and Food Sciences

UK Beef Management Webinar Series

Registration is necessary, however, if you received this email directly from Darrh Bullock then you are already registered If you received this from another source, or have not registered previously, then please send an email to dbullock@uky.edu with Beef Webinar in the subject line and your name and county in the message. You will receive the direct link with a password the morning of each meeting. This invitation will directly link you to the site and you will be asked for the password which can be found just below the link. Each session will be recorded and posted for later viewing. **All meeting times are 8:00pm ET/7:00pm CT.**

December 12, 2023
Shooting the Bull: Answering all your Beef Related Questions! – Updates and Roundtable discussion with UK Specialist

January 9, 2024
Management decisions that impact reproductive efficiency in beef herds – George Perry, Professor, Texas A&M University

February 13, 2024
What's the Cost of a Cheap Mineral – Katie VanValin, Assistant Extension Professor, University of Kentucky

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.

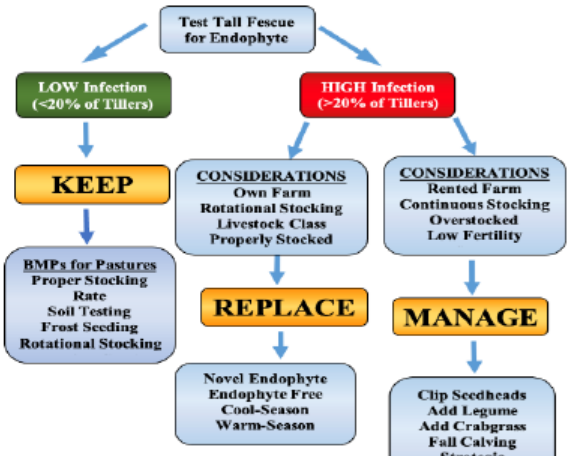

Figure 1. Decision making flow chart for the management and replacement of endophyte infected tall fescue.

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).

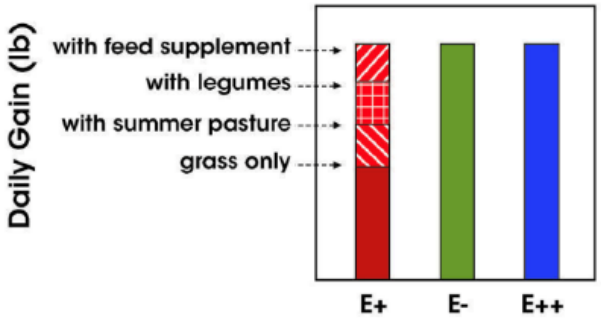

Figure 2. Incremental gains with multiple management inputs. Although production levels similar to novel endophyte tall fescue can be achieved, the cost of production can be high (*Roberts and Andrae, 2004*).

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.

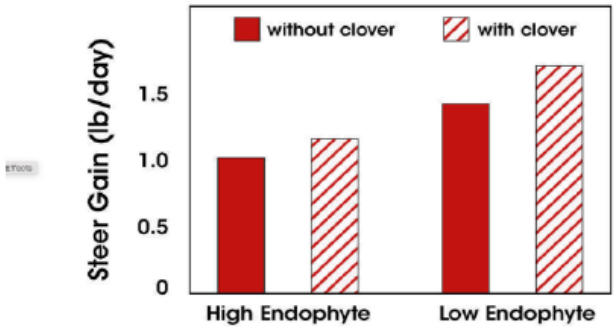

Figure 3. Impact of adding clover to high and low endophyte pastures. Adding clover increased production regardless of endophyte status (Thompson et al., 1993).

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.

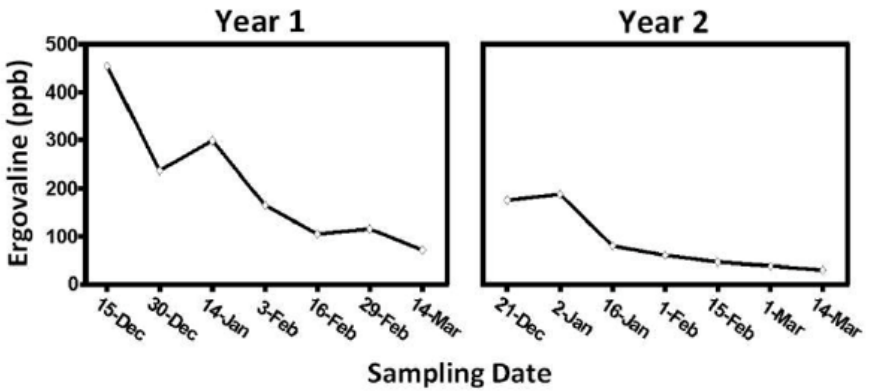

Figure 5. Ergovaline in stockpiled tall fescue as impacted harvest date (Kallenbach et al., 2003).

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.

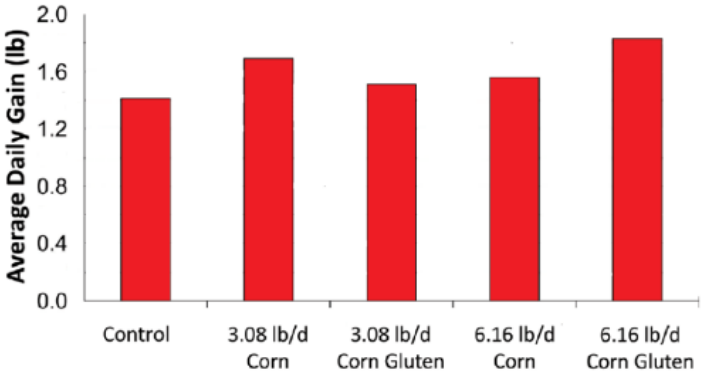

Figure 6. Impact of supplementation on average daily gain (Elizadle et al., 1998).

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.

Plate It Up Kentucky Proud Recipe

Yummy Sweet Potato Casserole

6 medium sweet potatoes
¼ cup maple syrup
2 tablespoons brown sugar
2 eggs
½ teaspoon salt
¾ cup low-fat vanilla Greek yogurt
¼ teaspoon vanilla extract
1 tablespoon cinnamon

Topping:
½ cup brown sugar
½ cup ground rolled oats
1 tablespoon maple syrup
3 tablespoons melted butter
¼ teaspoon salt
½ teaspoon cinnamon
½ cup chopped pecans

Preheat oven to 325 degrees F. **Peel** sweet potatoes and **cut** into 1-inch cubes. **Place** sweet potato cubes in a medium saucepan and **cover** with water. **Cook** over medium-high heat until tender. **Drain** and **mash**. In a large bowl, **mix** together mashed potatoes, maple syrup, brown sugar, eggs, salt, yogurt, vanilla and cinnamon. **Blend** until smooth. **Pour** into a 13-by-9 inch baking dish. Topping: In a medium bowl, **mix** the brown sugar and oats.

Add in syrup, melted butter, salt and cinnamon; **blend** until mixture is coarse. **Stir** in pecans. **Sprinkle** over sweet potato mixture. **Bake** 30 minutes, or until topping is lightly browned.

Yield: 12, ½ cup servings

Nutritional Analysis: 190 calories, 7 g fat, 2.5 g saturated fat, 10 mg cholesterol, 190 mg sodium, 31 g carbohydrate, 20 g sugars, 4 g protein.