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Goat Producer's Newsletter July 2003

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Watch Out For Fescue – Fright

Terry Hutchens, Extension Associate for Goat Production, UK & KSU

Watch out for the delicate, yet certain shift toward absolute pandemonium in the Kentucky Goat industry. Many Kentucky goat producers have been introduced to some of the potentially negative aspects of the most abundant, and perhaps most important forage plant growing in the US (35 Million Acres) and that is none other than **Kentucky 31 Tall Fescue**. Agricultural workers have known that tall fescue has a negative impact on cattle, horses and sheep since the 1950's. It wasn't until the 1980's that the cause of the problem was found to be a fungus living in a mutualistic relationship with the fescue plant. The fungus benefits because it cannot live outside of the fescue plant and is therefore called an endophyte. An endophyte is a plant that lives within another plant. The endophyte has a protected place to live, carbohydrates for food and a method for dissemination via fescue seed.

Similarly, many of the positive attributes of fescue such as drought tolerance, grazing tolerance, over grazing protection and a deep and extensive root system are a result of fescue's relationship with the fungus endophyte.

It is apparent that there is an agricultural benefit to farmers due to this fungus/plant relationship, however these quality factors are tempered with some negative consequences for livestock

producers. The endophyte fungus produces a toxin within the plant that causes animals to stop grazing during hot dry weather, and makes the plant unattractive to many plant diseases and insect pests. Therefore, the fescue plant becomes highly competitive within the pasture field. Once the fescue is established, it becomes very persistent compared to other pasture plant species. Therefore, Kentucky farmers need not be concerned with pasture persistence. Fescue clings to steep slopes, low lands, and uplands and is preventing soil erosion throughout the temperate US. Furthermore, the quality and yield of tall fescue is high during the cool periods of the year. Protein levels can be as high as 22% while TDN can be as much as 6.5 %.

However, cattle grazing high endophyte (E+) tall fescue fail to shed their winter hair coat, become intolerant to heat, and exhibit poor gain and low fertility rates (40-60% lower). Beef steers grazing low endophyte tall fescue (E-) gain 30% to 100% more than do steers grazing high level of endophyte infected fescue. Likewise, horses show many of the same symptoms, as do cattle with low fertility and fetal abortion at the top of the list for the greatest concerns.

Endophyte-free Tall Fescue Appears

The 1980's brought about the development of tall fescue varieties that were almost endophyte free. These introductions were to be the final step toward solving the

endophyte problem. Animal trials were very favorable. Rate of gain, fertility and other health indicators were greatly improved because of the absence of the endophyte.

However, there were three major stumbling blocks in the development of a practical formula for establishment and maintaining low endophyte tall fescue stands. **First**, was the low seedling vigor, observed in non-infected tall fescue varieties. Seedling stands were 60-80% less than E+ stands. **Secondly**, there was no biochemical system within the plant to stop livestock from grazing the E- fescue into the ground. Farmers were faced with the need for grazing management for the first time in 50 years. **Thirdly**, the cost of killing out infected tall fescue and establishing E- tall fescue varieties was cost prohibitive when extremely poor stands were taken into account (>\$200/acre). Furthermore, fescue seed disseminates the endophyte by producing another infected plant. If only a few infected plants remain in the stand, new infected seedling will rapidly emerge and dominate due to less over grazing of these plants and the presence of natural pest resistance.

Infected tall fescue has greater seedling vigor and greater standability than the non-infected varieties. Likewise, infected varieties have the ability to inhibit livestock over grazing. This is particularly true when the fescue is stressed due to hot dry conditions. Because of the poor success in stand establishment for E- varieties together with the high cost of establishment, little change was made in reducing E+ stands in Kentucky.

Novel Endophyte (NON-TOXIC) Endophyte Tall Fescue

During the late 1980's and 1990's, scientists isolated endophyte sub-species within fescue that had the benefit of the positive aspects of E+ fescue plants without the negative impact on livestock. These fescue varieties are now on the market. However, extensive work related to animal performance and standability following

intensive grazing is yet to be done for most varieties.

However, the first novel endophyte tall fescue, MaxQ[®] has been tested for both animal performance and standability following intensive grazing. MaxQ[®] was found to be greatly superior to E+ varieties in animal rate of gain and fertility and standability was observed to be 80-90% better than E- varieties following intensive grazing.

Novel Endophyte Dilemma

Distribution of novel endophyte tall fescue seed to producers of livestock has some problems to consider. It has been known for a number of years that an endophyte toxic or friendly, will not survive more than 1 year in storage. Therefore, if a farmer wants to purchase tall fescue with novel endophyte, and the seed has been in storage for at least one year, the farmer is buying endophyte free seed carrying all the problems associated with E- tall fescue such as poor seedling vigor and low grazing tolerance. The novel endophyte properties are gone and no longer a part of the package. Therefore, farmers must be concerned with making purchases with a guaranteed level of novel endophyte within the fescue seed.

A Common Sense Approach To The Fescue- Endophyte Problem

- ?? There is little scientifically based evidence supporting a negative affect for goats consuming tall fescue with high levels of endophyte. By observation, goats appear to breed, lactate and give birth successfully while consuming a diet high in fescue pastures and hay. Statements to the contrary have appeared in the popular press without scientific support for these claims.
- ?? Mowing of seed heads in the spring will reduce intake of the highly toxic seed by cattle. However, goats favor the seed heads, even though the toxins are known to be highest in the seed. This further supports the first statement.

- ?? Seed legumes such as red clover, annual/perennial lespedeza or alfalfa into tall fescue pastures. These additions will dilute the consumption of the toxic fescue.
- ?? Move livestock off tall fescue (E+) to warm season grasses (perennial or annual) during the hot and/or dry months. Perennial legumes such as lespedeza and alfalfa can also fit into a pasture-grazing plan by incorporating a long (5yr) pasture rotation.
- ?? Feed hay other than E+ tall fescue such as orchard grass, timothy, alfalfa, or red clover reduces the toxicity problems during the winter feeding period.
- ?? Ammoniation of hay can reduce the toxin levels with in tall fescue. (Ammonia gas treatment)
- ?? Use no-tillage crops such as corn, small grain/soybean or Sudan grass to clean pastures of E+ tall fescue and seed Novel Endophyte varieties in the fall.

Implications for KY Goat Producers

Toxins associated with KY 31 tall fescue are a serious economic problem in the U.S. beef cattle industry. The affect and management of these problems has been studied extensively in beef cattle. Few studies have been done on meat or dairy goats. To date, little evidence substantiates an economic benefit for establishing new stands of tall fescue containing novel endophytes. Drastic measures such as extensive pasture reseeding as well as purchasing products to counter the toxic affect on goats should be considered very seriously before large investments are made. Parts taken from: *Carl S. Hoveland, UGA & KY Forage News, July 2003*

Try “Goat Round-UP” For Exotic Weed Control

Terry Hutchens, Extension Associate for Goat Production

There are an estimated 25,000 exotic plant species that have been introduced into the U.S. Approximately 5,000 of these have become established in natural and managed ecosystems. Many of these introduced

species are now serious pests in U.S. pastures, forests and rangelands. The Department of Interior reports that the nation spends \$5 billion each year in attempting to control invading weeds.

Kentucky is an example of a state with an abundance of run-a-way weed problems. The use of herbicides, and their associated public health and environmental risks are not as appealing too many private land companies and government land managers as they once were. Likewise the cost of weed management using hand labor and/or power equipment is staggeringly expensive.

There appears to be a need for managed weed control systems in Kentucky that are more environmentally friendly than herbicides and more cost effective than labor and equipment. Browsing and grazing goats for weed and brush management may serve as an affective yet environmentally friendly alternative for controlling weed pests. Secondly, such an enterprise may well be an excellent opportunity for agribusiness development in both urban and rural settings. The western U.S. has been quite active in using goats for grazing exotic weed pests, fire brakes and land reclamation. In general, landowners pay the grazing company \$1/grazing goat/day with a stocking rate of 100 goats/acre. It is accepted that 100 goats will clear 1 acre/day. Unfortunately, stocking rates are not known for the temperate, humid conditions found in the

However, the Franklin Co. Kentucky Extension Agent, Keenan Bishop, together with Hank Schweickart, KSU livestock manager and myself conducted a one-day trial for a field day in mid-July. A total of 45 adult goats were place on 0.20 acres for a 24 hr period. The goats grazed through a dense stand of buck- bushes, greenbrier and multiflora rose in 12 hrs of browsing. Hypothetically, 45 goats could graze 1 acre in less than 5 days.

**Goat Management Calendar
Wean May Kids in July
And August**

? Note: Weaning is the time to watch for coccidiosis. Chances are greater for picking up coccidian from contaminated feed. Declining maternal antibodies increases the chance for respiratory diseases.

Enterotoxaemia or over-eating and aciditosis are a threat with regressive concentrate feeding. If kids are allowed to graze short (4-6 inch) pastures contaminated with gastrointestinal parasites, extensive intestinal parasitism will occur.

Marketing Considerations

? Be aware of the summer/fall dip typically seen in market goat prices.

? Utilize graded sales or Tel-o-auctions to market 40-80 pound slaughter kids.

? Does bred now will kid in December and resulting slaughter kids will likely be ready for market before the typical drop in price expected in May/June 2004.

? Always observe proper withdrawal times on de-wormers, antibiotics, and other drugs before marketing animals for slaughter.

**Terry Hutchens, Extension Associate,
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**Nutrient Value of Exotic Graze and
Browse Plants Found in Kentucky**

Plant	% Protein	% TDN	% Ca	% Phos
Juniper, Cedar	6.5	64		
Lespedeza common, bloom	14.6	52	1.2	.27
Johnsongrass, young	15.5	61	.93	.31
Kudza	17.5	65	3.1	.23
Sudangrass, early	16.8	70	.43	.41
Acorns, fresh fruit	4.8	47		
Honeysuckle buds and leaves	16.0	72		
Honeysuckle buds and leaves, late	10.0	69		
Oak early	17.4	72		
Oak late	7.5			
Hackberry, mature	14.0	41	4.0	.13
Sumac, early	13.7	77		

Taken from Fact Sheet D-03, 1993, F. Pinkerton et al, Langston University, Langston OK

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