

FESCUE TOXICITY EFFECT - REDUCTION VS. ELIMINATION

“...GOAL SHOULD BE TO ELIMINATE TOXINS.”

Fescue toxicity is a serious problem facing beef producers throughout the fescue belt of the United States. The detrimental effects of fescue toxicity are well documented and include reductions in conception rate, forage intake, gain, milk production and calf weaning weights. Much research has been devoted to developing grazing systems and management strategies to reduce the effects of fescue toxicity. These systems and strategies include (1) diluting toxic fescue pastures by the addition of non-toxic forages such as clover, orchardgrass or small grains, (2) avoiding summer grazing of toxic fescue pastures, (3) feeding only non-toxic hay and (4) providing supplemental grain, silage or other feedstuffs. More recently, the use of herbicides to reduce or eliminate fescue seedhead development has received much heralded coverage in farm media outlets.

A couple of these articles referenced a 2-year study in Kentucky where researchers found that in fescue pastures where seedheads had been chemically suppressed, stocker cattle had almost .6 pound higher average daily gains than their counterparts grazing on fescue pastures where seedheads were not chemically controlled.

While such strategies to reduce fescue toxicosis have proven to deliver varying degrees of success, they do not come without costs nor do they eliminate fescue toxicity. For instance, the cost of chemical seedhead suppression can approach upwards of \$20 per acre annually. In addition, re-

search has shown a loss of fescue bio-mass ranging from 15% to 63% depending on the stage of fescue growth at the time of chemical application. This had a significant effect on the carrying capacity of the pasture.

In a recent presentation to producers in Mississippi, Dr. Joe Bouton, a former University of Georgia plant breeder and previous Director of the Nobel Foundation Forage Improvement Division, stated that the goal should be to eliminate all harmful toxins. With the development and release of new, non-toxic novel endophyte varieties of tall fescue (**Jesup MaxQ** and **Texoma MaxQ II**), this can be achieved in a practical and proven economical manner. These varieties totally eliminate cattle performance issues associated with toxic fescue while providing the plant persistence and ruggedness of toxic KY 31.

Producers planning for the long term would be wise to give strong consideration to total elimination of fescue toxicity by renovating their current toxic fescue pastures to Jesup MaxQ or Texoma MaxQ II.



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MaxQ A GOOD ALTERNATIVE TO SMALL GRAINS FOR STOCKERS

Stocker cattle producers have long relied on winter annuals to provide the needed nutrients for optimum stocker growth. But with the release of new, non-toxic novel endophyte-infected tall fescue varieties such as Jesup MaxQ or Texoma MaxQ II, stocker operators have an effective and economical alternative to winter annuals. In a stocker grazing study at the University of Arkansas comparing MaxQ and small grains, grazing days were 35% greater (98 vs. 72) in the fall and double (113 vs. 56) in the spring with novel endophyte fescue versus small grains. Per acre gains were similar (252 lbs. vs. 256 lbs.) in the fall for both forages, but were double (575 lbs. vs. 261 lbs.) in the spring for novel fescue. Economic analysis showed per acre profits to be significantly greater (\$148 vs. \$1.50) with novel endophyte fescue.

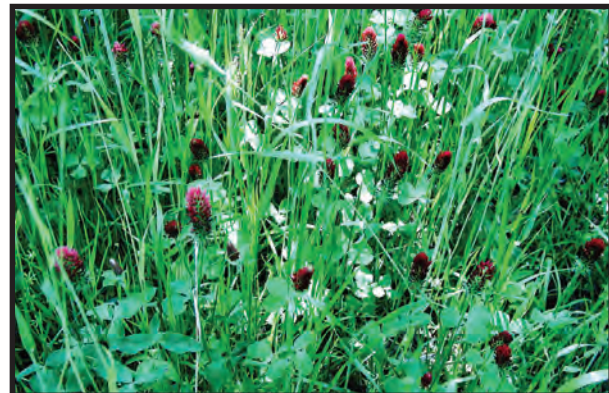
COVER CROPS ALSO BENEFICIAL TO PASTURES AND HAY FIELDS

IMPROVE PASTURE AND HAY LAND FROM THE SOIL UP

The benefits of incorporating cover crops into row-crop production systems are well documented. Repeated research has shown that the use of cover crops increases water retention, suppresses weeds, improves soil tilth, aids in nutrient retention and builds soil organic matter. These combined benefits lead to higher yields and lower production expense. While not traditionally considered, these same attributes hold true when certain cover crops are used in pastures and hay fields for grazing or hay production.

A good example is Pennington's **Cover Star™ All Purpose Mixture** that contains a combination of Pennington's proven Wintergrazer 70 grain rye and AU Sunrise crimson clover. As a grazing forage, Wintergrazer 70 provides lush, high quality grazing throughout the late fall and winter months. AU Sunrise provides a high protein and energy forage feed source to meet the extra nutritional demands of growing cattle and cows nursing calves. As a legume, it provides 75 lbs. per acre or more free nitrogen (a value of \$50/A or more) that can be used by companion forages and/or the following spring crop (including hay and perennial warm season pasture grasses). As it does in row-cropping systems, this mixture conditions the soil by improving soil porosity and increasing soil organic matter. The cumulative result of these benefits is improved animal performance, higher forage yields, lower costs and improved long term soil tilth and health.

More information about Pennington's Field Guard™ lineup of cover crop seed mixtures is available under the Forage tab on the Pennington Seed website at www.pennington.com



Cover crops containing small grains and clover offer dual-purpose benefits for livestock producers including improved animal performance, higher forage yields, lower costs and improved long term soil tilth and health.

MaxQ Tall Fescue Frequently Asked Questions

Is MaxQ safe for horses? Yes. Both Jesup MaxQ and Texoma MaxQ II have been university proven to be safe for all classes of horses including pregnant mares and mares nursing foals.

Can MaxQ be harvested for hay? Yes. MaxQ makes high quality, toxin-free hay that is safe for all classes of livestock (including horses). Note: When harvested for hay, mowers should be set to leave a minimum of 3" of stubble height.

Can I harvest MaxQ seed to sell or use on my own farm? No. Jesup MaxQ and Texoma MaxQ II are patented and protected varieties; therefore it is illegal to harvest seed for personal use or to sell to another farmer.

Will applying chemicals to fescue pastures & hay fields to suppress seed heads eliminate fescue toxicity? No. While toxic fescue seed heads have high levels of toxins, toxins are also found in the plant leaves. Suppressing seed heads may help reduce the amount of toxins the animals ingest, but does not eliminate all fescue toxicity symptoms. The only way to totally eliminate fescue toxicity is to replace the toxic fescue with forages that do not produce any toxins.

How do MaxQ forage yields compare to KY 31? Based on University trial data, forage yields of Jesup MaxQ and Texoma MaxQ II have been equal to or slightly higher than the forage yield of KY 31.

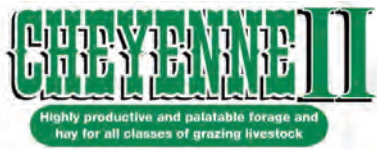
Can MaxQ be seeded into thinning KY 31 tall fescue pastures? Yes. MaxQ can be overseeded into KY 31 pastures similar to orchardgrass or winter annual grasses. MaxQ can be a better alternative to these grasses because it will persist better. Like with orchardgrass and winter annuals, using non-toxic MaxQ to thicken existing toxic fescue stands in pastures can reduce the effects of fescue toxicosis resulting in improved animal performance. However, this practice does not totally eliminate fescue toxicity. Maximum cattle performance and MaxQ stand life is best obtained with pure stands of MaxQ.

PREPARATION FOR SPRING BERMUDA PLANTING BEGINS NOW

Spring may be weeks away, but for those considering the establishment of new stands of bermudagrass or thickening existing stands, preparation should begin now. Early preparatory items include:

- 1) Collecting a soil sample to determine soil pH and crop nutrient needs.
- 2) Applying needed lime as determined by soil test.
- 3) Contacting the local seed supplier to place your order early if a seeded bermuda variety is to be planted. This helps insure that the producer gets his/her first choice of variety.
- 4) Scouting the area to be planted for unwanted winter annual broadleaf weeds and grasses and if needed, applying an appropriate herbicide. Note: When choosing an herbicide, give particular attention to plant-back restrictions for seeding or sprigging bermuda.

For details on establishing Pennington's **Cheyenne II** and **Mohawk** seeded bermuda products, see the guide entitled **Successfully Establishing Seeded Bermudagrass** under the Tips & Guides section of the Forage Knowledge Center on the Pennington website www.pennington.com.



Cheyenne II Seeded Forage Bermudagrass FAQ's

Will Cheyenne II revert back to common after only a few years of growth?

No. Cheyenne II is a certified, stable variety. It is not a mixture or blend of seed containing common or other varieties of bermuda. As such, it remains as an excellent yielding, highly digestible, improved forage bermudagrass year after year.

What are the advantages of planting Penkoted treated bermudagrass seed?

Penkote is Pennington's proprietary seed coating that contains limestone, fungicide, two bio-stimulants and green dye. Limestone creates a suitable pH around each seed. It also draws water to the seed to improve germination. The fungicide protects the germinating plant from several seedling diseases resulting in higher germination and more vigorous seedling growth. The bio-stimulants promote more rapid emergence and improve seedling vigor and survival. The green dye deters birds from eating seed that may be left on the soil surface during planting.

Are there advantages to planting a single variety like Cheyenne II instead of a blend?

When properly managed, a certified variety like Cheyenne II provides consistent production performance over the life of the stand. Performance of blends can vary from year to year depending on what varieties they contain and at what percentages these varieties are blended. Many blends contain varieties that give rapid establishment and first year growth, but because they are not widely adapted, die off after a few years leaving poor stands. If these blends contain 50% or more of these short-lived varieties, production can be negatively affected.

How much production can I expect in the establishment year?

First year production is entirely dependent on stand coverage, weather conditions and soil fertility. Studies have shown that Pennington's seeded varieties can product 1-2 tons of usable forage in the establishment year with proper fertilization, favorable temperatures and adequate rainfall.

Tall fescue and orchardgrass are popular forages that are widely adapted across the United States. These cool season perennial bunchgrasses have similar seasonal growth patterns and are commonly used for grazing and hay production. Traditionally, many farmers have preferred orchardgrass over fescue for hay production because of concerns about fescue toxicity. Many have overseeded orchardgrass into their toxic fescue pastures in an effort to dilute the amount of toxin ingested and mitigate the effects of toxic tall fescue in their cattle herd.

In general, orchardgrass is not as persistent under grazing conditions and is more limited in its area of adaptability than tall fescue. This means that farmers may need to periodically thicken or replant their orchardgrass pastures and hayfields to maintain a suitable stand. Currently, the supply of orchardgrass seed is very limited, leaving farmers who want to thicken existing orchardgrass pastures and hayfields or establish new plantings in a quandary as to what they can do. The availability of non-toxic, novel endophyte tall fescue varieties such as **Jesup MaxQ** and **Texoma MaxQ II** now give farmers a good alternative to orchardgrass for their high quality, non-toxic pasture and hay forage needs.

As can be seen in the **MaxQ and Orchardgrass Comparison** table, MaxQ offers a number of superior production traits over orchardgrass while providing the same desirable animal performance and forage quality traits of orchardgrass. Of particular note is the stand longevity, grazing and drought tolerance superiority of MaxQ.

MaxQ and Orchardgrass Compared

DESIRED TRAIT	MaxQ	ORCHARDGRASS
Stand Longevity	Excellent	Fair
Grazing Tolerance	Excellent	Fair
Drought Tolerance	Excellent	Fair
Disease Tolerance	Excellent	Poor
Insect Tolerance	Excellent	Fair
Cattle Performance	Excellent	Excellent
Equine Performance	Excellent	Excellent
Hay Production	Excellent	Excellent
Forage Quality	Excellent	Excellent
Soil Acidity Tolerance	Excellent	Fair
Poor Drainage Tolerance	Excellent	Fair
Summer Productivity	Good	Fair



N APPLICATION TIMING IS KEY FOR TALL FESCUE PASTURES

Tall fescue responds well to nitrogen fertilization. Research has shown that a pound of nitrogen applied in the fall can result in 10-25 lbs/A dry matter forage production while late winter/early spring applications of N can result in 35-40 lbs/A or more of dry matter forage per pound of N up to certain levels of application. Timing of application is critical. Fertilizers containing nitrogen should be applied to tall fescue just prior to the onset of rapid forage growth. With adequate rainfall, this period occurs from March through early May and again from September through early November. This means that nitrogen containing fertilizer should be applied to fescue pastures in mid-February to mid-March and again in late August or early September. Recommended nitrogen application rates for fescue pastures vary by region. Consult with local ag experts for specific recommendations for the area.



Tall fescue responds well to nitrogen fertilizer providing up to 40 lbs/A or more dry matter per pound of N applied. Timing of application should be just prior to the onset of periods of rapid growth of the fescue.

MAXIMIZE PRODUCTIVITY OF COOL SEASON PASTURES

“...CAN SIGNIFICANTLY LOWER WINTERING COSTS...”

According to farm economists, wintering expenses can comprise 60-70% or more of the annual costs of maintaining a brood cow. Establishing, maintaining and effectively using cool season pastures can significantly lower wintering costs while also improving animal gains. The combined result is greater farm profit. There are several strategies beef producers can employ to maximize productivity of their cool season pastures.

Use improved forage varieties - In recent years, new, higher yielding varieties of cool season perennial forages have been released that have higher yields and give greater animal performance. A great example is Pennington's novel endophyte-infected, non-toxic **Jesup MaxQ** and **Texoma MaxQ II** tall fescue varieties. Extensive research has shown these varieties to provide significant improvement in stocker gains, calf weaning weights and animal health when compared to toxic KY 31 while offering similar plant persistence, hardiness and forage yield. New orchardgrass varieties like Pennington's **Olympia** are now being marketed that offer higher forage yields and significantly greater grazing tolerance and persistence.

Add clover - Research throughout the country has shown an increase in total forage produced and notable improvement in cattle gain when clover is added to perennial cool season pastures. In addition, a good stand of clover (30-35% basal coverage) can provide 100 lbs/A or more nitrogen, thus reducing the need for purchased nitrogen fertilizer. The introduction of highly persistent and durable white clover varieties such as **Durana** and the high cost of nitrogen fertilizer have further proven the value of including legumes in the farm grazing system.

Maintain soil fertility - Soil pH is critical for cool season forages. Maximum plant uptake of the major nutrients N, P & K occurs when the soil pH is between 6.0 & 6.8. Cool season perennial pastures respond well to nitrogen fertilization. The key is timing of N application. For cool season forages, fertilizers containing nitrogen should be applied just prior to periods of rapid forage growth. With adequate rainfall, there are normally two such periods - one occurring from March through early May and a second period from September through early November. For cool season pastures, a general recommendation is to apply 40-60 lbs/A nitrogen in late August or early September and another 50-100 lbs/A in mid-February to mid-March. It should be noted that all nutrients are essential for optimizing plant growth and survival. Particular attention should be given to soil potassium levels. Low soil potassium levels can result in poor yields, increased disease susceptibility and higher plant mortality.

Employ grazing management systems - In general, a good pasture in the South, Upper South, Midwestern and Mid-Atlantic regions of the country will support one cow/calf pair per 1.5 to 2 acres. Studies across the U.S. have shown beef stocking rates can be increased 25% - 35% when a “residue and rest” or “rotational grazing” system is utilized. An added benefit of such a grazing system is improved forage vigor, quality and persistence. Cool season perennial forages are well suited to fall stockpiling for use as winter grazing during the late fall and early winter months. Research has shown significant savings in cattle winter feeding costs when a stockpiled forage grazing system is utilized.

Control weeds - Weeds rob pasture forages of nutrients and moisture, provide unnecessary competition and lowers overall pasture quality and productivity. Weeds can be controlled mechanically or chemically. However, one of the cheapest and easiest ways to control weeds is to maintain a good stand of desirable grass. This is best accomplished by employing proper fertilization and grazing management practices.



Producers can maximize productivity of cool season pastures by using improved forage varieties, adding clover, maintaining soil fertility, employing a grazing management system and controlling weeds.