

Fescue Toxicosis, Footrot & Pinkeye

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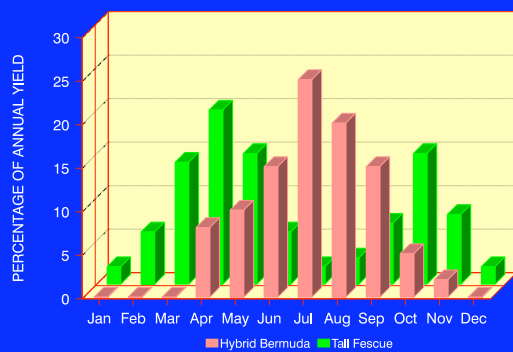
FT OCT 12 (NCM PRESENTATION 2003)

Tall fescue is
widely distributed
across the mid and
eastern US making
up over 14 million
ha of pasture and
hay land



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Seasonal Distribution of Forage



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Fescue Toxicosis

- Much of the total tall fescue is endophyte (fungus) infected KY31
- Endophytes produces alkyloids toxic to grazing animals
- Forms of toxicity:
 - Fat necrosis
 - Fescue foot
 - Summer syndrome





For each 10% increase in endophyte infection

- ~ 5% reduced calving %
- ~ .10 lb/day reduced steer gain

Fescue Toxicosis

- Residual effect:
*consume high alkaloid concentrations in spring
= severe heat stress worsened by hot summer temperatures*
- Nitrogen fertilization:
including poultry litter makes toxicosis worse
- Effects on other species:
sheep, horses

- *Endophyte free fescue* has been around for several years. *Novel endophyte-infected, non-toxic fescue* (or *Max Q*) is a relatively new type.
- Endophyte-infected, but does not produce ergot alkaloids (that are most the toxic substance)
- The real question is:
 - Is it worth it to replant Non-toxic infected fescue?

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Non-Toxic Infected Fescues

- Georgia-5 with MaxQ
- Jesup with MaxQ
- ARK Plus – “quashed”

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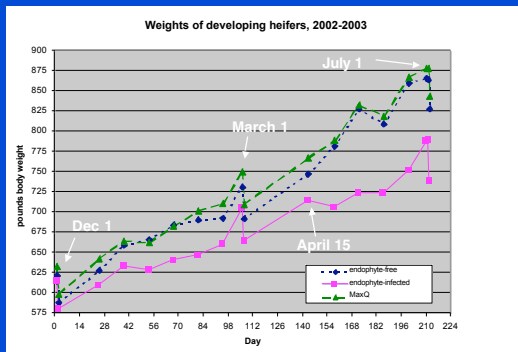
Dry Matter Intake on Toxic Endophyte Infected, Endophyte-Free or MaxQ infected Fescue Hay

	TE	EF	MaxQ	SEM
Ad lib DMI kg/d	10.98 ^b	12.41 ^a	12.47 ^a	0.040
Ad lib DMI %BW	1.84 ^d	2.07 ^c	2.12 ^c	0.040

^{a,b} Means within a row with different superscripts differ ($P < 0.01$).
^{c,d} Means within a row with different superscripts differ ($P < 0.05$).

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Weights of heifers grazing fescue with varying endophyte status



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Summary of MaxQ Research and Economic Evaluation of Replacing Ky-31 with MaxQ

Stacey Gunter and Paul Beck
University of Arkansas

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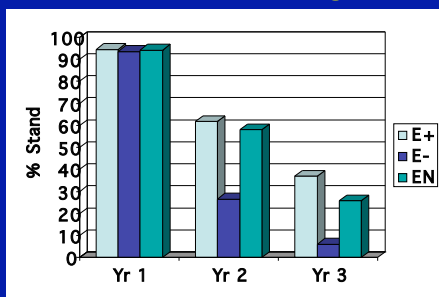
Performance of cattle grazing fescue with or without endophytes, summary of 6 trials

Item	E+	E-	EN
ADG, lb/d	1.34	2.11	1.84
Gain, lb/acre	209	291	270

Endophyte-free and non-toxic were not different in 4 of the 6 experiments.

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Stand survival of MaxQ Fescue. Average of Jesup and Ga5 at 2 locations in Georgia



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Net return by year of establishment of MaxQ with or w/o a discount expected on fescue cattle

Year	No discount	\$7.5/cwt discd
1	-371	-371
3	-249	-48
5	-140	+240
7	-43	+496
15	+250	+1269
21	+395	+1654

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Non-toxic endophyte fescue

- Seems to have good potential
- Seed is still expensive
- Takes 3-7 years to pay off establishment costs
- Performance of cattle and grass will be acceptable

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Managing Fescue Toxicosis

“Alkaloid management” (Roberts & Andrea, 2004)

1. Replacement of endophyte infected pastures

- Endophyte **free** varieties
- Endophyte **friendly**, novel/introduced **non-toxic endophyte** varieties

Managing Fescue Toxicosis

“Alkaloid management” (Roberts & Andrea, 2004)

2. Management of endophyte infected pastures

- Have dedicated warm season grasses
 - Annuals
 - Sorghum-sudan
 - Millet
 - Crabgrass
 - Perennials
 - Bermudagrass
 - Dallisgrass
 - Natives: Gammagrass, switchgrass, bluestems, etc.

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Managing Fescue Toxicosis

"Alkaloid management" (Roberts & Andrea, 2004)

2. Management of endophyte infected pastures (*cont.*)

- Dilute toxic fescue with legumes or other grasses
- Feed supplements
- Fertilize with low levels of Nitrogen
- Control seed heads
- Use heat tolerant cattle species

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Dealing with Fescue Toxicosis

"Alkaloid management" (Roberts & Andrea, 2004)

3. "Remedies"

- Tasco – *seaweed based*
- Endo-Fighter (ADM)
- FEB-200 (Alltech)

FEB-200 - Alltech

- Yeast cell wall product (glucomanan)
- Binds toxins in the gut
- Data shows that when cattle are fed endophyte infected fescue with FEB-200 more of the toxins are excreted in the feces
- Production studies have shown that body temperature may be lowered and weight gain increased in cows grazing infected fescue
- There has been no consistent effect on weaning weights

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Conclusions

- Best solution is to get cattle off infected fescue during hot weather (use warm season forages)
- Non-toxic infected fescue and perhaps other cool-season grasses for new plantings ("Persist Orchardgrass")
- Other remedies have limited research support but may help in some situations



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