

# Let's Speak Horse!

Join us for an educational webinar designed to help you reach horse owners in your area.

Horses and cattle have many different needs, and so do their managers. This webinar is designed for NRCS Conservationists and Cooperative Extension agents who want to better reach and serve the equine populations in their areas.

**April 8th, 2020**

**8:30 am - 12:00 pm EST**

**Online Webinar**

**Free event**

Open to any NRCS or Cooperative Extension personnel in any state!



## Program

8:30 – Welcome and Orientation

8:40 – Understanding the Horse Owner, Krista Lea and Dr. Bob Coleman

9:00 – Health Concerns for Horses, Dr. Emma Adam

9:35 – Break and Questions

9:45 – Horse Grazing and Pasture Management, Dr. Ray Smith

10:15 – Designing Facilities for Horse Farms, Dr. Bob Coleman

10:45 – Break and Questions

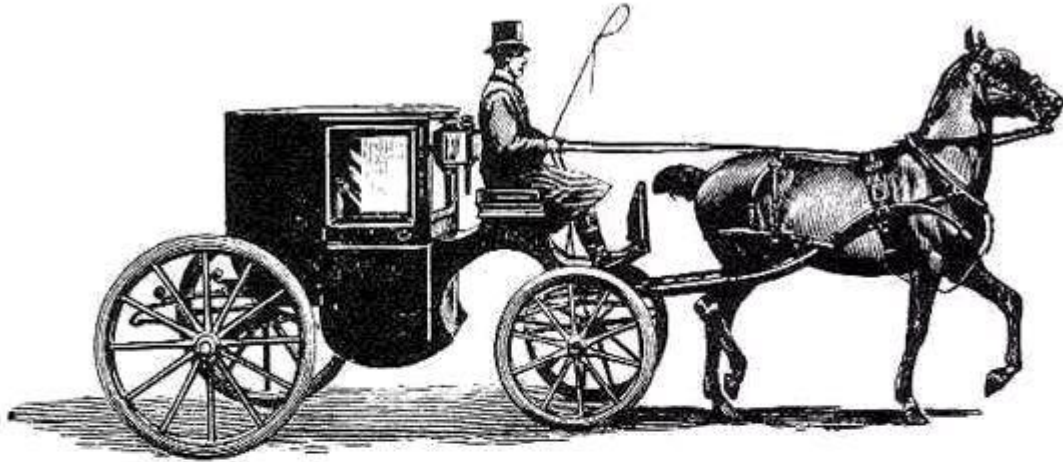
10:55 – Case Study: Meet Stacy Denton and Blue Moon Stables

11:40 – Implementing Conservation Practices Standards on Horse Farms, Adam Jones

12:05 – Survey and Adjourn

 Agriculture, Food and Environment

**THEN**



**NOW**



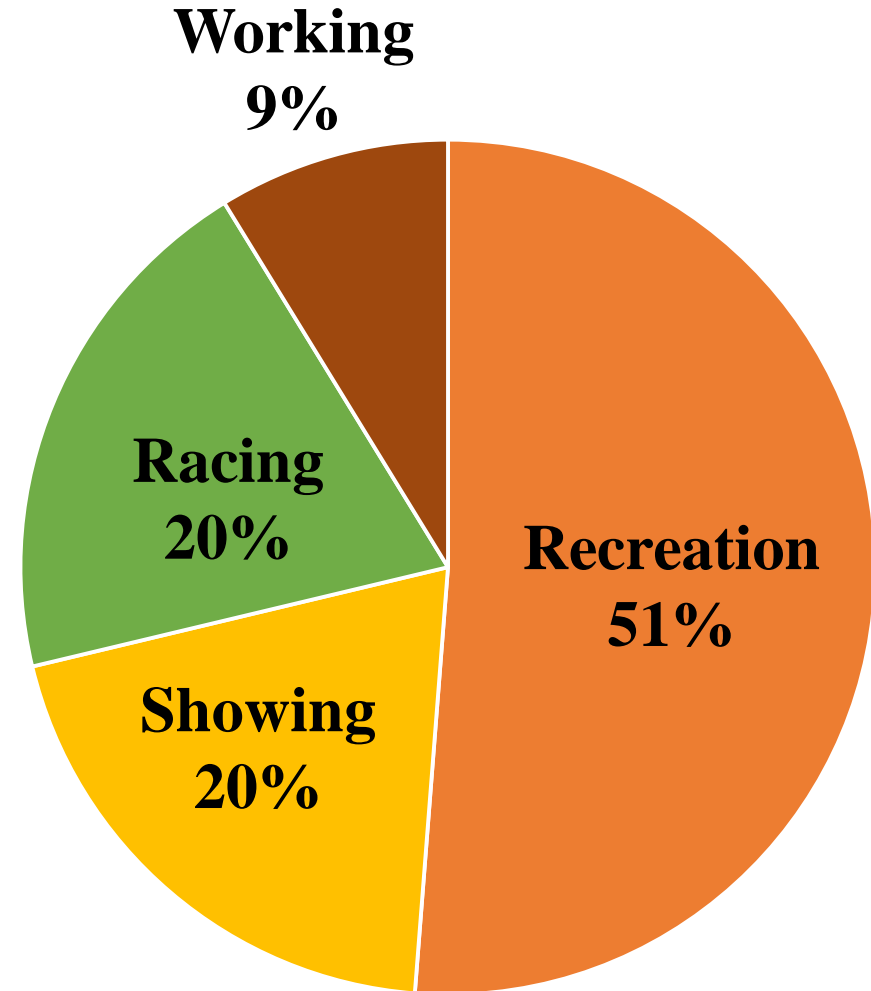
# Understanding the Horse Owner

Krista Lea, MS  
Dept. of Plant and Soil  
Sciences

Dr. Bob Coleman  
Animal and Food Sciences

# Horse Industry - National

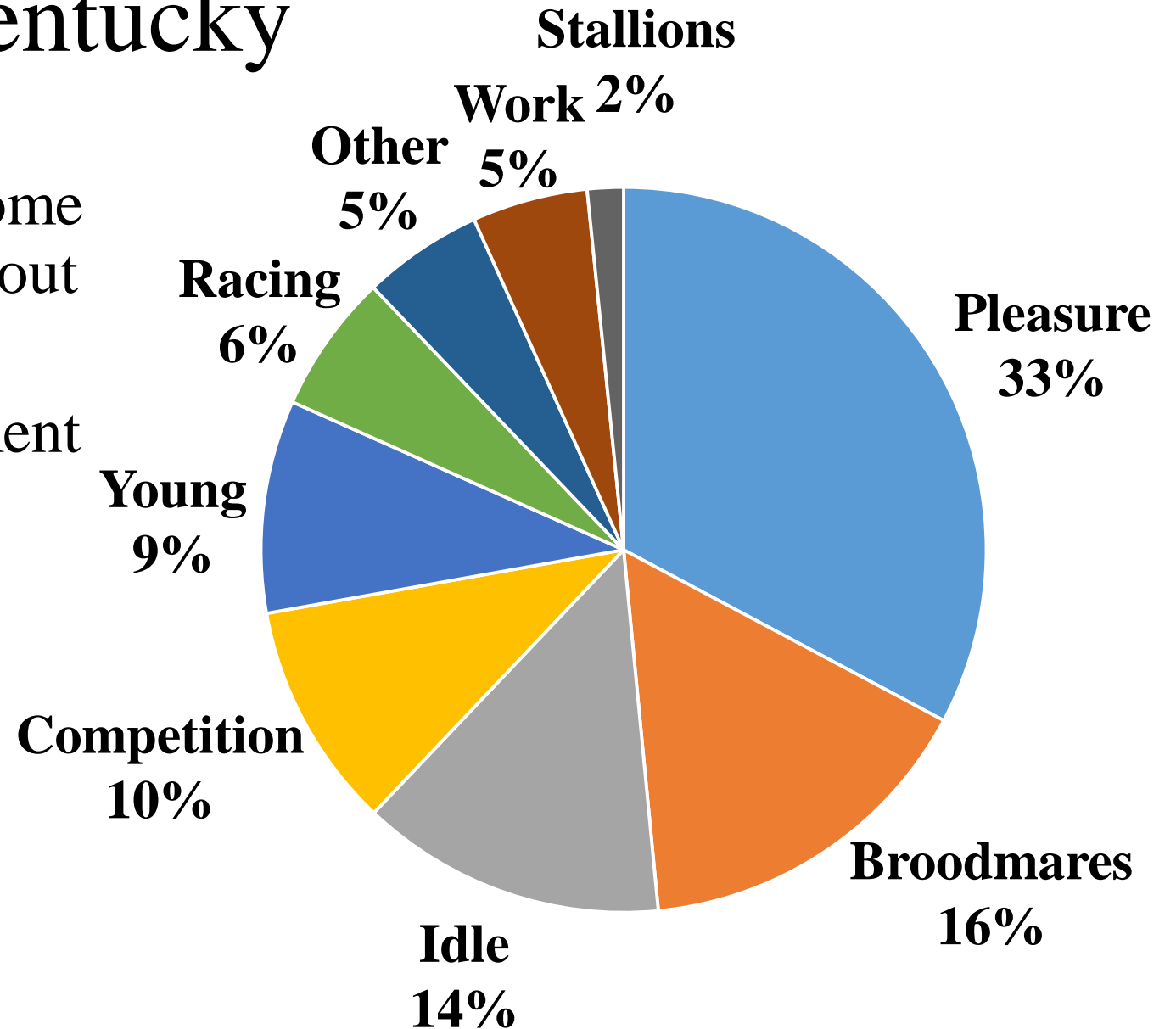
- Total contribution of \$122 billion to the economy
- Employment impact of 1.7 million jobs
- 7.2 million horses in the US
- 80 million acres dedicated to equine use
- 30% of households contain an equine enthusiast



Data: American Horse Council Foundation, 2017

# Horse Industry - Kentucky

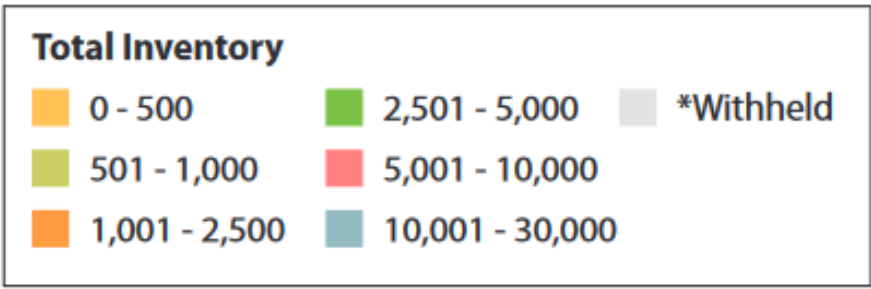
- Equine related sales and income for equine operations was about \$1.1 billion
- Equine impacts on Employment estimated at 40,665 jobs
- 242,400 horses
- 35,000 equine operations
- 1.1 million acres



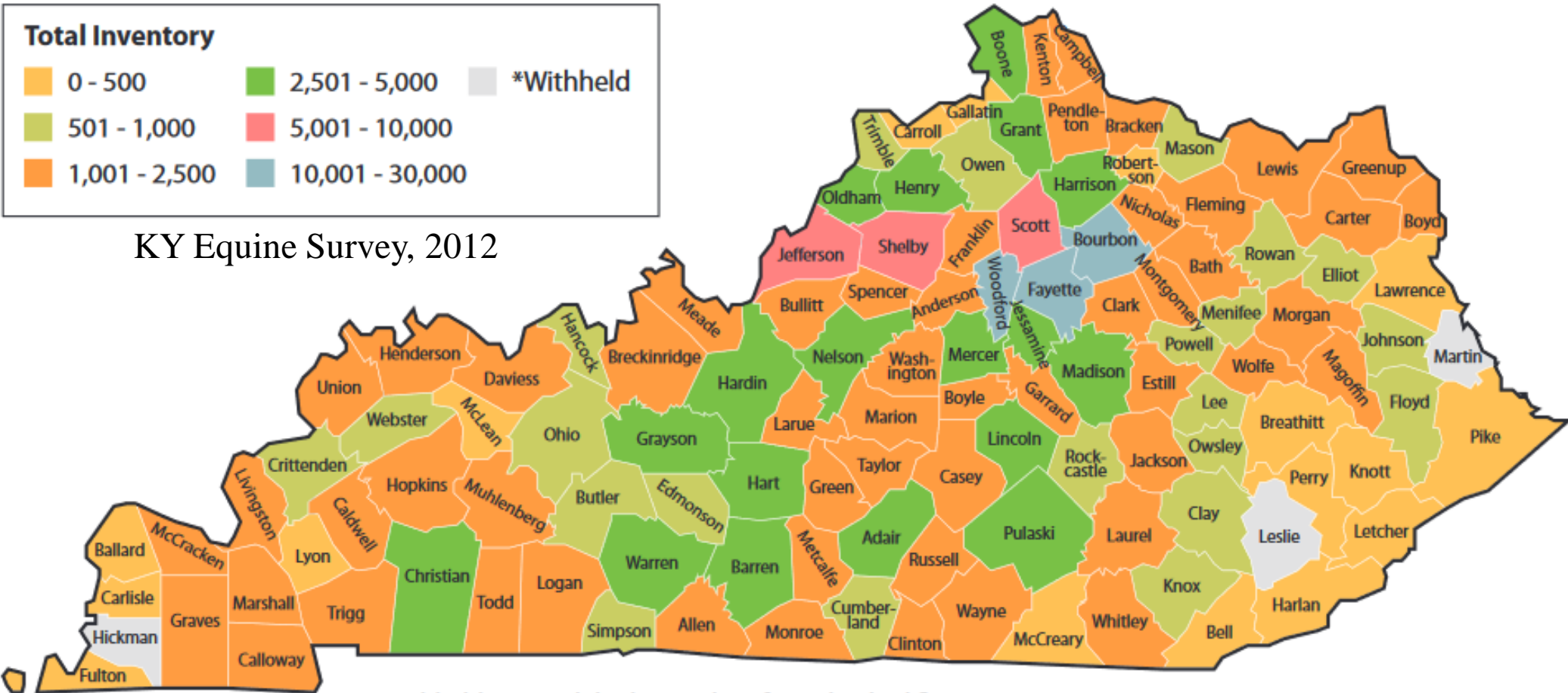


# Horse Industry - Kentucky

## Kentucky Equine Inventory by County



KY Equine Survey, 2012



*\*Withheld to avoid disclosing data for individual firms.*

# Who are horsemen?



“Cattle Farmer”



“Horse People”





Fall 2018 Kentucky Equine Management Internship class





Spring 2018 UK Equine Science and Management graduates



# Value of Horses



Racehorse: \$8,650,300  
Stud: \$200,000 (2016)  
@ 200 mares: \$40M



Cost: \$300  
Feed, bedding, vet, farrier,  
supplements, show entries



# Industry Perspective



Bob Coleman PhD PAS  
Associate Professor  
Equine Extension  
Department of Animal and Food Sciences



# Business of Horses



Business models

breeding and raising horses

stand stallions

sales prep of horses

sales of horses





# Business of Horses

## Business models

training horses adding value  
training of riders - lessons  
boarding of horses



# Business of Horses

Business models  
horse owner

not in business  
expenses not much income









# Colic & Laminitis

EMMA ADAM

DVM, PHD, DACVIM, DACVS

UNIVERSITY OF KENTUCKY

[emma.adam@uky.edu](mailto:emma.adam@uky.edu)



\$1200 hay /y

\$75- 150 q 6 w shoes

\$50/m meds



# COLIC IS AN UMBRELLA TERM

- Abdominal pain
- Uterine pain
- Urinary tract pain
- Thoracic pain



# COLIC IS AN UMBRELLA TERM

- Life threatening
- Costly
- Distressing for owner and horse



# GRAZING IS A HORSE'S BEST FRIEND

- *USUALLY*

- Constant grazing
- Not meal eaters
- Non-stretchy stomach
- Constant acid secretors
- Exercise
- Stress





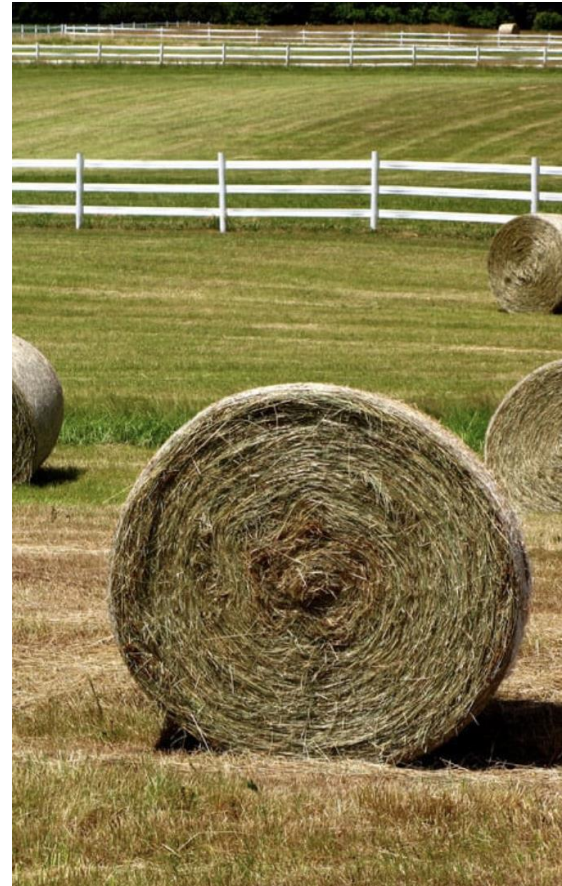
# SEASON

- Spring and fall have highest incidence
- Winter
  - Large colon impactions
  - ? Dietary changes,
  - ? Housing restrictions
  - ? Exercise restrictions



# OTHER RISK FACTORS

- **Change in diet**
- Decreased exposure to pasture
- *Feeding more than 2.7 kg of oats per day*
- Feeding coastal Bermuda grass hay
- **Feeding hay from round bales**



\* Botulism risk

# WHAT HAPPENED?

- **Feral Horses**

- Continuous grazers
- Fiber-rich, low-starch grass
- Slow seasonal changes



- **Modern Day Horse**

- Fed high starch diets in bolus fashion
- Rapid changes in feed
- Limited forage
- Stress
- Limited movement



# CARBOHYDRATES

- Cereal grains
  - Wheat
  - Oats
  - Corn
  - Barley
  - Rice
  - Barley



# 3 CATEGORIES OF CARBOHYDRATES

- Hydrolyzable carbohydrates (CHO-H)

- Easily digested
- Absorbed in the small intestine

- Rapidly fermentable carbohydrates (CHO-F<sub>R</sub>)

- *Bacillus, Lactobacillus, Streptococcus*

- Slowly fermentable carbohydrates (CHO-F<sub>S</sub>)

- Easily fermented by fibrolytic bacteria in the large colon to short chain fatty acids
- **Major source of energy**
- *Clostridiaceae, Fibrobacter, Spirochaetaceae*



# ADVERSE COLONIC ENVIRONMENT

**Undigested CHO-H and CHO-F<sub>R</sub> in the colon promotes overgrowth of *Streptococci* and *Lactobacilli***

- Decrease in pH of colon
- Fibrolytic bacteria compromised
- Decreased acetate production
- Impaired mucosal barrier
- Dysmotility
- Gas production
- Colon displacement and volvulus



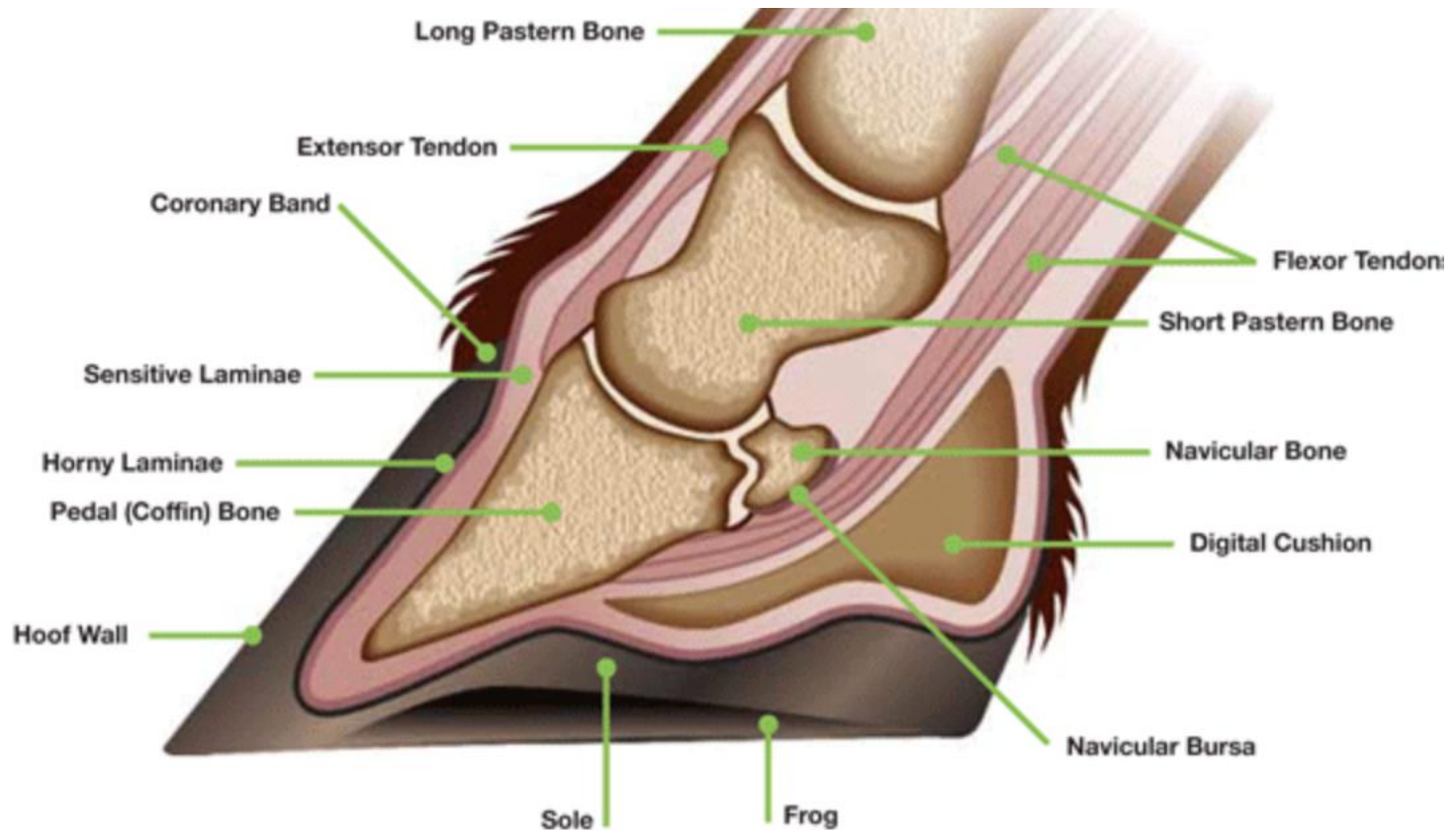
# VETERINARY CARE

- Parasite control
- Dental care
- Body condition
- Balanced diet
- Hoof care
  - ~ 4 -6 weeks
- Vaccination annually
  - Botulism (round bales)



# LAMINITIS

- Inflammation of the lamina (wall and sole)

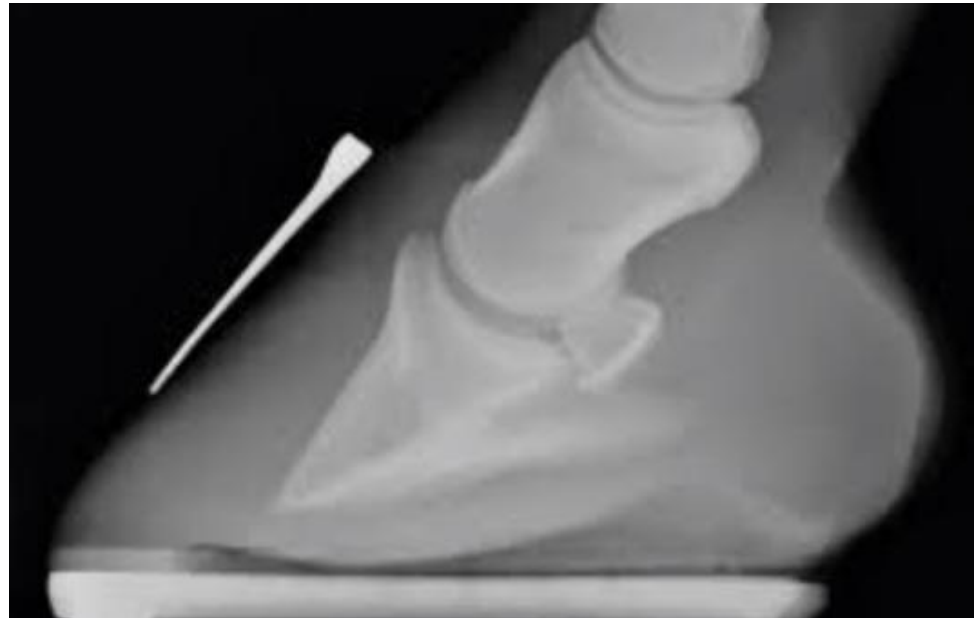




# LAMINITIS PAIN - ACUTE PHASE



# LAMINITIS - CHRONIC

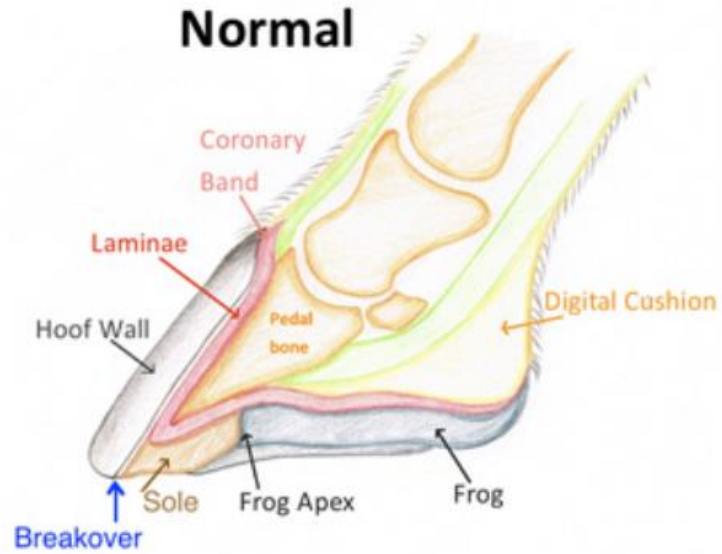




# LAMINITIS – WHAT WE KNOW?

- Changes in the Gut can lead to trigger release for lamina inflammation  
*Strep. bovis spp.*
- **Insulin insensitivity** – heavy predisposition to laminitis
- Inflammation in laminae
- Dysregulation of enzymes (MMP2 & MMP9)
- Loss of structural integrity

# LAMINITIS



# ADVERSE COLONIC ENVIRONMENT

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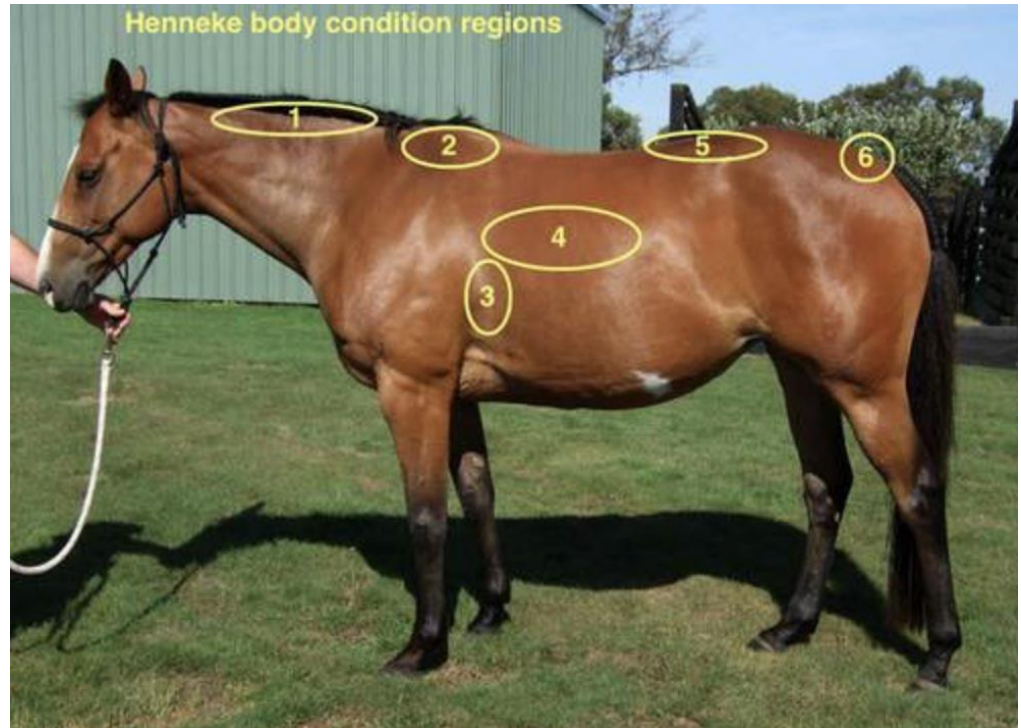
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# BODY CONDITION





# GRAZING IS A HORSE'S BEST FRIEND

- *USUALLY*

- Sugar composition and content
- Stressed grasses



# LAMINITIS AND GRAZING

## **The Fructan Jingle**

by Katy Watts

When you wake at crack of dawn  
Graze your pony on your lawn  
But sugars rise in afternoon,  
For foundered ponies, this spells doom

When frosts cause fructans to increase  
Your ponies grazing now must cease.  
Hold off a day, or maybe more,  
Or else your pony may get sore.

# LAMINITIS





# Horse Grazing and Pasture Management



**Dr. Ray Smith**  
**UK Forage Specialist**  
**USDA-NRCS-RCPP Training**  
**Lexington, KY Feb. 26, 2019**





Kentucky Master Grazer Educational Program

# 2019 Kentucky Grazing Calendar

*Better Pasture & Grazing Management*



# UK Forage News

[Click HERE to subscribe to the Newsletter!](#)

[February 2019 \(pdf version\)](#)

- [Anne Bay Wins Second in National Contest](#)
- [Looks Like I need that hay after all](#)
- [My Permanent Pastures Aren't](#)
- [Converting to Novel Entophyte Tall Fescue](#)
- [The Importance of Forage Analysis](#)
- [Chewing some Cud on Mud](#)
- [Insects in Livestock Feed and Hay](#)

## FORAGE TIMELY TIPS: February



[Would You Like to be an EVENT](#)

## UPCOMING EVENTS

**Alfalfa and Stored Forage Conference**  
Feb 21 2019 (All day)

**Small Ruminant Grazing Conference**  
Feb 23 2019 (All day)

**Novel Tall Fescue Renovation Workshop**  
Mar 20 2019 (All day)

**Spring Kentucky Fencing School - Lexington**  
Apr 9 2019 - 7:30am to 4:30pm

**Spring Kentucky Fencing School -  
Burkesville, KY**  
Apr 11 2019 - 7:30am to 4:30pm

**Spring Kentucky Grazing School - Princeton**  
Apr 23 2019 - 7:30am to Apr 24 2019 -  
5:30pm

**Spring Kentucky Fencing School-Russellville**  
May 30 2019 - 7:30am to 4:30pm

**2019 Forages at  
KCA Proceedings**

**2018 KY Grazing Conference  
Proceedings**



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## Anne Bays Wins Second in National Contest

Posted on **February 1, 2019**



Anne Bays, co-owner and operator of Moonlight farms in Corbin KY, won second place in the National Forage Spokesperson Contest at the

### LOOKING FOR MORE?

Over 200 extension publications produced by the University of Kentucky are available online at [www.uky.edu/ag/forage](http://www.uky.edu/ag/forage).



**Organized and Sponsored by the Kentucky Forage and Grassland Council,  
UK Cooperative Extension Service, and the Master Grazer Program**

*helping producers learn the newest fencing methods and sound fencing  
construction with classroom and hands-on learning*

**WHEN:** April 9, 2019 in Lexington, KY  
April 11, 2019 in Burkesville, KY  
May 30, 2019 in Russellville, KY

**WHERE:** Pirri Equine Teaching Pavilion  
UK Maine Chance Farm  
2815 Newtown Pike  
Lexington, KY 40511

Cumberland County Extension Office  
90 Smith Grove Road  
Burkesville, KY 42717

Logan County Extension Office  
255 John Paul Road  
Russellville, KY 42276



**2019 Kentucky**





**KYForages**

1,380 subscribers

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FEATURED CHANNELS

2018 USDA Internship Program  
Using Summer Annuals to Transform  
Forage Systems in Western Kentucky!!!

Hunter Adams, USDA Intern and Undergraduate Student  
UK Grain and Forage Center of Excellence  
Presentation made at the American Forage and Grassland Council Annual Meeting  
Held in St Louis, MO, January 6-8, 2019

KADF University of Kentucky College of Agriculture, Food and Environment Kentucky Master Grazing Educational Program

2:12

Summer Annuals - Poster Presentation at AFGC

47 views • 1 week ago

2018 USDA Internship Program  
Grain Drill Calibration Made Easy!!!

Jessica Buckman, USDA Intern and Undergraduate Student  
UK Grain and Forage Center of Excellence  
Presentation made at the American Forage and Grassland Council Annual Meeting  
Held in St Louis, MO, January 6-8, 2019

KADF University of Kentucky College of Agriculture, Food and Environment Kentucky Master Grazing Educational Program

3:04

Grain Drill Calibration - Poster Presentation at AFGC

14 views • 1 week ago

Building a Grazing System Around Tall Fescue

Chris Teutsch  
UK Research and Education Center at Princeton  
chris.teutsch@uky.edu or 270-365-7541

36:49

Building a Grazing System Around Tall Fescue-Chris...

397 views • 3 months ago

THEN AND NOW...

14:30

KFGC Forage Spokesperson-Billy Glenn Turpin

89 views • 3 months ago

POPULAR CHANNELS

Maya and Mary [EN]

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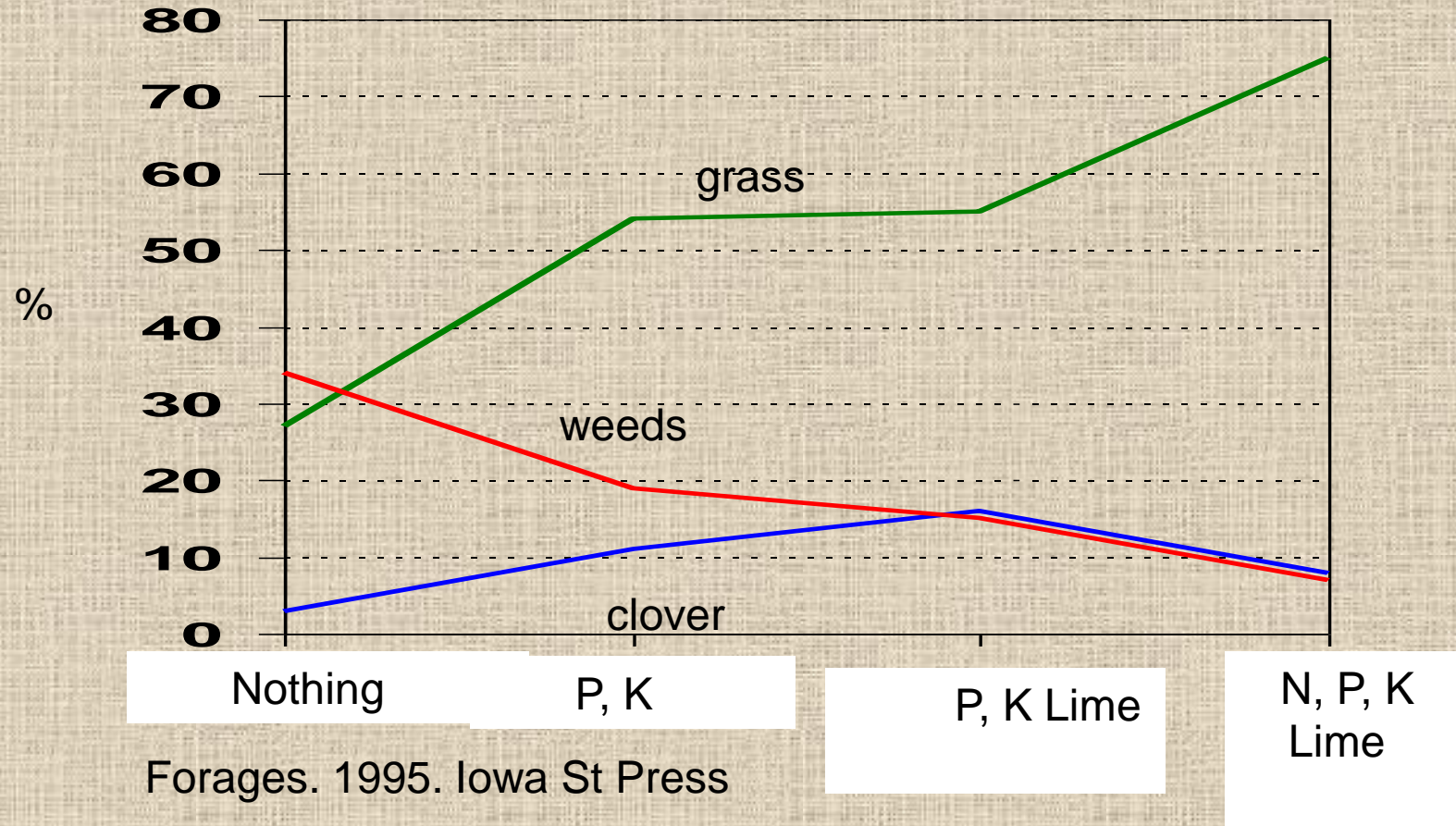
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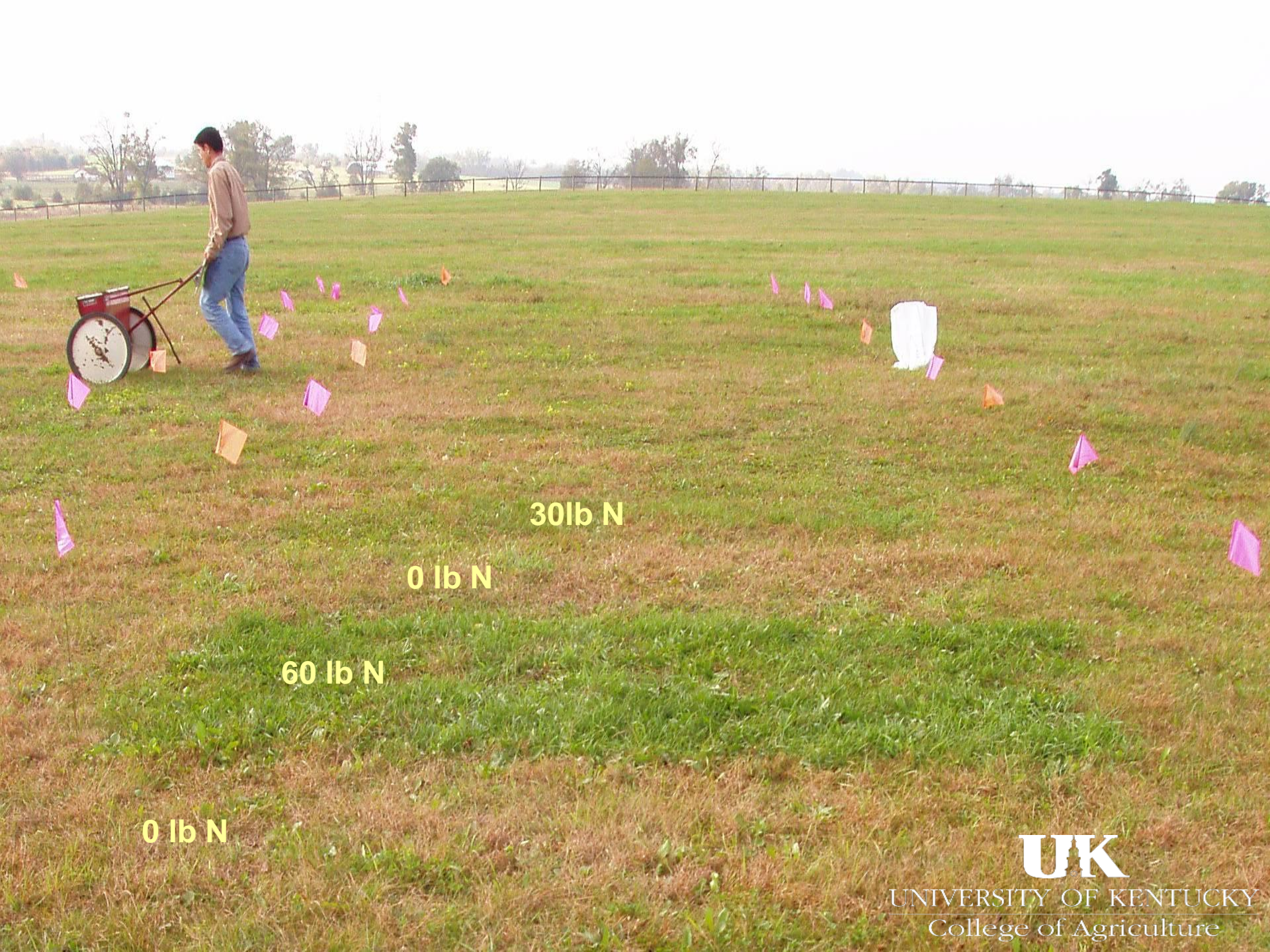
# Take soil samples

- Work with your consultant, county agent, or farm supply store to determine fertilizer requirements.
- Apply recommended lime, P and K fertilizer at any time of the year.
- Apply nitrogen late fall for cool season grasses.

# Effect of fertility on composition of unimproved pasture







30lb N

0 lb N

60 lb N

0 lb N





Thoroughbred mares grazing  
Wrangler Bermudagrass at UK  
Research Farm







# Broadleaf Weeds of Kentucky Pastures

*J.D. Green and W.W. Witt, Plant and Soil Sciences*



Spiny Amaranth



Buttercup



Cocklebur



Horsenettle



Tall Ironweed



Hemp Dogbane



Poison Hemlock



Marshelder





# Response of Pasture Weeds to Herbicides and Mowing

Weed Species	Life Cycle <sup>1</sup>	Preferred Time for Herbicide Treatment <sup>2</sup>	2,4-D	dicamba (Banvel/Distinct)	dicamba + 2,4-D (Weedmaster)	Crossbow	PastureGard	Milestone	ForeFront	metsulfuron <sup>3</sup>	MOWING <sup>4</sup>
Amaranth, Spiny (Pigweed)	A	May-July	F/G	F/G	G	G	F/G	F	G	G	X
Aster spp. (White Heath Aster)	A	July-Sept	F/G	G	G	G	-	-	-	F	R
Burdock, Common	B	Feb-Mar	G	F	G	G	G	F	G	F	R
Buttercup spp.	A	Feb-Mar	G	F/G	G	G	F	F	G	G	X
Carrot, Wild (Queen Anne's Lace)	B	May-June	G	G	F/G	F/G	F	P	G	G	R
Chickweed, Common	A	Nov or Feb-Mar	P	F/G	G	F	G	G	G	G	X
Chicory	P	Feb-Mar or Aug-Nov	F/G	F/G	G	G	G	G	G	F/G	R
Clover, White	P	May-Aug	F/G	G	G	G	G	G	G	G	X
Cocklebur, Common	A	May-July	G	G	G	G	G	G	G	G	R
Dandelion	P	Oct-Nov or Mar-Apr	G	G	G	G	F/G	F/G	G	G	X
Deadnettle, Purple	A	Feb-Mar	P	F/G	G	F	G	G	G	G	X
Dock, Curly or Broadleaf	P	Feb-Apr	P/F	F	F/G	G	F/G	G	G	G	X
Dogbane, Hemp	P	May-Aug	F	F	F	F/G	G	P	P/F	P	S
Garlic, Wild	P	Nov or Mar-Apr	F	F	F	F	P	P	F	G	X
Goldenrod spp.	P	June-Aug	F	F/G	G	G	G	P	F/G	P	S
Hemlock, Poison	B	Nov or Mar-Apr	F/G	G	F	F/G	P	P	F/G	F	R
Henbit	A	Feb-Mar	P	F/G	G	F	G	G	G	G	X
Horsenettle	P	July-Aug	P	F	F	F	P	G	G	F	X
Ironweed, Tall	P	June-Aug	P	P/F	F	G	G	G	G	P	S
Jimsonweed	A	May-July	F	G	G	G	-	G	G	-	R
Lespedeza, Sericea	P	June-July	P	P/F	P/F	G	G	P/F	P/F	F/G	X
Marshelder (Sumpweed)	A	May-July	F/G	F/G	G	G	F	F/G	G	F	R
Milkweed, Common	P	July-Sept	P	F	F	F	P/F	P/F	P/F	P	S
Mint, Perilla	A	May-July	F	F	F/G	G	F/G	-	G	-	S
Multiflora Rose	P	Apr-June or Sept	P/F	P	F	G	G	P	P	G	X

Goldenrod spp.	P	June-Aug	F	F/G	G	G	G	P	F/G	F	S
Hemlock, Poison	B	Nov or Mar-Apr	F/G	G	F	F/G	P	P	F/G	F	R
Henbit	A	Feb-Mar	P	F/G	G	F	G	G	G	G	X
Horsenettle	P	July-Aug	P	F	F	F	P	G	G	F	X
Ironweed, Tall	P	June-Aug	P	P/F	F	G	G	G	G	P	S
Jimsonweed	A	May-July	F	G	G	G	-	G	G	-	R
Lespedeza, Sericea	P	June-July	P	P/F	P/F	G	G	P/F	P/F	F/G	X
Marshelder (Sumpweed)	A	May-July	F/G	F/G	G	G	F	F/G	G	F	R
Milkweed, Common	P	July-Sept	P	F	F	F	P/F	P/F	P/F	P	S
Mint, Perilla	A	May-July	F	F	F/G	G	F/G	-	G	-	S
Multiflora Rose	P	Apr-June or Sept	P/F	P	F	G	G	P	P	G	X
Passionflower, Maypop	P	May-July	P	-	P	-	F	P	P	-	X
Plantain, Broadleaf or Buckhorn	P	Oct-Nov or Mar-Apr	F/G	F	F/G	G	F	P	F/G	F/G	X
Pokeweed, Common	P	May-July	F	G	F/G	F/G	P	F/G	F/G	P	S
Ragweed, Common	A	May-July	G	G	G	G	G	G	G	P	R
Ragweed, Lanceleaf	A	May-July	F/G	G	G	F	-	-	-	P	R
Sorrel, Red (Sheep Sorrel)	P	Sept-Nov or Mar	P	G	F/G	F/G	F	-	-	F/G	X
Thistle, Bull	B	Oct-Nov or Feb-Mar	G	G	G	G	F/G	G	G	F/G	R
Thistle, Canada	P	Prebud or Oct-Nov	P	P/F	F	F	P/F	G	G	F	S
Thistle, Musk	B	Oct-Nov or Feb-Mar	G	G	G	G	F/G	G	G	F/G	R
Thistle, Plumeless	B	Oct-Nov or Feb-Mar	G	G	G	G	F/G	G	G	F/G	R
Trumpetcreeper	P	Aug-Sept	P	P/F	P/F	F	F	P	P	P	X
Yarrow, Common	B	Feb-Mar	G	G	G	-	-	-	-	F/G	X

Control: **G** = Good or Excellent; **F** = Fair (suppression or partial control); **P** = Poor; - = No Information

<sup>1</sup> Life Cycle: **A** = Annuals; **P** = Perennials; **B** = Biennials

<sup>2</sup> The preferred time for herbicide treatment will depend on environmental conditions and other factors.

<sup>3</sup> Active ingredient in several products (e.g. Cimarron, Patriot, Purestand). May cause temporary yellowing, stunting and seedhead suppression of tall fescue (consult label).

<sup>4</sup> Mowing: **R** = Timely mowing reduces top growth and seed production; **S** = Suppression of top growth; **X** = Not very effective

This table should be used only as a guide for comparing the relative effectiveness of herbicides to a particular weed. The herbicide may perform better or worse than indicated in the table depending on the species, weed size, time of application and/or extreme weather conditions. Consult herbicide label for weed height or growth stage and product amount. Read and follow all label directions and precautions before herbicide application.

Adapted from AGR-172 (Revised 10-2012)

# Chain Harrow

- **Helps distribute manure and encourage even pasture growth**
- **Aesthetically pleasing**
- **Beneficial to reduce parasite load under hot dry conditions**









# **Avoid damaging pastures over winter and early spring**

- Periodically move hay feeding areas.
- Limit vehicle traffic on wet soils.
- Establish a sacrifice paddock.

# Dry Lots and Feeding Pads

**Table 1.** Costs for high traffic area pads.

<b>Item</b>	<b>Cost/sq ft</b>
<b>Materials</b>	
Geotextile filter fabric	\$0.06
Rock base (no. 4 crushed limestone)	\$0.25
Densely graded aggregate	\$0.14
<b>Total Materials</b>	<b>\$0.45</b>
Labor/Grading Work	\$0.35
<b>TOTAL COST</b>	<b>\$0.80</b>

The cost is relatively low compared to roughly \$4.00/sq ft for a concrete pad







Kentucky and surrounding states are known for grass pastures and horses. Pastures supply nutrients, provide hoof support for exercise, control erosion, and add to the aesthetic value of horse farms. The ability to establish and manage horse pastures is therefore important to horse owners.

Horses graze closer than cattle and tend to repeatedly graze the same areas of a pasture, so desirable forage plants in a pasture can be reduced or eliminated. Hooves can also damage pastures, even with grasses that form tight sods. Areas

# Establishing Horse Pastures

*Ray Smith, Garry Lacefield, Laura Schwer, and William Witt, Plant and Soil Sciences; Robert Coleman and Laurie Lawrence, Animal and Food Sciences*

## Basic Establishment Requirements

The following recommendations will increase your chances of success whether you are seeding all or part of a pasture.

**Apply any needed lime and fertilizer amendments.** A current soil test will indicate the amount of lime, phosphorus, potassium, and other nutrients (except for nitrogen) needed for the species to be seeded. Contact your county extension agent on how to properly take a soil sample or see the UK publication *Soil Sampling and Nutrient Management in Horse Pastures* (AGR-200, [www.uky.edu/Ag/Forage](http://www.uky.edu/Ag/Forage) under “Publications”).

**Use high-quality seed of an improved**

High-quality seed has high rates of germination and is free of contamination from seed of other crops or weeds. Look for this information on the seed tag and remember that a blue certified seed tag is a guarantee of seed quality and purity.

When buying tall fescue seed for pasture used by pregnant mares, make sure that the tag clearly states that this variety is endophyte-free or low endophyte (usually less than 5 percent). If this information is not clearly stated, assume that the tall fescue seed is infected, and **do not use** in pastures to be grazed by pregnant mares. The new novel endophyte tall fescues contain a non-toxic endophyte which helps the plant survive but does not cause problems in pregnant mares

# Establishment Cool Season Grass Pastures

- **Total Kill**

- Usually takes 12 - 18 months for complete sod
- Early fall is the preferred date, early spring next
- Have exact species desired
  - » KY Bluegrass
  - » Orchardgrass
  - » Perennial Ryegrass
  - » E-Tall Fescue or Novel
  - » White Clover
  - » Mixture

- **Renovate Stands**

- Usually takes 6-12 months









# No-Till Drill

- More effort and attention to detail
- More consistent results
  - putting seed in contact with soil
- Can be successful in spring or fall









# DAY 6



01:14    🔍    🔄    📺    ⏪    ▶    🔊    🔌





# 2018 Cool-Season Grass Horse Grazing Tolerance Report

*G.L. Olson, S.R. Smith, C.D. Teutsch, J.C. Henning, and T.D. Phillips, Plant and Soil Sciences, and L.M. Lawrence, Animal and Food Sciences*

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## Introduction

Cool-season grasses such as Kentucky bluegrass, tall fescue, and orchardgrass are dominant pasture grasses for horses in Kentucky. Variety evaluations for yield have been carried out for many years, but little work has been done to establish the effect of variety on persistence when subjected to close, continuous grazing by horses.

The purpose of this report is to summarize current research on the grazing tolerance of varieties of tall fescue, orchardgrass, and other species when subjected to continuous heavy grazing pressure by horses within the grazing season. The main focus will be on stand

survival and good performance across years and locations in replicated yield and grazing trials, such as those presented in this publication. Choose high-yielding persistent varieties and varieties that are productive during the desired season of use. Refer to the appropriate yield trial reports for yield data on specific varieties of interest.

**Seed quality.** Buy premium-quality seed that is high in germination, high in purity, and free from weed seed. Buy certified seed or proprietary seed of an improved variety. An improved variety is one that has performed well in independent trials. Other information on the label will include the test date (which must be within the previous nine months), the

alkaloids that are toxic to horses and cattle. Similarly, when seeding tall fescue insist on endophyte-free or novel endophyte varieties (the endophyte level will be stated on a green tag on every bag of seed). Seed of novel endophyte varieties should be handled carefully to preserve the infection, which means keeping seed cool and planting as soon as possible. Novel endophyte tall fescue varieties are good options for horses because of their improved persistence and absence of the toxic alkaloid. The exception is the novel endophyte variety BarOptima PLUS E34. It contains low levels of the alkaloid ergovaline and therefore should never be seeded in pastures where pregnant mares are grazing, since they are very sensitive



# 2018 Annual and Perennial Ryegrass and Festulolium Report

G.L. Olson, S.R. Smith, T.D. Phillips, C.D. Teutsch, and J.C. Henning, *Plant and Soil Sciences*

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## Introduction

Annual ryegrass (*Lolium multiflorum*) and perennial ryegrass (*Lolium perenne*) are high-quality, productive, cool-season grasses used in Kentucky. Both have exceptionally high seedling vigor and are highly palatable to livestock. In Kentucky, winter survival can be an issue for many annual ryegrass varieties, so before planting, review winter survival results in this publication. The severe winter of 2014-2015 showed those varieties that are not adapted to Kentucky (see winter injury and percent stand columns in Table 3).

Annual ryegrasses are increasing in use across Kentucky as more winter-hardy varieties are released and promoted. Annual ryegrass is productive for three

wolds ryegrass varieties are commonly used in the lower South (Florida to Texas) because they can be seeded in the fall and will survive the winter. Many varieties also survive Kentucky winters. Italian ryegrass is native to Southern Europe and is not a true annual. Italian ryegrasses provide high yields of quality forage and show quick regrowth. If planted in the spring, no or few seedheads will grow that summer (vernalization is required). Spring planting of Italian ryegrass is common in northern states (e.g., Wisconsin, Minnesota, etc.) for summer grazing, but most current varieties do not dependably survive Kentucky summers. Italian ryegrasses are almost always planted late summer to early fall in Kentucky and

have larger tillers and seedheads and wider leaves. Tetraploid types tend to be taller and less dense than diploid types even in early stages of regrowth. Diploid types produce more tillers, have better stand persistence, and are more tolerant to heavy grazing.

Intermediate or hybrid ryegrass (*Lolium hybridum*, Hausska) is the result of a cross between Italian ryegrass and perennial ryegrass. It is not as winter hardy as perennial ryegrass, but it is higher yielding. It is also more persistent and winter hardy than Italian ryegrass. Its uses are similar to those of perennial ryegrass but it typically only survives two years or less in Kentucky.

Both forage and turf types of annual

# Rotate horses between pastures

- To enhance stand recovery.
- To interrupt parasite cycles.
- To outcompete weeds.
- To increase grass growth and carrying capacity.



# Day 1

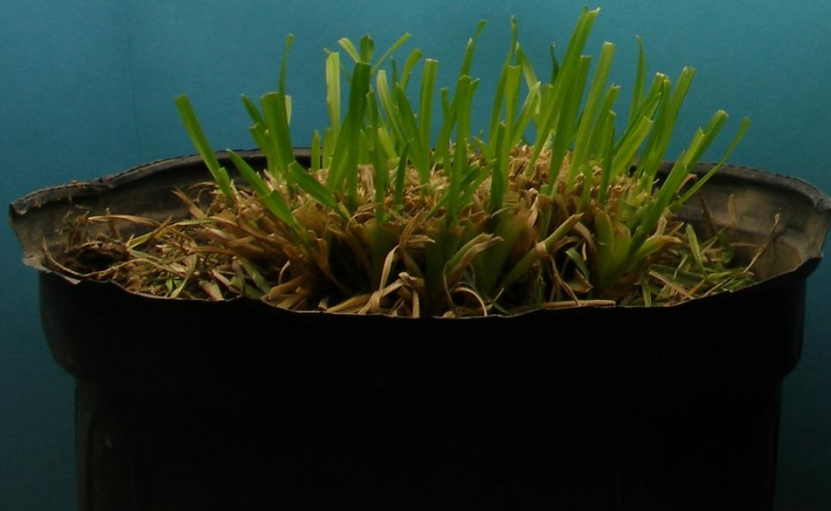
1" Once a Week      3.5" Once a Month



# Day 6

1" Once a Week

3.5" Once a Month





# Day 6

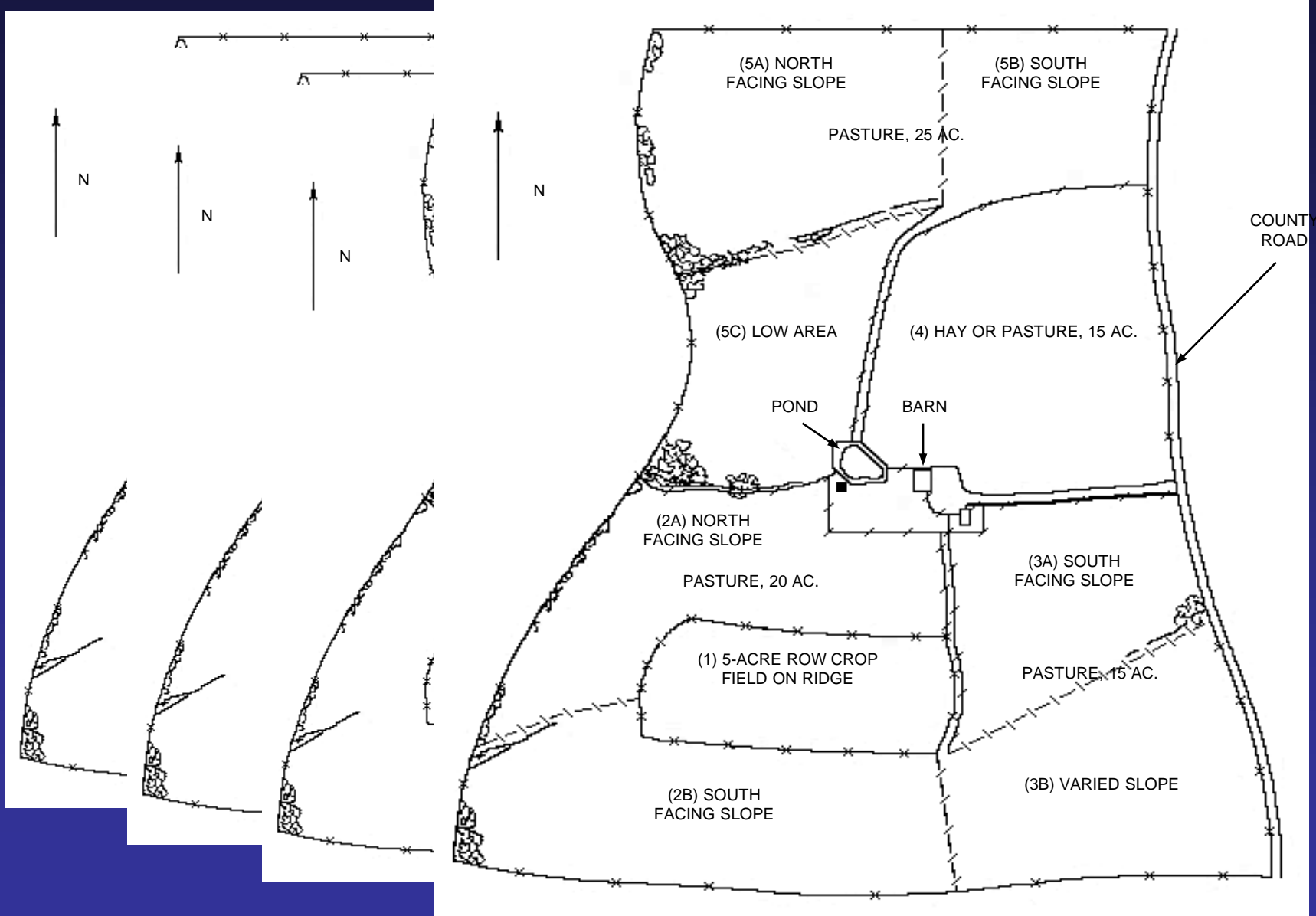
Orchardgrass

Tall Fescue





# Rotationally Graze Pastures



# UK Pasture Evaluation Program





# Pasture Evaluation

The number of grids we use is determined by the area of the field.  
The larger the field the more collection points we do.

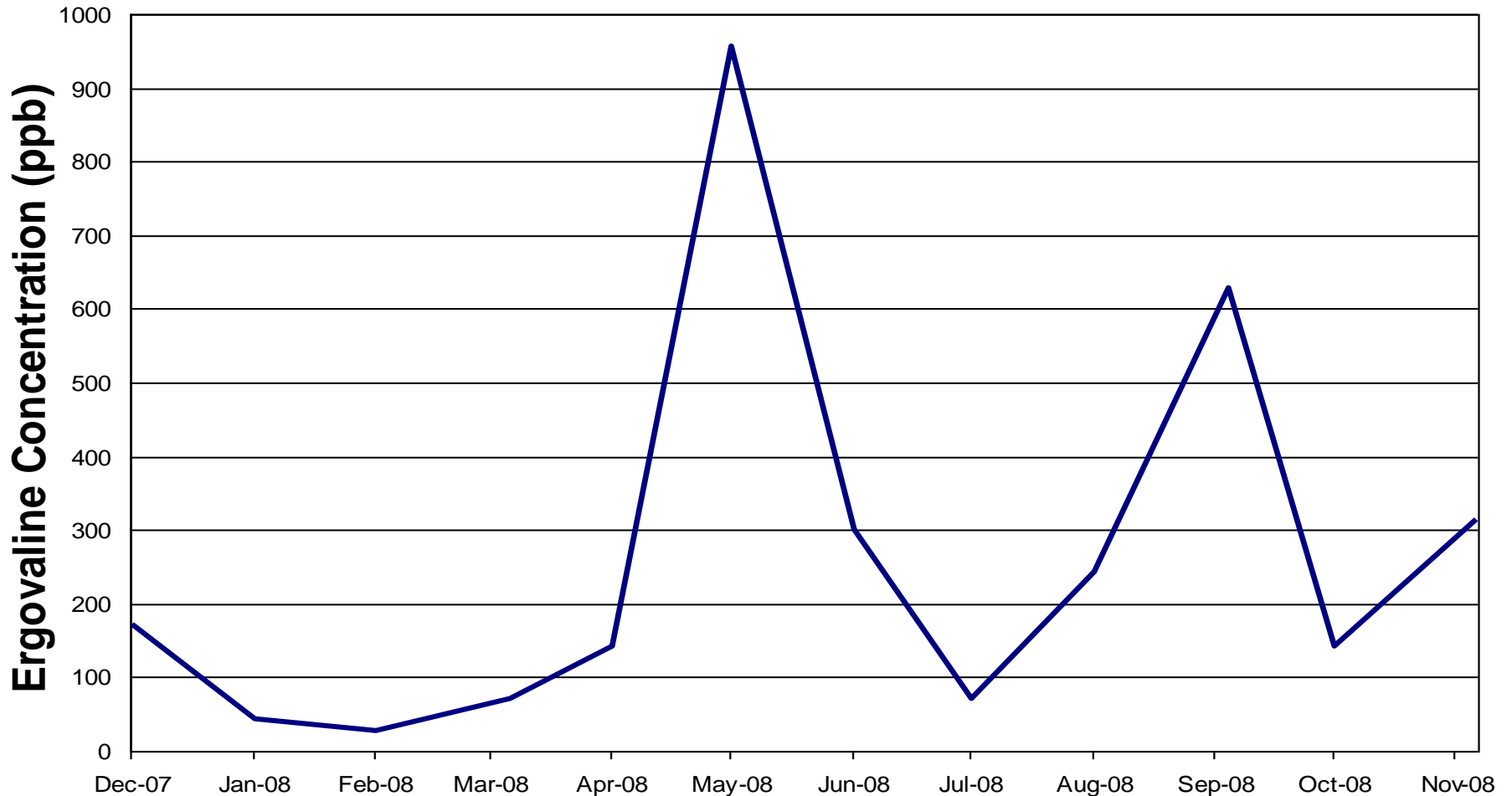


# Effect of Tall Fescue on Horses

In a classic study at Auburn University, pregnant mares of various breeds were placed on adjacent EI and EF pastures, where they remained until foaling. The dramatic increase in foaling problems, foal deaths, gestation lengths, and foal weights; and the reduction in numbers of mares lactating, foals surviving, and mares surviving (Figures 1 and 2) provide

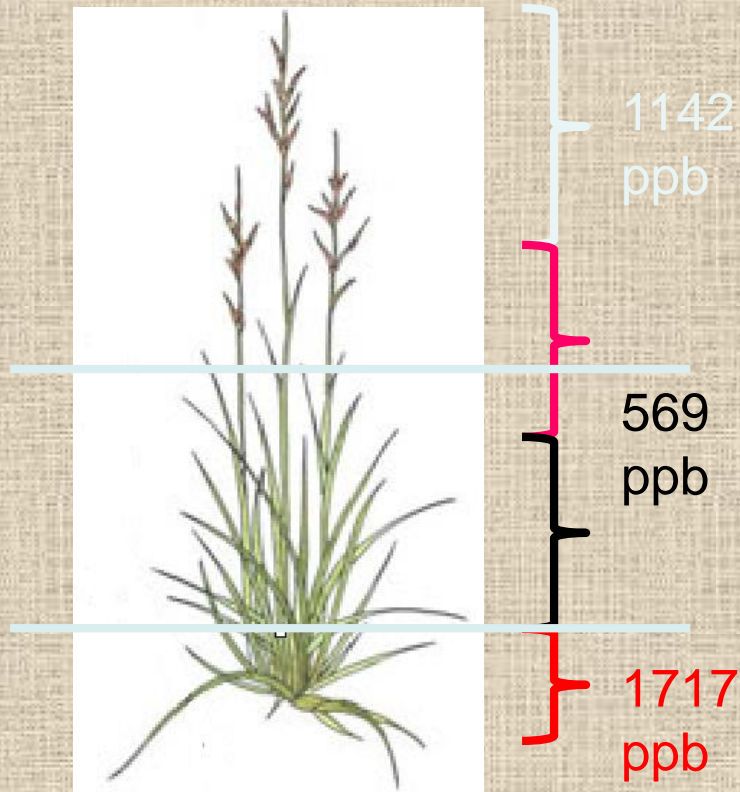


# Trend in Tall Fescue Ergovaline Concentration



\*In collaboration with Farm Clinic.

# Ergovaline Distribution



- Management implications:
  - mowing?
  - overgrazing?
  - pasture health

Data from E. Greene study in 2011  
May harvest of KY 31+ plots





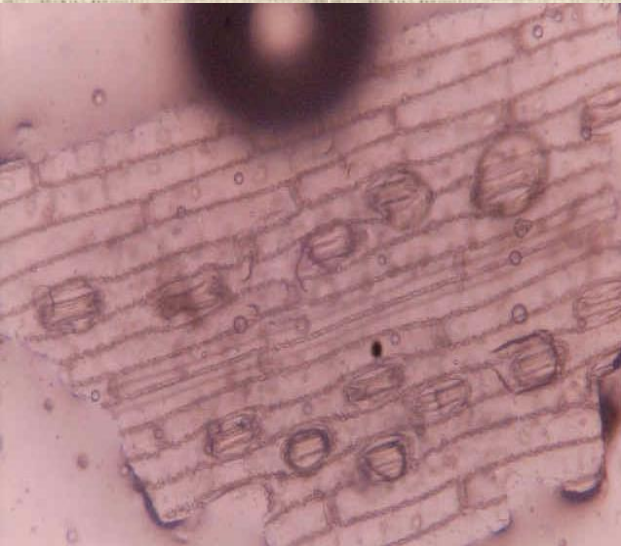








# Questions





# Questions

# Designing Facilities for Horse Farms



Bob Coleman PhD PAS  
Associate Professor  
Equine Extension

Department of Animal and Food Sciences





Horse farms to include:  
Owner operator - recreational  
Boarding, training, lessons  
Breeding



# Land Available

What does 2-4 acres/horse mean?

Horse numbers maybe enterprise dependent

Less horses – more acres?





# Facilities required

barns

riding areas

- indoor

- outdoor

turn out

pastures



# Facilities required

storage

- feed and bedding
- equipment

manure

roads and parking



Lots of Roof areas to consider





# Daily Horse Management

## Turnout

pens – exercise – limited forage

paddocks – exercise / grazing

pastures – extensive management



# Daily Horse Management

## Design

location related to barn

convenience

location of water sources

fences – types

shelters?





# Daily Horse Management

Turnout use

related to business

horses in groups or single

horse behavior

owner expectations



# Considerations

Horse numbers  
enterprise dependent  
number of horses

Acres  
finite in most cases



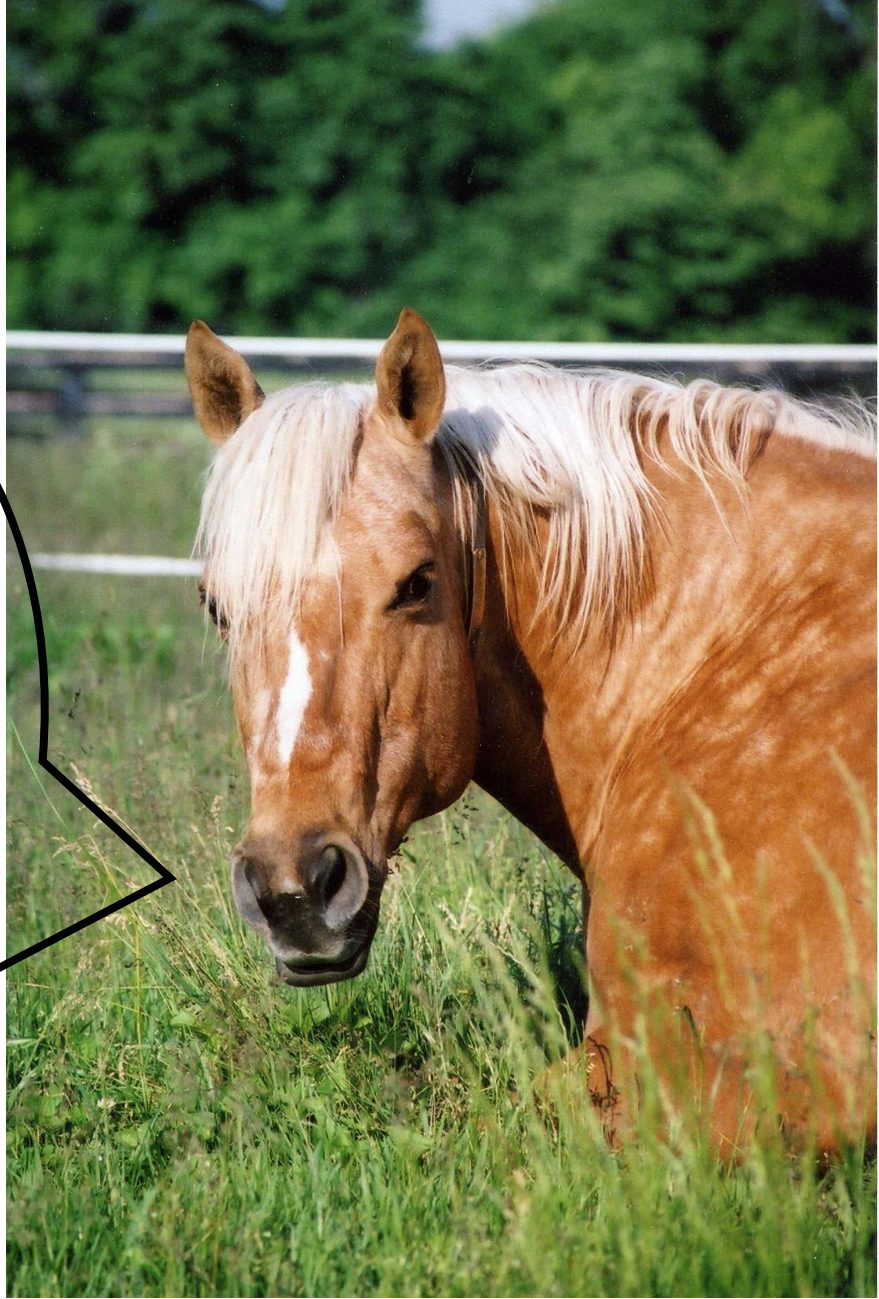


# Considerations

Manage land use  
limit turn out  
good management practices  
rotational grazing etc.

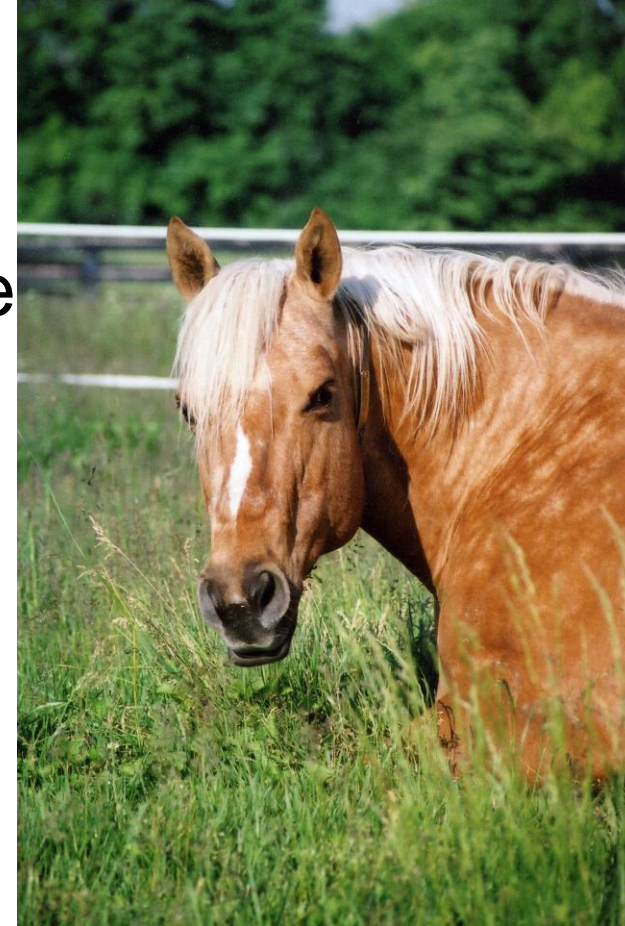


Questions or Comments





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# Horse Sense

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## What can we do for Equine Farms?

- NRCS – who we are
- NRCS – what we do
  - Conservation Planning Assistance
- NRCS – how we plan
  - Nine Steps
  - Conservation Practice Standards
  - Land Grant University and USDA research based alternatives for your on farm conservation concerns
- NRCS – how we benefit the landowner
  - Technical, Engineering and Agronomic assistance that is free of charge



# Who are we?

## Our Goals...

- Our mission is to deliver conservation solutions so agricultural producers can protect natural resources and feed a growing world
- Our vision is a world of clean and abundant water, healthy soils, resilient landscapes, and thriving agricultural communities through voluntary conservation

## How we are going to make it happen...

- We offer conservation technical assistance to address natural resource concerns
- We evaluate the farming operation and offer science based alternatives to address resource concerns
- We can plan, design, and oversee installation of conservation practices
- To implement these resource improvements, a plan will be developed to guide implementation and landowner can apply for financial assistance to aid in completing your plan.



# How do we describe a conservation plan to our landowners?

- Maps
- Field Numbers or Names
- Job Sheets
- Record Keeping Sheets
- Pasture Rotation Schedule
- KY GRAZE spreadsheets showing carrying capacity, economic data on hay purchasing, growth curves that show months when forage is growing slow.
- Pasture Condition Score to track forage health and soil improvements
- Soil Reports with pasture and hayland suitability groups
- Timetables for installation
- Narrative Statements
- Designs
- Constructions "As Built"
- Forms, Assessment Tools and Documents indicating resource concerns that the landowner hasn't even considered, such as: SVAP on a stream to consider offsite water quality effects.

# When we plan with the landowner, do we offer alternatives?

- 9 Steps of Conservation Planning, by following the steps the landowner directs their plan
- How much time do the horses spend in a stall?
- Solar Power for a water well pump or electric fence
- Spring Developments for alternative water supplies
- Dense Grade or class I sand at watering troughs and heavy use areas to ease the stress on horses hooves
- Gutters and piping to decrease mud
- Conservation Practice Standards
- Job Sheets
- Survey and Design of practices
- Engineering Support
- Land Grant University research and publications
- Manure Testing to help the landowner understand stall muck has nutrient value and possible cash value



# Tools to benefit the landowner to manage their conservation plan

- Share with the landowner information stored in FOTG , Section 4 , Old Section 4 , Tools , Grazing Management
  - Pasture Condition Score Sheet
  - Guide to Pasture Condition Scoring
  - Prescribed Grazing Functional Groups
  - Kentucky Graze Spreadsheet
- Web Soil Survey
  - Share with the landowner information on the use of Web Soil Survey
  - To complete the KY GRAZE spreadsheet they will need to use Web Soil Survey.
  - Directions are on the site about how to create maps and or run reports with the Pasture and Hayland Suitability Groups

# How do we determine resource concerns? Just because we see it; doesn't mean the landowner sees it....

## National Resource Concern List and Planning Criteria

Natural Resources Conservation Service (NRCS)



October 2019

## Plant Resource Concerns

### Plant productivity and health

Improper fertility, management or plants not adapted to site negatively impact plant productivity, vigor and/or quality

**Objective:** Improve poor plant productivity and health.

**When land use is:** Pasture

Tools	Planning Criteria
Client input and/or planner observation AND Pasture Condition Score Sheet (PCS)	Plants are adapted to the site and meet production goals. AND Percent Desirable Plants $\geq 3$ and Live or dormant plant cover, and plant vigor elements $\geq 4$



## Pasture Condition Score Sheet

<b>Operator:</b>				<b>Date:</b>		
<b>Evaluator:</b>				<b>Pasture ID:</b>		
<b>Soil(s), ESD(s) and or FSG(s):</b>				<b>Livestock type:</b>		
<b>Current Season's Precipitation (check one)</b>		Above Normal <input type="checkbox"/>	Normal <input type="checkbox"/>	Below Normal <input type="checkbox"/>		
<b>Seasonal Temperature Trend (check one)</b>		Above Normal <input type="checkbox"/>	Normal <input type="checkbox"/>	Below Normal <input type="checkbox"/>		
<b>Evaluate the site and rate each indicator based upon your observations. Scores for each indicator may range from 1 to 5. Sum the indicator scores to determine overall pasture condition score.</b>					<b>Score</b>	
<b>Indicator</b>	<b>1 Point</b>	<b>2 Points</b>	<b>3 Points</b>	<b>4 Points</b>	<b>5 Points</b>	<b>Points</b>
<b>Percent Desirable Plants*</b> (Dry Weight; for Livestock)	Desirable species <20% of stand.	Desirable species 20 – 40% of stand.	Desirable species 41 – 60% of stand.	Desirable species 61 – 80% of stand.	Desirable species exceed 80% of stand.	
<b>Percent Legume by Dry Weight</b>	<5% <b>OR</b> >50% bloating legumes.	5-10% legumes <b>OR</b> >40% bloating legume.	11-20% legumes.	21-30% legumes.	31-40% legumes. No grass loss; grass may be increasing.	
<b>Live (includes dormant) Plant Cover</b>	Less than 40% is live leaf canopy. Remaining is either dead standing material, or bare ground.	40-65% is live leaf canopy. Remaining is either dead standing material, or bare ground.	66-80% live leaf canopy. Remaining is either dead standing material, or bare ground.	81-95% live leaf canopy. Remaining is either dead standing material, or bare ground.	More than 95% live (non-dormant) leaf canopy. Remaining is either dead standing material, or bare ground.	
<b>Plant Diversity by Dry Weight</b> (*See footnote at bottom of page)	<b>Diversity: Very low</b>	<b>Diversity: Low</b>	<b>Diversity: Moderate</b>	<b>Diversity: High</b>	<b>Diversity: Very high</b>	
	<50% desirable species <b>OR</b> 1 dominant desirable species in 1 functional group <b>OR</b> No dominant desirable species and all minor species in each functional group	2 dominant desirable species in 1 functional group <b>OR</b> 2 functional groups each represented by minor species totaling ≥15%	3 dominant desirable species in 1 functional group <b>OR</b> 2-3 dominant desirable species in 2 functional groups <b>OR</b> 3 functional groups each represented by minor species totaling ≥15%	4 dominant desirable species in 2 functional groups <b>OR</b> 3 dominant desirable species in 3 functional groups <b>OR</b> 3 dominant desirable species in 2 functional groups <b>AND</b> 1 additional functional group	4 dominant desirable species in 3 functional groups <b>OR</b> 4 dominant desirable species in 2 functional groups <b>AND</b> 1 additional functional group represented by minor species totaling ≥15%	

Going through the Pasture Condition Score sheet with the landowner is a great conversation starter.

- What plants do you have in your pastures?
- What plants do you want in your pastures?
- Are you soil testing and applying nutrients following your soil test results?
- Are you keeping bred mares, are you concerned about fescue toxicosis?
- Would you be willing to renovate your pastures with novel endophyte tall fescue?
- The landowner can track their forage improvements over time by consistently completing their pasture condition score sheet.
- Is hoof traffic causing compaction and preventing forage growth?

Instructions

Client Name

Farm #

Tract #

Click On One Below

Existing Grazing Plan

Planned Grazing Plan

Assisted by

Enter Fields here. ↓

Enter Fields acres here. ↓

Enter Soil Suitability Group ↓

Enter Mgt. Level here. ↓

Prepared for  [Print](#)

Assisted by  **Existing Grazing Plan**

This is Page 1 [Go To Page 2](#) [Go To Page 3 Graph](#) [Go To Page 4 Summary](#) [Setting ZOOM %](#) **February 21, 2019** Date

## LIVESTOCK-FORAGE BALANCE WORKSHEET

#REF!  
Farm Number

#REF!  
Tract Number

### LIVESTOCK FORAGE NEEDS

Livestock	Planned Number	Ave lbs./ Head	Intake Rate (%)	Forage Needed by Month (Lbs/month)													
				Forage Needs		Apr.	May	June	July	Aug.	Sep	Oct	Nov	Dec	Jan	Feb	Mar
				Lbs/day	Lbs/year												
Cow/Calf Pairs																	
Bulls																	
Horses																	
Sheep																	
Goats																	
Stockers																	
Other																	
<b>Totals and weighted averages</b>	0			0	-	0	0	0	0	0	0	0	0	0	0	0	0
<b>TOTAL NEEDS (Lbs/yr) =</b>				<b>0</b>													

[Go To Stocker Months](#)

### FORAGE PRODUCTION AND UTILIZATION SCHEDULE

Field #	Kind of Forage	Acres (Usable)	Total lbs/ Acre	Total Pounds	Grazing Eff. (%)	Usable Pounds	Forage Available by Months (Lbs/month)											
							Apr.	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar.

**Yellow Boxes** are fillable, the landowner helps the planner "fill in" the boxes. This is a great **what if tool**, we have 3 fields, **what if** we created 6 fields? **What if** we improved forage quantity? **What if** we reduced the numbers by 3 animals, how much money would that save you?



# Dr. Henning and his team are updating KY GRAZE to work on tablets as well as computers

## Livestock

	Planned Number	Average Lbs/Head	Intake Rate %	
Cow/Calf Pairs	200	1200	2.6	✓
Bulls	4	2500	3	✓
Horses				✗
Sheep				✗
Goats				✗
Stockers	50	500	3	✓
Other				✗

## Instructions

### Planned Number

After inputting forage crops see far left of this worksheet to estimated carrying capacity in Animal Units (AU) or Animal Unit Equivalent (AUE). See far right for definitions of AU and AUE

### Average Lbs/Head

One animal unit equals 1000 lb cow with calf through weaning. A cow should wean a calf 50% of her body weight. Bulls typically range in weight from 1000 to over 2000 lbs. One mature bull (3 yr old) is needed per 25 - 35 cows.

### Intake Rate daily consumption

% of body Wt	Production
2	Maintenance
3	Stockers
4	High Prod.

2.6% year round avg. for beef cattle

Month that stockers will be grazed.	Apr	May	Jun	Jul	Aug	Sep
	n	n	n	n	n	n

# Forage and Biomass Planting (512)



- Endophyte-infected tall fescue conversion to Novel Fescue varieties
- Cool Season Grass and Legume Forage
- Wrangler Bermudagrass for high traffic areas



# Forage planting and management options



- Discuss with landowner the specifics of horse digestion and dietary needs or involve specialists that can discuss this
- Flexible Alternatives: renovated fields can be hayed or grazed
- In high traffic areas, NRCS allows “Wrangler” Bermuda grass to be sown to keep areas vegetated other Bermuda varieties die out in winter



# Waste Storage Facility (313)



- An alternative in the conservation plan is to hire a manure and bedding service.

## **Muck** Removal Services

Creech Services Inc. offers two methods for disposal of your used straw bedding. Smaller horse operations will usually be more of a fit for dumping muck at our Paris Pike facility, while larger horse operations will likely find it more economical to have their muck picked up from a concrete muck pit on the farm.

SAVE MONEY WITH BUNDLING

## **BUNDLED SERVICES**

Just like most other services you use everyday, bundling your manure removal and shavings delivery allows you to maximize your savings. All-In is the only local provider who will bundle these services in one trip. Ask about our "Drop & Swap" packages.



# Heavy Use Areas (561)



## Heavy Use Areas (561)



- Surface materials for treatment areas shall be a minimum compacted layer of 2 inches KYDOH #610, class I sand, or DGA (dense grade aggregate)
- Installation of heavy use area protection on muddy sites can improve animal health. Mud transmits bacterial and fungal diseases and provides a breeding ground for flies. Hoof suction makes it difficult for horses to move around in muddy areas. In addition, mud negates the insulation value of hair coat and the animals must use more energy to keep warm.
- 70 sq ft per head



## Fence (382)



- Horses can be kept behind a basic barbed wire fence, but we must remember that this is the landowners plan, so lets offer alternatives that are equine friendly.
- Plank
- High Tensile
- High Visibility coated wire
- Horse Tape
- Woven Wire
- Not all of these meet financial assistance rules, but they are fence

# Fence (382)

- **STANDARD** Fencing materials and type and design of fence installed shall be of high quality and durability. The type and design of fence installed will meet the management objectives and topographic challenges of the site.
- Based on management and site location needs, fences may be: permanent exclusion fence (contain all target livestock classes), permanent interior fence (principal barrier for select livestock classes), or temporary portable fence (feasible to re-locate when needed).
- **PLANK** If horizontal boards (rails) are utilized, they shall be a minimum of 1" x 6" (nominal) x at least 8' long. A wooden board fence shall have a minimum of 3 rails (more typically 4). Gaps between the rails will be 10 inches or less.
- **HIGH TENSILE** Non-electric high tensile smooth fences will be constructed of at least seven wires. Total height to the top wire of the fence is to be not less than 42 inches. Smooth wire shall be 12 1/2 gauge (minimum) or equivalent in strength with a tensile strength of 170,000 psi or greater.
- **INTERIOR - HIGH TENSILE ELECTRIC** 1 to 3 wires at the height of the animals nose at rest. Constructed of 12 1/2 gauge (minimum) or equivalent in strength with a tensile strength of 170,000 psi or greater. 6 to 8" dia. Wood brace and corner posts with a length of at least 8' and wood line posts of minimum 4" dia. and 6' in length. Steel, High Density Wood, Fiberglass, UV stabilized plastic or PVC posts must be at least 5.5' long. Maximum post spacing of 75'



# Watering Facility (614)



# Water Management Options

## Roof Runoff Structure (558)

- Use a pipe guard or pipe casing where necessary to protect the downspout, lateral or cross-pipe pipelines of the roof runoff structure from damage by livestock or equipment.
- Roof runoff can empty into a subsurface drain, underground outlet, a ground gutter, a storage tank or onto stabilized soil.

## Underground Outlet (620)

- To carry water to a suitable outlet from terraces, water and sediment control basins, diversions, waterways, surface drains, other similar practices or flow concentrations without causing damage by erosion or flooding.



# Water Management Options

This can be improved



This is better for the horse and environment



# Travel Management Options

## Trails and Walkways (575)

- When one of the purposes of a grazing plan is to improve animal distribution or to allow better pasture utilization, a trail/walkway may be needed to facilitate animal movement. Use NRCS CPS *Prescribed Grazing (Code 528)* to plan the grazing system.
- When selecting the surface material for a walkway used by animals, consider the sensitivity of the animals' feet.

## Stream Crossing (578)

- Discourage livestock loafing in the stream by locating crossings, where possible, out of shady riparian areas or by including gates in the design.
- All rock must be able to withstand exposure to air, water, freezing, and thawing. Use rock of sufficient size and density to resist mobilization by design flood flows. Use appropriate rock sizes to accommodate the intended traffic without damage to the livestock, people, or vehicles using the crossing.



# Travel Management Options



# Farm Aesthetics that also address resource concerns

## Grassed Waterway (412)

- To convey runoff from terraces, diversions, or other water concentrations without causing erosion or flooding.
- To prevent gully formation.
- To protect/improve water quality.
- This practice is applied in areas where added water conveyance capacity and vegetative protection are needed to prevent erosion and improve runoff water quality resulting from concentrated surface flow.

## Herbaceous Weed Control (315)

- Enhance accessibility, quantity, and/or quality of forage and/or browse.
- Restore or release native or create desired plant communities and wildlife habitats consistent with the site potential.
- Protect soils and control erosion
- Reduce fine fuel loads and wildfire hazard



# Any Questions?

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