Building Better Fescue

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Desirable Forages — SW MO Pasture Standards

- Cool Season Grasses
  - Tall Fescue
  - Orchardgrass
  - Annual Ryegrass

- Warm Season Grasses
  - Bermudagrass
  - Crabgrass
  - Big Bluestem
  - Indiangrass
  - Switchgrass

- Legumes
  - White Clover
  - Red Clover
  - Annual Lespedeza

Tall Fescue
*Festuca arundinacea*

- Durable
  - Grazing
  - Drought
  - Resistant to Disease and Insects
  - Cold Tolerant

- Cool-season grazing

- Easy to Establish / Available Seed

- Palatable

Yield Distribution: growing season

Source: University of Kentucky

E.N. Fergus

Source: University of Kentucky
Hillside pasture on William Suiter Farm, Menifee County, KY, from which ‘Kentucky-31’ seed was selected by E.N. Fergus in 1931.

The Downside – Endophyte “Toxic Fescue”

Adaptation and use of tall fescue in the U.S.

- Not adapted without irrigation
- Adapted, area of minor or no use
- Adapted, area of major use

Endophyte presence may be important for persistence south of destocked fire depending on grazing management, rainfall and soil.
The “endophyte”
a fungus inside of tall fescue

- Fungus found in stem, leaf sheaths & seed
- Produces alkaloids toxic to livestock
- Alkaloid concentrations vary throughout the year
- Minimized in young growth

Vasoconstriction
Increased core body temperature
Increased respiration
Lowered heart rate
Metabolic inefficiency
Altered fat metabolism
Reduction in serum prolactin
Immunosuppression
Reduced intake and weight gain
Reduced pregnancy rate, severe reproductive problems
Agalaetia

Tall Fescue Toxicity Issues

- Fescue Toxicosis - Endophyte
- Grass Tetany - Fescue Foot
- Ergot

Fescue Toxicosis Management

- Fescue toxicosis is a serious livestock disorder impacting 80% of tall fescue paddocks in southern Missouri.
- Missouri beef industry loses over $160 million annually from fescue toxicosis.

Managing Existing Infected Tall Fescue:
- Dilution with legumes
- Rotation to summer pasture
- Supplement to improve feed quality

Renovation with Novel Endophyte Tall Fescue:
- Removes toxin for the diet and retains persistent qualities
- Seed can be expensive

One-day workshops are conducted annually in Missouri
Alliance for Grassland Renewal - a partnership between university, private industry, and non-profit.

Hair Testing for Genetic Markers for Indicating Toxic Fescue Tolerance

- Cattle have tolerance, not resistance
- T-Snip® Testing
  - $40 for 1st test and $29 thereafter
  - Blood or hair testing
    www.agbotanica.com
  - $10 coupons available from MO Dept of Ag

Chaparral for Seedhead Suppression

Source: Sarah Kenyon, Regional Agronomy Specialist, West Plains
Tall Fescue Sources

- **Endophyte fescue** – Kentucky 31 and others
  - Toxic and persistent
- **Endophyte-free fescue**
  - Non-toxic and questionable persistence
- **Novel “friendly-endophyte” fescue**
  - Non-toxic and persistent

Novel Fescue

- Some of the Available Varieties:
  - Jesup with MaxQ
  - BarOptima Plus E34
  - Estancia with ArkShield
  - Texoma with MaxQII
  - Martin 2 with Protek
  - Tower with Protek

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<th>HM+4</th>
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<tr>
<td>ADG - Fayetteville(2yr)</td>
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Novel Endophyte Conversion
Starting from a straight K-31 fescue stand

- Must eliminate all K-31 Fescue
- Fescue seed can stay viable 12 months in the soil
- Spray-Smother-Spray
  - Corn/Sudangrass/Grass/Millet/Teff
- Be cautious of where K-31 hay is fed
- Cattle can produce K-31 seed in manure for over 3 days
- Be cautious of moving cattle off a novel fescue farm onto a K-31 farm.

Fescue Fertility

Cool Season Grass with Legumes

![Cool Season Grass with Legumes](chart.jpg)
Do you need nitrogen on fescue?

- Using legumes?
- Is the pH, P and K up to soil test?
- Am I intensively grazing?
- Can I cut hay on my pastures in May?
- Do I have more land than cattle to graze it?
- Does it increase the beef, milk or hay sold on my farm?

Ergovaline Concentration

Rottinghaus et al., 1991

Use nitrogen fertilizer to increase forage at times when more forage is needed

CSG - Cool season grass
WSG - Warm season grass
WA - Winter annual

Nitrogen for Tall Fescue Spring Pasture

Spring fertilization for Pasture:
- apply nitrogen in early May
- extends spring forage into July

Nitrogen for Tall Fescue Fall Pasture

Fall fertilization for Pasture:
- apply nitrogen in mid August
- increases and extends fall forage
- less response; higher potential value

Fertilization of Tall Fescue

Hoveland and Richardson, 1992
Grazing Management

Getting the Most out of Fescue
- Avoid over stocking

Residual Height
Rest Periods ➔ Rooting Depth

“It takes grass to grow grass”

Management-Intensive Grazing

Incorporates a grazing strategy and rest periods
- Quality & quantity increases
- Enhanced forage utilization
- Persistence increases
- Weed pressures may subside

Percent of Rest

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<th>1</th>
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<td>Rest (%)</td>
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<td>50</td>
<td>75</td>
<td>90</td>
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Surplus Forage into Round Bale Silage or Hay

Jim Gerrish...
“Every Acre is 43,560 ft² of Solar Panel”

Undesirable Solar Panels
- Bare Soil
- Overgrazed Plants
- Mature Plants
- Weeds
A Balanced Forage System

Key to keeping costs down:
Lower dependency on hay

Stockpiling
Where our industry advantage shines...

Economics of Stockpiled Fescue

- Hay Cost
  $0.80-$1.30/cow/day
  Cost of hay ($55/ton) + 10% feeding loss

- Stockpiled Fescue
  $0.44/cow/day
  400 N fertilizer + fall pasture rent

Tall Fescue in the Fall & Winter

- Almost entirely leaf
- Waxy layer on leaves slows deterioration
- Grows rapidly from early September until November – 1 to 2 tons per acre with good management
- More fall growth than other CSG’s

Cheapest and Easiest Option for SW Missouri Farmers

Photo Credit – Virginia Cooperative Extension

Tall Fescue
Warm-season grass
Case Study – Stockpiled Fescue Quality
Don Hounschief – Stark City, MO (Newton Co)

Standing Fall growth tested Jan. 1, 2017
Estancia Fescue

C. Protein – 15%
TDN – 60%

Tall Fescue Quality in Fall and Winter

Tall Fescue Winter Grazing Recipe

- Clip or graze pastures to a 3 inch ht. in August
- Apply 40-60 lb. of N fertilizer per acre in mid Aug
- Rotational or strip grazing will nearly double utilization

Summer Stockpiling

- An option when you remove the hay operation off the farm
- Defer grazing through mid-August
- Allows for late summer/early fall grazing as the fall stockpile is accumulating
- Virginia Tech Research:
  - 9 years of data
  - Now: 280 grazing days / 85 days hay feeding
  - Before: 215 grazing days / 150 days hay feeding

Strip Grazing
Strip Grazing Fescue

Fall Cool Season Grass Establishment

- Best time
  - True beginning of the CSG growing season
  - Roots get well established before the dry summer
- Drill late August – early September

Spring Cool Season Grass Establishment

- Spring is second-best time
  - 5-6 months behind fall seedings
  - Dry season ahead
  - Weed competition is great
- Drill February - early March
  – Avoid tillage (except for oats)
- Can sow with spring oats – Keep rate low!

No-till – A Reliable Choice

- Able to keep existing sod
- Conserves moisture
- Sod competes against weeds
- Greater success than broadcasting
- Less cost and erosion than conventional tillage
- Don’t plant too deep