Building Better Fescue

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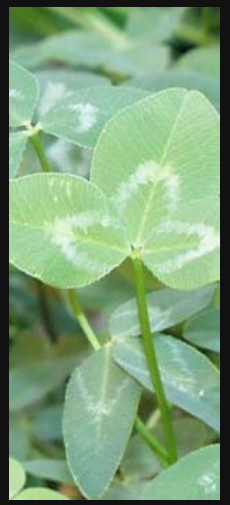
Desirable Forages – SW MO Pasture Standards

- Cool Season Grasses
  - Tall Fescue
  - Orchardgrass
  - Annual Ryegrass
- Warm Season Grasses
  - Bermudagrass
  - Crabgrass
  - Big Bluestem
  - Indiangrass
  - Switchgrass

⑩ Legumes

- White Clover
- Red Clover
- Annual Lespedeza



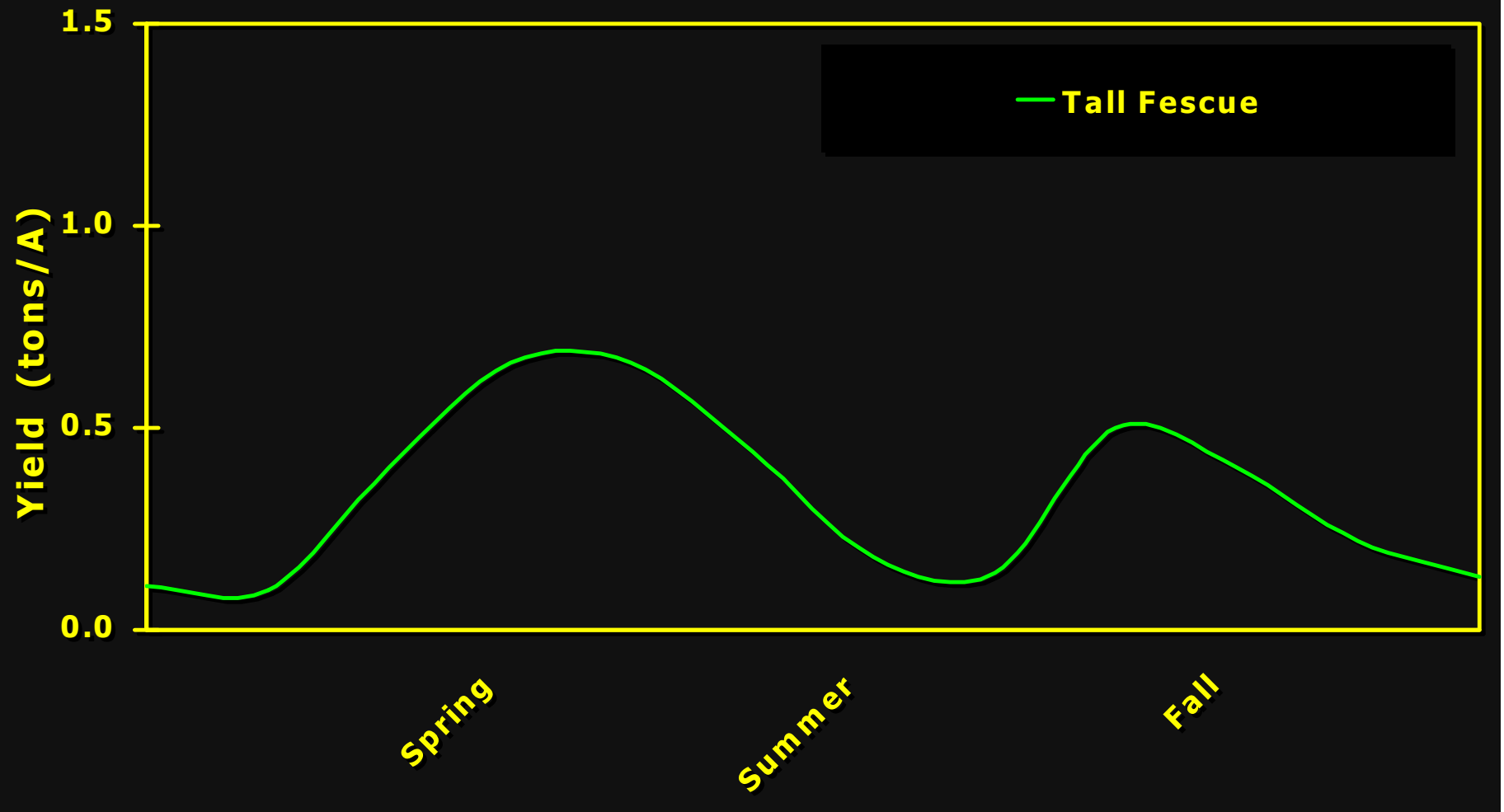
Tall Fescue

Festuca arundinacea

- Durable
  - Grazing
  - Drought
  - Resistant to Disease and Insects
  - Cold Tolerant
- Cool-season grazing
- Easy to Establish / Available Seed
- Palatable

Fescue

Yield Distribution: growing season



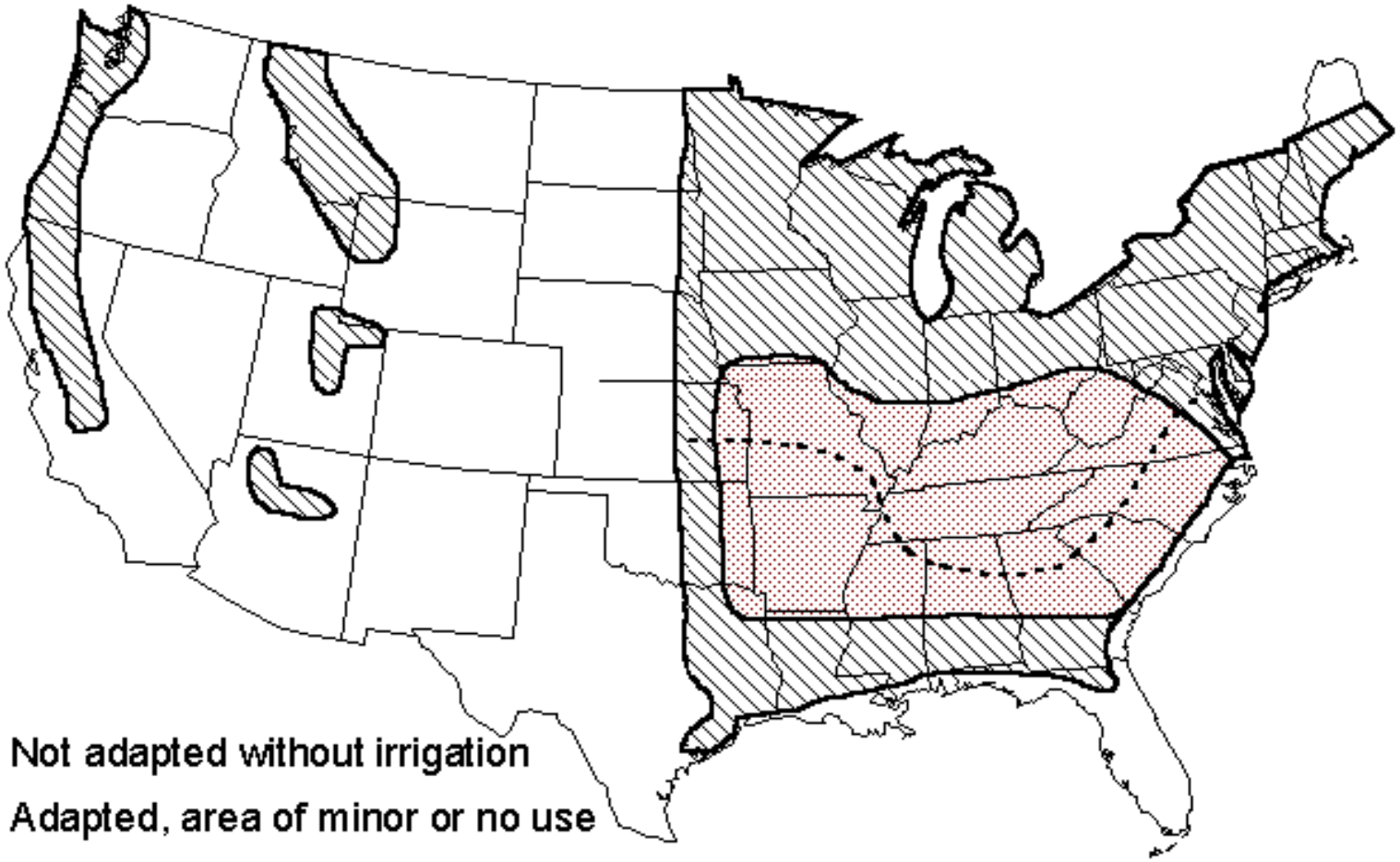
E.N. Fergus

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.


UPON THIS FARM
WILLIAM M. SUITER
DISCOVERED AND NURTURED
THE OUTSTANDING STRAIN OF
TALL FESCUE KNOWN AS
KENTUCKY 31 FESCUE
IN APPRECIATION OF THE SERVICE HE THUS
RENDERED TO AGRICULTURE, HIS FRIENDS
AND NEIGHBORS, THE FARMERS OF KENTUCKY
HAVE IN THE YEAR 1948 ERECTED THIS
MONUMENT TO HIS MEMORY.
KENTUCKY 31 FESCUE, THROUGH NATURAL SELECTION
UNDER THE RUGGED CONDITIONS OF THE KENTUCKY
MOUNTAINS, DEVELOPED A HARDINESS UNKNOWN IN
OTHER GRASSES. ITS WIDE ADAPTABILITY AND MERITS
WERE RECOGNIZED BY THE KENTUCKY AGRICULTURAL
EXPERIMENT STATION AND THE COLLEGE OF AGRICULTURE
AND THESE INSTITUTIONS HAVE BEEN INSTRUMENTAL
IN MAKING IT AVAILABLE TO FARMERS EVERYWHERE.

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

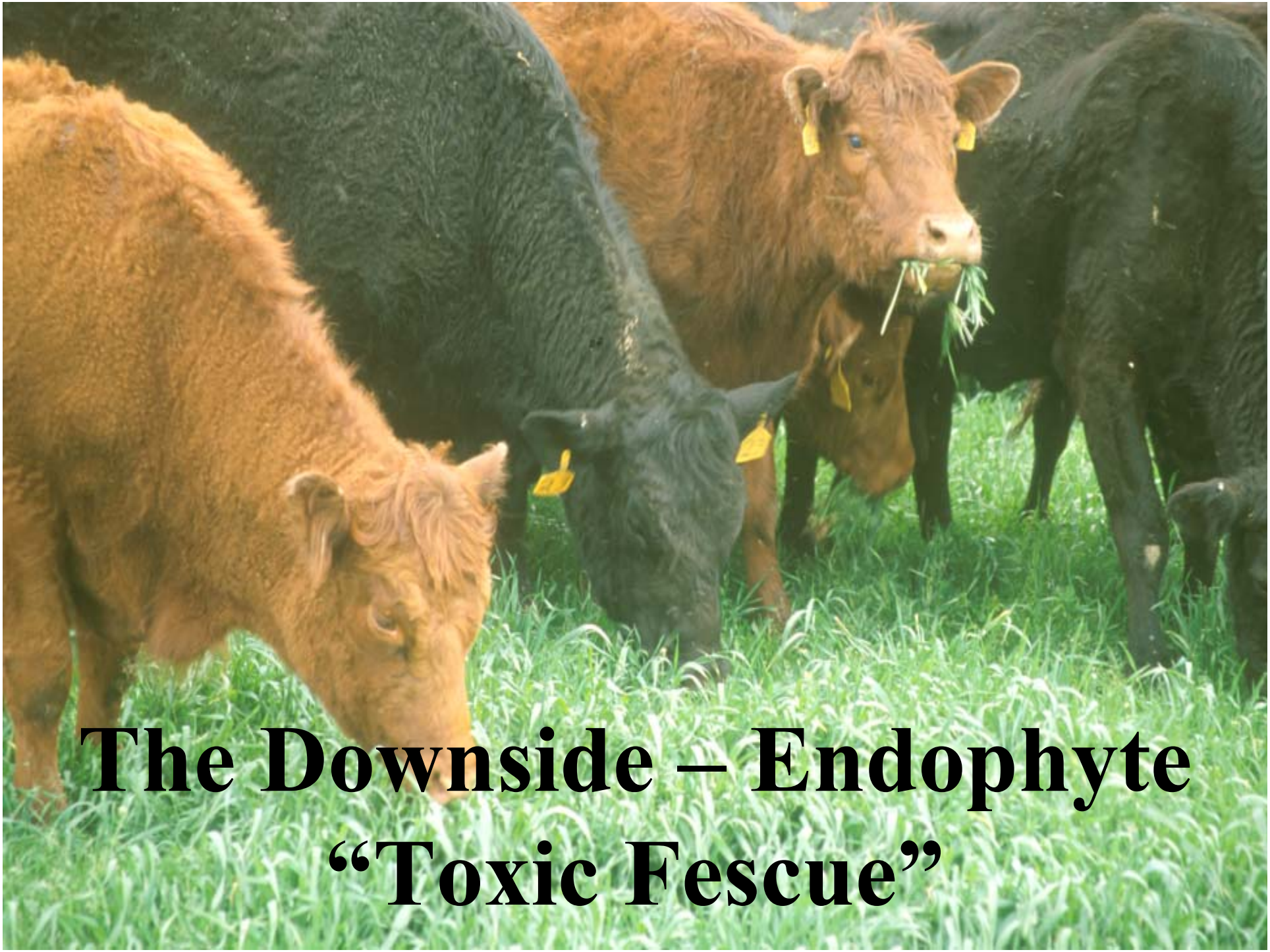


Not adapted without irrigation

Adapted, area of minor or no use

Adapted, area of major use

----- Endophyte presence may be important for persistence south of dashed line depending on grazing management, cultivar and soil.



The Downside – Endophyte "Toxic Fescue"

Source: Darrell Fransen

Source:
Darrell Fransen

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

Agalactia

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.**

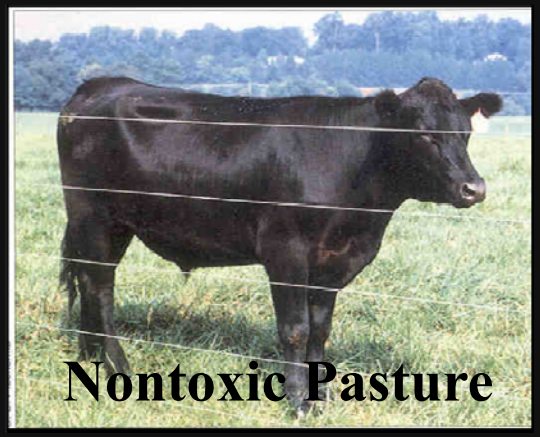
Managing Existing Infected Tall Fescue:

- 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

E+ Pasture



Nontoxic Pasture

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

Source: Sarah Kenyon, Regional Agronomy Specialist, West Plains

Chaparral for Seedhead Suppression

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

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

	KY+	HM+4
ADG - Mt Vernon(2yr)	0.55	1.25
ADG - Fayetteville(2yr)	0.90	1.40

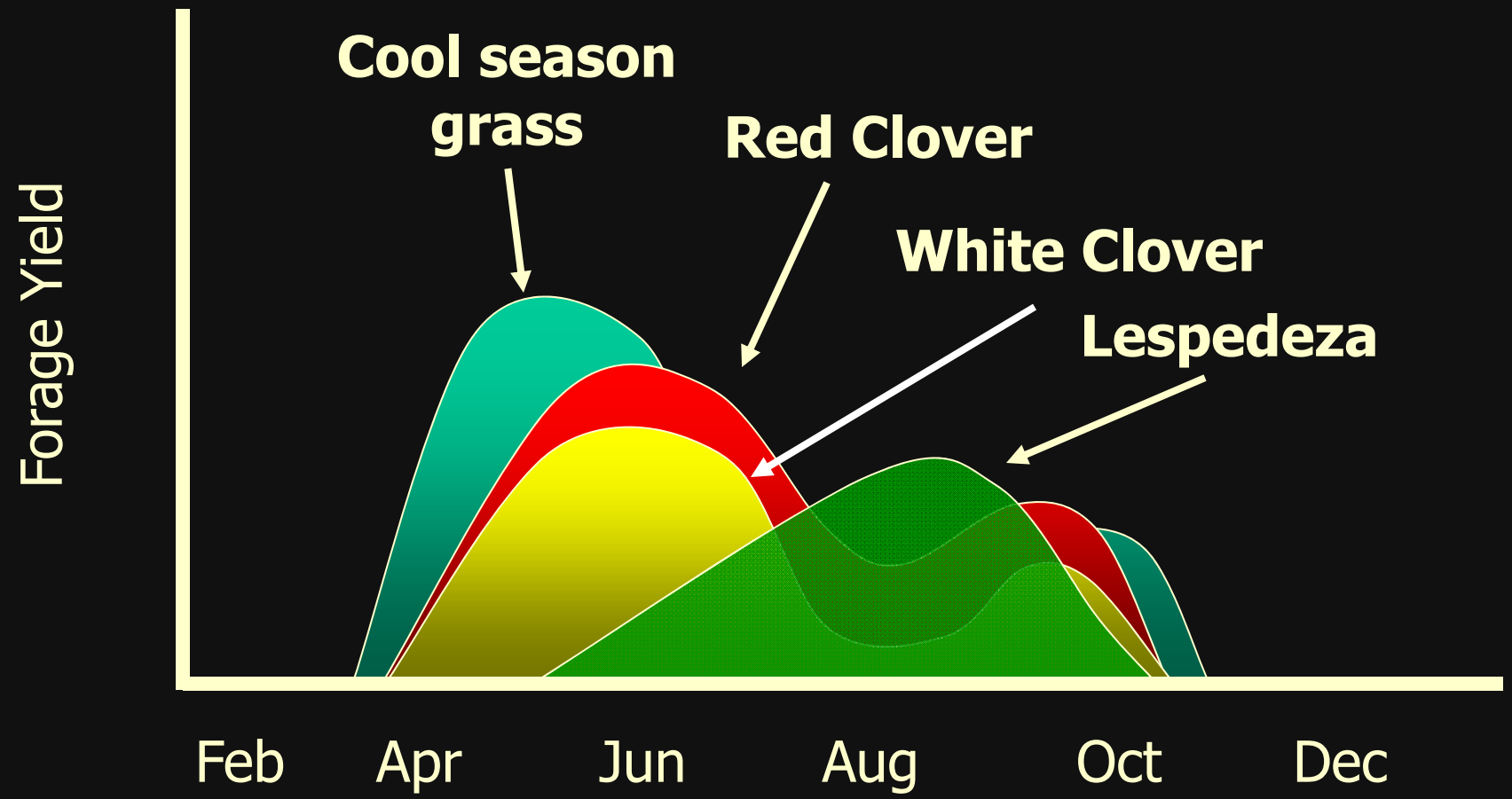
Novel Endophyte Conversion

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/Crabgrass/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

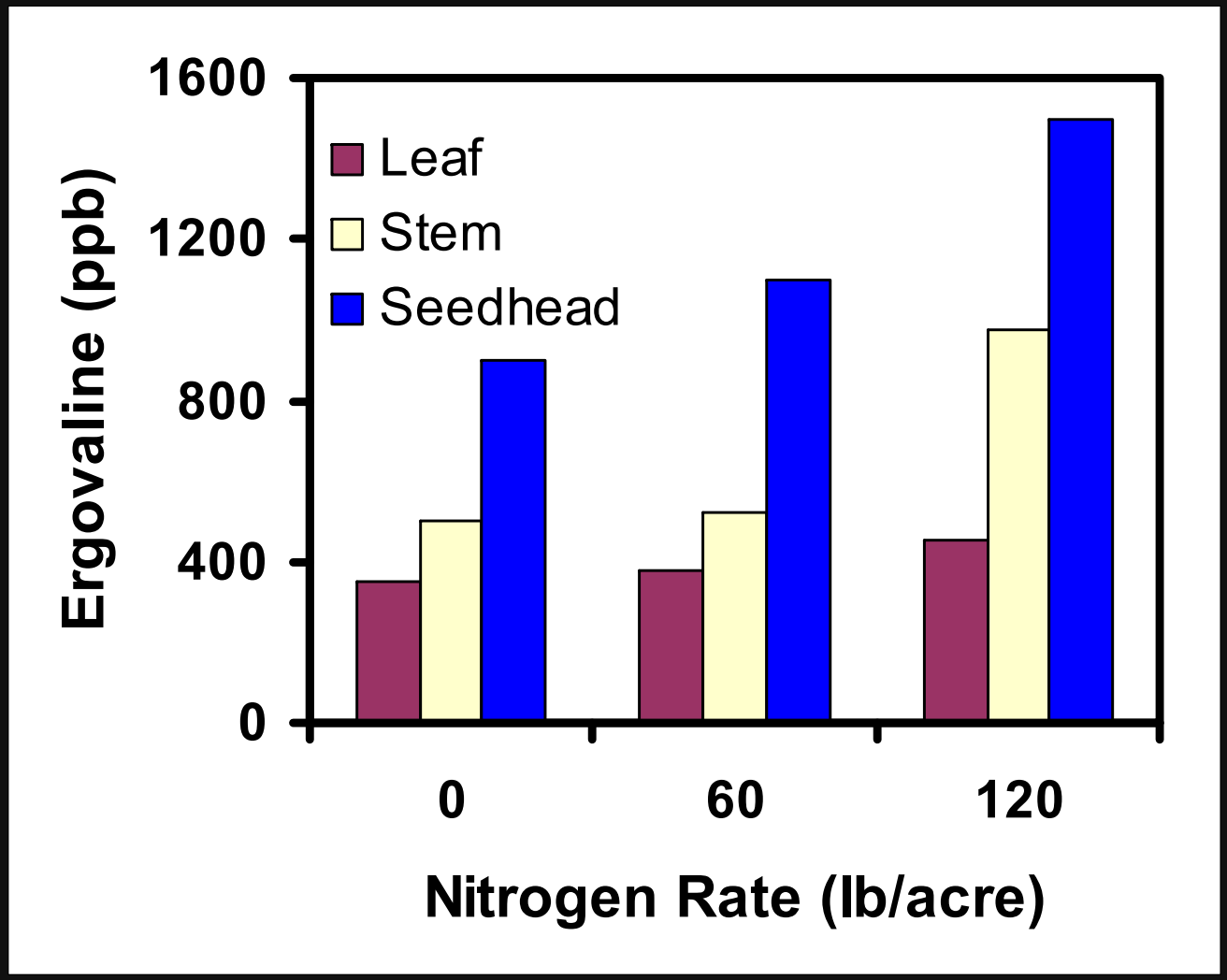
Cool Season Grass with Legumes



Do you need nitrogen on fescue?

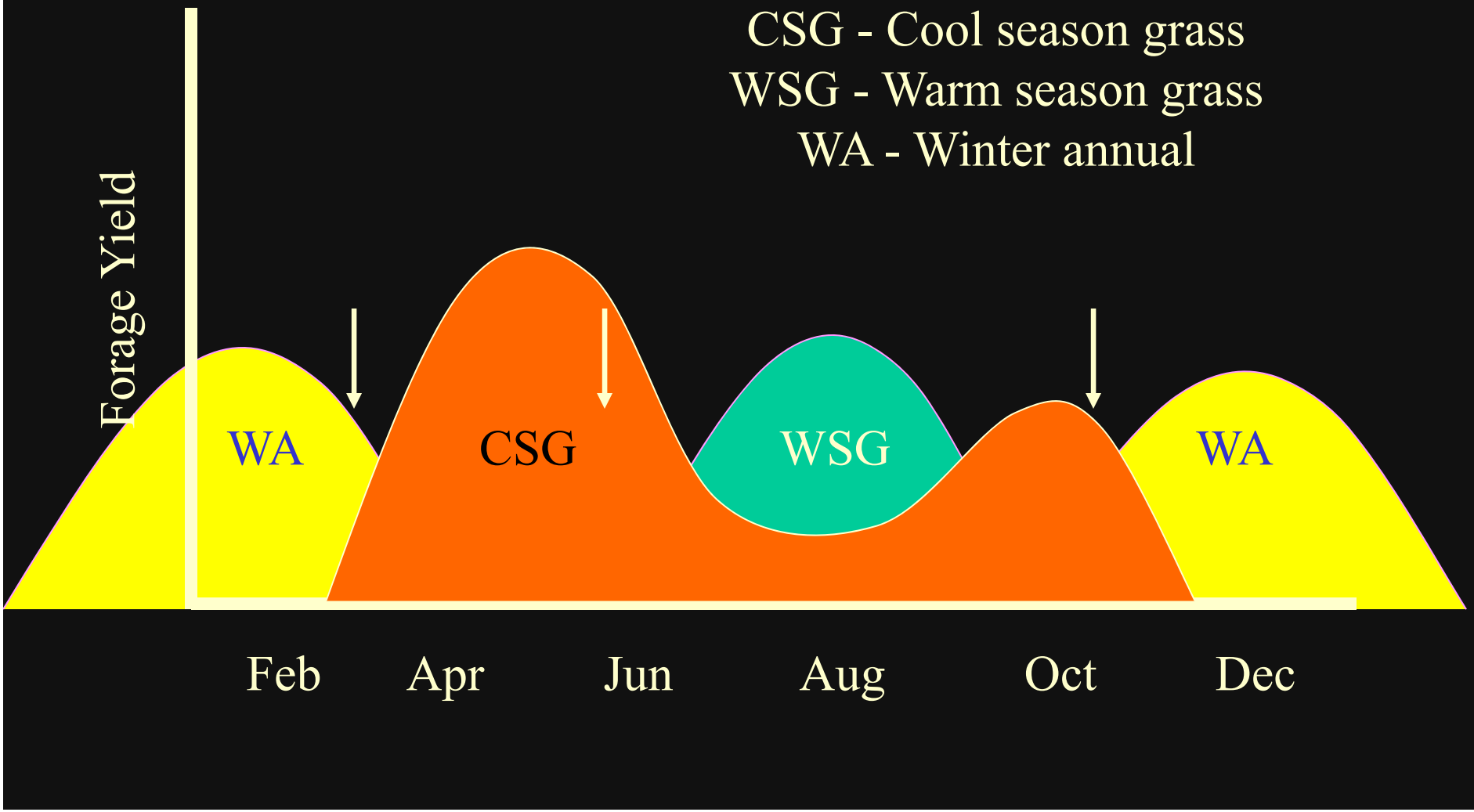
- Using legumes?
- Is the pH, P and K up to soil test?
- Am I intensively grazing?
- Can I cut hay on my pastures in May?
- Do I have more land than cattle to graze it?
- **Does it increase the beef, milk or hay sold on my farm?**

Ergovaline Concentration



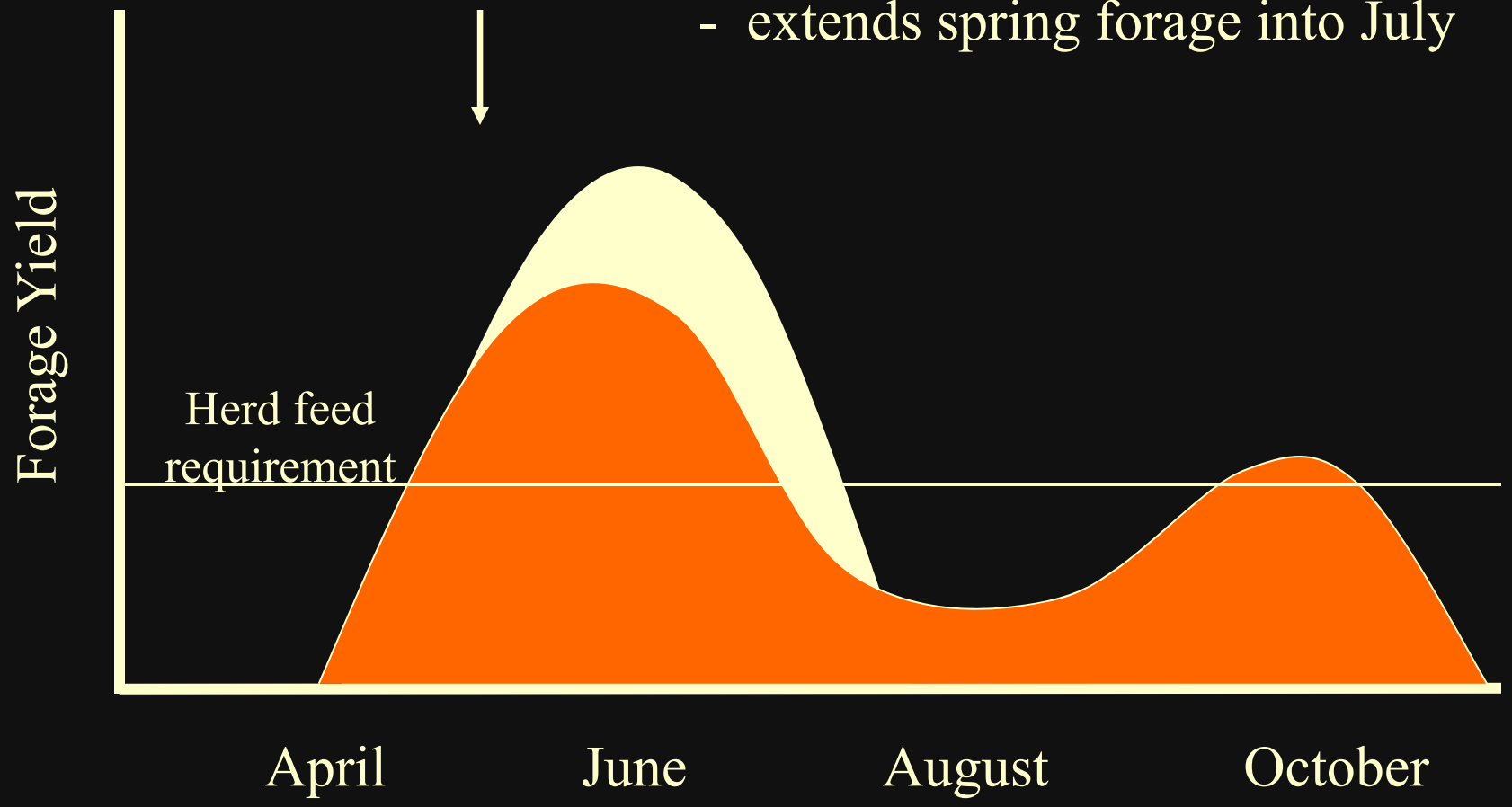
Rottinghaus et al., 1991

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



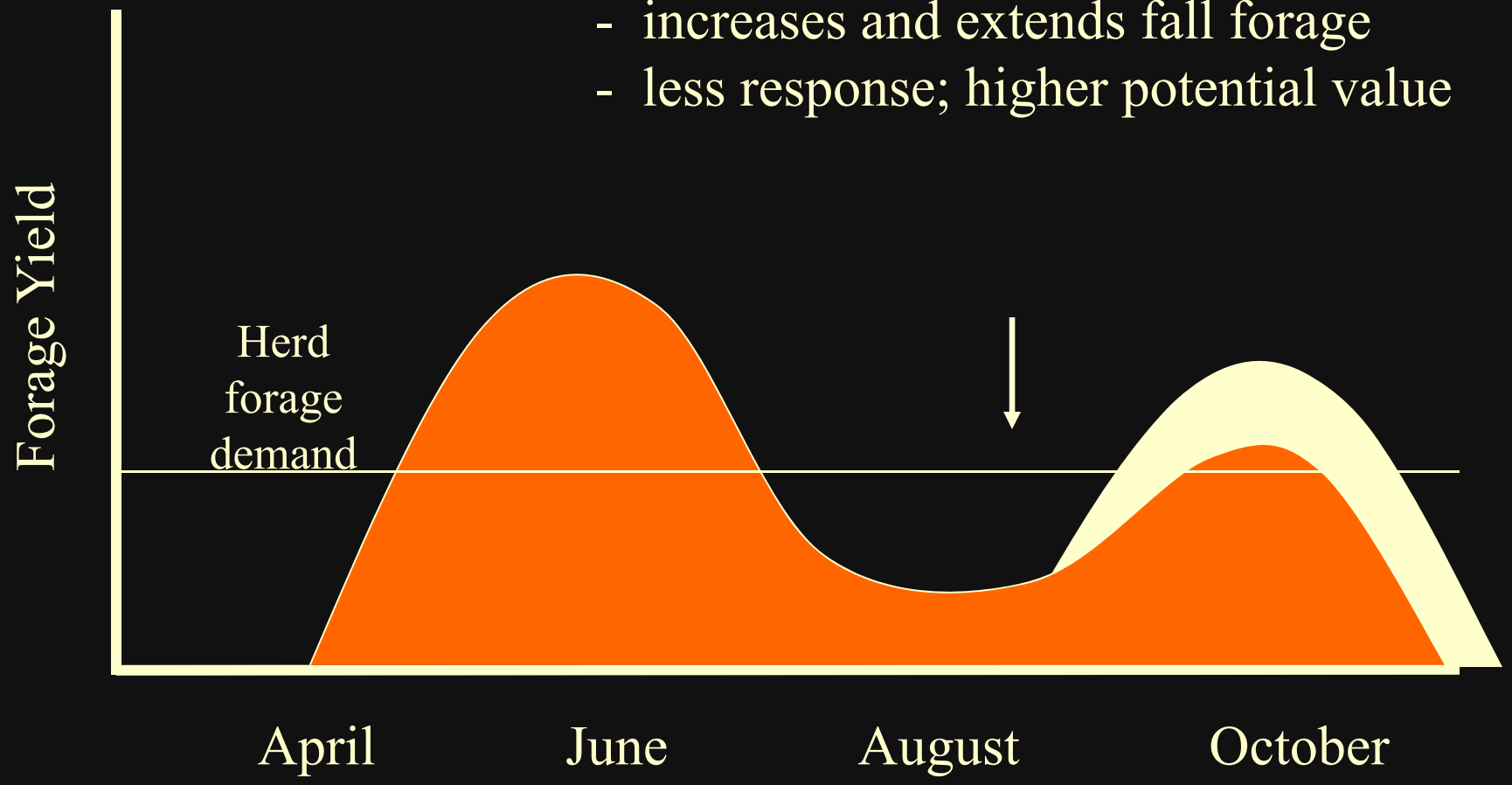
Nitrogen for Tall Fescue Spring Pasture

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

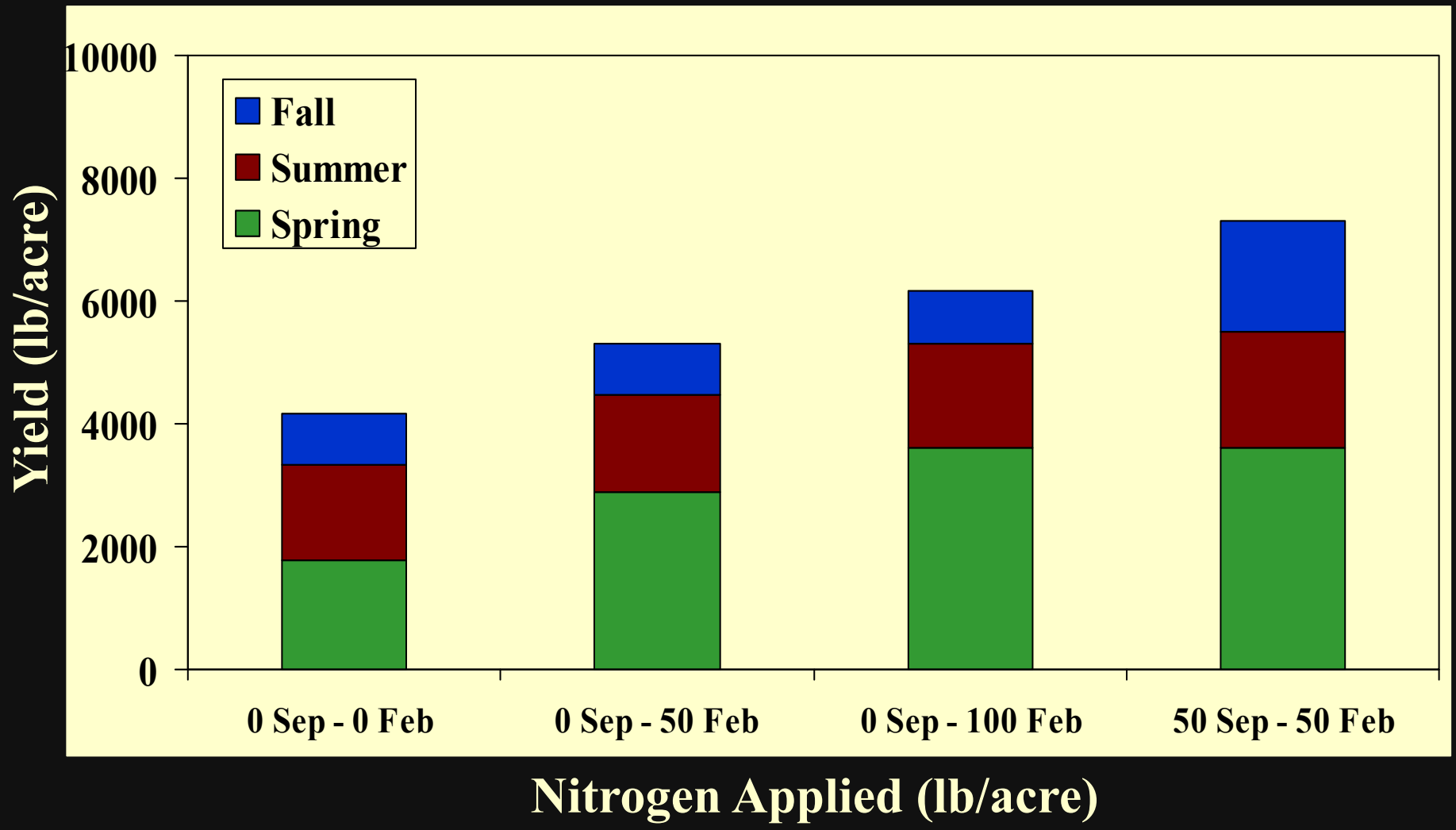


Nitrogen for Tall Fescue Fall Pasture

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



Fertilization of Tall Fescue



Georgia

Hoveland and Richardson, 1992

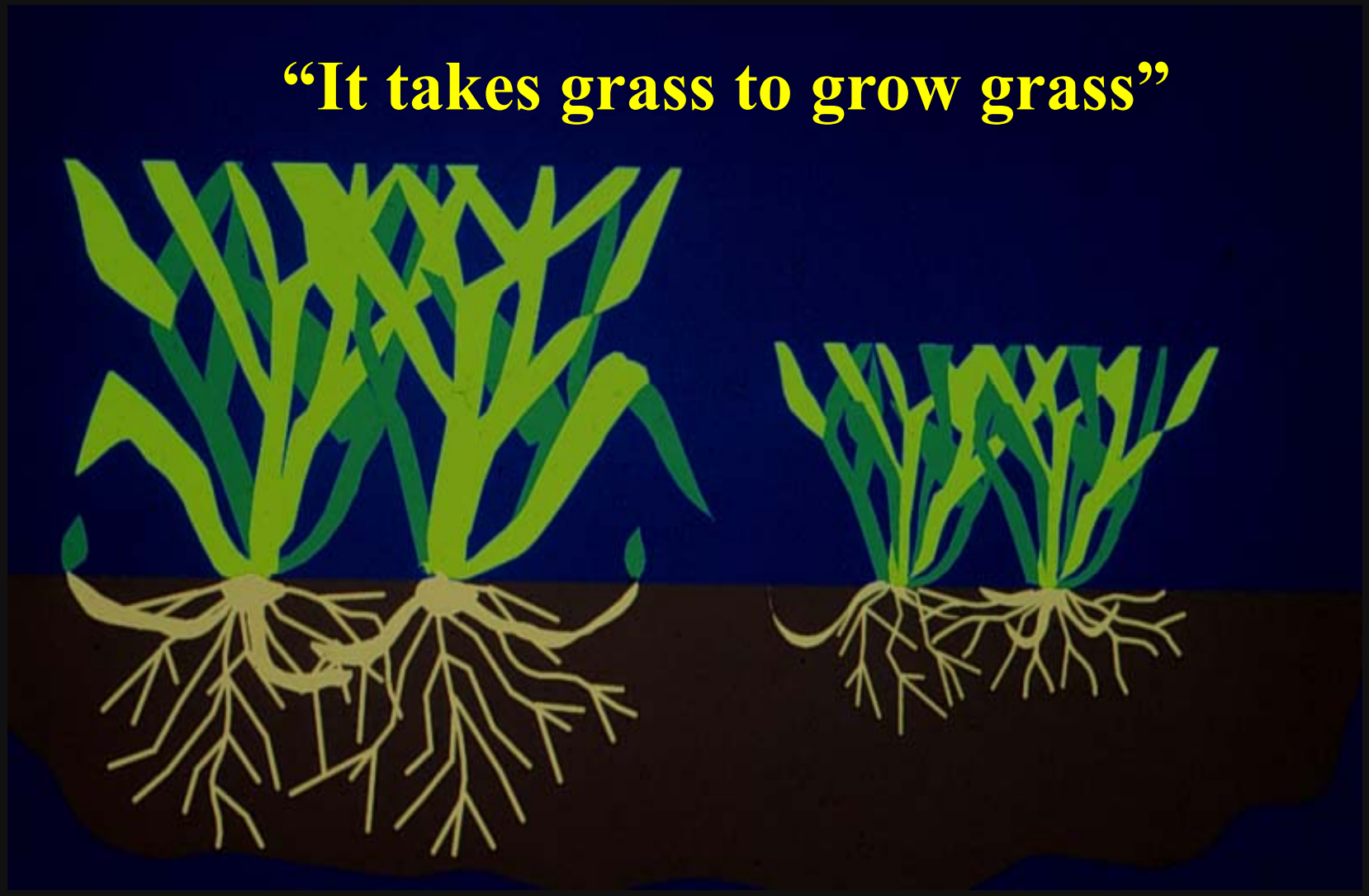
Grazing Management

Getting the Most out of Fescue

- Avoid over stocking

Residual Height
Rest Periods

→ Rooting Depth



Jim Gerrish…

"Every Acre is 43,560 ft^2 of Solar Panel"

Undesirable Solar Panels
Bare Soil
Overgrazed Plants
Mature Plants
Weeds

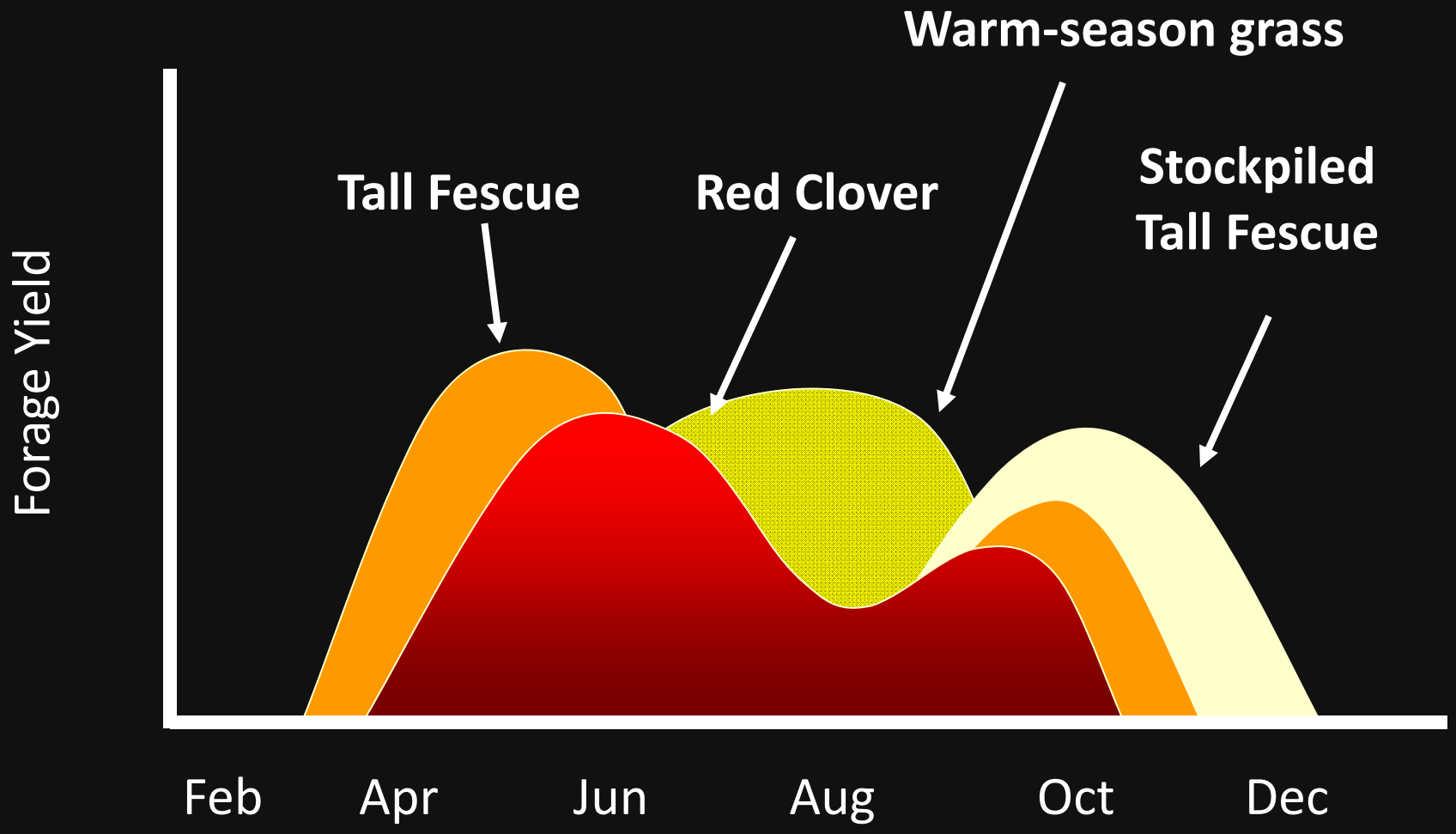
Management-Intensive Grazing

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

Percent of Rest	
Paddock #	
1	0%
2	50
4	75
10	90
100	99

Surplus Forage into Round Bale Silage or Hay

A Balanced Forage System



Key to keeping costs down:
Lower dependency on hay

Stockpiling

Where our industry advantage shines…

Tall Fescue in the Fall & Winter

Photo Credit – Virginia Cooperative Extension

Cheapest and Easiest Option for SW Missouri Farmers

- **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**

Economics of Stockpiled Fescue

- **Hay Cost**

  $.80-$1.30/cow/day

  Cost of hay ($55/ton) + 10% feeding loss

- **Stockpiled Fescue $.44/cow/day**

  40# N fertilizer + fall pasture rent

Case Study – Stockpiled Fescue Quality

Don Hounschel – Stark City, MO (Newton Co)

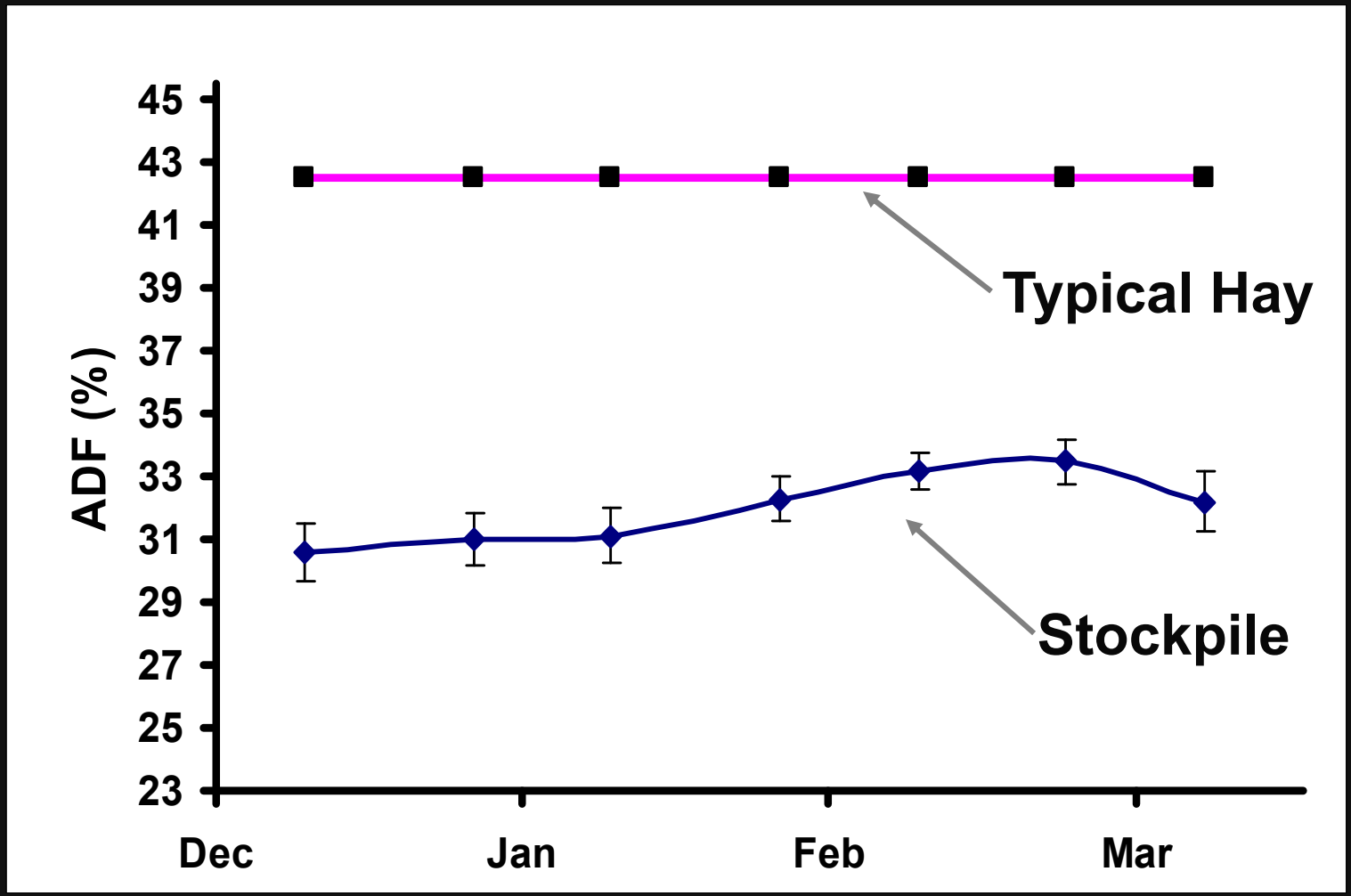
Standing Fall growth tested Jan. 1, 2017

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

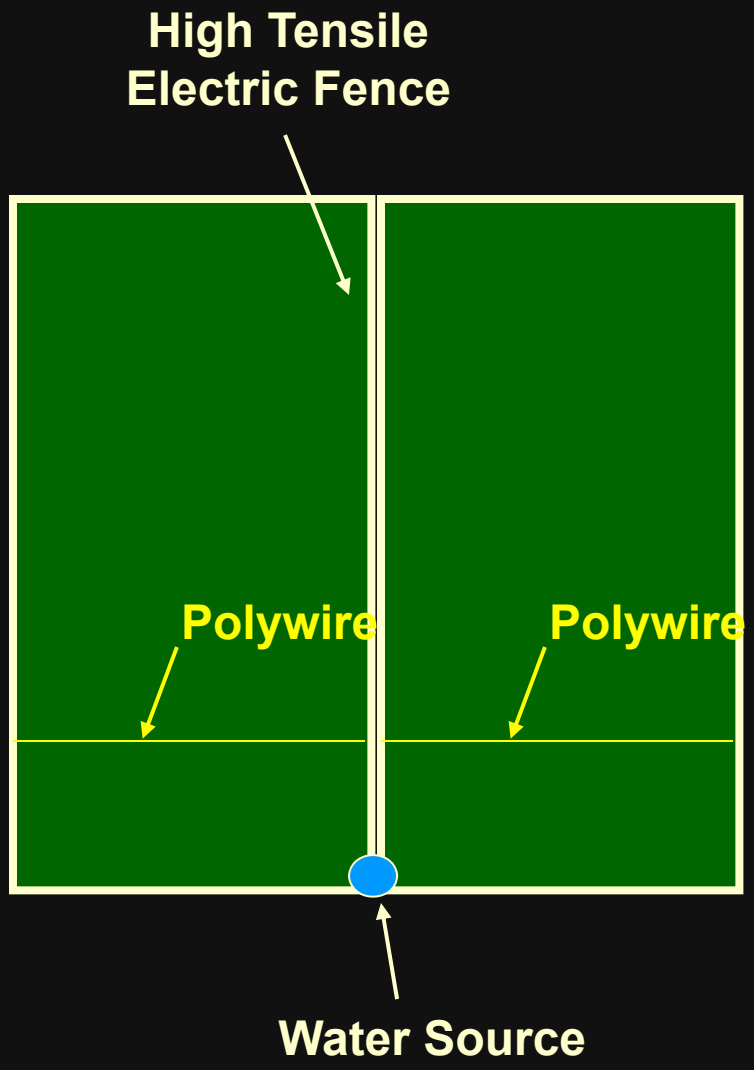
Summer Stockpiling

Photo Credit – Matt Booher, Virginia Cooperative Extension

- 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



Fescue Establishment

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