

# Minimizing Feeding Costs with Winter Grazing Systems



**Brian C. Pugh**  
**Area Agronomy Specialist**  
**Oklahoma State University**

Feeding Cows in the winter is the #1 variable cost associated with owning that cow.

- An average winter daily cost will be \$1.50 per cow per day

- > Feed = Forage + Hay + Supplement
- > \$55 1100 lb 4x6 bale - \$0.05/lb @ 30 lbs = **\$1.50/c/d**
- > \$320 ton by-product - \$0.16/lb @ 4 lbs = **\$0.64/c/d**
- > **\$2.14 per cow/day**

- KFMA data shows:

- > 64% of Income variation is due to Total Costs (TC)
- > Feed costs make up 45-55% of TC
- > However, little correlation between pasture costs and TC ( $r=.02$ )
- > Reducing hay and supplementation will reduce costs, increase profits

Feeding Cows in the winter is normally the #1 variable cost associated with owning that cow.

- **Make The Cow Do The Work!**
- **Having a balanced forage system will help reduce hay feeding days.**
- **Supply quantity and quality!**
- **Grazing fertilized forage can save you \$1/C/D!**
- **Stockpiling fall forage production as a standing hay crop – Bermudagrass, Fescue, Brassicas, Small Grains, Native**
- **Growing a cool season spring production forage – Annual Ryegrass, Small Grains, Clover, Fescue**



# OSU Rules of Thumb - Fertility



- It takes 50 lbs actual N to make 1 additional ton of warm season grass
- It takes 60 lbs actual N to make 1 additional ton of cool season grass
- For E. OK, 1 acre will produce 1 ton of forage per year without fertility!



8 tons forage/cow/year?  
Unfertilized pasture = 8 Acres

## Forage Budgeting.(F-2584)

- Livestock description 1200# cow
- Total number of days 365
- Dry matter consumption 43 lbs/day
- Lbs/animal 15695 x #animals 100 =
- Total # forage required 1,569,500 / 2000 =
- 785 tons of forage required.

**70 % utilization of standing forage.**

# Strategic Forage Budgeting

- Livestock description 1200# cow
- Total number of days 60 days – Nov-Dec
- Dry matter consumption 38 lbs/day @ 80% utilization
- Lbs/animal 2,250 x animals 50 =
- Total # forage required 112,500 / 2000  
= 57 tons of forage required.

# Forage Production Planning Calendar

| Spring       |     |     | Summer           |     |     | Fall         |     |     | Winter            |     |     |
|--------------|-----|-----|------------------|-----|-----|--------------|-----|-----|-------------------|-----|-----|
| Mar          | Apr | May | Jun              | Jul | Aug | Sep          | Oct | Nov | Dec               | Jan | Feb |
| Fescue       |     |     | Crabgrass        |     |     | Fescue       |     |     | Stockpiled Fescue |     |     |
|              |     |     | Annual Lespedeza |     |     |              |     |     |                   |     |     |
|              |     |     | Bermudagrass     |     |     |              |     |     |                   |     |     |
| Red Clover   |     |     |                  |     |     | Red Clover   |     |     |                   |     |     |
| White Clover |     |     |                  |     |     | White Clover |     |     |                   |     |     |
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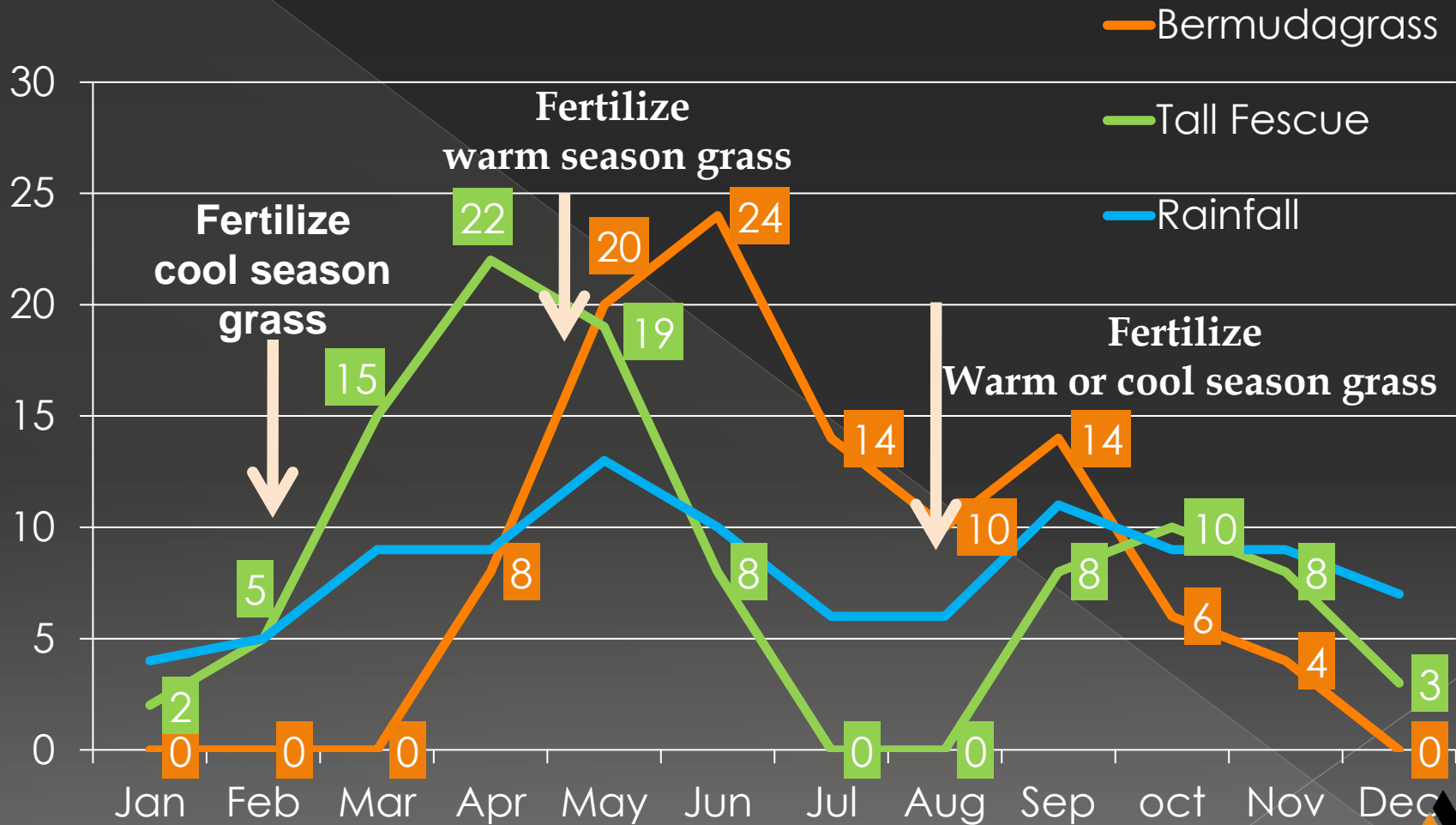
# Strategic Forage Budgeting – Variety Selection

- ◉ No hay!?
- ◉ November – December grazing to meet cow req.?
  - > Native range with protein supplement
  - > Summer grown Bermuda with protein supplement
- ◉ No supplement, no hay!?
- ◉ Is there forage options that might meet both CP and TDN requirements of our cowherd during this time?
  - > Fall fertilized/ stockpiled Bermudagrass (1ton/A)
  - > Stockpiled fescue (fertility optional) (0.5 vs 1.5 ton/A)
  - > Small grains (fertility needed for decent stand) (1 ton/A)
- ◉ Do any need immediate use due to weathering?
- ◉ Compare production vs. economics vs. acreage

# Stockpiled Bermudagrass (Nov-Dec)



# Forage Growth, Rainfall, and Fertilizer Timing





# How do I stockpile Bermuda for fall and winter grazing?

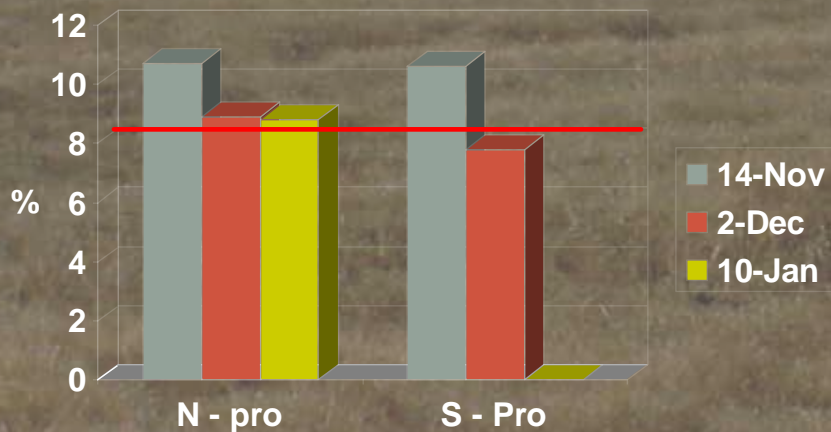
- Bermuda grass

- ✓ Remove existing forage by late August
  - ❖ Graze, hay, or mow
- ✓ Apply 50 to 75 lbs of N
- ✓ Grazing usually begins after frost when growth is complete
- ✓ Rate of forage weathering dictates when cows should be supplemented
- ✓ Expect about 1 ton of forage per acre
- ✓ 1.5 acre = 60 grazing days for 1 animal

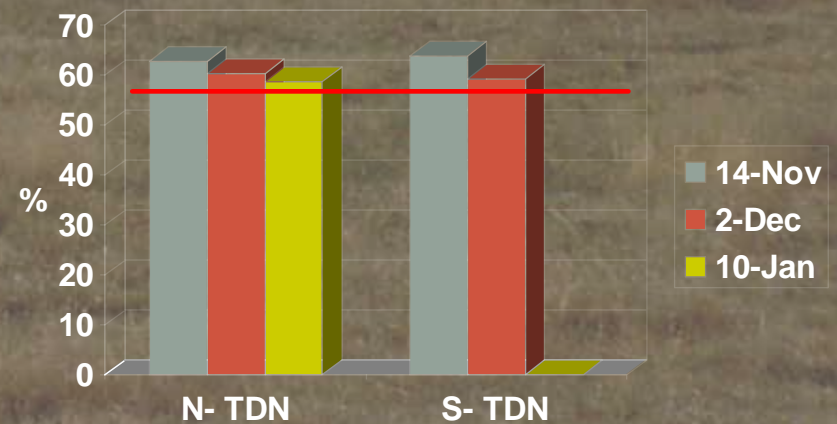
# Stockpiled Bermudagrass (Nov-Dec)



Protein content Dry Basis



TDN content Dry Basis



# Grazing Strategy Effects Forage Utilization

| Harvest Method                   | Low Efficiency | High Efficiency |
|----------------------------------|----------------|-----------------|
| Continuous Stocking              | 30             | 40              |
| Slow Rotation (2-4 paddocks)     | 50             | 60              |
| Moderate Rotation (4-8 paddocks) | 60             | 70              |
| Strip Grazing, MOB, Daily, etc.  | 70             | 80              |
| Hay Harvest                      | 30             | 75              |

Converting from a continuous to a rotational stocking system.

| State Trials | % Increase StckRate |
|--------------|---------------------|
| Arkansas     | 44                  |
| Georgia      | 37                  |
| Oklahoma     | 35                  |
| Virginia     | 61                  |





# Stockpiled Bermudagrass

| 2018-2019          | 1 Day Strip | 5 Day Strip | Continuous |
|--------------------|-------------|-------------|------------|
|                    | Valliant    | Perkins     | Perkins    |
| # Head             | 248         | 42          | 42         |
| Acres              | 131         | 17          | 12.3       |
| Crude Protein      | 12.7        | 12.9        | 11.9       |
| Energy (TDN)       | 59.3        | 62.2        | 58.5       |
| Avg Yield          | 2249        | 4477        | 2934       |
| Grazing Days       | 38          | 40          | 17         |
| Cow Days/A         | 72          | 99          | 58         |
| \$/C/D             | \$0.38      | \$0.29      | \$0.50     |
| Harvest Efficiency | 83%         | 71%         | 57%        |
| Weight Change      | -9 lbs      | +2 lbs      |            |







# Strategic Forage Budgeting – Cost?

- I need 58 acres of stockpiled Bermudagrass to run this herd through Christmas with 0 hay or supplement!
- Per acre fertility is 50 lbs N which costs \$0.82/lb
- \$41.00 per acre x 58 acres = \$2,842 Nov-Dec (\$8/A app)
- $\$2,842 / 50 \text{ cows} / 60 \text{ days} = \$0.95/\text{cow}/\text{day}$  (\$0.15 app)
- Traditionally – No Waste calculated
  - >  $\$2.14/\text{cow}/\text{day}$  for 60 days = \$128.40 x 50 cows = \$6,420
  - > Feeding cost?
- $\$0.95 / \$2.14 = 44\%$
- Grazing SP Bermuda was 44% the cost of hay/feed
- You saved \$3,578 (\$71.56/cow) over 60 days!



# Strategic Forage Budgeting

- Livestock description 1200# cow
- Total number of days 60 days – Jan-Feb
- Dry matter consumption 38 lbs/day @ 80% utilization
- Lbs/animal 2,250 x animals 50 =
- Total # forage required 112,500 / 2000  
= 57 tons of forage required.

**For a lactating Fall calving herd, forage intake increases approximately 20% or 10 extra tons.**

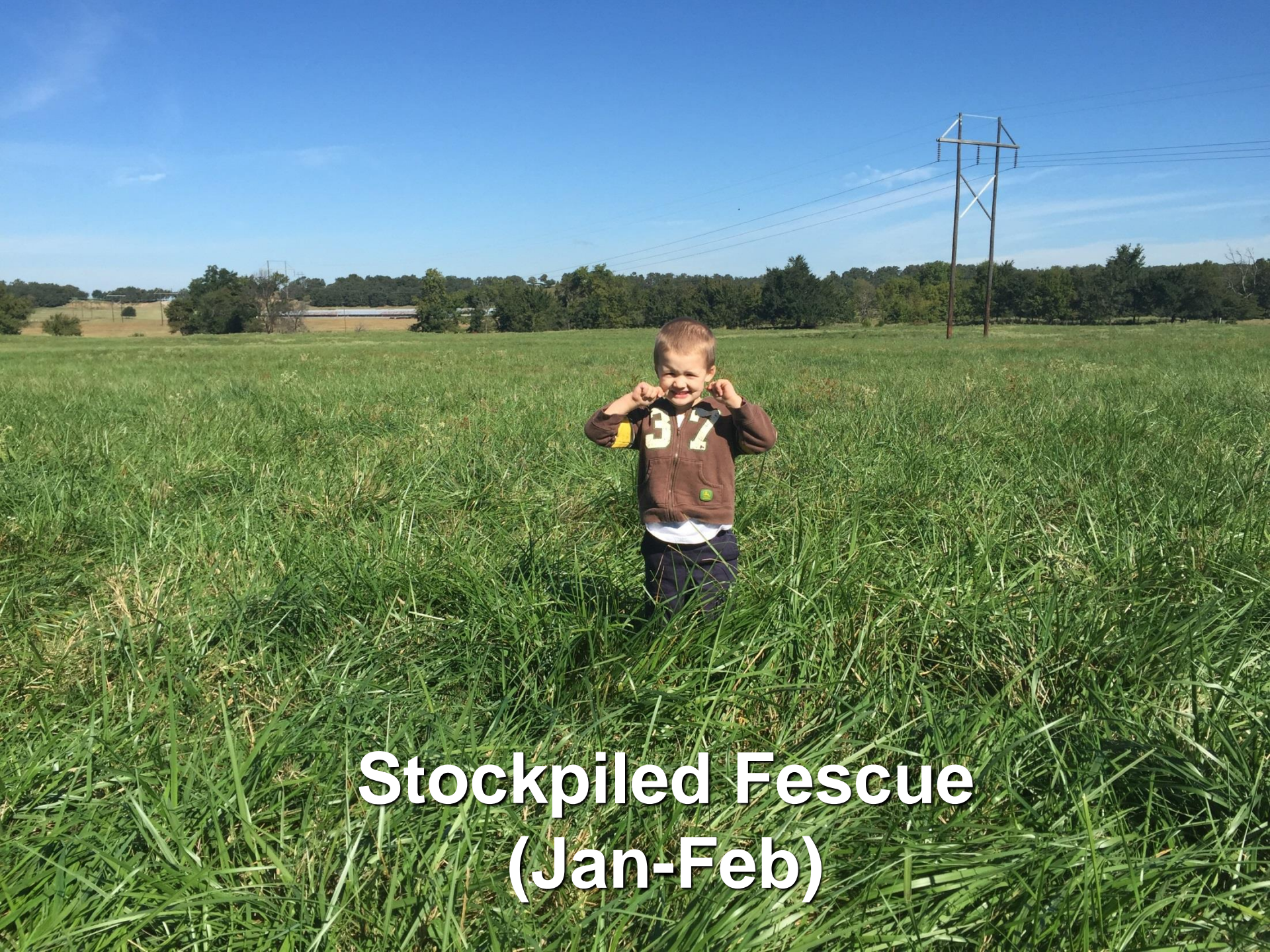
# Forage Production Planning Calendar

| Spring                 |     |     | Summer           |     |     | Fall                    |     |     | Winter            |     |     |
|------------------------|-----|-----|------------------|-----|-----|-------------------------|-----|-----|-------------------|-----|-----|
| Mar                    | Apr | May | Jun              | Jul | Aug | Sep                     | Oct | Nov | Dec               | Jan | Feb |
| Fescue                 |     |     |                  |     |     | Fescue                  |     |     | Stockpiled Fescue |     |     |
|                        |     |     | Crabgrass        |     |     |                         |     |     |                   |     |     |
|                        |     |     | Annual Lespedeza |     |     |                         |     |     |                   |     |     |
|                        |     |     | Bermudagrass     |     |     |                         |     |     |                   |     |     |
| Red Clover             |     |     |                  |     |     | Red Clover              |     |     |                   |     |     |
| White Clover           |     |     |                  |     |     | White Clover            |     |     |                   |     |     |
|                        |     |     |                  |     |     |                         |     |     |                   |     |     |
|                        |     |     | Bermudagrass     |     |     | Stockpiled Bermudagrass |     |     |                   |     |     |
| Annual Ryegrass        |     |     |                  |     |     |                         |     |     |                   |     |     |
| Small Grains           |     |     |                  |     |     |                         |     |     | Small Grains      |     |     |
| Novel endophyte fescue |     |     |                  |     |     | Fescue                  |     |     | Stockpiled Fescue |     |     |
|                        |     |     |                  |     |     | Brassicas               |     |     |                   |     |     |

# Strategic Forage Budgeting – Variety Selection

- ⊙ Each cow needs 3,000 lbs forage for this time period
  - > Fall fertilized/ stockpiled Bermudagrass
    - 1 ton/A = 1.5 acres/cow
  - > Stockpiled fescue (fertility optional)
    - 0.5 tons/A = 3 acres/cow No N
    - 1.5 ton/A = 1 acre/cow with N
  - > Small grain pasture (fertility needed for decent stand)
    - 1 ton/A = 1.5 acres/cow with establishment costs
- ⊙ Can I improve forage utilization?
  - > Strip grazing? 60 vs 80% utilization!
    - $30/.8 = 38$  lbs needed – 12 lbs/cow/day savings
    - 38 lbs x 60 days = 2,280 lbs or 0.76 acres/cow
    - If we hedge at 1 acre/cow ( $3,000/38$  lbs) = 79 days grazing
- ⊙ I need 38 acres of stockpiled Fescue to run this herd in Jan & Feb with 0 hay or supplement!





**Stockpiled Fescue  
(Jan-Feb)**



# Fescue

- ◉ Love it or hate it, its still the best adapted perennial cool season forage for our area.
- ◉ Can produce 1-1.5 ton of fall forage/ac and another 2 tons in the spring.
- ◉ Adapted to low pH and low Fertility soils.
- ◉ Toxicity problems can be managed.
  - Legume mix, Timing of Use
- ◉ Works well in a year-round grazing system.



# How do I stockpile fescue for fall and winter grazing?

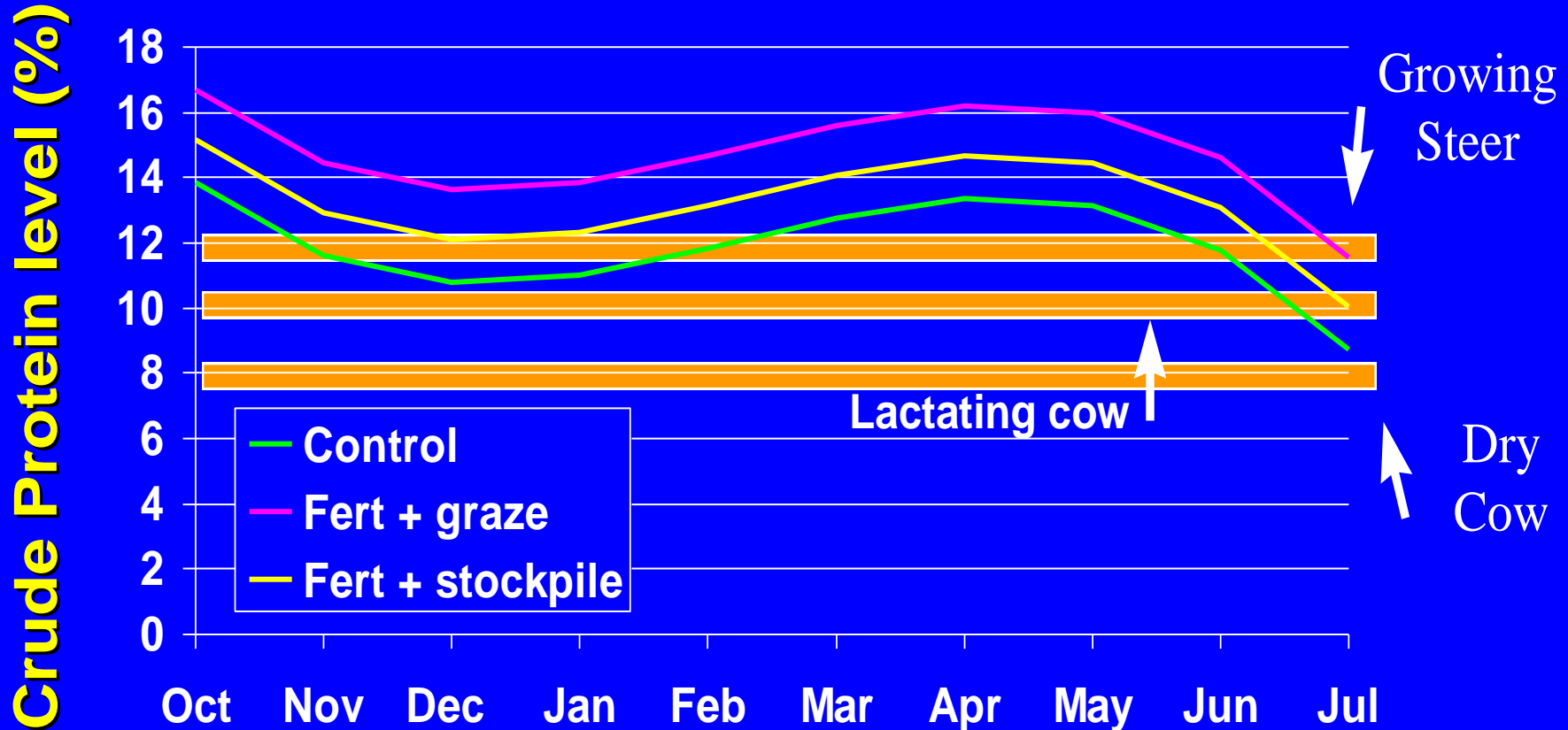
- Tall fescue

- ✓ Remove existing forage by late August
  - ❖ Graze, hay, or mow
- ✓ **Apply 60 to 100 lbs of N**
- ✓ **Grazing can begin in late-December and continue through February**
- ✓ Expect about 1.5 tons of forage per acre
- ✓ 1 acre = 60 grazing days for 1 animal

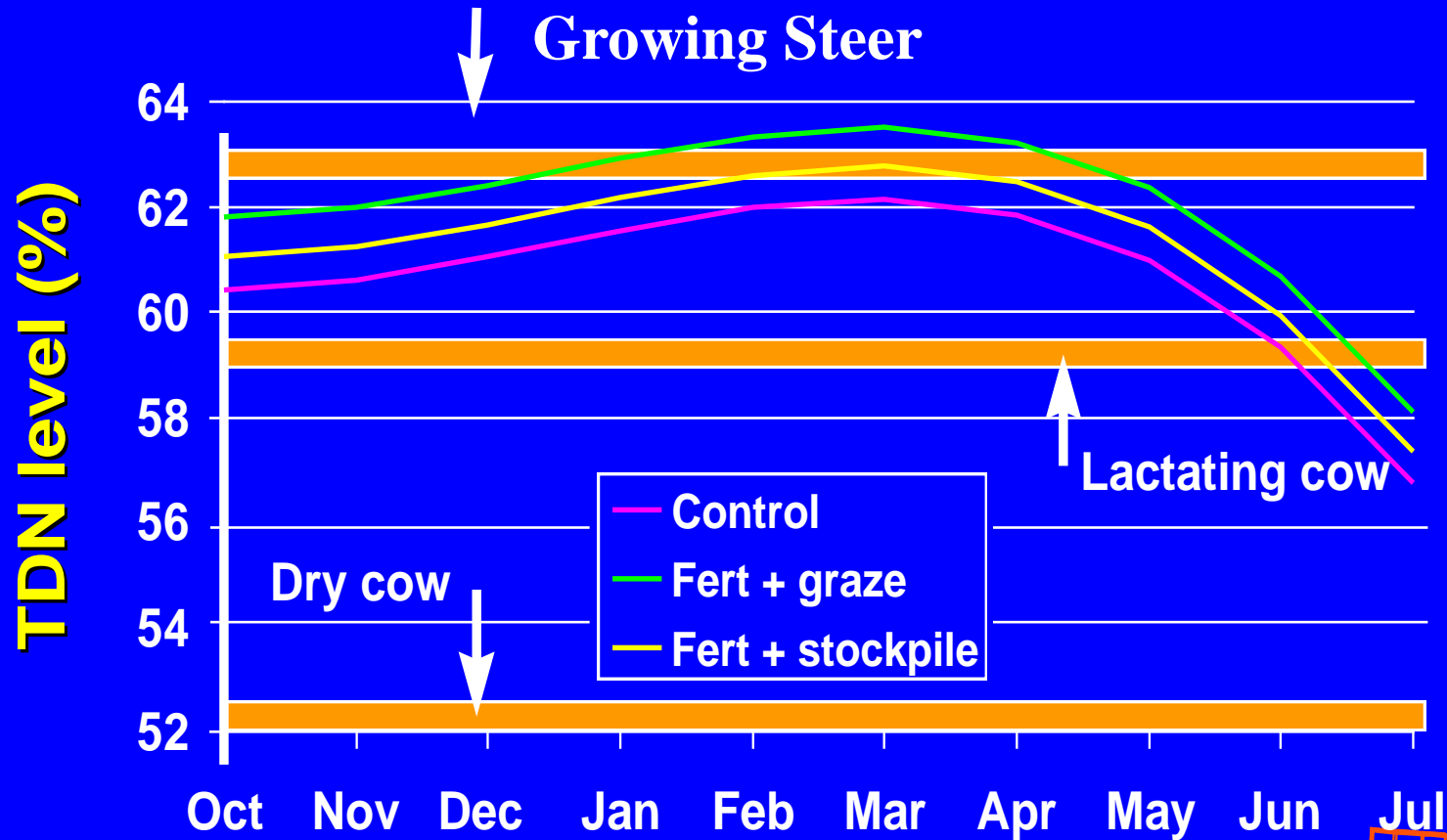
# Fall Fertilized Fescue 2001

| 60 units N     | Unfert.<br><u>Lbs/A</u> | Fertilized<br><u>Lbs/A</u> | Increase<br><u>Lbs/A</u> |
|----------------|-------------------------|----------------------------|--------------------------|
| Cherokee       | 865                     | 3803                       | 2938                     |
| Craig          | 1108                    | 2174                       | 1067                     |
| Delaware       | 778                     | 2111                       | 1333                     |
| Mayes          | 885                     | 2281                       | 1396                     |
| Muskogee       | 1117                    | 3201                       | 2084                     |
| Nowata         | 659                     | 2419                       | 1760                     |
| Okfuskee       | 1329                    | 3733                       | 2404                     |
| Ottawa         | 1382                    | 4520                       | 3138                     |
| Wagoner        | 885                     | 5480                       | 4596                     |
| Washington     | 723                     | 1574                       | 851                      |
| <b>AVERAGE</b> | <b>973</b>              | <b>3,130</b>               | <b>2,157</b>             |

# Treatment effect on tall fescue crude protein level in northeast Oklahoma, 1994-95



# Treatment effect on tall fescue TDN level in northeast Oklahoma, 1994-95





# October 20, 2018 – Stockpile Fescue



In 2018, with 100 lbs N, site produced over 5400 lbs/A by Dec 20<sup>th</sup>



# January 12, 2019 – Strip Grazing Fescue



- Grazed July 17-Aug 3<sup>rd</sup> 2018
- Clipped to 4" height Aug 11th
- Fertilized with 75 lbs N – Aug 18
  - \*Missed a 3" rain
- Next rain was mid-September

Sampled Nov 14<sup>th</sup> 2018

Yield – 3,438 lbs/A

CP – 16.3%

TDN – 66.7%

1350 lb lactating cows

Projected 64 grazing days 1A/C

(\$0.57/C/D)



# January 12, 2019 – Strip Grazing Fescue





# February 3rd, 2014 – Strip Grazing Fescue





Feb 17, 2021 – Strip Grazing Fescue





# Time to Feed Hay



**“Feeding” Stockpiled Fescue –  
74 days of strip grazing  
(Mar 16 , 2015)**



# Strategic Forage Budgeting – Cost?

- I need 38 acres of stockpiled Fescue to run this herd Jan - Feb with 0 hay or supplement!
- Per acre fertility is 60 lbs N which costs \$0.82/lb
- \$49.20/acre x 38 acres = \$1,870 + \$8/acre app cost
- \$2,174/50 cows = \$43.48/cow/60 days = **\$0.72/cow/day**
- Traditionally
  - > **\$2.14/cow/day** for 60 days = \$128.40 x 50 cows = **\$6,420**
- $\$0.72 / \$2.14 = 34\%$
- Grazing fescue was 34% the cost of hay/feed
- You saved \$4,246 (\$84.92/cow) over 60 days!

# The Good, The Bad & The Ugly

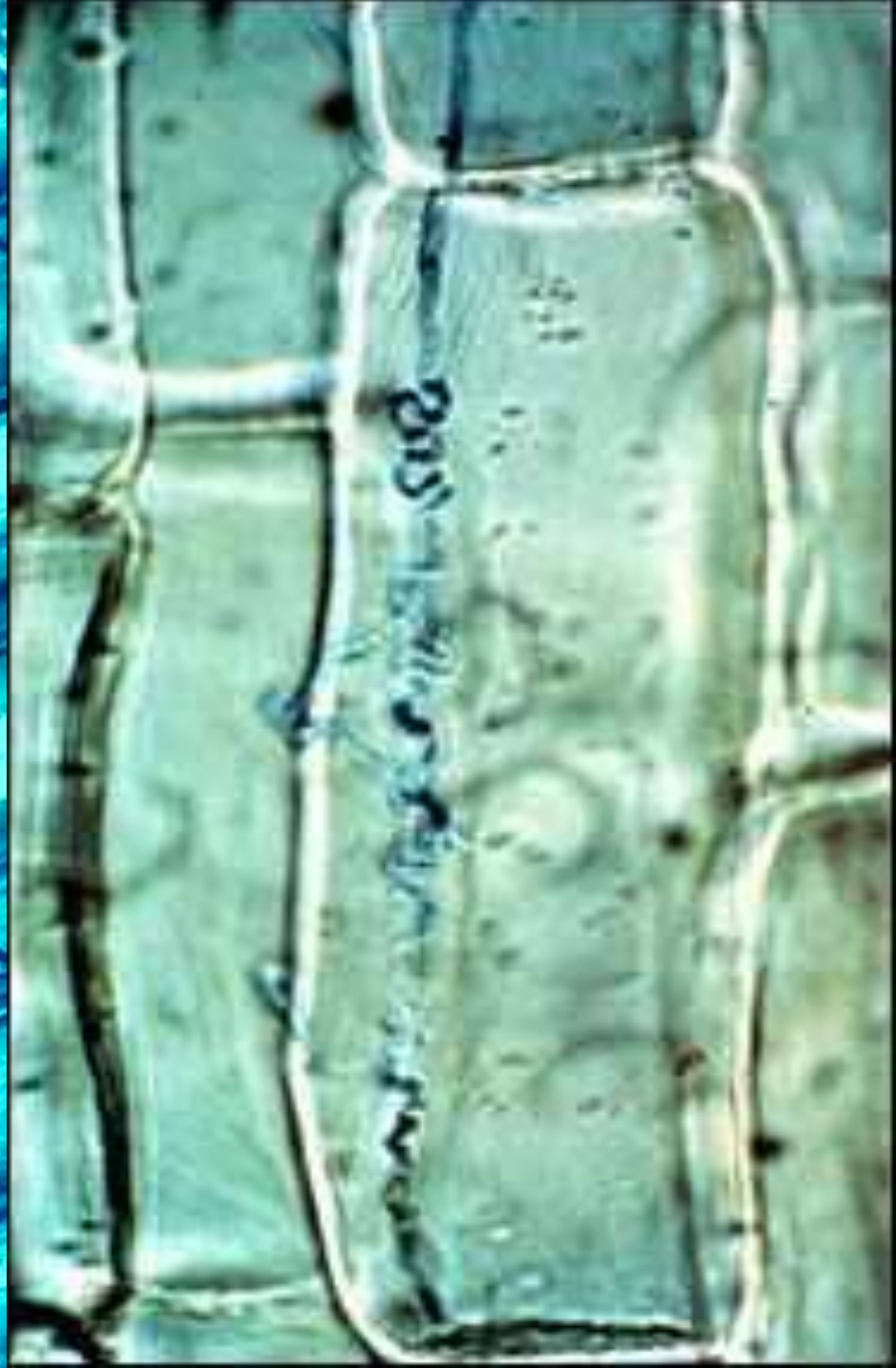
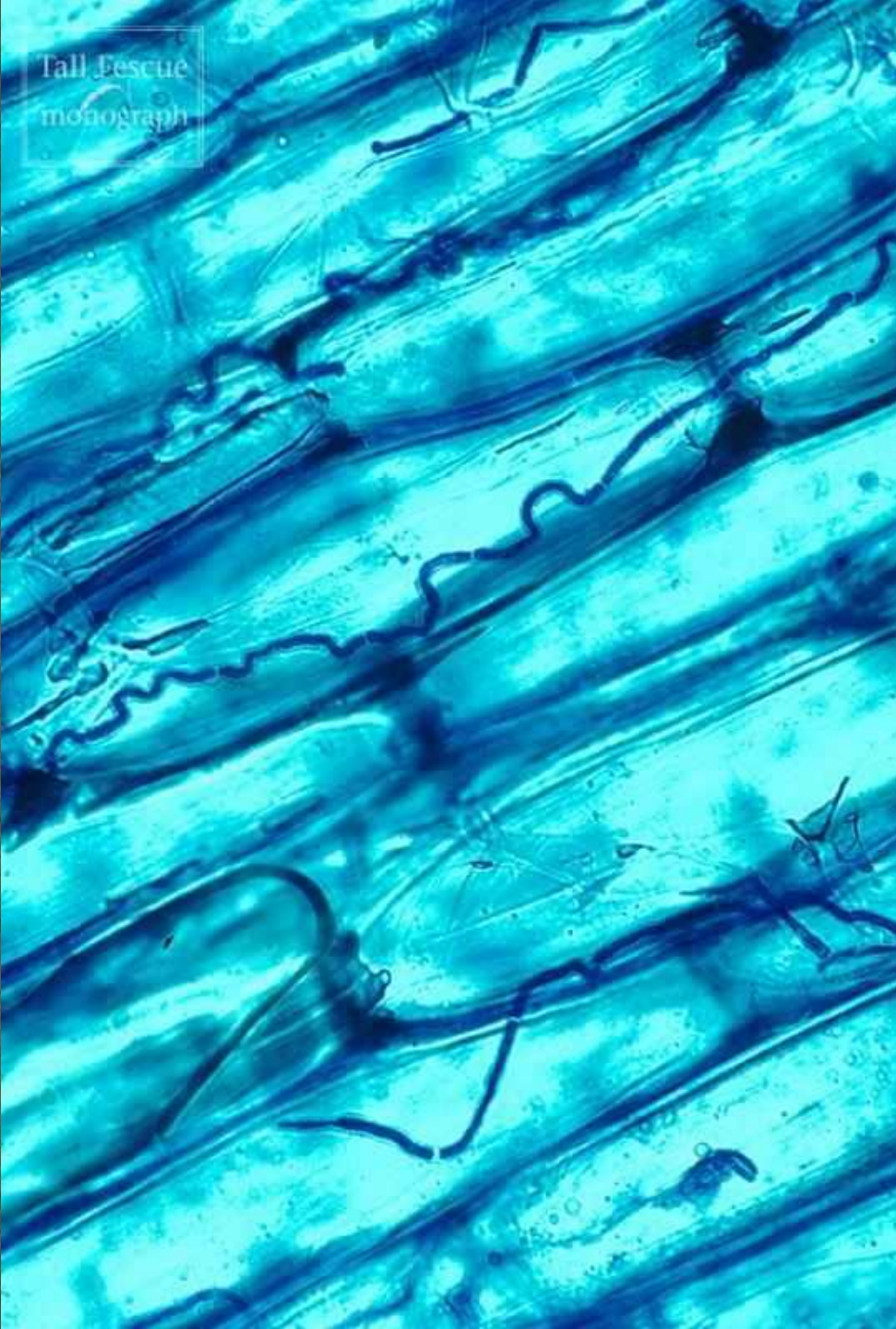


Feb 3, 2014

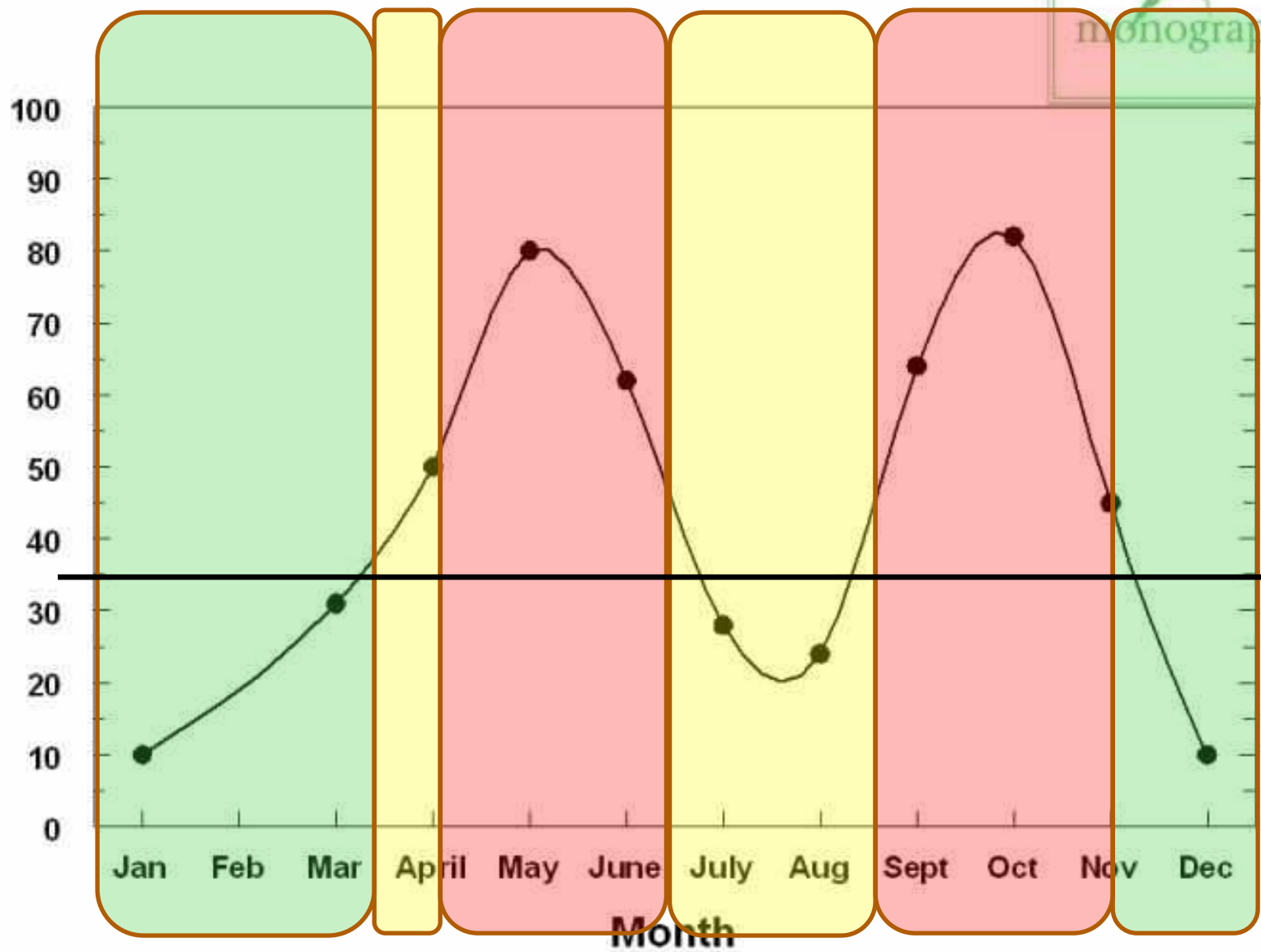


Feb 17, 2018





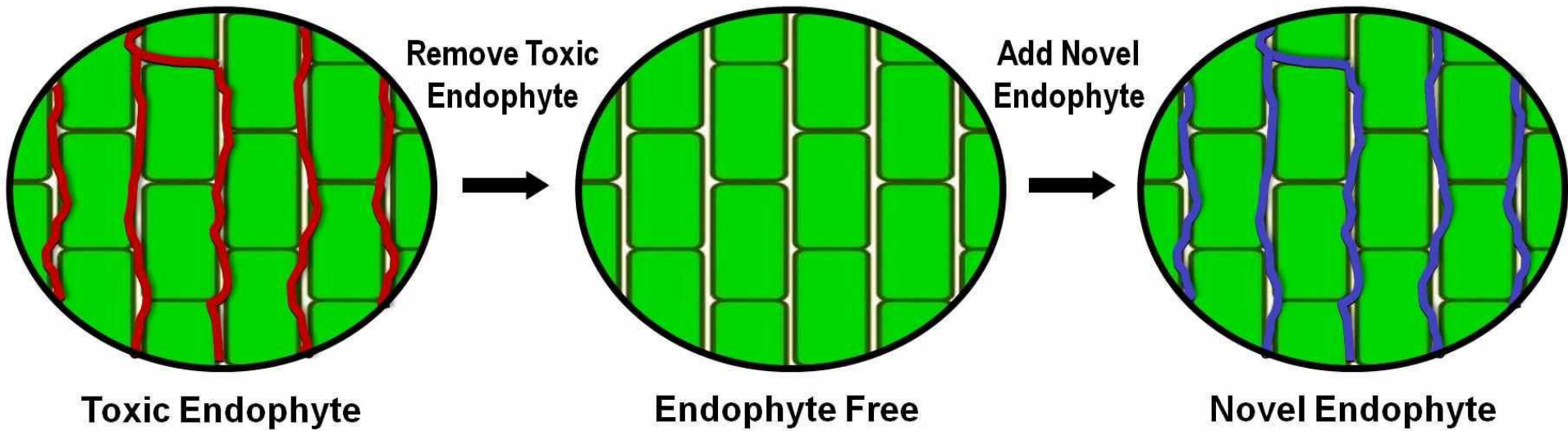
Relative accumulation of ergovaline







# The “new” fescue option



# Lets Compare Management!

## Wheat

Disk twice, cultivate once-  
every year.

Plant 90 to 120 # seed, yearly!

P&K, 60# N Sept. and February.

1 ton forage by Dec., 2 ton by  
April max yield!

Grazing Mid October – Mid  
April?

Summer annual crop?

Do it all again next fall?

## Fescue

After establishment year, no  
tillage!

No planting cost.

P&K, 60 to 80# N Sept. and 60 to  
120# N in February.

1 to 1.5 ton forage by Dec., 2 to 3  
ton(??) into Mid May!

Grazing Sept. thru May (?June)

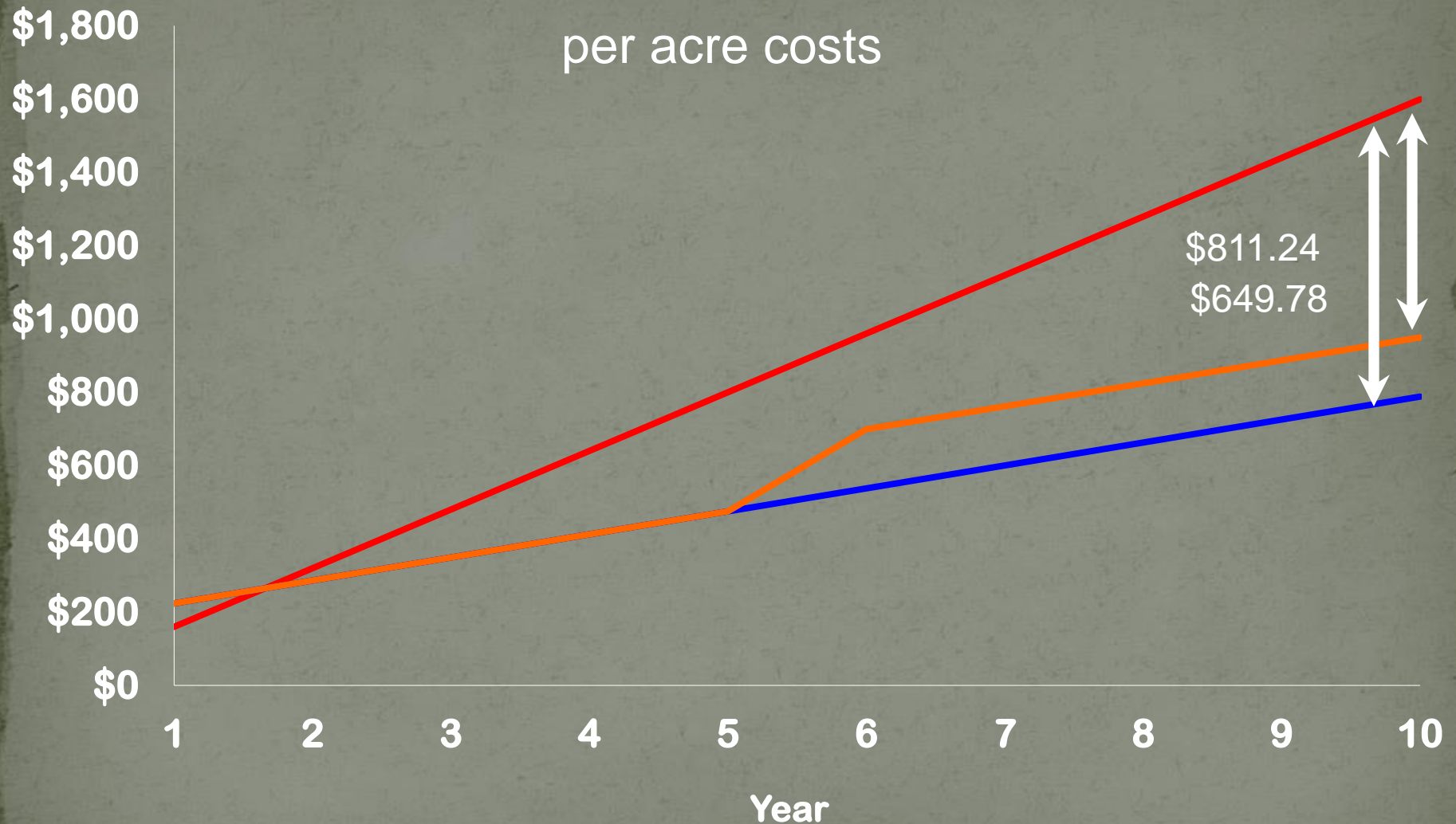
No tillage or seeding summer.

No grazing, Mid June – August  
unless mixed grass stand.



# Wheat vs. Fescue

per acre costs



— Wheat — Max Q Fescue (10 Year) — Max Q Fescue (5 Year)



# But Does it **PAY**?

- Eliminate it: The "Silver Bullet"
  - Replacement of E+ with Novel Endophyte (NE) tall fescue
- Minimize: Improving E+ TF
  - Rotate off of tall fescue
  - Graze only in winter
  - Integrating legumes
  - Reduce N fertilization
  - Grazing or clipping seed heads
  - Spraying to suppress seed heads
  - Supplemental feeding with fiber-based energy
  - Pharmaceuticals

Time Until Payback:

**2.2 – 2.6 years**

*Beck et al., 2008. JAS 86:2043-55  
Davis, J. Personal Comm.*

Time Until Payback:

**< 1-2 years**



# Strategic Forage Budgeting

- Stockpiled Bermudagrass 1.5 A/C = Nov & Dec
- Stockpiled Fescue 1 A/C = Jan & Feb
- We will still need some hay!
- Traditional feed costs did not include labor, fuel, equipment, etc.
- You are now left with March and ½ of April until Bermudagrass begins sufficient production to graze.
- Annual Ryegrass or Small Grains for Mar & Apr?
- **CONGRATULATIONS! You have a 320 day grazing system!**
- You just accomplished what 95% of beef producers never can, reducing winter feeding to less than 60 days



# Survival in the Cow Business

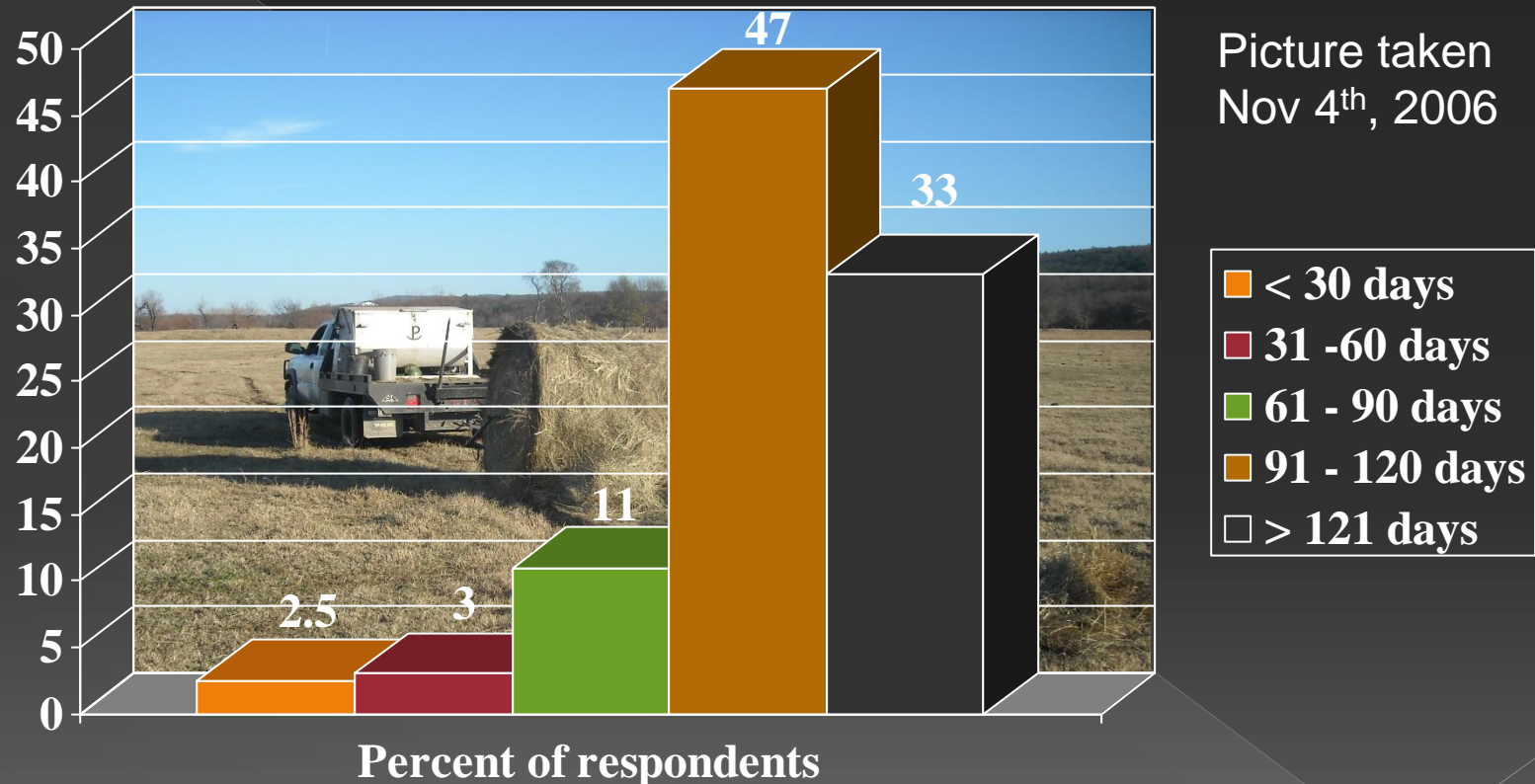
**Make the Cow do the Work**

**Adding 30 Days of Winter Grazing is Equal to:**

- 21 lb. Increase in Weaning Weight**
- 2.4% Increase in Weaning Percentage**
- 2.7% Increase in Current Market Value**



# NE OK Typical Hay Feeding Season – 1999 Survey



## Average Snow Cover – 4 days

\*Most introduced forage producers fed hay over 110 days

\*\* 75% of producers in more than 120 day bracket fed Nov1-Apr 15 (165d)

# Reducing Feeding Cost – Year Round Grazing.

