

# Drought-proof your grazing operation







# Usual recommended actions in a drought

- Weaning early
- Buying hay
- Selling cows

# Alternative strategies

- Manage pastures to be drought resilient
- Emergency grazing resources
- Cheap stored feed
- Flex stocking strategy



# The grass lifecycle

- **Vegetative**
- **Reproductive**
- **Dormant**

% nongrowing roots

% leaf removal

RhG

SB

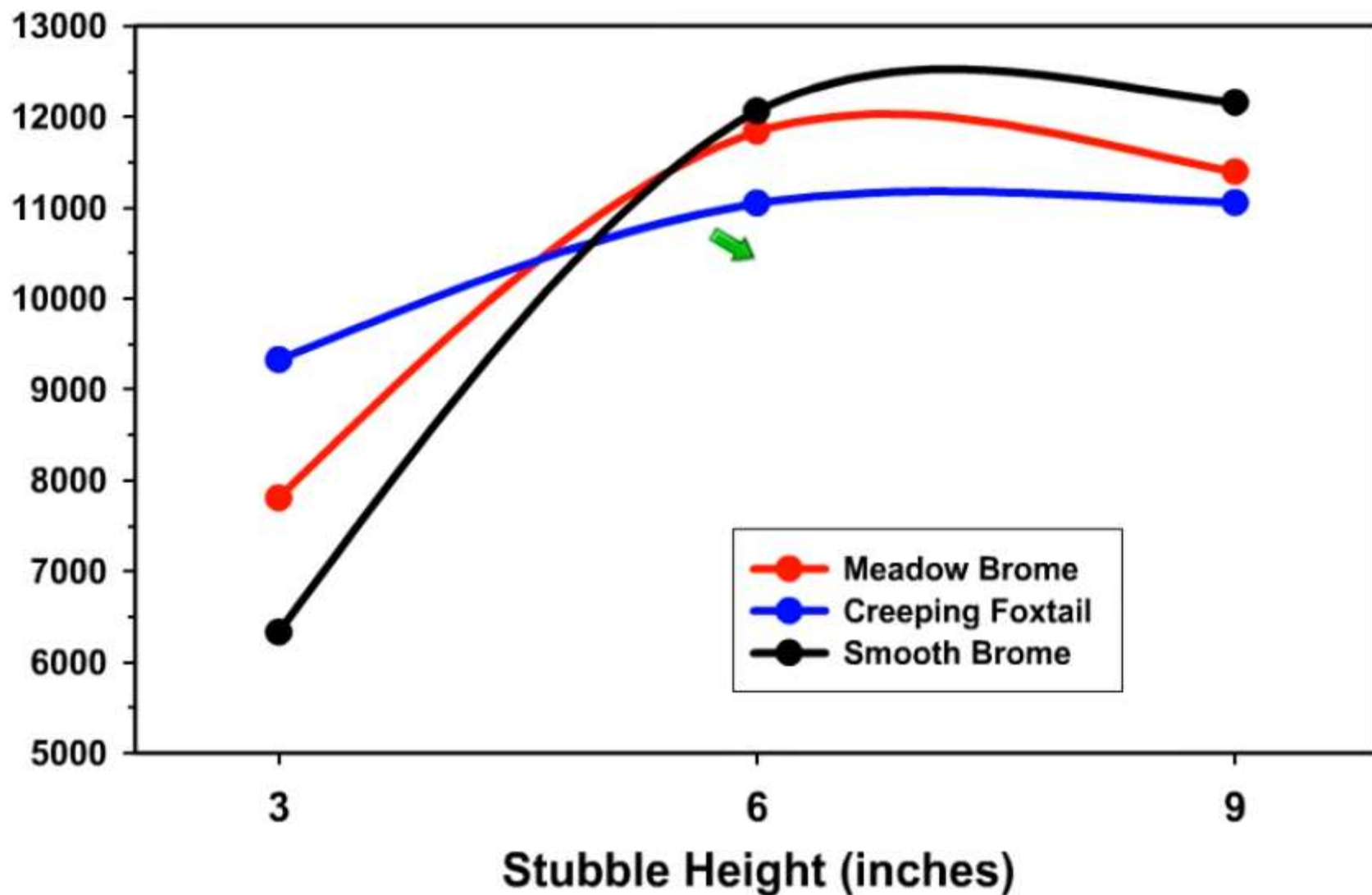
KB

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10	0	0	0
20	0	0	0
30	0	0	0
40	0	0	0
50	2	13	38
60	50	36	54
70	78	76	77
80	100	81	91
90	100	100	100

- RhG=rhodesgrass, SB=smooth brome grass, KB =Kentucky bluegrass

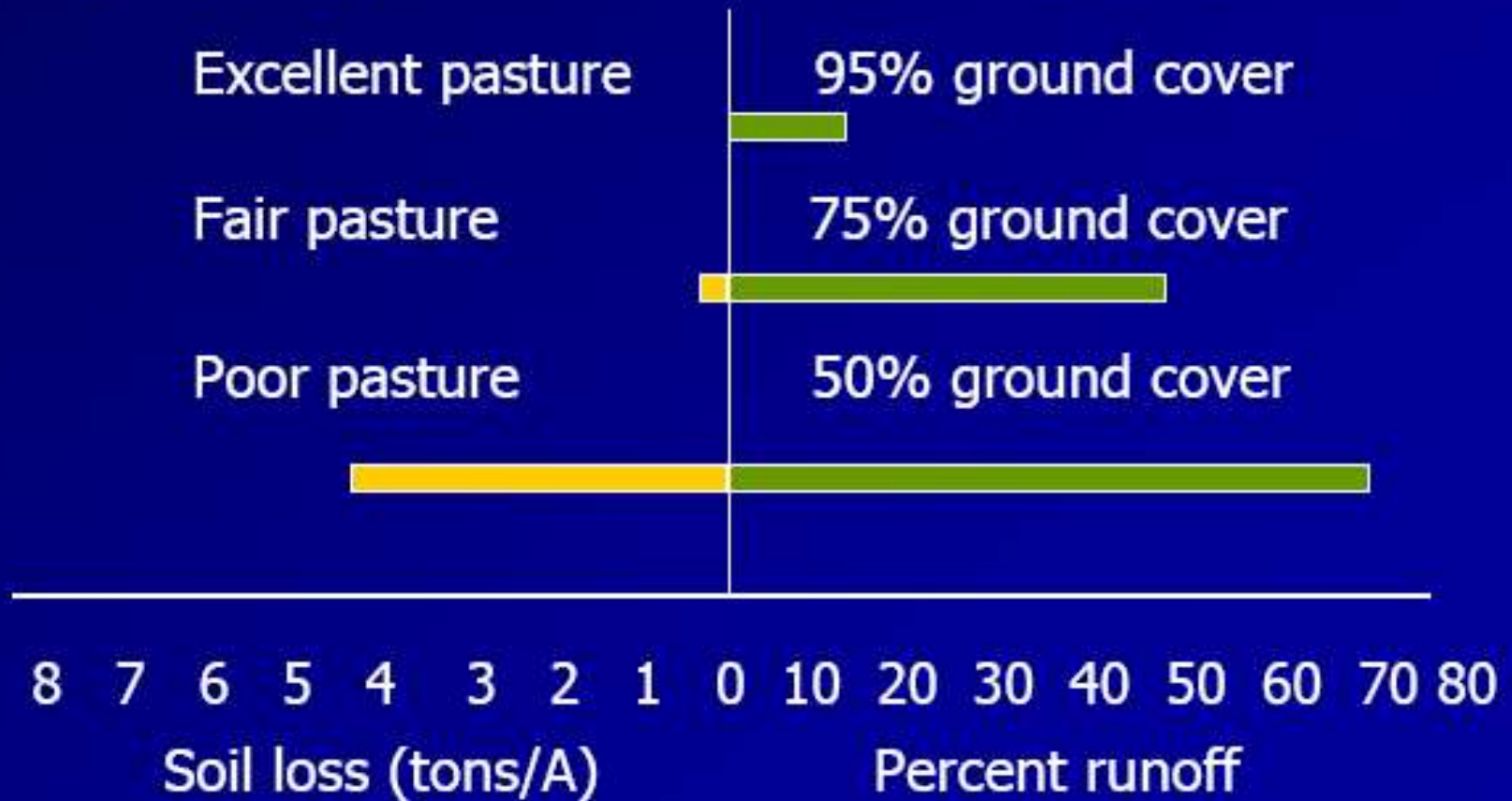
**Effect of clipping stubble height on total herbage yield of 3 irrigated, cool-season perennial grasses, North Platte, 2002.**





# Infiltration

3 inches of rainfall in 90 minutes, 10% slope, silt loam soil  
*(University of Nebraska & USDA-SCS, 1937)*







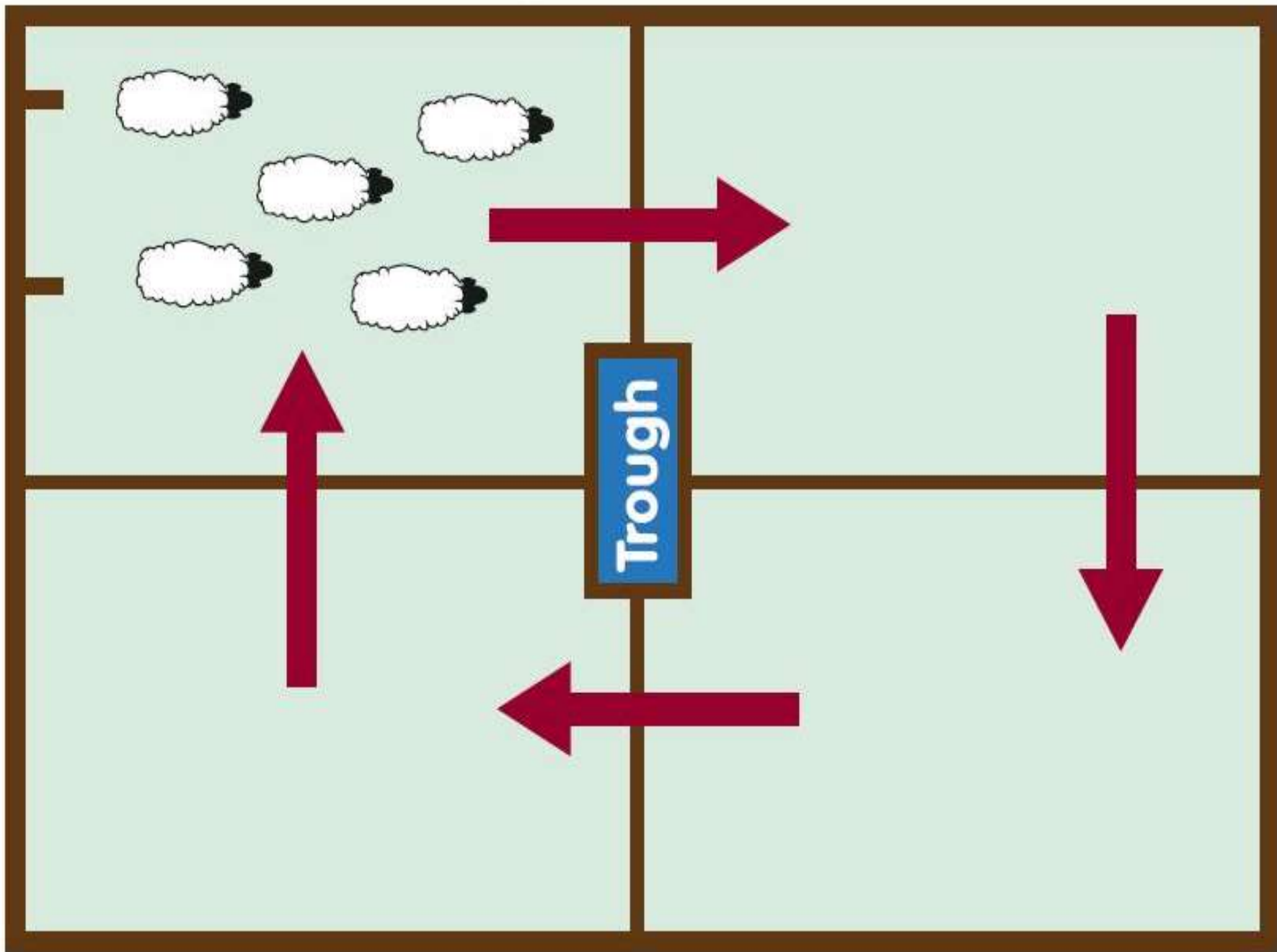


























Eat the weeds!



Fescue in bermudagrass- Apr 9 in southern KS











# Cool-season (C3) vs warm-season (C4) grasses

## **Cool-season**

- Fescues
- Bromes
- Orchardgrass
- Reed canarygrass
- Wheat
- Rye
- Matua
- Bluegrass
- Wheatgrass

## **Warm-season**

- Bluestems
- Switchgrass
- Buffalograss
- Eastern gamagrass
- Gramas
- Indiangrass
- Bermudagrass
- Crabgrass
- Corn
- Sorghum

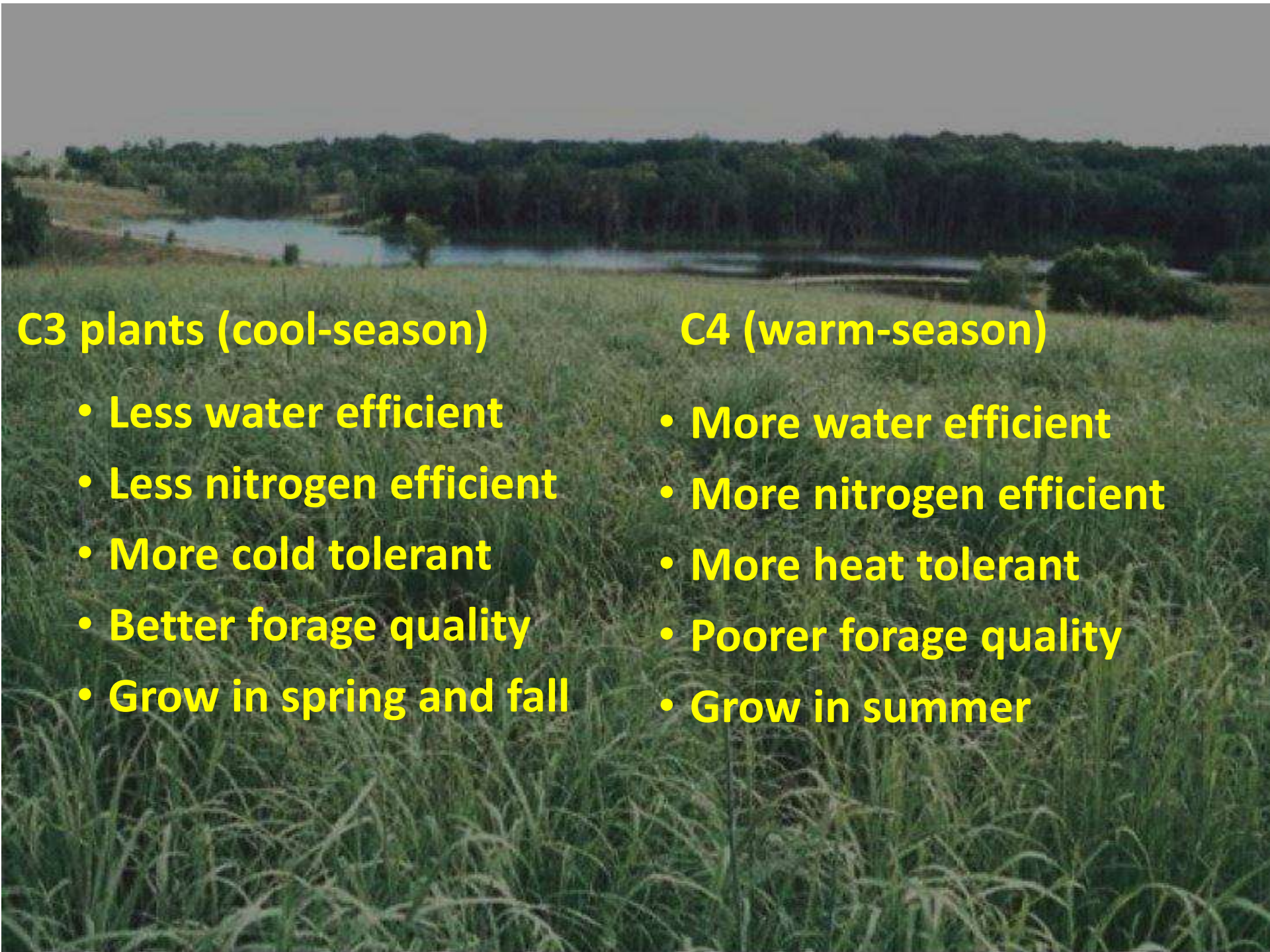


## How C<sub>4</sub> and C<sub>3</sub> Plants Compare in Water Use Efficiency

This table illustrates the superior water use efficiency of C<sub>4</sub> species compared to C<sub>3</sub> species, in grams of plant produced per kg of water used.

	C <sub>4</sub> SPECIES	C <sub>3</sub> SPECIES
Broadleaf plants	3.44	1.59
Grasses	3.14	1.49

Table 6.1



### **C3 plants (cool-season)**

- **Less water efficient**
- **Less nitrogen efficient**
- **More cold tolerant**
- **Better forage quality**
- **Grow in spring and fall**

### **C4 (warm-season)**

- **More water efficient**
- **More nitrogen efficient**
- **More heat tolerant**
- **Poorer forage quality**
- **Grow in summer**

# Effect of clipping weekly at 1 inch height on wheatgrass (coolseason)

Period clipped	Survival
.....	
Apr 15-May 7 (vegetative)	100%
May 1-May 22 (early repro)	25%
May 15-June 7 (mid repro)	50%
June 1-June 22 (late repro)	55%
Every 2 weeks,	
Sept 15-Nov 1 (fall vegetative)	100%



# Mowing date on carbohydrate reserves of big bluestem (WS)

• Mowing date		% carbohydrate in roots
• -----		
• Unmowed		7
• June 1	(veg)	8.25
• July 1	(veg)	8.5
• Aug 1	(repro)	6.7
• Sept 1	(repro)	4.4



# A quick test

- You have a pasture that is 50% grazed off by July 15; it is bone dry with no rain forecast
- You have enough hay to feed for six months
- You have two options:
  - A. continue grazing until the grass is gone, then begin feeding hay
  - B. Begin feeding hay immediately, knowing you will run out of hay before winter is over
- What do you choose?



# What is the result of Option A?

- You had enough feed to last the summer (barely)
- Grazing 100% of the grass dramatically reduced animal performance, and they went into winter in bad shape
- You had enough feed to last the winter, but the cows couldn't eat enough to get back in shape and failed to rebreed after calving
- Your pastures went into the next summer with a poor root system and no mulch to capture rain
- **BOTTOM LINE: THE DROUGHT LASTS TWO (OR MORE!!!!) YEARS**







# What is the result of Option B?

- You had to feed half your hay in the summer
- But, you had dormant grass that you are able to graze for the first half of winter
- Your cows went into winter in good shape and rebred after calving
- Your pastures had a full root system and a good mulch to capture rain the following year
- Same amount of rain, same amount of feed, but far different long term results
- **BOTTOM LINE: THE DROUGHT LASTS ONE YEAR**



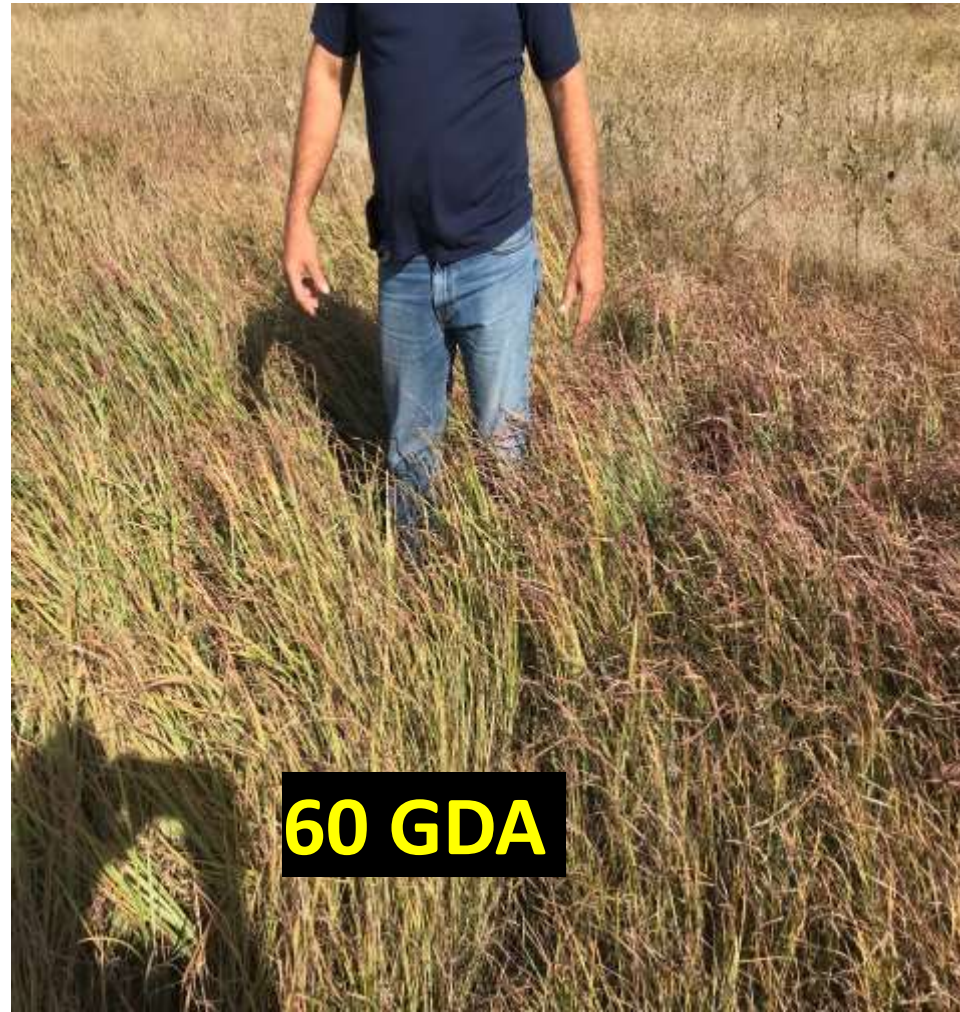




Same soil, same rainfall, different management!!!!!!!!!!!!!!!!!!!!!!!!!!!!



**12.5 GDA**



**60 GDA**



# Grazing grass when green vs brown

**Green grass is roughly 12% protein and 65% digestible**

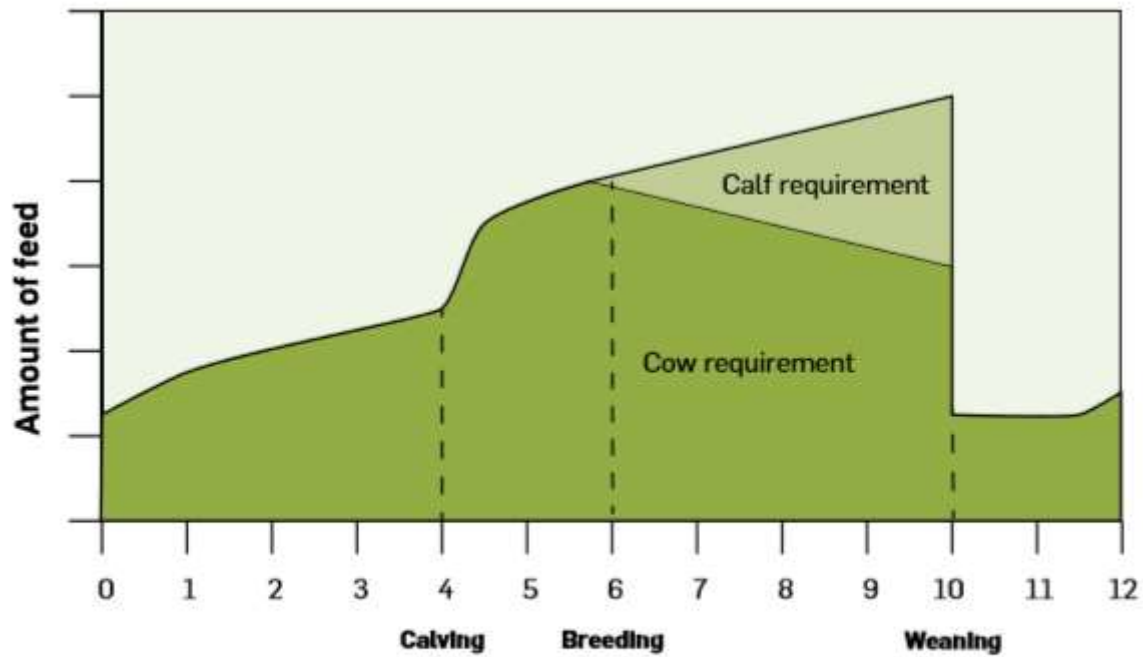
**Brown grass is roughly 3% protein and 45% digestibility**

**Which is worth more?**

# Using dormant native grass effectively

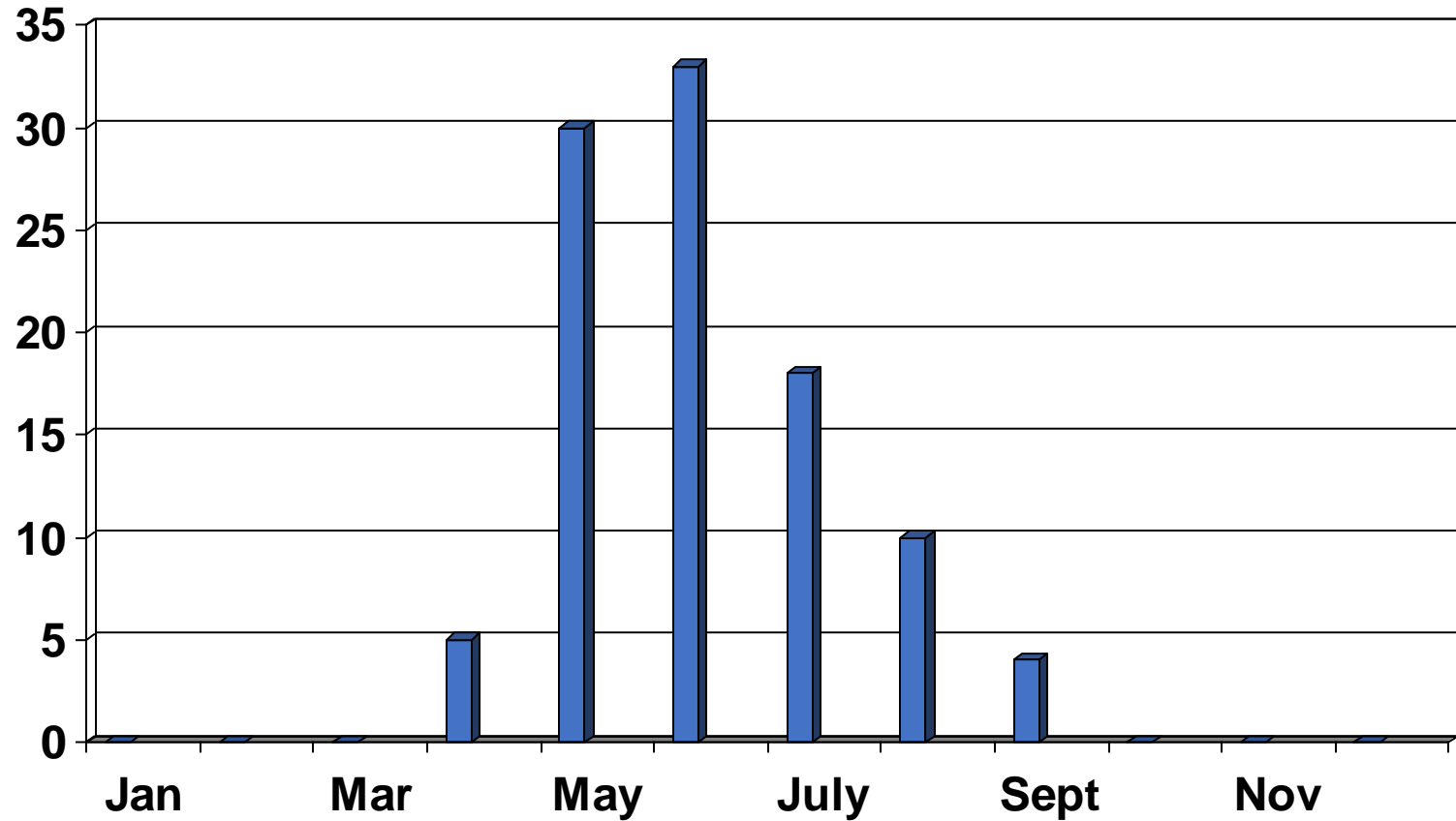
- Must receive protein supplement
- *Aspergillus oryza* extract (Amaferm)
- Ionophore helps
- Amount to average 1 lb protein per day
- Form of supplement is important: low starch
- Frequency of feeding: every 3<sup>rd</sup> day is best
- Intake limited?
- Can you grow the protein source right in the pasture instead of buying the protein? Strip graze



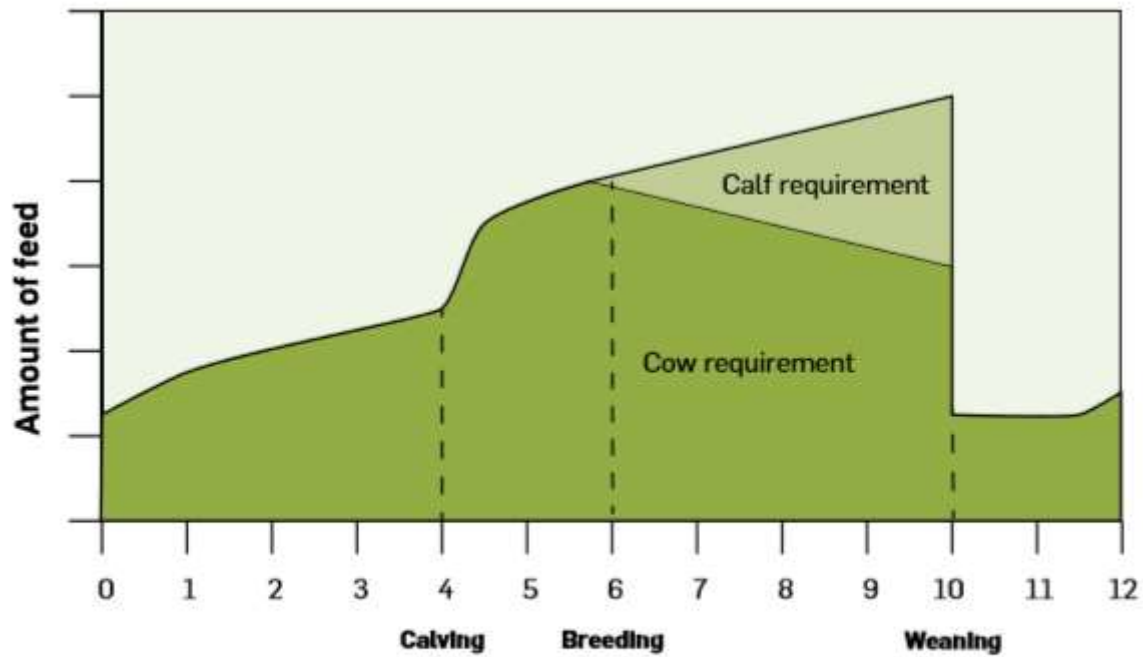


**Beef cow year, with calving occurring at the first day of month four and weaning at seven months of age, at the beginning of month eleven**

# Monthly production of bluestem range

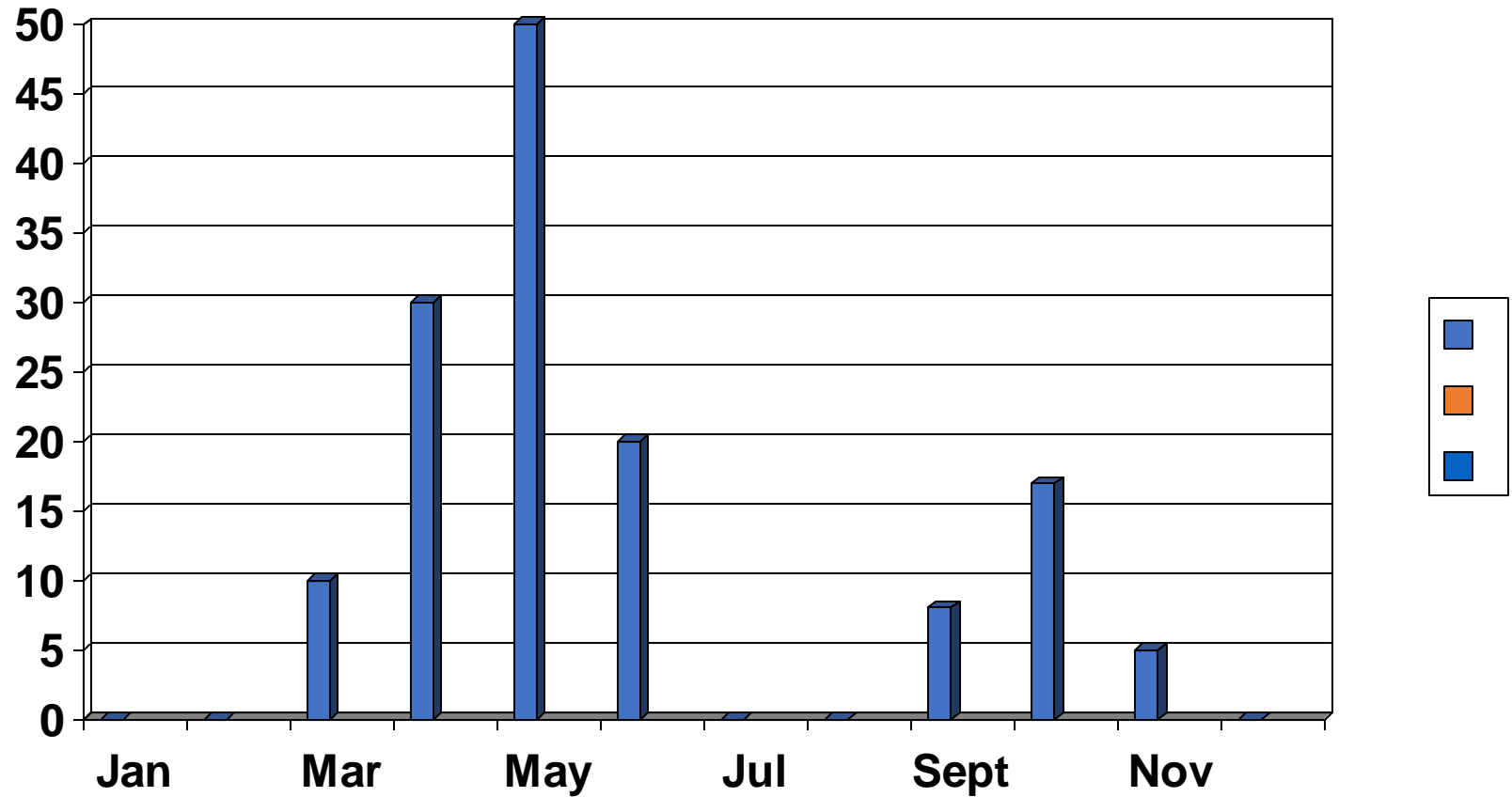




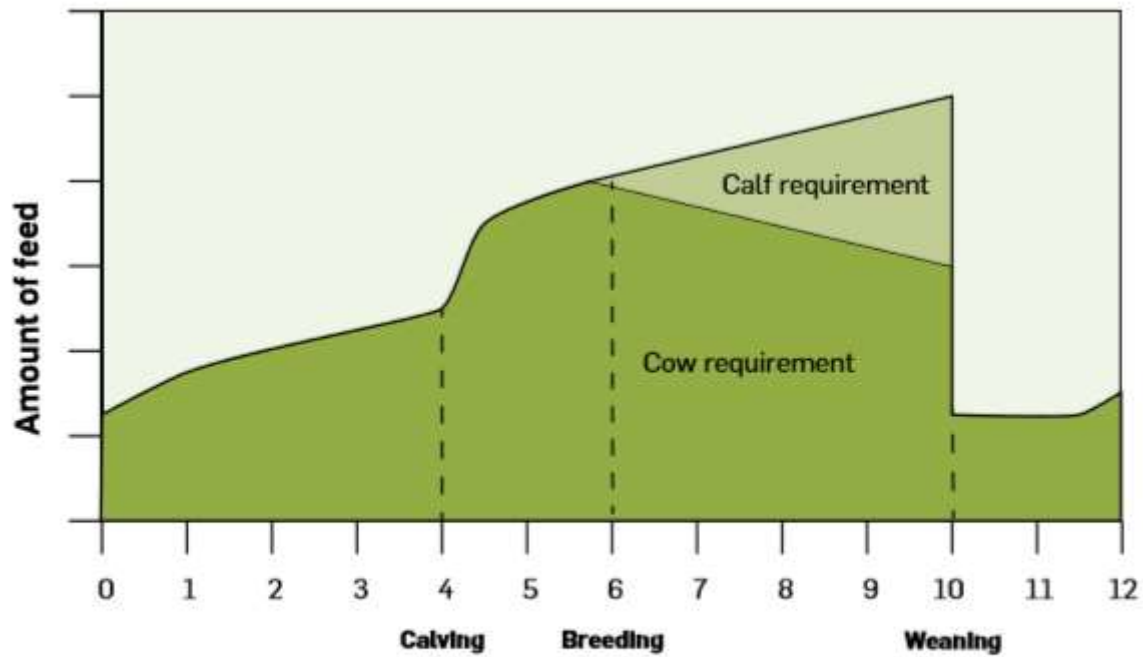


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# Bromegrass seasonal production



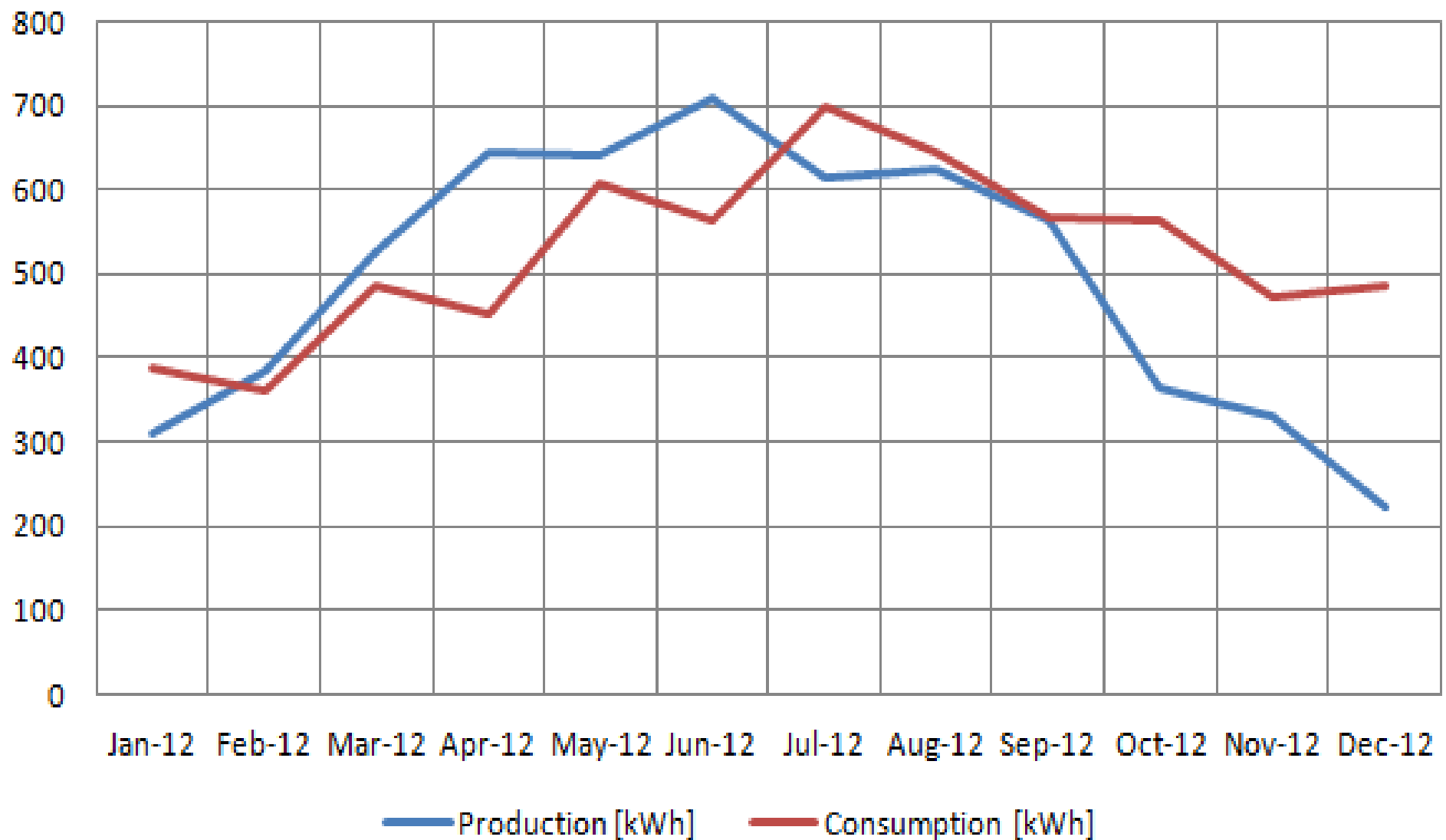




**Beef cow year, with calving occurring at the first day of month four and weaning at seven months of age, at the beginning of month eleven**

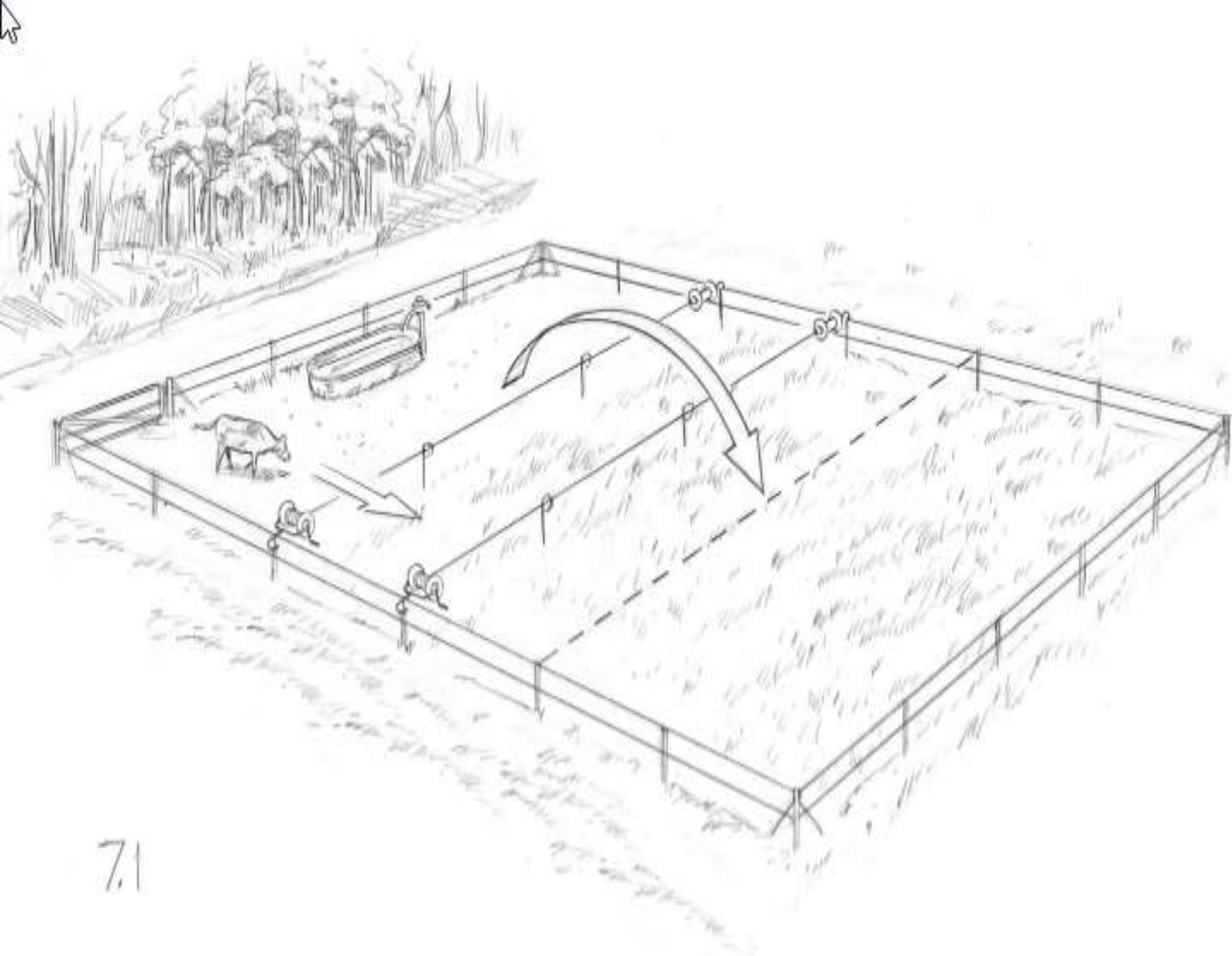
# Production and Consumption Chart (2012)

## 4.6 kW SunPower System in Columbia, MD









7.1



























# Sorghum-Sudan Grazing Trial

Linn, Kansas 2010

Tall BMR Sorghum-Sudan  
(1.77 ADG )



Brachytic dwarf BMR  
(2.32 ADG)









































**Forage radish**

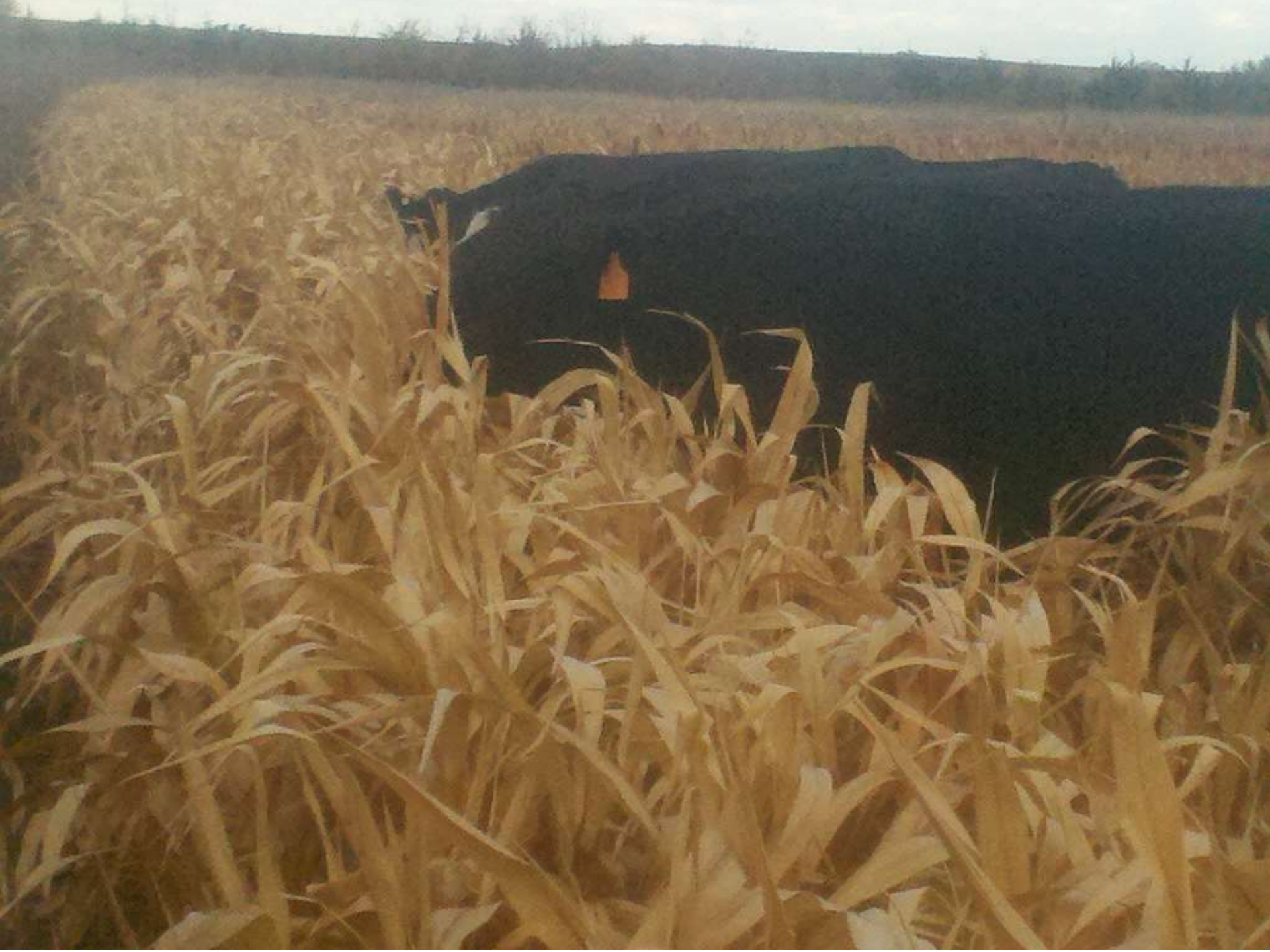














Stockpiled fescue in late fall









Picture taken April 18<sup>th</sup> near Fall City NE

Elbon Rye

VNS Rye

2.2 vs 1.6 tons DM/ac (April 8<sup>th</sup>)







SOYBEANS W/O COVER CROP

SOYBEANS IN ANNUAL RYEGRASS COVER CROP 9/2011

+10 bushel here!

























# Flexible stocking strategy

- Step one: determine an appropriate stocking rate for the worst year, fill this allotment with cows
- Step two: determine an appropriate stocking rate for a good year, make up the difference with steers
- Step three: as conditions merit, sell steers upon need

RESULT: the stocking rate is **ALWAYS** appropriate for the season





# GREENCOVER

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*COVER CROPS*

**SEED**

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*FORAGES*



I wrote a  
book!

# THE DROUGHT RESILIENT FARM

**IMPROVE**  
Your Soil's  
Ability to Hold  
and Supply  
Moisture for  
Plants

**MAINTAIN**  
Feed and  
Drinking Water  
for Livestock  
when Rainfall  
is Limited

**REDESIGN**  
Agricultural  
Systems to  
Fit Semi-arid  
Climates

**DALE  
STRICKLER**







**Travis Wilson** is with Dale Strickler.

21 hrs ·

So I bought this book about 7 weeks ago. Since then we've received 15+ inches rain. Is there a sequel titled "moisture resilient farm" coming out, soon?

# THE DROUGHT RESILIENT

## IMPROVE

Your Soil's  
Ability to Hold  
and Supply  
Moisture for  
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## MAINTAIN

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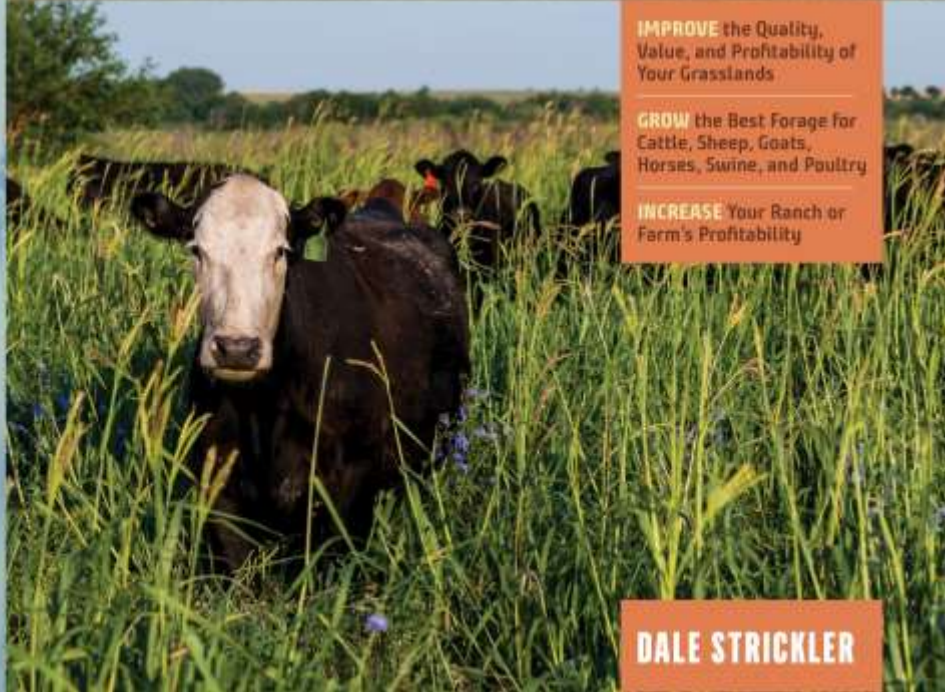


MANAGING PASTURE

# MANAGING PASTURE

A Complete Guide to

**BUILDING HEALTHY PASTURE FOR GRASS-BASED MEAT & DAIRY ANIMALS**



**IMPROVE** the Quality, Value, and Profitability of Your Grasslands

**GROW** the Best Forage for Cattle, Sheep, Goats, Horses, Swine, and Poultry

**INCREASE** Your Ranch or Farm's Profitability

Strickler

  
Storey

**DALE STRICKLER**



Thank you

