

Grazing and Livestock Considerations During and After Drought



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Managing Drought Risk Workshop - 2012

↓ Cow numbers



But

- Drought
- Ag land values
- Hay / feed prices
- Pasture rent
- Grain prices
- Cattle prices
- Grassland conversion to cropland



The value of forage has never been higher!

Drought Management Plan Components

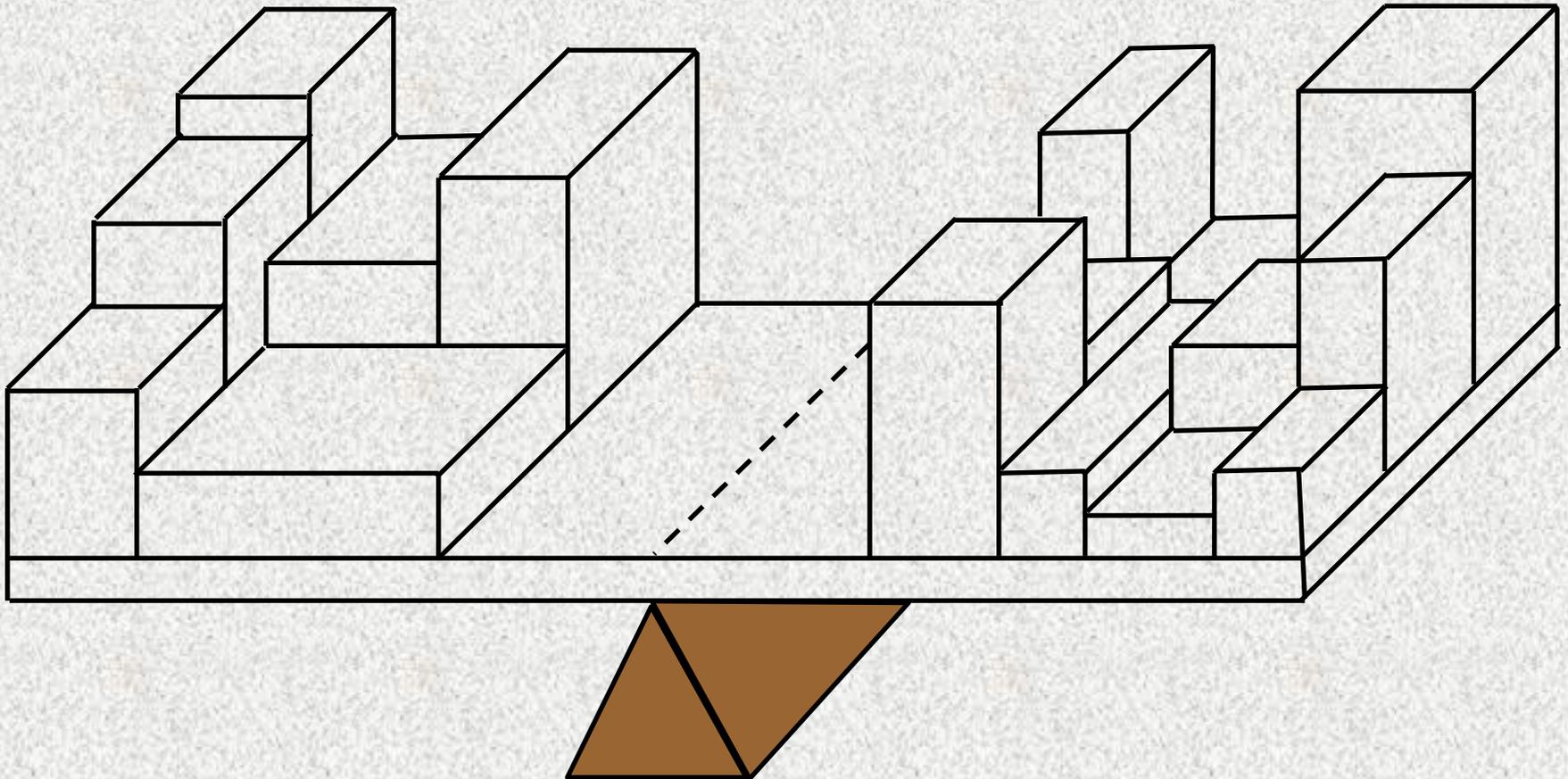
- ✓ **Communication and planning partners**
- ✓ **Ranch vision and objectives**
- ✓ **Understanding strengths, weaknesses, opportunities, and threats during drought**
- ✓ **Inventory of ranch resources (and records)**
- ✓ **Critical dates for making decisions**
- ✓ **Monitoring schedule**
- ✓ **Management strategies before, during, and after drought**
- ✓ **Ongoing review of drought plan**

Forage Supply

- Native range
- Meadow
- Seeded pasture
- Hay
- Crop residues

Forage Demand

- Animal numbers
 - ✓ Cows
 - ✓ Yearlings
 - ✓ Breeding heifers
 - ✓ Bulls

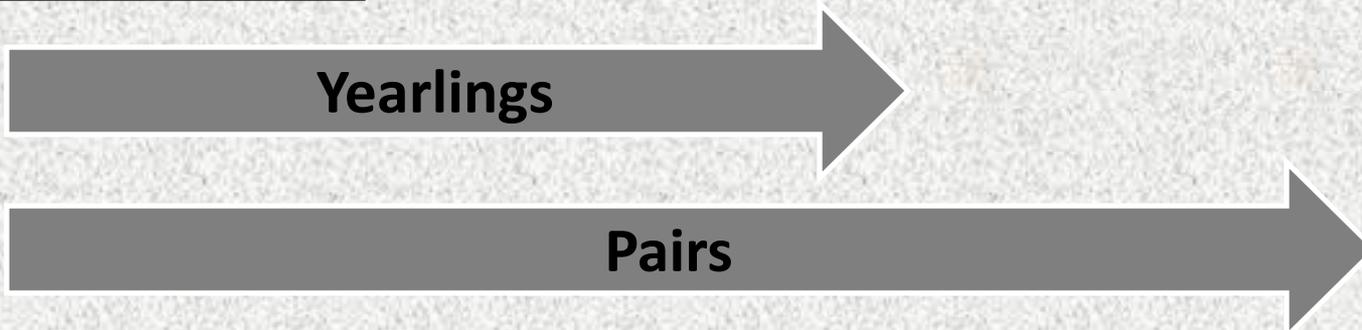


Supply: Production Potential

(Coarse uplands ecological site)

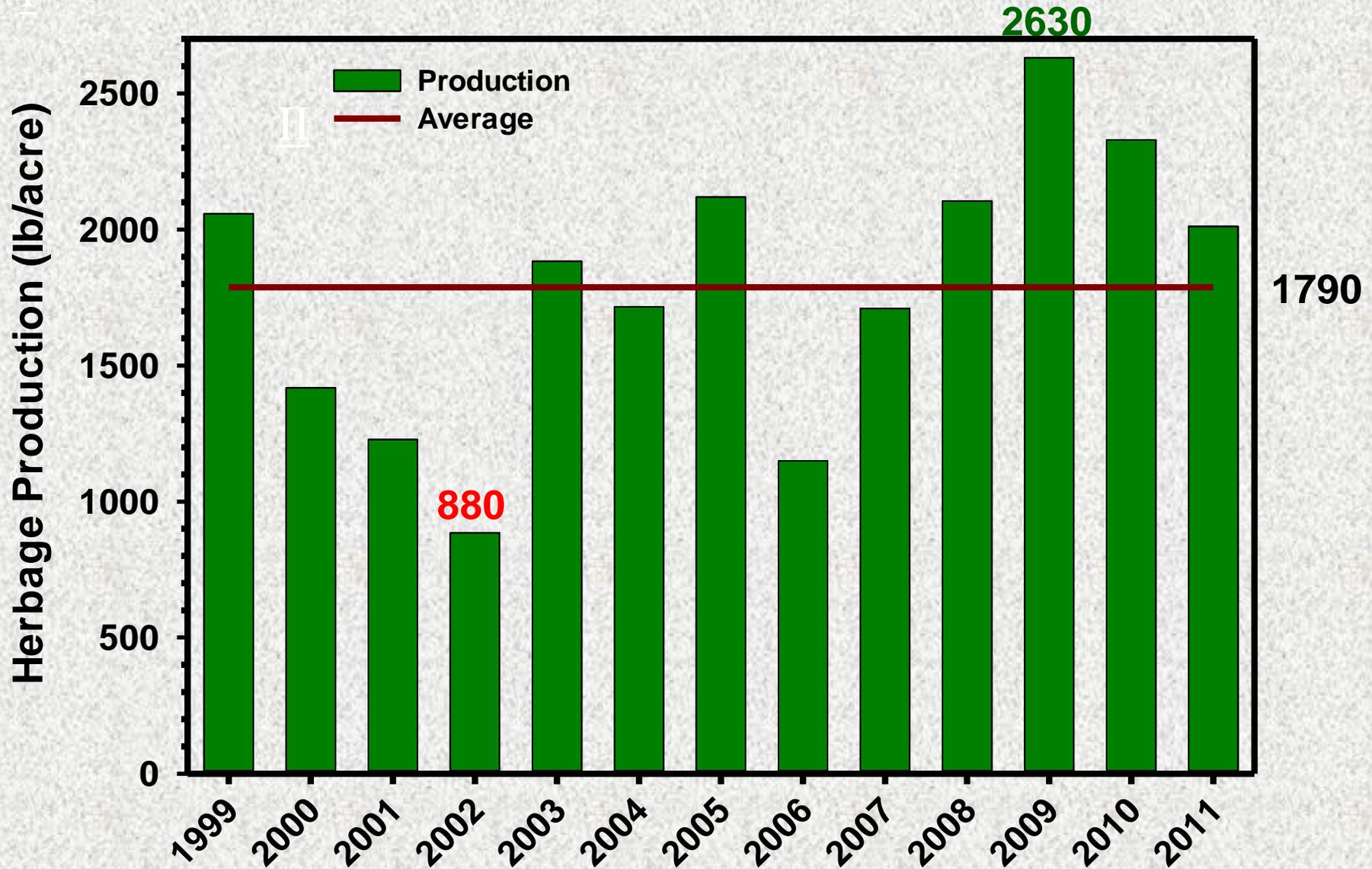


Demand:

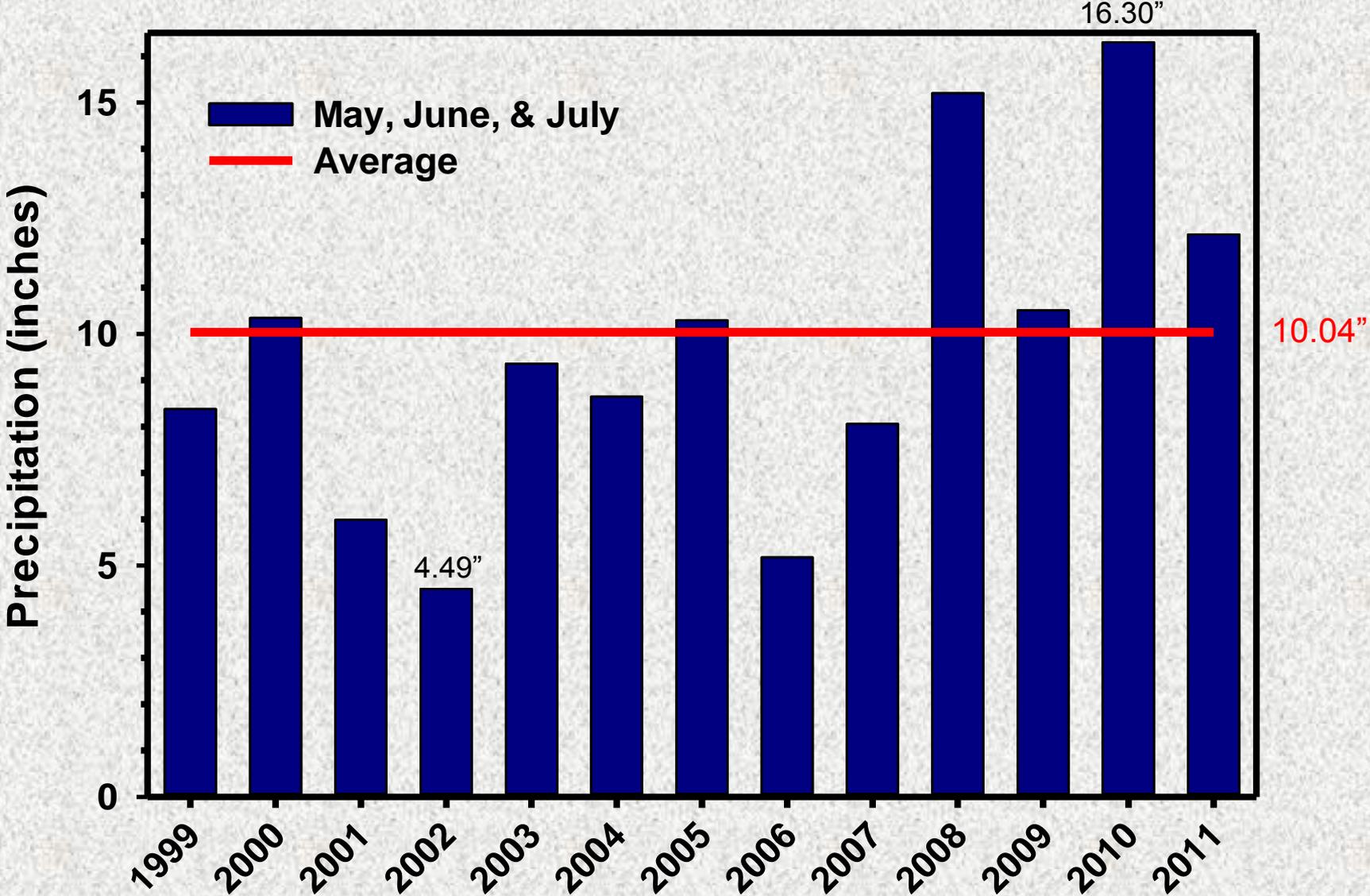


* Demand increases as cattle gain weight

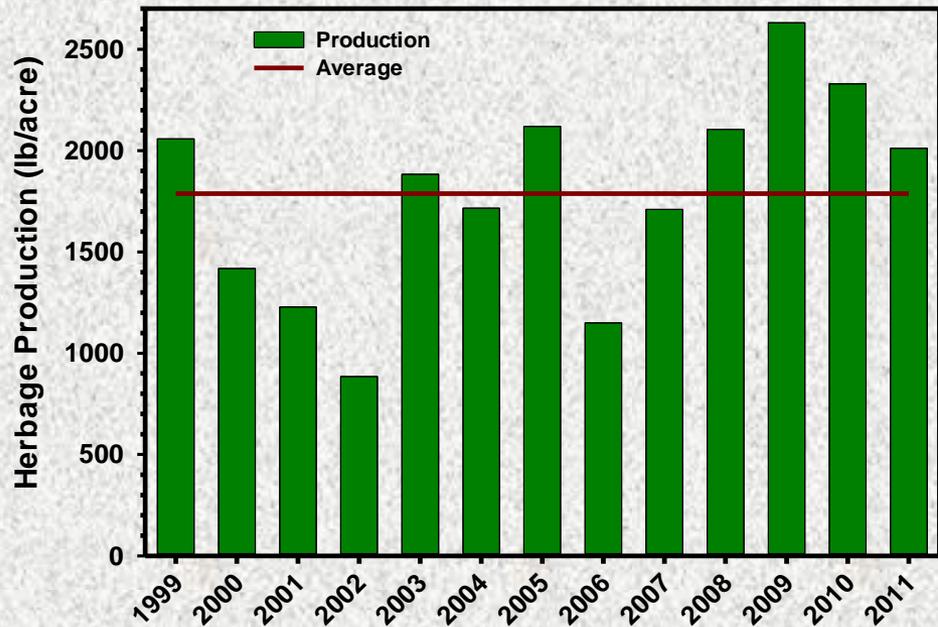
UNL-Barta Brothers Ranch: Herbage Production 1999 - 2011



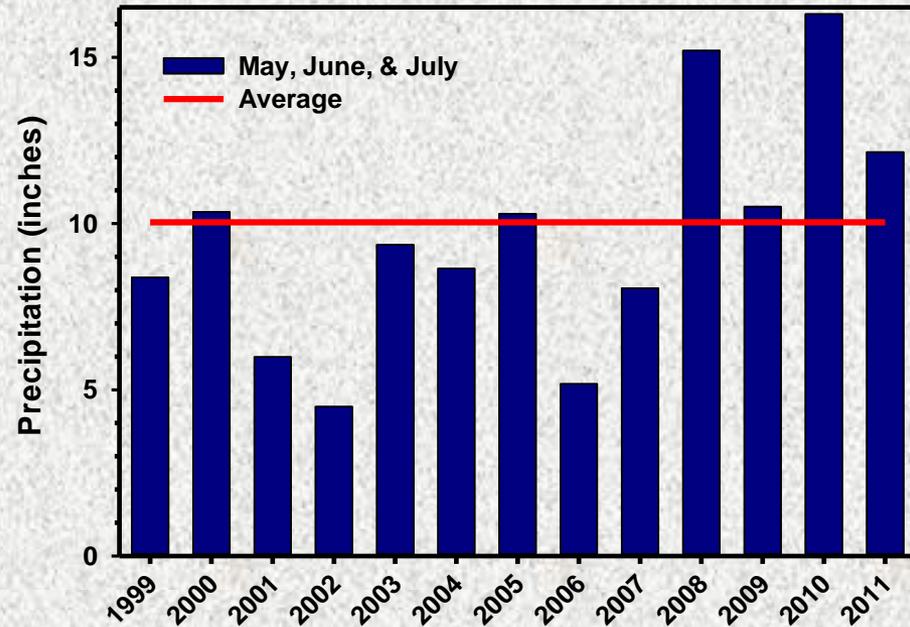
UNL-Barta Brothers Ranch: May, June, and July Precipitation 1999 - 2011



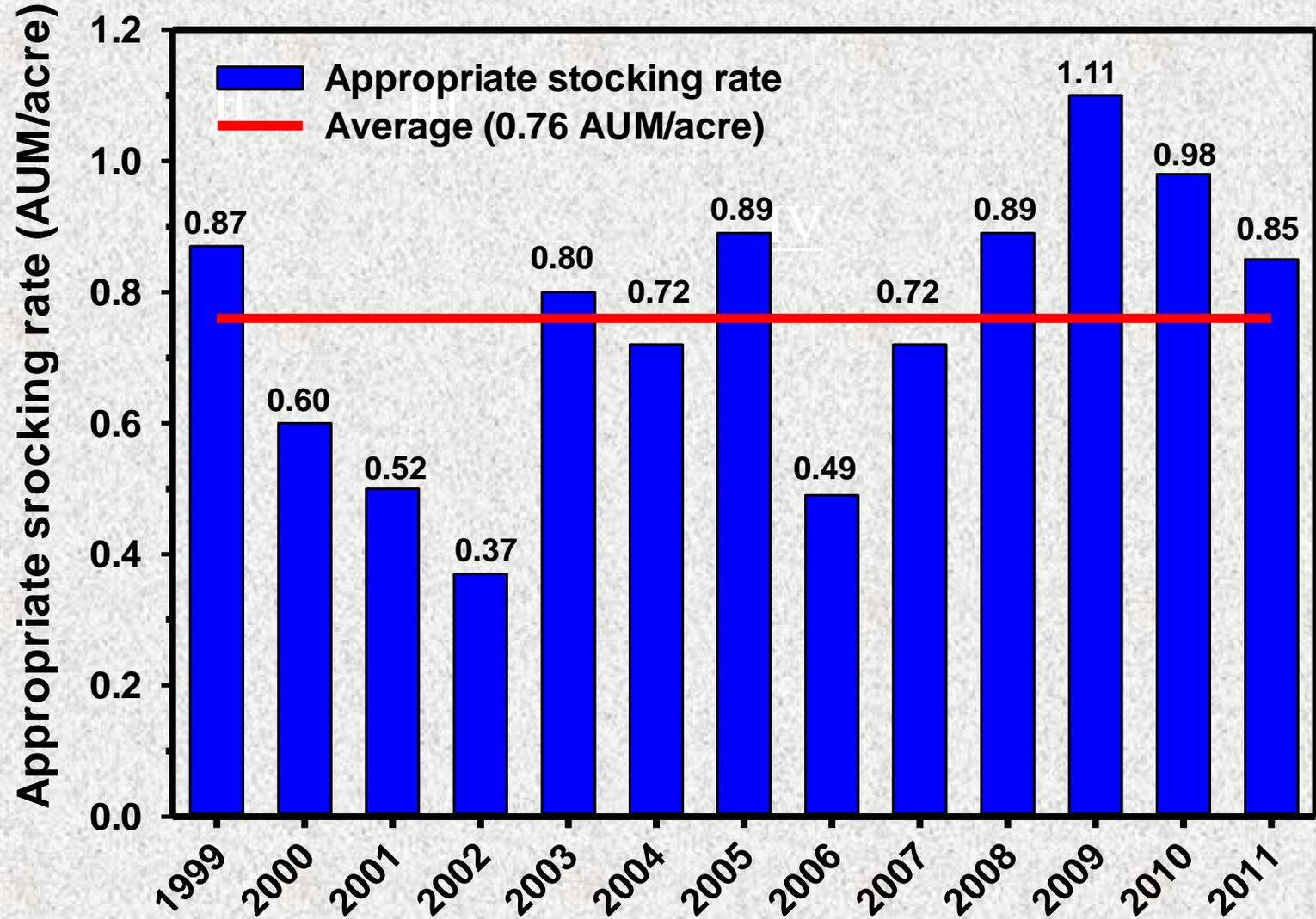
**UNL-Barta Brothers Ranch: Herbage Production
1999 - 2011**



**UNL-Barta Brothers Ranch:
May, June, and July Precipitation 1999 - 2011**



UNL-Barta Brothers Ranch: Appropriate stocking rate based on herbage production (1999 - 2011)



**Nebraska Sandhills:
About 50% of the year's production
has occurred by June 15**



GSL Upland Range Herbage Yield – mid-June and peak yield in August (lb/acre).

Year	CS Grass	WS Grass	Forbs	Shrubs	Sedge	Total June	Peak yield (August)
2007	376	782	121	3	108	1390	1910
2008	313	631	125	17	93	1180	1897
2009	358	406	111	6	138	1019	2000
2010	518	482	73	19	118	1210	2383
2011	598	364	77	20	205	1265	2434

<u>Example: Nebraska Sandhills</u> Trigger Date and Indicator	Reduce Pre-drought Demand
(1) <u>Before Spring Turnout:</u> ≥ Severe drought last year during May, June, & July May & June, or June & July	40%¹ 30%
(2) <u>April 1:</u> October-March precipitation < 65% of long term (LT)	15%
(3) <u>April 30:</u> May, June, & July air temperatures are forecast @ above average and precipitation @ even chance	20%

¹Consecutive years of severe, extreme, or exceptional drought may require complete rest to avoid long-term damage to rangeland vegetation.

(From: Pat Reece, PME)

<u>Example: Nebraska Sandhills</u> Trigger Date and Indicator	Reduce Pre-drought Demand	
	Initial	Additional¹
(4) <u>May 1</u>: No meaningful precipitation (≤ 0.10 in per event) during March & April	15%	
(5) <u>June 1</u>: March-May precipitation < 75% LT < 50% LT	25% 45%	(4) 10% 30%
(6) <u>July 1</u>: May-June precipitation < 75% LT < 50% LT	35% 75%	(5) 25% 45%

¹Added to the preceding trigger date and indicator reductions

(From: Pat Reece, PME)

Combining drought and grazing stress will reduce herbage production potential in the subsequent year(s).

Overgrazing

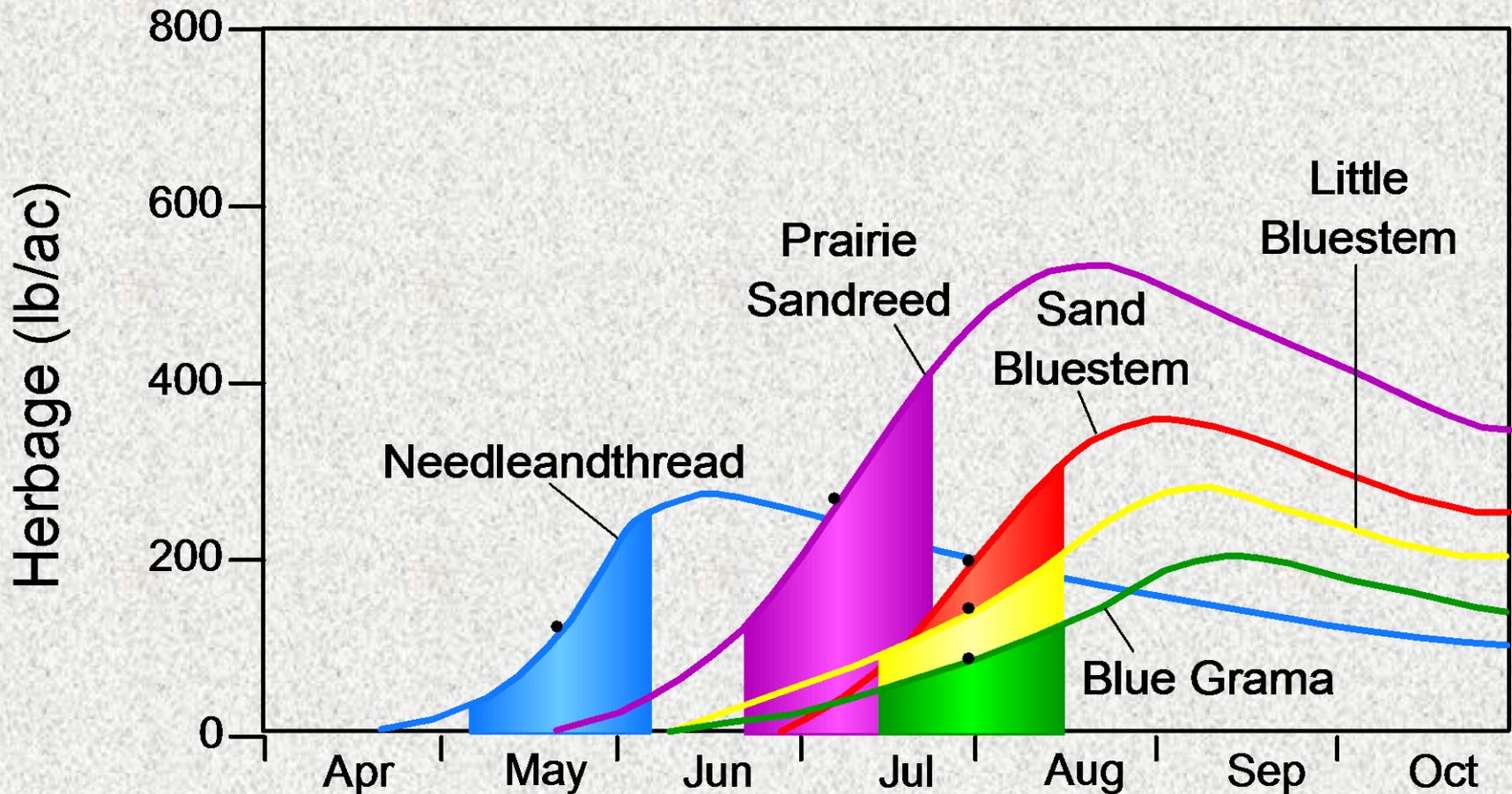
The level and date of grazing beyond which preferred (key) plant species cannot recover before pastures are grazed in a subsequent year.

How to Best Overgraze?

- **Heavily graze preferred (key) grass species during rapid growth windows in consecutive years.**
- **Combine grazing stress with drought stress.**



Growth of important Sandhills forage grasses



(modified from Reece et al. 2007)

**Coarse Uplands
Ecological Site**

**Northern
Intermountain
Desertic Basin
(5-9" precipitation)**

**Bluebunch wheatgrass/
rhizomatus wheatgrasses/
needle-and-thread
(350 to 500 lb/ac)**

**Drought
SLG**

**PG
Fire**

**Perennial grass/
mixed shrub
(200 to 400 lb/ac)**

**Brush control
PG
Seeding**

**Mechanical treatment
PG
Seeding**

**Mixed shrub/
Bare ground
(>25% sagebrush)
(50 to 150 lb/ac)**

**Severe
grazing,
No use**

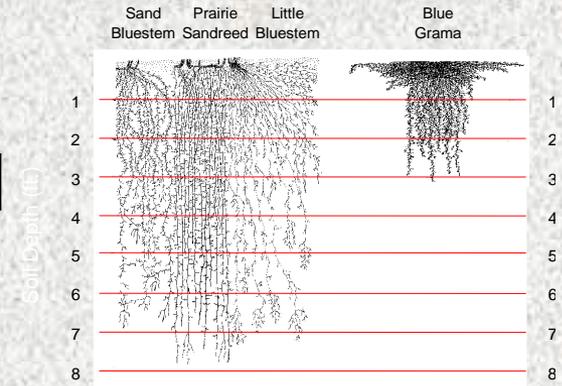
**Severe
grazing,
fire**

**Threadleaf sedge/
bluegrama sod/
Bare ground
(50 to 150 lb/ac)**

Brush control, severe grazing

Grass and Rangeland Response to Drought

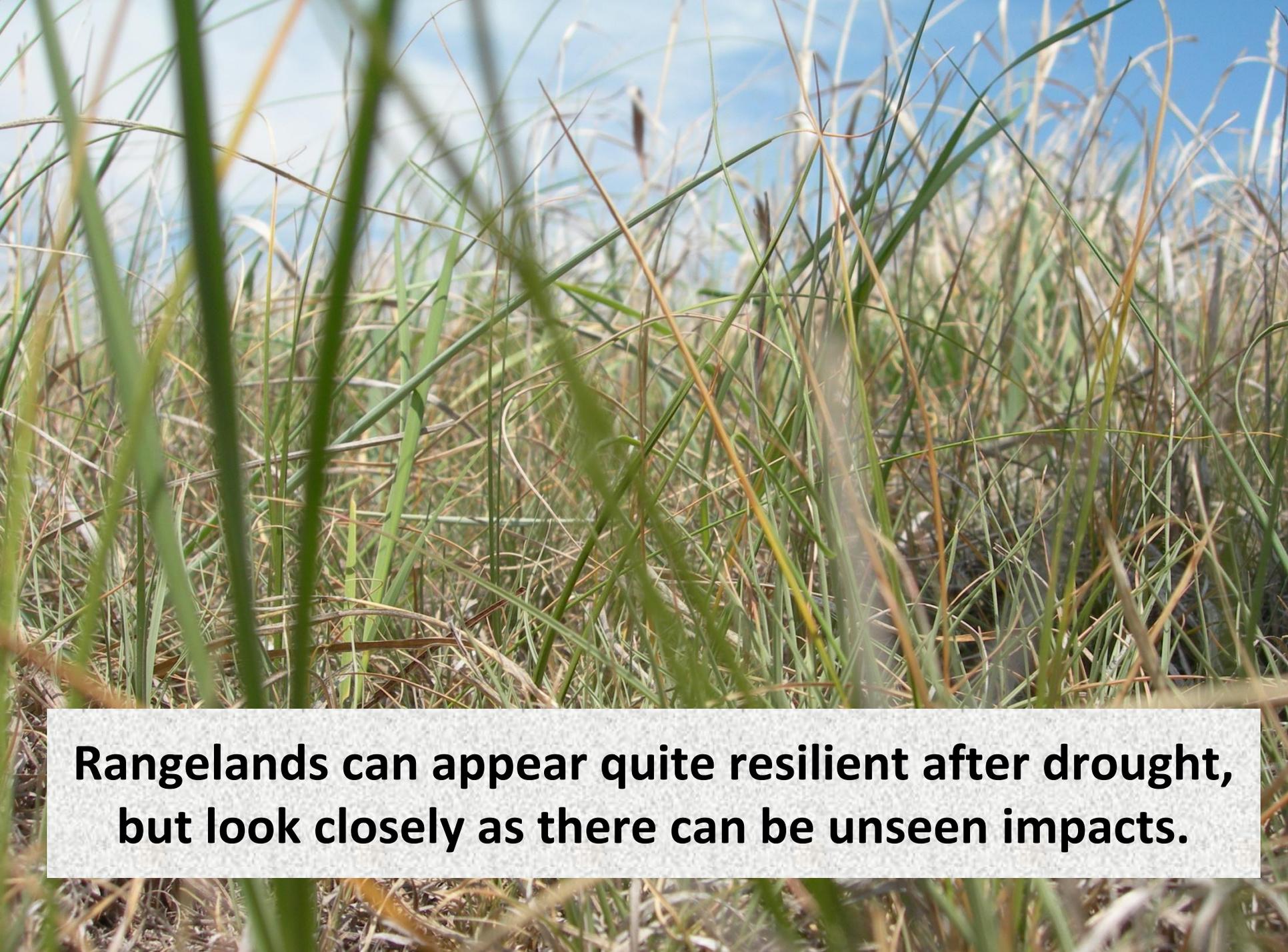
- **Reduced above-ground and root growth.**
- **Fewer reproductive tillers (seed heads); plants remain mostly vegetative.**
- **Earlier maturity of plants.**



Grass and Rangeland Response to Drought

- **Reduced formation of new buds that will produce next and future year's tillers.**
- **Good / excellent condition range will recover quicker after drought than poor / fair condition range.**
- **Increases in weedy species.**



A close-up photograph of a field of grasses. The grasses are a mix of vibrant green and dry, yellowish-brown, indicating they have survived a drought but are showing signs of stress. The background is a clear blue sky. A white text box is overlaid at the bottom of the image.

**Rangelands can appear quite resilient after drought,
but look closely as there can be unseen impacts.**

After-drought Grazing Management

- **Delay initial turnout by 1-2 weeks**
 - **Restock based on recovery of preferred (key) grass species (cover & height)**
 - **Do not graze weed-infested pastures during grass rapid growth period**
-

May	Jun	Jul	Aug	Sep	Oct
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Rest Rotation



Deferred Rotation



*** Use rest- or deferred-rotation grazing, 5 to 8 pastures, graze pastures only once from turnout to killing frost.**

Drought + Wildfire



Livestock Considerations



- **Forage Availability**
- **Forage Quality**

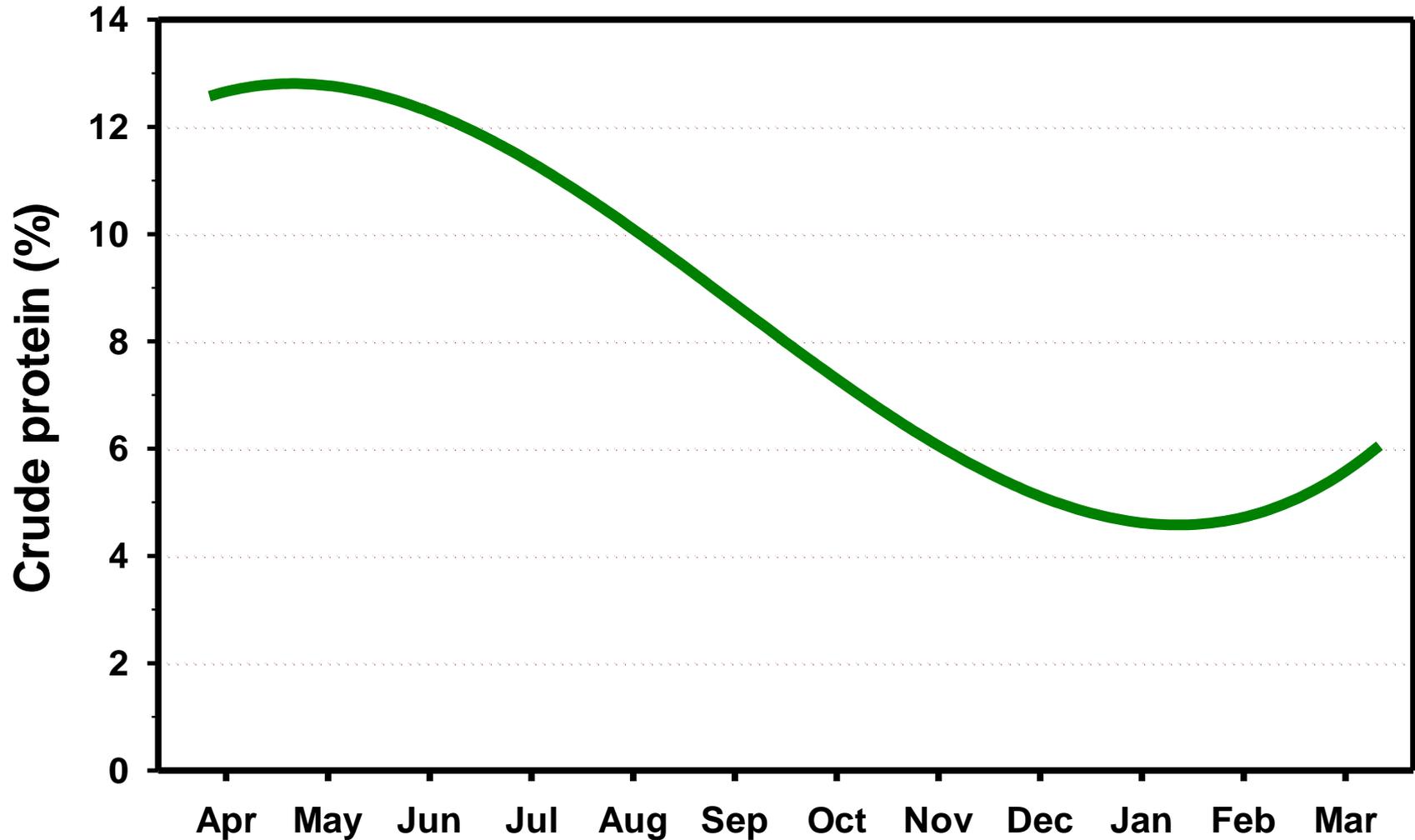


Animal Performance Risks



- **Pregnancy**
- **Average daily gain**
- **Cow body condition**
- **Poisonous plants**

Crude protein in cattle diets on upland Sandhill range.



Crude Protein Content of Cattle Diets on Sandhills Range

Date	Average	2002	2012
May 1	12.8	--	--
May 20	12.7	--	12.6
June 7	12.3	12.7	10.1
June 28	11.6	--	7.5
July 16	11.0	8.2	7.0
July 30	10.3	5.9	7.0
August 20	9.3	5.6	6.4
October 14	6.7	5.9	?



June 20, 2012

Livestock Management Strategies to Save Pasture AUMs



Animal Unit

- 1 AU = 1000 lb of animal
- 1 AUD (animal unit day) = 26 lb of forage (daily intake)
- 1 AUM (animal unit month) = 780 lb of forage

Planning

- **Expected days of grazing**
- **Adjustments - Strategies**
 - **Weaning**
 - **Culling animals**
 - **Marketing**
 - **Supplements**
 - **Purchased Feed and/or alternative grazing resources**

Little things can add up!



Planning

- Expected days of grazing
- Adjustments
 - Weaning
 - Culling animals
 - Marketing
 - Supplements
 - Purchased Feed and/or alternative grazing resources

About 10 lb. of forage is conserved for each day a calf is weaned



- 10 lb. forage = 0.4 day grazing for a dry cow
- Positive effect on cow body condition score

Supplementing on pasture to reduce grazed forage intake

- Wet or dry distillers grains
- Wet DG mixed with low-quality forage



Supplementing WDG mixed with wheat straw to cow-calf pairs grazing summer range (Nuttelman et al. 2010)

	Control ¹	2X SR 70:30 Mix ²	2X SR 50:50 Mix ³
Initial wt. (lb): Cow	880	882	893
Calf	276	280	267
ADG (lb/d): Cow	-0.07	0.29	0.93
Calf	1.96	1.98	2.18
Pasture utilization (%)	34	39	46
Grazed forage intake (lb/d)	25.4	13.5	16.3
Supplement intake (lb/d)	--	12.8	12.4

¹ Recommended stocking rate: 0.60 AUM/acre

² 2X stocking rate (1.2 AUM/ac) and 70% straw:30% WDGS supplement

³ 2X stocking rate (1.2 AUM/ac) and 50% straw:50% WDGS supplement

Emergency and Alternative Forages



**Use proven species
and varieties**

Annual Forages

Cool Season Annuals

Spring seeded:

Oats

Spring triticale

Spring barley

Italian or annual ryegrass

Field peas

Several other legumes



Annual Forages

Warm Season Annuals

Late-spring or summer seeded:

Millet (grazing & hay types)

S X S hybrids

Sorghum

Sudangrass

Crabgrass

Teff

Corn

Several legumes



Annual Forages

Summer or late-summer seeded (for fall / winter forage):

Oats and/or turnips, other brassicas

- Planting date: late July through August

Winter wheat, rye, triticale

Planting date: late August – September

- Some fall/winter forage, mostly the following spring
-

Irrigated Pasture



Forage Testing



Forage Testing

- Moisture content
- Crude protein
- Energy (% TDN)
- Calcium
- Phosphorus
- Vitamin A
- Nitrates

- Accurately formulate balanced rations
- Prevent under or over-feeding of certain nutrients
- Comparative hay dollar value based on nutrients



Thank You



Oats



Oct. 20, 2011



Oats

Oct. 20, 2011

Dec. 21, 2011



Dec. 21, 2011



48 days (28-Aug.) after 11-July seeding



48 days (13-Sep.) after 27-July seeding



September yield of irrigated, warm-season annual forages planted July 11 or July 27, 2007, North Platte, NE.

Forage (planted July 11)	September yield (Tons/acre)
<i>'Grazex 725 BMR'</i> sorghum-sudangrass	4.18
<i>'White Wonder'</i> foxtail millet	2.43
<i>'Tiffany'</i> teff	2.36
Forage (planted July 27)	
<i>'Grazex 725 BMR'</i> sorghum-sudangrass	3.96
<i>'White Wonder'</i> foxtail millet	2.83
<i>'Tiffany'</i> teff	2.34

Irrigated pasture mixture: Example 1

Species	lb / acre	Seeds / ft²
Orchardgrass	3.5	45
Festulolium	3.5	17
Tall fescue	3.5	18
Meadow brome	4	8
Smooth brome	3	9
Creeping foxtail	1	17
Alfalfa	1.5	8
Total	20	122
