

Forage and Livestock Management Considerations



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Managing Drought Risk Workshop - 2012

↓ Cow numbers



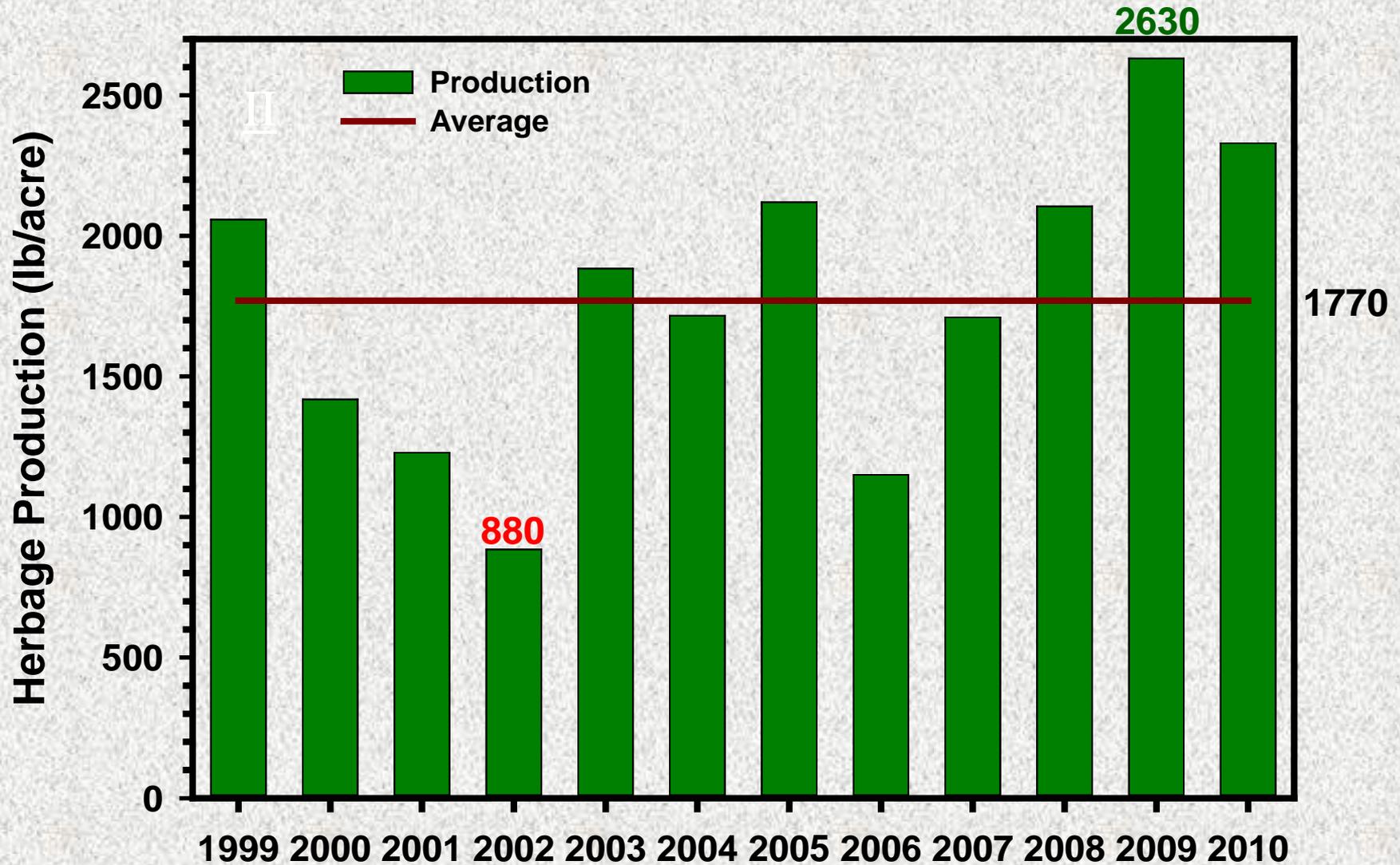
But

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

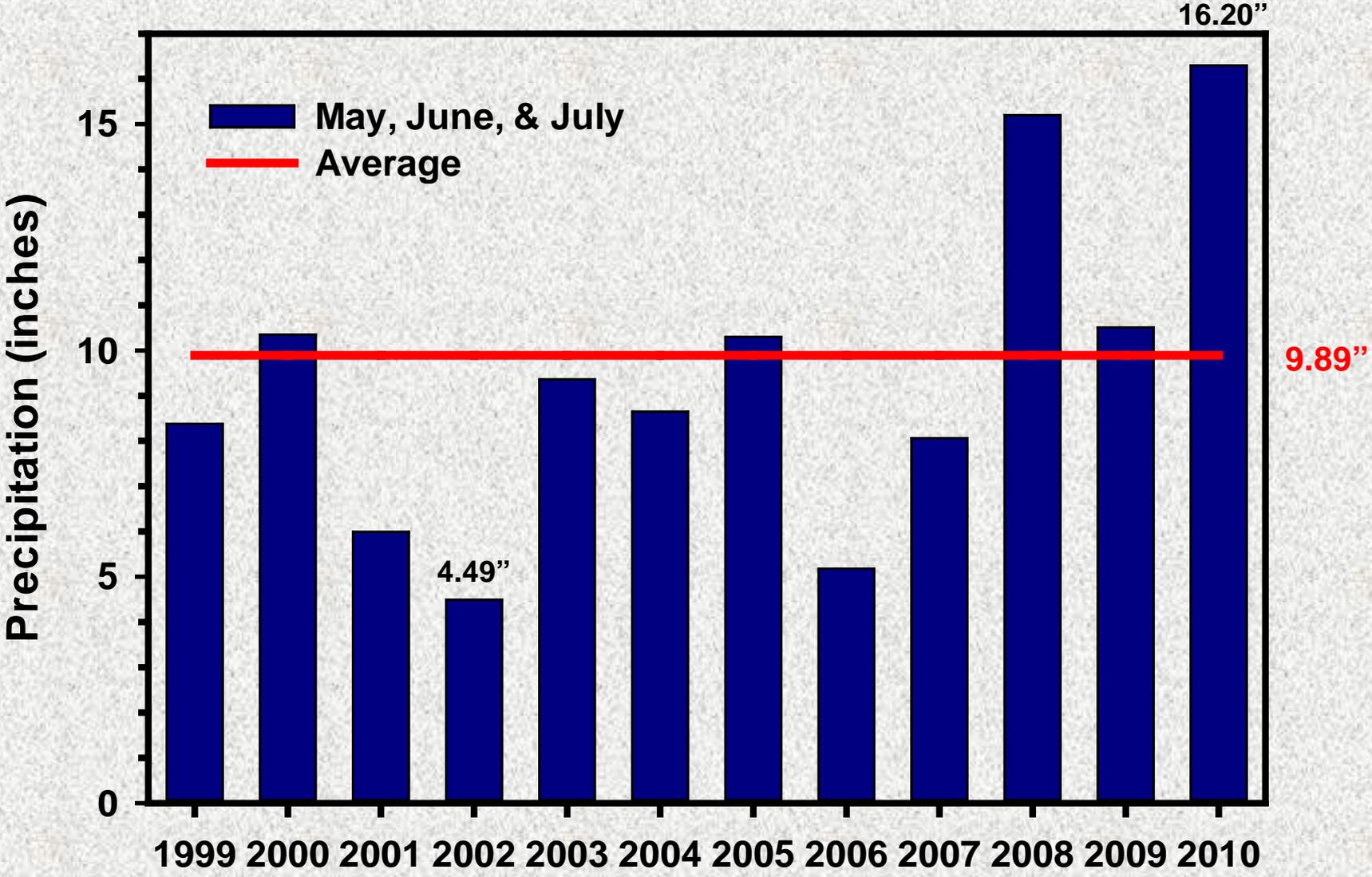


The value of forage has never been higher!

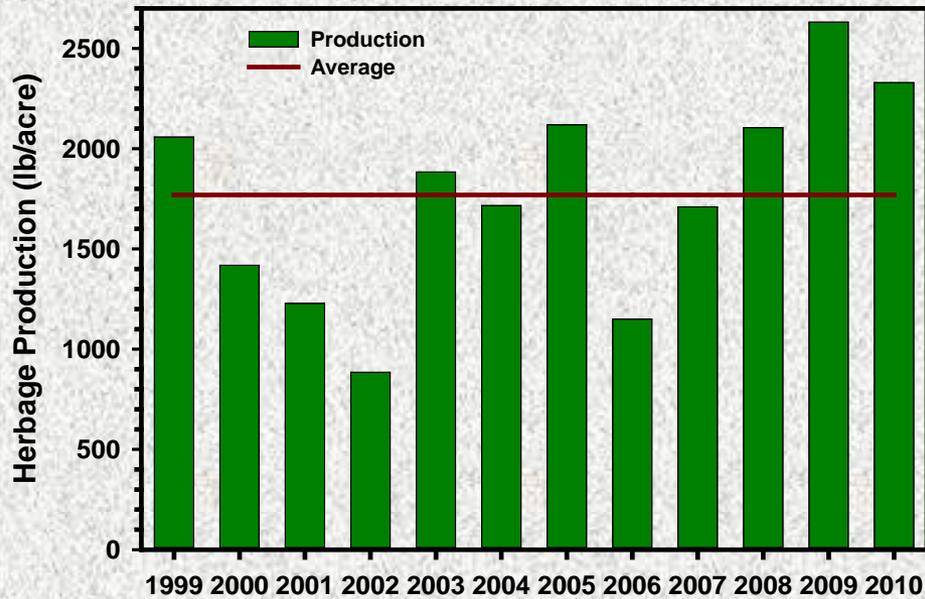
UNL-Barta Brothers Ranch: Herbage Production 1999 - 2010



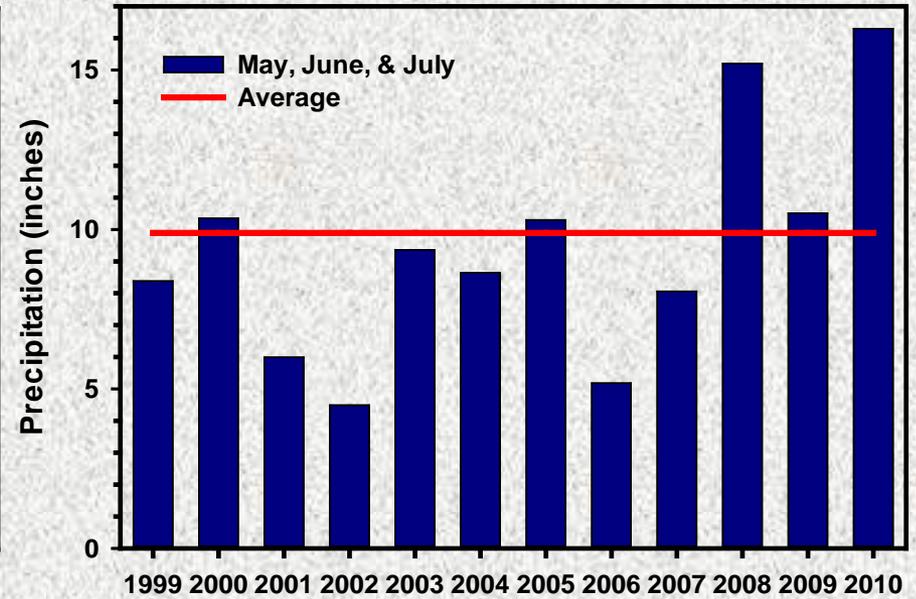
UNL-Barta Brothers Ranch: May, June, and July Precipitation 1999 - 2010



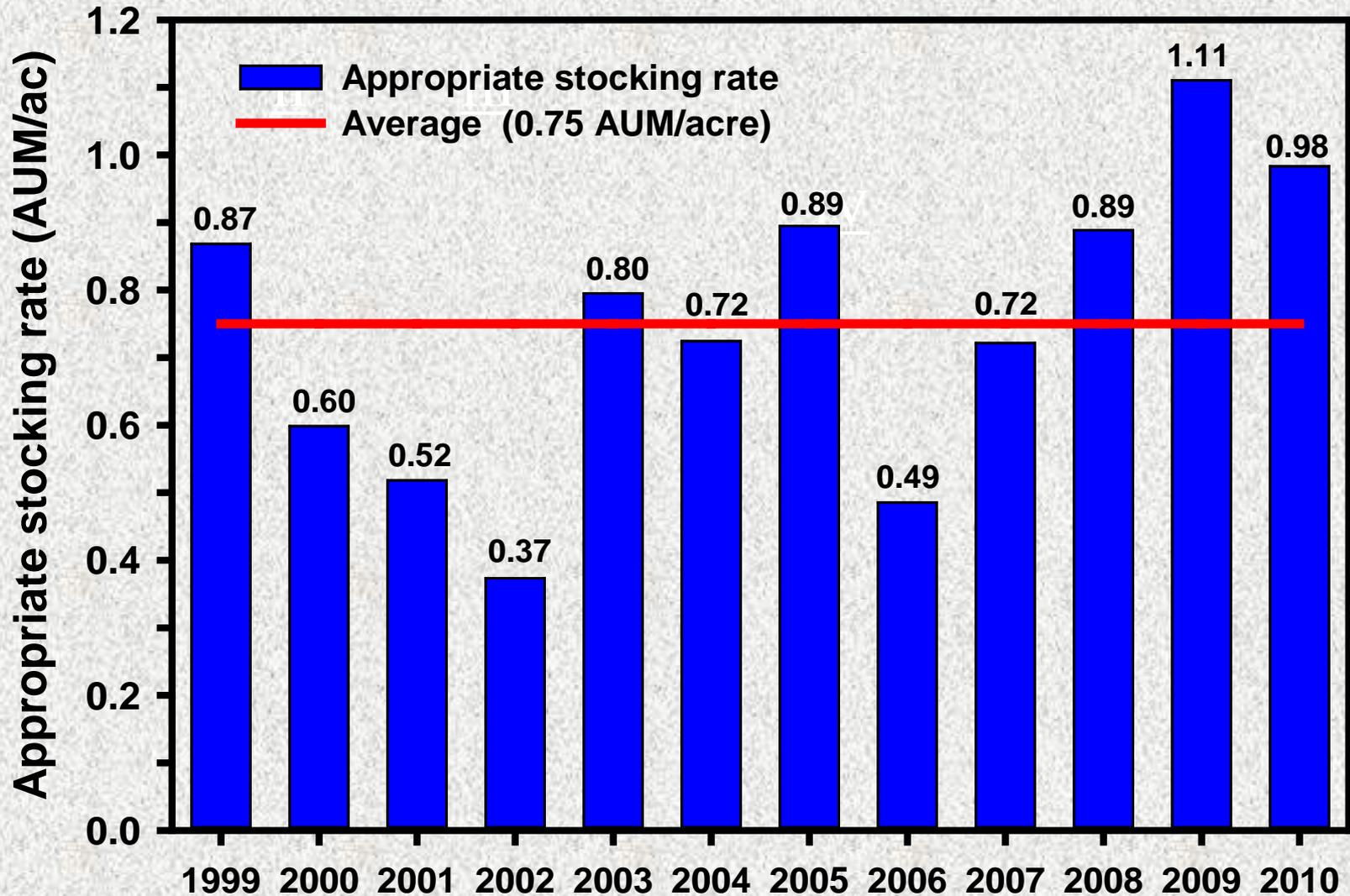
**UNL-Barta Brothers Ranch: Herbage Production
1999 - 2010**



**UNL-Barta Brothers Ranch:
May, June, and July Precipitation 1999 - 2010**



UNL Barta Brothers Ranch: Appropriate stocking rate based on herbage production (1999 - 2010)



**About 65% of the year's production
has occurred by June 15**



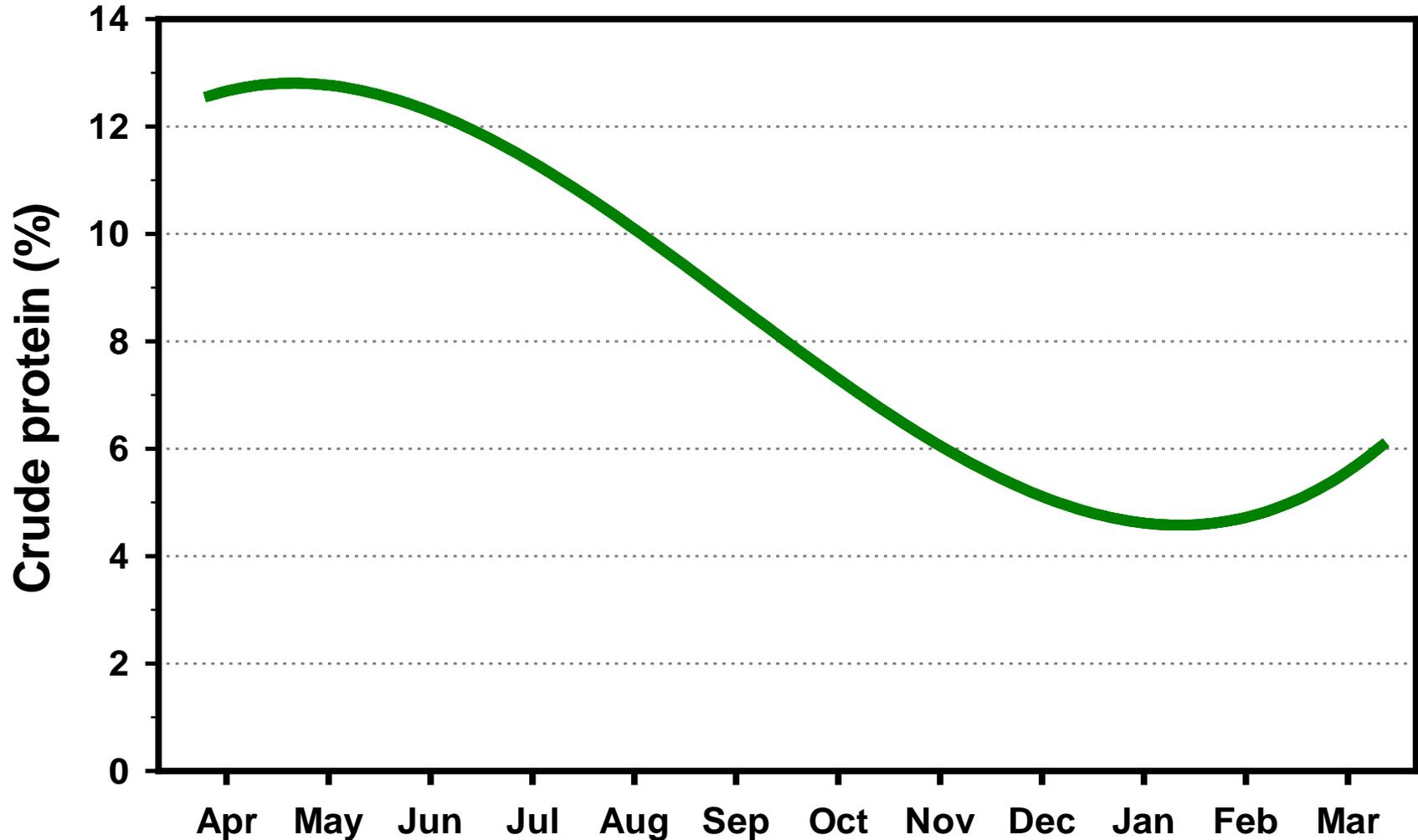
Livestock Considerations



- Forage Availability
- Forage Quality



Crude protein in cattle diets on upland Sandhill range.



Crude Protein Content of Cattle Diets on Sandhills Range

Date	Average	2002 (drought)
June 7	12.3	12.7
July 16	11.0	8.2
July 30	10.3	5.9
August 20	9.3	5.6
September 5	8.6	7.5
October 14	6.7	5.9

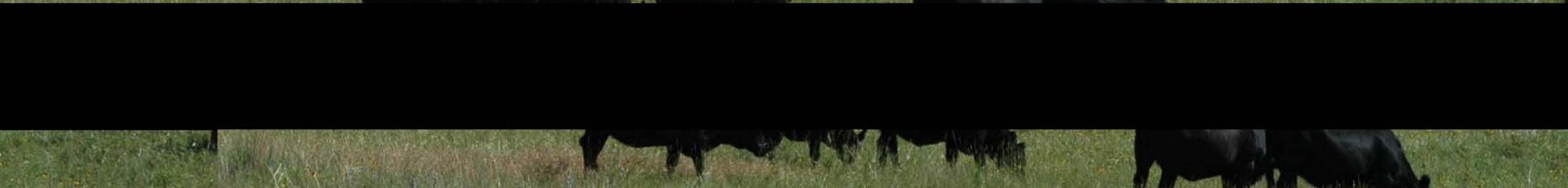
TDN Content of Cattle Diets on Sandhills Range

Date	Average	2002 (drought)
June 7	69	53
July 16	63	49
July 30	60	50
August 20	57	49
September 5	56	48
October 14	54	48

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**
 - **Weaning**
 - **Culling animals**
 - **Marketing**
 - **Supplements**
 - **Purchased Feed and/or alternative grazing resources**

Herd management actions used at the UNL Gudmundsen Sandhills Laboratory during the 2002 drought and resulting AUM savings.

<i>Action</i>	AUMs saved
Kept inventory current – culls sold as identified (n = 18)	18
Identified 15 cows as culls in May. These were sold in June as pairs instead of at weaning. (n = 15 pairs less for 5 months)	113
Weaned March born calves in September (1 month early). (n = 300 calves less for 1 month)	120
Steer calves shipped within 10 days of weaning (included in above action)	

Herd management actions used at the UNL Gudmundsen Sandhills Laboratory during the 2002 drought and resulting AUM savings (cont.).

<i>Action</i>	AUMs saved
Surplus heifer calves sold 3 weeks after weaning (2 months early)	24
Reduced March calving herd by 5% (15 cows) and sold remaining open and culls in September. (30 fewer cows due to June sales and the 15 reduction for 9 months (Sept. thru May))	324
20 open cows sold in Sept. (2 months early)	48
110 cows to corn stalks in early November to late February	475

Herd management actions used at the UNL Gudmundsen Sandhills Laboratory during the 2002 drought and resulting AUM savings (cont.).

<i>Action</i>	AUMs saved
25 pregnant June calving cows sold in January rather than in April	75
Total AUMs Saved for Cows (58 days for 520 cows)	1197
Estimated savings in hay (from cornstalks) = 140 tons or about 18 days for the entire herd.	
TOTAL COW DAYS OF FEED SAVED FOR 520 COW HERD = 58 (grazing) + 18 (hay) = 76 Days	

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**

**Opportunity: Hay
production in 2012**

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
-

Oats



Oct. 20, 2011



Oats

Oct. 20, 2011

Dec. 21, 2011





Dec. 21, 2011

Quality characteristics of fall oats at different sampling dates

	CP	ADF	TDN
Sampling date	----- <i>Percent</i> -----		
<i>Oct. 5, 2011 (standing)</i>	8.5	31.1	66.6
<i>Dec. 15, 2011 (windrowed)</i>	8.8	29.4	69.8
<i>Dec. 21, 2011 (windrowed)</i>	7.9	27.1	70.8

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

Forage Cocktails

(Cover or Pulse Crops)

Spring or mid-summer seeded:

- Oats
- Barley
- Sweet clover
- Millet
- Soybeans
- Sunflowers
- Forage radish
- Turnips
- Hairy vetch
- Rapeseed
- Triticale
- Field peas
- Red clover
- Canola
- Alfalfa
- Cowpeas

- Green manure, nitrogen fixation
- Organic matter
- Soil health, hardpans, water infiltration
- Increased forage production

Forage Cocktails (after wheat)

Mix 2: 4-September

Variety – Forage

Regular Hegari (grain sorghum)

‘Martin’ Milo

Oil Seed Radish

‘Purple Top’ Turnips

‘Red Ripper’ Cow Peas

‘Indianhead’ Lentils

‘Arvika’ Forage Peas



Mix 2 8-October



Seeding rate, cost, and dry matter yield of MIX 2 planted into wheat stubble, North Platte, 2009 **.

Variety - Forage	MIX 2		
	Seeding rate (lb/acre)	Yield (Tons/ac)	Yield (%)
Regular Hegari (grain sorghum)	3.00	**	**
'Martin' Milo	3.00	2.10	71
Oil Seed Radish	0.75	0.31	10
'Purple Top' Turnips	0.75	0.16	5
'Red Ripper' Cow Peas	3.00	0.03	1
'Indianhead' Lentils	3.00	0.01	<1
'Arvika' Forage Peas	6.00	0.25	8
<i>Volunteer winter wheat</i>	-	0.11	4
Total yield	-	2.97	
Seed cost (\$/acre)	\$12.59		

** Regular hegari and 'Martin' milo were combined (not separated when harvested).

Irrigated Pasture



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



**Foxtail millet
Control
Rainfall: 3.65"**



0.41 Tons/ac



Limited Irrigation

**Foxtail millet
Rainfall: 3.65"
Irrigation: 4.62"
Total: 8.27"**



3.40 Tons/ac

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

