



My intentions/objectives

- What does it cost to feed a pound of forage to a cow?
 - Pasture vs. Hay
 - How much should we spend???
- Feeding through drought is **COSTLY!**
- Recommendations for identifying and managing feed shortages before they occur

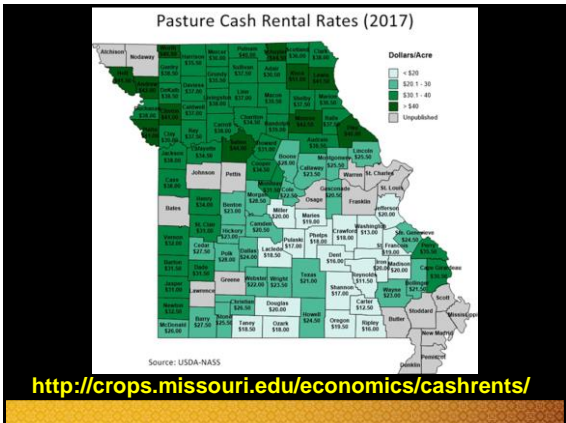
Cost of a ton of forage in Missouri

Pasture

- Cost per acre of land (**RENTAL**)
- Forage production rate (lb forage/acre)
- Harvest efficiency

Hay

- Cost per bale
- Weight of bale



Cost of a ton of pasture forage

- \$40 per acre, producing 3 tons per acre
 - Harvest efficiency = 30%
 - **Continuous grazing**
 - 0.9 ton or 1,800 lb of forage grazed per acre
 - \$40 per acre / 1,800 lb forage = \$0.022 per lb of forage
 - $0.022 \times 2000 \text{ lb/ton} = \text{\$44.44 per ton of grazed forage}$
- 1,200 lb cow needs about 6 tons of forage per year, so forage cost would be \$266.64 per year if grazing 365 days
Theoretical stocking rate = ~ 6.5 acres per cow

Cost of a ton of raised hay

- Yield: 3.1 tons
- Costs per acre: \$176.03
- Price per ton = \$56.78
- Potential sales price per ton = \$80.00

<http://crops.missouri.edu/economics/budgets/fescuecl over.pdf>

Estimating bale weight

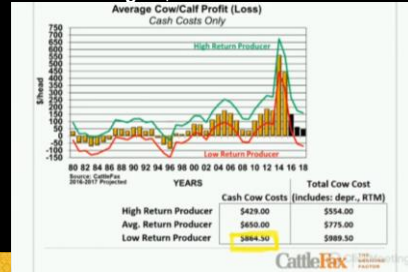
Table 1. Estimated dry weight or dry matter (DM) of bales of the most common bale dimensions at different bale densities.

Bale Size		Bale Weight			
Width (ft)	Height (ft)	Density, (lbs per ft ³)			
		9	10	11	12
		(lbs of DM/bale)			
4.0	4.0	450	500	550	600
4.0	4.5	570	640	700	760
4.0	5.0	710	790	860	940
5.0	4.0	570	630	690	750
5.0	4.5	720	800	870	950
5.0	5.0	880	980	1080	1180
5.0	5.5	1070	1190	1310	1430
5.0	6.0	1270	1410	1560	1700

Overestimating bale density is a common mistake. So, one should assume the bale's weight is ~10% less than indicated in the table.

Feeding through drought

- If the value of a 500 lb steer calf is \$1.50 per lb, it's value at weaning is \$750



Drought in forage beef systems

- Forage Production and Precipitation
 - Total precipitation explains a majority of the variation in forage production
- Forage production is successively decreased for each year of drought



Heitschmidt (2004)
Heitschmidt et al. (2003)

Decision making during drought

- Characterized by procrastination
- Reactions are usually driven by a lack of options and are usually poorly planned
- Bad decisions and personal stress can be avoided with proper planning – a written drought management plan



Managing Drought Risk on the Ranch

A Planning Guide for Great Plains Ranchers

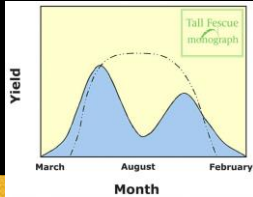


University of Nebraska - Lincoln
National Drought Mitigation Center

Available Online at

Drought risk management tools “Avoid expensive purchased feed”

1. Trigger dates (objective decision-making framework)
2. Flexible grazing units (stocking rate reduction)
3. Matching cattle production system to environment



Drought management in Great Plains

• Trigger Dates

- April 1:
 - No prescribed burns if < 15% of water-year moisture has been received between Nov 1 and April 1
 - Be on the lookout for declining range condition
- June 30:
 - 60 % of water-year moisture is typically received; about 50% of annual forage production has occurred
 - Annual estimate of forage availability around June 15
 - If moisture is < 80% of the water-year target, decrease stocking rates by 30% (e.g., early weaning)
 - If moisture is < 60% of the water-year target, decrease stocking rates by 40% (e.g., early weaning + light culling)

Olson (2014)

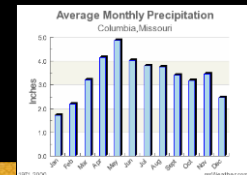
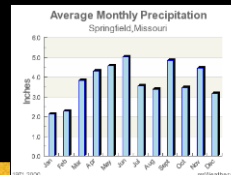
Drought management in Great Plains

- August 15:
 - About 70% of annual forage production has occurred
 - Annual estimate of forage availability
 - Adequate leaf area between August 15 and the first killing frost is critical for root carbohydrate restoration
 - If moisture during July and August is < 70% of normal, grazing should be ended by September 1
- November 1:
 - End of the growing season and start of the winter dry period
 - If moisture is < 80% of the water-year total, anticipate drought conditions will govern the following spring
 - Be prepared to reduce stocking rates the following spring

Olson (2014)

Possible trigger dates for MO

- Predict fall stockpile based on late summer/early fall moisture
- Winter precipitation and spring forage growth
- Precipitation going into the “summer slump”



Possible trigger dates for MO

- Winter precipitation and spring forage growth
 - 24% (9.87” out of 40.28”) of precipitation between November 1 and March 1
 - **This is your first warning**
- Precipitation going into the “summer slump”
 - 30% (12.24” out of 40.28”) of precipitation between March 1 and June 1
 - **Consider early weaning spring calves, selective culling of fall herd**
- Predict fall stockpile based on late summer/early fall moisture
 - 37% (14.99” out of 40.28”) of precipitation between June 1 and October 1
 - **<70% of average, expect your stockpile to be less than normal**

Drought during the “summer slump”

- **Not a forage quantity deficit!!!**
- **Quality, water availability and animal performance issue**
- **You are overstocked if feeding hay during the summer on a normal year**
 - Overstocked = not profitable

Drought management

- Tools for Stocking Rate Reduction
 - Early Weaning
 - Sell Yearlings / Replacement Heifers
 - Selective liquidation
 - Destocking and Feeding
 - Complete liquidation
- Ordered from easiest to most difficult

Final thoughts

- **HAVE A PLAN!!!**
- Hay is an expensive forage, when compared to cow-harvested pasture forage
 - THE MORE STEEL & FUEL YOU PUT BETWEEN THE SUN AND A COW'S MOUTH, THE LESS PROFITABLE YOU WILL BE! –Kit Pharo
- “Ten days away from a drought” is often a forage quality or water availability issue
 - If it is not, then consider other stocking rates

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