

# ***Fertilizing Pasture: Is it Worth it in Today's Economic Conditions?***

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# ***Smooth Bromegrass Management***

- Sod-forming grass ... can become sod-bound
- Responsive to N fertilization
- 75% of growth by mid-June for non-irrigated pastures
- Harvest at early heading for hay in mid- to late May
- Minimum cutting/grazing height is 3 to 4 inches
- 3 to 4 animal unit months per acre



## ***Current Situation***

- Hay prices are high (\$200/ton).
- Nitrogen fertilization costs are high (\$0.80/lb. N).
- Forage supplies have dwindled.

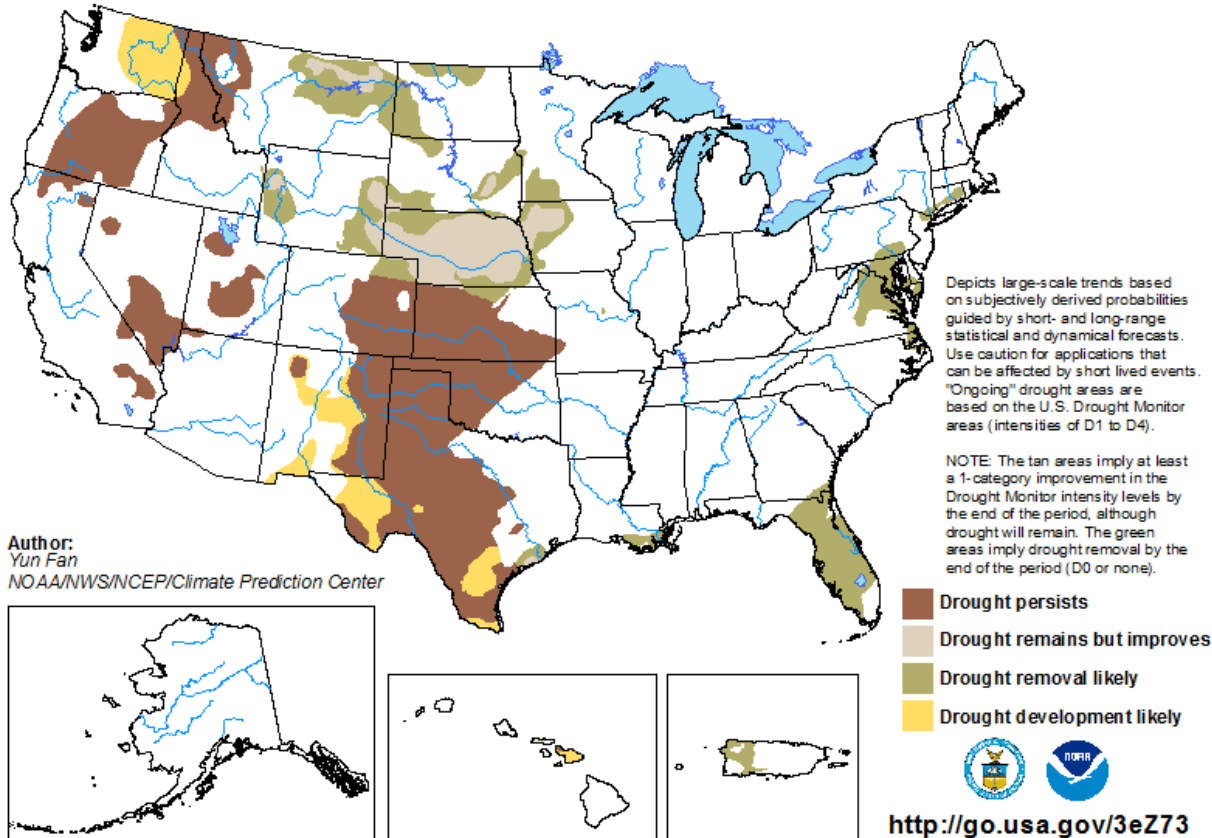
***What's your next move?***



# Drought Outlook for May, June, July

## U.S. Seasonal Drought Outlook Drought Tendency During the Valid Period

Valid for April 20 - July 31, 2023  
Released April 20



- Drought conditions remain, but improvement likely.
- Full production requires 16 inches of soil stored moisture and growing season rainfall.
- N fertilizer rates might need to be adjusted downward if drier weather persists.



# Fertilizing Smooth Bromegrass

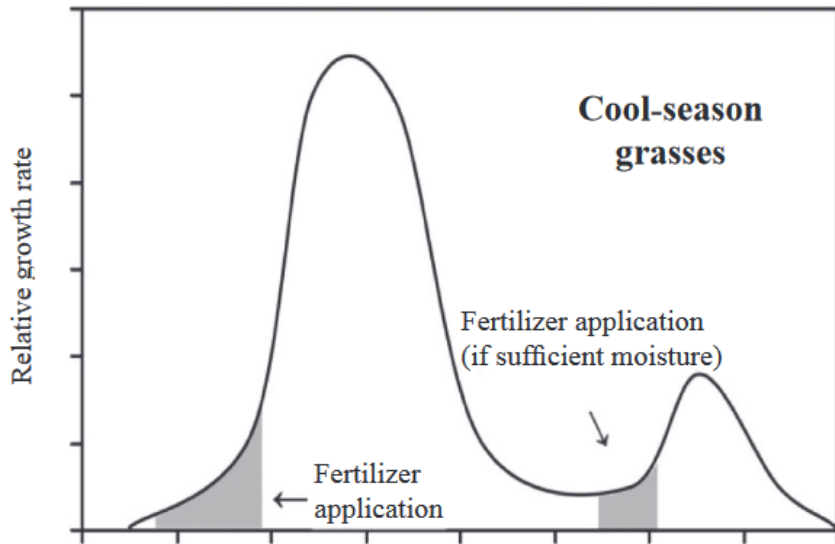


Figure 1. Apply fertilizer just prior to periods of rapid growth.

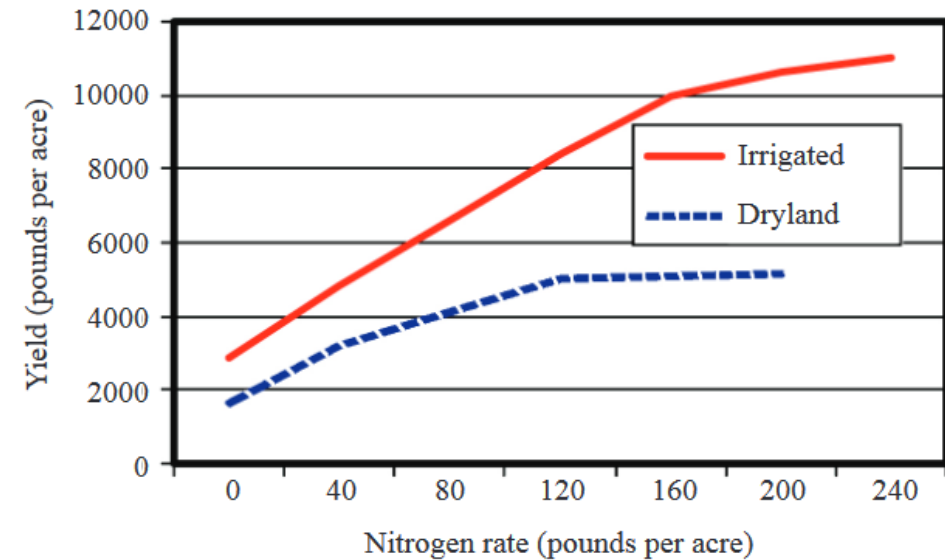
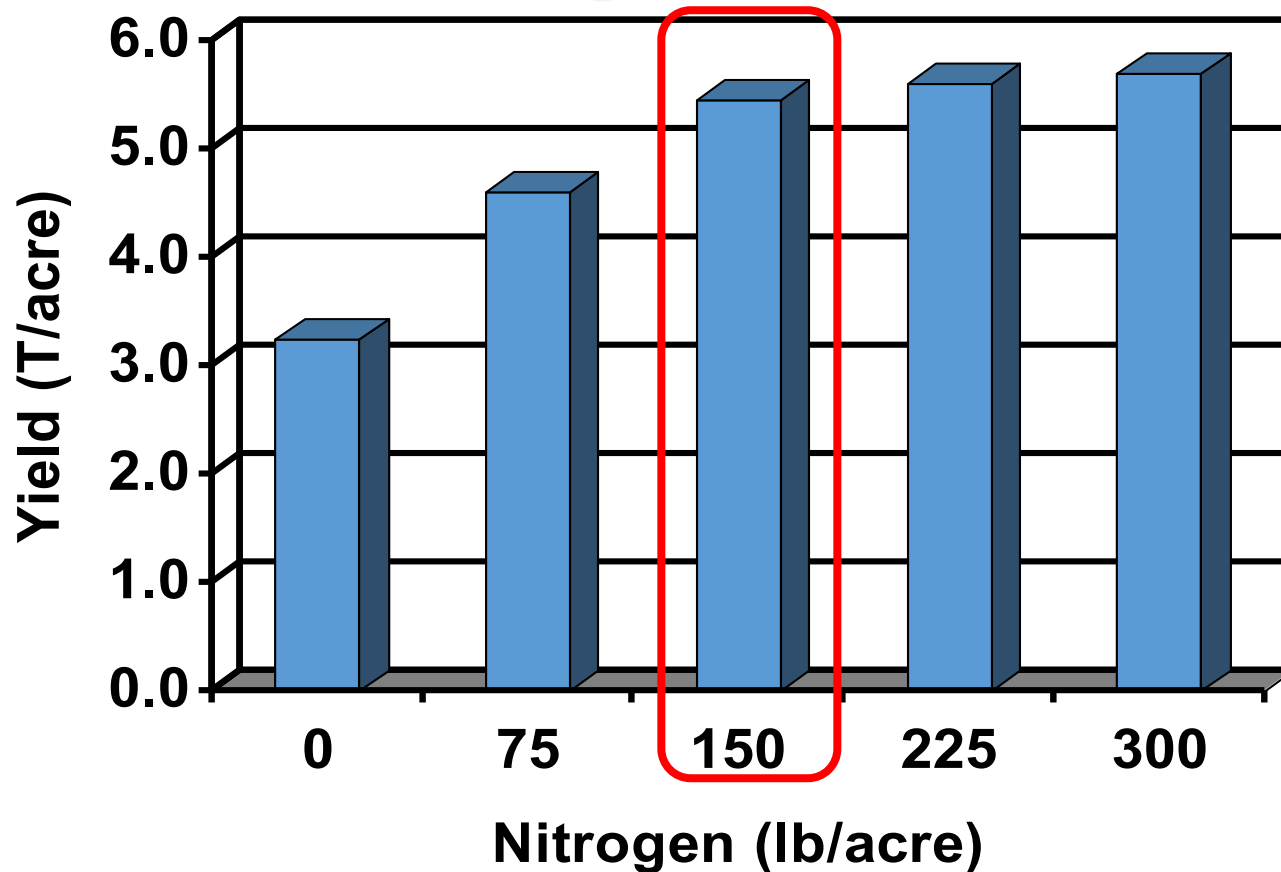


Figure 2. Typical grass yield response to nitrogen fertilizer (irrigated is statewide; dryland is for eastern Nebraska).

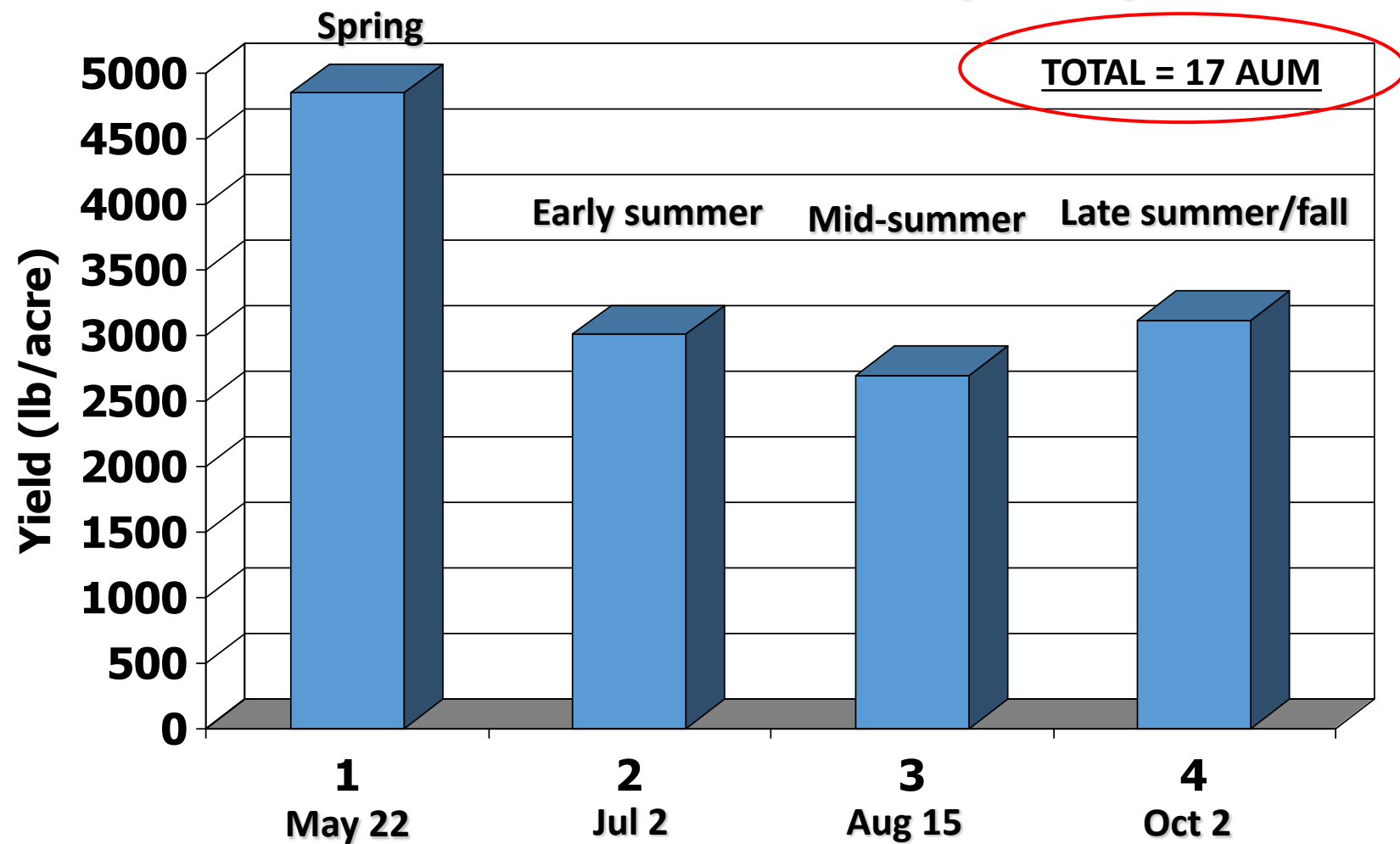
- 60 to 80 lbs. of actual N per acre is optimum for spring production
- Pay attention to soil test results – soil pH, soil P, soil K

# ***Effect of nitrogen fertilization on irrigated smooth bromegrass and orchardgrass yield.<sup>1</sup>***



<sup>1</sup> Three-year mean (1970-72) from 4 harvests each year, Holt County.

***Average forage yield of 8 irrigated cool-season grass species by harvest date, North Platte (2003)***





# ***To Fertilize or Not To Fertilize***

	Fertilized			Non-fertilized
<b>Expected forage yield</b>	3.5 tons/acre <sup>1</sup>	2.5 tons/acre <sup>2</sup>	2 tons/acre <sup>3</sup>	1.5 tons/acre
<b>Fertilizer costs</b>	\$112.00	\$56.00	\$28.00	-
<b>Application costs</b>	\$10.00	\$10.00	\$10.00	-
<b>Total cost per acre</b>	\$122.00	\$66.00	\$38.00	-
<b>Cost of additional forage per ton</b>	\$61.00	\$66.00	\$76.00	-

<sup>1</sup> 140 lbs. N per acre (32% @ \$515 per ton) \$515/640 lb. = \$0.80 per lb. of N

<sup>2</sup> 70 lbs. N per acre (32% @ \$515 per ton) \$515/640 lb. = \$0.80 per lb. of N

<sup>3</sup> 35 lbs. N per acre (32% @ \$515 per ton) \$515/640 lb. = \$0.80 per lb. of N





# Marginal Analysis

	Fertilized			Non-fertilized
<b>Expected forage yield</b>	3.5 tons/acre <sup>1</sup>	2.5 tons/acre <sup>2</sup>	2 tons/acre <sup>3</sup>	1.5 tons/acre
<b>Marginal cost per acre</b>	\$56.00	\$28.00	\$38.00	-
<b>Marginal cost per ton*</b>	\$56.00	\$56.00	\$76.00	-
<b>Marginal value per ton (i.e. Hay Price)</b>	\$200.00	\$200.00	\$200.00	-

\*Dependent upon response to fertilizer. This assumes 0.5 tons of additional yield per 35 lbs. N added.

<sup>1</sup> 140 lbs. N per acre (32% @ \$515 per ton)  $\$515/640 \text{ lb.} = \$0.80 \text{ per lb. of N}$

<sup>2</sup> 70 lbs. N per acre (32% @ \$515 per ton)  $\$515/640 \text{ lb.} = \$0.80 \text{ per lb. of N}$

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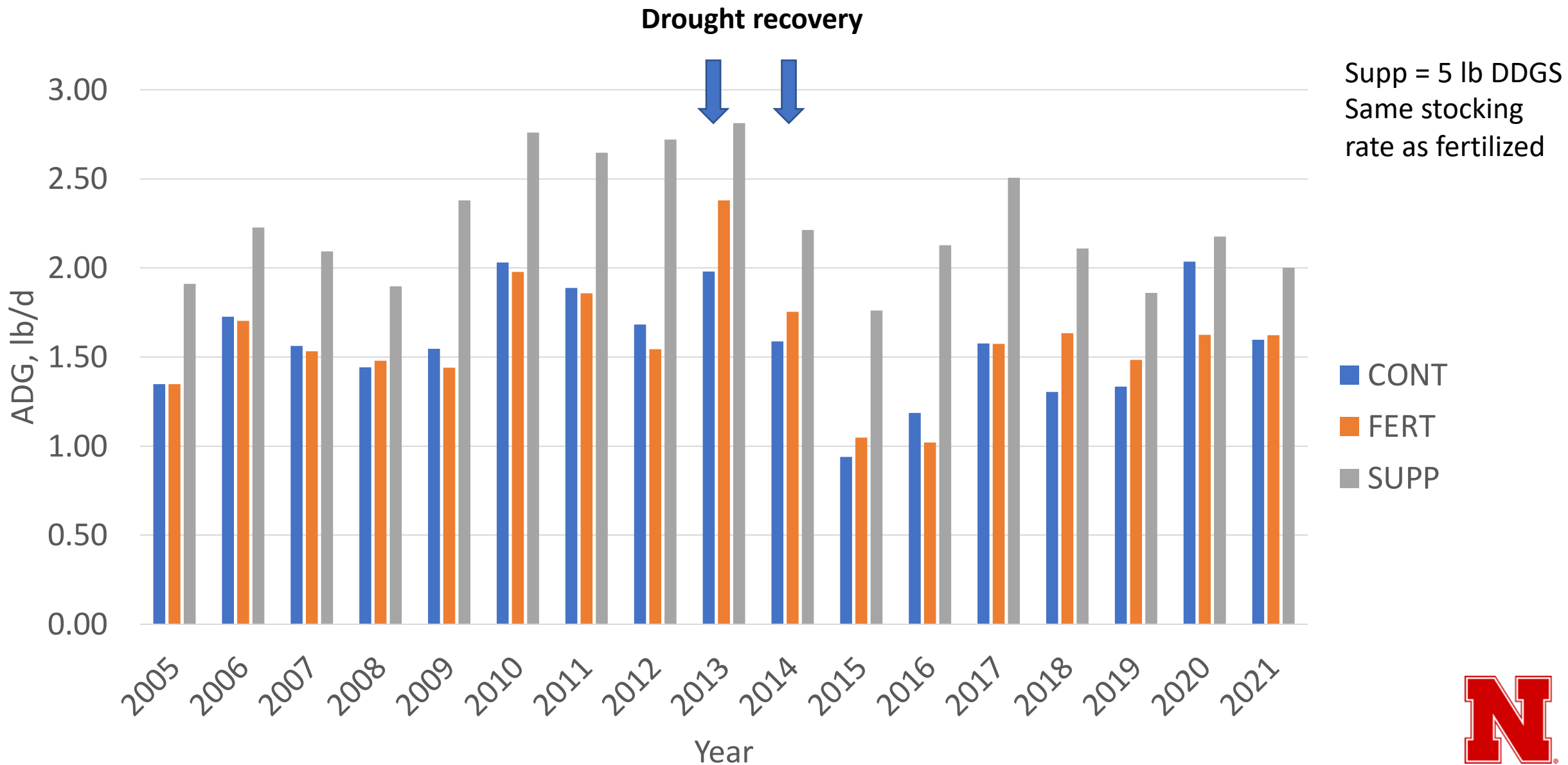


# ***Fertilizing smooth brome grass pasture***

**15-year data set with 80 lbs. N/acre**

- 700 lb. initial BW
- 151-day grazing season on average
- Increased carrying capacity
  - $\frac{3}{4}$  calf per acre vs. 1 calf per acre
  - 3.1 AUM/acre vs. 4.2 AUM/acre
- No impact on ADG (1.57 lb./d)
  - Increase gain on acre basis - 162 vs. 240 lb. gain/acre





# ***Top Tips***

- High hay prices make several options reasonable.
  - Inadequate soil moisture makes the 35 lbs. N rate a rationale option.
- Smooth brome grass pastures may need some TLC.
  - Fertilize in advance of a rain.
  - Early-season weed control is important.
- Strategically fertilize more productive acres.
  - Better use of available moisture and N fertilization.
  - Application costs spread over fewer acres.

