

Grazinglands Research Laboratory

El Reno, OK



- Briefly describe what we do
- How drought has impacted our operations
- Near-term challenges for the region
- Long-term challenges for the region
- Managing lands and resources for recovery

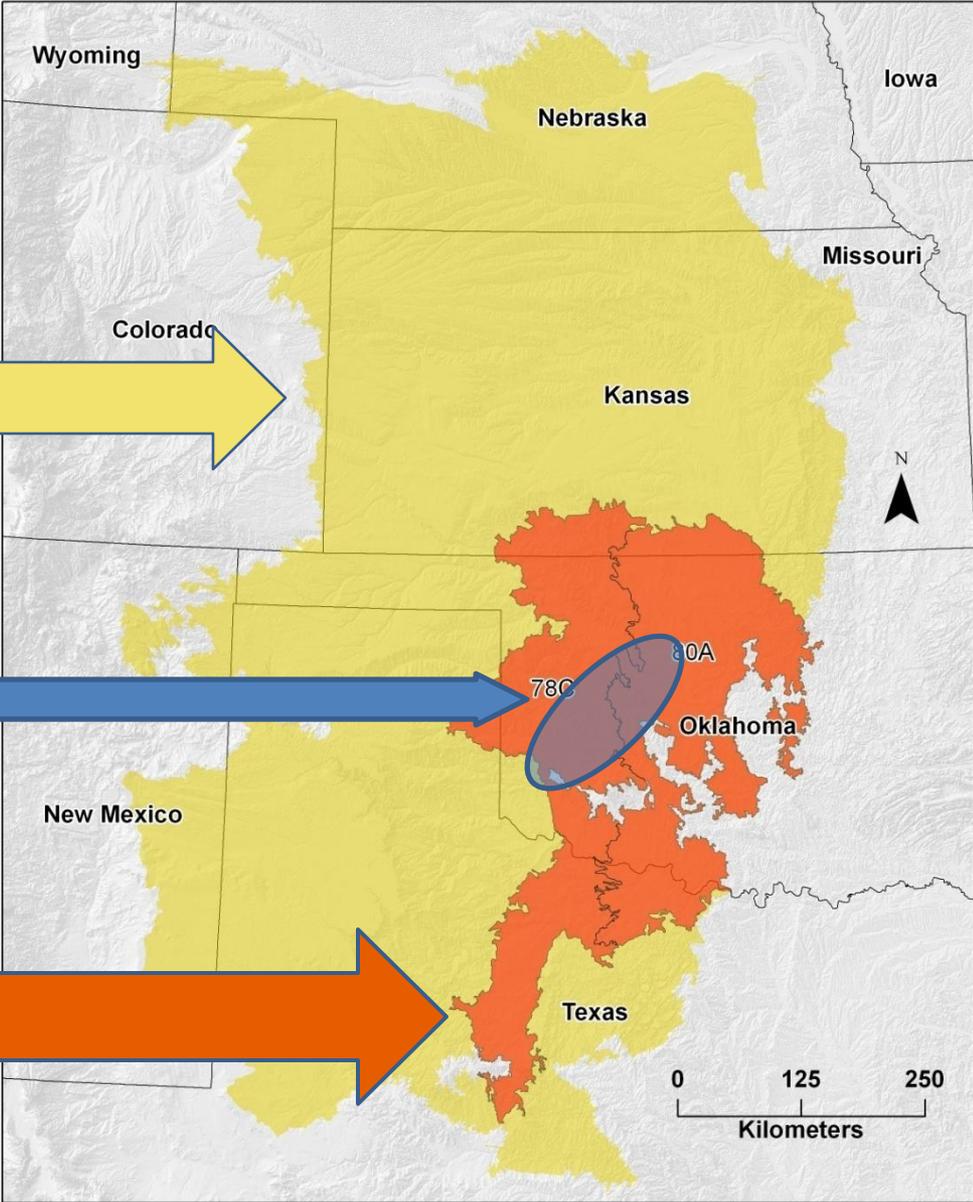
Resilience and Vulnerability of Beef Cattle Production in the Southern Great Plains

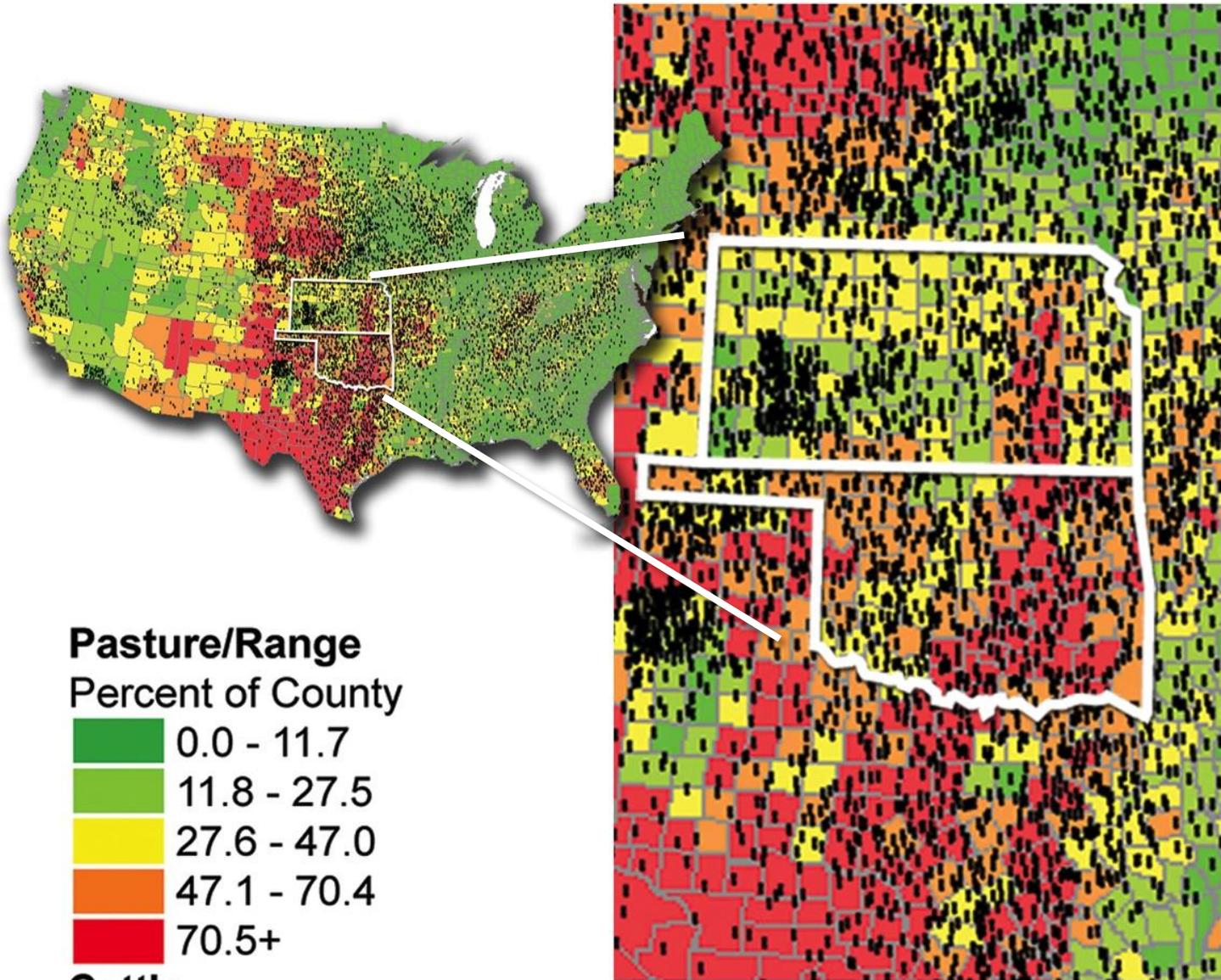


Central Great Plains
(Rolling Wheat and Range)
Land Resource Area

GRL, El Reno & Langston
Research Watersheds

MLRA 78C Central Rolling Red
Plains
MLRA 80A Central Rolling Red
Prairies of central Oklahoma



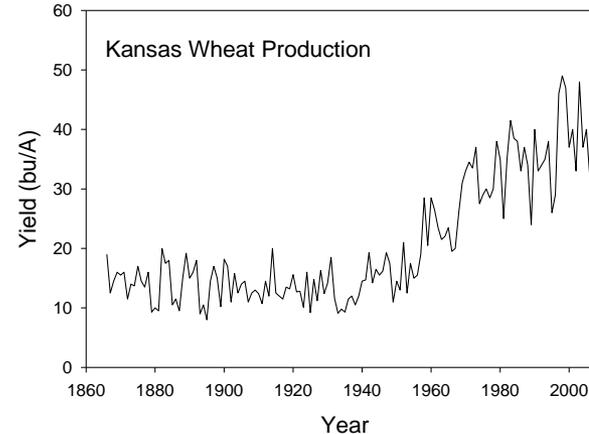
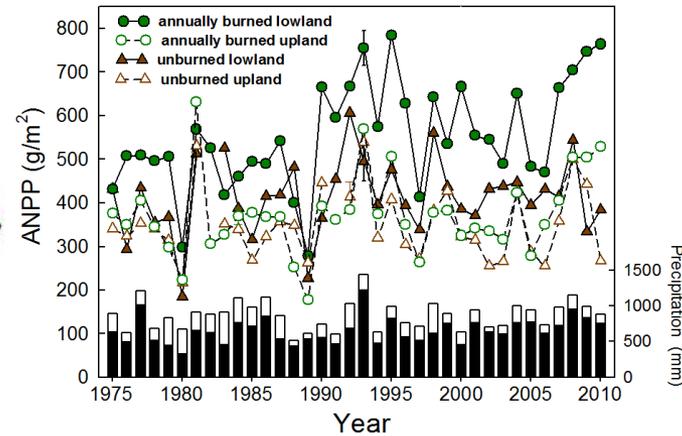
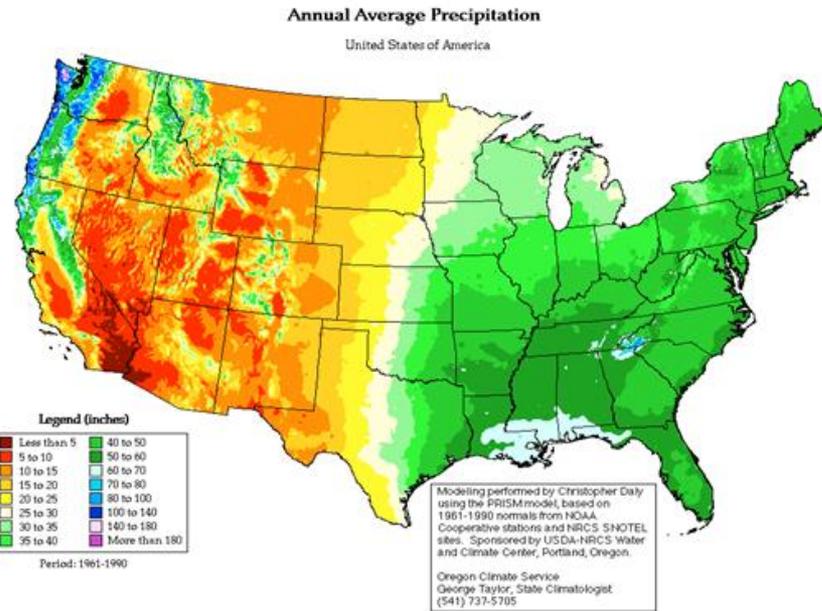


Pasture/Range
Percent of County

- Green 0.0 - 11.7
- Light Green 11.8 - 27.5
- Yellow 27.6 - 47.0
- Orange 47.1 - 70.4
- Red 70.5+

Cattle
1 Dot = 10,000 cattle

Great Variability of Rainfall Across Our Project Area



- Annual rainfall averages from 380 to 900 mm.
- More change across the region than from our region to the east coast.
- Variability in climate greatly increases vulnerability of productivity and GHG.
- Predicted climate change will lead to greater variability.

Partner with other organizations to provide information

- **Drought of 2010-2012**
 - **OSU** – five regional and 32 county meetings with 2,245 producers
 - >2,400 forage samples tested for nitrates in 2011;
 - 8,000 field samples quick tested by county educators;
 - **Noble Foundation** – 445 drought related webinar pageviews since July 2011.
 - **KSU** – Regional meetings conducted by livestock program focus team.
 - 6 demonstrations and a you-tube video on ammoniating wheat straw.





United States Department of Agriculture
Agricultural Research Service

Grazinglands Research Laboratory

El Reno, OK



Field Day 2013

Friday, May 10, 2013

Come see what we do!!!

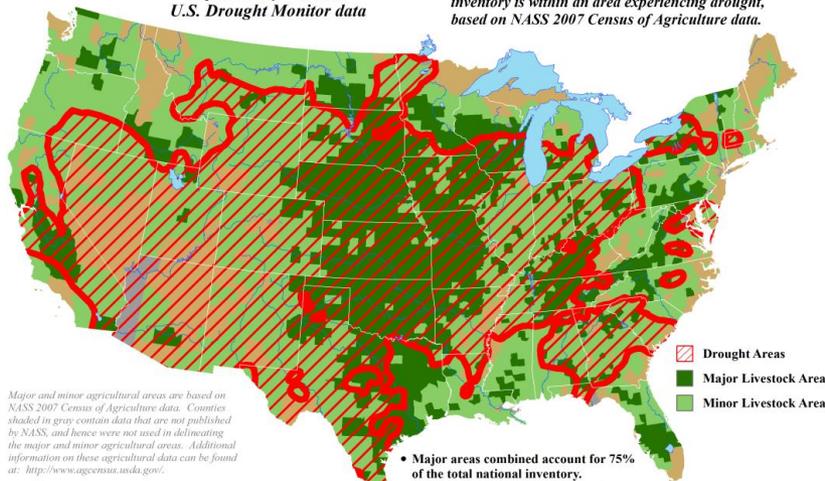
8:30 am to 3:30pm

Topics Include: Sustainable dual-purpose crop rotations, New forage materials: Cool-season grasses & legumes; Animal performance on dual-purpose canola; Monitoring forage quality; Market opportunities for Eastern Redcedar, Rotational grazing of native pastures, Climate variability & water resources

U.S. Cattle Areas Experiencing Drought

Reflects July 17, 2012
U.S. Drought Monitor data

Approximately 73% of the domestic cattle inventory is within an area experiencing drought, based on NASS 2007 Census of Agriculture data.



Major and minor agricultural areas are based on NASS 2007 Census of Agriculture data. Counties shaded in gray contain data that are not published by NASS, and hence were not used in delineating the major and minor agricultural areas. Additional information on these agricultural data can be found at: <http://www.agcensus.usda.gov/>.

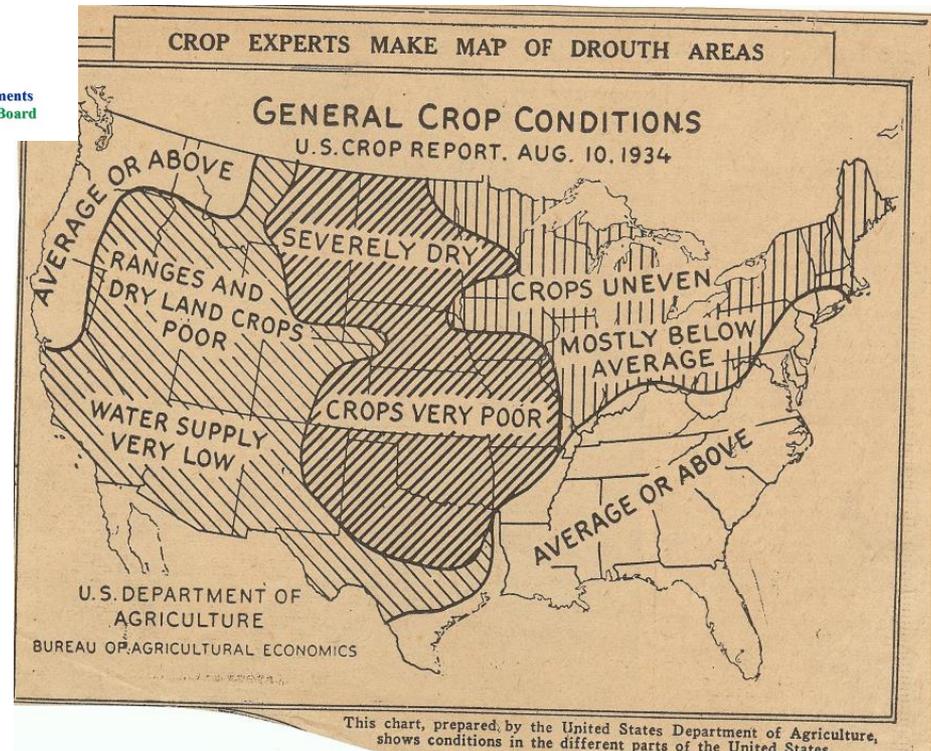
Mapped drought areas are derived from the U.S. Drought Monitor product and do not depict the intensity of drought in any particular location. More information on the Drought Monitor can be found at: <http://www.drought.und.edu/dm/monitor.html>.

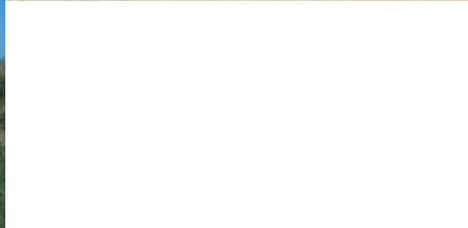
- Major areas combined account for 75% of the total national inventory.
- Major and minor areas combined account for 99% of the total national inventory.

USDA Agricultural Weather Assessments
World Agricultural Outlook Board

Press coverage of 2012 drought frequently harkened back to the 1930's drought.

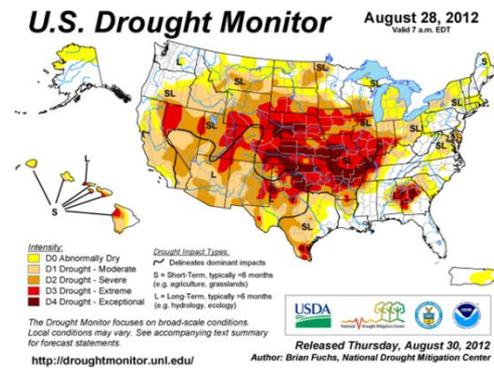
While drought in the corn belt received the most coverage, beef cattle areas, pastures, and forages were extremely hard hit.





Pond near Buffalo,
Oklahoma
Credit: Gary McManus,
Oklahoma Mesonet

What impacts will the on-going drought have on research?



- Raise interest in climate variability and extreme patterns
- Encourage stakeholders to engage with researchers
- Motivate researchers and producers to explore alternative/complementary forages and grazing management strategies
- Provide the “dry end” of the productivity and ecosystem
- Increase focus on responses to extreme and prolonged heat as well as drought
- Focus more on heat-stress and impacts on animal efficiencies.
- Focus on stock water supply during drought
- Focus on recovery from drought
 - Depleted soils, vegetation, herds, capital

Approaches and management practices to decrease vulnerability or increases resilience to drought in mixed beef-forage farms



Adaptation and mitigation strategies

Strategy/ Animal System [†]	Goal [‡]	Potential Outcome
Patch Burning/ CC, S [†]	A	Increase animal use efficiency, decrease nutrient loss, improved nutrient usage
Animal Efficiency/ CC, S	M, A	Selecting of animals that use forage more efficiently may decrease GHG emissions as well as increase productivity
Feed Supplements/ CC, S	M	Supplementation (especially starch and fat) has been found to increase animal efficiency decrease enteric emissions
Shift in Pasture Type/ CC, S	M	Increasing forage quality
Early Weaning/ CC	M	Maintain breeding stock with lower forage requirements
Incorporate Legumes / CC, S	A	Decrease N application and recurring cost of production
Grazing Systems/ CC, S	M	Utilize appropriate grazing systems to maintain high quality forages
Ionophores/ CC, S	M	Increased rumen efficiency ,improved digestibility
Match Grazing System to Site/ S	M,A	Selection of correct ecological sites to meet the needs of stocker program

[†] CC=cow-calf, S=stocker; [‡] A=Adaptation, M=Mitigation

A dramatic sky filled with large, billowing white and grey clouds. The clouds are dense and textured, with some areas appearing bright white and others in deep shadow. The background is a dark, deep blue, suggesting a clear sky or a deep twilight. The overall mood is one of mystery and depth.

Questions?