• 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
Pasture/Range
Percent of County
0.0 - 11.7
11.8 - 27.5
27.6 - 47.0
47.1 - 70.4
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.
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
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
<table>
<thead>
<tr>
<th>Strategy/ Animal System</th>
<th>Goal</th>
<th>Potential Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patch Burning/ CC, S</td>
<td>A</td>
<td>Increase animal use efficiency, decrease nutrient loss, improved nutrient usage</td>
</tr>
<tr>
<td>Animal Efficiency/ CC, S</td>
<td>M, A</td>
<td>Selecting of animals that use forage more efficiently may decrease GHG emissions as well as increase productivity</td>
</tr>
<tr>
<td>Feed Supplements/ CC, S</td>
<td>M</td>
<td>Supplementation (especially starch and fat) has been found to increase animal efficiency, decrease enteric emissions</td>
</tr>
<tr>
<td>Shift in Pasture Type/ CC, S</td>
<td>M</td>
<td>Increasing forage quality</td>
</tr>
<tr>
<td>Early Weaning/ CC</td>
<td>M</td>
<td>Maintain breeding stock with lower forage requirements</td>
</tr>
<tr>
<td>Incorporate Legumes / CC, S</td>
<td>A</td>
<td>Decrease N application and recurring cost of production</td>
</tr>
<tr>
<td>Grazing Systems/ CC, S</td>
<td>M</td>
<td>Utilize appropriate grazing systems to maintain high quality forages</td>
</tr>
<tr>
<td>Ionophores/ CC, S</td>
<td>M</td>
<td>Increased rumen efficiency, improved digestibility</td>
</tr>
<tr>
<td>Match Grazing System to Site/ S</td>
<td>M, A</td>
<td>Selection of correct ecological sites to meet the needs of stocker program</td>
</tr>
</tbody>
</table>

† CC=cow-calf, S=stocker; ‡ A=Adaptation, M=Mitigation
Questions?