Effects of Drought on the Nations Cowherd

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Texas drought shrinks state cow herd

California heads into dry season already parched

New Mexico is the driest of the dry
Comparison of Severe Drought in U.S.

Currently 23 percent of the country is in severe or worse drought

~ 50% of the beef cows
March 18, 2014

- 60% of the nation's cowherd is under drought conditions
Beef Cow Inventory and Projected Changes

Declined last 16 years due to several factors: drought, cost of feed, age of producer, uncertainty, ethanol, etc.

Analysis by Derrell Peel
Data Source: USDA-NASS

C-N-02
01/29/12
Changes in Beef Cow Numbers and Causes of Change

Livestock Marketing Information Center

Data Source: USDA-NASS
Dollar Per Head Change from One Year Ago

Week ending March 7, 2014

- 550# Steers: $282
- 750# Steers: $304
- Fed Cattle: $274
- Ut/Comm Cows: $270
- Omaha Corn: -$169
- USDA Hay: -$36

Source: USDA and CattleFax
(Corn cost calculated at 60 bu./head, hay cost calculated at 25 lbs./day for 150 days)
CHANGE IN BEEF COWS NUMBERS
JANUARY 1, 2005 TO JANUARY 2014
(1000 Head)

U.S. Total: -3632

Livestock Marketing Information Center
Data Source: USDA-NASS

02/03/14
Change in Beef Cows that Have Calved from 2005 to 2014

Thousand Cows

- TX
- MO
- OK
- NE
- MT

2005 2010 2014
How have fewer cows affected the price of hamburger?

Price/lb

<table>
<thead>
<tr>
<th>Year</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price/lb</td>
<td>2.000</td>
<td>2.500</td>
<td>3.000</td>
<td>3.500</td>
<td>4.000</td>
<td>62% increase</td>
</tr>
</tbody>
</table>

http://data.bls.gov/timeseries/APU0000703112
How does lack of forage affect the biology of the cow?
The main problems with cattle production in a drought environment are:

- Low calf crops
- Long calving seasons
- Uneven calf crops
A widely utilized concept has been:

**Body Condition Scoring**
## Performance of cows in different body conditions
(Wikse et al, 1995)

<table>
<thead>
<tr>
<th>BCS</th>
<th>Pregnancy rate, %</th>
<th>Weaning weight, lb</th>
<th>Lost income/cow, $</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>96</td>
<td>508</td>
<td>$0</td>
</tr>
<tr>
<td>4</td>
<td>76</td>
<td>463</td>
<td>$108</td>
</tr>
<tr>
<td>3</td>
<td>51</td>
<td>442</td>
<td>$215</td>
</tr>
</tbody>
</table>
Percent of Cows in Different BCS Cycling 80 days after Calving (Wiltbank, 1983)

You have lost these cows from a yearly production cycle.

Problems?
What have we learned from these classic experiments?

- Pregnant cows fed 70% of their energy requirements during the last 90 days of gestation produced calves with increased morbidity and mortality rates.

- Studies have reported instances of compromised maternal nutrition during gestation resulting in:
  - increased neonatal mortality,
  - intestinal and respiratory dysfunction,
  - metabolic disorders,
  - decreased postnatal growth rates
Cows from NM. Can you guess what conception rates were?
Comparing Calving Distributions: Normal vs. Drought

Example: IDEAL Calving Distribution

- 65 calves @ 600 lbs
- 25 calves @ 560 lbs
- 7 calves @ 520 lbs
- 3 opens

Example: Poor Calving Distribution

- 10 calves @ 600 lbs
- 30 calves @ 560 lbs
- 40 calves @ 520 lbs
- 10 calves @ 480 lbs
- 10 opens

56,600 lbs weaned

- 48,400 lbs weaned

8,200 lbs * $1.80/lb = $14,760 difference due to drought
Haven’t we Known about Drought for at Least 100 years? (1915 recommendations)

1. Range management plan that minimizes stock loss during drought

2. Establish forage utilization systems consistent with growth requirements of forage species

3. Identify advantages of controlling stock and the range for improving stock performance

4. Identify the number and distribution of stock watering places necessary to secure proper use

(Fleming, 1915)
Are Ranchers Reactive or Proactive when Faced with Drought?

<table>
<thead>
<tr>
<th>Strategies to Manage Drought</th>
<th>% (n=443)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reactive Strategies</strong></td>
<td></td>
</tr>
<tr>
<td>Reduce herd size</td>
<td>76</td>
</tr>
<tr>
<td>Purchase feed</td>
<td>75</td>
</tr>
<tr>
<td>Apply for government assist.</td>
<td>43</td>
</tr>
<tr>
<td>Wean calves early</td>
<td>43</td>
</tr>
<tr>
<td>Rent additional pasture</td>
<td>28</td>
</tr>
</tbody>
</table>
Progression of Decisions Made in Response to Drought and Effect on Equity

- Do nothing, it will get better
- Sell the least productive cows
- Early wean the calves
- Lease additional pasture
- Purchase additional feed
- Drylot the cowherd
- Sell all the livestock

Change in equity in the cowherd due to drought
Interactions of Breed, Supplementation and Year on Productivity of Range Cows (Bellido et al., 1981)

• 5 yr study

• Drought reduced gain from birth to weaning by 20%, weaning weight by 17% and increased calving interval by 16 d (next years problem)

• Calves from supplemented cows were heavier at weaning.

• Supplemented cows had shorter calving intervals than unsupplemented cows
For many of today’s ranchers there are three options:

1. Find a way to keep the cows and be positioned for a great future if the rain comes.
2. Keep the cows, endure another year of drought, and lose one’s equity.
3. Sell the cows now, preserve one’s equity, and be precluded from participating in the golden era of cow production.

Marshall, 2013
This is what we expect to happen: (Maybe)
After the Drought: Will we expand?

- The reasons for cow herd expansion:
  - Good grass in most areas of cow-calf country
  - High feeder calf prices
  - Record high beef prices
  - Lower corn prices
  - Low debt in mature ranching operations.
The reasons we will not expand:

- Age of ranchers
- EPA regulations in eastern US
- Forest Service and BLM regulation on public lands.
- Fear of drought after paying high prices to restock cows.
- Cost of replacement females (heifers)
Where will the beef cow inventory increase in the future?
Changes in Beef Cows that have Calved 1995 to 2014
(Tonsor, 2014)
CHANGE IN BEEF CALF CROP 2004 - 2013
(1000 Head)

Future Beef Belt?
Why???
Thanks for allowing me to present at this wonderful conference