Herd Management and Drought

Marcy Ward, PhD
Extension Livestock Specialist

- Herd reduction due to drought is one of the largest threats for ranch sustainability in the Southwest
- Efficient use of resources is important to reduce the effects or need for significant herd reductions

https://www.drought.gov/drought/states/new-mexico
Tying it all together

- Culling Criteria
- Record Keeping
  - Pregnancy
  - Body Condition
- Genetic Selection

Culling Criteria/Records

- Cows
  - Check for pregnancy
  - If a cow is at the tail end of the breeding season, she needs to be looked at closely.
  - Age?
    - If average age of culls is less than 4 years of age. The herd may not be fully profitable or efficient.
The Three Year Old

- Poor conception rates
- Smaller calves
- Lower milk production (Dairy industry)
- High cull rates

Biggest economic drain on a cow herd

Tying in to profit

<table>
<thead>
<tr>
<th>Item</th>
<th>Early Preg Check</th>
<th>Mid term check d205</th>
<th>No check</th>
</tr>
</thead>
<tbody>
<tr>
<td>% open</td>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Feed Intake-10h</td>
<td>35T</td>
<td>54T</td>
<td>96T</td>
</tr>
<tr>
<td>Feed $ for Opens</td>
<td>$2,385</td>
<td>$5,310</td>
<td>$11,550</td>
</tr>
<tr>
<td>Preg Check$</td>
<td>$500</td>
<td>$300</td>
<td>0</td>
</tr>
<tr>
<td>Labor Cost$</td>
<td>$100</td>
<td>$100</td>
<td>0</td>
</tr>
<tr>
<td>Income from the Cow+Calf</td>
<td>$24,000</td>
<td>$27,487</td>
<td>$27,487</td>
</tr>
<tr>
<td>TOTAL Net Income</td>
<td>$21,015</td>
<td>$21,177</td>
<td>$15,937</td>
</tr>
<tr>
<td>Net Difference</td>
<td></td>
<td></td>
<td>-$5163</td>
</tr>
</tbody>
</table>
### Culling Criteria/Records

- Other notables
  - Body Condition
  - Weaning Weights
  - Calf age and quality
  - % Pregnant
  - % Calf Crop

### A Cow’s Survival Priority

<table>
<thead>
<tr>
<th>Priority</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Maintenance</td>
</tr>
<tr>
<td>2</td>
<td>Growth</td>
</tr>
<tr>
<td>3</td>
<td>Milk Production</td>
</tr>
<tr>
<td>4</td>
<td>Reproduction</td>
</tr>
</tbody>
</table>
Effect of Stage of Production on Nutrient Requirements of Beef Cows

Cow Body Condition
- Quickest assessment of nutritional status
- BCS at Calving is critical
- Want to be at least a 5 (on a scale of 1-9) at calving
- Thin cows have higher requirements
Visually Assessing Body Condition Score

1. BACK  3. PINN  5. RIBS
2. TAIL HEAD  4. HOOKS  6. BRISKET

CRISTALYX Beef Cow Body Condition Scoring App

“Pocket App”
### Effect of BCS on Postpartum Interval and Conception Rates

<table>
<thead>
<tr>
<th>BCS @ Calving</th>
<th>Post Partum Interval (d)</th>
<th>Conception Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>89</td>
<td>70</td>
</tr>
<tr>
<td>4</td>
<td>70</td>
<td>80</td>
</tr>
<tr>
<td>5</td>
<td>59</td>
<td>94</td>
</tr>
<tr>
<td>6</td>
<td>52</td>
<td>100</td>
</tr>
<tr>
<td>7</td>
<td>31</td>
<td>100</td>
</tr>
</tbody>
</table>

Houghton et al., 1990

---

The New Mexico Cow...
2014 NMSU Grazing Program at the Valles Caldera National Preserve

% Pregnant Based on BCS 2014

Change in BCS Over 120 Day Grazing Season

BE BOLD. Shape the Future.
New Mexico State University
aces.nmsu.edu
Body Condition Scoring is the Best Method for Monitoring Nutritional Status of the Cow

- Thin = 1
- Average = 2
- Fat = 3

- If forage is abundant the “Energy Gap” is not an issue. The cow can eat enough to make up the difference.
- In drought, she physically cannot eat enough to meet her nutritional needs.
- Will first give up production (milk, growth)
- Will next lose fat and muscle to compensate
If the rains don’t come...

- Don’t wait until condition is lost.
- Bred heifers, young pairs, and feeder/replacement heifers are all very desirable and easily marketable.

Supplementation

<table>
<thead>
<tr>
<th></th>
<th>Alfalfa (18%)</th>
<th>Grass Hay</th>
<th>20% Cube</th>
<th>32% Cube</th>
<th>30% Protein Tub</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lbs needed/h</td>
<td>3.25</td>
<td>5</td>
<td>3</td>
<td>2.5</td>
<td>1.0</td>
</tr>
<tr>
<td>Supp $/h/d</td>
<td>.40</td>
<td>.45</td>
<td>.60</td>
<td>.75</td>
<td>.50</td>
</tr>
<tr>
<td>Overhead</td>
<td>.45</td>
<td>.45</td>
<td>.35</td>
<td>.35</td>
<td>.20</td>
</tr>
<tr>
<td>$/h/d</td>
<td>.85</td>
<td>.90</td>
<td>.95</td>
<td>1.10</td>
<td>.70</td>
</tr>
</tbody>
</table>

*Alf = $250/T, Grass = $180/T, Cubes at $400 +$600/T, $115.00/tub respectively
*Overhead = fuel charge, labor, and feed loss
*Added fat supplements can help maintain, or improve body condition without feeding more pounds.
Feed Efficiency is 35% Heritable.....

- Can you tell if he is efficient?
Feed Efficiency is 35% Heritable.....

Actual Data for Efficiency
✓ Average Daily Gain
✓ Dry Matter Intake
✓ Feed Conversion
✓ Residual Feed Intake

Table 1. 2020 Tucumcari Bull Test Data of Two Angus Bulls from Same Ranch

<table>
<thead>
<tr>
<th>Item</th>
<th>Bull A</th>
<th>Bull B</th>
</tr>
</thead>
<tbody>
<tr>
<td>In Body Weight (lbs)</td>
<td>710</td>
<td>718</td>
</tr>
<tr>
<td>Average Daily Intake (lbs)</td>
<td>20</td>
<td>23.5</td>
</tr>
<tr>
<td>End Weight (lbs)</td>
<td>848</td>
<td>814</td>
</tr>
<tr>
<td>Feed Conversion (lbs feed:1lb gain)</td>
<td>5.12</td>
<td>7.52</td>
</tr>
<tr>
<td>Potential Feed Savings(lbs)/yr</td>
<td>1278</td>
<td></td>
</tr>
</tbody>
</table>
EPD
Expected Progeny Difference

• The predicted performance of the future offspring of an animal for a particular trait, calculated from measurement(s) of the animal's own performance and/or the performance of one or more of its relatives.
EPDs For Efficiency

- **DMI = Dry matter intake** potential of offspring. A negative number of DMI means this animal requires less intake than the breed average for body weight maintenance.

- **rADG = Residual average daily gain** is a value only found in the Angus breed. The more positive this number indicates the animal will have greater growth and performance on the same amount of intake as the breed average.
Cows drive herd efficiency

- Begins with heifer replacement
  - AGE
    - Older heifers breed earlier, better chance to stay in herd
  - SIZE MATTERS
    - Large framed heifers = large cows
  - DAM
    - Reproductive efficiency
    - Size
    - Calf Quality

Herd Efficiency = Reduced Impacts from Drought

- Select bulls with proven efficiency in feed conversion and lower intake needs
- Culling Criteria
  - Open Cows
  - Late Bred Cows(?)
  - Can’t maintain body condition in good years
  - Poor/young calves
- Heifer Replacements
  - Oldest
  - Moderate framed
- Records is the best tool
When do I know I can start rebuilding?

- Body condition
- WW averages
- Reproductive performance
- Range assessment

THANK YOU!
Marcy Ward, Extension Livestock Specialist
maward@nmsu.edu
575-644-3379