Grazing Systems Explained

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What is the goal of a forage system?

Forage System Goal

To provide the Quantity and Quality of forage needed to meet cattle nutritional needs throughout the year and from year to year.

Forage Systems should

✓ Provide quality and quantity of forages
✓ Ensure survival of the forage stand
✓ Be economical
✓ Be complementary with other ranch goals
✓ Match your environment & soil type

Other objectives...

✓ Develop and protect wildlife habitat
✓ Sequester carbon from the atmosphere
✓ Reduce soil loss from wind and water erosion
✓ Protect water quality and quantity
✓ Protect animal health and welfare; animal product quality and safety
✓ Offer hunting, eco-tourism or recreational opportunities
“Grazing systems”

- An integration of parts
  - Animal
  - Plant
  - Soil
  - Environment
  - Management
  - Other factors

Definitions

- **Stocking rate**: animal-to-land relationship measure over a defined period of time.
- **Stocking density**: animal-to-land relationship at a single point in time.
- **Grazing pressure**: ratio of animal units to forage mass

Grazing Methods

- **Definition**: grazing management procedures designed to achieve specific objectives.
- Used to achieve specific defoliation strategies for plants or to allocate nutrition to different classes of livestock.

- Rotational and continuous stocking
- Creep grazing
- First-to-last grazing
- Sequence grazing
- Strip grazing
- Buffer grazing
- Frontal grazing

Figure 1. The relationship of grazing pressure and animal performance.

Mott and Moore, 1970
Efficiencies of Grazing and Mechanized Harvest

<table>
<thead>
<tr>
<th>Method</th>
<th>Efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grazing</td>
<td></td>
</tr>
<tr>
<td>Continuous Stocking</td>
<td>30-40%</td>
</tr>
<tr>
<td>Slow Rotation (3-4 paddocks)</td>
<td>50-60%</td>
</tr>
<tr>
<td>Moderate Rotation (6-8 paddocks)</td>
<td>60-70%</td>
</tr>
<tr>
<td>Strip Grazing</td>
<td>70-80%</td>
</tr>
<tr>
<td>Mechanical</td>
<td></td>
</tr>
<tr>
<td>Hay</td>
<td>30-70%</td>
</tr>
<tr>
<td>Silage</td>
<td>60-85%</td>
</tr>
<tr>
<td>Green Chop</td>
<td>70-95%</td>
</tr>
</tbody>
</table>

What is Rotational Grazing?

Selective Grazing
Why Should I Implement Rotational Stocking?

Increase in gain per acre in rotational compared to continuous grazing

<table>
<thead>
<tr>
<th>State</th>
<th>% Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arkansas</td>
<td>44</td>
</tr>
<tr>
<td>Georgia</td>
<td>38</td>
</tr>
<tr>
<td>Oklahoma</td>
<td>35</td>
</tr>
<tr>
<td>Virginia</td>
<td>61</td>
</tr>
</tbody>
</table>

Effects of rotational stocking on performance of beef cattle grazing bermudagrass and endophyte-free tall fescue in Central Georgia

<table>
<thead>
<tr>
<th>Item</th>
<th>Continuous</th>
<th>Rotational</th>
<th>Difference*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cow weight at calving, lbs</td>
<td>1037</td>
<td>1017</td>
<td>NS</td>
</tr>
<tr>
<td>Cow weight at weaning, lbs</td>
<td>1090</td>
<td>1071</td>
<td>NS</td>
</tr>
<tr>
<td>Stocking rate cows/acre</td>
<td>0.50</td>
<td>0.69</td>
<td>+38%</td>
</tr>
<tr>
<td>Pregnancy rate, %</td>
<td>93</td>
<td>95</td>
<td>NS</td>
</tr>
<tr>
<td>Weaning weight, lb</td>
<td>490</td>
<td>486</td>
<td>NS</td>
</tr>
<tr>
<td>Calf production, lb/ac</td>
<td>243</td>
<td>334</td>
<td>+37%</td>
</tr>
</tbody>
</table>

Effects on Plant Persistence

Pounds of winter hay fed per cow as affected by grazing method during 3 year study*

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Rotational</td>
<td>1310</td>
<td>1480</td>
<td>2240</td>
<td>1680</td>
</tr>
<tr>
<td>Continuous</td>
<td>1750</td>
<td>1900</td>
<td>3650</td>
<td>2430</td>
</tr>
<tr>
<td>% decrease</td>
<td>-25%</td>
<td>-22%</td>
<td>-39%</td>
<td>-31%</td>
</tr>
</tbody>
</table>

*Hoveland, McCann and Hix, 1997
Two-year gain summaries of cattle involved in a 3-herd rotational grazing system (bermudagrass)*

<table>
<thead>
<tr>
<th>Grazing Sequence</th>
<th>Average Daily Gain, lbs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pairs</td>
</tr>
<tr>
<td></td>
<td>Cow</td>
</tr>
<tr>
<td>First grazers</td>
<td>0.70</td>
</tr>
<tr>
<td>Second grazers</td>
<td>-0.06</td>
</tr>
<tr>
<td>Last grazers</td>
<td>-0.26</td>
</tr>
</tbody>
</table>

*Rouquette et al., 1994

Figure 22: Diagram of available pasture when using first and last grazers in rotational grazing.

Sequence of Grazing Pastures

Stockpiled Bermudagrass

Cool Season Annual Forage
Frontal Grazing  

Stockpiling

Control  

Flexibility
Mob Grazing
AKA: Ultra-High Stocking Density

Precautions for Producers Considering Mob Grazing

1. Not for the novice grazer.
2. Start with a goal in mind.
3. Mob grazing does not mean ultra-high grazing intensity.
4. Mob grazing requires adequate forage quantity to begin.
5. There is no known “magical” stock density value that expedites the desired outcomes, but the greater the stock density then the greater the herd impact.

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