A Systems Approach to Rangeland Management

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Montana Nutrition Conference, April 2012
Management

You can be an outstanding livestock manager.....and go out of business

You can be an outstanding marketer and finance manager.....and go out of business

You can be an outstanding range manager .....and go out of business
Grazing Systems

• Season Long → Management Intensive

• With the exception of season long grazing, the idea of most systems is to create periods of rest and/or to improve utilization of grazed forage
Grazing Systems or Systems for Managing Rangeland?

- Define Your Goals
- Understand Overgrazing
- Understand the factors that affect rangeland management
- Put the system together considering all aspects of the ranch
Rangeland Management Goal

- Maintain or improve natural resources (positive trends in range condition)
- Maintain good production of livestock
- Rangeland management fits into a system that supports the purpose for being in the business: profit, stewardship, etc.
Maintaining or Improving Range Condition

- **Do not overgraze!**

- Avoiding overgrazing involves:
  - Animals do not bite growing plants more than once in a grazing session (they must rest)
  - Leaving appropriate residue
Not just about biomass!
What is Appropriate Residue?

- Take ½ leave ½? We do not really manage on that principle

- Want ground cover and liter to protect ecosystem at the soil level
  - Winter kill
  - Growth next spring
  - Insects, etc
What is Appropriate Residue?

- Feed for future grazing bouts
- Vegetative cover for wildlife
- Type of vegetation left
Planned, Time Controlled Grazing

- Involves creating periods of rest
- Avoids overgrazing
- Different seasons of use
- Timing is very, very important!
- Must understand factors affecting the system!
1. Season of Use and Duration of Grazing

- Early Growing Season
  - Must move faster or will be re-grazing rapidly growing plants
  - Hard to achieve moves as fast as you would like in some situations

- Duration is Critical Early Season
  - Try to avoid plants bitten more than once
  - Need to avoid early season every year
Duration and Season

• Late Season to Dormancy
  • More concerned about animal performance and residual feed

• Watch riparian areas
  • Woody vegetation
  • Bank Stability
  • Consider Water Improvements?
Changing Timing

As much as possible, change the timing of use each year
  – This can be difficult due to calving, pine trees, snow, lease restrictions, etc.

We have used cross fencing to help manage time and duration in pastures that are routinely used early
2. Range Condition

If you are trying to improve range condition, your timing and degree of use will be different
- i.e. Graze cheat grass early and get off
- Let some perennial plants go to seed
- Early season rest?

Amount of vegetation present going into pasture affects use
Targets for Improvement

- Identify pastures that need improvement and develop a plan for improvement
  - Timing of use
  - Deferred use
  - Stocking Rate

- You cannot do it all at once
  - There will always be some sacrifice areas
What if I Screw Up?

- If you are appropriately stocked---You will screw up!

- Just make sure you fix it the next year or multiple years if necessary
  - Degree of use
  - Timing of use
Utilization

You cannot stock for the entire pasture and only use part of it

Think efficient utilization
- Water and fences
- Density
- Increase grazed acres
3. Planned Future Use

- Leave more vegetation if you plan to graze:
  - Early next season
  - Later in that year

- A planned and time controlled system does allow opportunity for multi-season use
Grazing More Than Once?

- Multiple season grazing may allow you to take more AUM’s/acre and still achieve range management goals.

- Cross fencing and time of moving is important to managing pastures and riparian areas.
You must be thinking ahead!
## Timing of Grazing

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<th>Item</th>
<th>Summer Treatment</th>
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<td>IVOMD, %</td>
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</table>

<sup>a</sup>P = .01  
<sup>b</sup>P = .08  

Patterson et al., 2001
4. Production System

- Time of Calving and Weaning
- Class and Age of cattle
- Skill Level in Your People
Range/Animal Interface

1) Nutrient requirements of the animal

2) Concentration and availability of nutrients from range forage

3) Quantity of forage consumed

Adams and Short, 1988
Logistics

- May calving gives you time to move cows prior to calving from winter range to summer pastures

- May calving also means you have baby calves in May….hard to move

- We do not want cow/calf pairs mis-paired
People Are Important
People

People must have skills to accomplish goals

- Range management
- Nutrition
- Cattle Handling
- Monitoring

Good management does not just happen
Diet quality is important relative to production calendar.

Patterson et al., 2001
Cow Requirements vs Forage Nutrients

Protein, g/d

Months Since Calving
Calf Forage Intake Increases Through the Summer

Forage OM intake (lbs/d)

- July
- Aug
- Sept

July vs Aug ($P<.001$)
Aug vs Sept ($P<.001$)

Lardy, NDSU
## Forage Utilization: Aug-Nov

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<tr>
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<th>Dry Cows</th>
<th>Pairs</th>
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<tr>
<td>Forage Use, lb/acre</td>
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<td>978</td>
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</table>

P = 0.15

Dry cows used 73% the amount of forage

Landblom et al., 2005
Body Condition Score Change from August to November

SDSU  NDSU  UW

Location

P < 0.01 at each location

Landblom et al., 2005
5. Water

- Water quantity and quality are both important considerations.

- Running large groups together makes water even more important.

- Affects Timing and Season.
Performance of Stocker Steers in S. Dakota

(P < .01)

Patterson and Johnson, 2003
Poor Water and Minerals

- Trace mineral supplementation recommended
  - Organic Cu Sources
  - Sulfates or Chlorides

- Check forage and water: adequate mineral intake important
Winter Water

Snow can be used as source of water in the winter

Not generally recommended that snow be the sole source of water
  – More variability in cow performance
  – Adaptation is important

Do not over supplement salt if water limited
6. Supplementation

Placement of mineral and protein supplements are important in managing distribution.

Place in underutilized areas
  – Must balance with supplement intake
Supplementation

With large numbers in big pastures, range cubes can create challenges
  – All cattle do not get supplement
  – Groups cattle up too much along roads

We have used pressed blocks
  – Place on ridges and underutilized areas
7. Stocking Rate

- Function of numbers and time

- It is important to have the ranch stocked optimally

- Under-stocking is expensive
  - Overheads spread over less cattle

- Need to be able to adjust stocking rate
Drought Plan

- Critical date?
  - Late May/Early June

- Yearlings sold, moved, or put in feedlot

- Late-calving cows sold or moved

- Dry cows sorted and sold earlier

- Heavier culling in the Fall

- Geographic Diversity
  - Corn Stalks, etc
8. Stewardship is Important
Putting It All Together

All of the factors have to be integrated and simultaneously considered in building the system

Manage key resources
- Land
- Labor
- Cattle
- Water
Planning

• We always start with a plan
  • Consider all the factors mentioned
  • Past use...future
    use...condition...timing...etc

• Based on stock days and season of use
  • Use NRCS data, past records, experience

• Have Environmental Emergency Plans
Execution of the Plan

Once you have the plan, then you MANAGE!

- Every year is a little different
- Manage cows and your grass

Be ready to adjust and go to plan B

Be Nimble!
Data

Collection of actual use and precipitation data are important

Pasture Scoring
- GRI
- Notes

Find or develop a program to help put your data to use
Summary

Define Goals and Understand Overgrazing

Understand Factors that Influence System

1. Season of use and duration
2. Range condition
3. Future use
4. Production system
5. Water
6. Supplementation
7. Stocking rate
8. Stewardship
Put A Solid Plan Into Action

Revised from: Barry Dunn, 2002
Thank You!