Types of Grazing Systems

Dr. Justine Deming
University of Rhode Island
Outline

- Introduction
- Components of a grazing system
- Grazing system options - deciding which one is right for you
- Pros and cons to each system
- Management of the systems
- Summary
- Questions and discussion
Introduction

- Grass-based farming
- Done properly, very economical
  - Feed and labor = highest costs on farms
- Done properly, can result in high value products
What goes into a grazing system?

- Infrastructure
- Choosing grazing location
- Soil fertility
- Plant varieties
- Grass management
- Animals
Infrastructure

- Housing or shelter from elements
  - Full barn
  - Simple wind break
  - Trees?
- Laneways
- Entrances to paddocks
- Fencing
- Water availability
Choosing grazing location

- Is there a barn you wish to use on the property?
- How much land is available?
  - In close proximity to the barn?
    - Would animals have to cross the road to get from one paddock to the next or back to the barn?
    - Will you allocate some of this land to winter feed (hay) production or will it all be grazed?
- Is the land in a protected area or near wetlands?
  - Will you need manure management plan?
- Is there access to water?
  - Via hose? Well? Pond? Stream?
- Are there areas that are more suited to grazing as opposed to hay production?
Soil fertility

- Crucial in optimizing growth rates
  - Most desirable plant species like more neutral pH
- Take samples!
- Lime, fertilize, and manure spreading as necessary
Soil fertility

- As quality of field deteriorate (pH lowers), conditions favor weeds over desired plant species
Plant varieties

- What grasses, legumes, and weeds occur there naturally?
- Soil test results can help determine what varieties to choose if looking to seed or improve the growth of what you already have.
- What’s the best tool for weed management?

*A THICK STAND!*
Weeds of the Northeast

RICHARD H. UVA
JOSEPH C. NEAL AND
JOSEPH M. DiTOMASO
Grass measurement

- Weekly!
- Vital to keeping quality right
- Various measurement options
- Decision-making aid
  - When to graze
  - When to rest
  - When to harvest mechanically

If you’re not measuring it, you’re not managing it!
PHASES OF PLANT MATURITY

- **Phase I**: Growing Season or Regrowth After Grazing
  - Total Pasture Dry Matter (lb/ac)
  - Lignin

- **Phase II**: Optimum Grazing
  - Protein, TDN, Palatability

- **Phase III**:

https://extension.wsu.edu/animalag/content/the-abcs-of-pasture-grazing/
Animals

- Matching the species (and breeds!) and number of animals to the grass availability

- Multi-species grazing?
  - Pros and cons to this?

- Match animals’ stage of production/needs with grass availability
How to choose a type of grazing system
Stocking

- **Stocking RATE:**
  Describes how much livestock a farm can accommodate given pasture availability

- **Stocking DENSITY:**
  Describes concentration of animals on a given pasture at a *given time*
<table>
<thead>
<tr>
<th>Decrease Stocking Density if:</th>
<th>Increase Stocking Density if:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor pasture quality</td>
<td>Excellent pasture quality</td>
</tr>
<tr>
<td>No pasture rotation</td>
<td>Rotating several pastures</td>
</tr>
<tr>
<td>Stony, ledgy hillside soils</td>
<td>Well fertilized land with low erosion potential</td>
</tr>
<tr>
<td>Regrowth is abnormally slow</td>
<td>Animals are given supplemental feed</td>
</tr>
<tr>
<td>Low rainfall or excessively drained (i.e. dry) area</td>
<td>Animals are avoiding species you would like them to eat</td>
</tr>
</tbody>
</table>
Choosing a grazing system

1. Continuous grazing
   - Improved continuous grazing

2. Rotational (or controlled) grazing
   - Management-intensive grazing (MIG)

Choice in system dependent on farmer’s desire to manage GRASS
Increased management skills and infrastructure necessary

Increased potential of pastures and quality/quantity of outputs
Continuous grazing

- Most common grazing system in USA
- Stocking densities must be kept low
- Risk of management mistakes minimized → 1 decision on when to begin and 1 decision on when to end grazing each year
- Avg daily rates of herbage removal per acre small
  - Animals have access to entire acreage
Continuous grazing

- **Advantage:** lowest cost in terms of infrastructure, low labor

- **Disadvantages:**
  - Low outputs → majority of animals grown in this scenario require grain finishing ($$$)
  - Can result in less desirable plant species
    - Without restriction, livestock will eat most palatable forage first
      - If repeatedly grazed w/o allowing time for roots to recover and leaves to regrow = forage death
    - The plants not eaten by livestock mature and go to seed
      - Populations of undesirable plants increase while preferred are eliminated
      - Reducing quality of forage in pasture
Continuous grazing

Disadvantages

- Disturbed areas (usually drought or over grazing) likely won’t heal regardless of lowered stocking rates or delayed entry dates
- Risk of damage to plants under drought very high in preferred areas
  - Solution?
    - Where possible, shift to ‘improved continuous’ for several years to enhance recovery
    - If not possible, switch individual pastures to seasonal rotation to enhance plant vigor
Improved continuous grazing

- Slightly more structured than traditional continuous
  - Allows for a rest period

Advantages
- Still fairly low-key in terms of labor
- Slightly more intense than traditional continuous
  - Better grass utilization
- Gives some areas a rest, allowing for better re-growth

Disadvantages
- Similar to those of continuous grazing just not as pronounced
- Limited options should inclement conditions occur on farm
Basic rotational grazing

- Animals graze a paddock several days before moving to new area, resting period for grass around 30 d (depending on re-growth)

- *How* system managed influences production

- Well-managed rotational grazing = you evaluate the nutritional and forage needs of your animals, assess forage quality and quantity, regulate acreage of access and control parts of pasture that animals have access to
Basic rotational grazing

Advantages
- Increases pounds of animal production per acre
- Improve pasture quality
- Greater reduction in weeds
- Requires less land area than continuous grazing systems
- Can monitor animals more closely (seeing them more frequently)

Disadvantages
- Requires increased management
  - Grass measurement
  - Water access
  - More fencing
  - Labor to move fencing
Rotational grazing: management intensive grazing (MIG)
Rotational grazing: management-intensive grazing (MIG)

- Same premise as rotational grazing, just intensified management
- Grazing and resting several pastures in sequence
- Rest period allows plants to recover before grazed again
- Doubling the forage use on a given acreage is often possible with the change from continuous to management-intensive rotational grazing

*** Considerable profit potential for the producer willing to commit an initial capital investment and increased management time***
Effects of grazing system on the plant

Source: NRCS
Strip grazing - part of rotational and intensive rotational grazing
Week One
- Resting
- Grazing
- Resting

Week Two
- Resting
- Grazing
- Resting

Week Three
- Resting
- Grazing
- Resting

Week Four
- Resting
- Grazing
- Resting
160-acre tract, 12 paddocks, 13.3 acres each
### Considerations for rotational/intensive grazing

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Drawbacks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduces supplemental feeding and pasture waste</td>
<td>Typically entails more management, time, and labor than continuous grazing</td>
</tr>
<tr>
<td>Improves forage composition and yield</td>
<td>Can put strain on pasture longevity if grazed too frequently</td>
</tr>
<tr>
<td>Improves animal waste distribution</td>
<td>Requires good understanding of forage growth cycles and regrowth</td>
</tr>
<tr>
<td>Minimizes daily fluctuations in intake and quality feed</td>
<td>More animals in smaller areas can result in mud and soil compaction - must be monitored</td>
</tr>
<tr>
<td>Allocate pasture to animals more efficiently based on nutritional needs</td>
<td>Requires more fence and water facilities</td>
</tr>
</tbody>
</table>
Basic and intensive rotations = more management decisions
Management considerations in rotational systems

- Follow a grazing rotation plan for paddocks
  - Important to follow WHERE the grass is, not get stuck in particular paddock order

Management considerations in rotational systems

- Can be high stress on paddocks if not managed correctly
- Grazing at the optimal level of cover and MOVING animals at desired residual (post-grazing height)
• Spring has rapid growth, early management is key
• Necessary to manage fast growth with ‘topping’
• Late summer - don’t see this fast regrowth
How long can your animals stay in a particular paddock?

- Need to determine your animals’ needs
- Usually ~3% BW in DM depending on animals’ status

They could stay in ‘cow 2C’ for ~2.5 days then would need to move to the next paddock at ~ 1400kg DM/hectare
Management considerations in rotational systems

- **Drainage**
  - Most farmers will know which fields retain (or don’t retain) water
  - Especially in spring: wet fields + high stocking densities = poaching and damage to field

- **On/off grazing**
  - Successful way to retain animals at pasture during periods of heavy rainfall
  - Also strategy for earlier turnout of animals on heavier soil types
  - Animals let out to grass with an appetite
    - As soon as they seem finished and start to lie down, take them off and back to the barn
    - Most beneficial to do 2x/d (can be same field) to maintain DMI
Management considerations in rotational systems

- Be ready to deal with excess spring growth
  - Don’t waste!
  - Save for winter feed
  - Contribute to organic matter in soil
Management considerations in rotational systems

- Protecting the grass
- Back-fencing paddocks that have just been grazed
- Utilizing designated pathways and roadways
  - Especially relevant for dairy systems
  - If water/shelter is in a different location than the paddock
Summary

- Continuous and rotational grazing systems
- Decision on system depends on interest in managing grass
- With rotational grazing come many incentives but there is inevitably a higher level of management required
  - Farmers need to be prepared to take these on for the system to succeed
Thank you!