Improving Grazing with Watering System and Fence

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Key’s to successful Grazing Management

- Soil Fertility
- Proper forages and forage intake
- Adequate number of pastures
  - Watering Systems
  - Fence
- Putting it all together
Soil Fertility

For Maximum Forage Production the soil needs to be adequately fertilized

- Soil Test (every 2 - 4 yrs)
- Apply lime and fertilizer based on soil test
- Apply fertilizers at the correct times of the year
- Livestock recycle 50 - 80% of the P and K
Forages

- Perennial cool-season forages should be the dominate pasture
- Warm-season forages should fill in the summer slump (10-20% total acres)
- Adequate rest periods will naturally increase the quantity and quality of existing forages
What is the best forage harvester on your farm?

- Silage pit
- Fertilizer spreader
- Production Facility
- Haybine brush hog
- Forage Tester GPS Guidance System
- Self Propelled Self Motivated Cultivator planter
Grazing Management is Forage Management
Influence Forage Intake

- Grazing Time (minutes/day)
- Biting Rate (bites/minute)
- Bite Size (g intake/bite)
Rotational Grazing

- Improves Forage Quality
  - Allows better quality forages to compete with fescue

- Take Half, Leave Half
  - Allows plenty of Leaf Area for quick regrowth
  - Doesn’t stunt or kill roots
  - Keeps soils cooler
  - Prevents rain runoff
  - Prevents weed encroachment
University of Kentucky
Orchardgrass Study

Day 6

1” Cont.       3.5” Rotational
1.5 inch grazing height

3 inch grazing height

From Blaser et al., Virginia Polytechnic Institute bulletin 86-7
Rotational Grazing

- Leave at least 4” green forage remaining
- Rotate pastures every 1-8 days depending upon forages, time of year, and stocking rate
- Overall treat pastures more like a hayfield than a typical pasture (20 – 40 days of rest)
Paddock Rest is Important

Spring/Fall rotate every 4-6 days
Summer rotate every 6-10 days
Always leave a 3-4 inch residual
Where Do You Start?

- Goals
- Farm base
  - acres
  - water
  - topography
- Time commitment
Where Do You Start?

Pick 1 or 2 things that you can change
Pasture Layout

Water

Fencing
Laying Out Pastures
Laying out Pastures

- Forages
- Topography
- Soils
- Water
- Shade
- Congregation Areas
- Fence
Laying out Pastures

- Tools:
  - Web Soil Survey
  - Aerial Photos
  - Topo Maps
Laying out Pastures

- No Magic Size or Shape
- 6 – 8 pastures a minimum
- Square typically best
  - Pie shape least preferred
- For cattle < 800 ft walking distance
- For Small Ruminants
  - < 600 ft walking distance
Pasture Layout

Water

Fencing
Water

Providing Water is not a PROBLEM
It’s a set of DECISIONS to make
Why Is Water Important

• Water Intake drives Food Intake
• Clean, Cool Water
• Water temperature effects intake
  – > 80 degrees F or < 40 degrees F
    Reduce water intake
• Missouri Studies
  – Providing water in the paddocks increased water consumption by 15%
  – Less than 800 ft walking distance increases manure distribution and improves grazing
Commitment of Improving Watering Systems

Now it’s just:
1) Questions
2) Answers
3) Options
4) Decisions
Water Questions

- Sources of Water?
  - Pond, Spring, Well, Rural Water

- Where’s the Source Located?
  - Uphill, Downhill, Distance

- How do I Move It?
  - Gravity or Pressure

- Livestock Type and Number?
  - Affects volume and waterer style
Permanent System? Flexible System? Hybrid System?
Permanent System

Buried waterline

Fixed tank locations and gravel pads

- Advantages
  - Freeze proof
  - Lower maintenance
  - Less Labor

- Disadvantages
  - Higher initial cost
  - Not as flexible
Flexible System

Waterlines above ground
Primarily Portable Tanks

- Advantages
  - Unlimited paddocks and tank outlets
  - Less expensive than trenching in pipe
  - Less impact from permanent watering sites if managed correctly

- Disadvantages
  - More labor
  - More long-term maintenance
  - Must be careful of water temps
  - Not Freeze Proof
Hybrid System
Combination of Permanent and Flexible System

- **Advantages**
  - Less upfront cost than permanent
  - Typically allows for the most paddocks for the least expense
  - Easier to adjust than the Permanent system, especially when setting up a new grazing system
  - Winter paddocks can be freeze proof

- **Disadvantages**
  - Not completely freeze-proof
  - Over time much of the above ground pipeline will probably be replaced with below ground pipeline
  - Requires more labor than a permanent system
Pond Access Ramp
Amount of Water Needed

NRCS Recommends
- 30 gal / 1,000 lbs animal / day

Cattle
- 1,300 lb cow = 39 gal / day
- 30 cow herd = 1200 gal / day
  = 36,000 gal / month

Drink 2 gal./min. for 4 min. (8 gal)
3 – 5 times per day
Amount of Water Needed

NRCS Recommends

- 30 gal / 1,000 lbs animal / day

Sheep or Goats

- 150 lb goat = 4.5 gal / day
- 100 goats = 450 gal / day
- = 13,500 gal / month
## Pipeline Size

<table>
<thead>
<tr>
<th>Pipe Size (Inside Diameter)</th>
<th>Gallons per Minute (500 ft pipe; 50 ft head; 40 PSI)</th>
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</thead>
<tbody>
<tr>
<td>3/4 &quot;</td>
<td>3.3</td>
</tr>
<tr>
<td>1 &quot;</td>
<td>7.1</td>
</tr>
<tr>
<td>1 ¼ &quot;</td>
<td>12.8</td>
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</tbody>
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Watering Facility Location

Walking distance critical

Water consumption

– If < 800 ft and all animals can see waterer
  • Livestock will go to water as individuals or in small groups
  • Therefore smaller waterer needed

– If > 800 ft or they cannot see waterer
  • Livestock will go as a group
  • Need a larger water reservoir
Watering Facility Location

- Grazing Efficiency

Better grazing distribution across the pasture if < 800 ft
Questions about Water ???
Fence Questions

- Exterior vs. Interior?
  - Exterior should meet Indiana Fence Law

- Permanent vs. Temporary?
  - Temporary allows you to split paddocks

- Electric vs. Non-electric?
  - Post spacing, wire types, maintenance

- Livestock Species Differences
  - Beef, Dairy cattle, goats, sheep, poultry, horses

- Different post types?
  - Wood, fiberglass, plastic, steel, composite
Indiana Fence Law

- Fence law provisions are in the Indiana law (IC 32-26-9)

- Purdue University Publication
  - EC-657
Permanent vs. Temporary
Permanent vs. Temporary

- **Permanent**
  - High initial cost
  - Limited Maintenance cost
  - Carries more electricity over more miles

- **Temporary**
  - Very Flexible
  - Not as dependable for certain species or animals
  - Higher long-term cost (3-7 yr lifespan)
Exterior
Temporary
Quality is important
Questions about Fence ????
Where Do You Go From Here?
How to Put it All Together?

NRCS Conservation Plan
www.in.nrcs.usda.gov

Purdue Cooperative Extension Service
https://www.extension.purdue.edu

Local Pasture Walk or Field Day

Internet Resources
Discussion
Goals of Rotational Grazing

Profitability
Animal Health
Environmental
Social