# 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

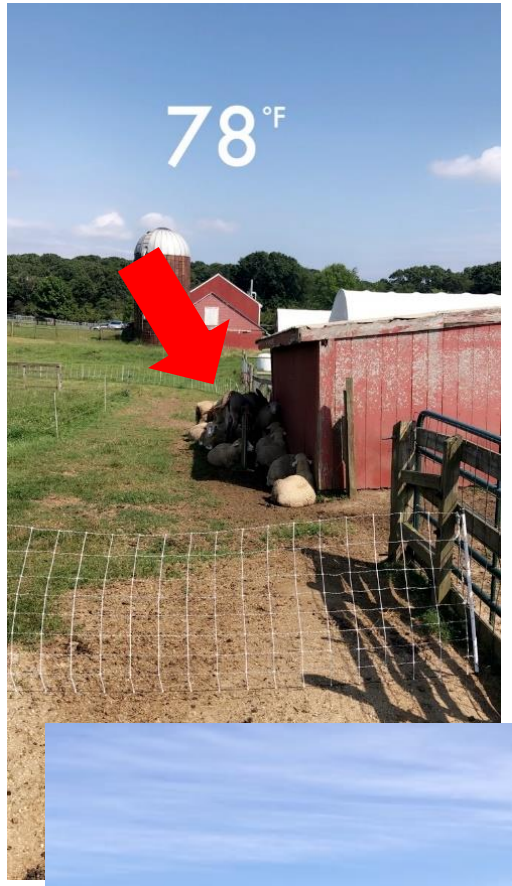
- Grass-based farming
- Done properly, very economical
  - Feed and labor = highest costs on farms
- Done properly, can result in high value products


# 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

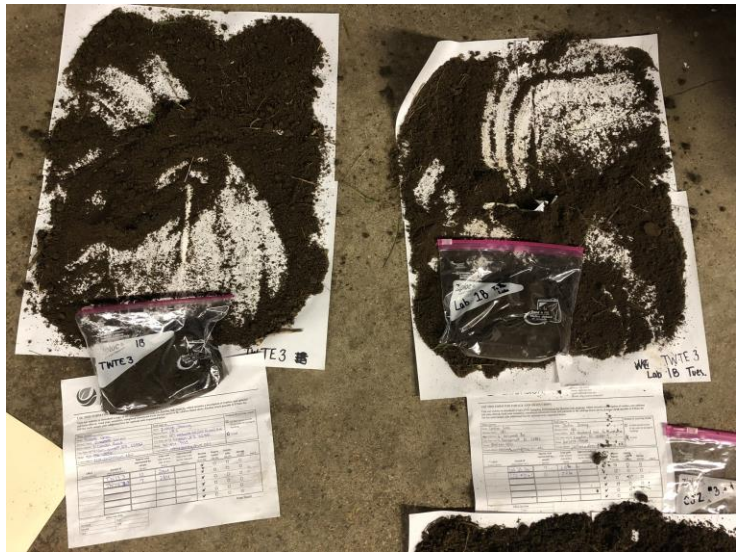


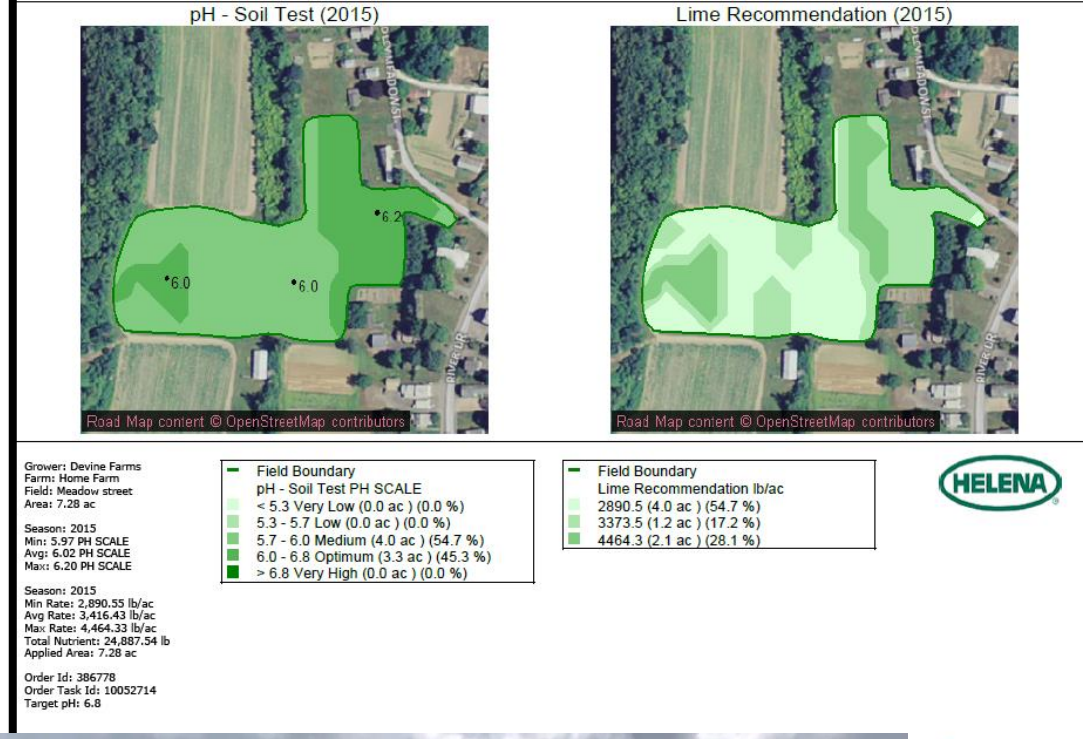

# Choosing grazing location

- Is there are 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



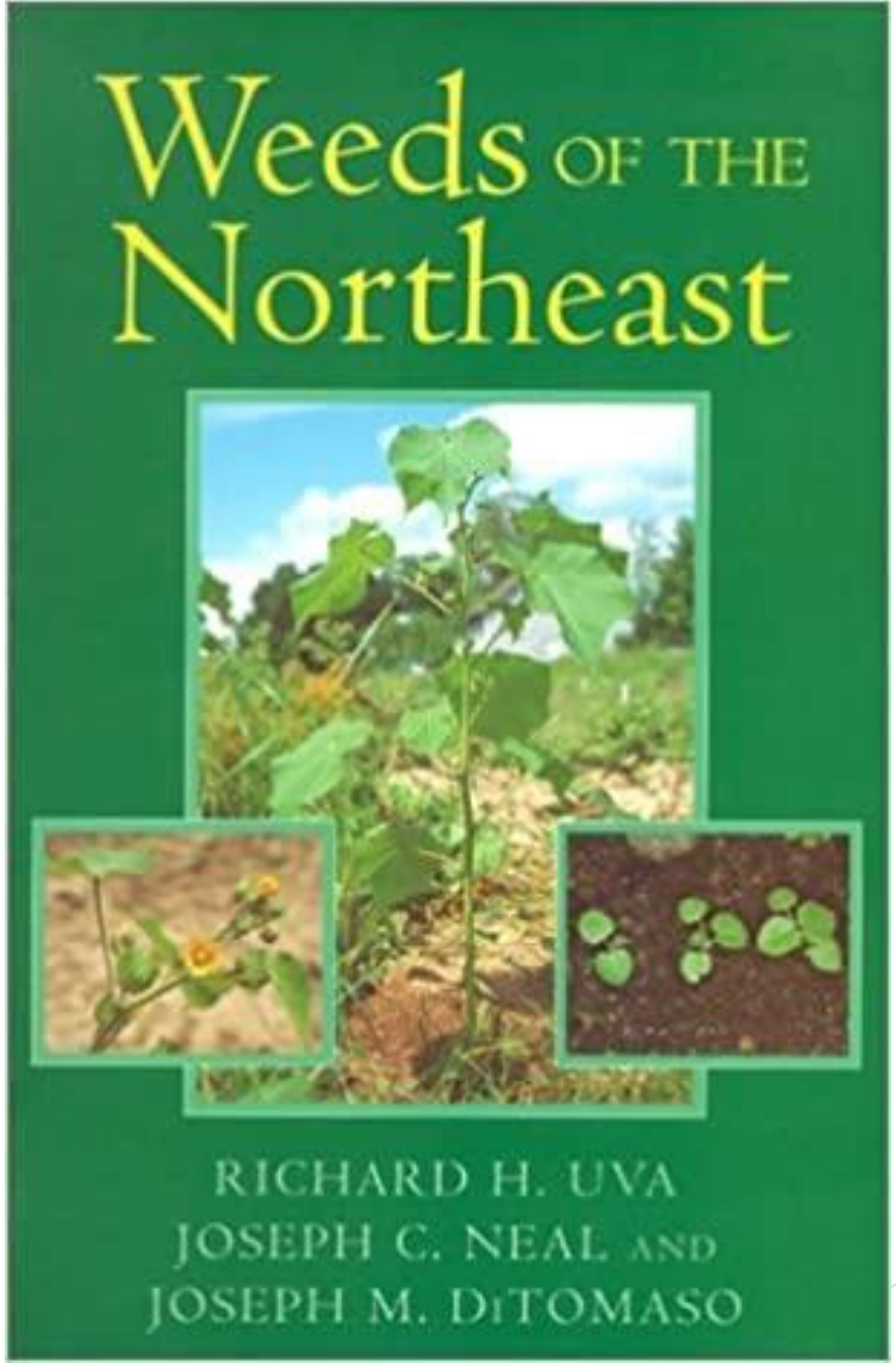



# Soil fertility

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

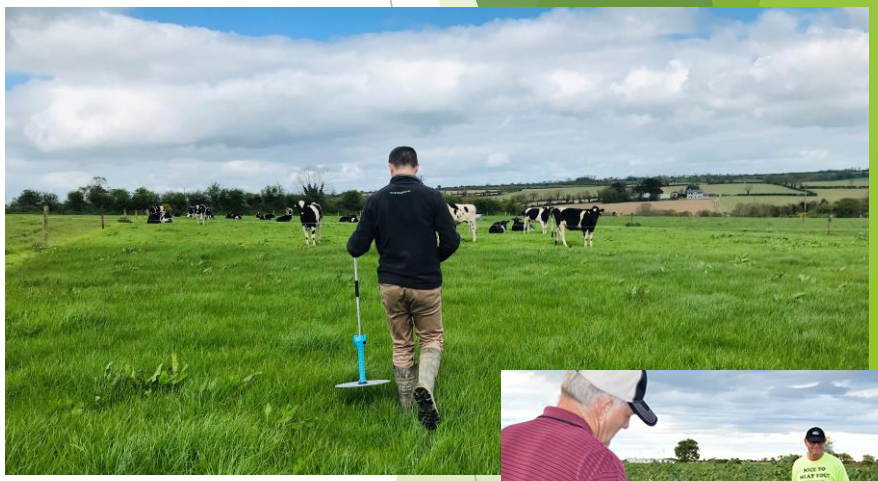
# Plant varieties

- 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?



Weeds OF THE Northeast
RICHARD H. UVA
JOSEPH C. NEAL AND
JOSEPH M. DiTOMASO

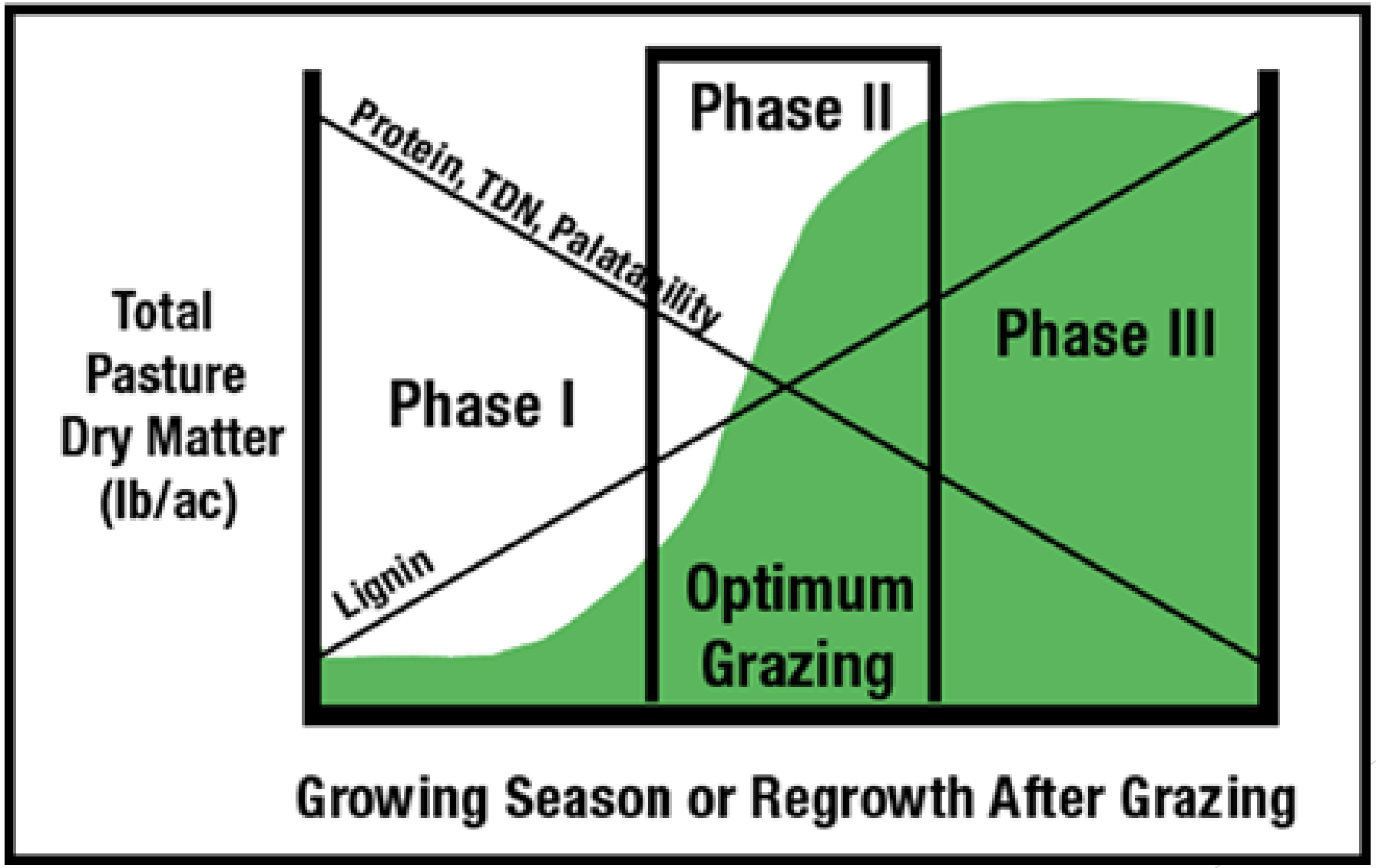
# Grass measurement

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

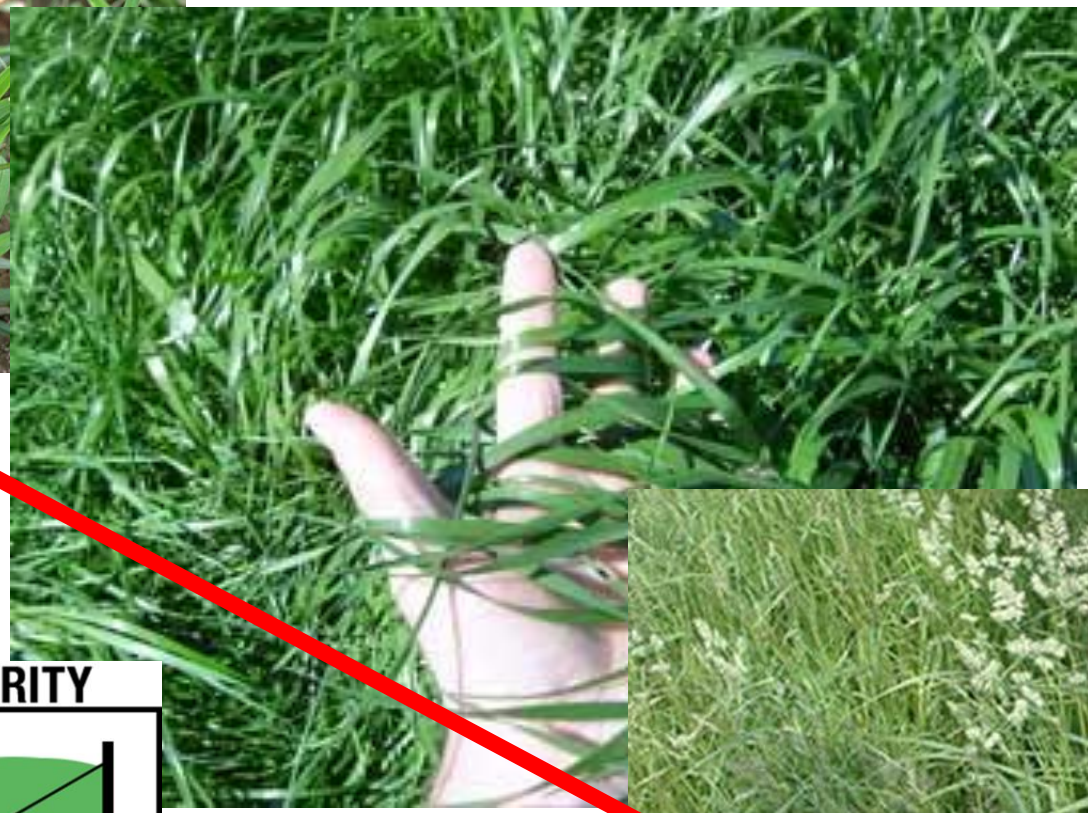


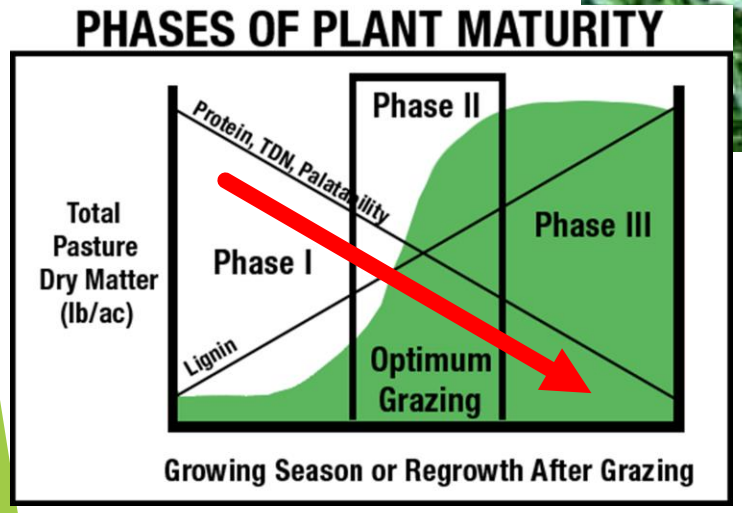
*If you're not measuring it, you're not managing it!*

# PHASES OF PLANT MATURITY




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




PHASES OF PLANT MATURITY
Total Pasture Dry Matter (lb/ac)
Phase I
Phase II
Phase III
Protein, TDN, Palatability
Lignin
Optimum Grazing
Growing Season or Regrowth After Grazing

# Animals

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

VS

- 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**:

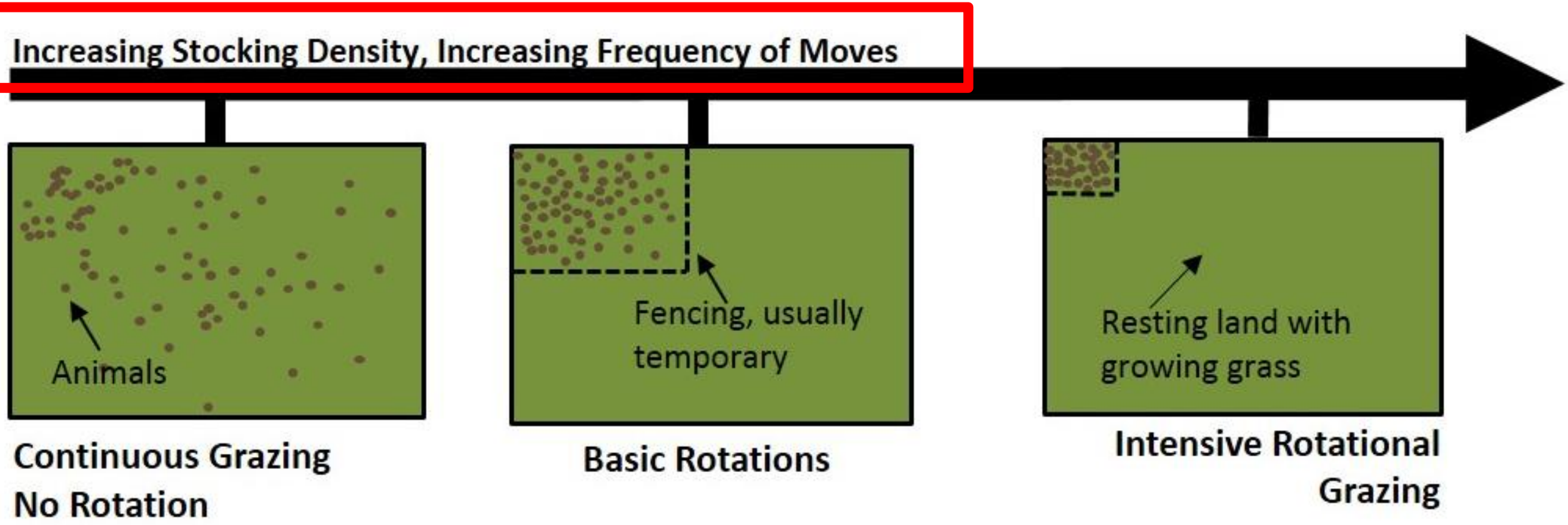
Describes concentration of animals on a given pasture at a **given time**

| Decrease Stocking Density if: | Increase Stocking Density if: |
| --- | --- |
| Poor pasture quality | Excellent pasture quality |
| No pasture rotation | Rotating several pastures |
| Stony, ledgy hillside soils | Well fertilized land with low erosion potential |
| Regrowth is abnormally slow | Animals are given supplemental feed |
| Low rainfall or excessively drained (i.e. dry) area | Animals are avoiding species you would like them to eat |

# 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

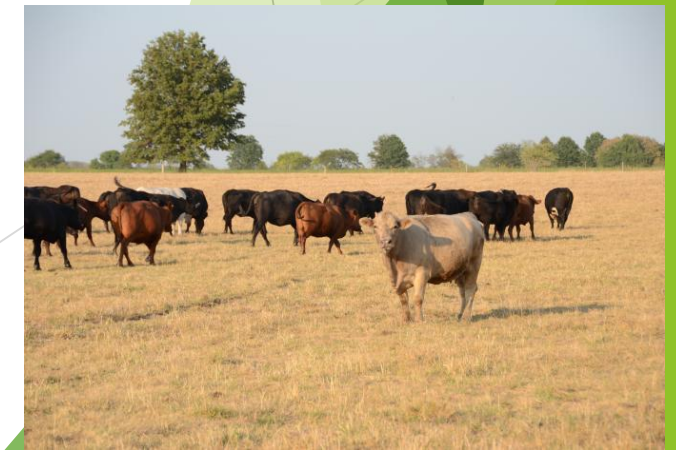
- Most common grazing system in USA
- Stocking densities must be kept low
- Risk of management mistakes minimized → 1 decision on when to begin and 1 decision on when to end grazing each year
- Avg daily rates of herbage removal per acre small
  - Animals have access to entire acreage

# 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

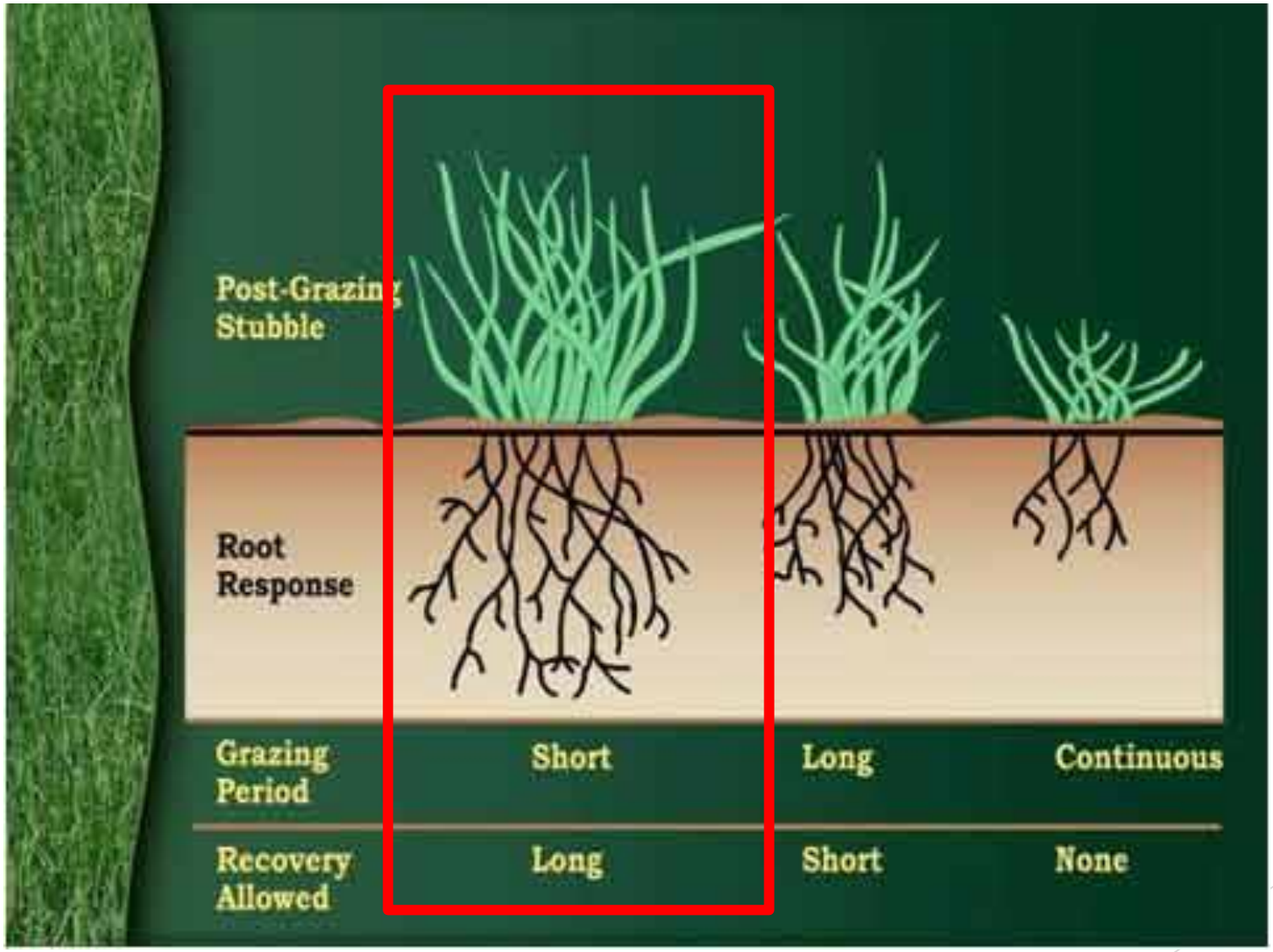

# Rotational grazing: management intensive grazing (MIG)

# 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

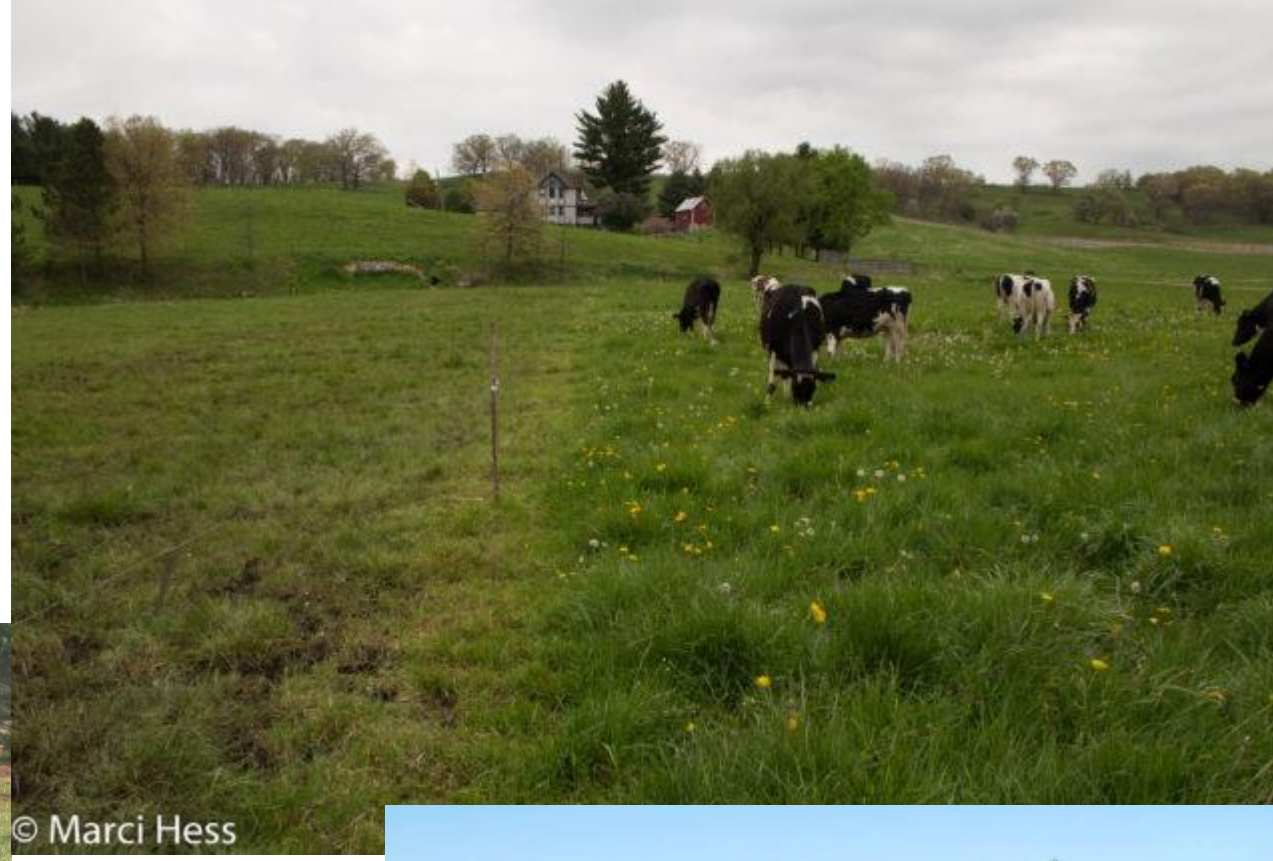
*** Considerable profit potential for the producer willing to commit an initial capital investment and increased management time***

# Effects of grazing system on the plant



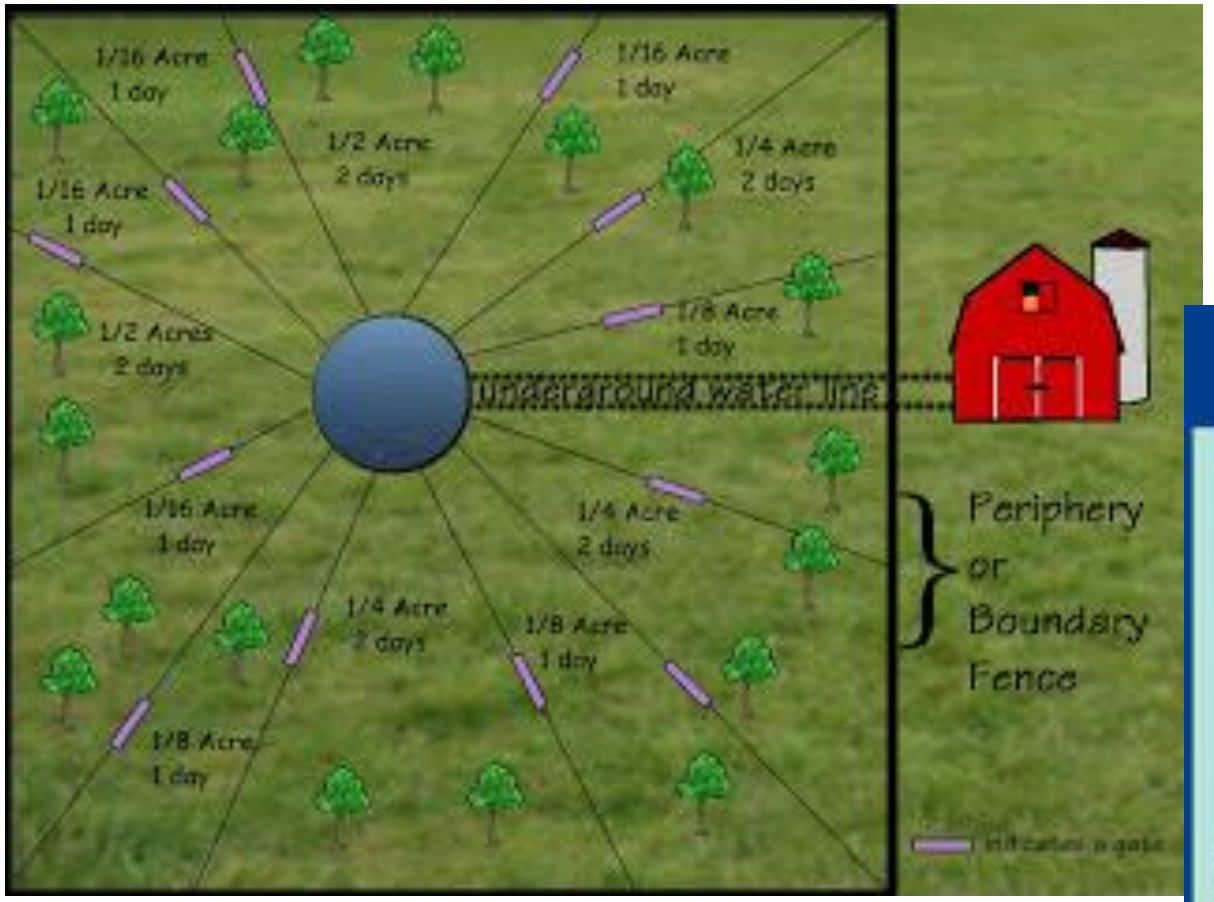

Source: NRCS

# Strip grazing – part of rotational and intensive rotational grazing

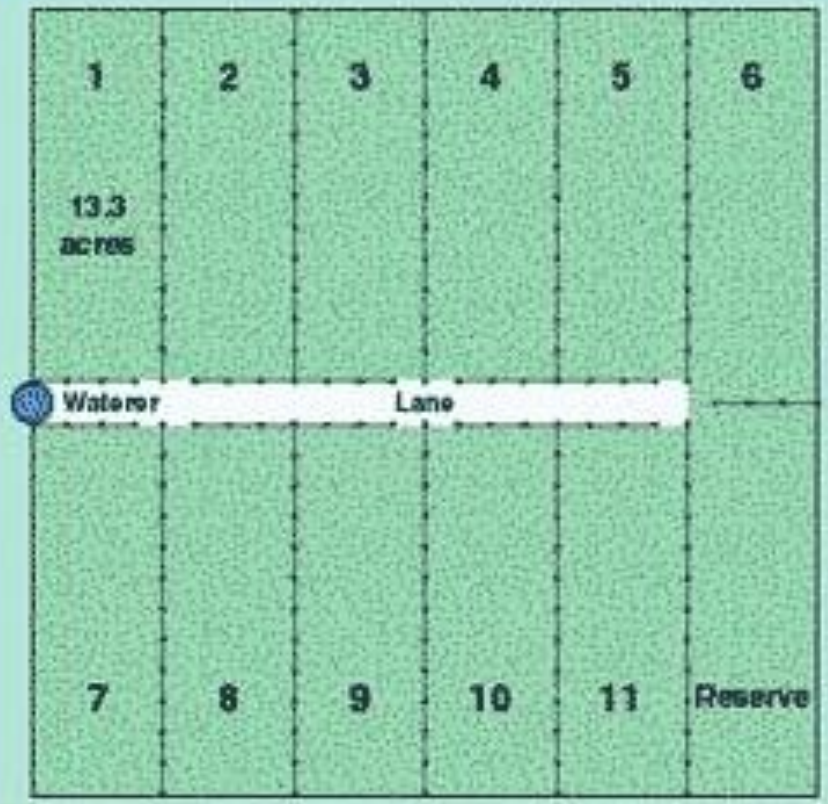




Week One
Resting
Grazing
Week Two
Resting
Grazing
Resting
Week Three
Resting
Grazing
Resting
Week Four
Grazing
Resting




## 160-acre tract, 12 paddocks, 13.3 acres each




Total length of subdivision fence 17,580 feet

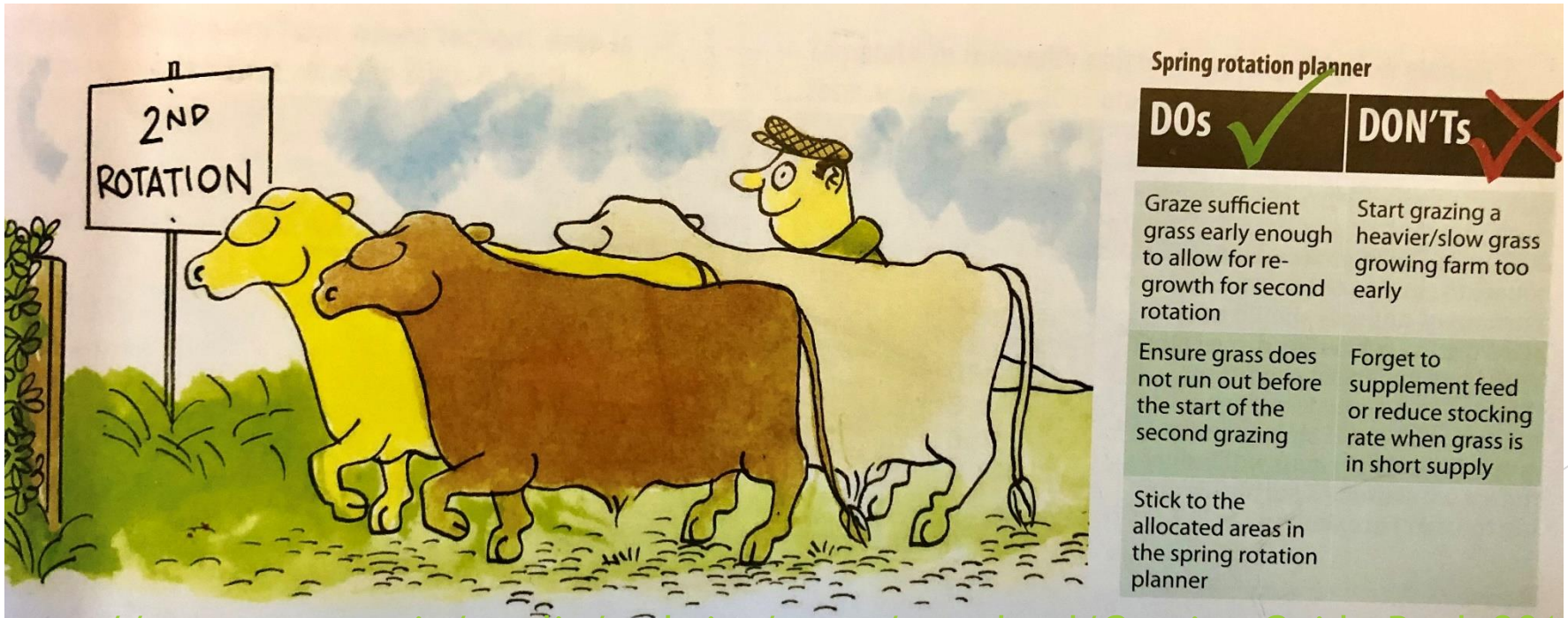
# Considerations for rotational/intensive grazing

| Advantages | Drawbacks |
|---|---|
| Reduces supplemental feeding and pasture waste | Typically entails more management, time, and labor than continuous grazing |
| Improves forage composition and yield | Can put strain on pasture longevity if grazed too frequently |
| Improves animal waste distribution | Requires good understanding of forage growth cycles and regrowth |
| Minimizes daily fluctuations in intake and quality feed | More animals in smaller areas can result in mud and soil compaction – must be monitored |
| Allocate pasture to animals more efficiently based on nutritional needs | Requires more fence and water facilities |

# 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




**Spring rotation planner**

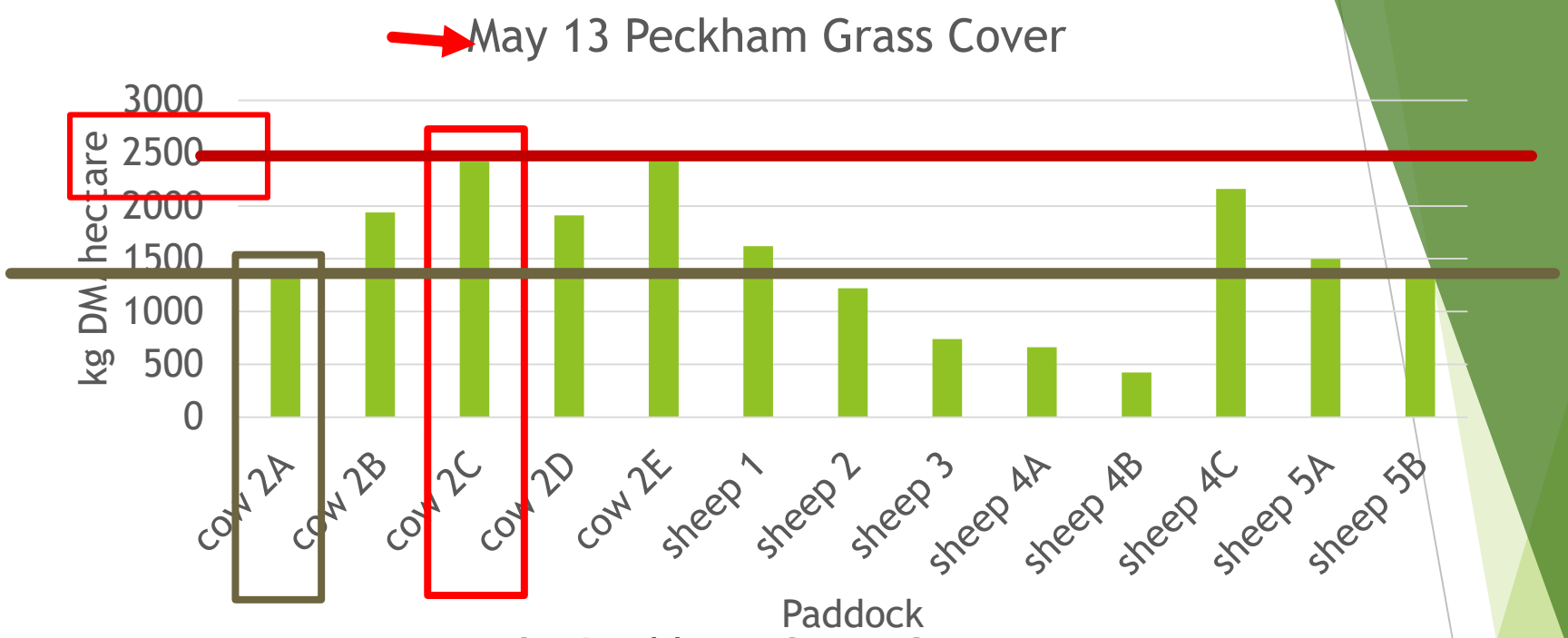
| DOs ✓ | DON'Ts ✗ |
| --- | --- |
| Graze sufficient grass early enough to allow for re-growth for second rotation | Start grazing a heavier/slow grass growing farm too early |
| Ensure grass does not run out before the start of the second grazing | Forget to supplement feed or reduce stocking rate when grass is in short supply |
| Stick to the allocated areas in the spring rotation planner | |

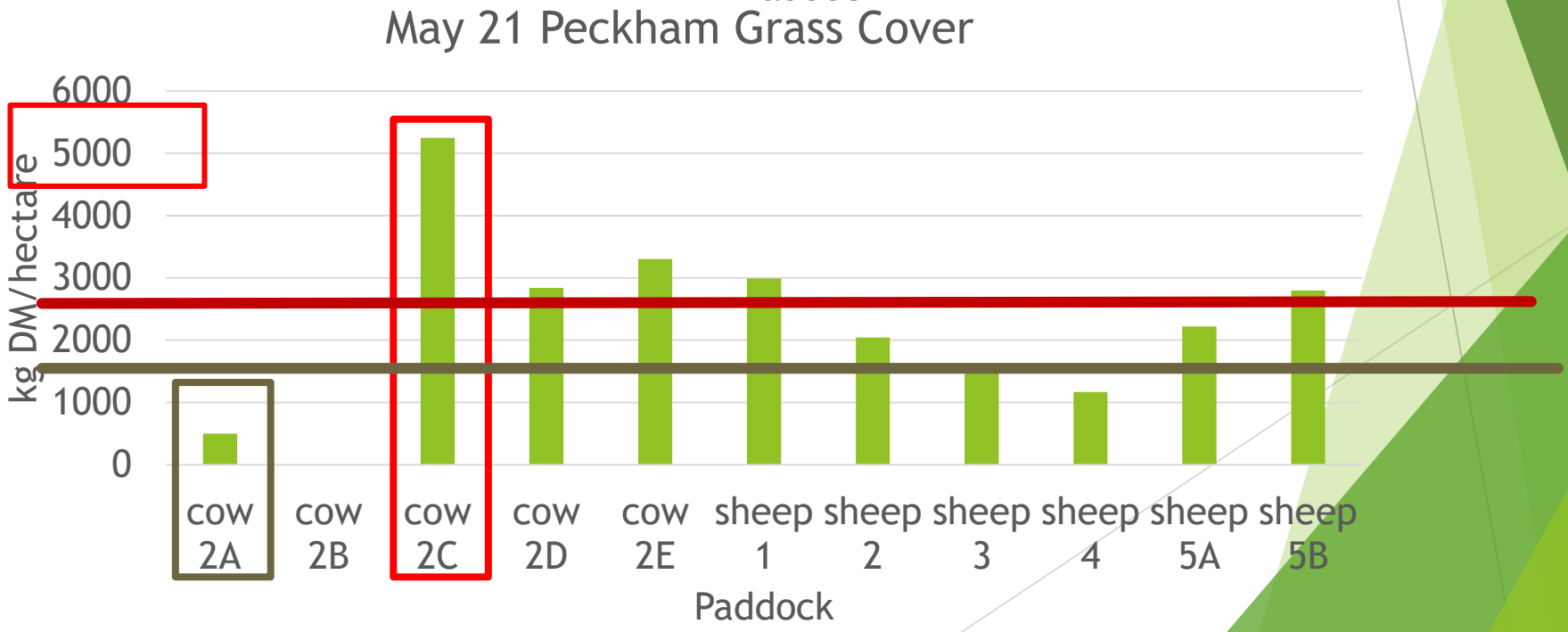
https://www.teagasc.ie/media/website/crops/grassland/Grazing-Guide-Book-2011_0-21.pdf

# 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

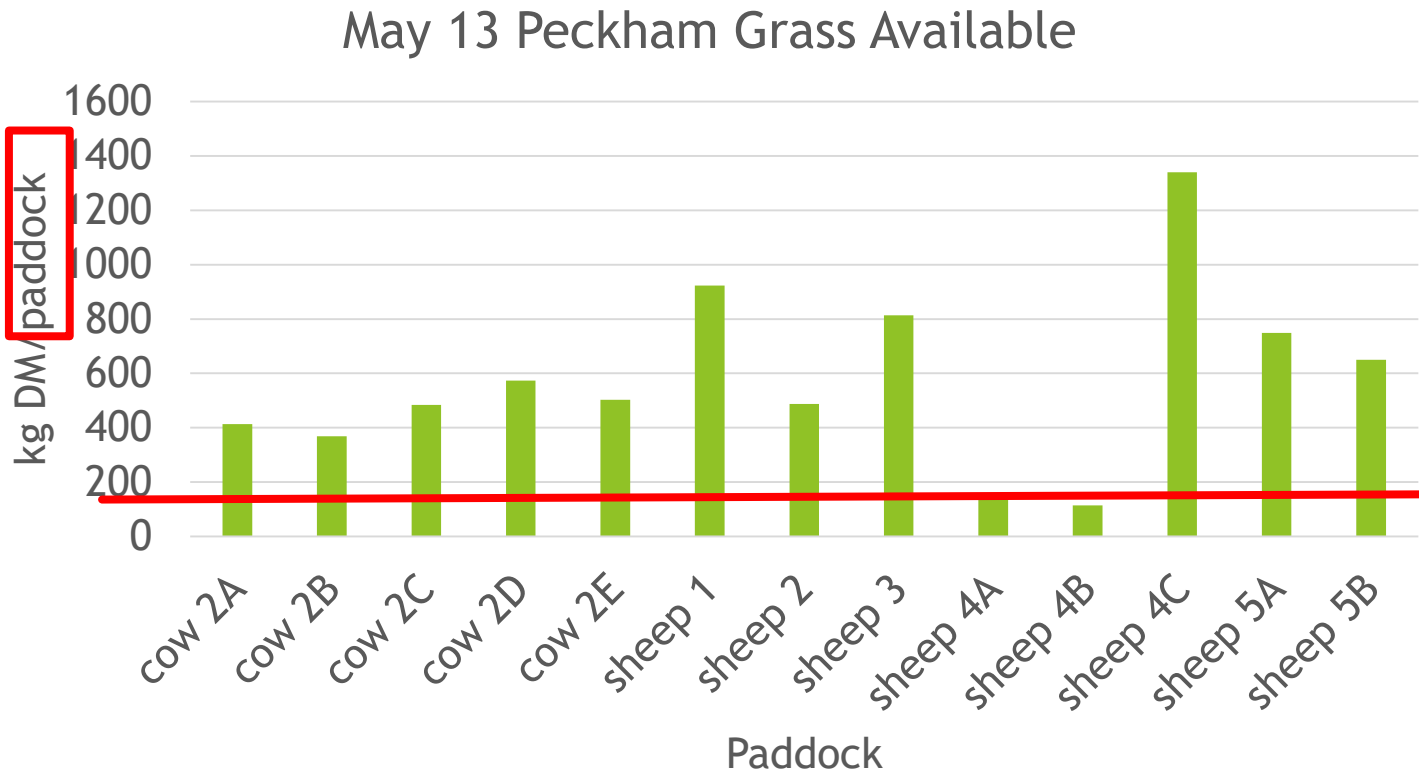


# How long can your animals stay in a particular paddock?

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

| Cows | Status | Weight lb | weight kg | % BW fed | kg DM/day |
|---|---|---|---|---|---|
| 3 | lactating | 1200 | 545 | 0.03 | 49 |
| 1 | lactating | 1550 | 705 | 0.03 | 21 |
| 2 | steers | 1000 | 455 | 0.02 | 18 |
| 1 | yearling | 1000 | 455 | 0.02 | 9 |
| 3 | open | 1550 | 705 | 0.02 | 42 |
| 1 | open | 1200 | 545 | 0.02 | 11 |
| | | | | | **151** |




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 dif 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!