



**Managed  
Grazing**

# Learning Objectives

*The learner will...*

- Understand the history of grazing
- Learn how to manage a pasture using the 4 R's
- Learn forage and harmful weed varieties
- Learn to set up an electric line fence

# Grazing Terminology

**Foraging** is searching for and exploiting food resources. It affects an animal's fitness because it plays an important role in an animal's ability to survive and reproduce.

**Frequency of Grazing:** How many times a plant is grazed in a growing season (one time is optimal).

**Intensity of Grazing:** How long an animal grazes in a specific location.

- **Organic**: Grown or raised without the use of antibiotics, pesticides, herbicides, or other synthetic chemicals and using organic matter building protocols.
- **Overgrazing** occurs when plants are exposed to intensive grazing for extended periods of time, or without sufficient recovery periods.
- **Pasture Raised**: General term for any animal that rarely sees confinement.



Overgrazed, dry Pasture

Happy Cows <http://youtu.be/O6-Y-E5UD0o>



Unhappy horse!

**Rotational Grazing** Division of pastures into units for grazing in sequence throughout the grazing period. Utilizing rotational grazing can improve livestock distribution while incorporating rest period for new forage

**Sustainability** leaving resources, including the land, in a productive state going into the future. Meeting the needs of the present without compromising future generations needs.

**Warm season** - A plant that exhibits optimum growth during summer months.

**Winter annual** - A plant that establishes from seed, grows, sets seed and dies in one growing season beginning with germination in the fall and dying in the spring/summer.

# History of Grazing

- The history of grazing started with man's evolution. The animals roamed and grazed on the land free. Man hunted and ate the animals to stay alive.
- Humans domesticated animals by gathering them into herds using dogs in a tribal or nomadic way.
- Penning them up in corrals and pastures allowed easy use for milk and meat.



Border collie herding



Massai in Africa  
Tribal/Nomadic



Broadleaf



Grass: High & Tough



Legume example  
Clover: Low & Soft

# Forage Plants

The purpose of establishing forages is to establish adapted and compatible species and varieties of cool season grasses and legumes to:

- Improve or maintain forage protein content,
- Improve or maintain digestibility and palatability
- Eliminate need for nitrogen fertilizer
- Provide better seasonal distribution of forage
- Improve animal performance

The goal is also to supplement livestock operation during periods when lean forages are either dormant or have decreased growth because of unfavorable weather conditions.

## Pasture Plants

Broadleaf

Grass

Legumes

# Types of Grazing

- Open Pastures



- Rotational/Strip

- Managed Intensive Rotational Grazing (MIRG)



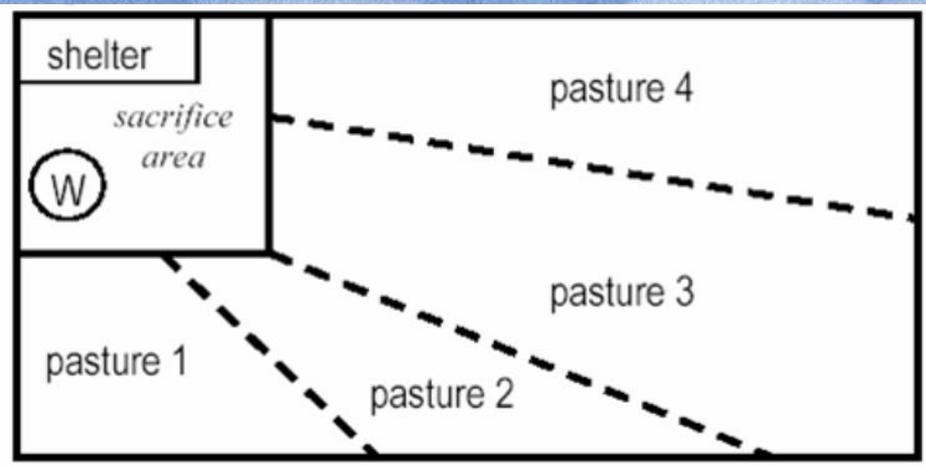
# Open Pasture

- Animals are left in one location.
- Uneven grazing is common due to concentration of livestock around watering and feeding areas.
- Strong fences surround the area with no need for movable electrical fencing.



# Rotational Grazing

- Pasture land is split into multiple paddocks to allow for rest and rotation. The sacrifice area provides shelter from the weather & insects; and can provide outdoor access when time on pasture should be limited.
- Permanent fencing separates paddocks



Graphic courtesy of the University of New Hampshire  
Cooperative Extension

# Managed Intensive Rotational Grazing

- Strip grazing places animals on a strip of land that is sectioned off by temporary electric fencing. The size of the strip that is allocated to livestock depends on available forage and on the size of your herd.
- The size of the strips your animals are grazing is always subject to change throughout the grazing season.



# MANAGED INTENSIVE ROTATIONAL GRAZING (MIRG)

- MIRG is commonly known by several names, including Intensive Cell grazing, Mob Grazing, or High-Density Grazing.
- The herds graze one portion of pasture while allowing the others to recover. Resting grazed lands allows the vegetation to renew energy reserves and deepen root systems, with the result being long-term maximum biomass production.
- An optimal pasture should contain several types of forage plants that are nutritious for cattle. MIRG is a grazing practice that is quickly gaining popularity in the grass-fed, naturally-raised livestock sector of raising livestock, primarily with cattle, but also with sheep, goats, poultry, and even horses.
- Farm Layout for Prescribed Grazing <http://www.youtube.com/watch?v=En-SaFsubFk> This video is from South Carolina, but the principles are the same for Midwest farms.

# Shelters



Repurposed older barn

An older barn can be an asset or a liability depending on its condition. Old farm buildings of the countryside contribute to the landscape & history of the farmstead; they can show the agricultural methods, building materials, and skills that were used. However, they may require restoration to be safe and useable.

Grazing animals, overall, have less need for shelter than has been assumed in the past. As long as forage, water, and mineral is available, shelters can be temporary and cheap if need be.



Temporary Shelter

Pole barns are more typical of modern building styles. They are usually cheaper to build and maintain than older barns. But, they are unlikely to last as long as the strongly built barns of yesterday!



# Pasture Management

- Weeds/Managing Poisonous Pasture Plants
- The 4 R's of Grazing Management
- Livestock Watering
- Electrical Fence/Equipment
- Shelters
- Pasture Managing Tips

## Weeds

- Weed control is very important in pastures and hayfields. A weed is a plant growing in an area you do not want it to grow. Keep in mind that just because a plant isn't grass, doesn't mean it's a weed. If it provides good nutrition it can be an important part of the forage mix.
- A key step in managing weeds in any pasture system is identification. Once the undesired species in a pasture system are identified an integrated approach of management can be implemented to control weed populations.



Wild Mustard



Buttercup



Burdock

- **Weeds in pastures and hayfields** can reduce forage yield and quality.

Weeds also have the potential to cause injury or death to livestock in the form of a toxic plant. Besides reducing yield and quality, weeds can interfere with hay drying. Weeds compete with your desired forage and can cause a weakened stand of your grass. There are two types of weeds: *Cool season* and *Warm season*

- **Cool Season Weeds** - the best time to control is October through December. It is also possible to control cool season weeds February through April.
  - **Warm Season Weeds** - the best time to control is April to mid July for most species.
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- **The first step in weed control** is identifying the weed or weeds you are trying to get rid of. You should scout your pastures looking for weeds and identify them. Keep a record of what weeds you have in each field and when you start seeing them. This will help determine if your control program is working. Some weeds may take a few years to get under control.
  - **Prevention** is any activity that keeps weeds from getting into your pasture. Many weeds are spread by seed. These seeds are dispersed by hay bales, livestock movements, mowing equipment, wind, water, and wildlife. Weeds can be introduced by planting contaminated forage seed. Certified seed is worth extra cost.

- Management practices that maintain proper soil pH and fertility will ensure forage stands with less weed competition. The four control methods below should be used in combination to fight weeds. The effectiveness of control depends on timing.
  1. **Grazing management** is one way to control weeds in a pasture situation. This control allows desired plants to become strong and out compete the weeds. Rotational grazing helps to control weeds by giving desired plants the opportunity to rest and grow undisturbed before being grazed again.
  2. **Mechanical control** usually involves mowing to control weeds. Mowing is usually more effective on broadleaf weeds than grass weeds. Mowing does have negatives such as cost of fuel, may not help with large weeds, and can spread seeds around encouraging more weed growth.
  3. **Biological control** involves the use of biotic agents such as plants, herbivores, insects, and nematodes to suppress weeds. Biological control is a relatively new area, but progress is being made. Control is usually not complete and may take several years.
  4. **Chemical control** is limited in organic practices. Some less toxic chemical options may be acceptable for serious infestations.

# Poisonous Plants

## Most common toxic plants in Indiana:

- Alsike clover
- Bitter nightshade
- Black nightshade
- Common cocklebur
- Dutchman's breeches
- Dwarf larkspur
- Groundsel
- Johnson grass
- Poison-hemlock
- Redroot pigweed
- Field horse nettle
- Spotted water hemlock
- Sweet clover
- White snakeroot
- Wild black cherry
- Yew

Use this link to see pictures and additional information about these toxic weeds.

<http://www.ansci.cornell.edu/plants/php/plants.php>

# The 4 R's of Grazing Management

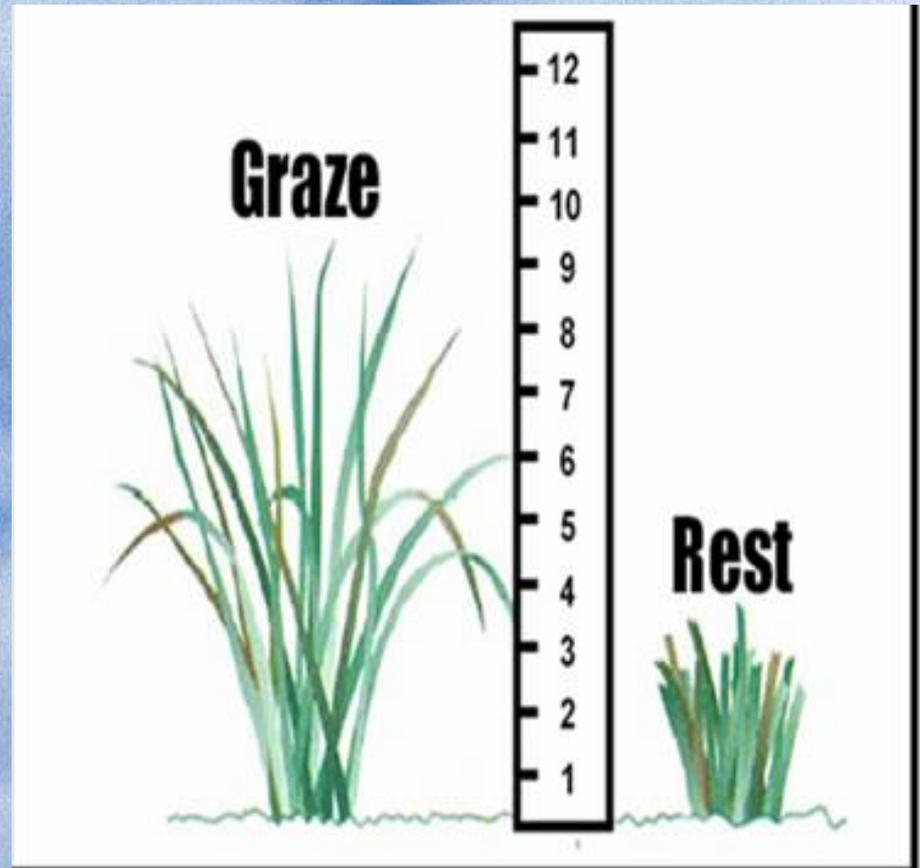


Overgrazing

- Sustainable grassland production is based on **Removing seed heads, Right starting height, Residual leaf area, and Rest period.**
- Grazing management is the foundation of grassland-based livestock production since it affects both animal and plant health and productivity.
- Overgrazing can occur under continuous or rotational grazing. It can be caused by having too many animals on the farm or by not properly controlling their grazing activity.
- Overgrazing reduces plant leaf areas, which reduces interception of sunlight and plant growth. Plants become weakened and have reduced root length, and the pasture sod weakens. The reduced root length makes the plants more susceptible to death during dry weather. The weakened sod allows weed seeds to germinate and grow. If the weeds are unpalatable or poisonous, major problems can result.

## 4 R's: Right Starting Height

Generally, pasture vegetation should be grazed at a height of 6 to 8 inches down to a residue height of 2 to 3 inches. Animals should then be removed to allow the pasture to rest and re-grow to the recommended 6 to 8 inch height. These grazing heights provide optimum nutritional value and palatability for the animals along with growing conditions for the vegetation to remain healthy and vigorous.



# 4 R's: Removing Seed Heads

Alternative to  
Haying: Pasture  
stomped down by  
livestock.



## Haying

- Removing plants from the field to store for future feeding.
- May compromise the nutrient or organic matter value of the pasture
- Provides stored forage during times of flood or drought, or during the winter when grazing is not feasible.
- Use some pastures for hay production if your animals cannot keep on top of the rapid growth of grasses or if you don't have enough animals to keep ahead of spring growth forage quality.

## 4 R's: Rest/Recovery periods for Pasture.

- At least 30 days must be allocated for all pastures and paddocks that have been grazed so that grass has a time to recover and come back ready for the next grazing session.
- More time of rest is needed for times when pastures are experiencing slower growth than during the time of year when growth is very fast.
- It is apparent that appropriate land use and grazing management techniques are needed to balance maintaining forage and livestock production, while still maintaining biodiversity and ecosystem services. Through the utilization of grazing systems and making sure to allow proper recovery periods for regrowth, both the livestock and ecosystem will benefit. Along with recovery periods, producers can keep a low density on a pasture, so as not to overgraze. Controlled burning of the land can be valuable in the regrowth of indigenous plants, and new lush growth. Additionally, producers can increase plant and species richness through grazing, by providing an adequate habitat. Although grazing can be problematic for the ecosystem at times, well-managed grazing techniques can reverse damage and improve the land.

## **How your cattle or sheep graze is influenced by a number of things:**

- Types of vegetation; topography; location of water, salt, and minerals; shade; prevailing wind directions; and routine grazing habits.
- On average, during a 24 hour summer day, a range cow spends six to ten hours grazing. She will spend a little more than twelve hours resting and ruminating. During the rest of her 24 hour day, the cow will travel, drink water, lick salt and minerals, and rub and nurse her calf.
- Animals eat the lowest growing (soft) and most nutritious plants and leave the tall (tough) plants. Spot grazing occurs when animals repeatedly graze the same areas; this causes uneven growth in a pasture and growth of weeds.

**Cows generally have two main grazing periods. One is from sunrise to midmorning. The second is from late afternoon until sunset.**

### **Rotate animals on a regular basis.**

- Most livestock species like routines, so if you are going to be changing paddocks on a regular basis, try to stick to a particular time to change them. If it's possible, try to move them once every 24 hours.
- You do have the option, depending on paddock size, on the size of the herd and growing conditions, to rotate animals much sooner, as in once every two to four hours at a time. This is not an option if you have an off-farm job where you cannot be around all day to change paddocks every few hours.
- You also have the option to set your animals to graze a paddock for several days at a time, depending on the time you have or cannot have to change pastures.

# 4 R's: Residual Leaf Area



Seeding Pasture and Grasses  
<http://www.youtube.com/watch?v=6ksghZPj-zg>

Dead grass and bare patches in pastures are at risk for erosion and an open invitation for weeds and undesirable grasses to take over. To ensure pastures are dense and nutritious, bare patches should be seeded in the late winter/early spring or late summer.

**The basic steps of seeding bare patches are**

- **controlling existing weeds,**
- **preparing the seedbed,**
- **seeding the right seed at the right time, recommended for Indiana is this kind of seed ideal planning time is:**
- **maintaining a moist environment for seed germination.**

# Livestock Watering & Salt

Watering Trough is positioned under wire so that animals can drink from either side.

View video on meeting animals water needs in pasture:

<http://www.youtube.com/watch?v=NLO1teG0Dxs>



Salt is left out for animals to eat free choice. This is an important part of an animal's nutritional needs.



# Setting Up & Moving Fences

Before attempting to set up or move an electrical fence, turn off electricity.

Off...



On...



Then string the electrical wire from one end of the pasture to the other using posts designed for electrical use. Make sure nothing is touching the ground or anything that is not a conductor of electricity.





Ratchet Tensioned



Wire Spools



Posts with Insulating Rubber



Temporary Stakes



Electric Fence Line Testers



Tape and Wire

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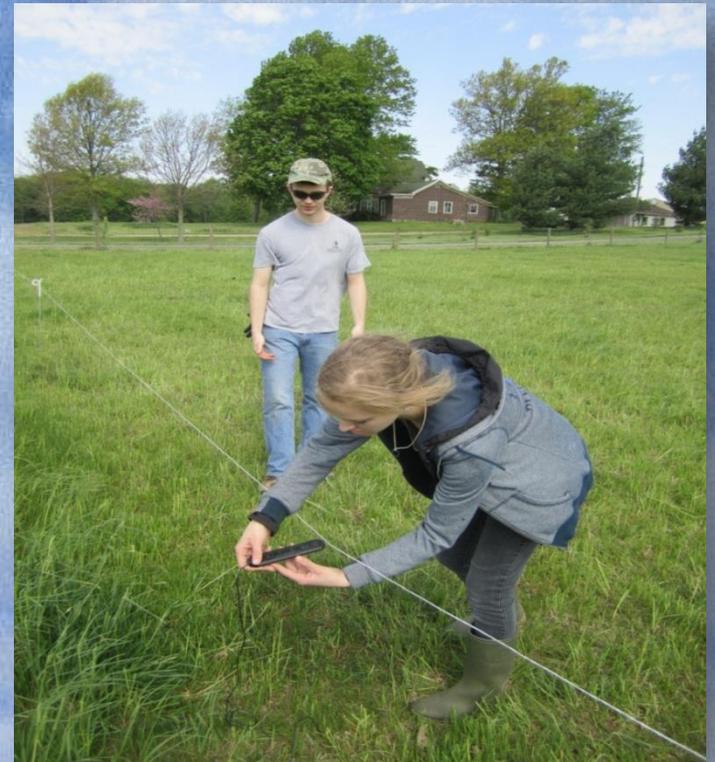
# Loss of Electricity

- Check the Line with a **voltage tester**.
- Even when the electricity is turned on there is a two (2) second delay before one feels the jolt of electricity (which is why you may not immediately feel it).
- If the electrical line touches anything **it will ground out** unless what it is touching is covered with rubber.



## Two Kinds of Currents

- Direct Current - on at all times
- Alternating Current - on and off every two seconds.



## Electrical Connections: Do's & Don'ts

- Insulate your LIVE wire with rubber or other type of insulator where it touches something other than itself. Otherwise, it will ground out and not work.
- A NON-LIVE wire is not insulated where it touches something other than itself. You can touch that wire without being shocked by the electricity.



Correct (live)

Incorrect (non-live)



# Pasture Management Tips

Pasture Management Video <http://onpasture.com/2013/06/24/grazing-management-basics/>

- To promote uniform and vigorous growth, clip or mow pastures periodically (two or three times each season). This helps to stimulate new growth in areas that have grown tall and gone to seed.
- Scatter and disperse manure clumps by dragging pastures with a chain-link or flexible tine drag. This reduces areas of rejected forage and helps to control parasites.
- Lime and fertilize pastures according to soil test results. Maintaining an optimum soil pH through liming is important for desirable cool-season grasses and legumes.
- Maintaining adequate nutrients in the soil is also important. Excess nutrients can cause animal health as well as water quality problems, so supplement with fertilizer only when a soil test indicates a need. Your animals will provide free fertilizer!

*Using animals manure puts nutrients back into the ground which in turn makes the pastures grow even faster.*





## Spotlight on Permaculture

- Using native grasses & legumes may provide forage during drought periods
    - Prairie plants have very deep roots which can reach into soil moisture deep below surface
    - Emergency harvest of CRP (Conservation Reserve Program) prairie fields during droughts
    - Improving Forage Production & Quality with Native Legumes
- <http://www.youtube.com/watch?v=FBVmOqboZmg>

# Self-Review Questions

- Why is it necessary to rotate animals in managed grazing systems?
- What are the 4Rs?
- What should be done to prevent and control poisonous weeds?
- What are shelter options?

# References

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- Weed Identification in Pastures and Hayfields -North Carolina State University Weed Science and Virginia Tech Weed Science (photos and definitions)
- *You Can Farm* - Joel Salatin