



Getting Started With Rotational Grazing



Mimicking Nature!

- Why Use This System
- How did the grasslands evolve?
- How does this system improve the grass sward?
 - By feeding the soil biota and then letting the biota do it's work through a **rest period**



Grazing Provides Three Types of Energy Transfer

- 1. Grazing excites the soil biota
- 2. Kinetic energy from hooves excites soil biota
- 3. Symbiotic energy excites soil biota



There are Really Two Ways to Graze

- Continuous Grazing

- This system allows ruminants free access to pastures to choose when and where they will graze

- **Advantages**

- Lower set up costs
- Less time spent managing and monitoring

- **Disadvantages**

- Inefficient pasture usage
- Overgrazing
- Manure and usage dead zones
- Lower pasture value (good plants gone)
- Additional inputs to improve pastures

- Managed Grazing

- Managing your resources (pasture) based on the animals, the forage, the season, and the goals.

- **Advantages**

- Promotes pasture productivity and diversity
- Can lengthen growing season saving money on winter feed costs
- Help with water retention on property
- Produce healthier animals
- Save Money!!!!!!!!!!!!!!!

- **Disadvantages**

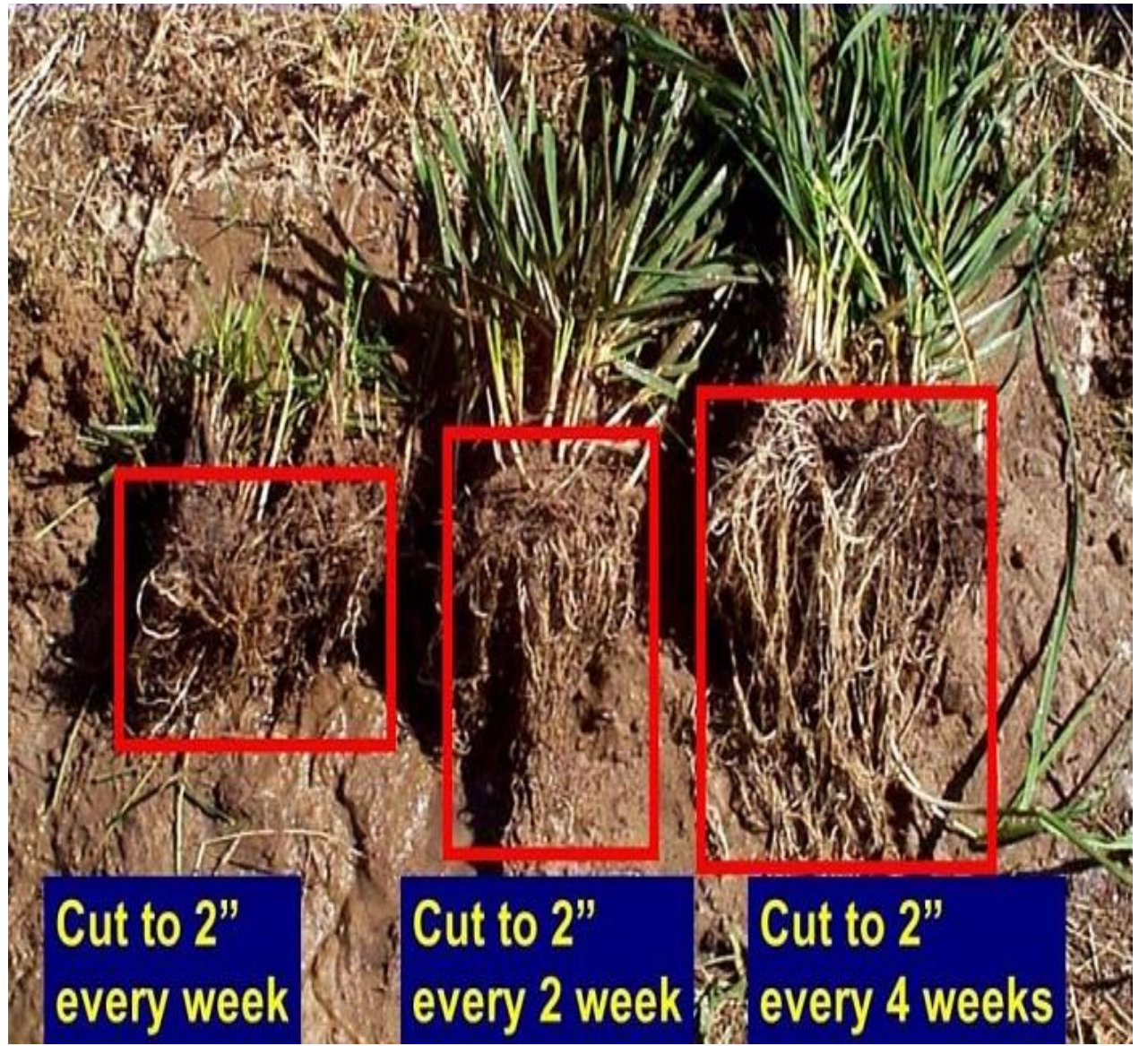
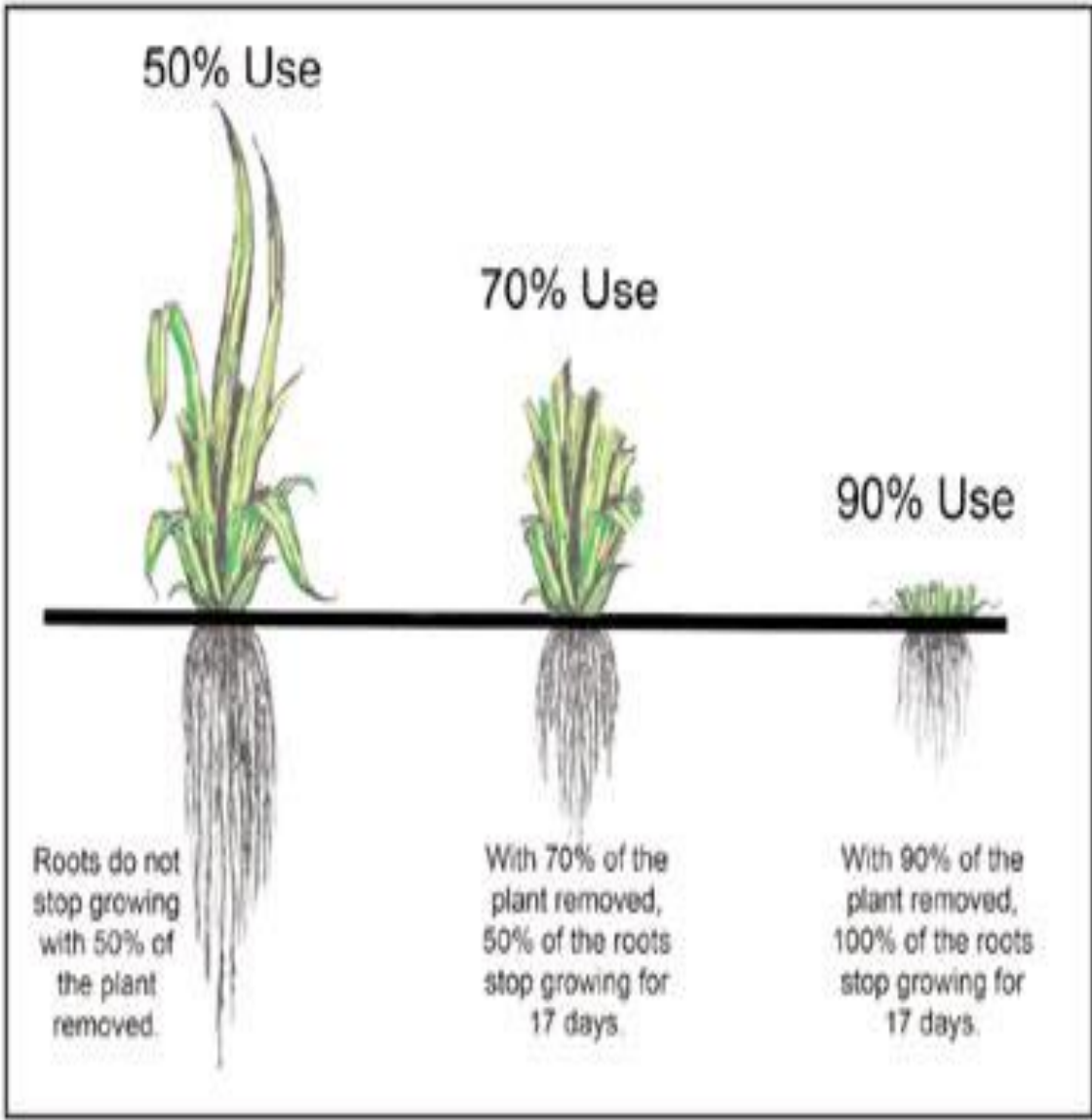
- More planning involved
- More monitoring involved
- Requires more capital

Vimeo video

- <https://vimeo.com/80518559>

You've got to understand your grasses...or why wont my grass grow back?

- Every plant has a root system that is at least as big as the plant it supports.
- When you remove the leaves, the plant has less solar collectors to produce new growth and the roots may stop growing or die off.
- Come late summer, when there is less water in the soil, these plants do not have the deep roots that allow them to access the water and nutrients they grow. That is why the pasture stops growing come late summer (mention catch up growth)
- Rotational grazing your pastures allows these plants time to rest, re build their leaves, rebuild their root reserves and persist



Mob Grazing with Richard in Missouri

<https://www.youtube.com/watch?v=NAgD5eiLHlw>

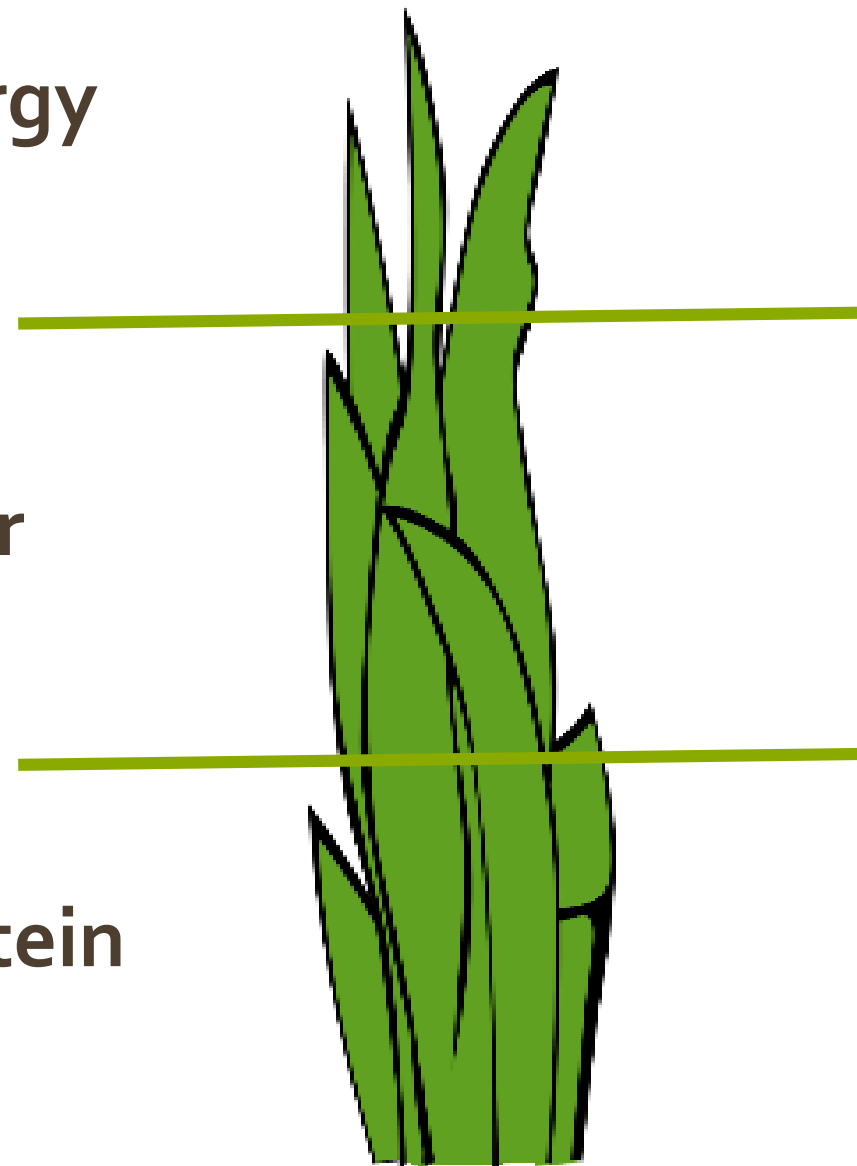
Video Discussion

1. Where is the energy on the plant
2. How to read your manure patties

Energy

Fiber

Protein



The Perfect Pumpkin Pie



The Fibrous Pile...too much cellulose (Winter Poop)



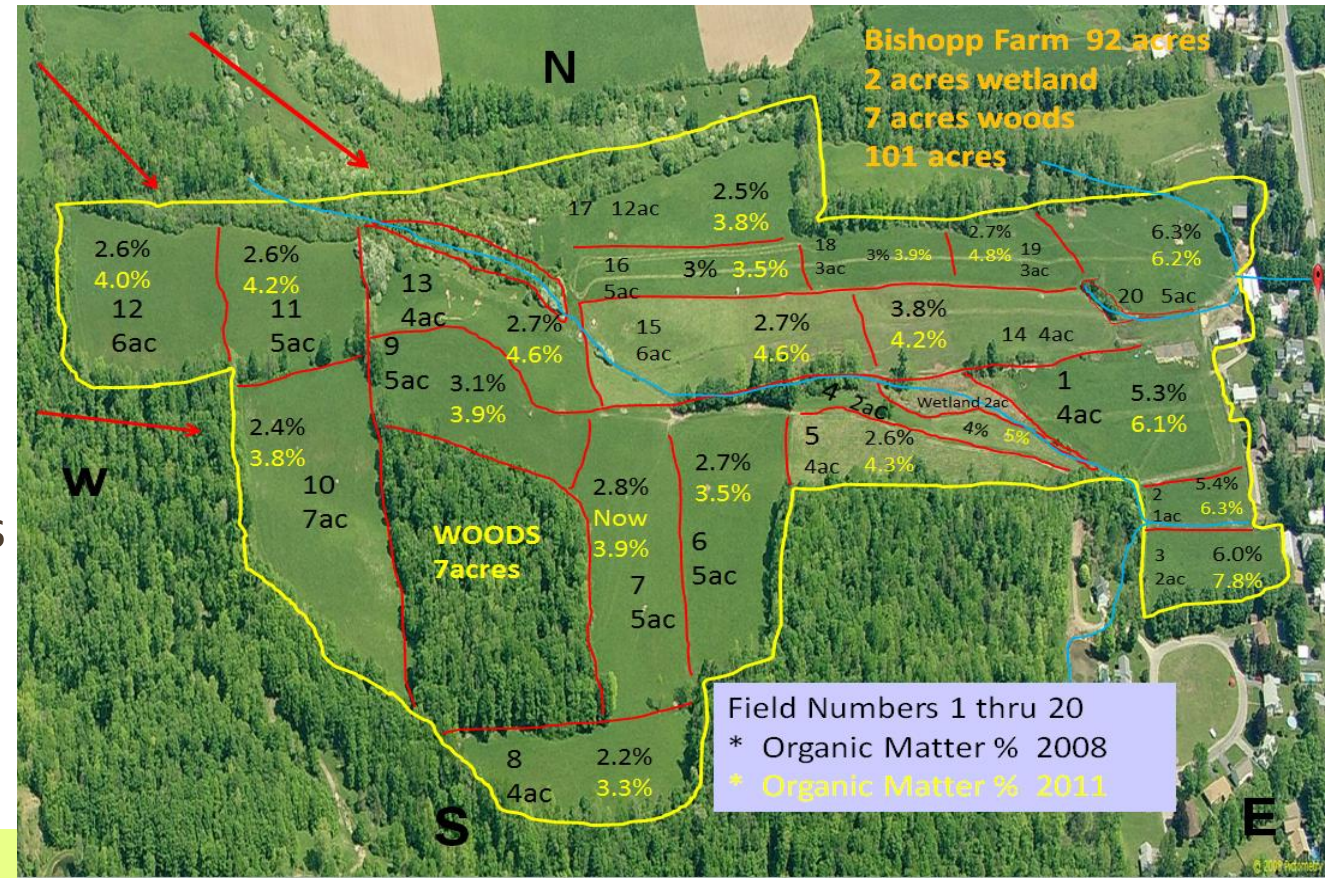
The runny pile...too much protein (get up the plant) ((Spring Poop)



So What is Rotational Grazing

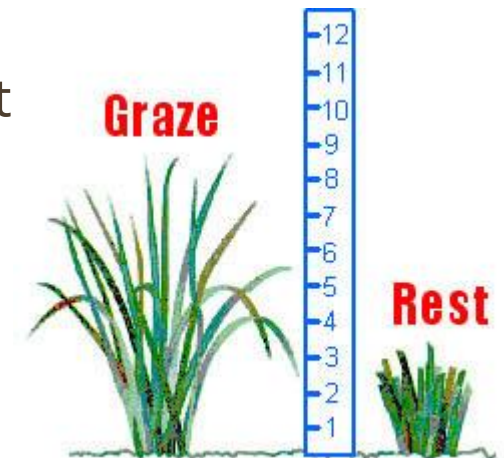
- A system of grazing where animals are introduced to new feed on new paddocks on a frequent basis. Animals are confined to relatively small paddocks to maximize efficiency in grazing. In this system, high quality forage is rationed out to meet livestock needs, while plants that have recently been grazed are protected from being eaten again until they have adequately recovered. By managing animal access to forage, you are managing plant growth and plant health.

- You, the grass farmer, control
- Intensity of grazing
- Duration of grazing
- Resting or recovery period
- And the size and number of paddocks



Intensity of Grazing

- This is how much forage is removed or destroyed during while the animals are in that paddock.
- Ideally we want full usage of the paddock, this starting to graze when the grass is 9-15 inches high and removing the animals when the grass is 4-7 inches. **This is really a function of total stand maturity instead of length.**
- There is no such thing as wasted forage. If the animal tramples it on it we have improved that area of pasture.



Duration of Grazing

- This is how long the animals are in the particular paddock. We are looking for total usage but this is only possible under very specific management practices.
- As a general rule of thumb animals should not be in one paddock for more than 4 days as they will be able to eat the regrowth and knock the plants back again.



Recovery Period

- We want to give our grasses time to recover, to put on new leaves, begin to re grow roots and to get strong before we graze it again.
- The recovery period varies depending on the season.
 - In spring, when the grass is growing quickly 15 to 20 day intervals are best to knock down the quick cool season grass growth in preparation for your next grazing run.
 - In the summer, the recovery period is longer because there are less rains and because plants are preparing to make seed. This rest period can be anywhere from 30 to 90 days.

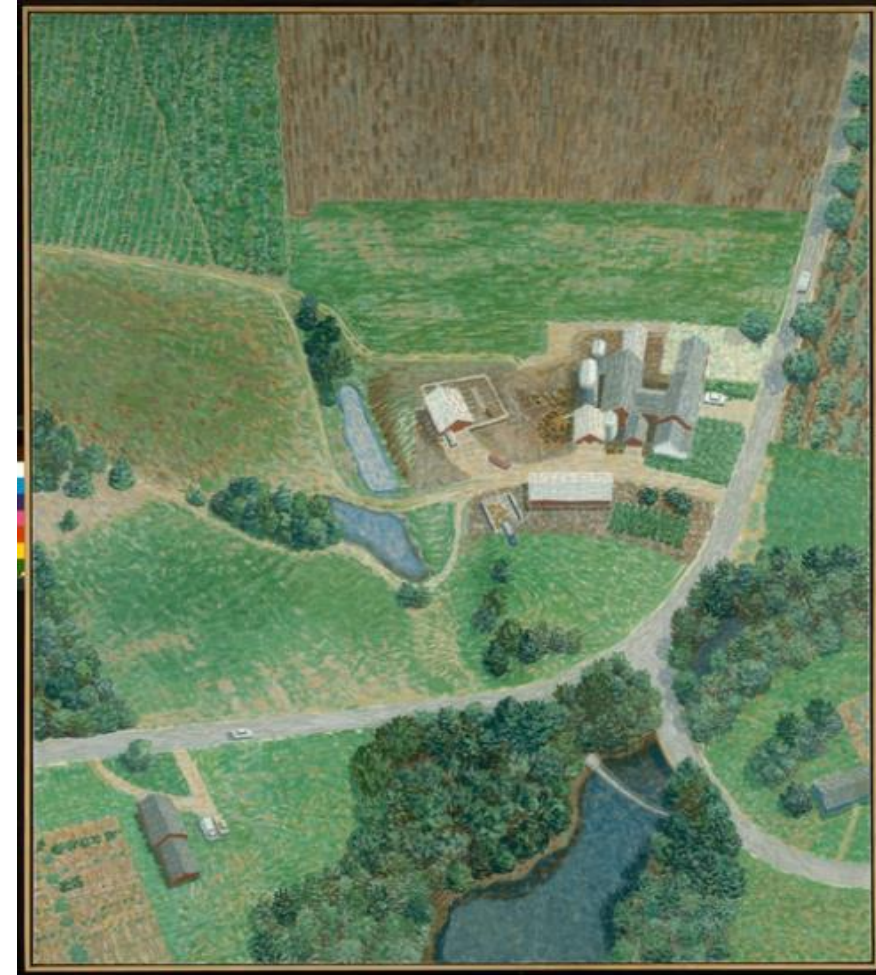


The best tool you have is your eyes, watch the grass, know the grass, be the grass.

-Mr. Miyagi

It All Starts With What You've Got

- Mapping your Property (google earth or drawings)
- Type and Condition of Fencing
- Type and Condition of Water System
- Pasture Composition and Productivity
- Soil Testing
- Equipment Needs (you may be able to sell of some equipment to generate cash to buy new stuff)



Before we make our plan let's define our general goals

- Improve pastures
- Extend grazing season
- Lower feed costs
- Better animal performance (cows eat grass)
- Earn more income through niche market (quickly becoming mainstream)
- Improve holding capacity of water
- Improve overall quality of life



- Let's face it the conventional way is not working for a lot of farmers. We are the stewards of the land and environment and should be well compensated for our work! We need to change the paradigm of the poor farmer, people should envy our lifestyle and our wallets

Before we make our plan let's define our pasture improvement goals

- Often overgrazed and unmanaged pastures have deficits. Knowing where these deficits are can help in designing your rotation and
- **Deficits include**
 - Erosion problems and soil characteristics
 - Trails or paths developing
 - Streambank erosion and cover
 - Plant diversity
 - Manure distribution
 - Earthworm populations
 - Wildlife presence or usage





Fencing

- There are as many types of fencing as livestock.
- We need to adapt and add fencing that is consistent with our goals.
- High tensile wire is the most common, cost effective, and effective fencing on the market.
- Barb wire should never be electrified:
- **Goal: Utilize our fences to concentrate the animals in one area while excluding them from other areas.**
- Electric Fences are the easiest and most practical way to do this

Fencing is useless if it doesn't provide a shock!

- There are three main components to delivering a learning shock
 - 1. The Energizer
 - 2. The Grounding System
 - 3. The Fence Design



Choosing an Energizer

- Don't believe the hype, buy a little bigger than what you need and buy a quality product
- Joules
- Pulses
- High Impedance vs. low impedance
- Power Source
- Portability



Joules

- Not going to get into the math but after much debate and research we have come to the conclusion that

- 1 Joule will Power 3 Miles of Fence

- So if you have a 3 wire fence, that is five miles long

$$3 \times 5 = 15 \text{ miles of fence}$$

You need to power 15 miles of fence and each joule charges 3 miles

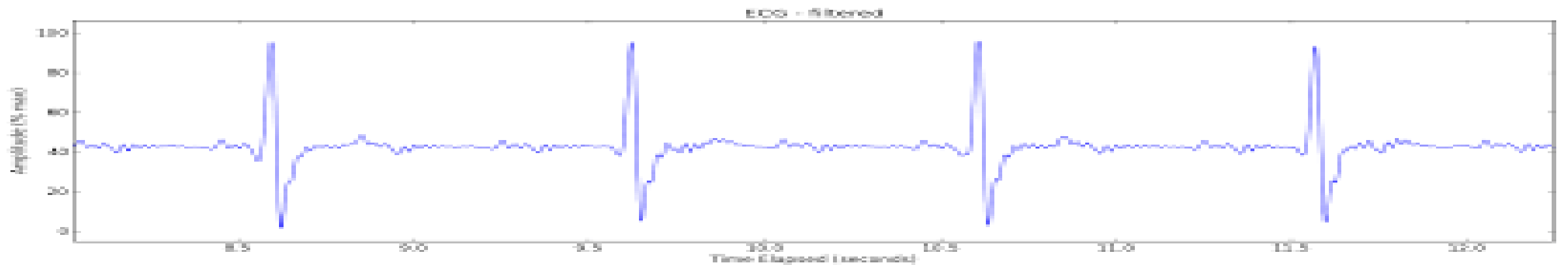
$$15 / 3 = 5$$

So we need a charger with 5 joules to adequately power our fencing system



Pulses and Impedance

- The old high impedance chargers also had a long pulse. This long pulse allowed heat to build up on the line and although it could burn plants off the line, it could also start fires and be dangerous.
- Most chargers manufactured today are low impedance, they have a very short pulse and the low impedance allows the shock to “push” through the vegetation touching the wire.



What is Your Power Source

- 110 Volt Plug in Source
 - The plug in 110v type of chargers are the most convenient and cost the least. They will generally cost a little over a dollar a month to power
- In places where you do not have access to an outlet you have two options
- Solar Powered Energizers
 - Utilize solar panels to charge imbedded battery. Most expensive but easiest to move
- Battery Powered Energizers
 - Require at least one deep cycle marine battery, work well, but can be cumbersome and are more expensive than 110v energizers

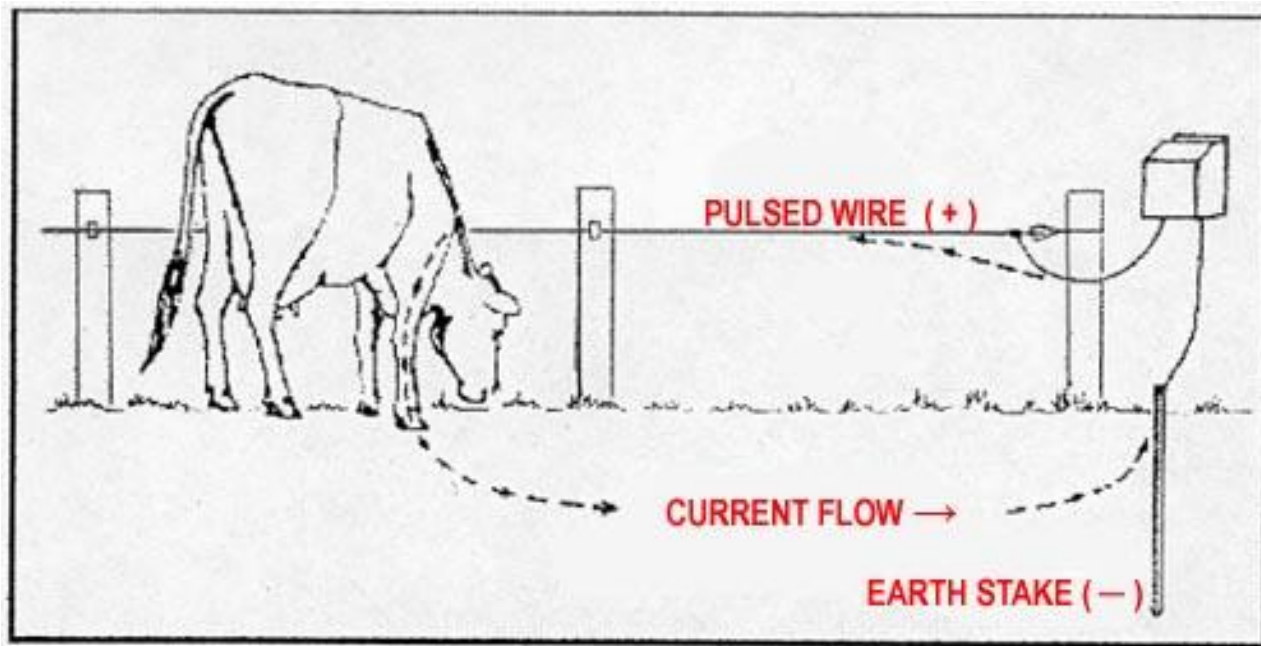
Grounding

Poor grounding is the leading cause of electric fence problems. Eighty percent of electric fence problems can be traced to faulty grounding systems.

Effective grounding completes the circuit.

For an animal to receive a shock it must complete a circuit. The circuit can be either from the energizer through a “live” wire through the animal, through the soil, and through ground rods back to the energizer, or from the energizer, through a live wire, through the animal, through a ground wire back to the energizer.

Moist soil is a good conductor of electricity. However, when soil moisture is depleted (or not effective when frozen), animals will not be shocked by electric fences unless ground wires are included on the fence.



Types of Electrified Fences

- 1. High Tensile:
 - 12 gauge metal wire, high conductivity, high durability, not portable. Most suitable for permanent perimeter fencing
- 2. Polytape:
 - Highly visible, usually at least an inch wide. Does wear out quicker than Polywire and is heavier. Utilize this when you need the wire to be highly visible (horses).
- 3. Polywire
 - Polyrope is a 3/8 inch braided rope with nine metal strands braided into the rope. Polyrope has some advantages over polytape since it is more visible and will not flutter in the wind. Use polywire for all other applications, especially multiple wire fences.
 - Use white and black wires as this is the most visible throughout the year and creates an optical illusion further deterring the animals.

What else do I need

- Posts and insulators
 - Metal T posts (most expensive, installation intensive, must purchase insulators, prone to shorting)
 - Fiberglass posts (least expensive, require insulators, can splinter when installed)
 - Plastic step in posts (great for wet ground, can become brittle and break, mid level expensive)
- Fence tester
 - Get one. There are many different levels and types but you **MUST** know that your fence is hot or if it is shorting out.
- Reels
 - If you value your sanity you will use reels. Get the ones that are geared 3 to 1 if you are using moving wire frequently.

Voltage Requirements for Livestock

TO CONTROL	MINIMUM VOLTAGE	# OF STRANDS
	RECOMMENDED	PERIMETER
CATTLE	4,000 To 5,000	4 to 5
HORSES	3,000 to 5,000	3 to 5
SWINE	4,000 To 5,000	3 to 5
GOATS	7,000 to 9,000	5 to 7
SHEEP	7,000 to 9,000	5 to 7
BISON / DEER	5,000 to 8,000	5 to 7
PREDATORS	5,000 +	5 to 7

Training Animals to Electric Fences

- Build a training pen or use your coral. You want a small area with a permanent fencing system behind the electric fence in case the animals bolt through the electric set up.
- See Drawing Set up
- Sheep and goat can be problematic if they have heavy hair coats so try and train after sheering.
- The animals need to be re trained every spring before heading out to pasture.



Using the Electric Fence to Dictate your Grazing Plan...The Fence is the Bear



Setting up Fences with the Beginning Farmer

<https://www.youtube.com/watch?v=sNbgcY3tk7s>

Mowing under the fences?

How important is routine to the cattle

How important is seeing your cattle everyday?

Moving water with the tractor...ugh, or the time when Mick raised his eyebrow

Water...

- If we are moving the cattle we are either going to have to move the water with them or we are going to have to build a lane.
- Keep cattle out of streams and ponds, they will degrade the quality of the water, destroy the banks, and destroy natural habitats.
- If you utilize streams or ponds, only allow access to a small section where cattle cannot wade into the stream

Unmanaged stream access leads to degradation



This pond has been limited to an area that has a rock surface and is sectioned off using a floating fence that contains an electrically charged wire above the water level.



WATER...if we are moving the stock we are either going to have to move the water or build a lane

- Moving Water

- You can truck water to the animals
- You can pump water to the animals
 - Wells
 - Ponds and streams
 - Solar
 - Gas powered
 - Electric pumps
 - Ram pumps
 - Wind pumps
 - Hand pumps

- Pros

- No dead zones
- Animals will drink individually

- Cons

- More time consuming

- Utilizing a lane

- This can be done many different configurations
- Spoke system
- Typical Lane System

- Pros

- Less time

- Cons

- Creates dead zones
- Animals all drink at same time
- Animals will congregate in lane and knock down fencing

Livestock Water Requirements

Using Water Tanks

- Standard stock tanks
- 55 gallon drums cut in half
- Using float valves

Livestock Types	Gallons/Head/Day
Beef cattle, Dry dairy cows	12-15
Lactating dairy cows	40
Sheep, Llamas, Goats	2-4
Hogs	4
Horses	10-12



Rotational grazing water options

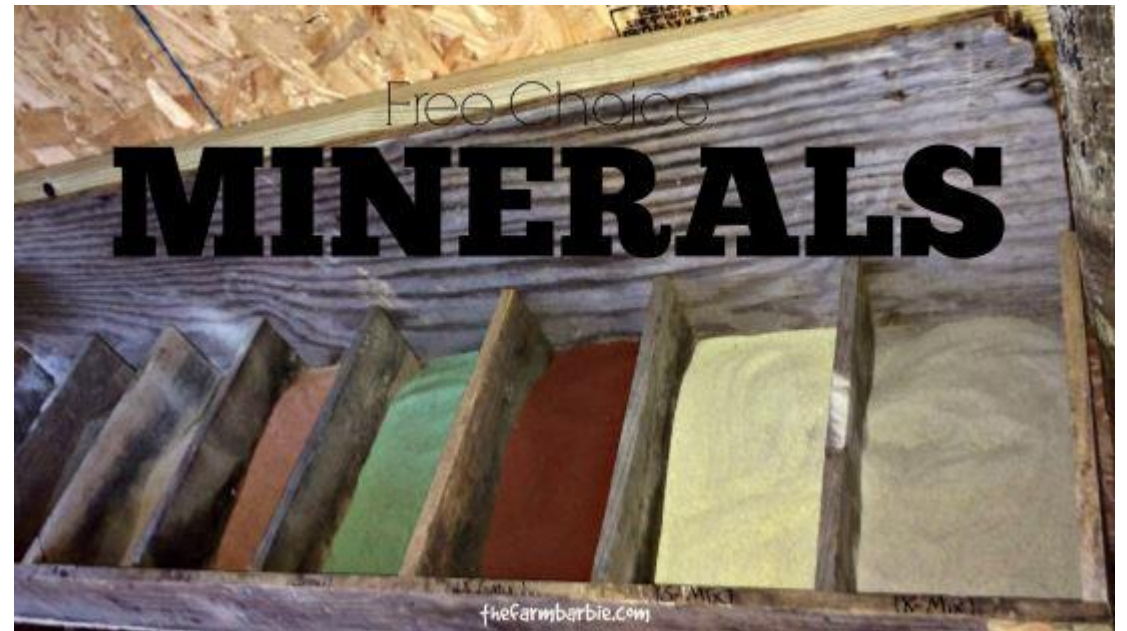
- <https://www.youtube.com/watch?v=AWTbonk51MM>



Minerals!!!!

Selenium Deficiencies in the northeast

Free Choice vs. Blocks and everything in between



Making your Mooooooves

- After noon or morning moves....jury is still out. Depends on your management needs
- Using calls to move cattle, this can come back to haunt you, use a device
- Dealing with stragglers...if you leave them, they will come to the new paddock
- CALVES are a pain...patience patience patience

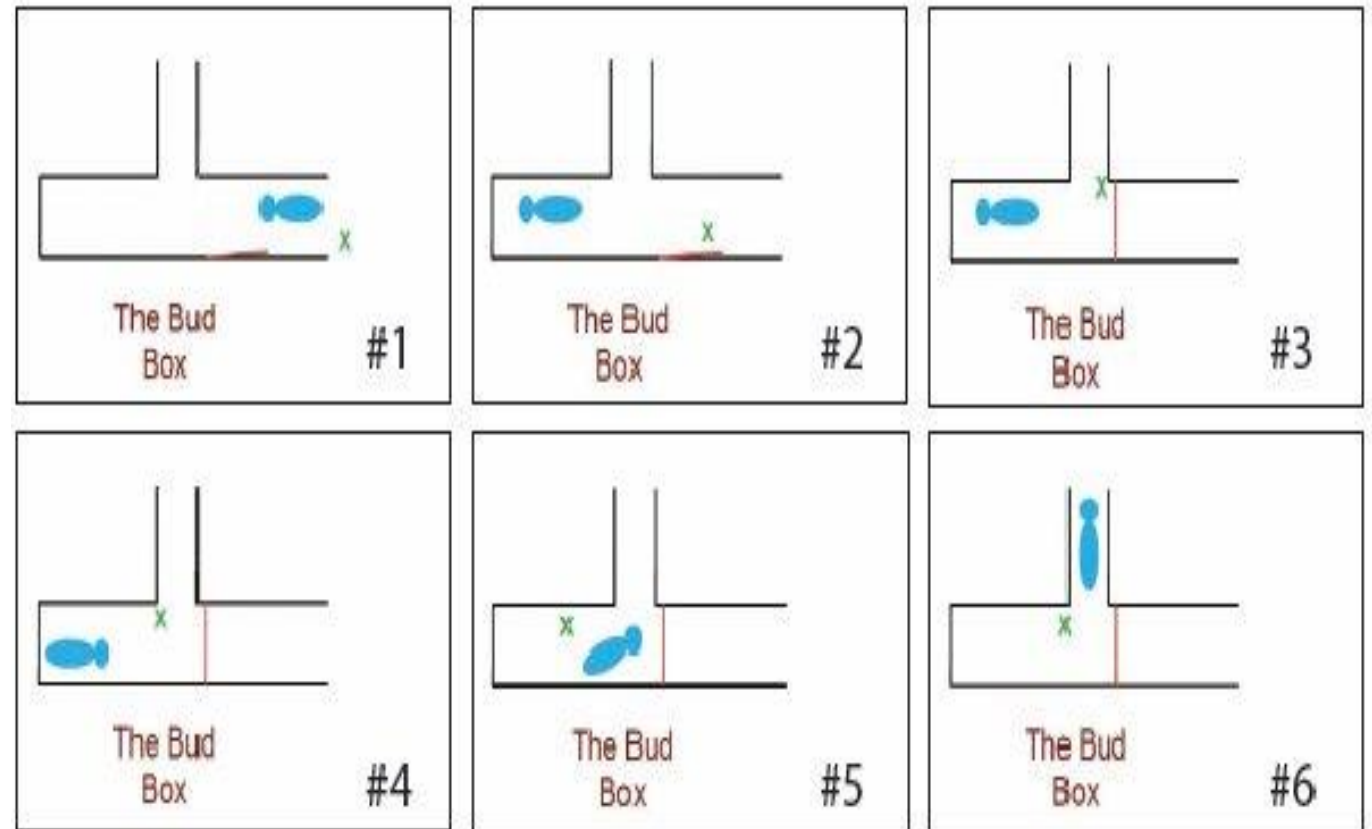


A word about handling facilities in your rotation

- Low stress handling is the rage because it works
- Bud boxes and temple Granden, jury is still out on specifics

The ultimate point is that you should run your stock through your facilities as part of your rotation.

This only works if it is not a traumatic experience for the animals. If calm, they will learn that this is part of the normal routine so when it does come time to treat or transport, you will have an easier time handling animals



Bud Box Demonstration Video

<https://www.youtube.com/watch?v=aniUeugrm8Y>



Let's talk about Shade

- **Animals do not shade....
but neither do humans**
- **We want our animals to work but we don't want them to suffer**
- **Design your grazing plan so that the cattle have access to shade for most of the day during the hottest months.**
- **Consider special paddocks for abnormally hot spells**



How to Know if your Animal is Full

- https://www.youtube.com/watch?v=6oVo_7yP3jw
- Look for the triangle
- Bawling
- This relates to monitoring your manure shape and consistency

Managing Pastures for Added Nutrients

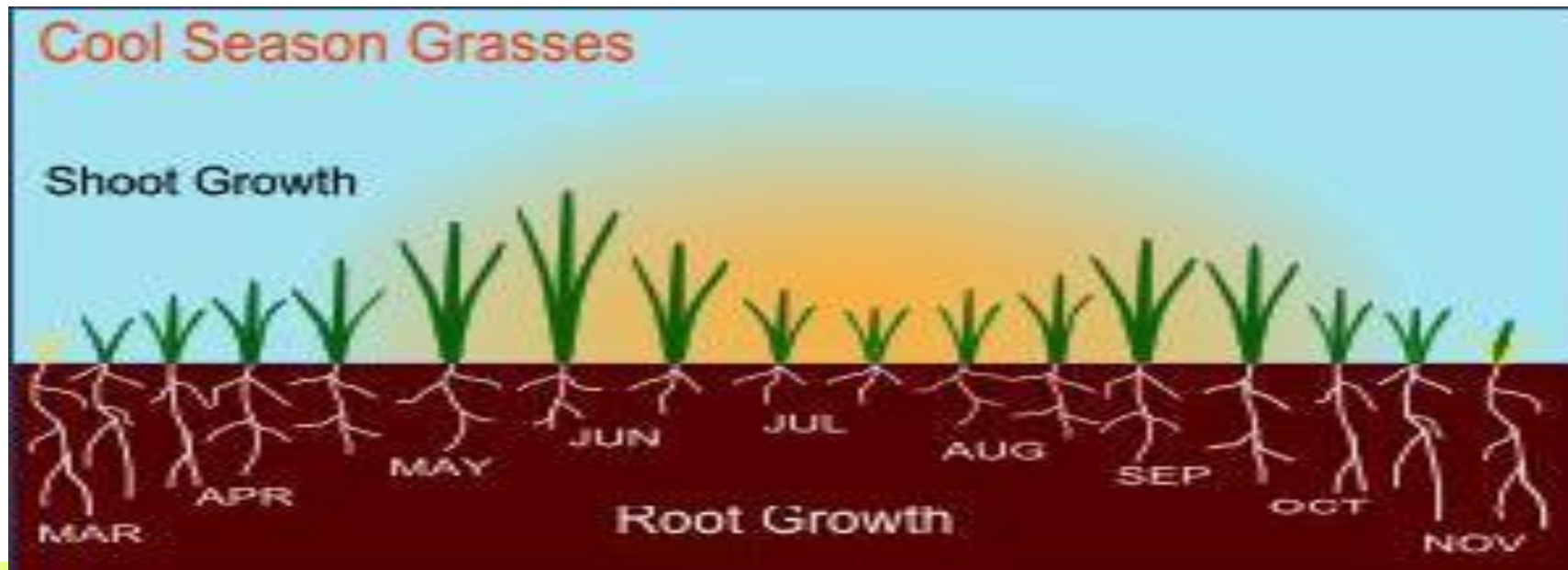
- You're options on pasture
 - 1. Fertilize: If you are going to spend the money on this you better be able to make it back that year. It's not worth it to fertilize if it doesn't help you that year. If you do fertilize do so in mid summer when the grass slump sets in and not in the spring as most row crop farmers do. Also fertilizer may harm the soil biota!!
 - 2. Allow the animals to add fertilizer. When an animal evacuates on the grass it delivers massive amounts of valuable fertilizer directly to the ground. Having healthy insect life will aid in incorporating the nutrients into the ground.
 - 3. Foster the development of legumes in your pastures. Grazing management, frost seeding, allowing some paddocks to develop seed heads. Legumes can provide 80 -100 lb. N/acre to grasses in a pasture. In addition, over 80% of the legume N grazed by livestock is returned to the pasture through manure and urine.
 - A word on the natural seed bank!!!!!!!!!!!!!!!



Cool Season Grasses, Warm Season Grasses and the Summer Slump

- Blue stem
- Eastern Gamma Grass
- Little Bluestem
- Indian grass
- Switchgrass

Timothy
Fescue
Broome grass
Orchardgrass



Extending the Grazing Season

- Stockpiling Forage

Stockpiled forage is basically standing hay.

Fields with fescue, orchardgrass, or legumes are acceptable for stockpiling, but legumes and orchardgrass will not maintain their quality as long into the winter feeding period. They should be used first when feeding begins.

You can incorporate hay feeding into the regimen

This should be strip grazed in 1-4 day increments and no back wire is required making winter watering very simple.

<https://www.youtube.com/watch?v=PIHDmlUQ-1o>

Questions to Help Shape Your Grazing Plan

- How will you manage your farm to efficiently utilize early spring growth?
- How will you manage to supply adequate forage availability during summer?
- How will you manage to supply adequate forage availability during fall?
- In the winter, how will you manage to meet nutritional needs of cattle at the lowest possible cost?
- If pasture renovation or reseeding is in your plans, identify potential species for forage production. (Remember to take into consideration soil type, drainage, etc.)



Speaking of Pastures....Let's Talk Weeds

- Weeds are an issue in all grazing systems.
- Not all weeds are bad and some are actually nutritious although unpalatable especially in maturity.
- The first step in treating weeds identifying them





Strategies to Control Weeds in Pastures

- **1. Grazing Management:**
- **2. Mechanical Control**
- **3. Chemical Control**

Grazing Management

- 1. First of all do your soil tests and check your pH. Acidic soils favor weeds and amending soil with lime can go a long way in controlling your weeds.
- Rotational grazing will help your more desirable plants out preform weeds and it will add fertility directly to your soil.
- Animals can be trained to eat weeds and cows will pass this behavior onto their calves.
- High stocking density will encourage animals to eat eat and trample many of those plants will be weeds
- It is most likely that you will have to use other means of controlling weeds unless you are moving more than two times per day.

Mechanical Control

- We've already learned what happens when you clip the top portion of a plant and we can use this strategy to weaken weeds
- YOU HAVE TO CLIP PRIOR TO SEED FORMATION
- Repeated clippings are best in order to weaken the weeds and allow other to out compete them.
- Some plants like Canadian thistle will re grow a seed head lower to the ground.
- This method take commitment and diligence but is great option and something that can be worked on during the winter months (multi floral rose)
- Clip pasture no shorter than 9 inches to protect beneficial forage

Chemical Control

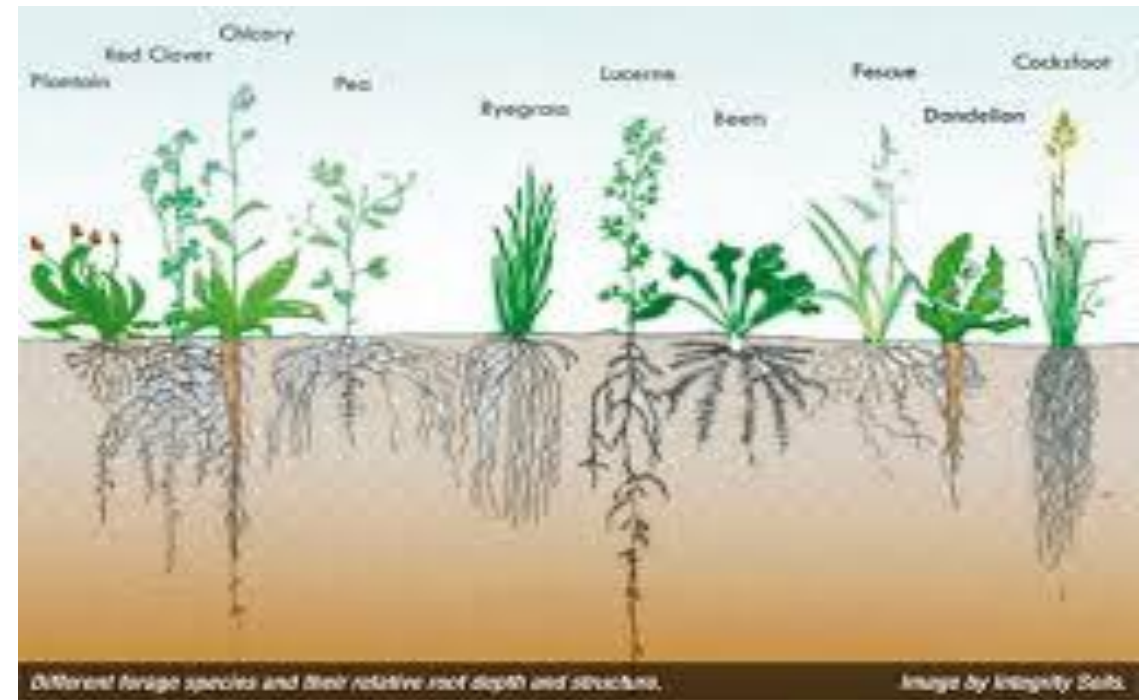
- Not Recommended.



Why is the pasture full of weeds...it needs to be amended not obliterated

Pastures are complex and variable stands

- You are always going to have weeds and from a holistic perspective that weed is serving some purpose and providing food for some organism.



Allow Animal Impact to Transform Your Pastures

- Animal impact will trample weeds.
- Animal impact will improve the soil
- Bringing in hay from other properties will increase your seed bank

Some farms walk cattle over weeds to each new pasture



How to use a grazing stick



Allen Savory, mob grazing and desertification

<https://www.youtube.com/watch?v=7KTyhCNEUQ4>

Desertification is the same thing as overgrazing



Pest Management

- Pour Ons, Rubs, and other delivery systems of pesticides are not selective and will harm the other beneficial creatures in your pastures.
- The Biggest Pests
 - Flies
 - Lice
 - Mites
- Management Strategies
 - Organic Pour Ons (Jury out)
 - Parasitic Insects
 - Birds
 - Manure Management (dragging, rotation)
 - Traps
 - Chickens??



Calving on Pasture: Making a Case for Late Season Calving



Pros	Cons
Calving in season means cows are meeting their peak nutritional needs as forage production begins	Flies can be a problem this time of year
No more calves lost to freezing	Can be difficult to find calves in grass
Easy window to monitor herd	May have downed fences from birthing and isolation
Can feed marginal hay in winter when cows needs are lower	Different marketing window

Record Keeping

You have to know where you've been to know where you are going!

- Grazing Charts
- NCBA Book
- Maps
- Rainfall



Winter Considerations

- Where are you going to overwinter
- Your pastures are going to be damaged so these should ideally be transitioning areas of the farm (if possible)
- What will happen if your cattle overwinter on pasture?
 - Wind breaks (natural and made)
 - Feeding Considerations
- Watching Salatin's Transition
- Frozen water
- Feeding Hay



Speaking of Winter...let's talk about drought (2016)

1. We have had two years of drought and the grass is going to suffer
2. If you set the grass back during the drought it will take longer to recover next year
3. De stock early
4. Learn a lesson from me this year....how I messed up this year

Speaking of Winter...let's talk about the very wet spring and summer (2017)

1. We had intermittent rain and a wet spring this year
2. Hay is difficult to make, plants are set back
3. Pastures are too soft to drive equipment
4. May have to delay moving or split herd to prevent pugging



Things that are frustrating

There are normal ranching difficulties that all of us face

1. cows out
2. cows not doing what you want
3. castration issues
4. sickness

Then there are grass based issues

1. underutilization of pastures
2. over grazed pastures
3. Animals not finishing properly



How to Make Money Farming?? Become Allergic to Spending Money



Equipment breaks
Equipment takes time to operate
Equipment depreciates

Pay someone else to use their equipment and time on your property to

Make hay
Dig ponds
Etc...

Keep your wallet bigger than your neighbors...oh and speaking of neighbors, there are going to think you're crazy but each time they say something just pat on your fat wallet and smile

Utilizing Other Species, multi species grazing

Goats

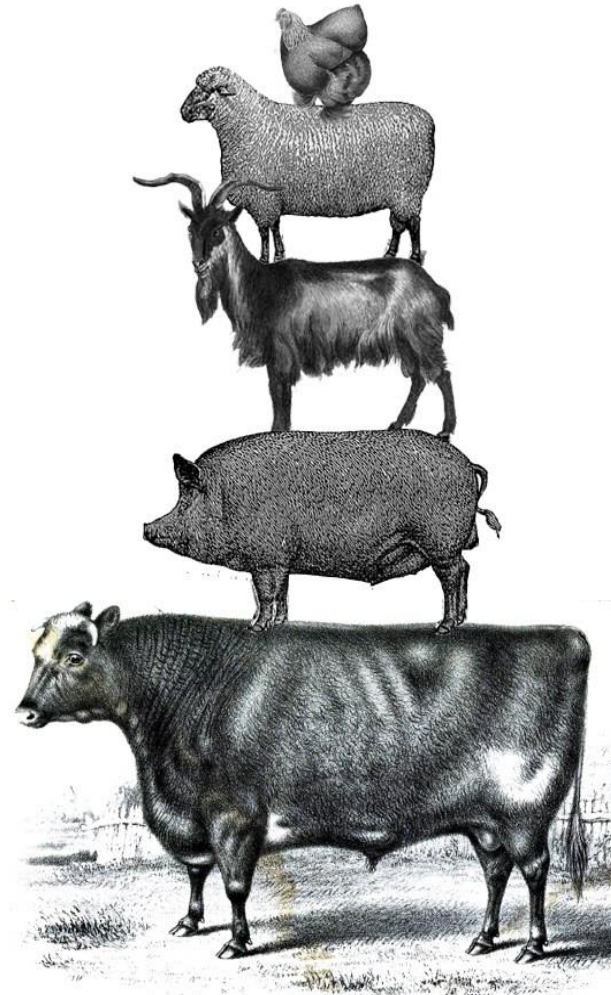
Sheep

Horses

Pigs

Poultry

Etc..

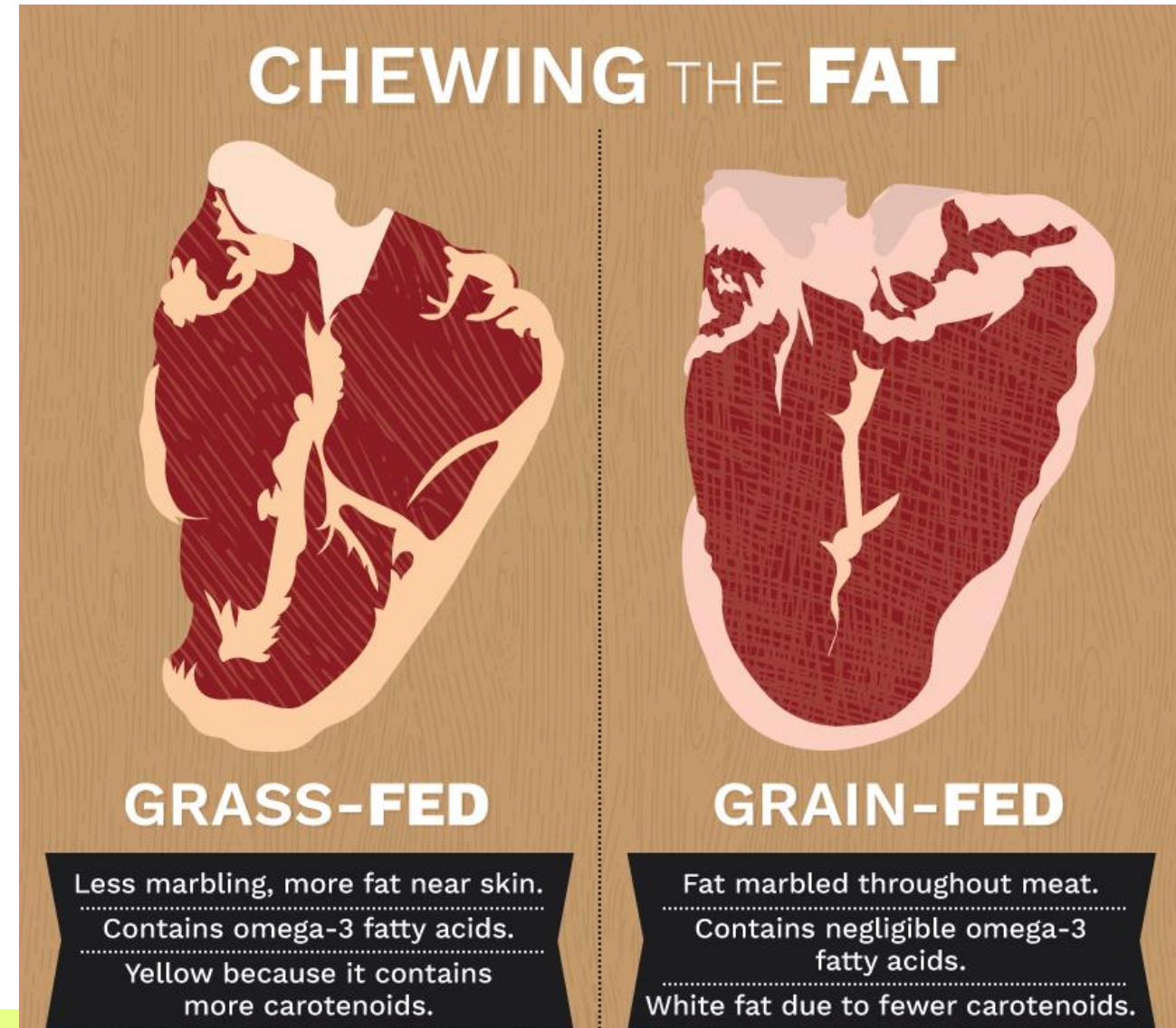


What About Marketing and finishing on grass

You can always finish on grain if that is what your clients request

Finishing cattle on grass is not for the faint of heart it may be helpful to begin this process by custom grazing, backgrounding, or raising replacements before you begin to the process of your seasonal finish

Farming is two person job if you plan to do direct sales, one person primarily farms and other person handles the marketing



References (my heroes)

Joel Salatin

Greg Judy

Ian Mitchell Innes

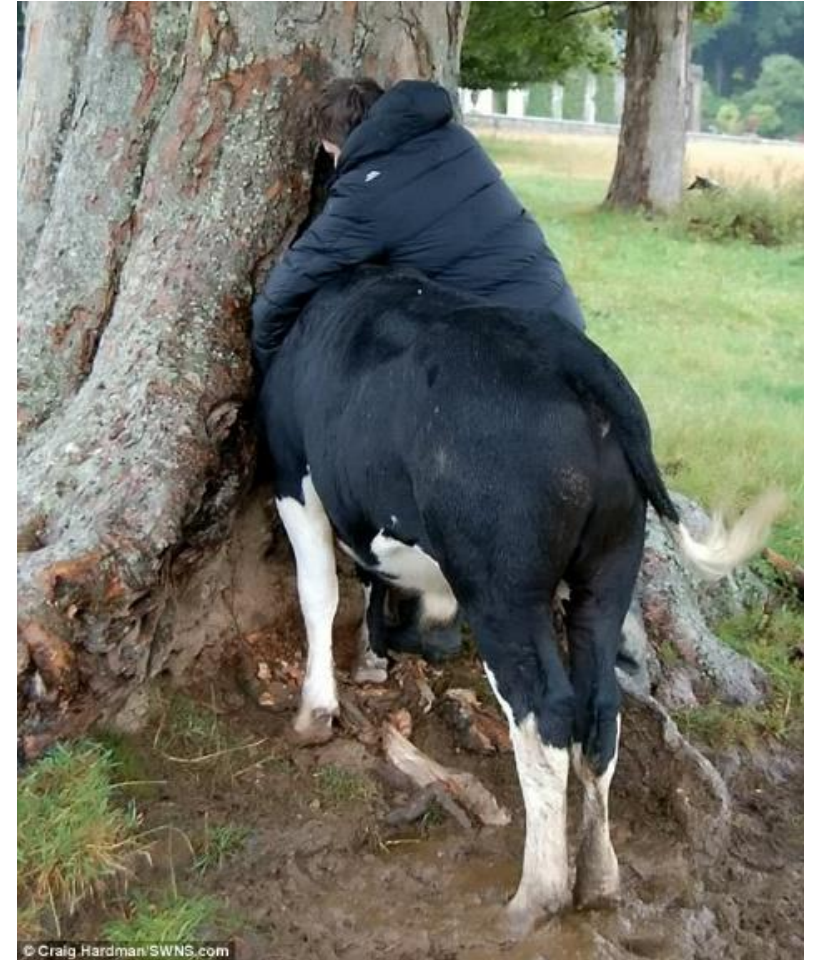
Allen Savory

Allen Nation

Publications

On Pasture

Stockman Grass Farmer



Grass fed dairy

<https://www.youtube.com/watch?v=g5vioNPROH8>

