



Grazing for Soil Health



Steve Swaffer
Noble Research Institute

IDDBA Member exclusive access!

View recording and download slide deck at iddba.org. (Available in 24-48 hours)





NOBLE
RESEARCH
INSTITUTE

Grazing for Soil Health



Steve Swaffar
Regenerative Ranching Advisor

ECOSYSTEM PROCESSES



**Water
Cycle**



**Energy
Flow**



**Nutrient
Cycle**



**Community
Dynamics**

SIX PRINCIPLES OF SOIL HEALTH



Know your context



Cover the soil



Minimize soil disturbance



**Maintain continuous
living plants**

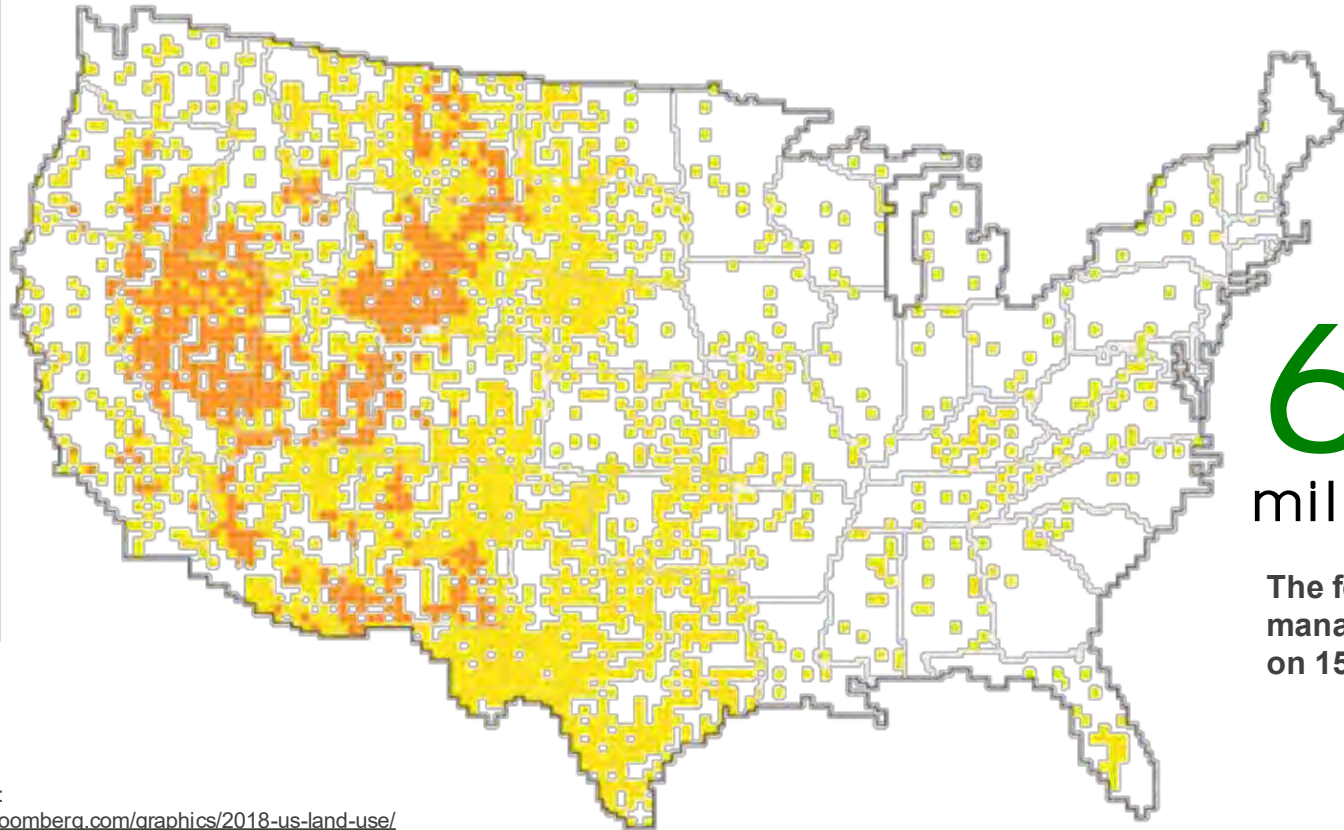


Increase diversity



Integrate livestock

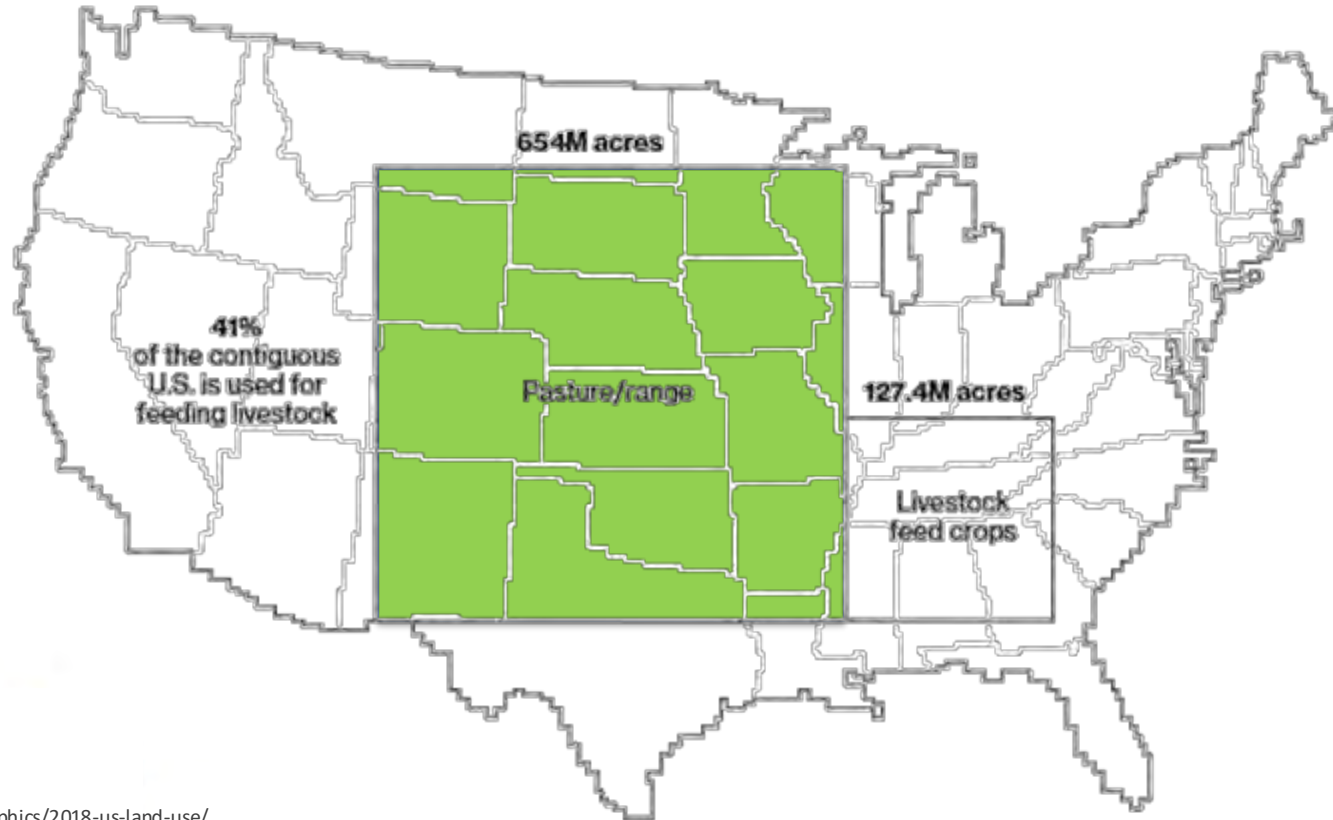
U.S. PASTURE AND RANGE



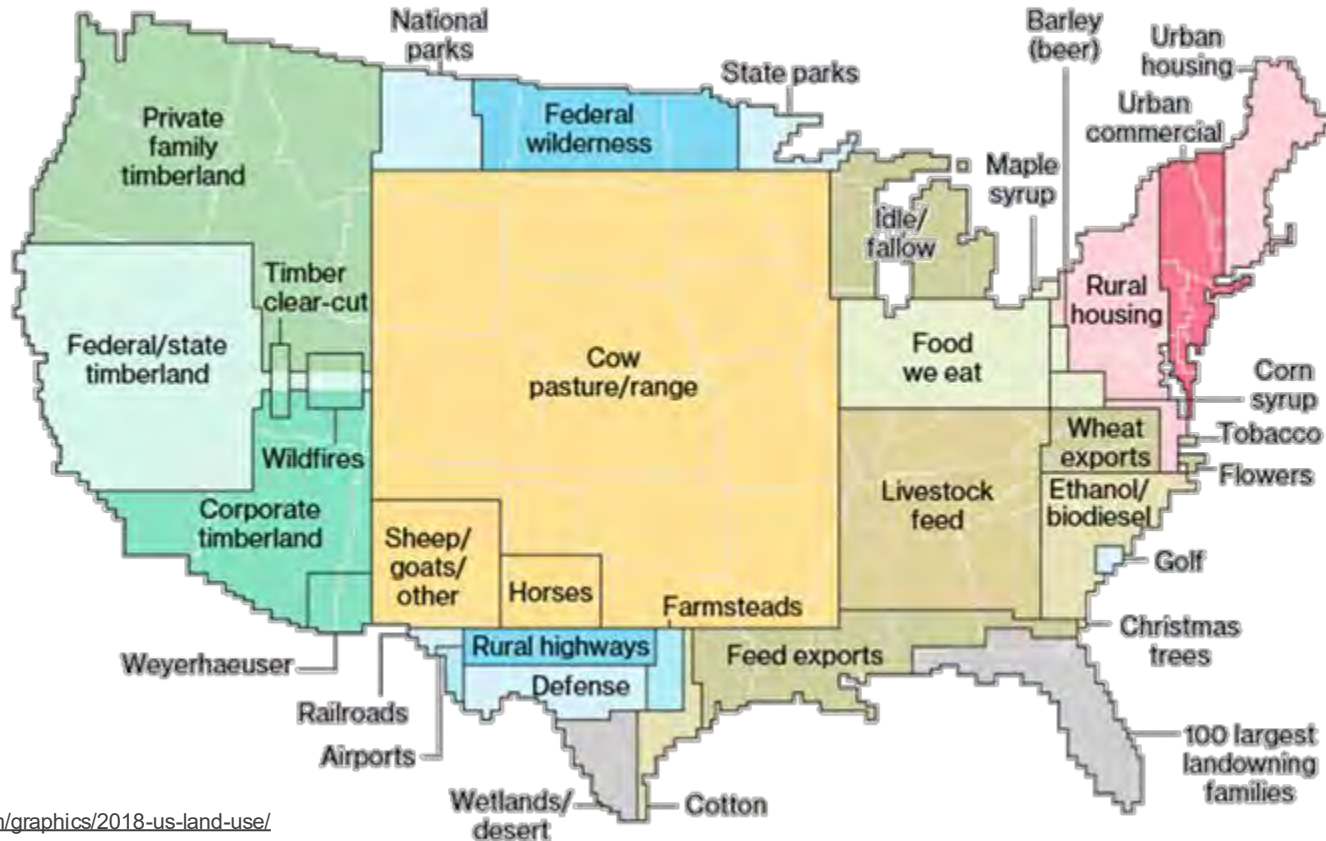
654
million acres

The federal government
manages livestock grazing
on 158 million acres.

U.S. PASTURE AND RANGE



U.S. PASTURE AND RANGE



Using Grazing to Improve Soil Health



NOBLE'S FOCUS:

**Land stewardship for improved soil
health in grazing animal production
with lasting producer profitability**

“Regenerative Ranching”

A large herd of dark-colored cattle is grazing in a vast, green field. The field is covered in lush grass, and the cattle are scattered across the landscape, some standing and some grazing. In the background, the horizon is visible under a bright blue sky with a few white clouds. The overall scene depicts a healthy, thriving grazing environment.

REGENERATIVE RANCHING

The process of restoring degraded grazing lands using practices based on ecological principles.



A close-up photograph of a shovel filled with dark, rich brown soil. Several thin, light-colored roots are visible extending through the soil. The shovel is held over a patch of green grass. The text "Regenerative Ranching:" is overlaid on the upper left portion of the soil.

Regenerative Ranching:

**Healthy soils and a
stronger bottom line**

SIX PRINCIPLES OF SOIL HEALTH



Know your context



Cover the soil



Minimize soil disturbance



**Maintain continuous
living plants**



Increase diversity



Integrate livestock

Six Soil Health Principles



Know your context

- Climate & rainfall patterns
- Water resources
- Landscape, terrain, grazable acres
- Soil types & forage types
- Management history & practices
- People skills, knowledge, & willingness to learn
- **Historic ecological context**



Six Soil Health Principles



Cover the soil

- **Allows rain to soak in and be stored**
- Prevents erosion
- Moderates soil temperatures
- Limits evaporation





5.3 inch Rainfall Event

Management:

- No-till Crop Rotation
- Cover Crops
- Planned Grazing Management

Infiltration Rate= 2.9
in/hr

78,740
gallons of water/Ac
Stored

Management:

- Conventional Tillage Small Grains
- No Cover Crops
- No Grazing

Infiltration Rate= 0.6 in/hr

16,507
gallons of water/Ac
Stored

October 2017, Comanche Co., OK

Six Soil Health Principles



Minimize soil disturbance

- **Un-natural**
- “Optimize” natural
- Apply tools judiciously



Six Soil Health Principles



Maintain continuous living roots

- Living plants in the ground **year round**



Six Soil Health Principles



Increase diversity

- **Plants – grasses, forbs, legumes, trees**
- **Grazing livestock – cattle, sheep, goats, etc.**



Six Soil Health Principles



Increase diversity

- **Plants** – grasses, forbs, legumes, trees
- Grazing livestock
- **Wildlife, birds, insects, earthworms, macro- and micro-organisms, etc.**



Six Soil Health Principles



Integrate livestock



Six Soil Health Principles



Integrate livestock

- Optimize stocking rate
- Minimum number of herds
- Integrate multi-species
- **Grazing management**
(adaptive multi-paddock grazing or AMP grazing)



Grazing Management to improve soil health (*adaptive grazing*)

- Stocking rate
- Manage Grazing Variables
- Work with Nature

Rule #1: Manage Stocking Rate to never exceed Carrying Capacity

Manage stocking rate proactively



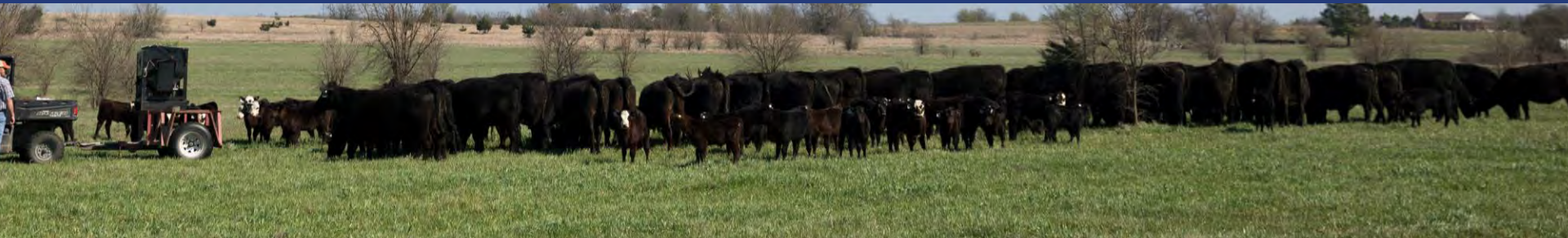
Simple stocking rate assessment

For every month of “hustling” or hay feeding over planned. . .

Overstocked by 8.3%



Rule #2: Plan and Graze Adaptively (Regenerative grazing management)



Managing time is essential
to regenerative and
profitable grazing.

Loss of Vegetative Cover Occurs Through Overgrazing

Staying too long



Returning too soon



Overgrazing occurs one plant at a time. A pasture or ranch can be understocked and overgrazed at the same time.

Staying too long



Returning too soon



REGENERATIVE GRAZING MANAGEMENT:

Grazing variables to be managed

- **Timing**
- **Frequency**
- **Intensity**
- **Duration**

Stock density is a key tool in regenerative grazing

REGENERATIVE GRAZING MANAGEMENT

Timing

- **Season**
- **Stage of maturity**
- **“Graze the grass up”
in the spring**
- **Attain peak growth,
photosynthesis**



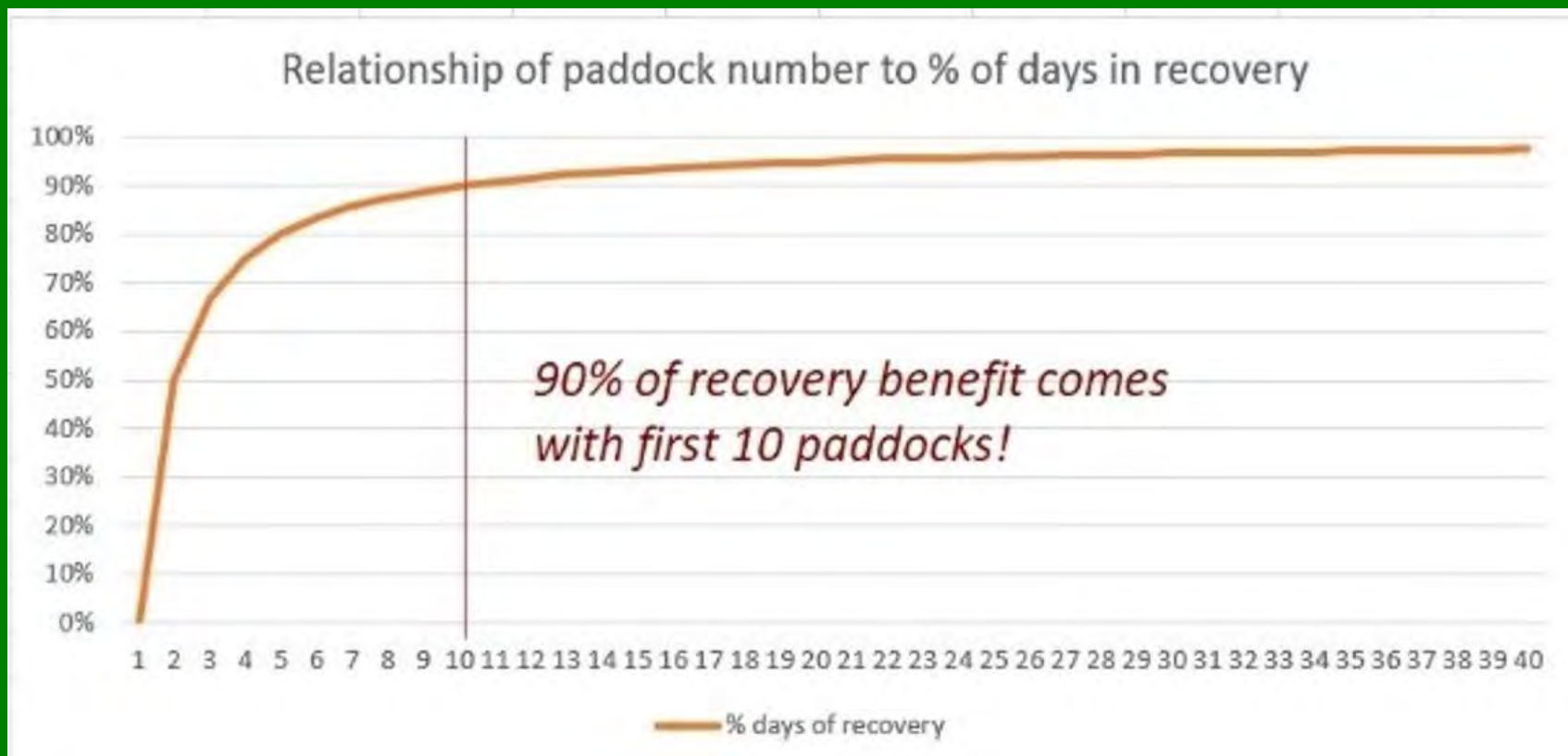
REGENERATIVE GRAZING MANAGEMENT

Frequency

- Long recovery periods
- 60-120+ days recovery
- Attain peak forage production
- Graze late phase 2 or early phase 3



How much does subdivision matter?



REGENERATIVE GRAZING MANAGEMENT

Intensity

- **Take half, leave half**
- **Leaving ample residual**
- **Top graze upper 1/3 in early growing season**
- **Stimulate new leaf production**
- **Cover the soil**



REGENERATIVE GRAZING MANAGEMENT

Duration

- **Short graze periods**
- **<1-3 days preferred**
- **Vary with growth rate**
- **Prevent repeat grazing of grazed plants during a grazing event**



REGENERATIVE GRAZING MANAGEMENT

Stock density

- **Decreases selectivity**
- **Creates herd impact**
- **Reset overly mature pastures**
- **Feeds soil biology at higher stock densities**





Stock Density & Herd Effect



REGENERATIVE GRAZING MANAGEMENT

Ultra High Stock Density

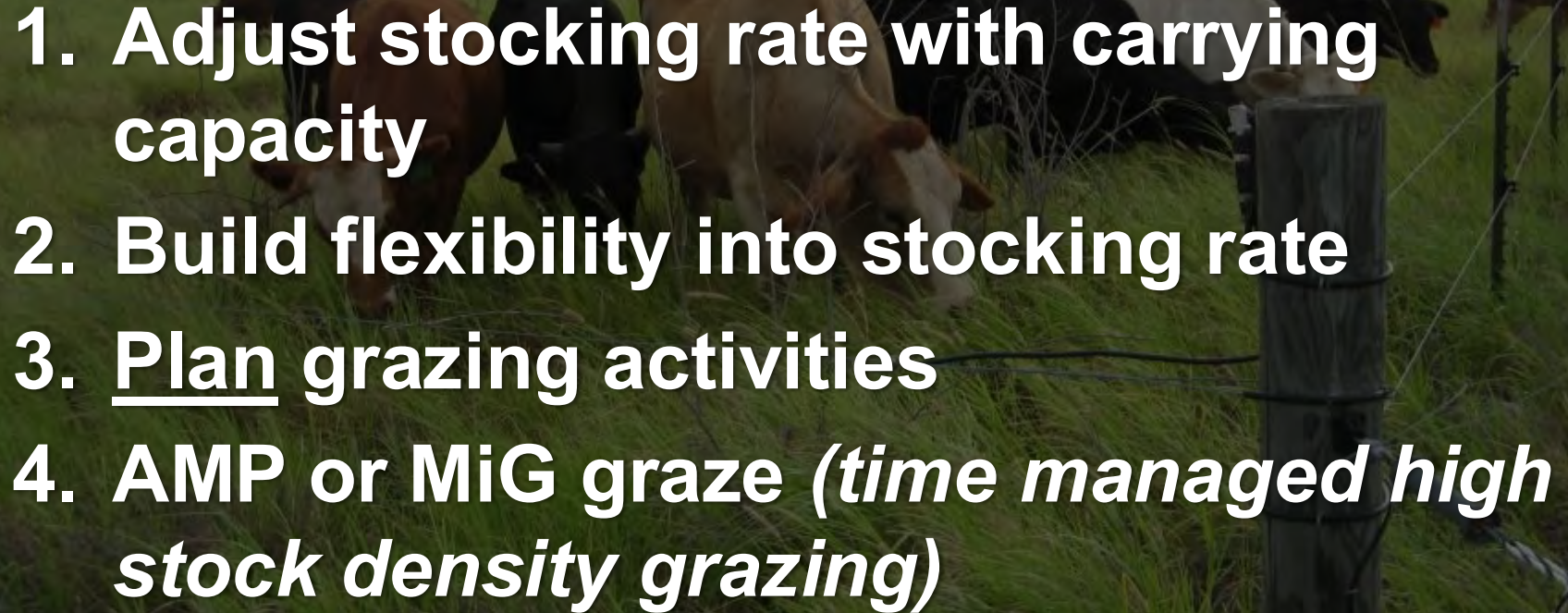
- Apply strategically
- Peak production (spring)
- Season transitions
- Abundant mature
(dormant) material



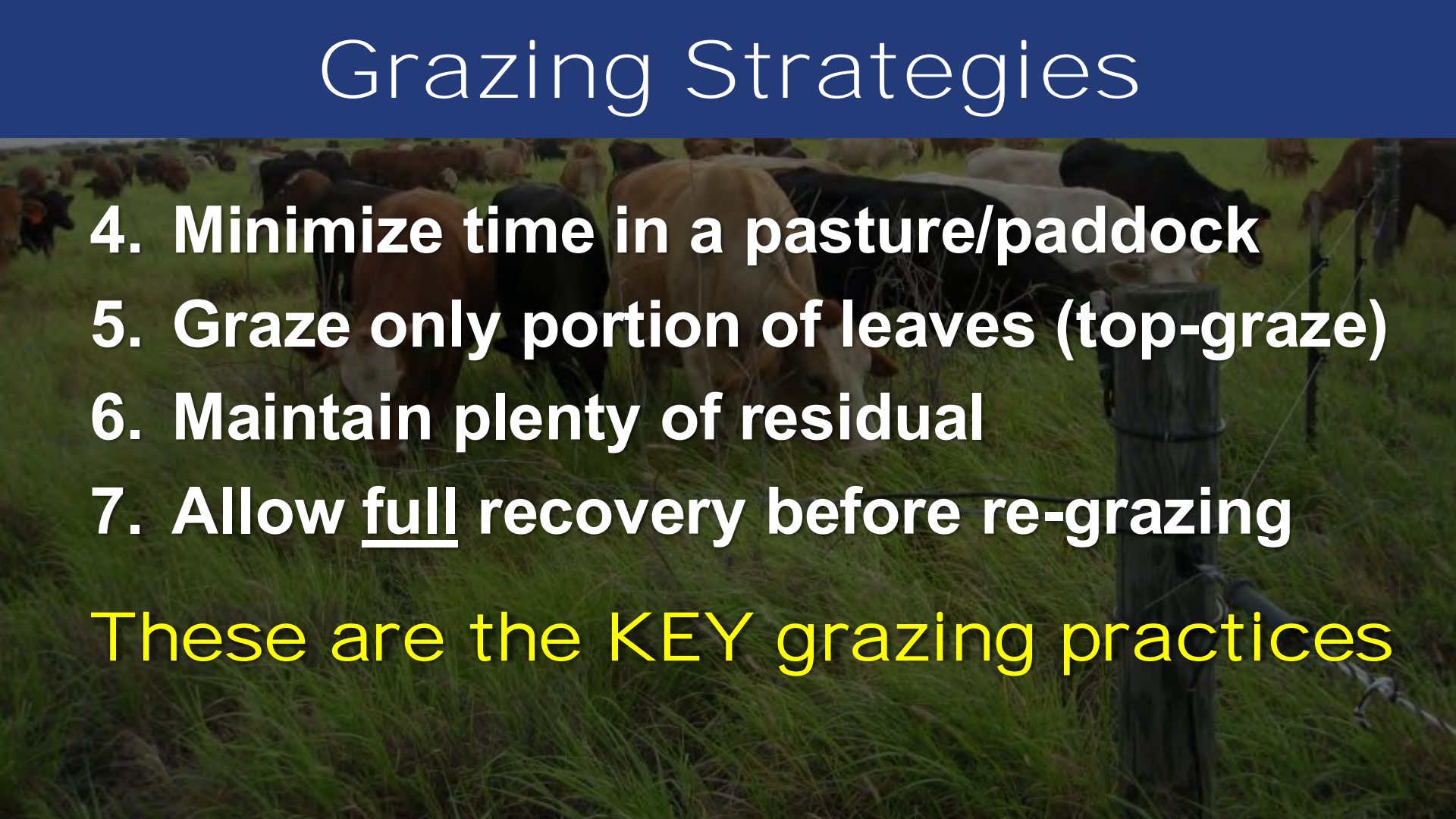
Rule #3: Work With Nature



Grazing Strategies

- 
1. **Adjust stocking rate with carrying capacity**
 2. **Build flexibility into stocking rate**
 3. **Plan grazing activities**
 4. **AMP or MiG graze (*time managed high stock density grazing*)**

Grazing Strategies

- 
- 4. Minimize time in a pasture/paddock
 - 5. Graze only portion of leaves (top-graze)
 - 6. Maintain plenty of residual
 - 7. Allow full recovery before re-grazing

These are the KEY grazing practices

A photograph of a cow and a horse grazing in a field, with a person standing in the background. The cow is in the foreground, and the horse is behind it. The person is standing in the background, partially obscured by the horse. The text is overlaid on the image.

Adaptive grazing management leads to improved soil health and ranch sustainability

Ranch sustainability is continual improvement in land, livestock, and PROFITABILITY

Improved Soil Health + Improved Profitability = REGENERATIVE RANCHING

Begins with Change in Mindset



***“We are extremely blessed!
Not everyone gets to do this!”***



NOBLE RESEARCH INSTITUTE

I have augmented all those beds with cardboard, both shredded and just laid on top. Plus a 3-4 inch layer of horse manure, straw and wood shavings from a stable.

Better Forage. Better Grazing. Better Livestock.

Noble Grazing

ESSENTIALS

Use your available forages to get the best out of your livestock and grazing land.

Enroll Today!

**March
25-27**

**Huntsville,
Texas**

**June
4-6**

**Jefferson City,
Missouri**

Go to www.noble.org/grazing-essentials to secure your spot!





Noble Land

ESSENTIALS

Learn how to cut costs, boost profits per acre and adopt regenerative practices that strengthen your land and your bottom line.

Enroll Today!

**Feb.
26-27**

**Paicines,
California**

**Aug.
6-7**

**Jefferson City,
Missouri**

Go to www.noble.org/land-essentials to secure your spot!



Noble Profitability

ESSENTIALS

The Profitable Path to Regenerative Ranching

Learn how combining smart business skills with real-world ranching strategies can make you more profitable.

Enroll Today!

**Jan.
28-29**

**McKinney,
Texas**

**Feb.
11-12**

**Jefferson City,
Missouri**

Visit www.noble.org/noble-profitability-essentials to sign up now!

Business OF Grazing

Equip yourself with the skills to convert
your grazing decisions into profit.

Enroll Today!

**March
4-6**

**Edmond,
Oklahoma**

**Sept.
23-25**

**Jefferson City,
Missouri**

Go to www.noble.org/business-of-grazing to secure your spot!



12 MONTHS ACCESS

Rancher TO Rancher



Join your fellow ranchers in a monthly virtual get-together designed for you to connect, share knowledge and discuss topics that truly matter to your operation.

Upcoming Sessions

**Jan.
16**

**How to decrease
dependence
on hay**

**Feb.
20**

**Use prescribed
fire to your
advantage**

**March
20**

**Setting baselines
with soil samples**

**April
17**

**Warm season
cover crops**



A photograph of two men standing in a grassy field with cows in the background. The man on the left is wearing a light blue shirt, dark blue jeans, a tan cowboy hat, and sunglasses. He is pointing his right index finger towards the other man. The man on the right is wearing a blue and white checkered shirt and dark blue jeans. They are both looking at each other. In the background, there are several brown cows grazing in a field under a blue sky with some clouds.

NOW AVAILABLE

Noble Consultation

Trusted Advice for Your Land, Livestock, Livelihood and Legacy

**Receive personalized guidance and support
from advisors who understand the unique
challenges facing ranchers like you.**

A woman with blonde hair and glasses, wearing a dark jacket over a light-colored shirt, is seated at a table and looking at a laptop. A man with a beard and short dark hair, wearing a light-colored button-down shirt, is also seated at the table, looking at the laptop. An older man with white hair, wearing a blue and white striped shirt and a brown vest, stands behind them, looking down at the laptop. On the table are two white foam cups, a clear plastic water bottle, and some papers. The background is a bright, out-of-focus indoor space with large windows.

45-MINUTE | ONE-ON-ONE SESSION

Noble Consultation

Whether you have questions about what you learn in class or need advice before taking the next step, this 45-minute, one-on-one session is designed to address your specific challenges and goals.

WEEKLY NEWSLETTER

REGENERATIVE TIPS AND RESOURCES DELIVERED DIRECTLY TO YOUR INBOX

noble.org/subscribe



[View in browser](#)



NOBLE RANCHER

Actionable tips and helpful resources to assist you along your regenerative ranching journey



So You Want To Grow Cover Crops: 3 Questions to Ask Before You Start

Cover crops have gained a great deal of popularity in the past several years. Producers often contact us wanting information about which cover crop they should grow. Before we can give a good answer, we must first ask and answer a multitude of other questions.

EXAMINING COVER CROPS

Wondering what cover crop to grow? Three key questions must be answered before a cover crop is planted.

[READ MORE](#)

[AROUND THE WEB](#)

FOLLOW US ON SOCIAL
MEDIA

MORE WAYS TO CONNECT ONLINE



#REGENWITHNOBLE

