Building Resilience into your Farm

Let nature do the heavy lifting!

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Summer 2016


Oct 2020


June 2021: 3-inch rain event

Is your soil biologically active?

Why worry?

2 to 6-inch Rain Events

Flooding/Drought

High winds more often

Very High Temperatures

Super Cold Temperatures

Suicides

www.understandingag.com quote from the article: Invest in Yourself 4/19/2020 By Gabe Brown & Shane New

"...soil samples from 45 farms in the northern plains and prairie provinces.

Samples were taken to a 12" depth.

Both Haney soils tests and total-nutrient extraction tests were done on all samples. The results were surprising. "

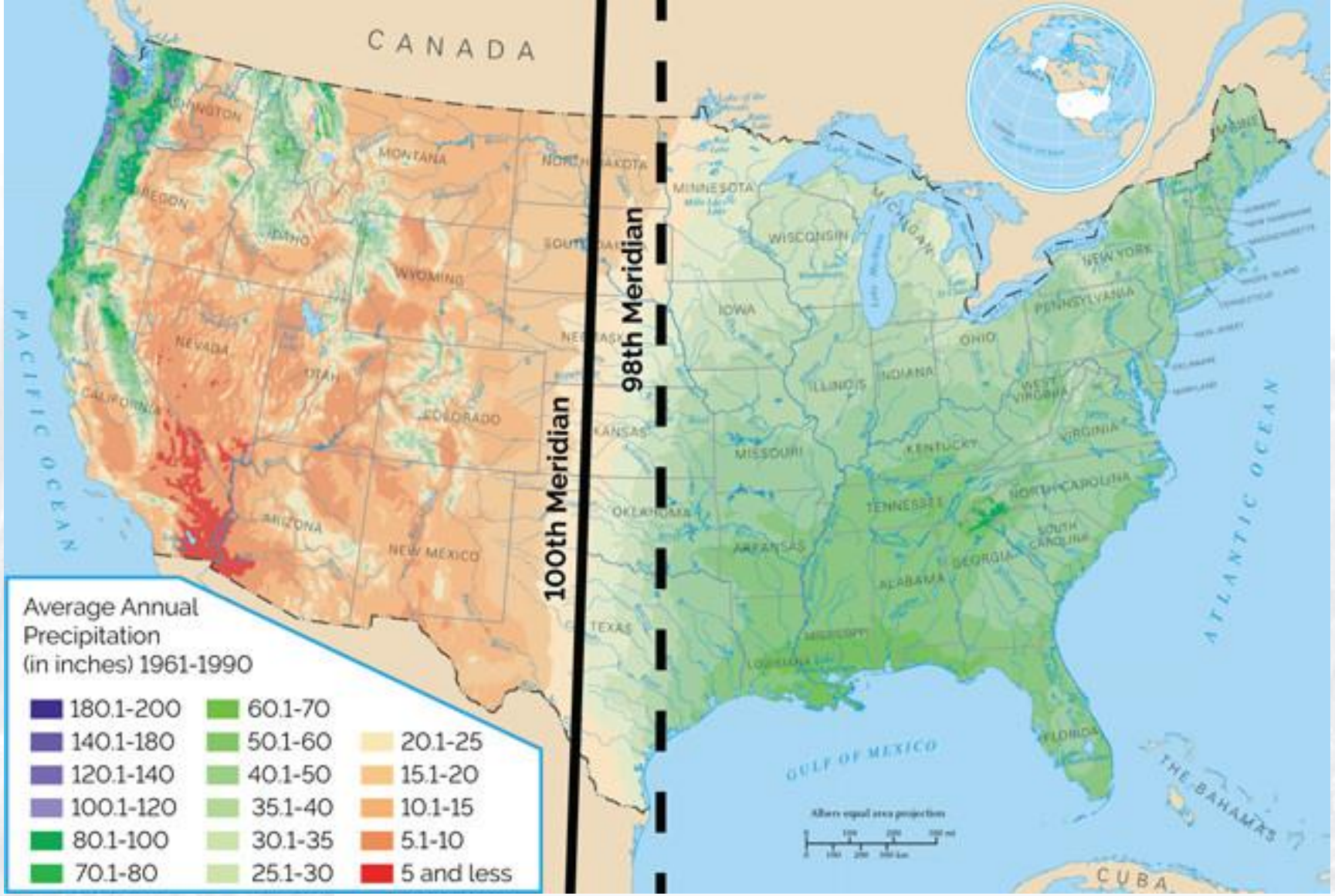
"The average pounds of nitrogen across all farms was 4,000!

Phosphorus was 1,200#.

Potassium came in at 11,000#. That's right, read those numbers again.

The least amount of nitrogen on any farm was over 1,000#."

Approximately 140 mile change since 1980



Boundary between the humid eastern United States and the arid Western plains.

The 100th meridian runs from pole to pole, 100 degrees longitude west of the prime meridian in Greenwich, England. It cuts through six U.S. states, forming a partial boundary between Oklahoma and Texas. Powell identified this line as marking the point where the average annual rainfall dropped from 61 centimeters on the eastern edge to 46 centimeters at the western edge. New research shows a sharp aridity gradient still exists, but it's moved east a bit, closer to the 98th meridian. Climate models predict it will move farther eastward in coming decades. Credit: National Atlas, modified by K. Cantner, AGI.

SOIL ENEMY

#1

Tillage is the number one enemy of soil!!

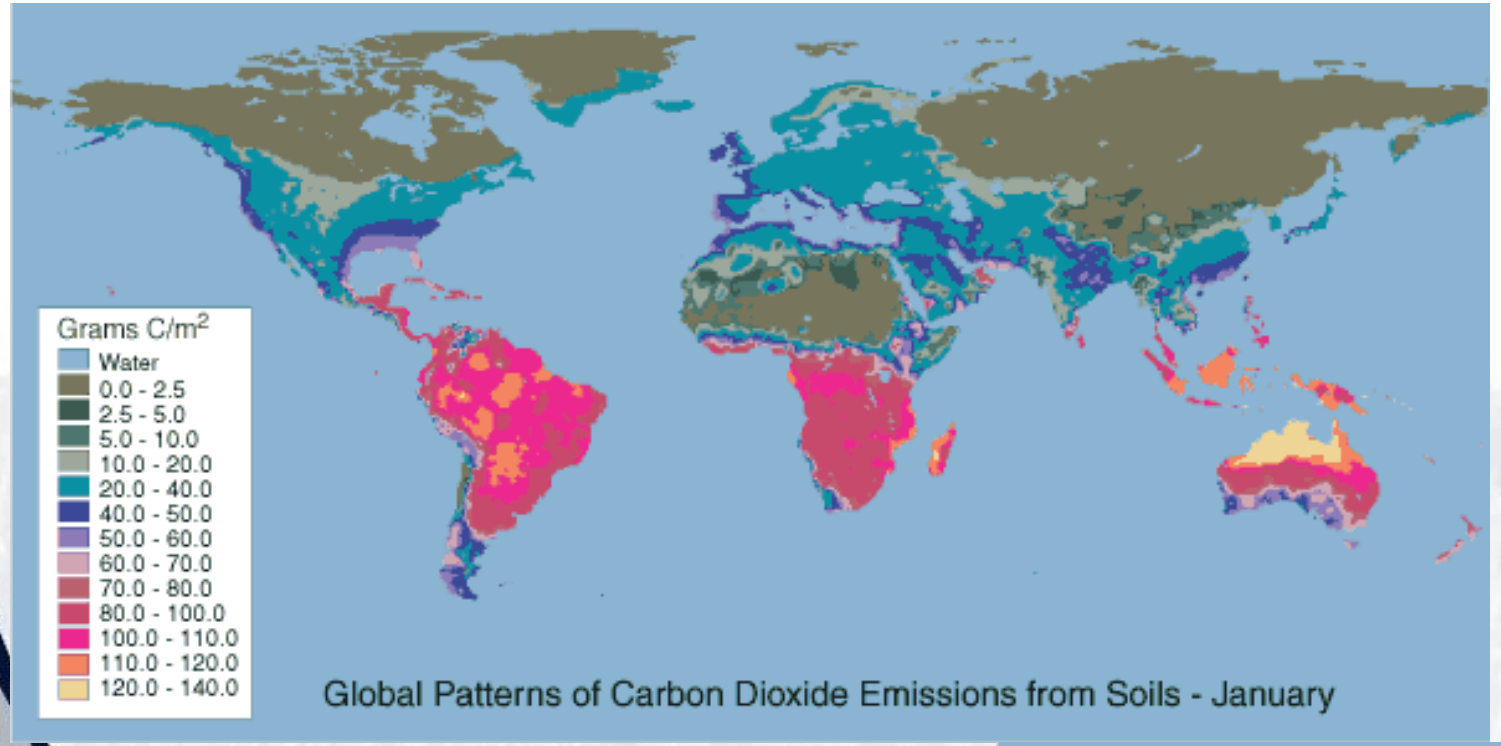
This lets ALL of the carbon out!

Churns up the mycorrhizal community-takes 6 weeks to recolonize

REMOVES OXYGEN

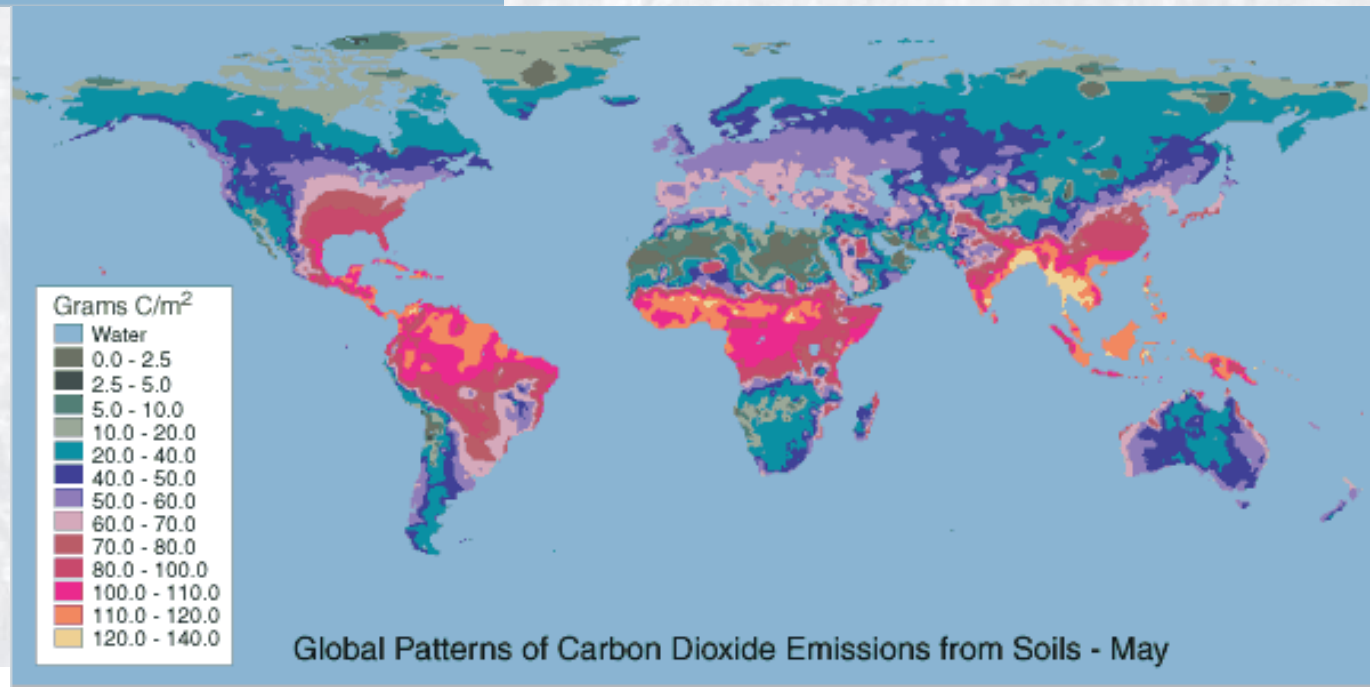
SMALLER PARTICLE SIZE

Glomalin- life span of 27 days



Carbon Dioxide Levels up during growing season

https://cdiac.ess-dive.lbl.gov/epubs/db/db1015/may.html



Context

Do not Disturb

Keep soil covered

Diversity-plants, animals, microbes, insects

Living roots-all the time

Growing Health-soil, animals, people

Compounding/Cascading

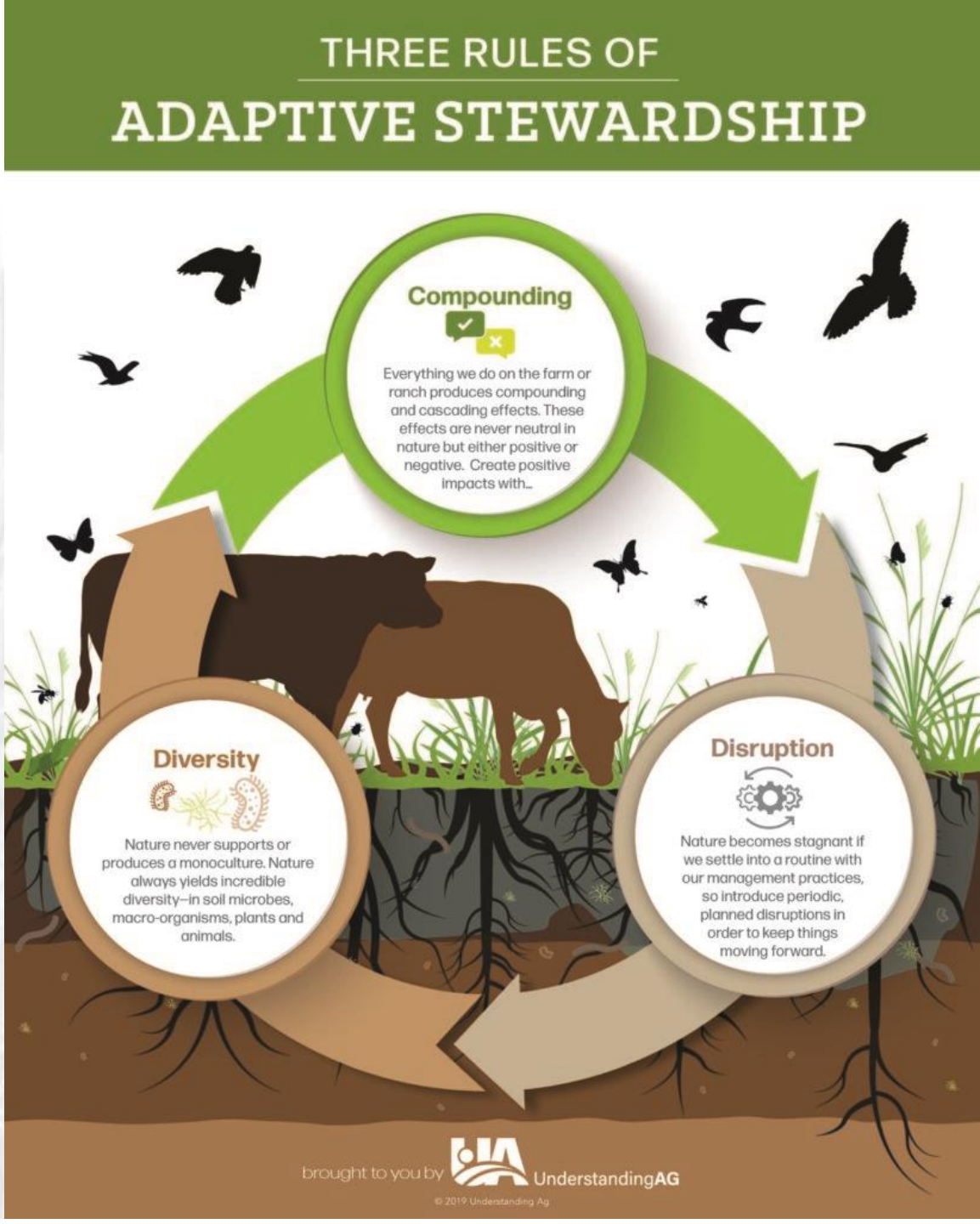
Never neutral

Disruption

Prevent patterning

Diversity

No monocultures



Regenerative Agricultural Practices:

Create a better future for farms

Resilience is risk management for climate change

Lower the need and costs of inputs

Fewer inputs require less physical labor

Less labor equals less fatigue and stress

DIG A HOLE-look at your soil!!

8 x 8 x 8 inches;

How many earthworms?

What do you see? Chocolate cake texture!!

Get a HANEY TEST

Active Carbon
Potentially Mineralizable Nitrogen
And more


SEQUESTOR CARBON
Grow Cover Crops

What can cover crops do?

- Change patterns of growth
- Brighten communication between plants
- Encourage nutrient uptake
- Different size/height plants=different length roots
- Mining of different nutrients from different depths
- Bolster winter stockpile

Plant a Ratio 1:1:1 grass: forbs: legumes

Context: Purpose of CC, Goals, Season

- Greg Judy’s Farm
- Cows eat top one third of plant and then move again

SARIAH
B

1.Plant stops producing Glomalin
2.Roots Slough off- no photosynthesis
3.Parasites-sitting on stem waiting to be eaten
4.Mycorrhizae have no place to live
5.No shade canopy-high soil temp
6. Earthworms/soil microbiome need 55-65degrees
7. All plant communications cease
8. Reproduction/seed production is lower

<<<<<<Grazed/hay HERE!!YIKES!

Nature cannot DEFEND you when you have no active biology

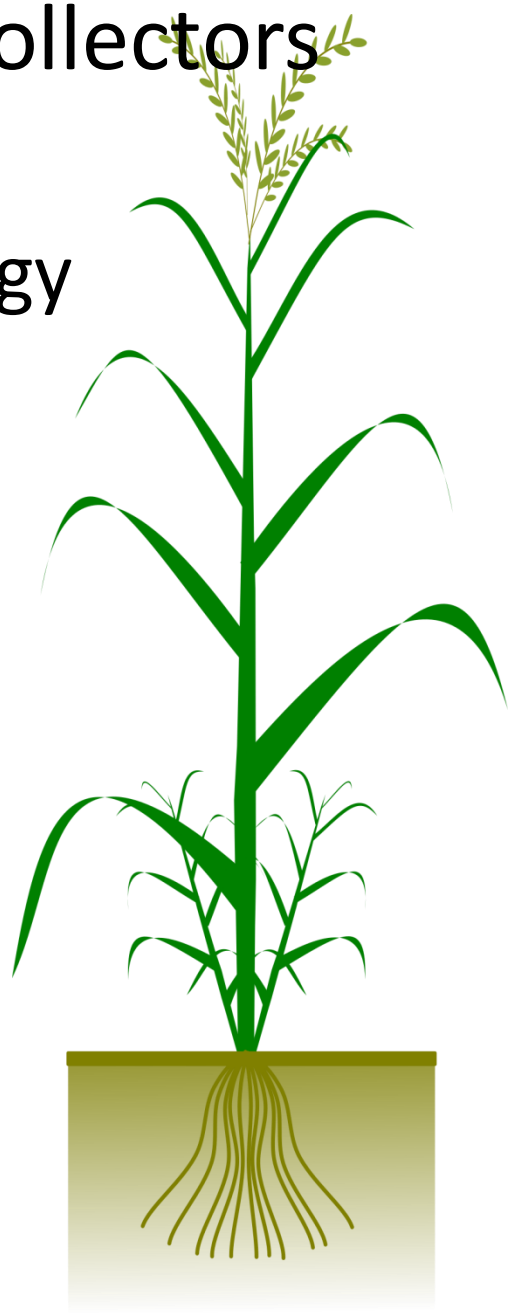
FREE ECO-SERVICES

Plants will remain in vegetative growth

<<<<Grazed here the plant may only slough off a few inches of root or root hairs

THANKS FOR FEEDING the roots and the biology in the soil
…thanks for the shade too

- Plant leaves are solar collectors
  - NO leaves = NO Energy



- Rest paddocks/pastures a minimum of 30 days to 60 days- until the tips grow back

24-inch-tall plant =
2 to 10 feet of roots

Anything that falls on,
crawls on,
sprays on
or grows on
your farm should remain there
until harvested /sold

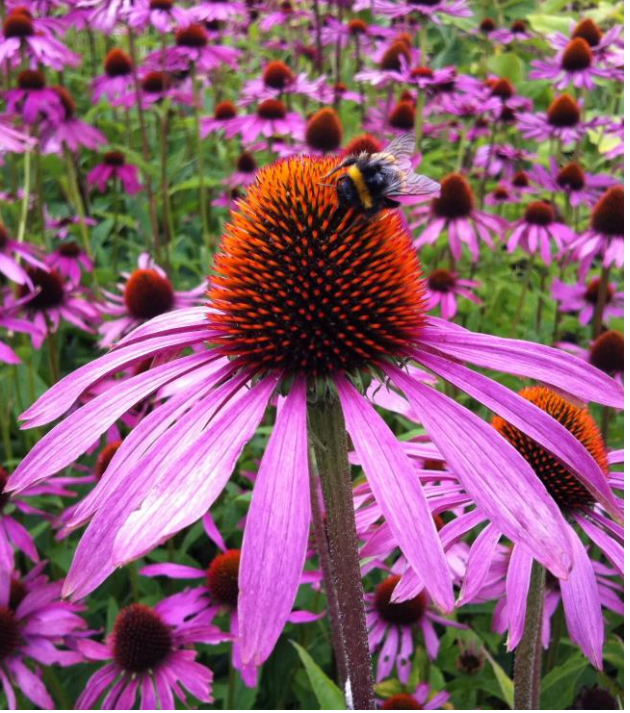
Prevent run-off
Prevent spread of disease
Prevent chemical trespass
Prevent livestock damage
What else can you prevent?
Risk Management
Grow more Grass and trees

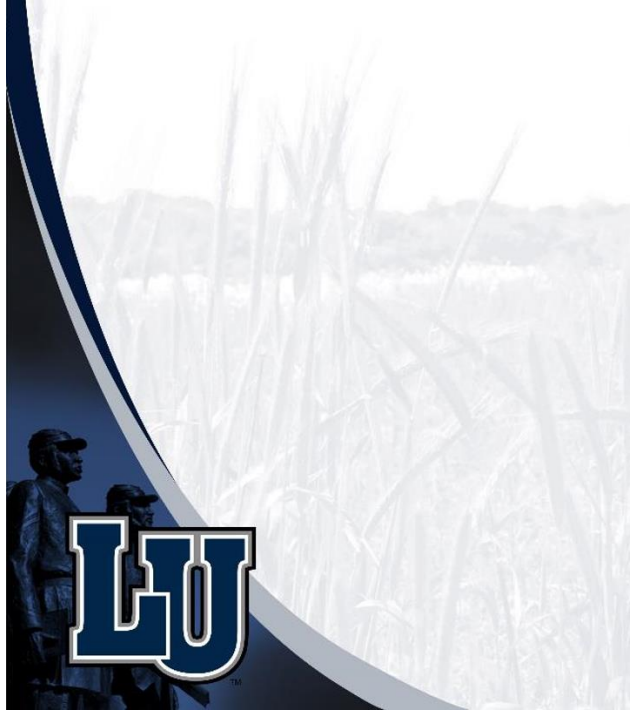
While you wait for soils to become biologically active (18 to 24 months)

use higher quality minerals for your livestock

such as Jerry Brunetti formulations

Medicinal Hedgerows/ Walls?





- Any plant , any tree that is not highly toxic
- Can be used in a medicinal hedge for animal to select

Medicinal hedgerows for Livestock

Kirsten Robertson
Pecandale Farm
Greenville, SC

Use livestock panels to enclose the plants- prevent eradication

- Prune/coppice trees to stay same size
- Trees
  - Locust- legume and fix nitrogen
  - Willow-med
  - Oak-tannin
  - Add Perennial Herbs & berries-echinacea, elderberry

- Half-fell trees to grow closer to ground-animal harvest of leaves

- Caution on stone pitted fruit trees-cherry-plum
  - Wilted leaves poisonous

- www.Understandingag.com Ray Archuleta youtube videos, Gabe Brown & Shane New -article: Invest in Yourself- 4/19/2020
- Managing Cover Crops Profitably- SARE handbook #9 (pages 62-72) Free Download
- Building Soils for Better Crops-SARE handbook #10, free download

•https://learn.extension.org/events/1226 Dr Darrell Emmick's webinar-click on Watch the Webinar, when you get to the page of the webinar, scroll down to get the handouts, which you can save on your computer, then watch the video.

•Pasture as pharmacy- https://extension.usu.edu/behave/htm/current-projects/pasture-project/pasture-as-pharmacy

•https://extension.usu.edu/behave/htm/principles

•Train Livestock to Eat Weeds- http://www.livestockforlandscapes.com/cowmanagers.htm

- https://extension.usu.edu/behave/htm/learning-tools

- Grass Productivity, Andre Voisin, 1957 (Untoward Acceleration)
- https://cdiac.ess-dive.lbl.gov/epubs/db/db1015/may.html

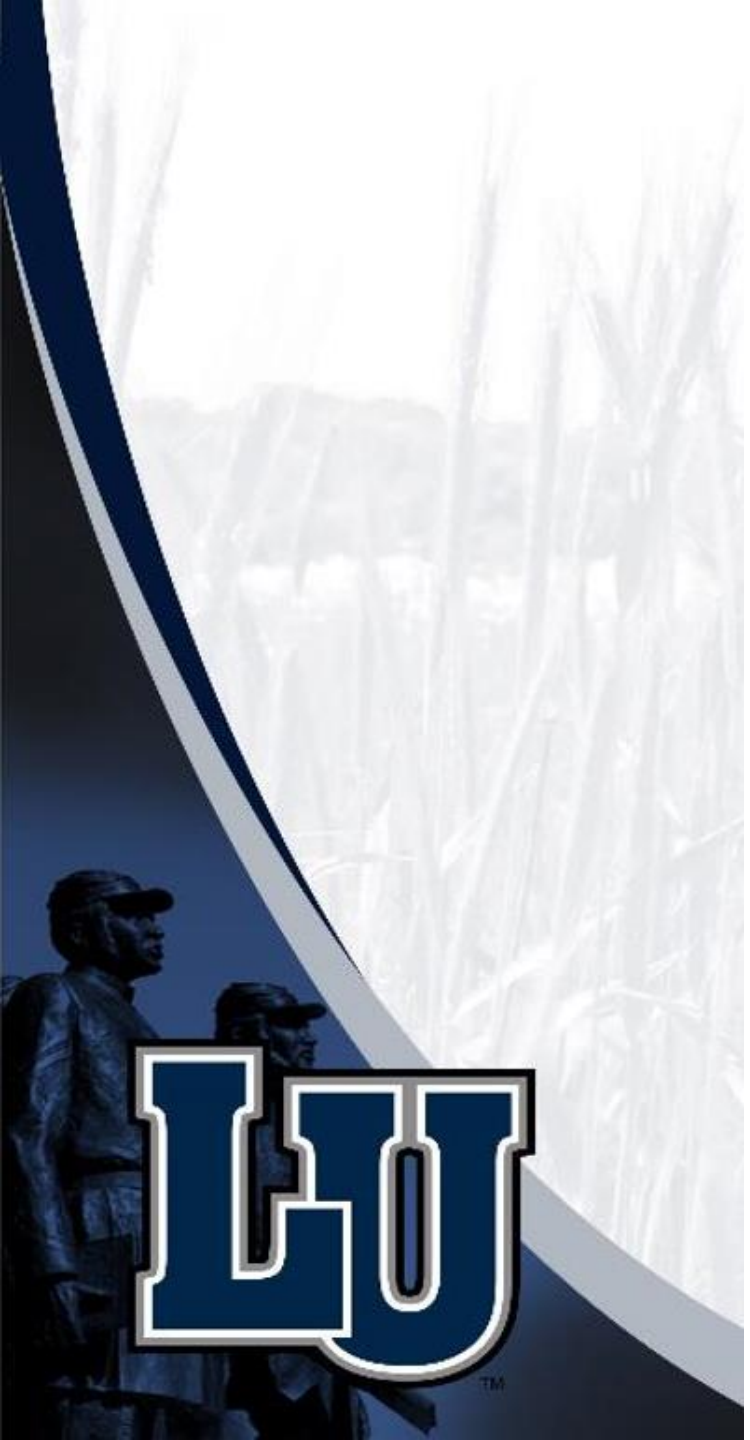
Resilient Agriculture: Cultivating Food Systems for a Changing Climate
by Laura Lengnick
http://cultivatingresilience.com/

Missouri AgrAbility

Special Thanks to the USDA NIFA:
AgrAbility Grant
#2018-41590-22323

USDA NIFA

United States Department of Agriculture
National Institute of Food and Agriculture



We exist on earth at the amusement of microbes!

Please FEED THEM!

QUESTIONS??

Thanks for Listening!

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