USING HIGH STOCK DENSITY TO IMPROVE SOILS AND INCREASE PROFITS

Mark Brownlee

Grazing Goals

1. Cattle enterprise will be maintained as near as possible with 0 inputs
2. I will maximize the capture of solar energy.
3. Enough forage will be produced yearly to eliminate the need for hay except when snow and ice prevent efficient grazing.
4. My pastures will have no visible bare soil ever.
5. My fields will have a thick plant population.
6. Each field will have a plant diversity of more than 50 species which includes both warm and cool season species.
7. Soil organic matter will be steadily increasing.
8. Soils will have at least 4” of litter 2 and be covered with at least 1” of litter 1.
9. I will have a thriving dung beetle population.
10. All fields will have a thriving earthworm population.
11. Plant brix will make the forage on my farm a wildlife magnet.
12. Water infiltration will greatly reduce or eliminate runoff.
13. Springs will maintain constant flow even in dry years.
14. Fields will become increasingly drought resistant.
15. Improved quality of life.

Is the system you currently using meeting your goals?

Are your goals written down?

There is Security in Diversity

First started practicing rotational grazing about 18 years ago, but still bought fertilizer, and baled and fed lots of hay.

February 2008
$4.00 Diesel
$1000/ton Fertilizer

I knew it was time to make a change -- But to what ?

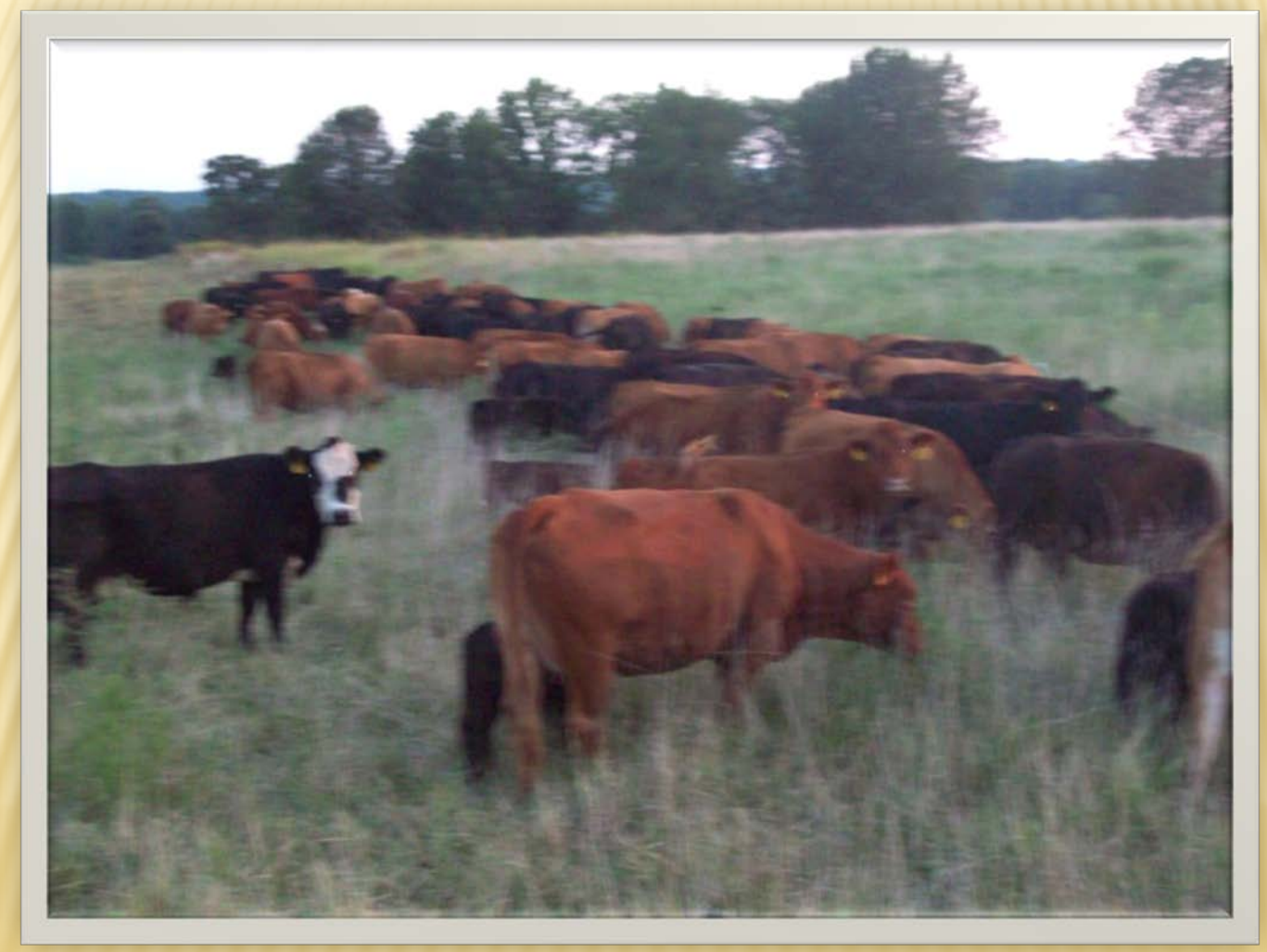
Attended a workshop on grazing tall grass with high stock density in March 2008 Speaker talked about –

Increased stock density
No hay baling
Cows grazing nearly all winter
Feeding less than 1 bale per cow per winter
No bare soil
Increased annual production
Increase in plant population
Using No Fertilizer

One of my biggest concerns was going into the winter with a small hay supply

Doug Peterson- You already produce enough forage on your farm to feed your cows all year. How you choose to harvest that forage is up to you.

May 5, 2008- Started Moving cows 2 times per day



Temporary Alley – May 2008

Temporary Alley July 2008

Red Clover/Fescue

University of Minnesota

Organic Matter acts like a sponge and can absorb 6 times its weight in water

Org. matter can hold 5 times as much nutrients for plants to use

A soil with 3% o.m. contains about 3000 lbs. of “N” per acre with 25 to 100 lbs. of that available to plants each year

Organic matter mgt. may be the most significant thing you can do to improve soil.

It takes several years for a percentage change in organic matter levels to show up on a soil test

Fortunately you get to enjoy the benefits of added organic matter level almost immediately

Pasture Weeds Before High Density Grazing

Tall Grass Grazing

Trampled Forage

Forage Allocation-
Graze 60% - Trample 20% - Leave 20% standing
Dr. Christine Jones

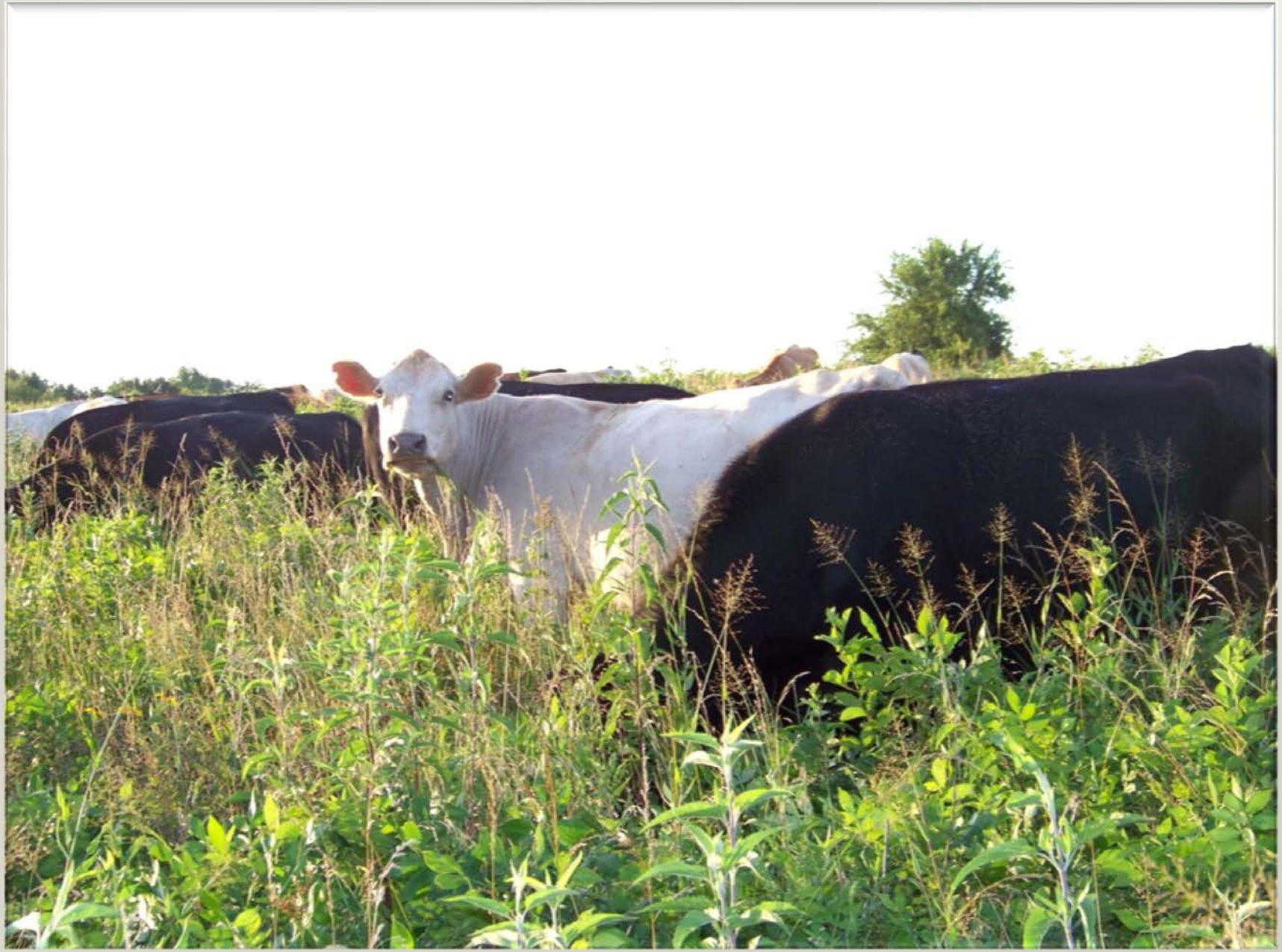
If you error in forage allotment make sure you gave the cows too much forage instead of not enough

I recommend that you stay away from doing “landscaping mode”

Soil Building is important but, Animal Performance should be our number one concern

Nothing else is going to make much difference if we can't make a profit

“If you do this and don’t improve animal performance
then you are doing it wrong”-



Red Top


01/01/2007

Capturing More “N”

Grazing Management That Leaves More of the Soil Covered With Green Plant Residual or Dead Litter Keeps the Soil Cooler and Enhances Urine Infiltration Rates

Cow Urine Has the “N” Fertilizer Equivalent of 200 – 1,000 Lbs N/acre In That Little Patch

Without Litter Most of the “N” in Urine Is Lost To the Atmosphere As Ammonia Gas-
Jim Gerrish

Lespedeza

Johnson Grass

“Plants Should be “Recovered” Before They are Grazed Again - Not Just Rested”

Neil Dennis- Canada

Stock Density- Cows are moved 2 times per day during the growing season at a stock density around 200,000 lbs. per acre

Rest periods have changed from 45 days to sometimes over 120 days

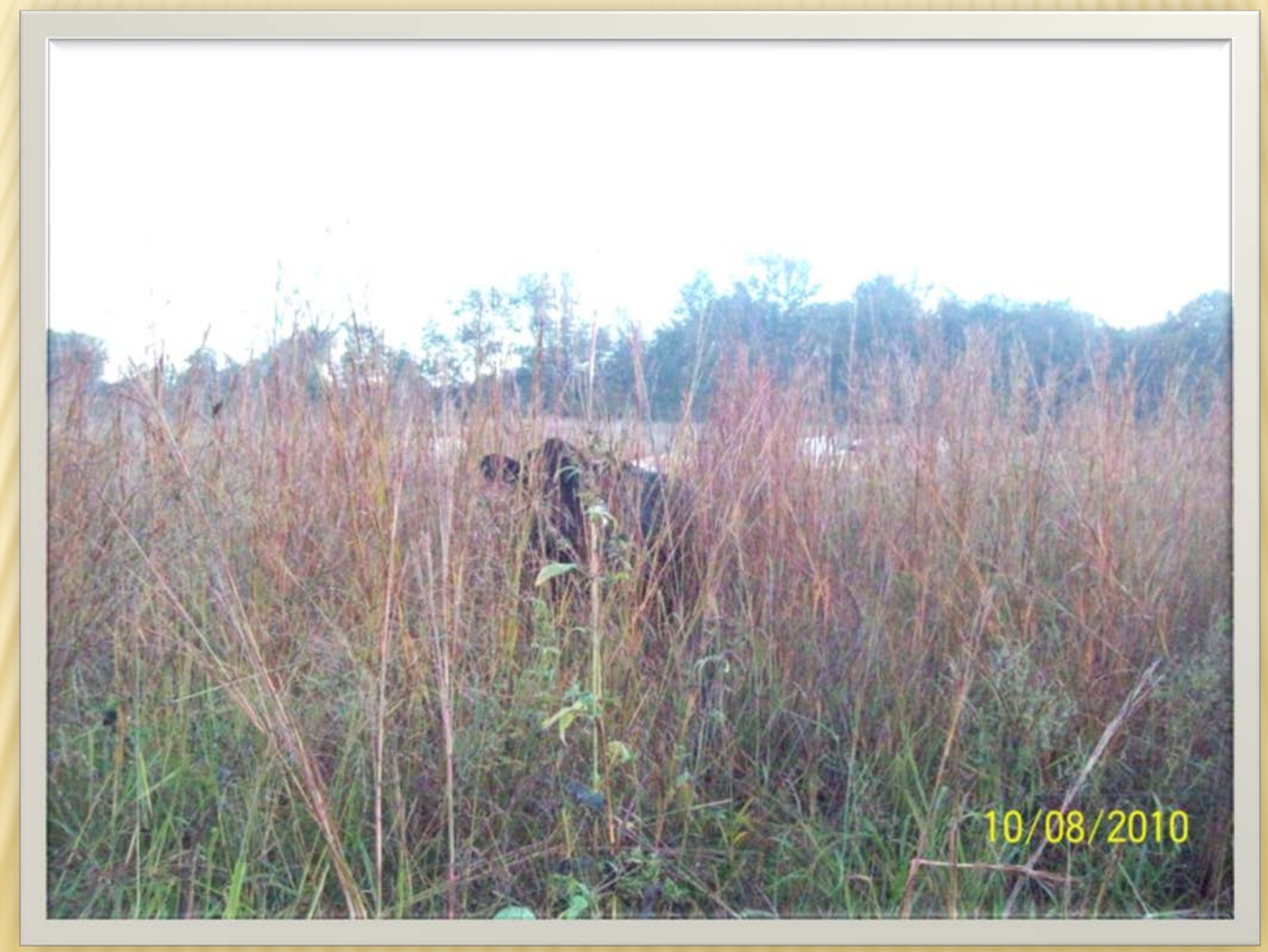
Stocking rate – set based on available forage during the dormant season

Cows are expected to graze at least 11 months per year

Eastern Gama

Indian Grass

Big Bluestem



Fescue – January 2009

Residual After Grazing January 2009

Calves Graze Ahead of the Cows Not Behind

Serecia Lespedeza


62
62
10/08/2010

February
2010

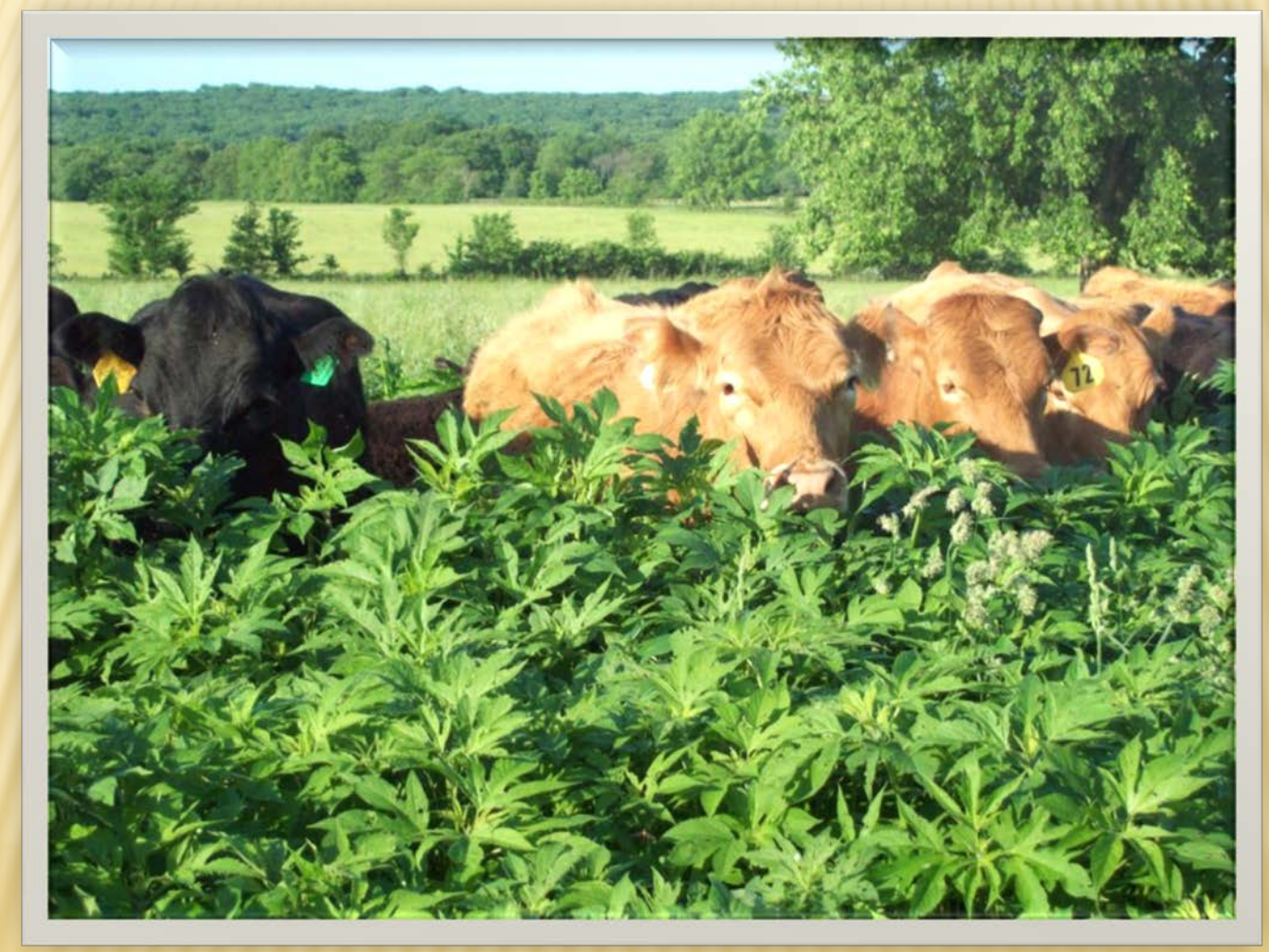
Strip Grazed
Hayfield –
Fall Re-
Growth

Strip Grazed High Stock Density Pasture Same Day Across the Road

Grazing Sumac

Sumac After Grazing

Giant Ragweed



Giant Ragweed 30 Minutes Later

Cockleburs Before Grazing and After Grazing

Cocklebur

Wildlife

Earthworms

Dung Beetles


09/05/2010

Spiders

2011


07/30/2011

2012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Why High Density Grazing ???

Eliminated fertilizer expense
Reduced hay fed per cow from 5 bales to 1 or less
4 bales less per cow @ $25/bale = $100 more profit per cow
Big reduction in fuel and repair expense
Saved time
Increased plant population
Increased plant diversity
Built in drought reserve
Very little bare soil
Better water infiltration
Earthworm and dung beetle population increasing
Improved animal performance
Build soil organic matter levels
No pressure to keep plants in a certain growth stage
Improved quality of life

The Biggest Reason for using high stock density to graze tall mature forage is to improve the quality of my soils

Trampled Forage

Does Maximum Production Necessarily Mean Maximum Profit?

Which One of These Will Pay the Bills?

Are things perfect at my place now?

Books

Holistic Management: A New Framework for Decision Making - Savory

Holistic Management Handbook- Allan Savory and Jody Butterfield

Kick The Hay Habit - Jim Gerrish

Teaming with Microbes - A Gardners Guide to the Soil Food Web - Lowenfels and Lewis

The Stockman Grass Farmer magazine