

# Soil Is Meant to be Covered



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# Soil Is Meant to be Covered

Cover Crops for Soil Health  
Benefits and Providing  
Livestock Grazing – Boosting  
Organic Matter and Carbon  
Sequestration







It's hard to sell  
**COMPLEXITY**  
when everyone craves  
**SIMPLICITY**



# Complexity

- Extremely difficult to build
- Hard to maintain
- Easy to destroy

Do you know  
how to manage  
the soil in the  
way it was  
designed to  
function?





Our soils were formed by  
**MULTIPLE SPECIES** and had  
**LIVING ROOTS** in the soil at  
**ALL TIMES**





# Treat Cover Crops Like Cash Crops!



# You can't buy soil health: It has to be made!



## Management!



# Who is your Mentor(s)?

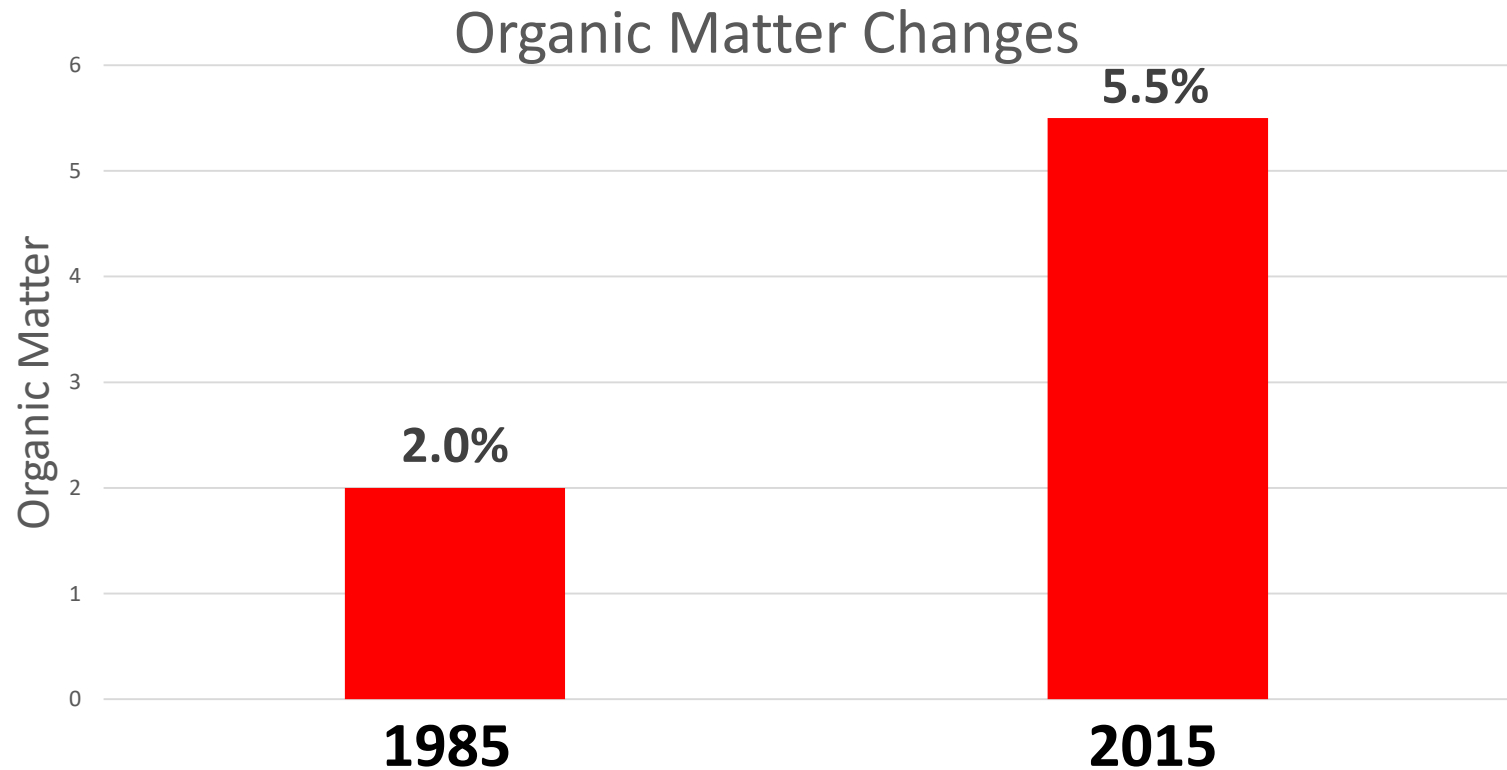


Frederic Thomas



# Cedar Meadow Farm

*The Past 30 Years...*



## Management!





# My Diversity Journey...

## 1982- 7 Species

### Cash Crops

Tomatoes  
Squash  
Wheat  
Corn (grain and silage)  
Alfalfa  
Grass

### Cover Crop

Cereal rye

## 2018- 27+ Species

### Cash Crops

Tomatoes  
Squash  
Pumpkins  
Oilseed rape  
Hairy vetch  
Triticale  
Malting barley  
Wheat  
Corn (grain and silage)  
Soybeans  
Winter Peas  
Alfalfa/grass  
Grass  
Black Oats

### Cover Crops

Radish  
Hairy Vetch  
Balansa Clover  
Crimson Clover  
Oilseed Rape  
Cereal Rye  
Triticale  
Field Peas  
Annual Ryegrass  
Pollinator mix  
Sunn Hemp  
Sorghum Sudan grass  
Sunflower  
Others...



# My Goals...

- Diversity, Diversity, Diversity
- Lower pesticide and fertilizer use
- No Commodity crops
- Pursue increased nutrient density/quality
- Profit!



# Started No-Till in 1982





# 36 Years Later...





# Collecting the "snirt" sample



Test	Method	Results	SOIL TEST RATINGS					Calculated Cation Exchange Capacity
			Very Low	Low	Medium	Optimum	Very High	
Soil pH	1:1	7.2						12.1 meq/100g
Buffer pH								%Saturation
Phosphorus (P)	M3	156 ppm						%sat meq
Potassium (K)	M3	163 ppm						K 3.5 0.4
Calcium (Ca)	M3	2052 ppm						Ca 84.8 10.3
Magnesium (Mg)	M3	165 ppm						Mg 11.4 1.4
Sulfur (S)	M3	17 ppm						H 0.0 0.0
Boron (B)	M3	1.2 ppm						Na 0.8 0.1
Copper (Cu)	M3	3.2 ppm						
Iron (Fe)	M3	89 ppm						K/Mg Ratio: 0.30
Manganese (Mn)	M3	138 ppm						Ca/Mg Ratio: 7.44
Zinc (Zn)	M3	9.3 ppm						
Sodium (Na)	M3	22 ppm						
Soluble Salts								
Organic Matter	LOI	3.5% ENR 114						

Field

# Field vs. “Snirt”

Test	Method	Results	SOIL TEST RATINGS					Calculated Cation Exchange Capacity
			Very Low	Low	Medium	Optimum	Very High	
Soil pH	1:1	7.3						13.4 meq/100g
Buffer pH								%Saturation
Phosphorus (P)	M3	204 ppm						%sat meq
Potassium (K)	M3	324 ppm						K 6.2 0.8
Calcium (Ca)	M3	2119 ppm						Ca 79.1 10.6
Magnesium (Mg)	M3	218 ppm						Mg 13.6 1.8
Sulfur (S)	M3	14 ppm						H 0.0 0.0
Boron (B)	M3	1.4 ppm						Na 1.1 0.1
Copper (Cu)	M3	4.1 ppm						
Iron (Fe)	M3	100 ppm						K/Mg Ratio: 0.46
Manganese (Mn)	M3	231 ppm						Ca/Mg Ratio: 5.82
Zinc (Zn)	M3	11.4 ppm						
Sodium (Na)	M3	34 ppm						
Soluble Salts								
Organic Matter	LOI	3.6% ENR 116						

“Snirt”



# My Farm





# "Tillage" in full swing!





# Keys to Cover Crop Success

LEARN all you can

UNDERSTAND where the  
FUTURE may be going...





Josh Walters  
Ivearleigh, Australia- April, 2016

We need to build  
a bigger “bucket”



Challenges...





# Cover Crop Test Plots









# Have we created our own droughts?



# Dry Weather Myth

I don't want anything living that will dry out my soil

- NO, plant cover crops!
  - Soil life will continue to function much longer
  - Soil will be protected- armor
  - Quick feed for cattle?
  - Diversity



# What's the most important cover crop tool?



## Mindset!

- Attitude
- Aptitude
- Open mindedness
- Willing to STRATEGICALLY try a new concept



# When is your planting window?





# What are you trying to Accomplish?





# What do You Want to Accomplish?





# The Value of Cattle for the Soil

- Manure
- Urine
- Saliva
- Hair



# Dual Feeding System: Soil Biology and Livestock





# Be an Opportunist

Are you TOTALLY prepared for when that ideal cover cropping scenario aligns?



# Cover Crops as Forage



- 1) Ensure adequate fertility- add N?
- 2) Increase seeding rate, usually double the cover crop rate.



# Perspective...

- We have lost the art of farming!
- We have been seduced by “big ag”- BUY this bag or bottle and your problem will be solved.
- Better to spend your money on MANAGEMENT or invest in understanding how your soils function
- Do you know how herbicides/traits/hybrids function?





# Tools of the Trade





# Perspective...

Those who are successful in cover cropping and no-till do not have a “cookie-cutter” approach.





# The Animals are Coming!





# What did we learn?

The longer you are in a STRATEGIC cover crop/soil health management system, the less fertilizer you may need

COVER CROPS make fertilizer more EFFICIENT

How much fertilizer you can save is associated with many VARIABLES





# Cover Crops as Forages





# Collecting Sunshine and Liquid Carbon





# Baling Hi-Moisture Hay





# Bale Grazing



Gabe Brown, North Dakota





# Grazing Study in South Africa





# Perennial vs. Annual Species

## Perennial

- Initial seed cost more expensive
- Establishment cost less
- Locked in to species for a few years

## Annual

- Seed cost less expensive but you have to plant every year
- Higher yields
- Forage quality higher?
- You have options to change species over time







**DON'T  
FARM  
NAKED**

**PLANT  
COVER  
CROPS!**

[CoverCropInnovators.com](http://CoverCropInnovators.com)





# Summary

Cover Crops will pay if  
**STRATEGICALLY** managed with  
**LONG TERM** objectives clearly  
identified.



# 10% COVER CROP CHALLENGE

*Increase your cover crop acreage by 10%  
WITHOUT costly mistakes!*

1. FARMERS trying cover crops *for the FIRST TIME*
2. FARMERS looking to take cover crops *to the NEXT LEVEL*
3. CONSULTANTS, TRAINERS OR EDUCATORS seeking a *specific plan for their clients*





# Thank You!



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