

GETTING THE NEXT GREEN REVOLUTION RIGHT

Round Table Meeting January 2025



WELCOME ADDRESS AND FARM FOUNDATION UPDATES





Shari Rogge-Fidler

**President and CEO
Farm Foundation**



Daniel Basse

**Board Chairman
Farm Foundation**





Meet the Farm Foundation Team



Shari Rogge-Fidler
President and CEO



Todd Price
Vice President
Operations



Tim Brennan
Vice President
Programs and
Strategic Impact



Amanda L. Martin
Senior Director of
External Relations



Morgan Craven
Director of Programs
and Events



Jenna Wicks
Program Manager



Ellen Prather
Marketing and
Design Coordinator



Katie Merkle
Programs and Events
Specialist



Liz Wilkin
Administrative
Associate

Round Table Fellows and Honorary Life Fellows



January 2025 Round Table Planning Committee

Karen Carr, Chair

Bonnie Brayton

Pamela Howlett

Ted McKinney

Ray Starling

Sylvia Wulf



Welcome Guests





Farm Foundation[®]

Accelerating people & ideas

A 501(C)(3) Non-Profit at the intersection of food and agriculture



The reliability of a “think tank.”
The impact of a “do tank.”

Our Mission & Vision

Guide our work



Mission

To **build** trust and understanding at the intersections of agriculture and society.



Vision

To **build** a future for farmers, our communities and our world.

Board of Directors

2023-2026

Farm Foundation is governed by a Board of Directors comprised of leaders in production agriculture, agribusiness, academia, rural communities, media, retail and NGOs.



FARM FOUNDATION IMPACT



Our Work: Accelerating People and Ideas

Our People Programs

- Round Table
- Seeders
- Cultivators
- Field to Future
- Ag Scholars
- CAFE (Careers in Ag and Food Exploration)
- Congressional Fellows
- Next Gen Alumni Network
- Young Farmer Accelerators
- Young Agri-Food Leaders
- Friends of Farm Foundation
- Farm Foundation Awards Program



Next Generation Testimonials



“Farm Foundation fostered an environment that assured me I had chosen a field I was passionate about and that I didn’t want to do anything else. It’s safe to say I am a better student, young professional and agriculture stewardess because of the development undertaken by the Farm Foundation. ”

Kayla Braggs - Ag Scholar Alumni

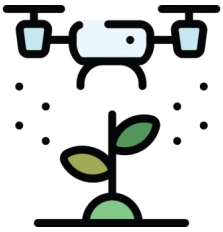


“I had the opportunity to network with so many leaders and innovators in the agricultural field. It was an invaluable opportunity; I would have never had the chance to meet all the great people at once in an open setting.”

Sophia Darrow - Cultivator Alumni

Our Work: Accelerating People and Ideas

Digital Agriculture



- IFPA Supply Chain of the Future Collabathons

Conservation & Sustainability



- Innovation and Education Center
- Ag 101 Bootcamps

Market Development & Access



- Ag Econ Fellow
- Global Forum on Farm Policy Innovation
- Practical Approaches to Circularity in US-EU Food and Agricultural Trade
- Ag Labor Conference
- Farm Foundation Forums

Farmer Health



- Farm Family Wellness Alliance

Farm Family Wellness Alliance

Farm Family
Wellness Alliance 



Farm Foundation Forums

6 Forums
in 2024



Over **1700**
Attendees



From **29**
Countries



FARM FOUNDATION PODCAST

Meet Your Farmer



Episode 1
Klaas Martens
Martens Farm &
Lakeview Organic Grain Mill
New York



Episode 2
Amanda Butterfield
The Meat Institute &
Maple Valley Cattle Company
Pennsylvania



Episode 3
Steve Kaufman
Kaufman Farms
Idaho



Episode 4
A.G. Kawamura
Orange County Produce
California



Episode 5
Hannah Borg
Borg Farms
Nebraska

**Join us for
season one:**



[farmfoundation.org/resources
/farm-foundation-podcast/](https://farmfoundation.org/resources/farm-foundation-podcast/)

Innovation & Education Campus

Established in 2024





Thank You

**Gary & Marg
MacDonald**

**Farm
Foundation**
Accelerating people & ideas







Amanda L. Martin

Farm Foundation
Senior Director of External Relations





Innovation and Education Campus

Host. Inspire. Innovate.



- Ideal location, close enough to the city with space for **big thinking**
- Small groups to **200+** throughout campus
- **NEW for 2025**, access to the immersion room to deliver dynamic interactive and visual experiences
- A **team of people** ready to help you plan your event, meeting, or retreat



AG101 Bootcamps

Transform. Educate. Collaborate.

Who: Emerging leaders to seasoned leaders in agriculture to maximize collaboration and learning.

What: Hands-on learning through our innovation plots and campus, paired with insights from top industry experts.

Why: Empower your team, create a space for client collaboration, build a curriculum to meet your goals.

Options: Company/Organizational bootcamps or Individual bootcamps

Focus: Five broad subject areas



Production Ag Sector



Sustainability



Food and Ag Policy



Innovation and Investment



The Future of Food and Ag

Farm Foundation AG 101 Bootcamps

“

Just having that direct interaction with people who do it is a whole different thing than having somebody sit through a webinar.”

“Being at the same table, at a farm, where we can go outside and see what the fields look like... that was really helpful.”

Gail Tavill
Chief Sustainability Officer
OSI Group LLC



**AG101 Bootcamp
and Event Participants**



McDonald's



Taste of Home Auction

Next Generation Support



**Auction will close at 7:00 pm
on Thursday.**

**Stop by the registration table to
pick up a button and show your
support to the next generation**

Thank you for your support





Tim Brennan


Vice President Programs
and Strategic Impact
Farm Foundation



ROUND TABLE FOLLOWS CHATHAM HOUSE RULE



*To submit your questions
on the meeting app*

- **Go to app** 
- **Go to Your Agenda**
- **Find The Session**
- **Q&A Tab**

*To view the full agenda,
view speaker bios,
and connect with other guests*

- **Click on the menu**
- **Select Attendees**
- **Click a person's name
send a message
or set up a meeting**

**Any difficulty using the app, please stop by the
registration desk for assistance.**



OPENING KEYNOTE: Getting the Next Green Revolution Right

Round Table Meeting January 2025





Moderator Ray Starling

**General Counsel
North Carolina Chamber**



Rodolphe Barrangou

**Distinguished Professor
North Carolina State University**





SESSION ONE: Biotech at the Farm Level

Round Table Meeting January 2025



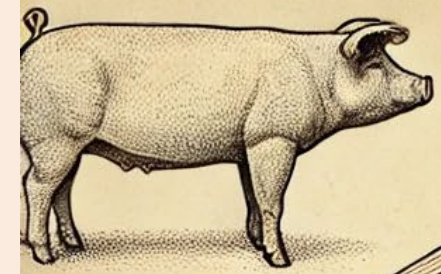


Moderator Matt Moreland

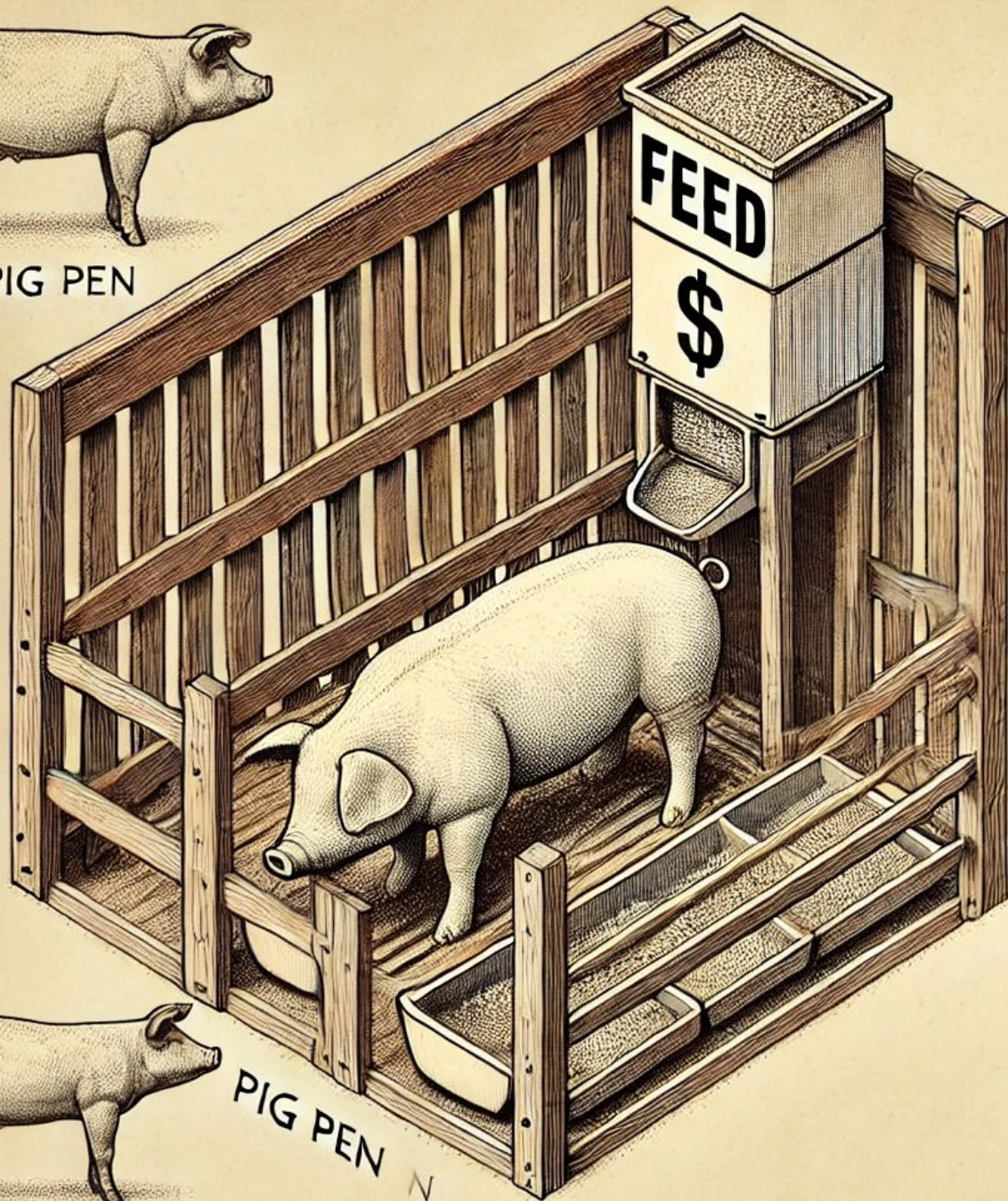
Partner
Moreland Farms

Managing Expectations

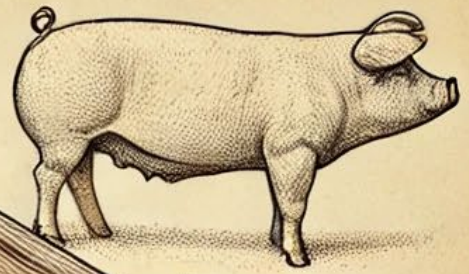




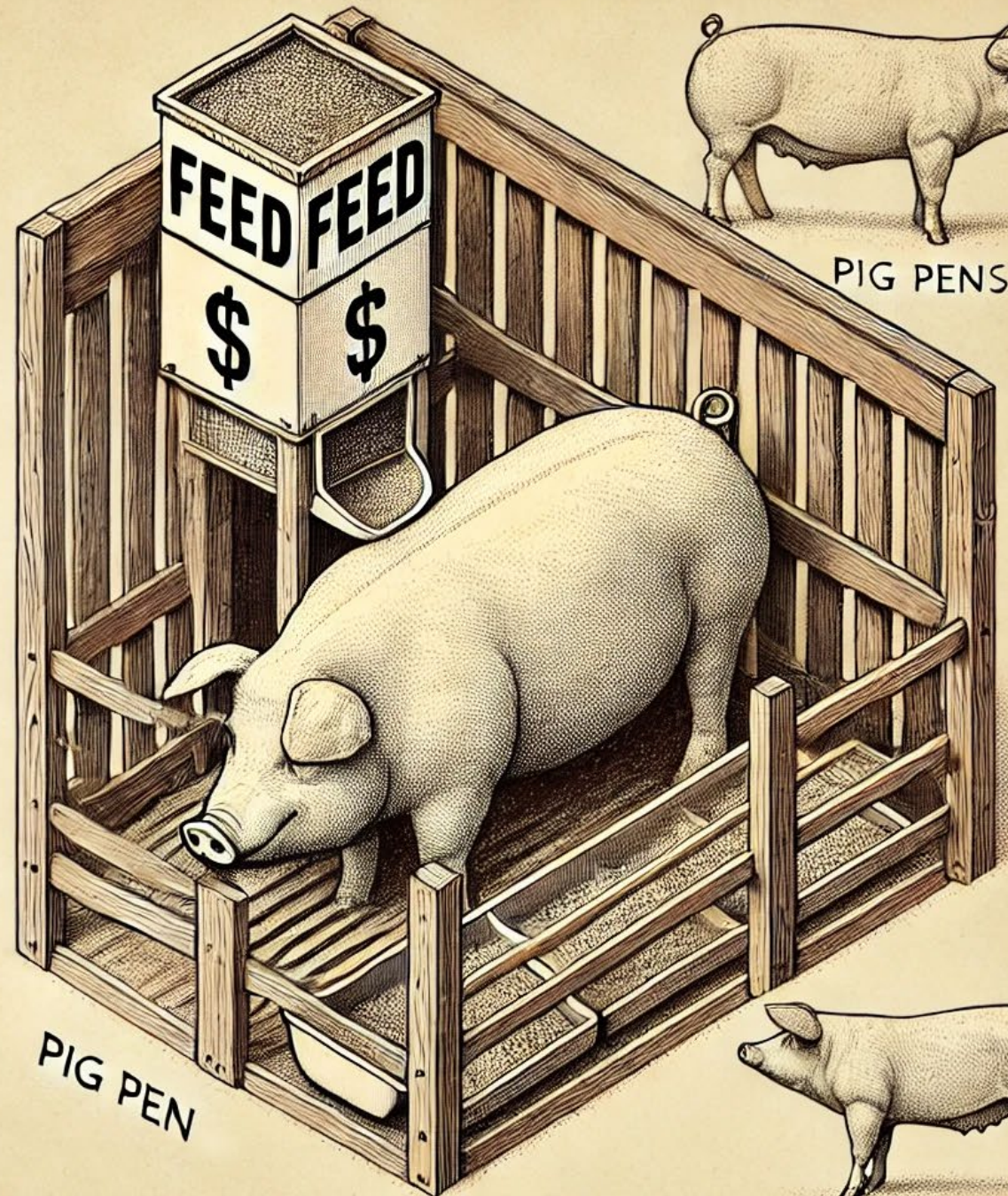
PIG PEN



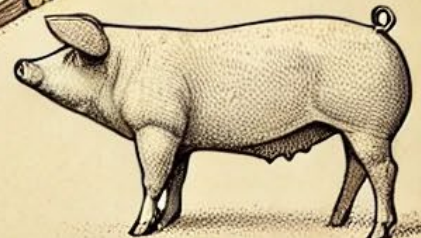
PIG PEN



PIG PENS

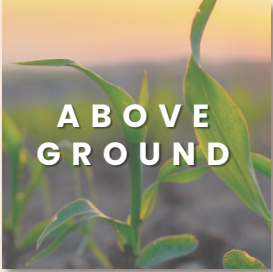


PIG PEN



PIG PEN

BIOLOGICALS PORTFOLIO AND PRODUCT CATEGORIZATION



Product
category

Biostimulants

Nutrient Use Efficiency

Biocontrols

Product
lines

Climate Stress Mitigation

Crop Enhancement

Soil Enhancement

Nitrogen Use Efficiency

Phosphorus Use Efficiency

Disease control

Insect control

Weed control





100% Fertilizer +

100% Fertilizer +

100% Fertilizer +

100% Fertilizer GSP

75% Fertilizer +

75% Fertilizer

75% Fertilizer +

75% Fertilizer GSP



S. Perth Rd

1

3

2

30th St S

W. 130th St S

E. 130th St S

Microsoft
Bing

1 - A Zone Nitrogen

Premier Growers | Moreland Farms | Moreland Farms | Ward/Murrison E of Creek
| 2024



Crop Details

Crop **Wheat**
 Previous Crop **Corn**
 Soil Type **Mclain**
 Suborder **Ustolls**
 Seed Company **Oklahoma State**
 Hybrid **Showdown**
 Planting Date **9/27/2023**

Experiment Details

Type **Nitrogen**
 Nutr. Prod **46-0-0**
 Rates **2**
 Reps./Rate **5**
 Total Reps **10**
 ELB Area **6.7 ac**

Soil Test Averages

pH **5.4**
 P (PPM) **36**
 K (PPM) **185**
 OM **2.5**
 CEC **18.1**
 Ca (PPM) **1,651**
 Mg (PPM) **515**
 Base Sat K **2.6**

Applied Nutrients Averages

Total N **159.9**
 Total P **34.5**
 Total K
 Total S **2.8**



Bo Stone

Owner
P&S Farms, Inc.





Elena Rice

**Chief Scientific Officer
Genus PLC**

**Pioneering animal genetic
improvement
to help nourish the world**

MORE SUSTAINABLE FOOD STARTS WITH BETTER BREEDING AND HEALTHY ANIMALS

Dr. Elena Rice
Chief Scientific Officer
Genus PLC



About Genus

- A world-leading animal genetics supplier for 85 years



Pioneering animal genetic improvement to help nourish the world



We've made progress over the last 60 years



Dairy farmers can produce **more milk** with fewer cows



Ranchers can produce the same amount of beef with **fewer cattle**



And pig farmers can produce **1,000 lbs. of pork** with just five pigs

Our Challenge is Disease

20% of animal protein is lost due the disease each year globally

Farm animals get sick, sometimes with a disease with **no effective cure or vaccine**

Disease often lead to **death or a lifetime of secondary infections** that need antibiotic treatment

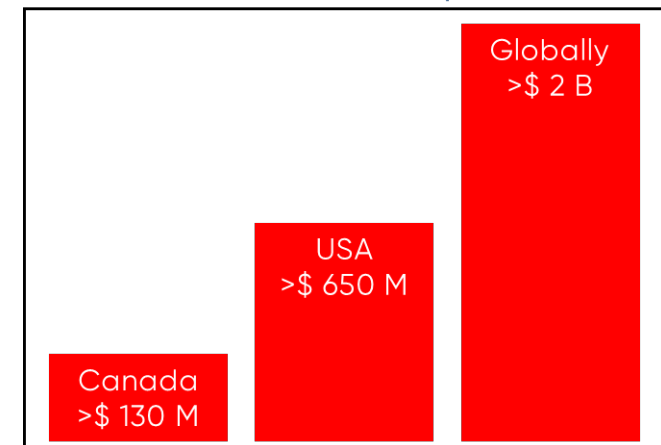


Porcine Reproductive & Respiratory Syndrome (PRRS) is a devastating and costly disease in pigs

First recognized in the US in 1987

PRRS is now found in pig production facilities worldwide

PRRS Annual Impact



Imagine a world in which animals don't get sick from devastating diseases.

We removed the viral binding site without adding any genetic material
The CD163 protein continue to function as intended but can't bind the virus

Edited pigs grow, reproduce, behave and perform like non-edited pigs
Their meat composition is identical to the meat of non-edited pigs
But! Edited pigs don't get sick from PRRS!

Disease resistant pig:

- PRRS resistant from gene editing

Non-Disease resistant:

- More likely to get PRRS

PRRS-Resistant Pig Provides Holistic Benefits

Improved animal welfare, fewer antibiotics, lower emissions and better economics

Animal welfare¹

- Reduction in antibiotic usage
- Prevents respiratory distress, fever, premature birthing and many other symptoms

Sustainability²

- Reduction in GHG emissions
- Reduction in feed and water intake
- Reduction in land usage

Employees

- Focus on raising healthy and happy animals
- Reduce risk of distress from managing a sick herd


Producer productivity & robustness

- Improved consistency and predictability of results
- Enhanced productivity delivering lower cost and greater input efficiency



¹ Research from Iowa State University: Impact of PRRS on need for antibiotic use (2023) <https://dr.lib.iastate.edu/entities/publication/4e3cd302-5ae9-4185-8ead-405e0d4ec2f2>

² Thoma, Greg J., Banks Baker, and Pieter W. Knap. 2024. "A Life Cycle Assessment Study of the Impacts of Pig Breeding on the Environmental Sustainability of Pig Production" *Animals* 14, no. 16: 2435. <https://doi.org/10.3390/ani14162435>



By accepting use of technology in the food supply chain, **we can change the course for generations to come.**



**Thank
You!**





Larkin Martin

Owner
Martin Farm

Farm Foundation Roundtable – Raleigh, NC
January 16, 2025

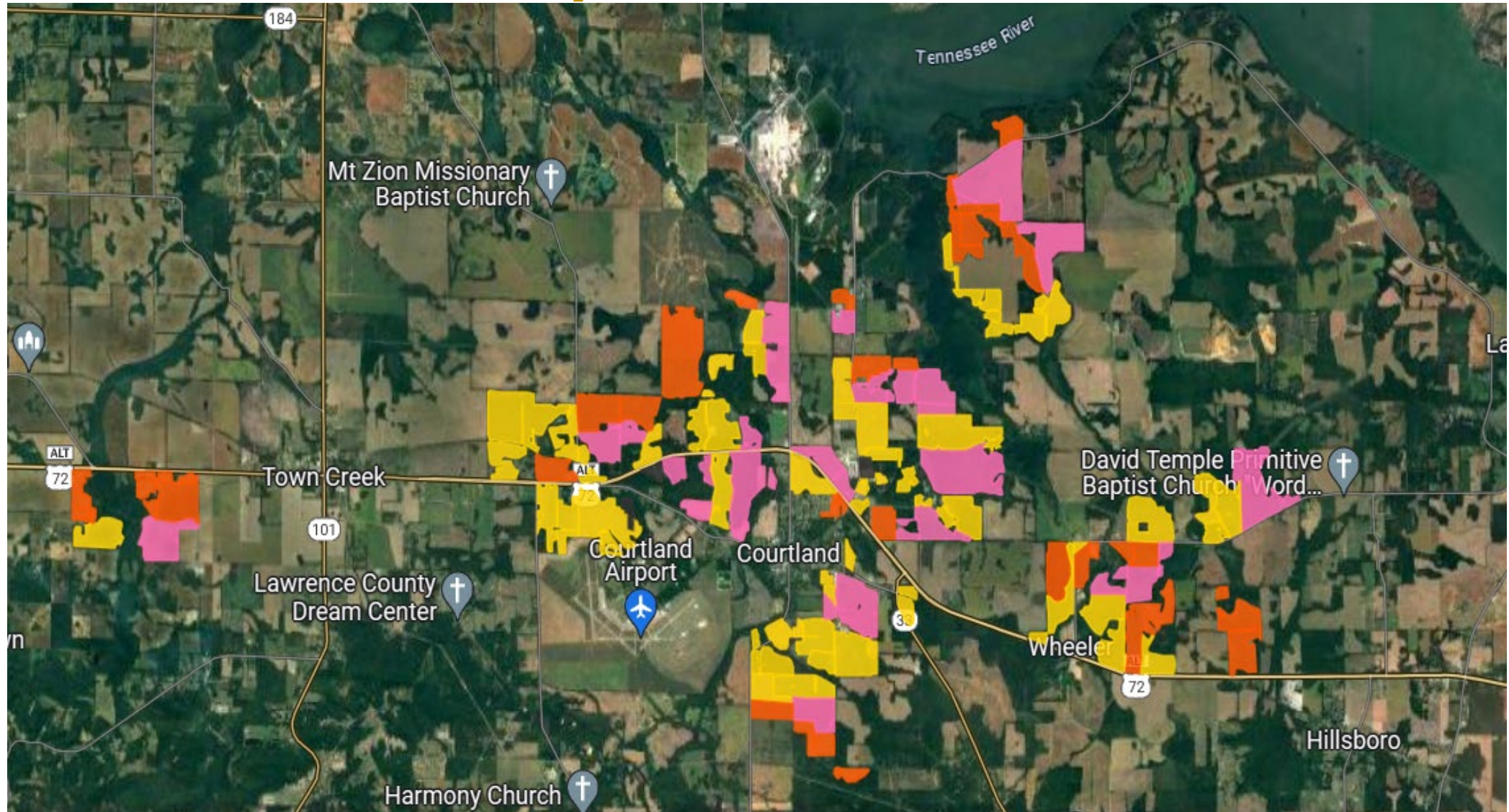
The Next Green Revolution?

Could Change:

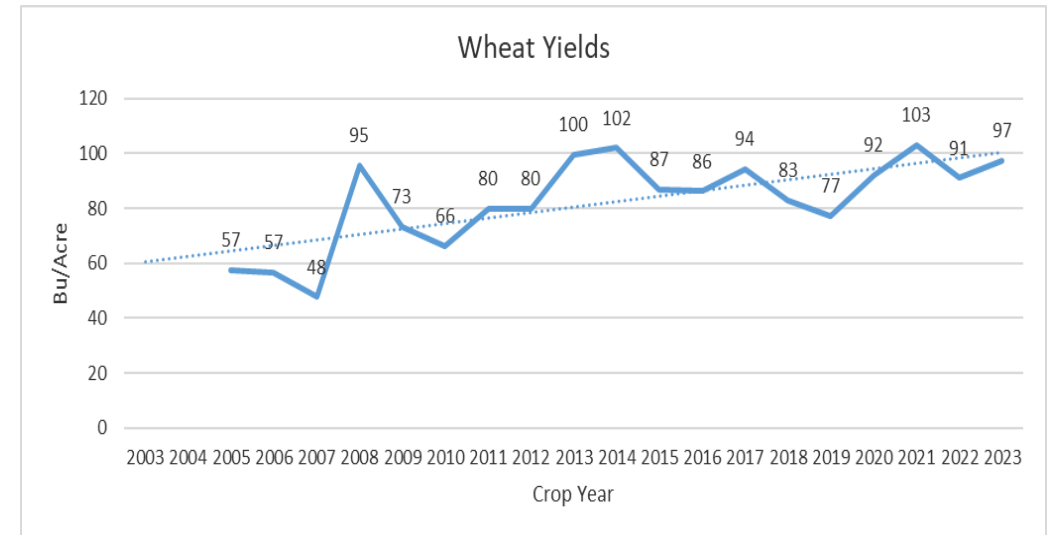
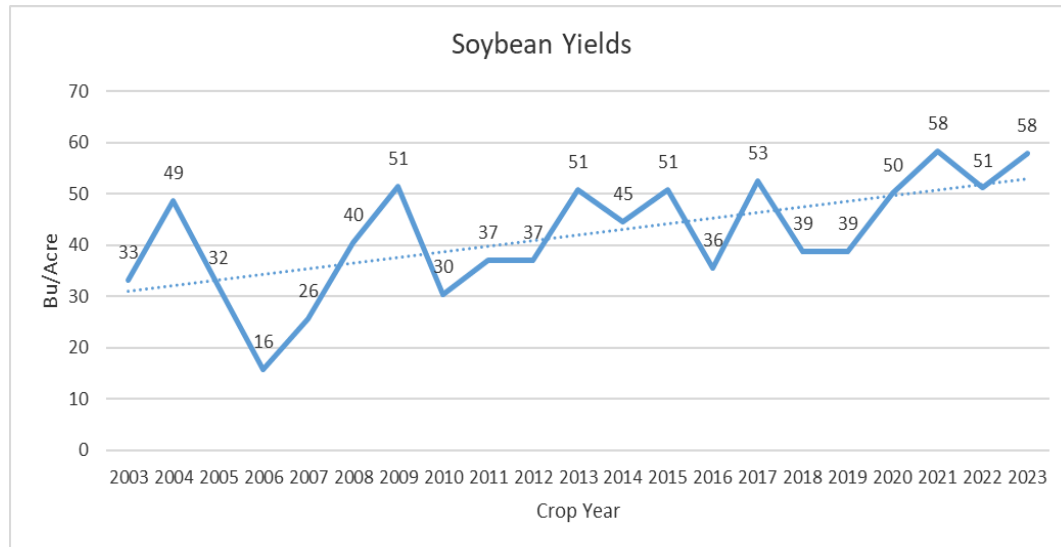
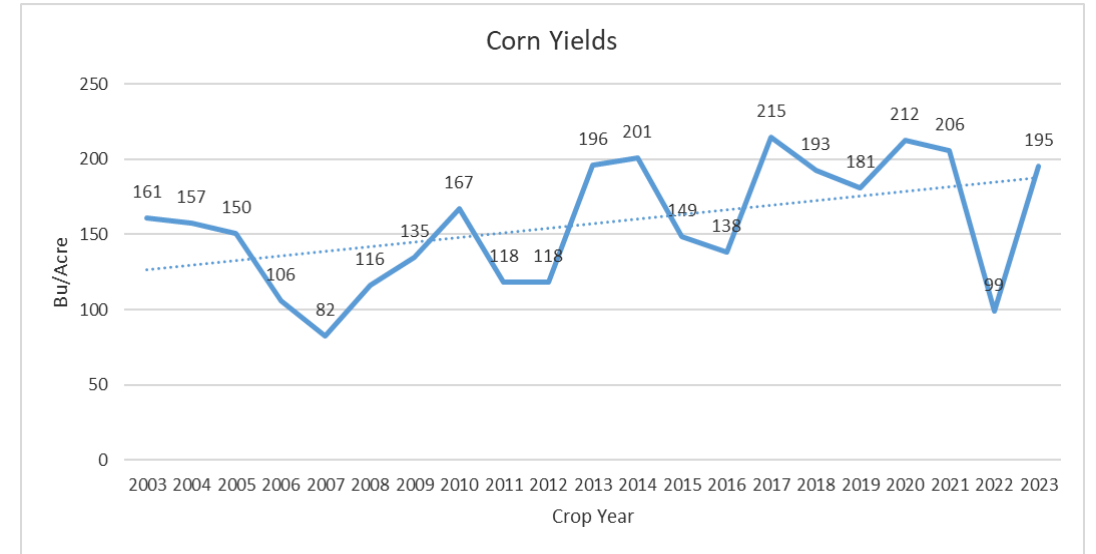
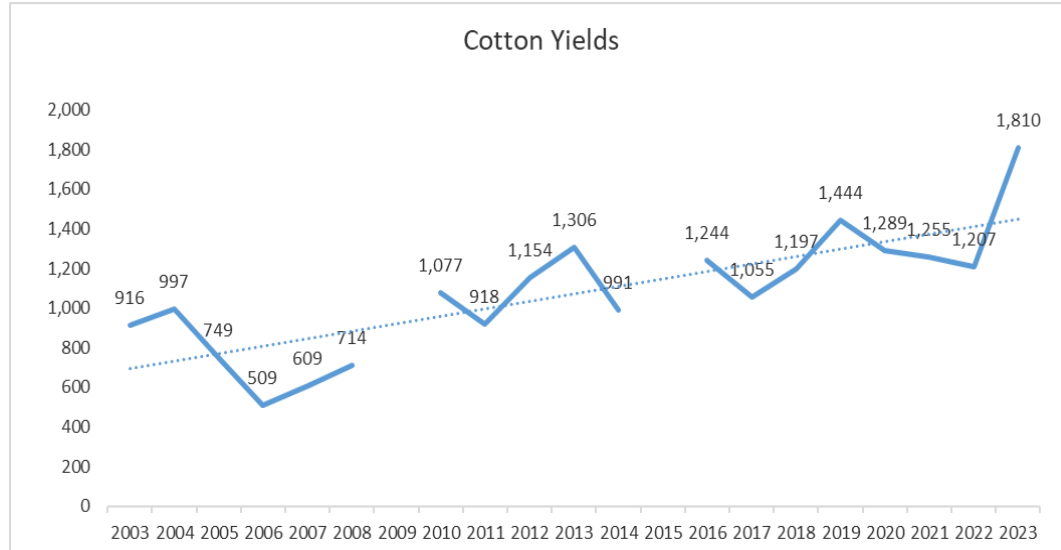
A Farmer's Perspective



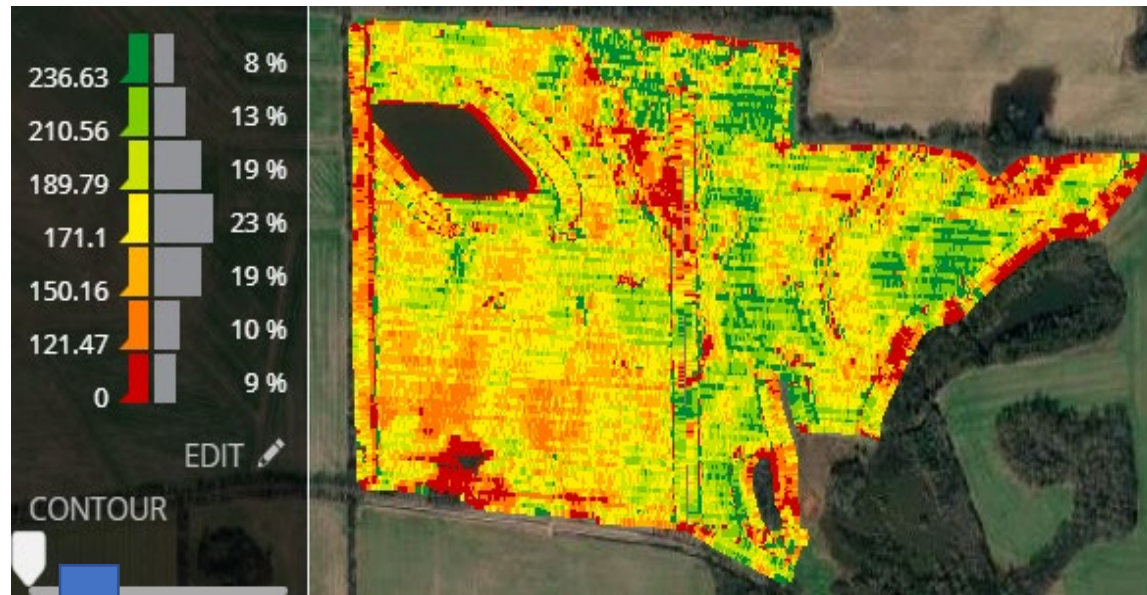
Our Farm: Rolling, eroded, irregular fields, low organic matter, lots of soil variability, 27.6% in woodland, wetlands, fencerow and fallow.



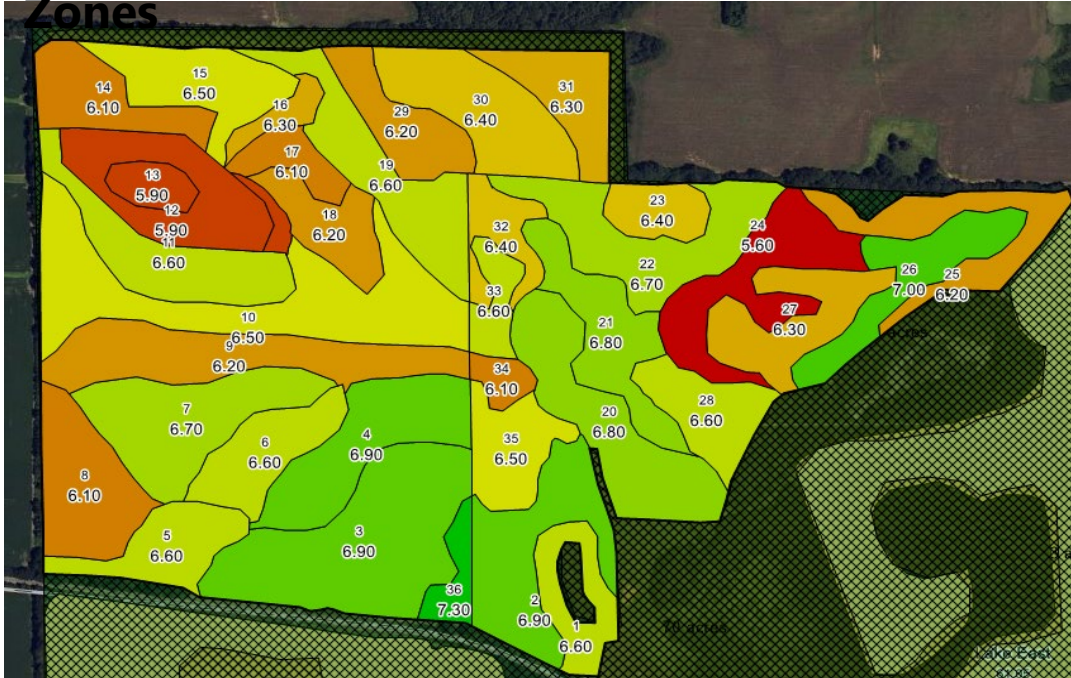
Less than 10% Irrigated – Yields Swing Wildly



Soil Variability



Soil Testing Done in Yield Zones



Prescription to Apply Lime Only Where Needed

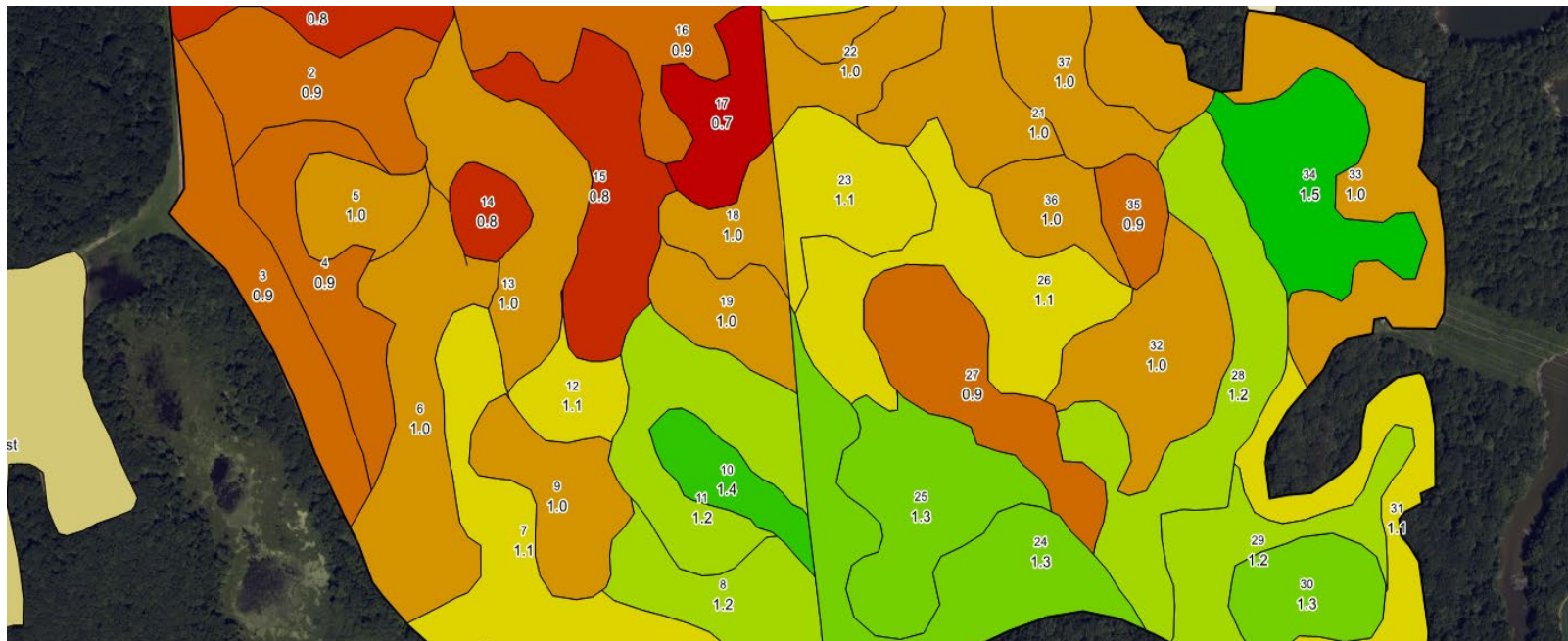


Cover Crops & No Till to Build our Soils

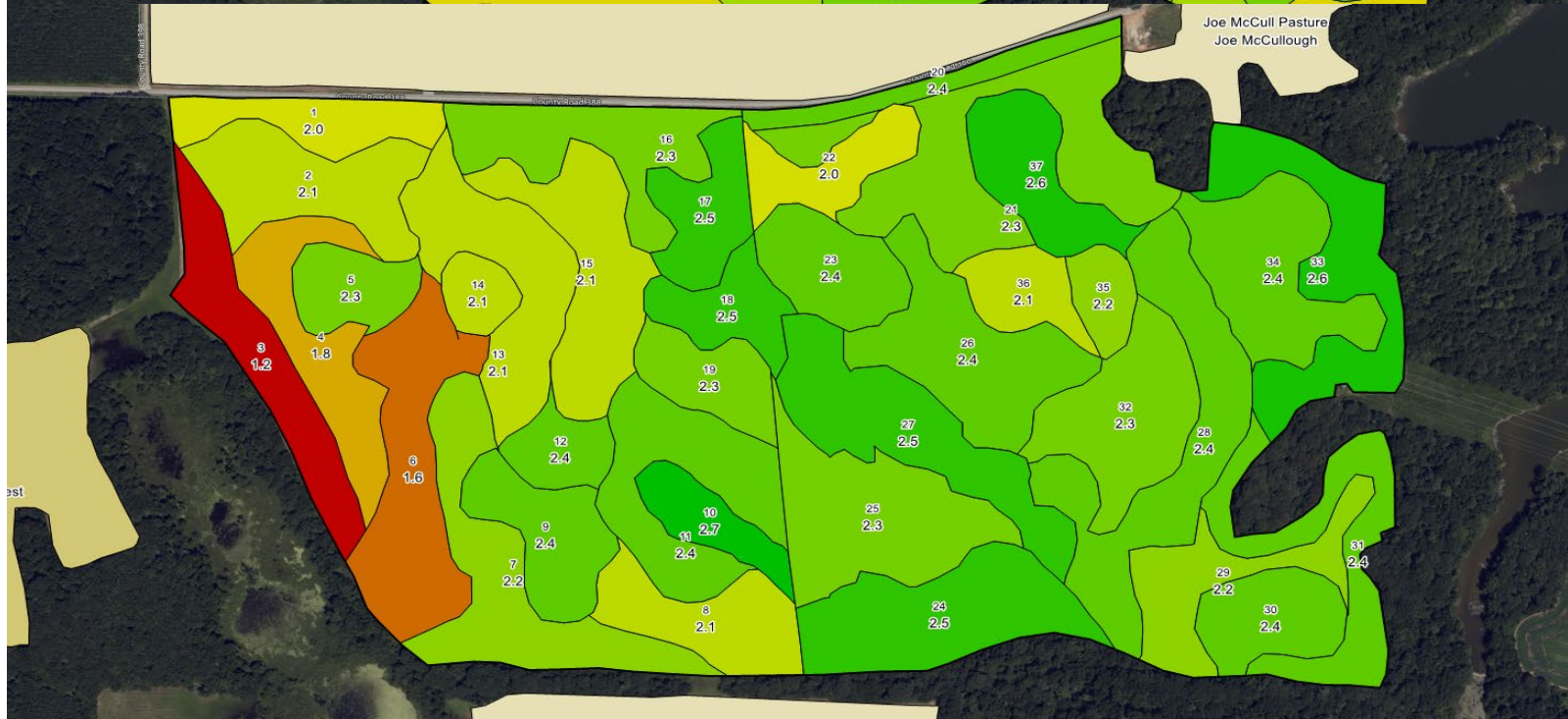


**We are
Seeing
More
Rapid
Changes in
Organic
Matter
Than
Expected**

2018



2021



Joe McCull Pasture
Joe McCullough

The Next Green Revolution? Could change:

How we farm - Practices and inputs, but right now it is very confusing

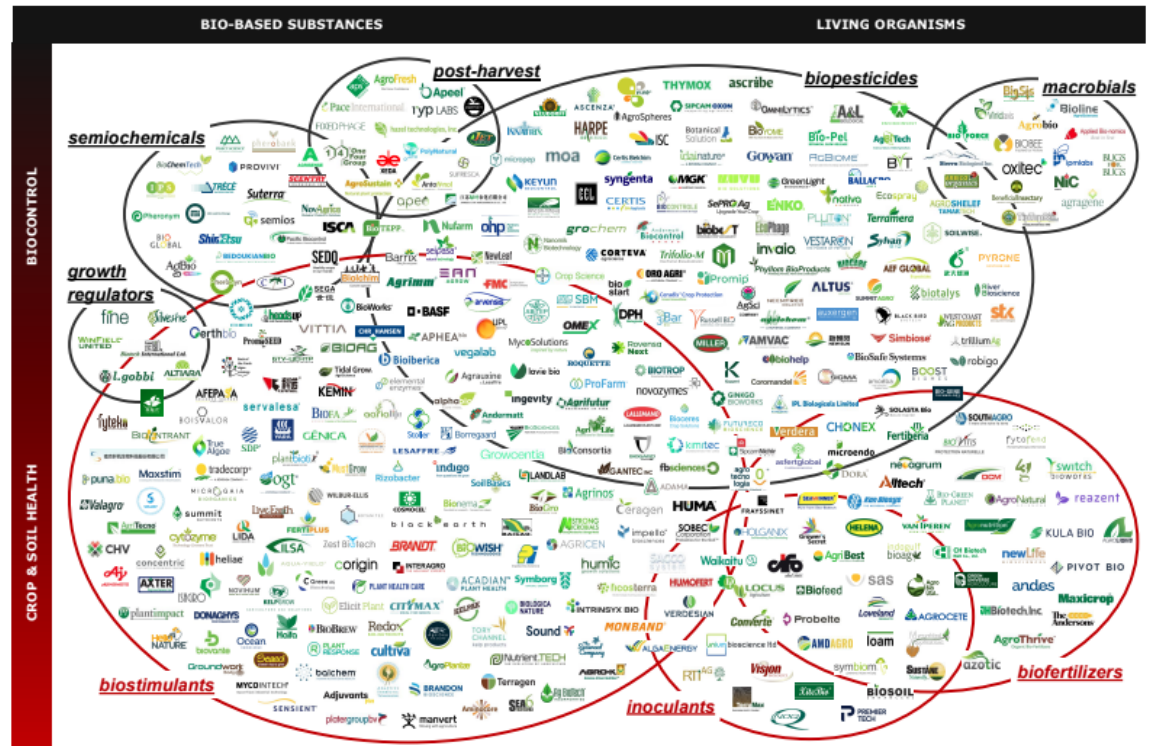
- Explosion of products – Results in our tests often inconclusive
- “There are a tremendous number of companies and an even greater number of products and ingredients. Terminology and claims can still be loose and complex”
- “The Biologicals industry is a messy word salad. There are not yet standard industry definitions and companies are cavalier with descriptions of their activities.”

The Mixing Bowl

Visualization of the Explosion of "Biological" Companies and Products

2023 AG BIOLOGICALS LANDSCAPE

The Mixing Bowl
CONNECTING KNOWLEDGE IN FOOD, AG & PET



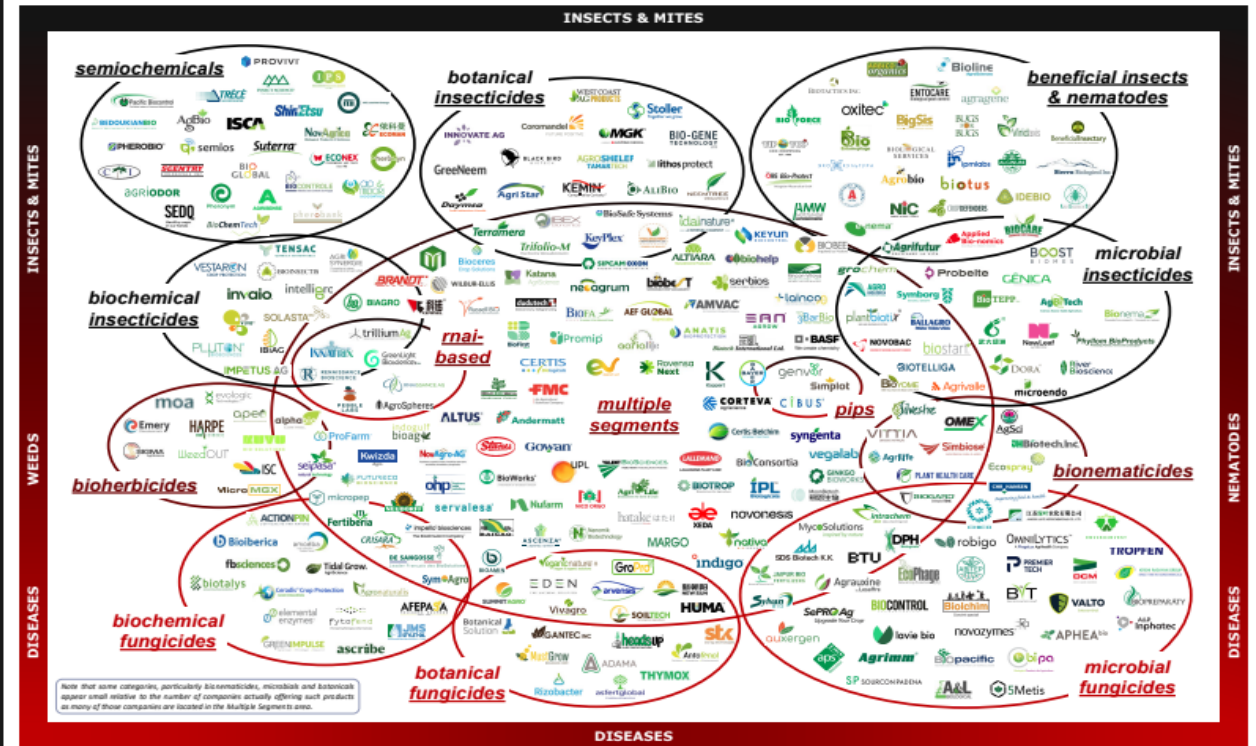
Chris Taylor www.MixingBowlhub.com
chris@mixingbowlhub.com

WESTERN GROWERS

Companies appear as the landscape only once, although some may offer products in multiple segments. Overlapping areas are used to imply this. However, logo positions are not necessarily indicative of any specific or limited product offering.

2024 CROP BIOCONTROL LANDSCAPE

The Mixing Bowl
CONNECTING KNOWLEDGE IN FOOD, AG & PET



Chris Taylor www.MixingBowlhub.com
chris@mixingbowlhub.com

WESTERN GROWERS

Note that some categories, particularly bioherbicides, microbial and botanicals appear small relative to the number of companies actually offering such products as many of those companies may be located in the Multiple Segments area.

Note that this landscape is representative, not comprehensive. Also, companies appear as the landscape only once, although some offer products in multiple categories. Most of those companies may be found in the Multiple Segments area.

2023 - Identified 1,200 companies with "products derived from naturally occurring micro and macro organisms, plant extracts and other natural materials used to enhance crop production"
400 Appear on this Landscape

2024 - Refined the landscape – Split between BioControl and BioProductivity.
BioControl has 300 companies, 1/3 did not appear in the 2023 landscape

Data Is Conditional & Hard to Interpret



Trial Summary						
Treatment (gal(US)/ac)	Average bu/ac	Standard Deviation bu/ac	Difference bu/ac	Revenue \$/ac	Cost of Treatment \$/ac	Profit/Loss \$/ac
0*	189.98	7.973	0.00	961.30	0.00	961.30 (0.00)
5	206.62	8.664	16.64	1045.49	8.00	1037.49 (+76.19)

* = Control

Bold = Significant Difference

Trial Summary						
Treatment (gal(US)/ac)	Average bu/ac	Standard Deviation bu/ac	Difference bu/ac	Revenue \$/ac	Cost of Treatment \$/ac	Profit/Loss \$/ac
0*	218.53	4.949	0.00	1105.78	0.00	1105.78 (0.00)
5	215.52	5.176	-3.017	1090.51	8.00	1082.51 (-23.27)

* = Control

Bold = Significant Difference

The Next Green Revolution? Could change:

What we farm – new crops grown in new areas for new industrial uses

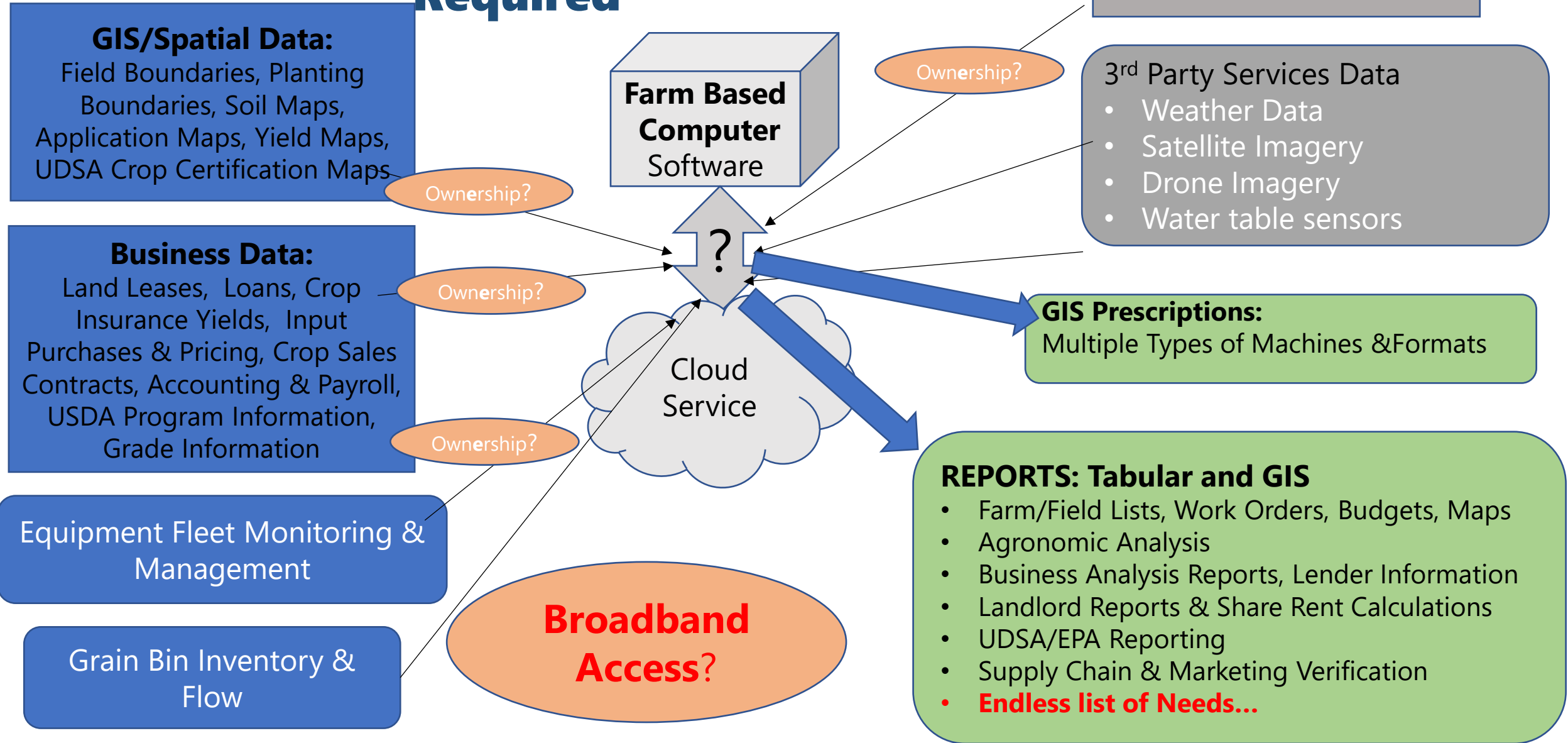
- “Green Fuel” feedstocks – We’re testing growing canola for partnership of Corteva, Bunge, Chevron partnership on renewable fuels
- Sustainable Aviation Fuel – will it work?
- Natural Rubber - Guayule “y-u-le” – in west TX
- Cotton in Illinois?

The Next Green Revolution? Could change:

Farm Economics – Cost of production, how we monetize, value, buy and sell crops and farmland

- **Reduction in inputs/fertilizer costs** - so far no, just new inputs to consider, but maybe
- **Yield increases** – hopefully – symbiotic relationships improving fertility and nutrient uptake & utilization, reduce stress or modify stress response (CRISPR)
- **New Income Streams** –
 - Carbon sequestration and other ecosystem services payments, public and private,
 - Buyer/brand premiums for certain production practices
 - Wind and solar

New Income Streams – Data Management and Reporting Will Be Required



The Next Green Revolution? **Will change:**

How we farm - practices and inputs

What we farm – new crops grown in new areas for new uses

Farm Economics – Cost of production, how we monetize, value, buy and sell crops and farmland

It is evolving quickly

Will combine the life sciences revolution and the digital revolution

Exciting and scary for farmers...

QUESTION AND ANSWER

Please submit your questions on the meeting app or use one of the microphones.



Matt Moreland
Moreland Farms



Bo Stone
P&S Farms, Inc.



Elena Rice
Genus PLC



Larkin Martin
Martin Farm

1) Go to App 2) Go to Your Agenda 3) Find the Session 4) Q&A Tab

