ProfitPro®AG Farm Report

March 2020

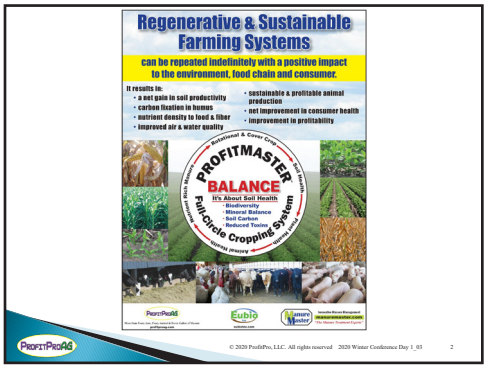
ProfitProAG

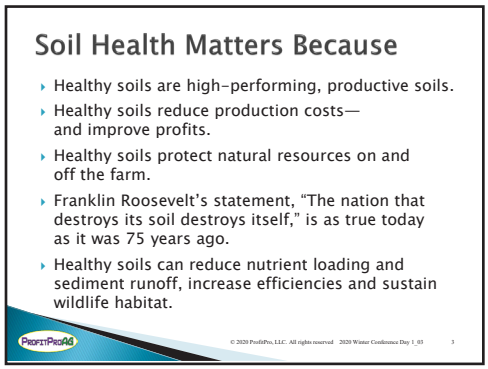
More from Every Acre, Every Animal & Every Gallon of Manure

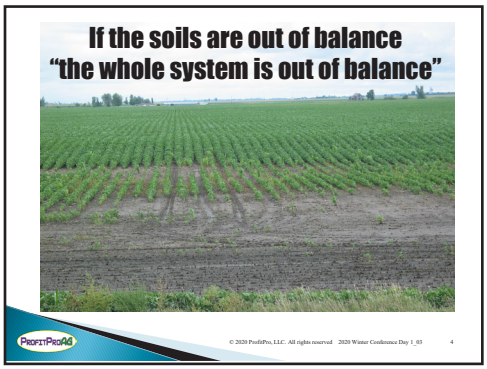
Crop Management News

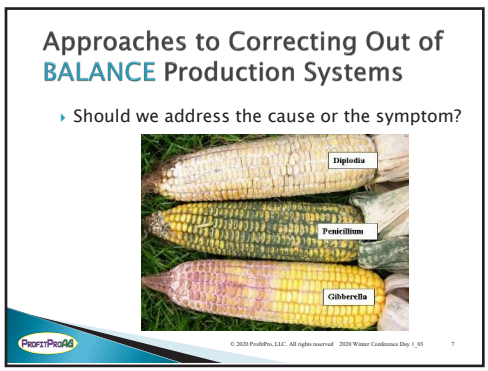
by Dr. Jim Ladlie, ProfitProAG President

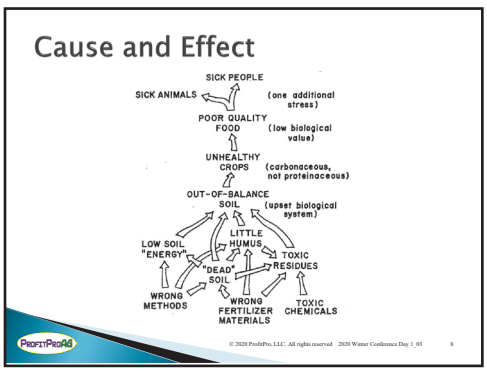
The following PowerPoint was presented at ProfitProAG's 2020 Winter Conference.











FREE Teleconference Calls

Agronomic/Livestock
3rd Thursday of the Month
March 19, 2020

Call #
1-855-212-0212

Meeting ID #
769-100-082#

Time
8 to 9 pm Central Time

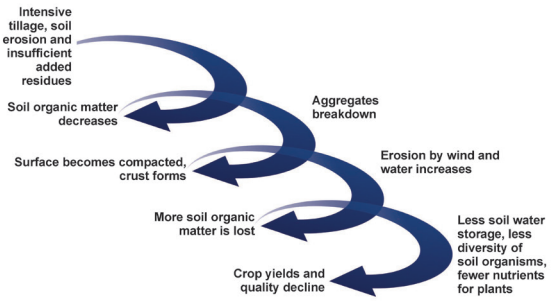
For More Information or to find a Consultant in Your Area

Call **1-888-875-2425**
Ask about the **ProfitMaster™ Full-Circle System** and the **Manure Master™ Program**

www.profitproag.com

Manure Master™
Innovative Manure Management
manuremaster.com
"The Manure Treatment Experts"

The Downward Spiral of Soil Health

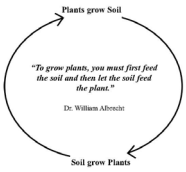


Source: Building Soils for Better Crops. 2000 Second Edition. pg 6

Premature Death of Corn

It all Starts in the Soil

- **Healthy soil is the firm foundation needed to produce more with less.**
- **Healthy soil produces healthy crops, reducing the reliant on excess tillage and fertilizer.**
- **Some common characteristics of healthy soil:**
  1. Drain and warm up quickly in the spring
  2. Don't crust after planting
  3. Soak up heavy rains with little run-off
  4. Store moisture for dry spells
  5. Resist erosion and nutrient loss
  6. Support teeming populations of microbes
  7. Doesn't require ever-increasing fertilizer rates to maintain good yields
  8. Produce healthy, high quality crops
  9. Soft soil shows foot print when walked on
  10. Soil is aggregated like coffee grounds
  11. Lots of earthworm holes and castings
  12. Provides high energy (ERG's) during seed fill



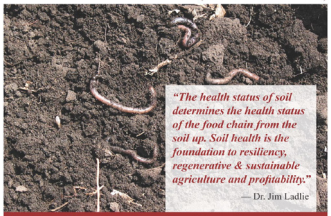
A fertile soil is not always a productive soil.

Regenerative & Sustainable Farming Systems

SOIL BALANCE IS ACHIEVED BY...

1. Building & maintaining soil bioactive carbon (humus)
2. Building and maintaining biodiversity
3. Reducing toxicity in the system

which results in → **Nutrient Balance, Density and Availability** (Life's Fountain of Youth)



Healthy soil is active, alive and continuously regenerating.

An extra 1% increase in soil organic matter per acre provides the following to the soil each year:

25 pounds of N	**$8.75**
5 pounds of phosphate	**$2.40**
2.5 pounds of sulfur	**$0.50**
An inch of water	**$15.00**
Total	**$26.65**

Soil Health Improves Water Efficiency

High

Water Efficiency

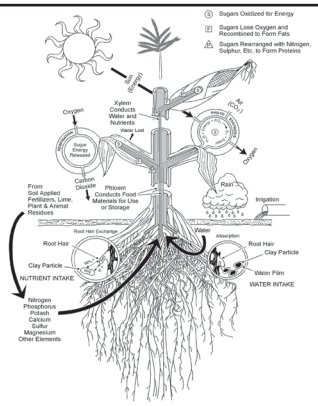
Low

- Dependent on:
  - Mineral balance & availability
  - Microbial health & diversity
- Corn = 5,000 gal/Bu
- Soybeans = 13,500 gal/Bu
- %> O.M. results in as much as 25,000 gallons of available soil-water/A

Ways to Build Soil Organic Matter

- Crop Rotation
- Cover Crops
- Reduced Tillage "Strip-till or No-till"
- Bioaugmented Manure
- Humates/Biochar
- Plant Root Exudates – "Liquid Carbon"
- Microbially Digested Crop Residue

Corn Factory



Source: Adapted from 1995. Soil fertility manual. Potash & Phosphate Institute, Atlanta, GA

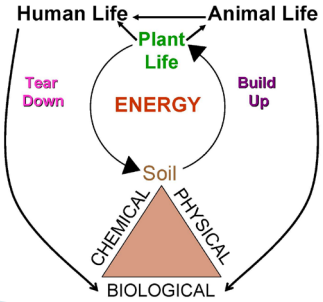
Importance of Humates

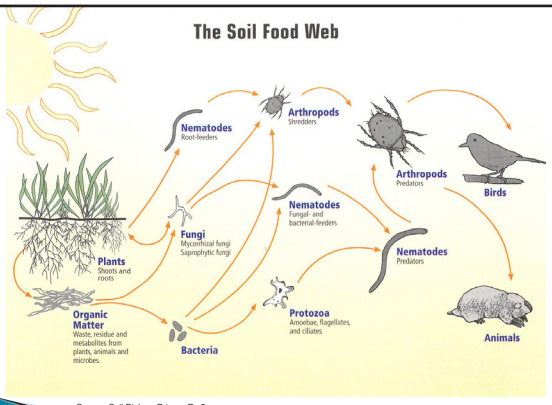
- Physical modification of soil structure, increased soil aggregate stability, improved water infiltration, aeration, soil tilth and workability, as well as reduced erosion losses from runoff.
- Break down of soil primary minerals, which release elements as available nutrients.
- Preserves nitrogen retention in the soil, which makes it available to plants over time.
- Supplies the environment and stimulus for microbial activity.
- Organically complexed nutrients, which makes them bio-available to plants.
- Increased root growth, root penetration and chlorophyll density, which aids in photosynthesis.
- Substantially increased proteins, fiber, and sugars, which improves quality and yield.

HUMUSOLVER

Humusolver – 100	Humusolver Granular	Humusolver 7TE – 100
Humic and Fulvic Acid Concentrate	**Humic and Fulvic Acid Concentrate**	**Humic and Fulvic Acid Trace Elements**
Humusolver – 100 is a soluble powder concentrate. Activates and stimulates soil microbial activity. Increases plant growth and yield by supplying vital humic substances required for plant growth. Reduces water use by plants, increases fruit set and quality. Improves soil tilth/ quality. OMRI LISTED.	**Humusolver Granular** is a granular concentrate. Activates and stimulates soil microbial activity. Increases plant growth and yield by supplying vital humic substances required for plant growth. Reduces water use by plants, increases fruit set and quality. Improves soil tilth/quality. OMRI LISTED.	**Humusolver 7TE – 100** is a soluble powder concentrate. Activates and stimulates soil microbial activity. Increases plant growth and yield by supplying vital humic substances and seven trace elements required for plant growth. Reduces water use by plants, increases fruit set and quality. Improves soil tilth/quality and trace element levels.

Microbiology is the Foundation to a Healthy Production System



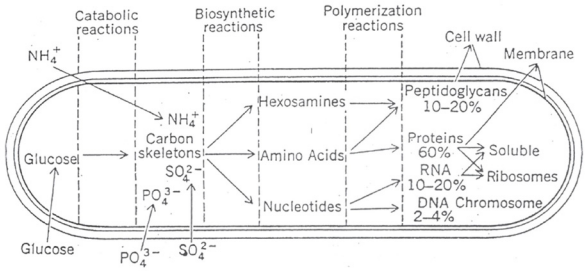


Source: Soil Biology Primer. Pg 5

Microbes function in the Soil in these important ways

- They decompose the plant and animal residues added to the soil…
- Liberate the Nitrogen and Minerals necessary for plant growth…
- Oxidize and transform fertilizer into forms available to plants…
- Produce organic plant foods from organic residues in the soil…
- Have a very favorable effect upon seed germination.
- Produce substances that have a direct beneficial effect upon plant growth,
- Build and improve soil structure…

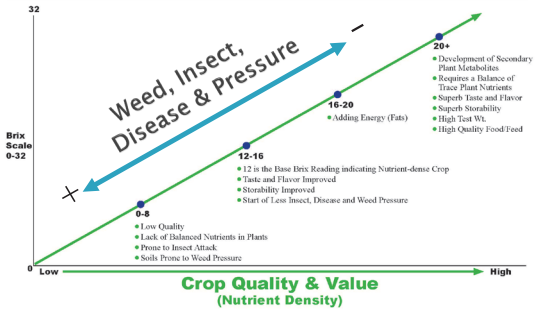
Generalized Flow Diagram for the
Synthesis of the Bacterial Cell Components



J. Mandelstam and K. McQuillen. Biochemistry of Bacterial Growth. John Wiley, 1973

Source: Soil Biology Primer. Soil and Water Conservation Society

Growing High Brix Crops is Dependent on Soil Health



Mineral Percent of Dry Weight Plant Matter

MACRO NUTRIENTS

	Symbol	Atomic Weight	Plant Dry Weight %
Hydrogen	H	1	6
Carbon	C	12	45
Nitrogen	N	14	1.5
Oxygen	O	16	45
Magnesium	Mg	24	0.2
Potassium	K	39	1
Calcium	Ca	40	0.5
Phosphorous	P	31	0.2
Sulfur	S	32	0.1
		Total	**99.50%**

Structural Components

MICROS AND TRACE NUTRIENTS

	Symbol	Atomic Weight	Plant Dry Weight %
Boron	B	11	0.002
Chlorine	Cl	35	0.01
Manganese	Mn	55	0.005
Iron	Fe	56	0.01
Copper	Cu	64	0.006
Zinc	Zn	65	0.002
Molybdenum	Mo	96	0.00001
		Sub-Total	0.03501
		All others	0.46499
		Total	**0.50%**

Cofactor Enzyme Activators

Building Test Weight, Nutrient Density and Brix Level

Percentage of Plant Weight			
45%	45%	6%	1.5%
C	O	H	N
Atomic Weight			
12	16	1	14

Test Weight & Quality Building Nutrients

Minerals	Atomic Wt.
P	31
K	39
S	32
Ca	40
Mn	55
Fe	55
Cu	63
Zn	65
Mo	95
etc.	

What does Mineral and Microbial Balance Do?

Reduces	Improves
Compaction	Drainage/Aeration
Disease	Microbial activity
Insects	Soil organic content
Weeds	Recycling of nutrients
Inputs	Mineral balance and availability
Toxins	Crop residue digestion
Salts	Water utilization and efficiency
Mineral tie-up	Optimize the plants genetic potential
Plant stress	Improves feed/food quality

Healthy Corn with a Mature and Dry Ear at Harvest

- High test weight & nutrient density
- Free of mycotoxins

Corn Test Weights:

Bu / Acre	200.00		200.00
lbs / Bu	**56.00**	15.5% moisture	**61.00**
Lbs / Acre	11,200.00		12,200.00
Bu Price	4.50		$ 4.50
C.W.T	112.00		122.00
C.W.T. Price	$ 8.04		$ 8.04
Proceeds / Acre	$ 900.48		$ 980.88
$$ Difference / Acre		($16.08/A/lb twt)	**$ 80.40**

Side Effects of Glyphosate Technology on Soil/Plant Health and Feed Quality

- Weakens the plants immune system
- Chelates secondary and trace nutrients
- Negatively impacts 290 important enzymes — this reduces the quality of food/feed
- When exudated to the root zone — acts as a biocide killing beneficial soil/root microbes, enhancing plant diseases and reducing nutrient uptake.

Nutrients, Glyphosate and Formaldehyde (in ppm) in GMO Corn Compared with Non-GMO Corn Grown in Adjacent Fields in Minnesota in 2012

Ingredient	GMO[1]	Non-GMO[2]	Nutrient	GMO[1]	Non-GMO[2]
Glyphosate	13	0	Manganese	2	14
Formaldehyde	200	0	Iron	2	14
Nitrogen	7	46	Zinc	2.3	14.3
Phosphorus	3	44	Copper	2.6	16
Potassium	7	113	Molybdenum	0.2	1.5
Calcium	14	6,130	Boron	0.2	1.5
Magnesium	2	113	Selenium	0.6	0.3
Sulfur	3	42	Cobalt	0.2	1.5

[1] The GMO corn was grown in a field that has been no-till, continuous GMO corn (Roundup Ready®) with a glyphosate herbicide weed control program for 10 years.
[2] The Non-GMO corn has not had glyphosate (or Roundup®) applied to the field for at least five years.

And the Mice Prefer.....

GMO Corn

Non-GMO Corn

Photos: Gilbert Hoestler

Glyphosate breakdown molecule "AMPA" found to harm earthworms and degrade the life of soils

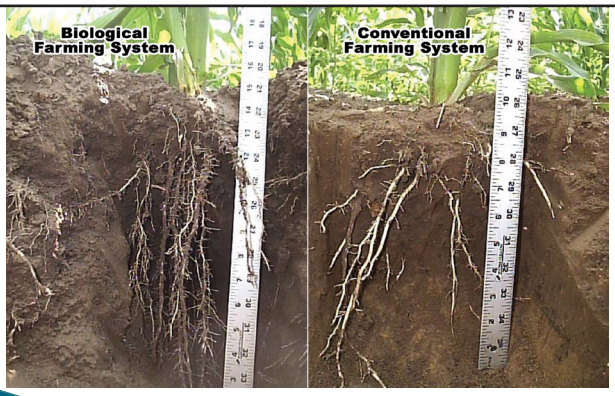
Wednesday, June 26, 2019 by: Isabelle Z.
Tags: AMPA, badfood, badpollution, bees, earthworms, ecosystems, environment, food supply, glyphosate, harvest, herbicides, Microbes, Roundup, soil, soil pollution, soil quality, stop eating poision, toxic ingredients, wildlife

MANAGE SOIL HEALTH

- Increase Crop Productivity
- Increase Profitability
- Improve the Environment

Four Basic Principles to Improve Soil Health

1. Keep the soil covered as much as possible.
2. Disturb the soil as little as possible.
3. Keep plants growing throughout the year to feed the soil.
4. Diversify as much as possible using crop rotation and cover crops.



Cover Crops and Manure Applications Go Hand-in-Hand

- ✓ Cover Crops help stabilize manure nitrogen/nutrients
- ✓ Enhances:
  - Bio-Active Carbon
  - Microbial Diversity
  - Nutrient Cycling

FULL-CIRCLE ANIMAL, MANURE AND SOIL-PLANT SYSTEM™

More From Every Acre, Every Animal and Every Gallon of Manure

Improve Soil Health, Crop Health & Nutrient Density **"Spend Less & Get More"**

Animal → Bioaugmented Manure → Soil Health → Seed → Plant Health → Crop Residue Management

- Manure Treatment Technology • Manure Master Plus
- Manure Master™ Program • Eubio-NBS (c10) At-application Liquid Manure Enhancer
- Eubio-NBS (c10) At-plant or Foliar Soil Remediation
- Crop AdvantagePlus™ Program
- Water Quality ← Probiotic Liquid Additive • Eubio-NBS (RTU) Livestock Drinking Water Enhancer; Water pH Management; Trace Elements
- Consider: • 3rd Crop • Cover Crop
- Ferment High Moisture Feed • Forage Enhancer

BALANCE

It's About Soil Health & Water Quality

(Biodiversity, Mineral Balance, Soil Carbon & Reduced Toxins)

- Eubiotic Feed Additives ← Probiotic Feed Additives; Trace Elements
- **Barn Environment Improvements:**
  - Reduces odors & lethal gases (H_2S, NH_3, etc.)
  - Improves working environment & employee retention
  - Reduces flies & pathogens
  - Reduces washing & cleaning time
  - Improves animal health
  - Regain pit/lagoon capacity
- Improved Crop & Feed Quality

ProfitMaster™ Full-Circle Goals: • Improved Soil, Crop & Animal Health • Improved Output & Quality • Reduced Input Cost • Improved Margins & Profitability

Achieve healthy crops from seedling to harvest. *Achieve healthy livestock from birth to market.*

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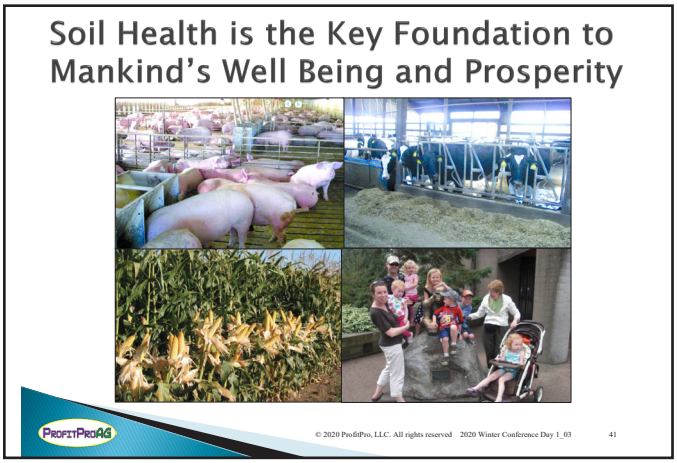
ProfitProAG — More from Every Acre, Every Animal & Every Gallon of Manure

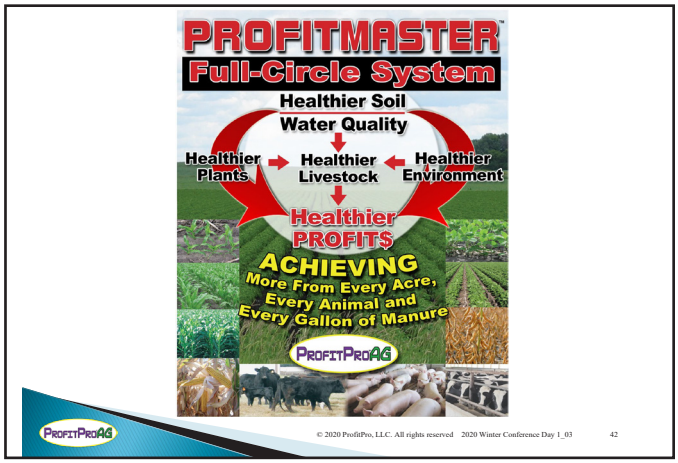
MM-1_0-12-19

Why Higher Brix Readings in Forage Makes Animal Raising More Profitable?

- Dairy cattle fed with high Brix forages increased the quantity and quality of their milk production. The cattle are healthier because of the nutritious feed, resulting in vastly lower veterinary bills.
- Milk produced has a yellower, creamier color, a desirable quality attributed to more carotene contained in the high Brix forage.
- High Brix forage thus increases production in farm animals even as it lowers production costs. The combination of these factors adds up to more profits for the farmer.

Source: Merlin Nussbaum, a farmer of 20 years' experience





Featured Product of the Month

"Green Regenerative & Sustainable Technology"

Eubio™ Tec

Eubio-NBS

Eubio = Healthy Ecosystem/Life
NBS = Natural Biological Stimulant

"A natural biological stimulant that works with existing microorganisms to optimize and accelerate already existing natural processes"

The Ideal Soil & Plant Enhancer

- Triggers an explosion of beneficial microbes in the soil and on plant foliage
- Establishes a balanced soil ecosystem
- Improves the soil's ability to nourish plants, absorb and hold water
- Improves soil tilth
- Elevates plant defense mechanisms

Eubio-NBS (c10)
applied in-furrow on corn at planting time

Corn on Corn

Control

Eubio-NBS (c10)
In-Furrow Application 12.8 oz/A

Eubio-NBS (c10)
Applied to Corn In-furrow At-plant
12.8 oz/A

Observation on Corn:

Eubio-NBS (c10)	Control
• Increased rows on corn ears	• Tip back
• Increased ear length	• Less ear length
• Increased health	• Less healthy than **Eubio-NBS (c10)**
• Green leaves to ground	• Disease issues
• Improved stay green	• More ear mold
• Less ear mold	

Next Year Observations Corn on Corn:

- Less standing water on **Eubio-NBS (c10)** area
- Faster corn emergence
- Improved early crop vigor
- Stayed healthier throughout the season

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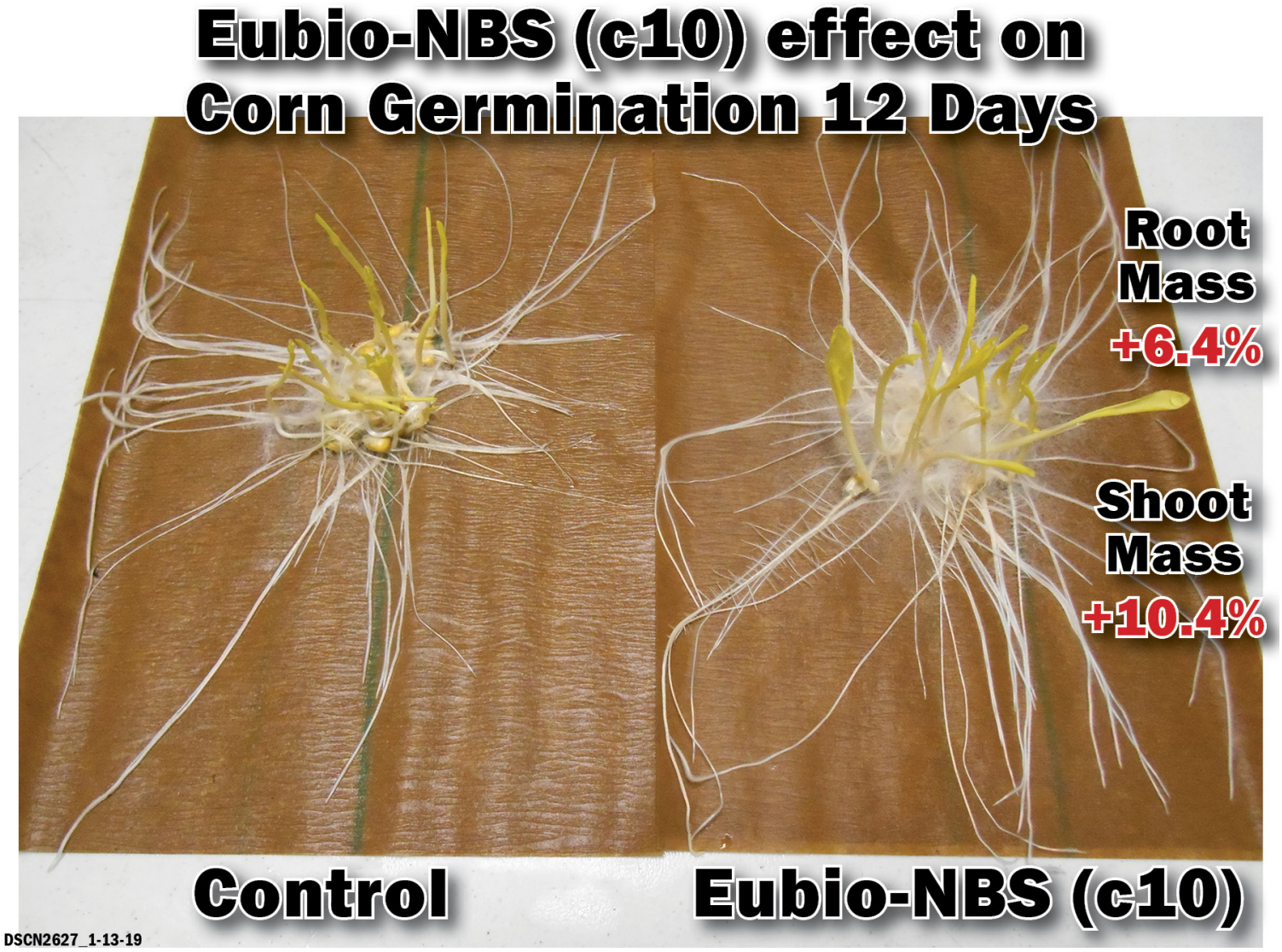
Eubio-NBS (c10)

Soil & Plant Natural Biological Stimulant



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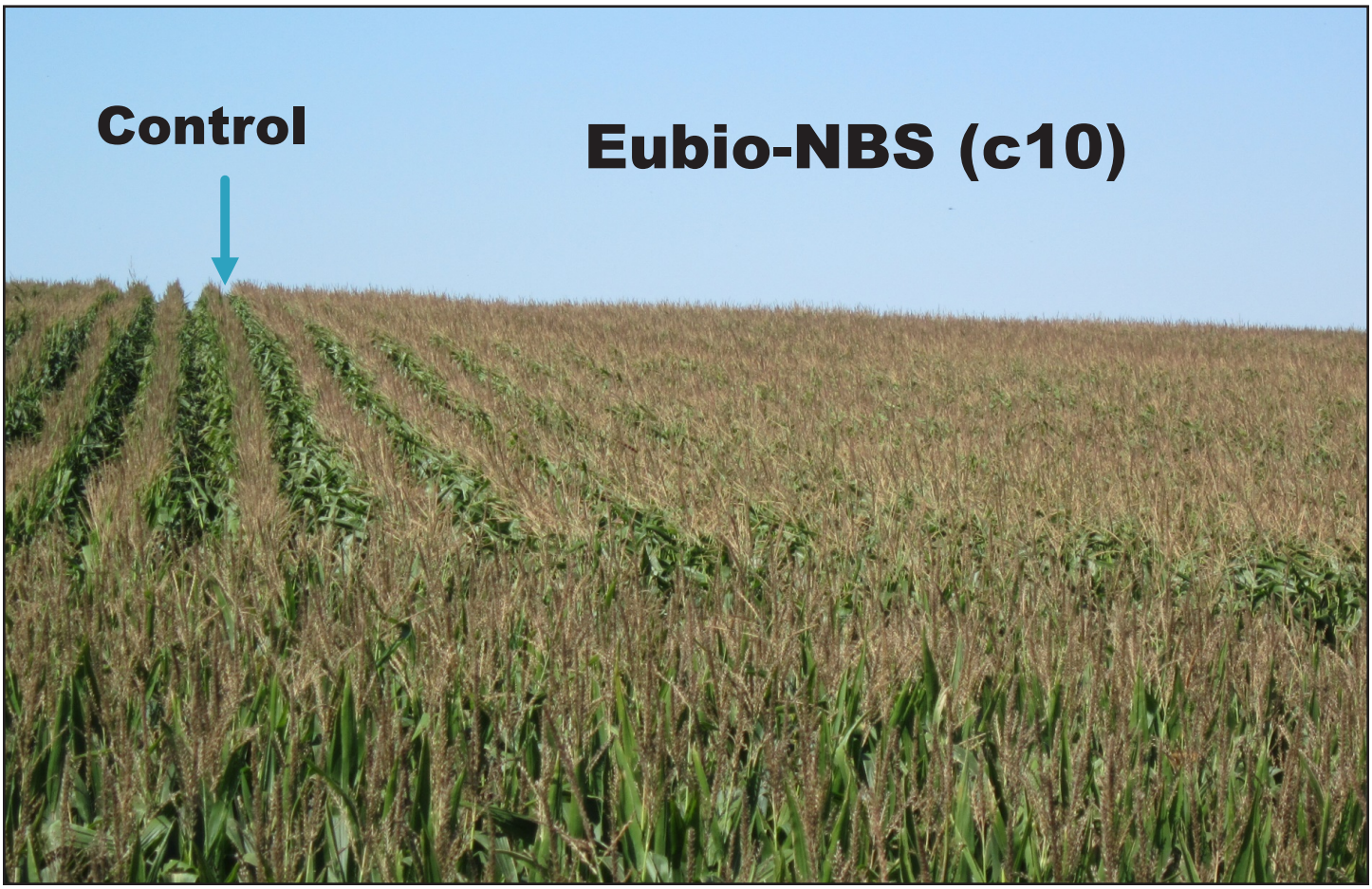
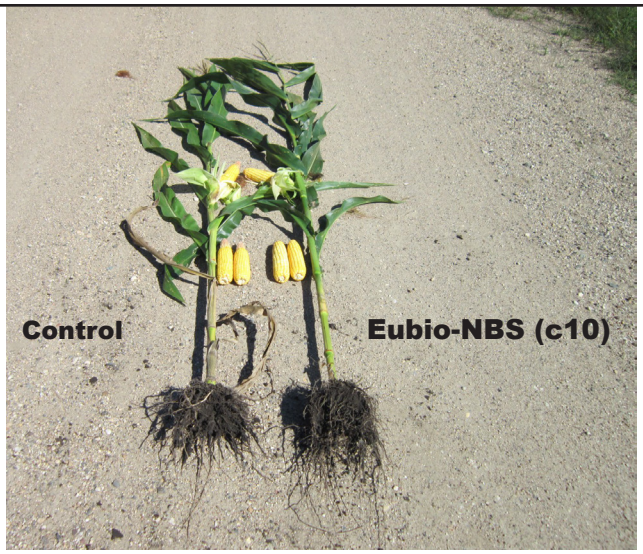
Eubio-NBS (c10)
Control


Control
Eubio-NBS (c10)



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Control

Eubio-NBS (c10)

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Eubio-NBS (c10) Control

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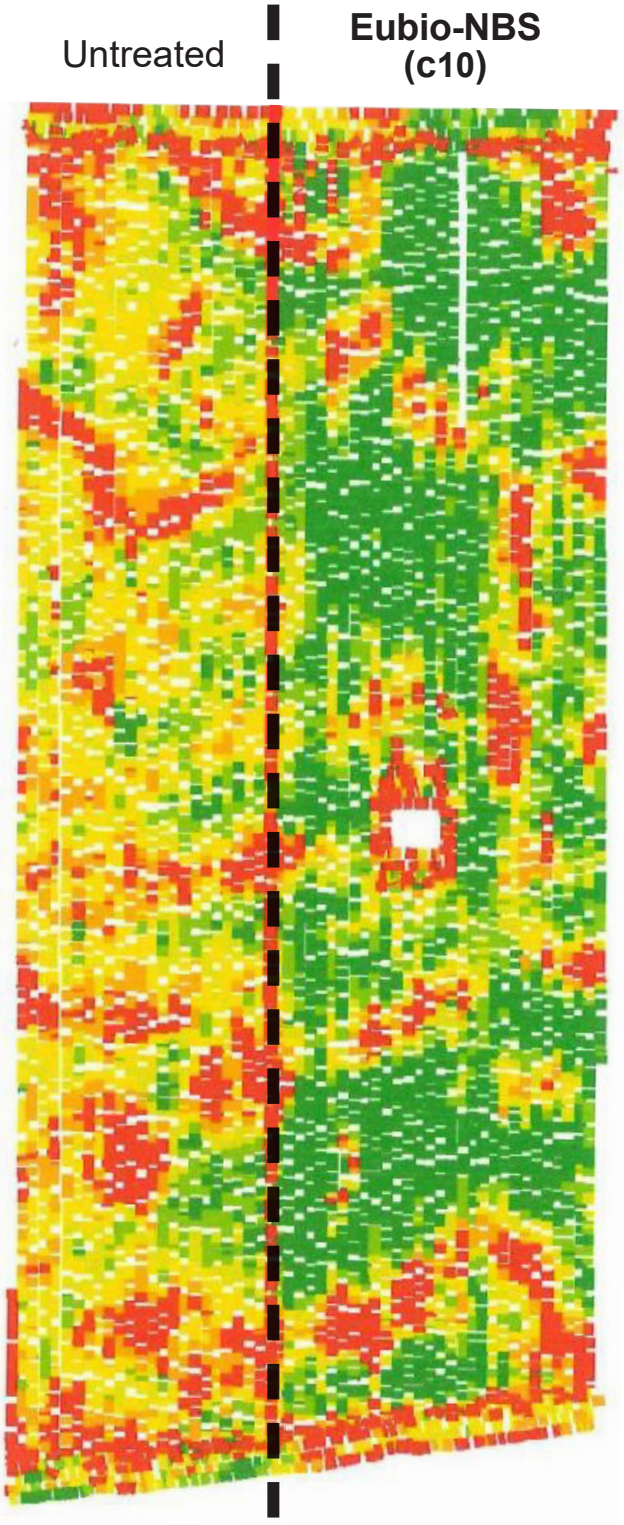
Eubio-NBS (c10)
Applied 2012
in Corn Starter at Planting

GRAIN YIELD MONITOR RESULTS



Eubio-NBS (c10)*	=	220.18 bu/A
Untreated Control	=	201.55 bu/A
	+	**18.63 bu/A Advantage**

18.63 bu/A advantage
x $3.50/bu corn
= **$65.21**

*Eubio-NBS (c10) applied in starter fertilizer at 12.8 oz/A

Location of trial: Grandma's
Matt Wangen
Hayward, MN
507-383-5155

Yield (dry)
(bu/A)

230.00	390.94
220.00	230.00
210.00	220.00
200.00	210.00
190.00	200.00
10.06	190.00

CASE IH AFS Basic Software

Grower: Matt Wangen
Farm: Grandma's
Year: 2012
Operation: Grain Harvest
Crop/Product: CORN
Avg Moisture: 16.12%

Treatment	Avg Yield
Eubio-NBS (c10)	220.18 bu/A
Untreated Control	201.55 bu/A
Yield Advantage	**+18.63 bu/A**

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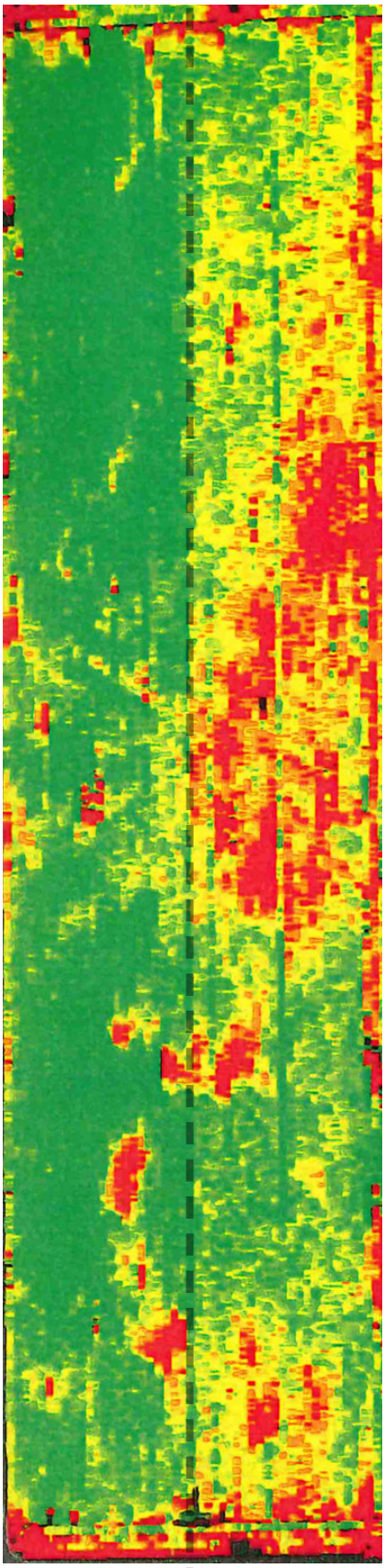
Eubio-NBS (c10) | Untreated



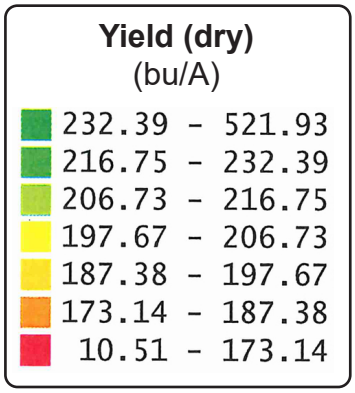
Eubio-NBS (c10)
Applied 2019
in Corn Starter at Planting
GRAIN YIELD MONITOR RESULTS

Eubio-NBS (c10)*	=	233.53 bu/A
Untreated Control	=	204.82 bu/A
	+	**28.71 bu/A Advantage**

28.71 bu/A advantage
x $3.50/bu corn
= **$100.49**

*Eubio-NBS (c10) applied in starter fertilizer at 12.8 oz/A

Location of trial: Wright Ranch
Matt Wangen
Hayward, MN
507-383-5155



Ag Leader Technology SMS Advanced

Grower: Matt Wangen
Farm: Wright Ranch
Trial: Eubio-NBS (c10) vs Control
Year: 2019
Operation: Grain Harvest
Crop/Product: CORN
Corn Variety: P9998 Conv
Avg Moisture: 20.19%

Treatment	Corn Variety	Acres	Avg Yield
Eubio-NBS (c10)	P9998 Conv	38.15	233.53 bu/A
Untreated Control	P9998 Conv	38.48	204.82 bu/A
			Yield Advantage +28.71 bu/A

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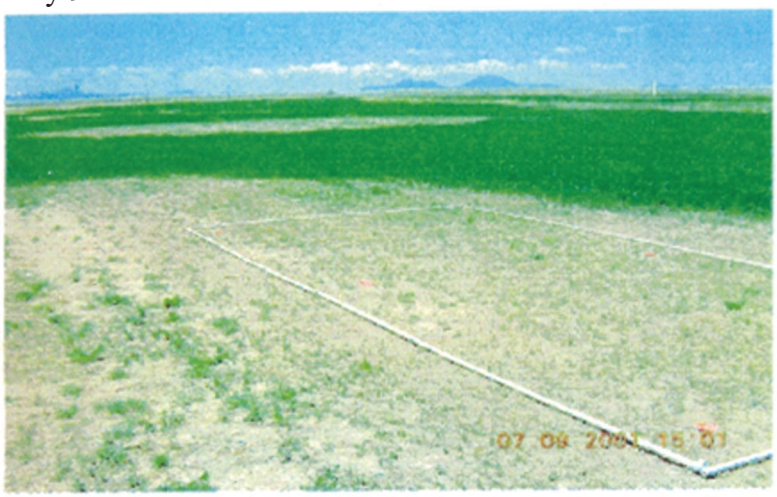
Eubio-NBS (c10)'s effect on establishing alfalfa on high salt soils.

Oklahoma

July 9



August 1

September 5

October 14

Eubio-NBS (c10) remediates salt in irrigated water and soil.

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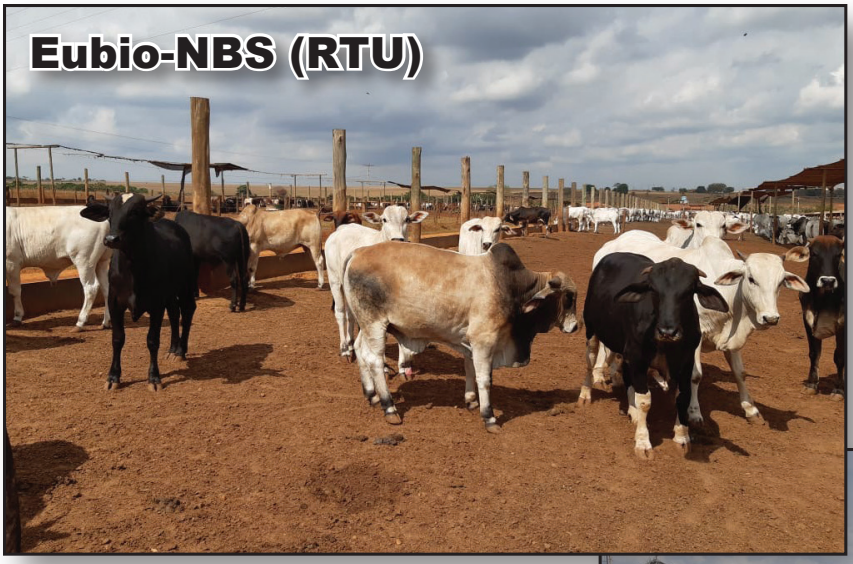
Cargill® Beef Feed Lot Trial with Eubio-NBS (RTU) in Brazil

The Cargill® Trial involved two pens of 98 beef cattle with as close as possible starting weights, size, age and of the same breed. Photos were taken 42 days from the start of the trial.



"Eubio Tec is a natural biostimulant that unleashes the innate energy source available in cellular life... providing major efficiencies and cost savings to industries using biological processes."

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Cargill® Beef Feed Lot Trial With Eubio-NBS (LDWE) In Brazil

Control Group-Lot 13

- Start date 9/19/2019
- Termination date 12/27/2019
- Trial length 99 days
- 49 mixed genes feeders (same lot as treated group)
- 793.8 lbs. average start weight
- 1031.94 lbs. slaughter weight
- Daily weight gain= 2.4 lbs.
- 238.14 lbs. gained in 99 Days

Eubio-NBS (LDWE) Group Lot 12

- Start date 9/19/2019
- Termination date 12/22/2019
    - Note: Terminate 5 days earlier than control group
- 49 mixed genes feeders (same lot as control group)
- 789.39 lbs. average start weight
    - Note: 4.41lbs lighter weight per head than control group at start
- 1127.78 lbs. slaughter weight
- Daily Weight Gain= 3.7 lbs.
    - Note: Additional daily gain per feeder was 1.3 lbs. more than control group.
- 338.39 lbs. gain in 94 Days
    - Note: If fed out to 99 days as control group, an additional 18.48 lbs. would have been added to live weight for total gain of 356.87 lbs.
- Increased Feed Consumption was 2%
- Daily Eubio-NBS (LDWE) dosage was 1760 ppm (3.38 oz.)/hd/day. This was a high dosage to assure results. The next step is to evaluate lower dosage rates from 50 to 500 ppm.

Summary

- If fed the same length (99 days) as control group the Eubio-NBS (LDWE) group gained 356.87 lbs. on 2 % more feed
- Eubio-NBS (LDWE) group gained an additional 118.73 lbs. in 99 days.
- The daily gain would be 3.6 lbs. per head, which is 1.2 lbs. more daily gain that the control group.
- At $1.20 per lb. the Eubio-NBS (LDWE) group resulted in an additional $142.48 per feeder minus the 2% increase in feed and Eubio-NBS (LDWE) application to drinking water

ProfitPro®AG invites YOU to call in on the third THURSDAY of the month for the FREE TELECONFERENCE

A cost-effective and convenient way to gain knowledge on new crop production technologies

It's Easy . . . It's FREE

Thursday, March 19, 2020

8:00 p.m. Central Time

UPCOMING SUBJECTS

- **Building Soil Health and Long-term Profitability**
- **Eubio-NBS – The Ideal Soil & Plant Enhancer**

Dr. Jim Ladlie, ***ProfitProAG President*** will discuss the upcoming subjects and answer questions.

For more information visit www.profitproag.com and click on "Monthly Teleconference."

DIRECTIONS FOR CALLING IN

1. Dial the toll free number **1-855-212-0212** at 8 p.m. **SHARP** (Central Time) to get in from the beginning.
2. Enter the meeting ID No. **769-100-082#** (pound or hashtag key).
3. **All calls will be muted when joining the teleconference.**
4. **To ask a question** during the Q & A portion of the program, press *6 (star six). After asking the question please press *6 to re-mute your phone.
5. **NO FEE** or pre-registration required.
6. Access the teleconference anytime between 8 to 9 p.m. (CT)