

ProfitPro[®]AG Farm Report

December 2020

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

Crop Management News

by Dr. Jim Ladlie, ProfitProAG President

"It's all about your Profitability"



Farming the Controllables

What if you could grow more bushels per acre



Get the recipe to do it.

Farming is all about managing resources, including money. You can be a low-cost producer and maximize profits by controlling the controllables. Profitability in crop production is about optimizing the genetic potential of the seed you plant. This is achieved by optimizing crop stands, minimizing plant stress and maximizing plant energy production. Learn about a proven recipe for increasing corn and bean yields.

The leading cause of reduced profitability in corn and soybean production is premature crop death. Premature crop death is caused by plant diseases due to a lack of energy, which causes the plant to prematurely shut down. This reduces the number of seeds, weight and nutrient density.

To receive your **Recipe for Success** in corn and soybean production, join us for a special webinar, "It's all about your Profitability" Farming the Controllables on Thursday, December 17th at 8:00 p.m.

Visit www.profitproag.com and click on the "It's all about your Profitability" link.

Why is Corn Prematurely Dying?

- * Stalk rots trigger most premature death in corn—and they're probably lurking in your field.
- * When a crop runs short of energy to fully complete its life cycle, it prematurely dies. This reduces yield and quality.
- * Stalk rots can reduce corn yield by killing the plant before physiological maturity.
- * They can also cause plant lodging, increasing harvest losses and impeding harvest progress.
- * When plants become infected with stalk rot they are more susceptible to ear rot which can lead to grain quality issues and mycotoxins.

FREE
Teleconference Calls

Agronomic/Livestock
3rd Thursday of the Month
December 17, 2020

Time
8 pm Central Time
Visit www.profitproag.com
To join the Webinar,
click on the link provided in
"Monthly News Webinar"

**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



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



Ingredients & Components Necessary to

ACHIEVE HIGHER YIELD

Components of Soybean Yield

The components that make bushels of soybeans are:

- Number of:**
- Plants per acre
 - Nodes per plant
 - Pods per node
 - Seeds per pod
- Size of seed produced**

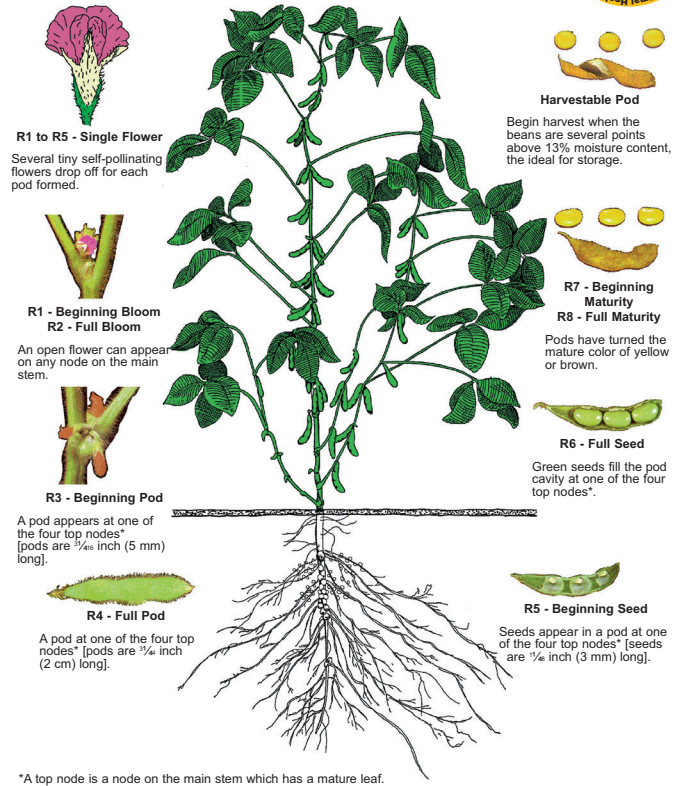
At 2,500 seeds per pound about 15 million seeds must be produced per acre to achieve 100 bu/A soybeans.

INGREDIENTS OF SOYBEAN YIELD

Ingredient	Amount (Seed and Stover)
CO ₂	400,000 semi-trailer loads of air (4,000 loads/bu)
Glucose	301,080 lbs (301 lbs/bu)
Water	1,350,000 gal (13,500 gal/bu)
Nutrients in Seed and Stover	<ul style="list-style-type: none"> 550 lbs (5.5 lbs/bu) Nitrogen (24% left in stover) 120 lbs (1.2 lbs/bu) Phosphorus (29% left in stover) 240 lbs (2.4 lbs/bu) Potassium (41% left in stover) 170 lbs (1.7 lbs/bu) Calcium (88% left in stover) 45 lbs (0.45 lb/bu) Sulfur (56% left in stover)
	1,125 Total Pounds

Source ProfitPro, LLC. 2003

Soybean Pod Development



- A soybean plant will *not* hold more seeds than it senses it can fill.
- The plant monitors its ability to produce energy and make adjustments in growth and seed production based on the rate of energy captured at each phase of seed production.

What Percent of Flowers on a Soybean Plant Typically Become Pods?

- ✓ A. 25%
- B. 35%
- C. 45%
- D. 75%

Example

Add 1 pod to each main stem node on a plant that has 17 nodes

Each pod contains 3 average size seed (2900 seed per lb)

Final Stand of 120,000 plants/A

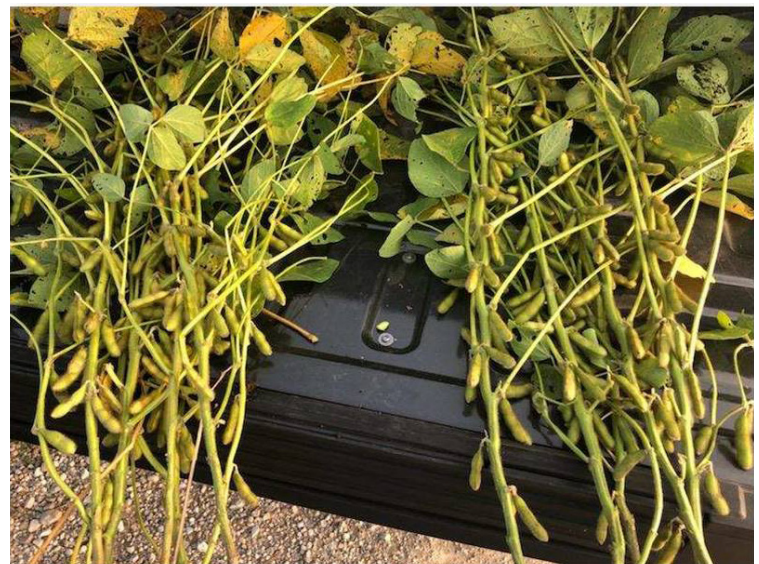
+35 Bu/A

Self pollinated
Near 100% fertilization
Higher yield = more flowers



Source: <https://www.pioneer.com/us>

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Control

Chitosan (Soil applied at planting)



Ingredients & Components Necessary to

ACHIEVE HIGHER YIELD

Components of Corn Yield

The components that make bushels of corn are:

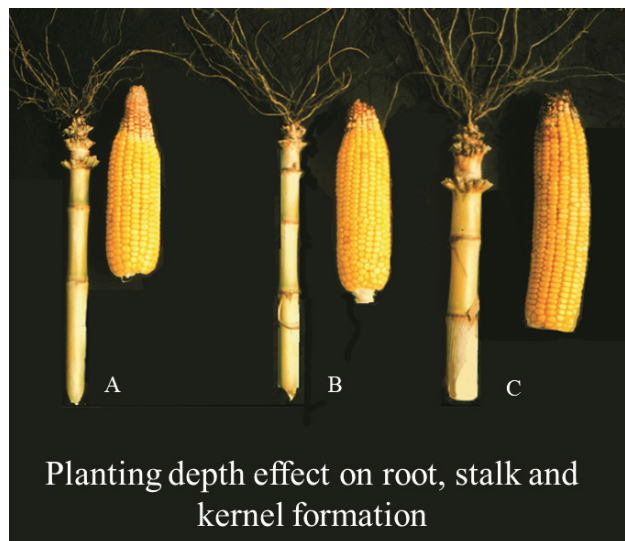
- Ears per acre
- Rows per ear
- Kernels per row
- Size of kernels produced

Approximately 38,840,000 kernels must be produced per acre to achieve 400 bu/A corn.

INGREDIENTS OF CORN YIELD

Ingredient	Amount (Seed and Stover)
CO ₂	390,000 semi-trailer loads of air (1,300 loads/bu)
Glucose	30,000 lbs (100 lbs/bu)
Water	1,500,000 gal (5,000 gal/bu)
Nutrients in Seed and Stover	<ul style="list-style-type: none"> • 450 lbs (1.5 lbs/bu) Nitrogen (33% left in stover) • 180 lbs (0.6 lb/bu) Phosphorus (42% left in stover) • 390 lbs (1.3 lbs/bu) Potassium (80% left in stover) • 63 lbs (0.21 lb/bu) Calcium (90% left in stover) • 48 lbs (0.16 lb/bu) Sulfur (56% left in stover)
	1,131 Total Pounds

Source ProfitPro, LLC, 2003



Source: Agri-Growth, Inc., 1997

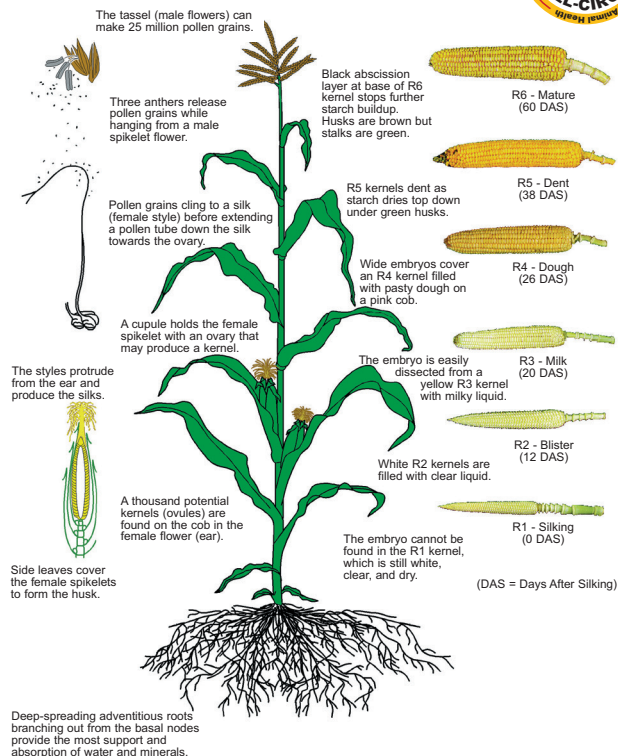
A. Planting depth of 1 inch

B. Planting depth of 1 3/8 inches

C. Planting depth of 2 1/4 inches

- * If a corn seed is planted less than 1 inch deep, then the nodal roots originate at or just below the soil surface.
- * Corn nodal roots exposed to a hot, dry soil surface will exhibit short, nubby, "clubbed" roots, as illustrated above.
- * These symptoms are often mistaken for herbicide injury.

Corn Ear Development



Seed selection and placement are two of the most important management decisions a grower can make. Properly positioning the corn seed is critical to minimizing stress and protecting yield.

The shallow (1 inch) plant suffered increased stress, resulting in:

- Less developed root system
- Smaller diameter stalk
- Smaller ear size
- Reduced yield

Key symptoms of shallow planting are:

- * Seedling anchored by mesocotyl
- * Nodal roots originate at or just below the soil line
- * Nodal roots not anchored and the plant may lodge
- * Growth stunted
- * Plants purplish in color

ENVIRONOC 401 SOIL TEST



UNTREATED
SOLVITA CO2 BURST **39.80**
SOIL HEALTH CALCULATION **4.2**

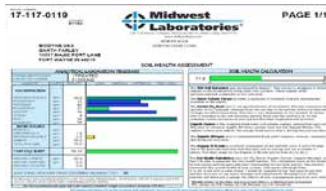


TREATED
SOLVITA CO2 BURST **90.20**
SOIL HEALTH CALCULATION **9.3**

ENVIRONOC 501 SOIL TEST



UNTREATED
SOLVITA CO2 BURST **62.70**
SOIL HEALTH CALCULATION **6.6**



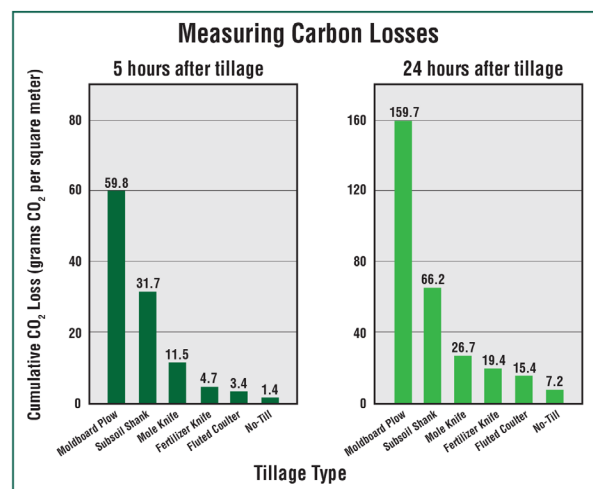
TREATED
SOLVITA CO2 BURST **98.10**
SOIL HEALTH CALCULATION **11.2**

Solvita CO2 Burst is a very good indicator of Soil Health. This test measures the amount of CO₂ naturally released from the soil due to the activity of the soil microbes through Microbial Respiration. The quantity of CO₂ which crops take up compares closely to the amount of CO₂ which a soil is capable of producing.

Soil Health Calculation uses the CO₂ Burst, Organic Carbon, Organic Nitrogen, and the C/N Ratio to generate a SOIL HEALTH NUMBER. This calculation looks at the balance of soil carbon and nitrogen and their relationship to microbial activity. This Number represents the Overall Health of Your System.

CO₂ cycling is about energy to drive plant growth, “stay green”, yield, quality and ROI.

Applying quality and multi-species (25 or more) microbial products throughout the growing season (fall, at-plant and in-season) will enhance carbon sequestering by 50%, build soil energy, nutrient availability/balance and nitrogen fixation



LASTING EFFECT. Don Reicosky's portable chamber measured the amount of CO₂ released from soil based on different types of tillage. While the bulk of CO₂ release came immediately after the tillage tool passed through the soil, it continued to be released for many hours afterward.

Photo credit: No-Till Farmer

It's About Consistency & Sustainability



Recipe for Success

Value to the Crop & Profitability

Corn Production

Phase 1: Crop residue management

A “second harvest” that improves soil health, nutrient retention, water quality and profitability.

Phase 2: Planting

- Option #1: In-furrow
- Option #2: Preemergence

Phase 3: In-season

Soybean Production

Phase 1: Crop residue management

A “second harvest” that improves soil health, nutrient retention, water quality and profitability.

Phase 2: Planting

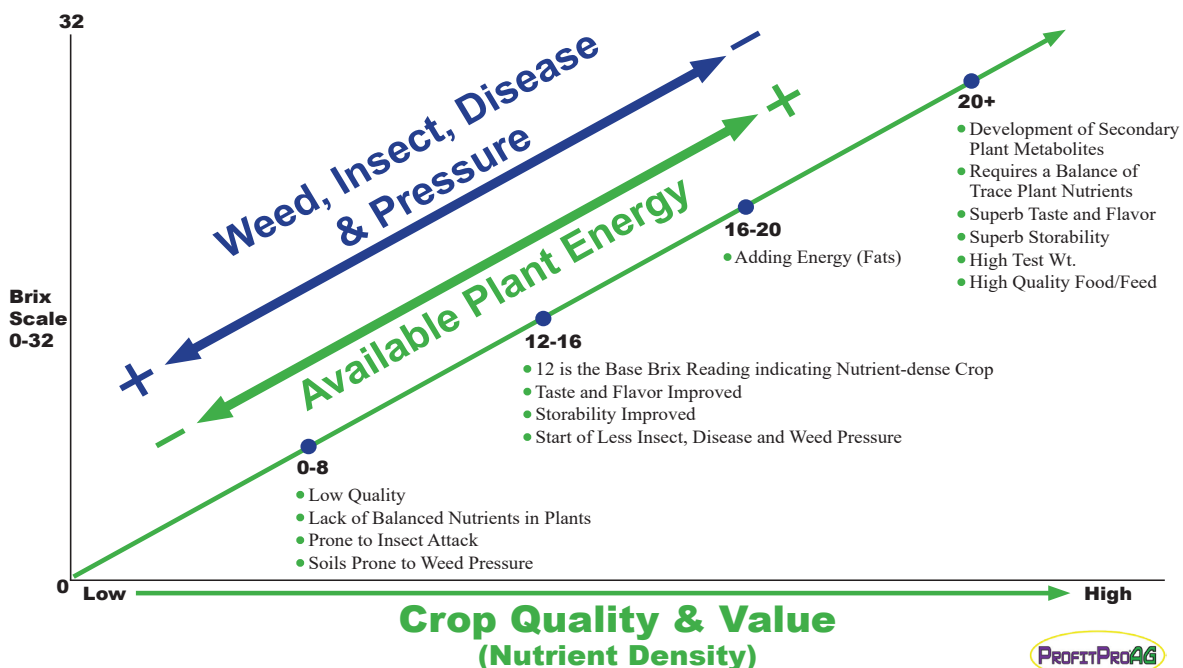
- Option #1: In-furrow
- Option #2: Preemergence

Phase 3: In-season

- * Improves biological diversity and overall soil health
- * Better germination & emergence; uniform fuel processing by minimizing plant to plant competition for sunlight
- * Increased rate of cell division, plant growth and vigor
- * More efficient utilization of invested fertility dollars
- * Provides a “slow release” fertilizer effect via efficient cycling of crop residue
- * Reduces carbon tie up of soil nitrogen and micronutrients
- * Enhances overall plant health by decreasing rates of stalk rot
- * Creates platform for greater seed size, weight and nutrient density at harvest
- * Sets the stage to analyze, test and determine limiting factors in maximizing crop yield

A fertile soil is not always a productive soil.

Growing High Brix, Nutrient-dense Crops is Dependent on Soil Health



Crop Management

Do you understand the Seasonal Dietary Needs of your crop?

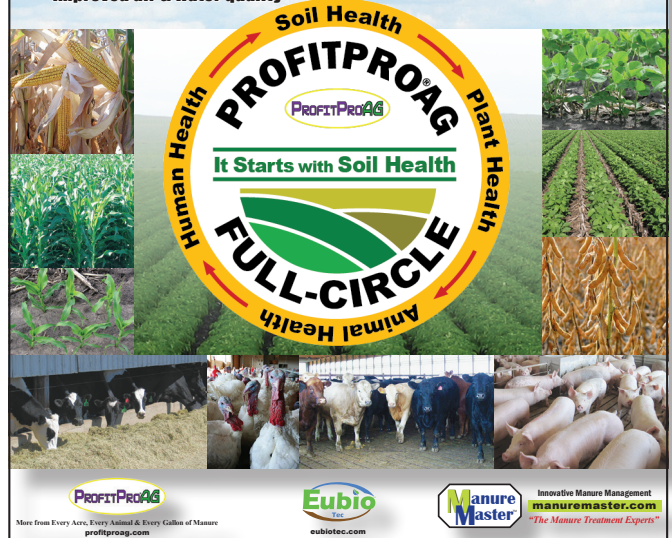


Regenerative & Sustainable Farming Systems

can be repeated indefinitely with a positive impact to the environment, food chain and consumer.

It results in:

- a net gain in soil productivity
- carbon fixation in humus
- nutrient density to food & fiber
- improved air & water quality
- sustainable & profitable animal production
- net improvement in consumer health
- improvement in profitability



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 reliance on excessive tillage and fertilizer.

THE KEY CONTROLLABLES THAT IMPACT PROFITABILITY INCLUDE:

1. Managing crop residue
2. Optimizing crop stands
3. Boosting soil & plant health
4. Minimizing plant stress
(*hint – discover the value of ethylene inhibitors*)
5. Reducing tillage cost
6. Utilizing crop rotation & cover crops
7. Biologically treating manure

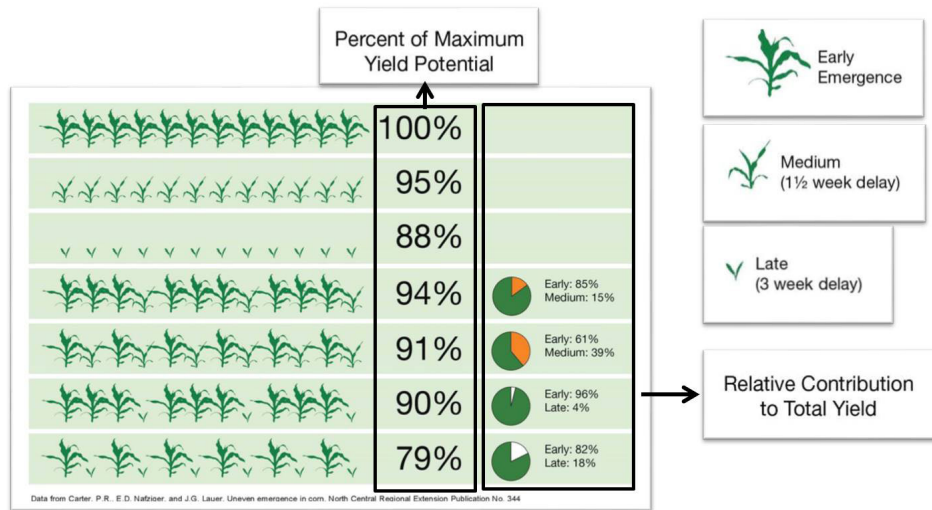
1. Managing Crop Residue

Sequestering soil carbon and building energy reserves for “stay green” crop production

**Soil carbon loss in the Midwest corn belt has shown a steady decline since the onset of agriculture. The decline is related to carbon export, intensive tillage, changing from perennial to annual species, and increased mineralization of soil organic matter (SOM) due to nitrogen fertilization and tile drainage.*

2. Optimizing Crop Stands

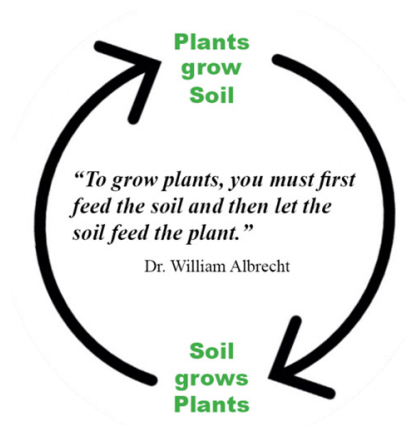
What is the Impact of Uneven Emergence on Yield?



3. Boosting Soil & Plant Health

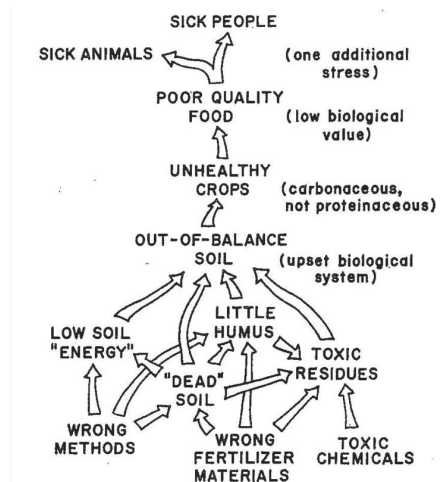
Building Soil Health and Long-term Profitability

Soil health - the cornerstone of profitability in crop & livestock production



4. Minimizing Plant Stress

Cause and Effect



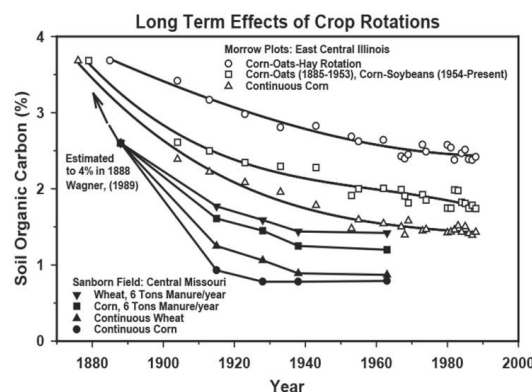
5. Reducing Tillage Cost

Reduce or eliminate tillage in your crop production cycle. The graph shows the impact of different types of tillage on carbon (CO₂) and essentially energy loss from the soil



6. Utilizing Crop Rotation & Cover Crops

Plant diversity builds microbial diversity, bioactive carbon and energy through crop rotation (corn-soybeans-cereal or perennials) and cover crops



7. Biologically Treating Manure

The following is a list of benefits realized from properly managing manure on an annual basis.

Soil Health & Crop Enhancements

- * Improves root zone health & crop yields/quality
- * Predigested manure “no lag phase in-field”
- * Improves nutrient value & retention
- * Improves soil biology & health
- * Improves uniformity of in-field applications
- * Improves N soil fixation
- * Reduces weed & pest pressure over time
- * Better in-field crop residue decomposition



These corn roots show enhanced root health from biologically treated manure applied in a strip-till application. Growers who understand the value of bioaugmented manure can reduce plant nutrient cost, improve soil and plant health, improve crop residue decomposition, detoxify the soil (reduce salts) and improve nitrogen and other plant nutrient efficiencies.

Developing your Recipe for Success

Call or email ProfitProAG for development of your own crop production *recipe for success*.

Dr. Jim Ladlie

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dklockenga@profitproag.com

“It’s all about your Profitability” Farming the Controllables



*Big corn
& soybean
yields start
with a recipe
for success*



2021 Early Order Product Cash Discount Program

- All products on conventional and organic price sheets (except for products listed below).
- The Early Order Product Cash Discount Program (E.O.P.C.D.P.) is for 2021 crop year inputs.

Deadline Discount Dates	2021 Retail Early Order Product Cash Discount ^{1,2}
December 16 – 31, 2020	5%
January 1 – 15, 2021	4%
January 16 – 31, 2021	3%
February 1 – 29, 2021	2%

¹Cash or check

²Products **NOT** included in the 2021 Early Order Product Cash Discount Program:

- Commercial fertilizers
- Manure pit treatment products
- Services
- Equipment
- Human products
- **Fall Crop Residue Program is already discounted**

For more information or to place an order call:

Chris Chodur – 507-402-4195 (cell) / cchodur@profitproag.com

Dennis Klockenga - 320-333-1608 (cell) / dklockenga@profitproag.com

Dr. Jim Ladlie – 507-383-1325 (cell) / jladlie@profitproag.com or call ProfitProAG at 1-888-875-2425



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



Innovative Manure Management
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"The Manure Treatment Experts"



Green Regenerative & Sustainable Technology

Featured Product of the Month

ADVANCE



Boost Plant Nutrition and Energy

PRODUCT DESCRIPTION:

Advance gives your crop the extra energy and protection it needs to achieve top end yield. The N-P-K blend is designed to deliver a balanced macronutrient foliar feed while the micronutrient complex gives the crop enhanced plant health. With **Advance**, you will have sufficient levels of nutrients and carbon sources to secure better plant health and higher yields. To enhance performance of **Advance**, apply with Eubio-NBS(c10).

GENERAL DIRECTIONS FOR USE:

Shake well before using. **Advance** is used at 2 to 4 quarts per acre.
Apply by water run (flood or sprinkler), spray (air or ground), or injected into fertigation system.
To enhance performance of **Advance**, apply with Eubio-NBS (c10) at 8 to 10 oz per acre.

SUGGESTED APPLICATION:

Row Crops: 2 to 4 qts in 5 to 15 gal water per acre. Foliar spray on corn, soybeans, alfalfa, etc.
For best results application should be made when air temp is below 80 degrees F and humidity is below 80%.
Product is typically rain fast once it dries on leaf surface.
Do not apply this product when plants are under severe stress.

ProfitPro®AG invites YOU to their
FREE WEBINAR
the third THURSDAY of each month.

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

It's Easy . . . It's FREE

Thursday, December 17, 2020
8:00 p.m. Central Time

Dr. Jim Ladlie, ProfitProAG President will present the webinar and answer questions.

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

TO JOIN THE WEBINAR, CLICK ON THE LINK PROVIDED
