ProfitPro®AG Farm Report

April 2019

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ProfitProAG

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

Crop Management News

by Dennis Klockenga, ProfitProAG Crop Management Consultant

Tar Spot in Corn

There's been a lot of talk about Tar Spot in corn since it was found the summer of 2018 in the Midwest. This synopsis is based on a webinar by Dr. Nathan Kleczewski Research Assistant Professor and Extension Plant Pathologist at the University of Illinois.

According to https://crop-protection-network.s3.amazonaws.com/publications/tar-spot-filename-2019-03-25-120313.pdf Tar Spot was first confirmed in 2015 in Northern Illinois and Indiana. In 2018, it spread to Eastern Iowa, Michigan, Wisconsin, Ohio and even Florida (Figure 1). 2018 was the first time that it significantly altered yield with losses up to 50 bu/A.

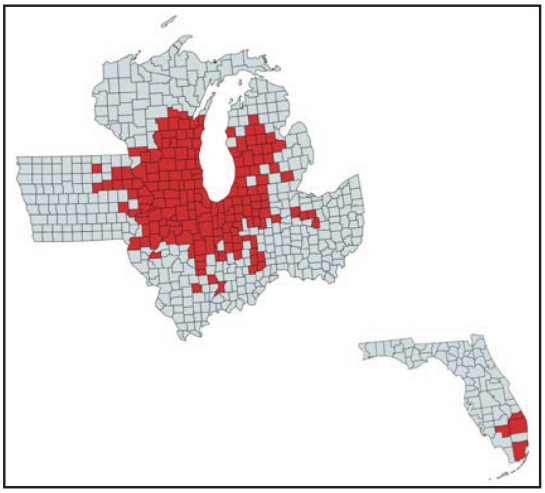


Figure 1 This map shows areas where tar spot infections have been confirmed in the United States as of 2018. *Source: (1)*

Tar spot, or Phyllachora Maydis, is a fungus that produces raised black spots or stromata that may appear as a fish eye (Figure 2). The fungus overwinters in the residue as stroma that forms ascospores. The stromata feel and pop like a pimple and can ooze ascospores spreading the disease up to 250 feet. The fungus can form on the top or bottom sides of the corn leaves and in extreme cases on the leaf sheaths and husks. Typically the lower leaves will be infected first and then spread up the plant with wet weather. Tar spot on the ear leaf at dent stage on a susceptible hybrid can produce infection on 50% of the leaves or more. The ear leaf is the key to the severity of the disease and if 30% of the ear leaf or more is infected it can cause the plant to senesce.

Figure 2 Phyllachora maydis, the fungus that causes tar spot, produces stromata that are raised, black, and often found on leaves and husks of affected corn plants. *Source: (1)*

FREE Teleconference Calls

Agronomic/Livestock
3rd Thursday of the Month
April 18, 2019

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

Typically the disease will form later in the year, but in 2018 it was found on V3 corn as early as June. The symptoms will develop 14 days after infection. Tar spot prefers cool conditions with temperatures of 60-72 degrees Fahrenheit as well as wet conditions at 75% relative humidity and higher for seven hours or longer. If the leaves stay wet for seven straight hours or longer, tar spot can infect the plant.

Figure 3 Southern rust (left) and common rust pustules erupt through leaf surfaces, and you can rub off the spores. *Source: (1)*

According to https://crop-protection-network.s3.amazonaws.com/publications/tar-spot-filename-2019-03-25-120313.pdf yield reductions are due to decreased ear weight, poor kernel fill, loose kernels as well as stalk rot and lodging. It can also decrease forage quality which can be a concern with silage corn. Reduced green leaf area means reduced photosynthesis, less carbohydrates for grain fill, more rapid dry-down and the plant is more susceptible to lodging.

According to https://brownfieldagnews.com/news/uw-testing-smart-phone-app-to-predict-corn-tar-spot/ the University of Wisconsin is testing an app for your smartphone called Tarcaster. The app will help predict and manage tar spot based on weather conditions. It will be similar to U of W's Sporecaster that predicts and helps the farmer manage white mold. They are hoping that the app will be available for the 2020 crop season.

Control

There are a few ways to help control tar spot. First is using crop rotation and avoiding corn on corn. Tar spot overwinters on corn residue and without growing an unsusceptible crop such as soybeans, the disease inoculum can continue to build-up making the second year corn more susceptible. Second, select resistant hybrids. Talk to your seed dealer about the resistant level of your hybrids. Finally, use a fungicide to help control the disease. Suppression of tar spot showed a 20-30 bu/A increase when applied at the right time. The problem is that tar spot can infect the plant anytime during the growing season and a typical fungicide application will last 2-2$^{1}/_{2}$ weeks, so timing is critical. Watch the weather conditions for rainy, dewy and high humidity periods to help make the decision of applying a fungicide. One final note, the plant is more susceptible if it is unhealthy. Make sure the crop has a balanced fertilizer program that includes primary, secondary and micronutrients.

Figure 4 Physoderma brown spot lesions are embedded in leaf tissue while tar spots are raised. *Source: (1)*

Source: (1) https://crop-protection-network.s3.amazonaws.com/publications/tar-spot-filename-2019-03-25-120313.pdf

Regenerative Farming Systems

can be repeated indefinitely without a negative 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 and fiber
- improved air and water quality
- net improvement in consumer health
- improvement in profitability

"Bio-Economy"

"Circular Economy"

Full-Circle Animal, Manure and Soil-Plant System™

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

"Improving Soil Health, Crop Health and Nutrient Density"

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

Manure Treatment Service / Technology

Manure Master™ Program

Crop AdvantagePlus™ Program

Consider:
- 3rd Crop
- Cover Crop

Water Quality ← Probiotic Liquid Additive, Water pH Management, Trace Elements

Ferment High Moisture Feed

Improved Crop & Feed Quality

Eubiotic Feed Additives ← Probiotic Feed Additives, Trace Elements

BALANCE

It's About Soil Health & Water Quality

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

ProfitMaster™ Full-Circle Goals:

- Improved Soil, Crop and Animal Health
- Improved Output and Quality
- Reduced Input Cost
- Improved Margins and Profitability

Achieve healthy crops from seeding to harvest.

Achieve healthy livestock from birth to market.

Producing Quality and Value-added Food and Feed

by Dr. Jim Ladlie, ProfitProAG President

Measuring BRIX is one of the simplest ways to evaluate crop health and productivity.

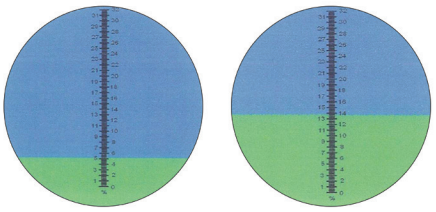
Brix is measured with a refractometer that measures (scale 0 to 32) total dissolved solids in plant sap (Brix) and provides information about photosynthesis, proteins and sugars. Low Brix levels (<12) can indicate a lack of balanced nutrients within the plant and/or the effect of environmental stress factors due to poor growing conditions (wet soils, cloudy weather, etc.) or low fertility. Low BRIX (<12) plants are more likely to be attacked by insects and/or disease. Brix readings of >12 indicate good plant health.

Visual Refractometer

Refractometer Readings

Within a given species of plant, the crop with the higher refractive index will have higher sugar, mineral and protein content, as well as a greater specific gravity or density. This adds up to a sweeter tasting, more minerally nutritious food with a lower nitrate and water content and better storage characteristics. It produces more alcohol from fermented sugars, is more resistant to insects and results in a decreased insecticide usage. Crops with high sugar content have a lower freezing point and, therefore, are less prone to frost damage. Soil fertility needs may also be ascertained from this reading.

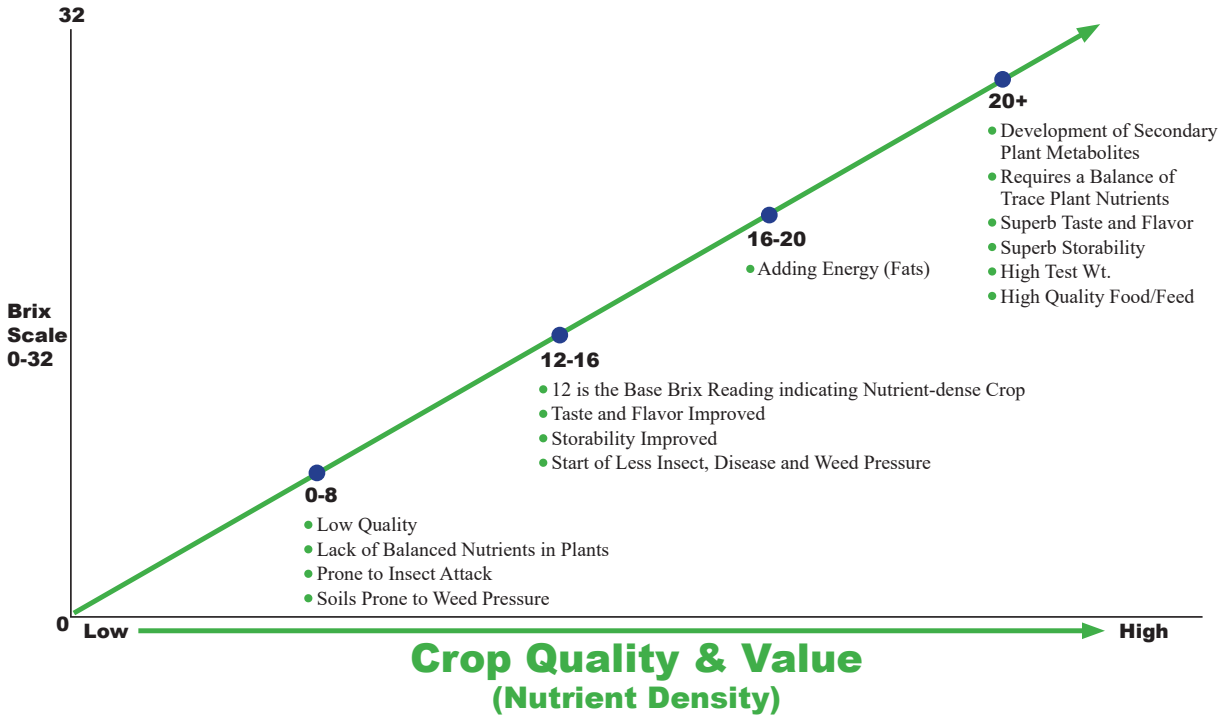
Visual Refractometer Lens Simulation



Low BRIX (5) - Plant likely to be attacked by insects and/or disease

High Brix (14) - Adequate Mineralization

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



More From Every Acre . . . More From Every Animal

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www.advancedbarncare.com • advancedbarncare@gmail.com

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

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

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.	

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**

Crop Profit Making Strategies in 2019
Corn & Soybean Crop Management Inputs

Pre-plant	At-plant	Herbicide Applications	Foliar
Biological Seed Coating (Option 1 - Liquid) • **BioSeedCoat™** (corn) or • **BioSeedCoat™ + Soybean Inoculant** (soybeans) Apply with commercial treater at ProfitProAG	**Apply in-furrow at planting with starter** **Eubio-NBS (c10)** • 12.8 oz/A • Performance Assurance Program **Molybdenum 3%** (L) • 2 to 4 oz/A (4 oz/A maximum in starter per season) **MicroNutrient Mix™** (L) • 6.4 to 12.8 oz/A **Bio-Empruv™** • 4 oz/A in-furrow	**1st Application** **Herbolyte™** (L) (foliar) • 12.8 oz/A **2nd Application** **Herbolyte™ Plus** (L) (foliar) • 16 oz/A **Comments:** • When mixing with herbicides, add Herbolyte or Herbolyte Plus to tank first. • Mix 1 gallon Herbolyte per 100 gallons spray solution and apply at 10 gallons per acre. • Herbolyte Plus contains MicroNutrient Mix. • Can apply the following with Herbolyte and Herbolyte Plus: • Molybdenum 3%	**Optional:** **Eubio-NBS (c10)** • 12.8 oz/A • Performance Assurance Program **GroPal™** • 25.6 oz/A **Molybdenum 3%** (L) • 2 to 4 oz/A (6 oz/A total per season) **Comments:** • Can apply with foliar plant nutrients. **Bio-Empruv™** • Apply at the rate of 28 oz per acre at V10 to tassel with 1 qt/100 gal of Herbolyte Plus in at least 10 gallons water per acre if 4 oz per acre was applied in-furrow. • If only applying once, use 32 oz between V10 and pre-tassel with 1 qt/100 gal of Herbolyte Plus.

Achieve healthy crops from seedling to harvest.

Eubio-NBS (c10)

Soil & Plant Natural Biological Stimulant

PRODUCT DESCRIPTION:

Eubio-NBS (c10) is a "Next Generation" Natural Biological Stimulant. It optimizes and stimulates the biological medium to help increase already existing natural processes that are essential for healthy soil and plants.

Eubio-NBS (c10) is biodegradable, non-toxic, non-hazardous, non-corrosive, non-irritating and does not require PPE.

GUARANTEED ANALYSIS:

Biocatalyst liquid 100%

INGREDIENTS:

All natural biodynamic liquid supernate derived from a fermentation process.

USAGE AND APPLICATION RATE:

The application rate is 12.8 oz per acre [10 acres per gallon of Eubio-NBS (c10)] for both soil and foliar applications. It is recommended to apply a soil application and one to two foliar applications during the season depending on crop value.

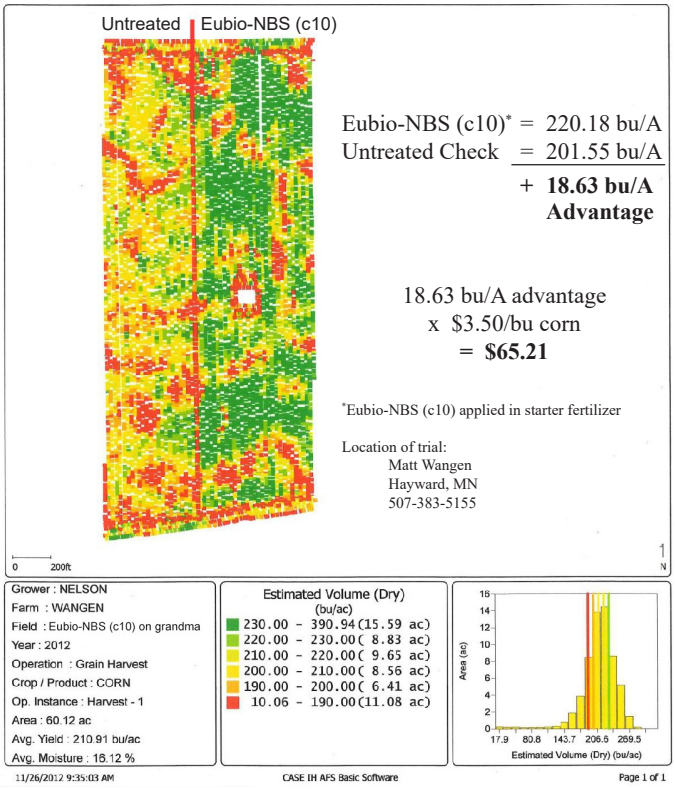
Soil Application, Eubio-NBS (c10) can be applied as follows: broadcast or strip-tilled Fall or Spring, in furrow and through surface or subsurface irrigation.

Foliar Application: Eubio-NBS (c10) can be applied once or multiple times during the season at optimum vegetative and reproductive status of a crop.

Manure Application: Eubio-NBS (c10) can be mixed into liquid manure at the rate of 12.8 oz per acre [10 acres per gallon of Eubio-NBS (c10)].

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

Grain Yield Monitor Results



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

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

Featured Product of the Month

Molasses

For plants, turf and soil

GUARANTEED ANALYSIS:

79.5 Brix Cane Molasses

GENERAL INFORMATION:

Molasses provides a natural food source for the indigenous microbial populations in the soil.
It is recommended for all types of plants, crops and turf.

COMPATIBILITY:

Molasses is compatible with most natural biological soil stimulators. Some chemical fertilizers, herbicides and pesticides may reduce the effectiveness of this product.

RECOMMENDED USAGE RATE:

General: Shake well and mix 1 ounce (2 tablespoons) per gallon of water to use as a soil stimulator.

Turf: Use 3 to 12 ounces per 100 sq. ft. Can be repeated every two weeks as needed.

Agriculture: Can be applied as follows: In-furrow or 2x2 starter at 2-4 qts per acre; Foliar at 2-4 qts per acre; Side-dress at 2-4 qts per acre.

NOTICE:

Do not use undiluted. Shake well before using. Use within several hours after mixing.
Do not store mixed solution.

STORAGE:

Storage of Molasses must comply with all local, state and federal regulations.

For U.S. Health Hazard Information, call 1-888-875-2425.

Growers/producers are encouraged to contact their organic certifier before using this product.

Keep Out of Reach of Children

Made in the U.S.A.

At-application Liquid Manure Enhancer

Eubio™ Tec

"Green Regenerative & Sustainable Technology"

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 to improve manure utilization, soil and plant health"

The Ideal Manure, Soil & Plant Enhancer

- Enhances the manure and its ability to improve soil and plant health
- 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

Manure Master™

Innovative Manure Management

manuremaster.com

"The Manure Treatment Experts"

ProfitProAG

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

Eubio-NBS (c10)

At-application Liquid Manure Enhancer

PRODUCT DESCRIPTION:

Eubio-NBS (c10) is a "Next Generation" Natural Biological Stimulant. It optimizes and stimulates the biological liquid manure medium to help increase already existing natural processes that are essential for healthy soil and plants.

Eubio-NBS (c10) is part of the Manure Master Program.

Eubio-NBS (c10) is biodegradable, non-toxic, non-hazardous, non-corrosive, non-irritating and does not require PPE.

GUARANTEED ANALYSIS:

Biocatalyst liquid 100%

INGREDIENTS:

All natural biodynamic liquid supernate derived from a fermentation process.

USAGE AND APPLICATION RATE:

Eubio-NBS (c10) can be mixed into liquid manure at the rate of 12.8 oz per acre [10 acres per gallon of Eubio-NBS (c10)].

Eubio-NBS (c10) can be metered into the manure tank at the time of filling or agitated into the pit or lagoon. If placing the product into the pit or lagoon, agitate first, then add the product and agitate again to achieve complete incorporation of the product in the manure.

For dragline application, meter product into the manure flow to achieve uniform application and rate per acre.

STORAGE:

Normal warehousing. Product is freeze/thaw stable. Shelf life three years.

LIMITATION OF LIABILITY:

Due to system variations and other additives that may be present, please discuss usage of Eubio-NBS (c10) with our technical representative.

Eubio-NBS (c10) has no known negative impact on natural biological processes.

KEEP OUT OF REACH OF CHILDREN

Made in the U.S.A.

 ◆ **Dr. Jim Ladlie** ◆ jladlie@profitproag.com ◆ **507-383-1325**

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, April 18, 2019

8:00 p.m. Central Time

UPCOMING SUBJECTS

- **Tar Spot in Corn**
- **Crop Profit Making Strategies in 2019**
- **Molasses**

Dennis Klockenga, CCA, *ProfitProAG Consultant* and Dr. Jim Ladlie, *ProfitProAG President*, will discuss the upcoming subjects and answer questions you may have.

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)

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https://soundcloud.com/user-331466437

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https://soundcloud.com/user-873513634