

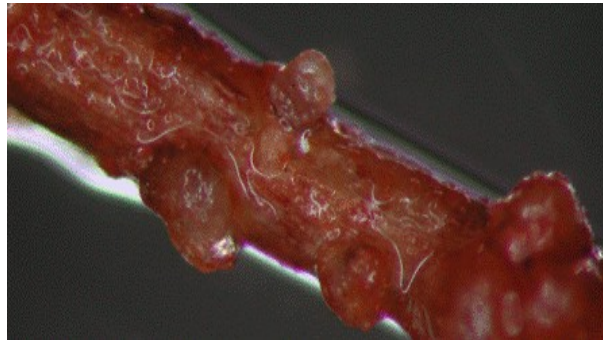
Root-Knot Nematode Field Symptoms

- Irregular areas in the field with stunted growth.
- Knots or galls on the roots
- Areas of excessive weed growth later in the season



Reniform Nematode Field symptoms

- Uneven plant heights
- Crop continues to produce lower yields each year.
- Reniform (kidney) in shape
- Anterior part of body is embedded in the root with the posterior to the outside



NEMATODE MANAGEMENT KEY TAKEAWAYS:

DR. KATHY S. LAWRENCE, AUBURN UNIVERSITY, PROFESSOR OF PLANT PATHOLOGY

- Reniform and Root knot nematode are the predominant species, but species and pest pressure will vary
- Plant parasitic nematodes can cause severe yield loss up to 66%
- Plants will exhibit above ground signs of stress, but not always the case. “Only true way to determine if nematodes are present is to soil sample”
- Several tools are available to develop a management plan:
 - Soil sampling
 - Crop rotation
 - Seed Treatments

Google: “Nematode Management 2020” for the Youtube Video

4 Year Summary of Nematicide Use

DR. KATHY S. LAWRENCE, AUBURN UNIVERSITY, PROFESSOR OF PLANT PATHOLOGY

- 70% (32-92 %) decrease in Reniform eggs per gram of root with the addition of a nematicide
- 18% (4-48%) increase in yield with a nematicide across all varieties
- 577 lb/A seed cotton (152-1336 lb/A) increase in yield with a nematicide across all varieties





TrunemcoTM

TRUE NEMATODE CONFIDENCE



Nufarm

True Nematode Confidence

Positioning



True Nematode Confidence

PRIME

New patented technology primes plant physiology, activating the natural nematode barriers that optimize protection.

DEFEND

Biochemical and microbial actives provide a dual defense, inside and out, against nematode feeding and establishment.

THRIVE

Protects against nematode damage while supporting root health and seedling vigor to help plants thrive, delivering higher yields.

PRIME

Biochemical (cis-Jasmone) Trunemco™

- **Trunemco Biochemically Primes Plant Defenses**

- Physiologically induces changes that resist nematode establishment
 - Strengthened cell wall barriers
 - Increase in nematode-toxic defense chemicals
 - Increase in hyper-sensitivity triggers
- Impacts penetration and internal establishment
- Prevents over-stimulation of plant defenses

**Protective
Barriers
established in
seed prior to
nematode
challenge
(Biochemical
Priming)**

DEFEND

Biological Defense Bacillus amyloliquefaciens



- **Trunemco Defends through a Biological Protective Barrier**
 - Physically reduces the number of available penetration / feeding sites
 - Production of defensive secondary metabolites

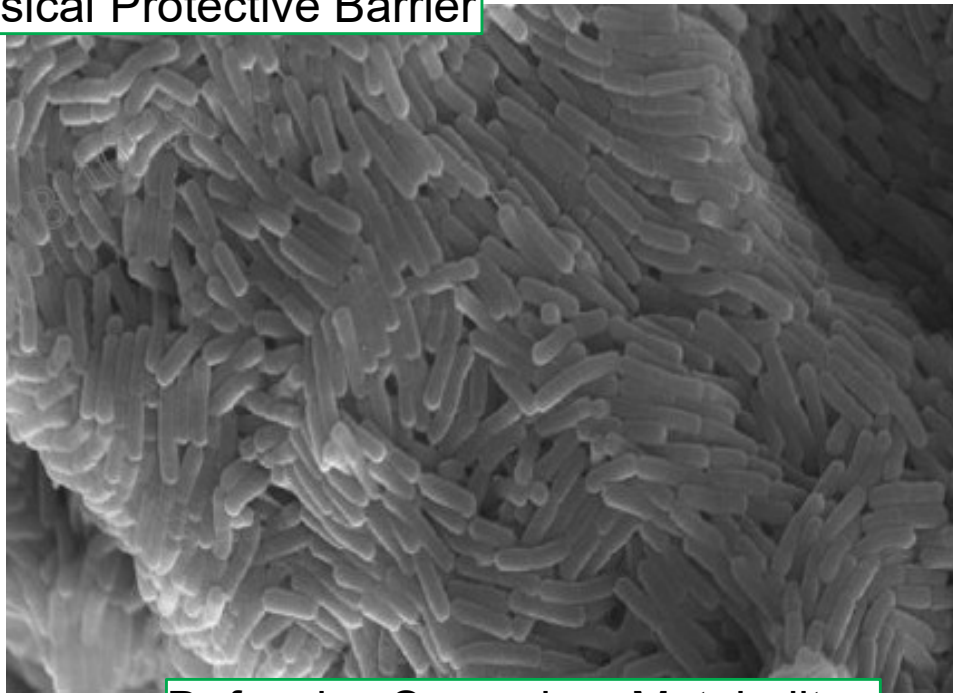
Protective Barrier
established
during initial root
development
(Biological
Priming)

DEFEND

Biological Defense



Physical Protective Barrier



Defensive Secondary Metabolites

THRIVE

Roots, Shoots, and Yield



Trunemco Impact:

1. Nematode development arrested

- Availability of feeding sites limited
- Resistance to the establishment of feeding sites

2. Nematode injury managed

- Reduction in damage from direct penetration and colonization
- Reduction in challenge-induced strain on plant resources

3. Reduction in secondary disease development

- fewer nematode damaged sites /infection portals

Criteria for Selecting the Optimum Seed Treatment



	Trunemco™	Saltro®	ILeVo™	Avicta®	Aveo™	Poncho/ Votivo®	Clariva®	Bio ST™
Active Ingredient(s)	Cis-Jasmone + <i>Bacillus amyloliquifaciens</i>	Pydiflumetofen	Fluopyram	Abamectin	<i>Bacillus amyloliquifaciens</i>	Clothianidin + <i>Bacillus firmus</i>	<i>Pasteuria nishizawae</i>	<i>Burkholderia spp.</i>
Type	Natural Chemical + Biological	Chemical	Chemical	Chemical	Biological	Chemical + Biological	Biological	Natural Chemical
Nematode MOA	Induced Plant Resistance/ Parasite	SDHI enzyme inhibitor	SDHI enzyme inhibitor	Inhibits nerve transmission	Parasite	Parasite	Parasite	Parasitic Toxins
Control of Injury	Dark Green	Dark Green	Dark Green	Dark Green	Light Green	Light Green	Light Green	Yellow
Yield	Dark Green	Dark Green	Dark Green	Dark Green	Light Green	Light Green	Light Green	Light Green
Consistency	Dark Green	Dark Green	Dark Green	Dark Green	Light Green	Yellow	Yellow	Yellow
Spectrum	Dark Green	Light Green	Light Green	Dark Green	Light Green	Light Green	Orange	Dark Green
Crop Safety	Dark Green	Dark Green	Yellow	Light Green	Dark Green	Dark Green	Dark Green	Dark Green
Eco-Friendliness	Dark Green	Light Green	Light Green	Yellow	Dark Green	Light Green	Dark Green	Dark Green
User Safety	Dark Green	Dark Green	Dark Green	Orange	Dark Green	Dark Green	Dark Green	Dark Green
Use Rate	Dark Green	Light Green	Yellow	Light Green	Dark Green	Light Green	Light Green	Yellow
Mix Compatibility	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green
Nematicide ROI	Dark Green	Light Green	Light Green	Light Green	Light Green	Yellow	Yellow	Yellow
Disease Control	Red	Light Green	Light Green	Red	Red	Red	Red	Red

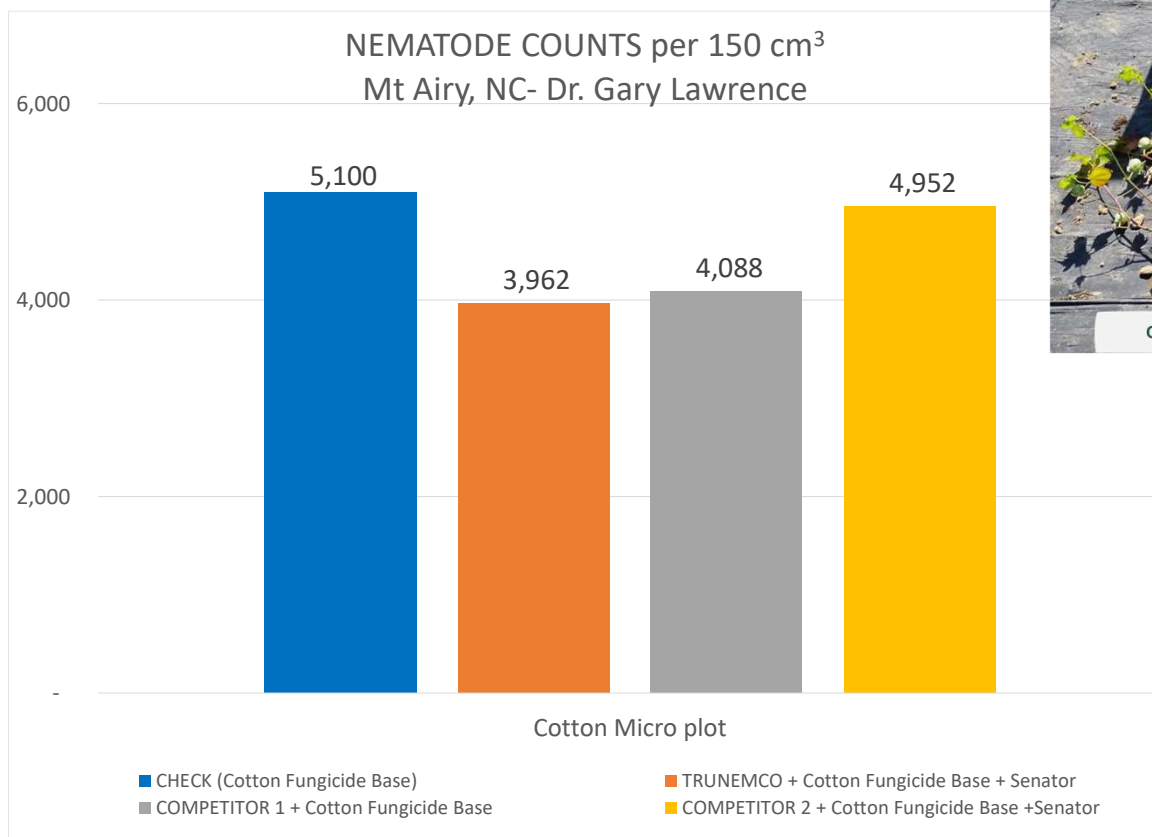
ⓘ Evaluations are based on trial data ,experience and field perspectives Dark green is the best, red is the least desirable

Ⓜ Trade Marks or Registered Trade Marks of Nufarm, Syngenta, BASF, Syngenta, Valent, BASF, Syngenta, and Albaugh respectively

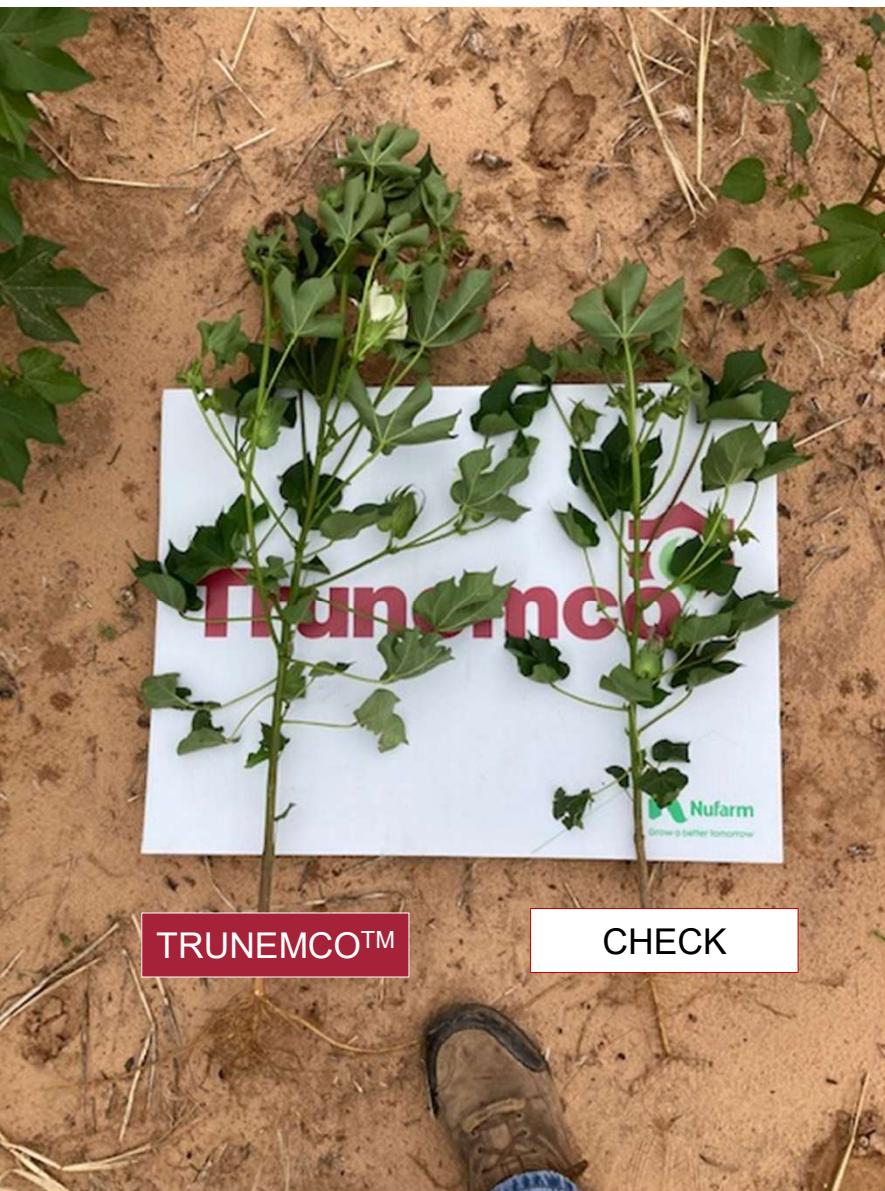


Trunemco's leading protection results in reduction of Root Knot Nematode

Result: healthier plants



Treatment	Boll count
1: Untreated Check	9
2: Trunemco	40
3: Competitor 1	39
4: Competitor 2	8



TRUNEMCO™

CHECK



TRUNEMCO™

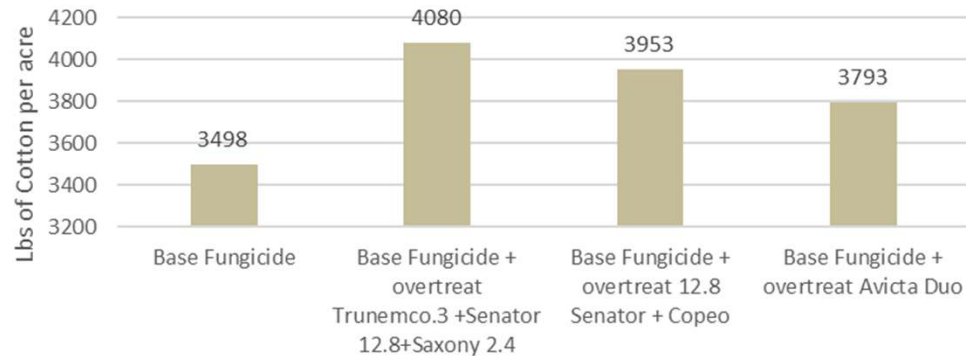
CHECK

Trunemco's leading protection from nematodes allows cotton plants to thrive, promoting increased vigor and fruit set.

Tahoka, TX

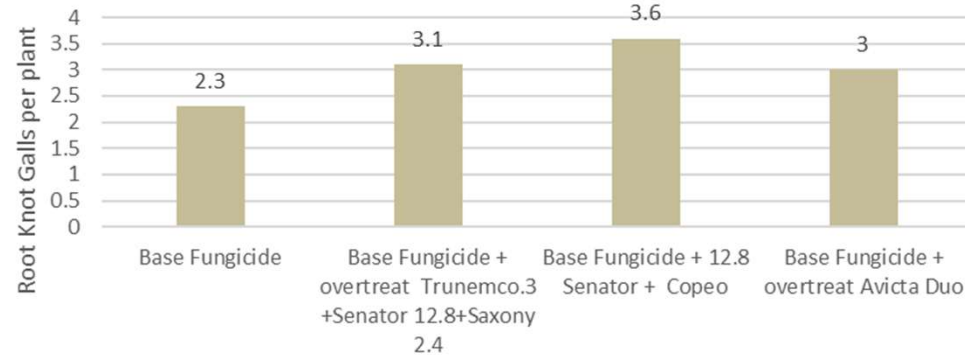
Stubby Root Nematode

University of Arkansas
Dr Travis Faske



Planting date 5/6 Harvest 11/6 Medium Maturity Cotton Seed
Base treatment = acceleron fungicide

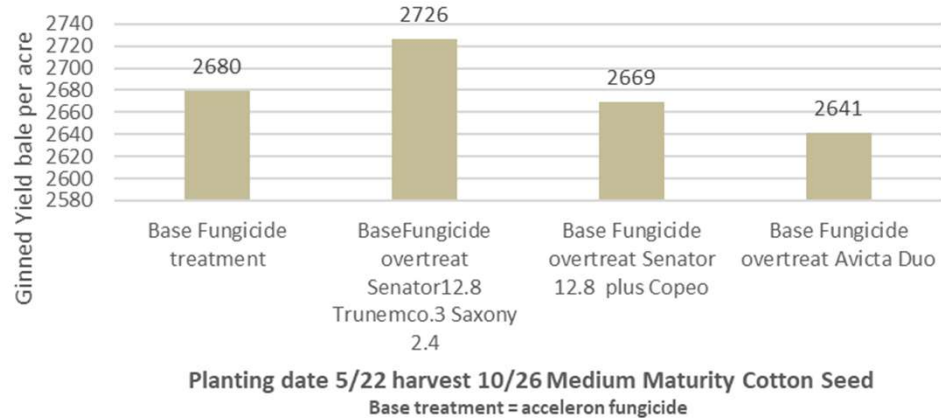
University of Arkansas
Dr Travis Faske



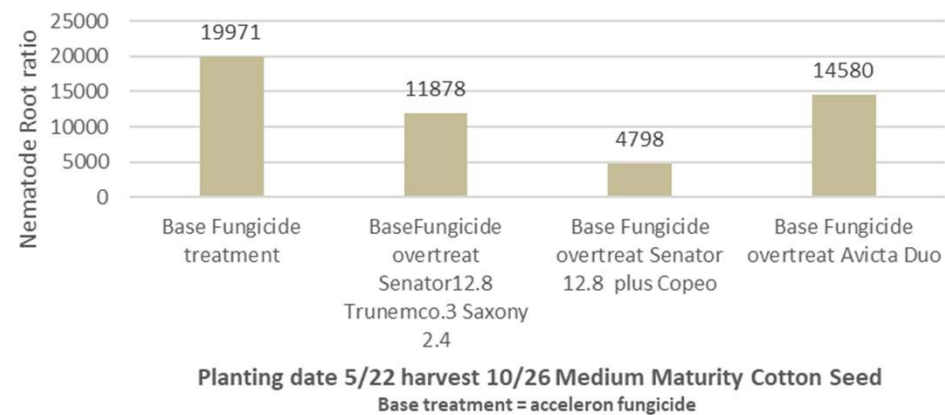
Planting date 5/6 Harvest 11/6 Medium Maturity Cotton Seed
Base treatment = acceleron fungicide

Root Knot Nematode

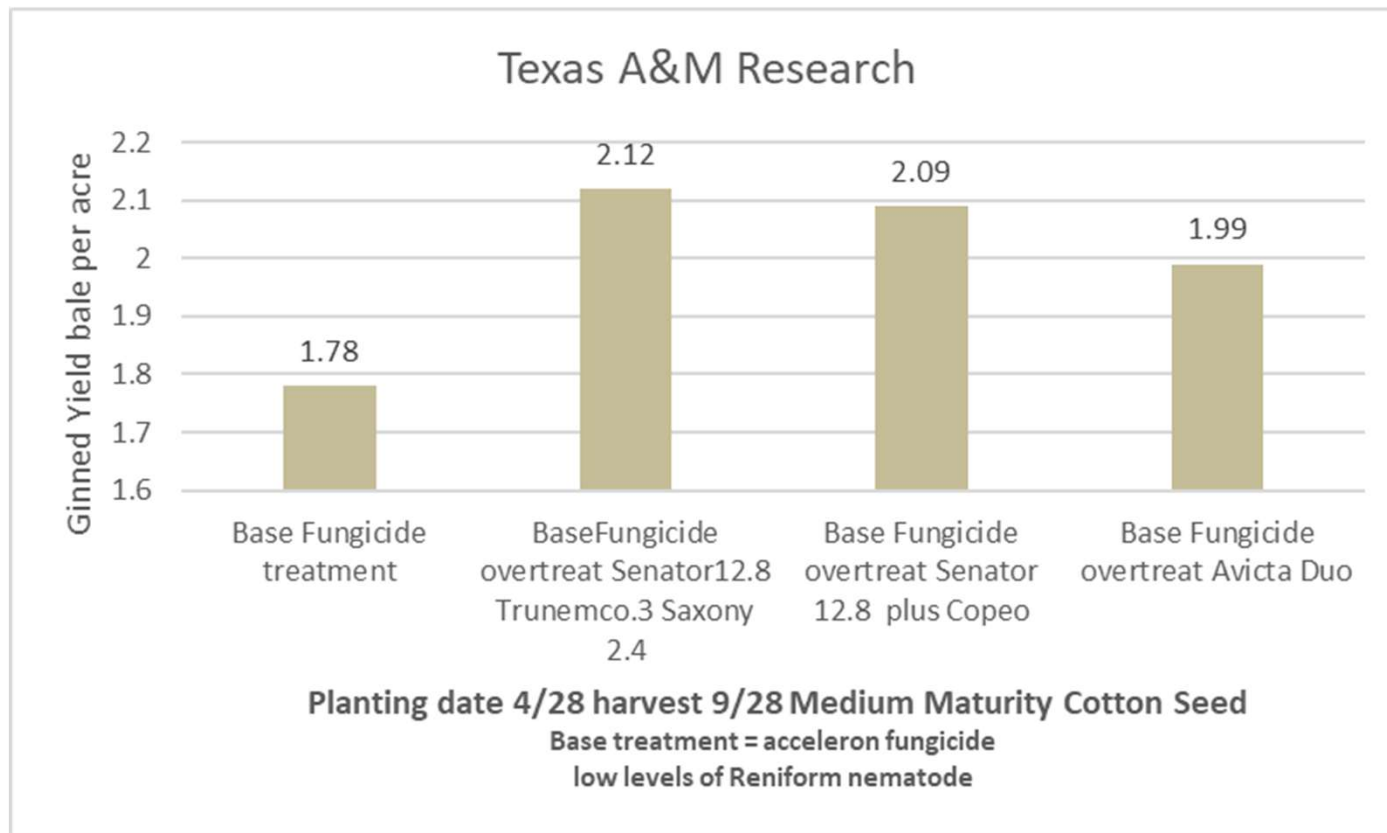
Auburn University
Dr Kathy Lawrence



Auburn University
Dr Kathy Lawrence

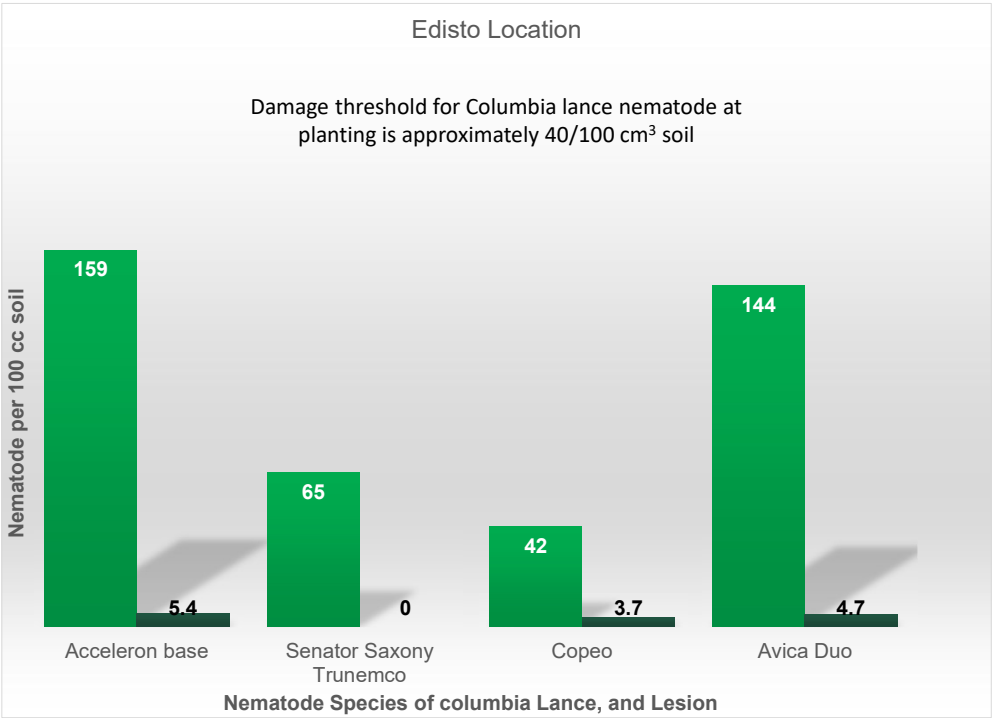
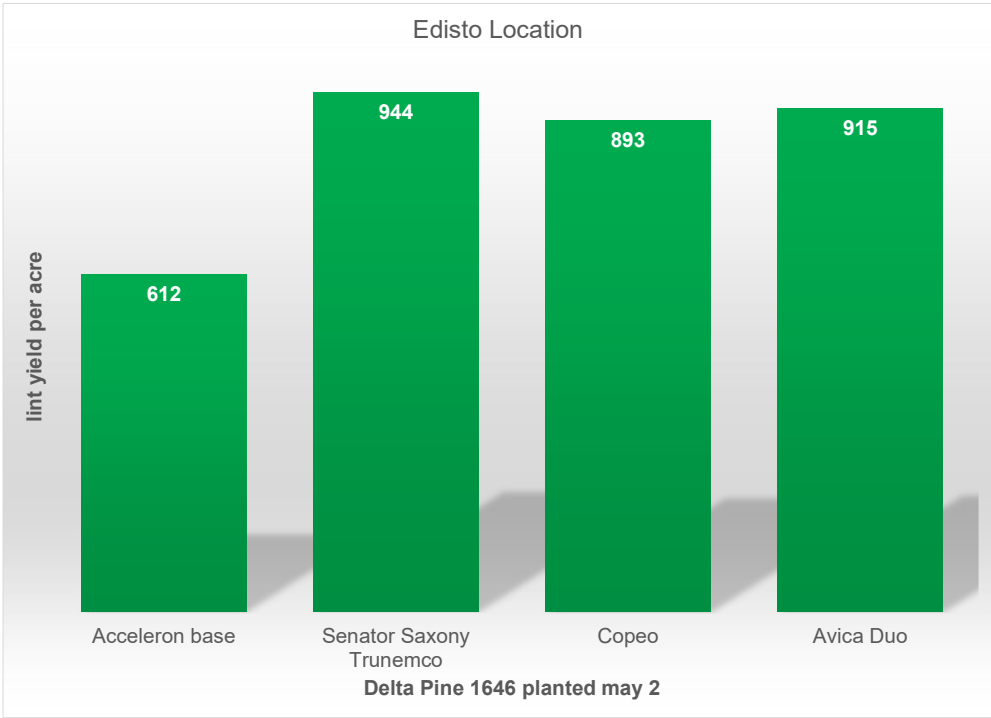


Reniform Nematode



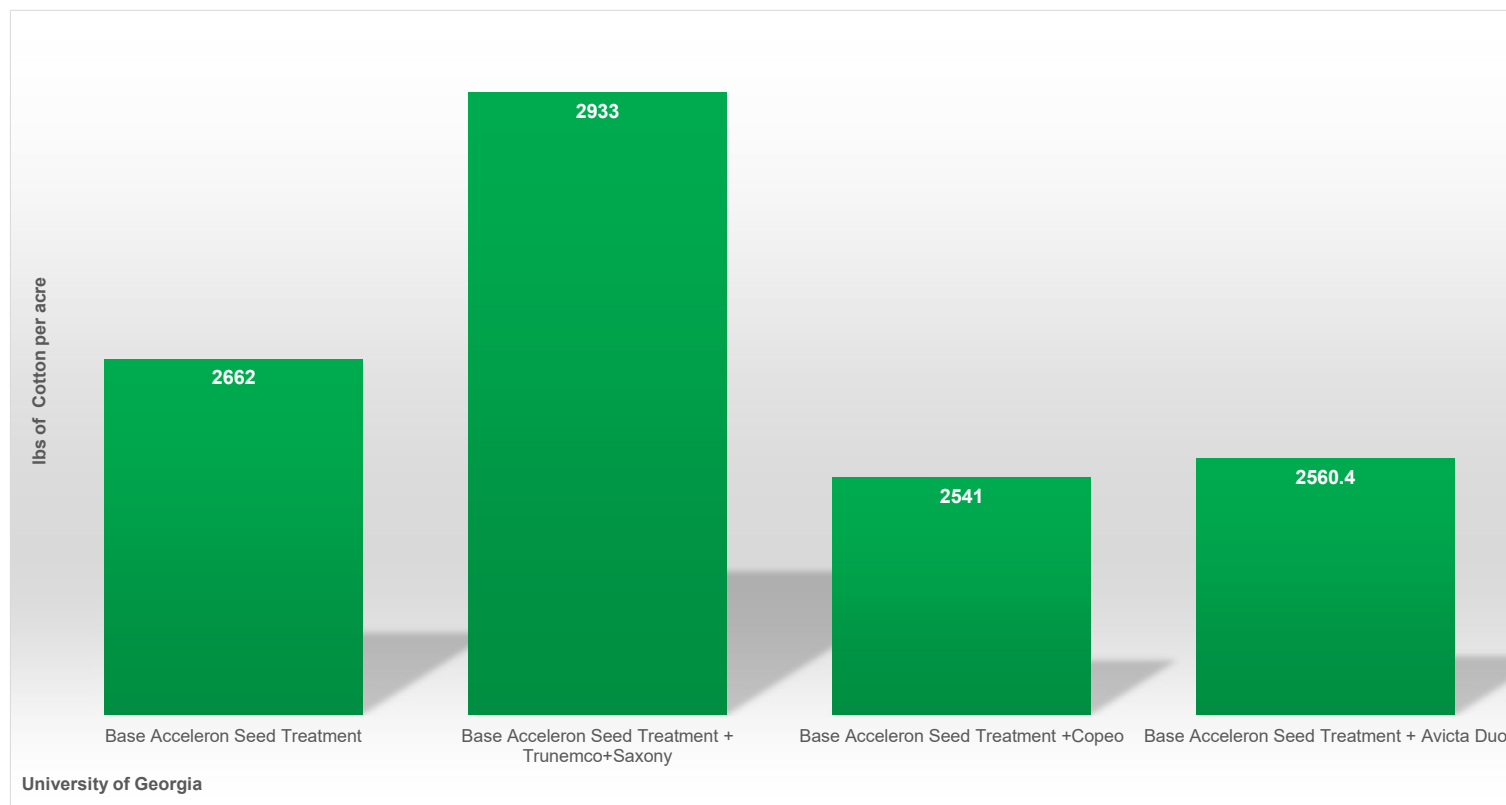
Clemson University John Mueller

Columbia Lance



University of Georgia – Dr Robert Kemerait

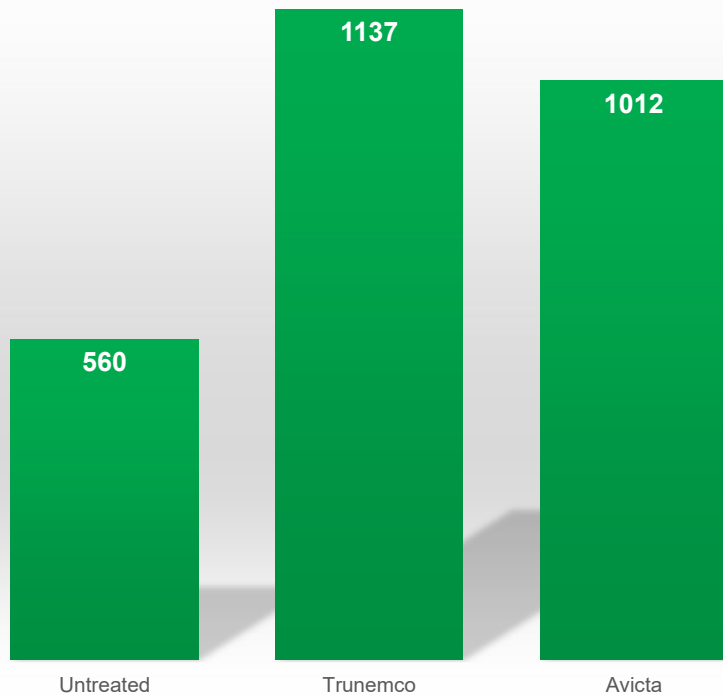
Sting Nematode



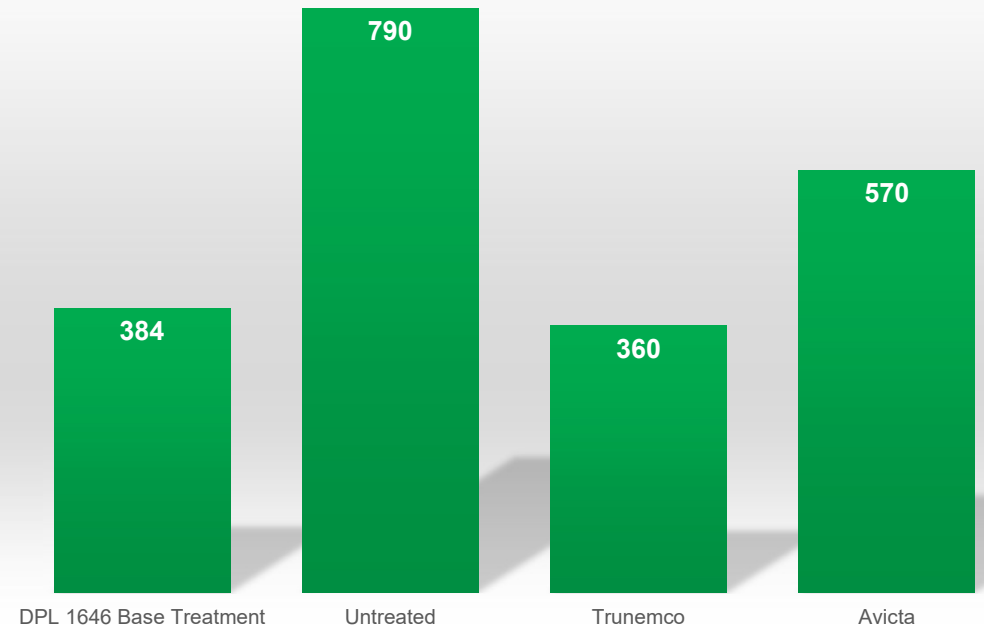
Cochran, GA: Danny Bennett

Reniform Nematode

Lint Yield/acre Lb



Reniform Nematode Counts per 100 CC of Soil



Result of leading level of protection

Trunemco protected plant fuller, greener, more vigorous vs competition



Image is of Cotton plants grown in pots inoculated with RKN

Trunemco's leading protection from nematodes promotes increased vigor and fruit set (Pima Cotton)

Tahoka, TX



*Check includes seed applied fungicide
Photo taken 08/05/20



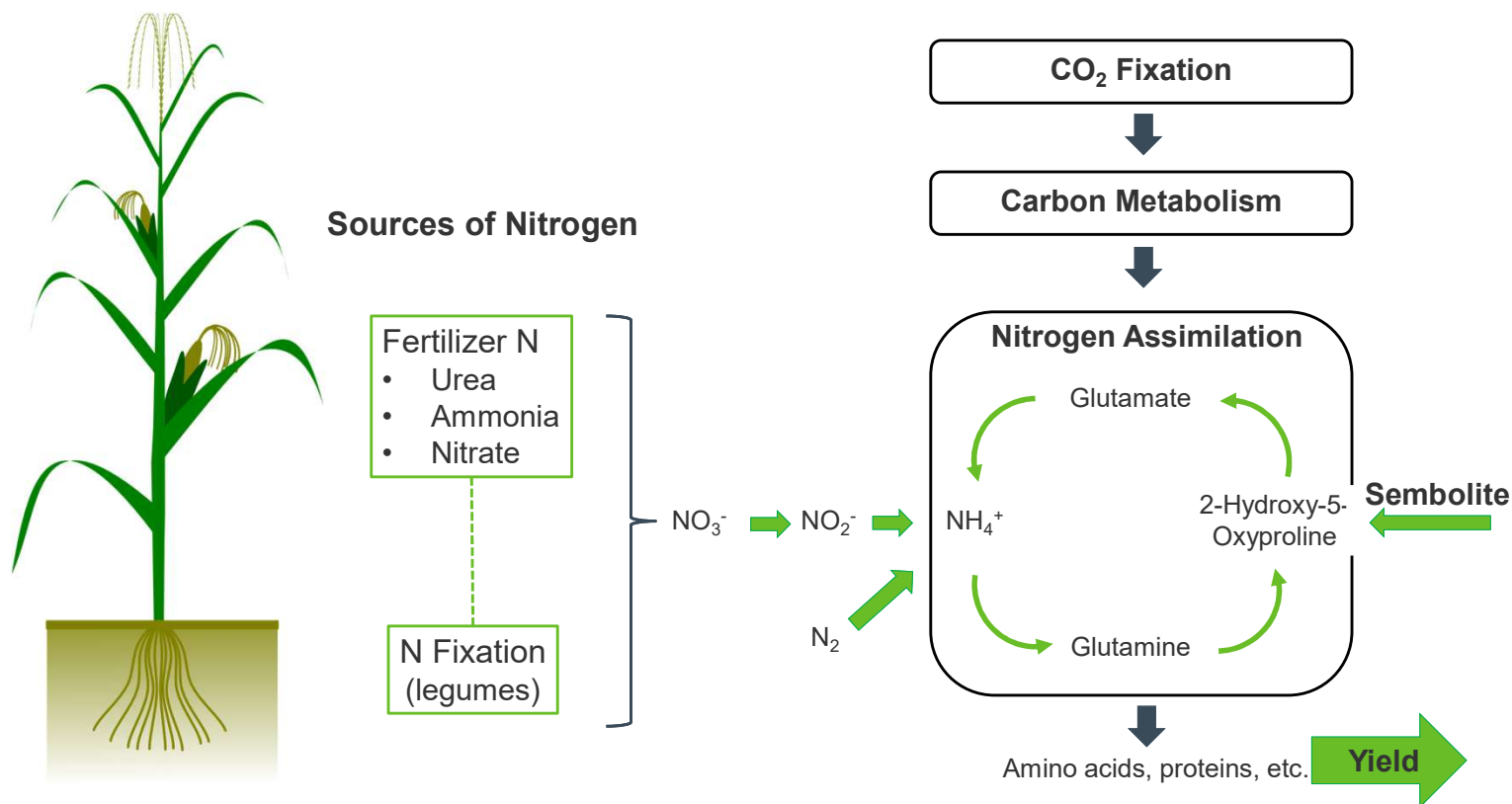
2024 Nematode Evaluation Trials Combined

Coahoma and Panola County, MS – High levels of root knot and reniform nematodes present
 Poinsett County, AR – High levels of root knot nematodes present

Treatment	Lint Yield Lbs/A	Lint Value \$/A	Loan Value ¢/lb	Length inches	Staple 32nds	Strength	Mic	Unif%	TO%	Locations
NG 3195 B3XF + Trunemco (Cis-Jasmone + <i>Bacillus amyloliquifaciens</i>)	1134	633	0.5558	1.15	37	31.10	4.71	82.73	43.1	3
NG 3195 B3XF + Premier (<i>Burkholderia spp.</i>)	1082	595	0.5467	1.11	36	28.77	4.58	81.33	43.3	3
Mean	1108	614	0.5513	1.13	36	29.93	4.65	82.03	43.2	

The Chemistry Behind Sembolite

Sembolite mimics 2-Hydroxy-5-Oxyproline to increase N assimilation



Sembole

Multi-patented technology that increases:

Nitrogen
assimilation
and utilization

CO2 fixation

Photosynthesis

Crop growth
rate and
biomass

Nutritional
value (amino
acids)

Nodulation and
nitrogen
fixation



Sembole mimics a natural plant metabolite common in all crops that works inside the plant to accelerate carbon fixation and increase nitrogen uptake and use efficiency.

Semboolite Label



LIQUID
FORMULATION



MAY BE APPLIED IN
COMBINATION WITH
INSECTICIDES
AND/OR FUNGICIDES



COMPATIBLE WITH
MOST SEED
TREATMENTS



8.92 LBS/GALLON

• **GUARANTEED ANALYSIS**

- Soluble Potash (K₂O).....1.0%
- Manganese (Mn).....0.1%
- 0.1% Chelated Manganese
- Zinc (Zn).....0.1%
- 0.1% Chelated Zinc

- Derived from Potassium Hydroxide, Manganese EDTA, and Zinc EDTA.