

THE POWER OF

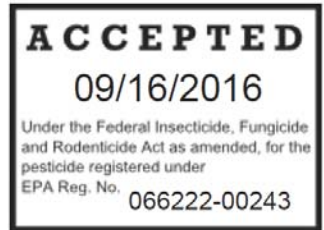
**NIMITZ**®

NEMATICIDE



NIMITZ - USA Tobacco

- Tobacco registration obtained mid-2016



Fluensulfone 480EC

Nematicide

[Alternate Brand Name: NIMITZ®]

For control of nematodes in: Crop Group 8-10, Fruiting vegetables, including tomatoes, okra, eggplant, and peppers (bell and non-bell); Crop Group 9, Cucurbit vegetable, including cucumbers, melons (cantaloupes, watermelon, honeydew), and squash; Crop Group 5, Brassica (Cole) leafy vegetables; Crop Group 4, Leafy vegetables (except Brassica vegetables);; Crop Group 13-07G, Low growing berries, including strawberry; and tobacco

ACTIVE INGREDIENT:	% BY WT.
Fluensulfone: 5-chloro-2 (3,4,4-trifluoro-but-3-ene-1-sulfonyl)-thiazole	40.0%
OTHER INGREDIENTS*:	60.0%
TOTAL:	100.0%

Contains 4 pounds fluensulfone per gallon in an Emulsifiable Concentrate formulation.

TOBACCO	3.5 to 7 pints/ treated acre (56 to 112 fl. oz./treated acre)	Apply at a minimum of 7 days before transplanting. Do not apply more than one application per crop and no more than 3.5 lb fluensulfone per acre per calendar year.
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Tobacco Label

- ▶ Date: USA Federal registration on June 16, 2016
- ▶ State registrations: KY, MO, NC, NM, PR, SC, TN, TX, VA
- ▶ Signal word: CAUTION
- ▶ Formulation: 480 EC (4 lbs ai/gal)
- ▶ Rates: 3.5 – 7.0 pints/treated A (56-112 oz)
- ▶ Yearly max: 7 pints (112 oz)/3.5 lbs ai per acre on same field
- ▶ Application: Drip-Injection or Pre-Plant Incorporated (PPI)
- ▶ Timing: Minimum 7-days pre-plant
- ▶ Buffer zone: None
- ▶ REI: 12 hours
- ▶ Plant back: 365 days to any crop not on the label
- ▶ Cereals: No rotation with cereals
- ▶ PPE: Long-sleeves and chemical resistant gloves, shoes plus socks
- ▶ Labeled crops: Fruiting vegetables, cucurbits, strawberry, leafy vegetables, Brassica vegetables, tobacco.



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What is the Mode of Action of NIMITZ?

- Toxic to plant-parasitic nematodes
- Impairs stylet thrusting and feeding
- Impairs metabolic activity
- Slows the retention of lipid stores
- Inhibits egg hatching, reduces juvenile viability and adults of cyst nematode (*Globodera pallida*) at concentrations well below labelled rates
- Causes nematode coiling and paralysis in hours
- Labelled rates provide concentrations in the soil that are well in excess (>6x) of the lethal dosage for plant-parasitic nematodes

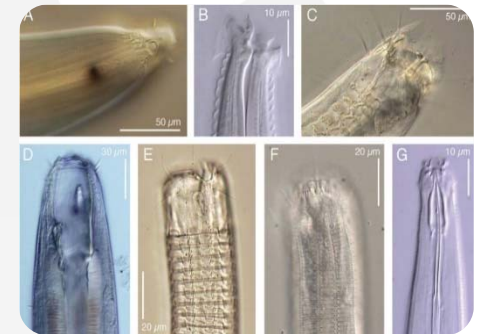


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NIMITZ promotes soil and root health

- Largely harmless to beneficial nematodes and microorganisms in the soil
- Beneficial nematodes help build a “living soil”
 - protect roots from disease
 - build soil structure
 - play major role in releasing plant-available nutrients in the root zone
- Beneficial microorganisms include those that:
 - create symbiotic associations with plant roots
 - promote nutrient mineralization and availability
 - stimulate production of plant growth hormones
 - are antagonists (biocontrol agents) of plant pests, parasites, diseases



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Current status

- NIMITZ not yet officially launched
 - Tobacco smoke flavor test outstanding (industry requirement)
 - All data provided
 - Toxicology evaluation completed
 - Production supplied and cigarettes manufactured
 - Awaiting testing
 - Summary of extensive trials to date:



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Overall Learning – Tobacco USA

Findings

- ▶ Broadcast application provides the most robust nematode control in tobacco
- ▶ Banded applications have a fit for tobacco production especially if economics is the driver
- ▶ There is a rate response to NIMITZ treatments
- ▶ Transplant-water treatments potentially have a fit for commercial application
- ▶ Positive indications for *M. enterolobii*

Gaps

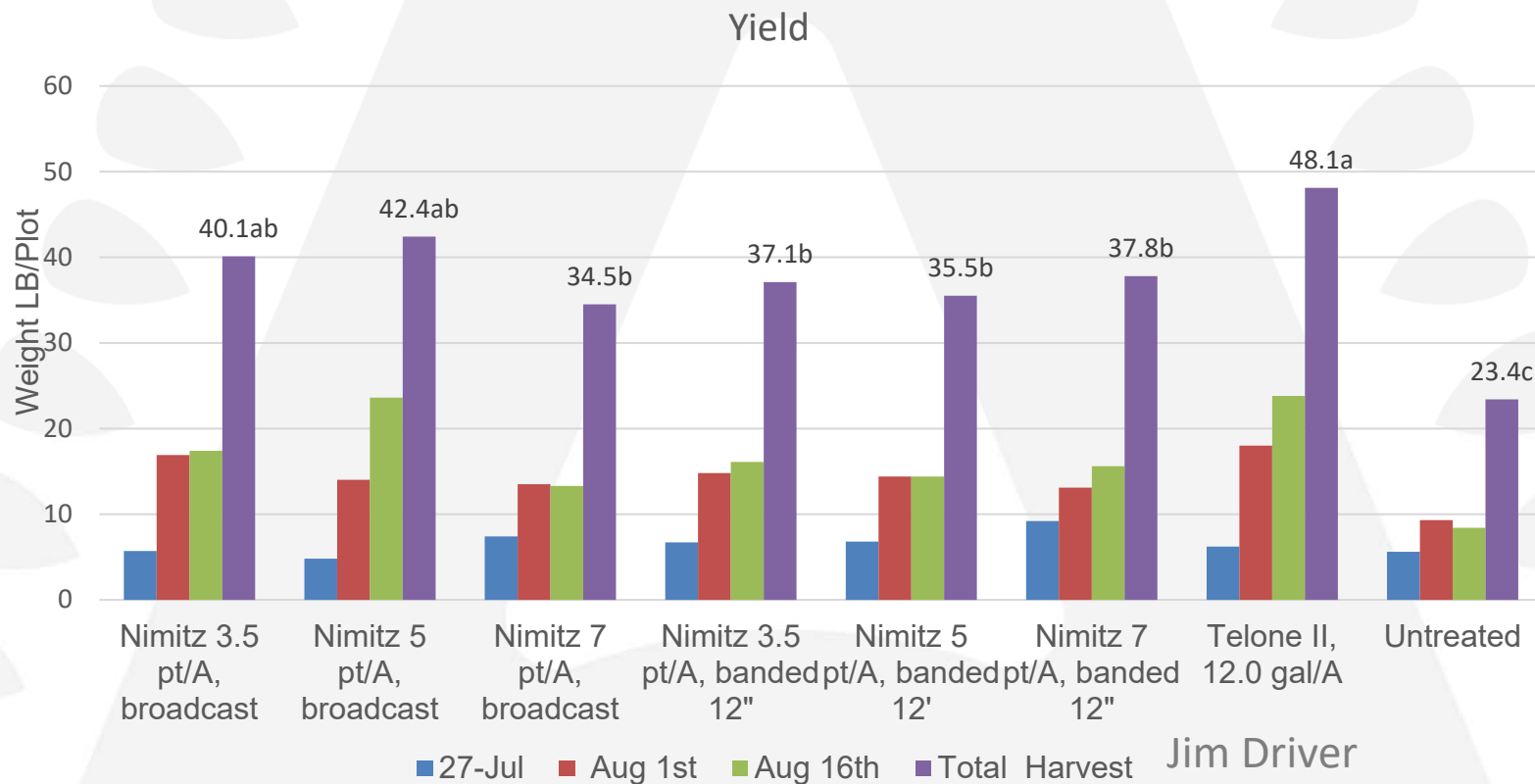
- ▶ Efficacy with banded applications are variable
- ▶ NIMITZ is showing variability of TCN control in VA
- ▶ Complementary soil-borne disease control program required
- ▶ Performance of NIMITZ in dryland tobacco production requires evaluation
- ▶ Efforts in finding an application fit with grower cultural practices is in progress



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Broadcast vs. banded applications



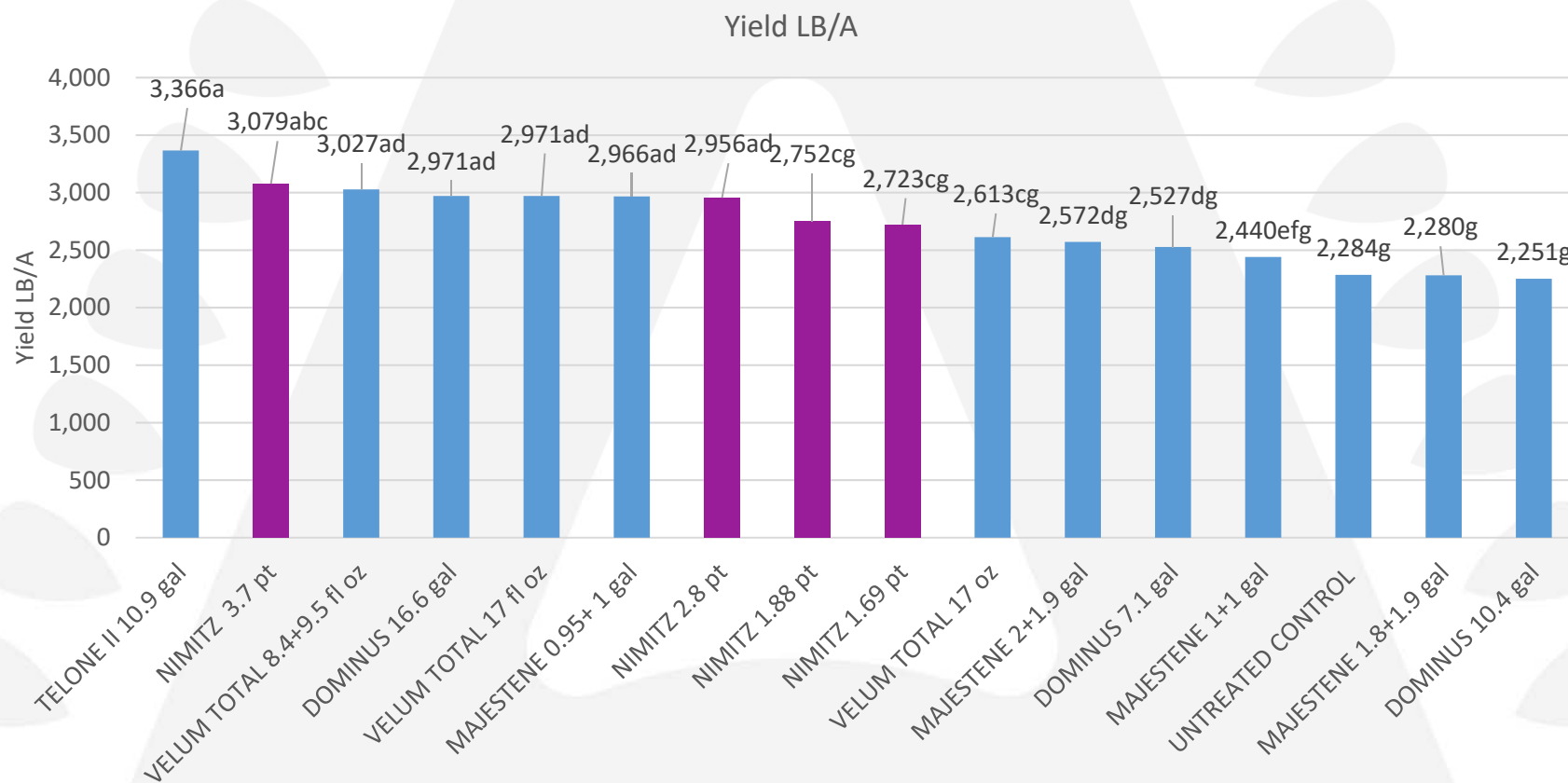
Jim Driver
 Biologic Applied Research
 NC, 2016



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NIMITZ on Tobacco – Chuck Johnson – Blackstone, VA Tech 2016 Banded applications (36"/68") – Tobacco Cyst Nematode



- ▶ NIMITZ at 7.4 pt/A and 5.6 pt/A resulted in similar yield to TELONE II

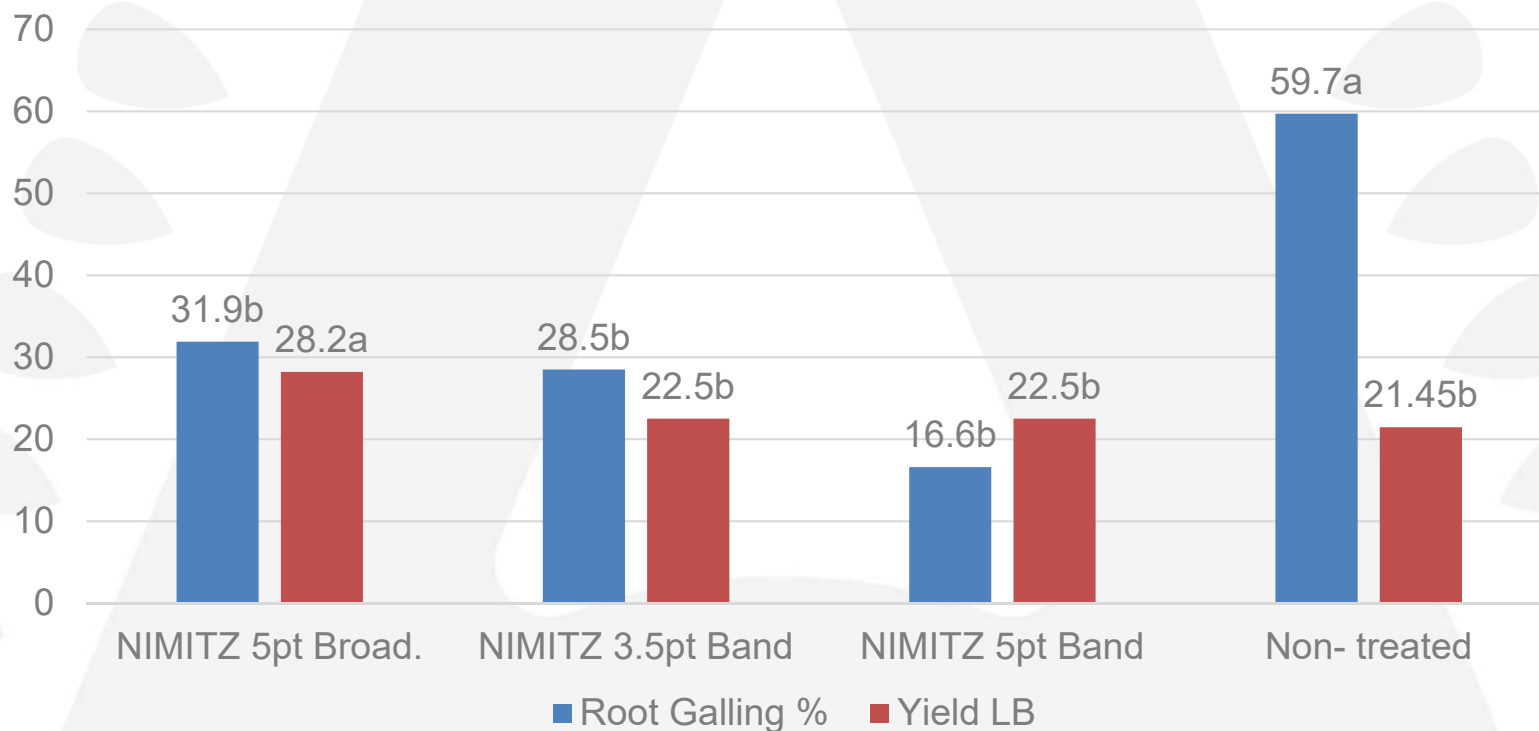


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NIMITZ is showing significant positive indications on *M. enterolobii*

NIMITZ efficacy on *M. enterolobii*



Dr. Lindsey Thiessen
NCSU, 2017



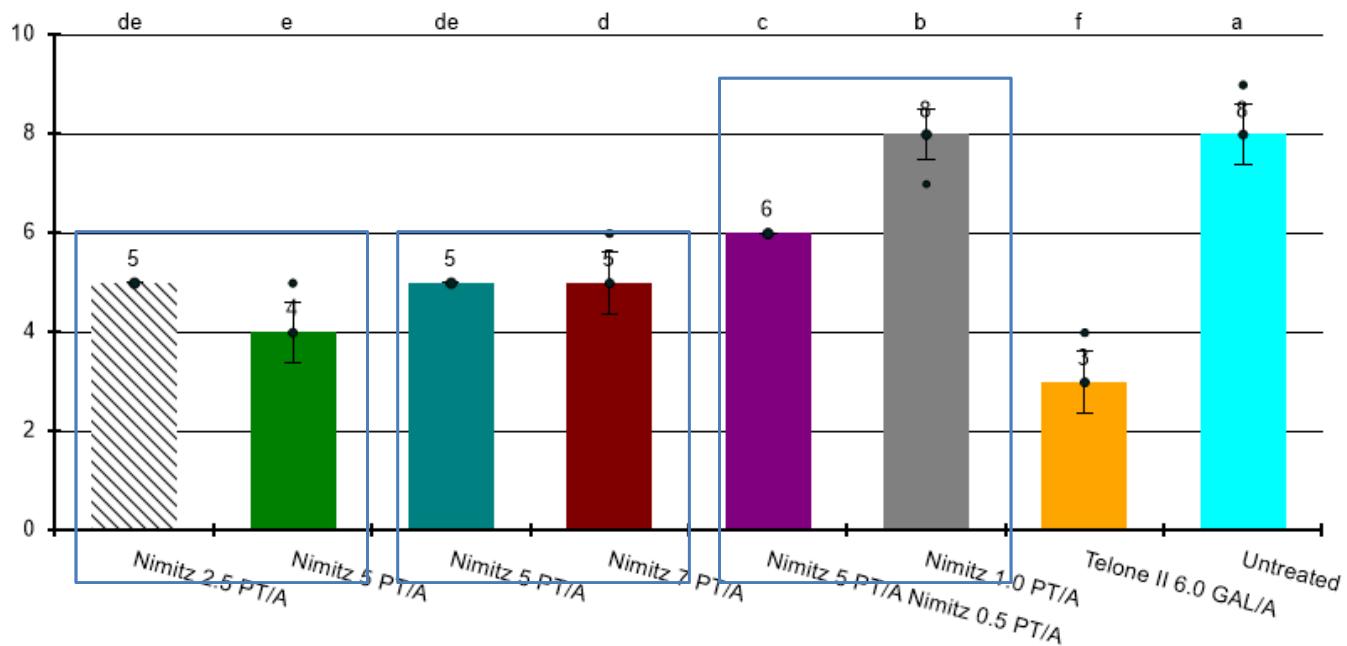
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Broadcast vs. banded vs. water transplant treatments

Effects of NIMITZ application timing on control of root-knot nematode in flue-cured tobacco, 2017

0-10 GALLIN



MELGSP

Trial ID: 2017AdamaTobaccoTiming

Jim Driver
 Biologic Applied Research
 NC, 2017

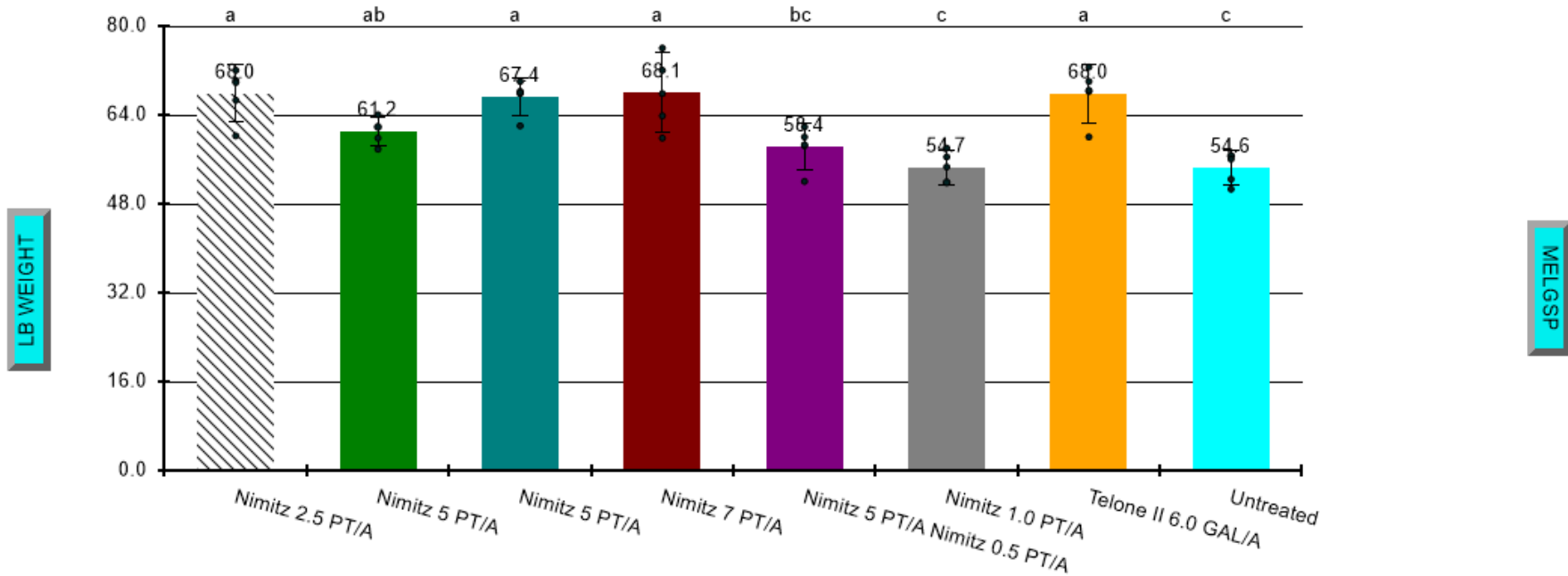


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Broadcast and banded applications are showing competitive yield compared to Telone

Effects of NIMITZ application timing on control of root-knot nematode in flue-cured tobacco, 2017



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