BALANCING PEST MANAGEMENT & AGRONOMIC BENEFITS: SEED TREATMENTS, COVER CROPS, & WIREWORMS

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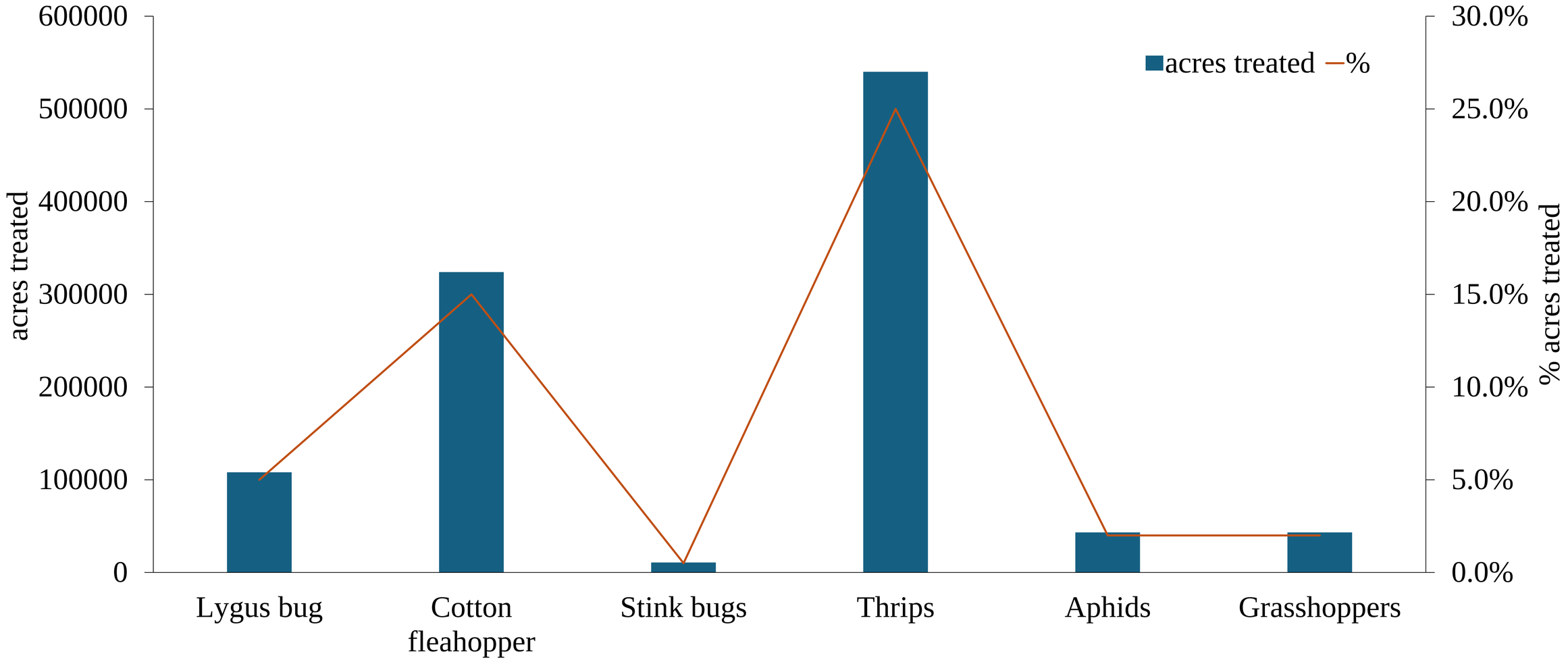
THP COTTON ACRES TREATED, 2024

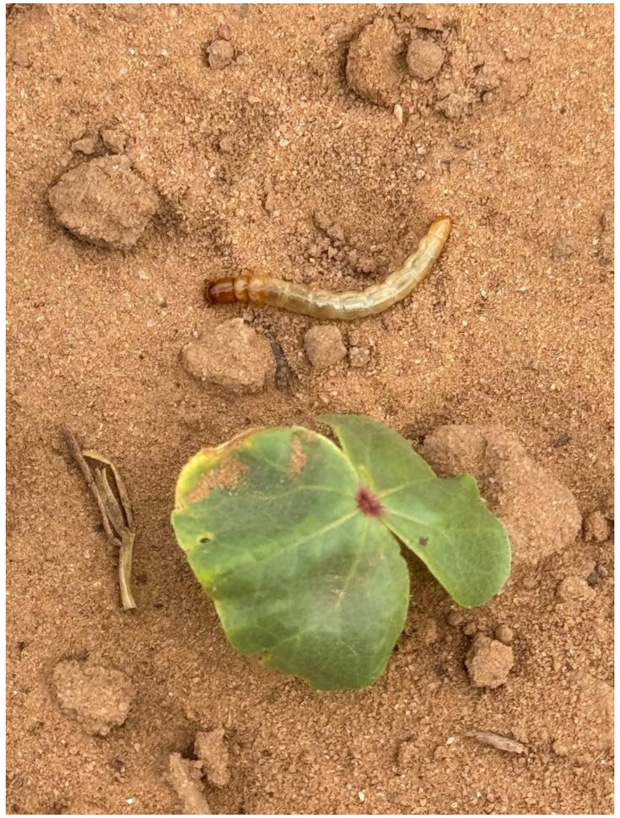


1. **Are seed treatments effective against wireworms in cotton, and are they economically viable?**

2. **Do cover crops favor wireworm populations?**

TEXAS A&M AGRILIFE

Photo: Pat Porter



What are Wireworms?

True wireworms

Click beetles (Elateridae)

Agrotes sp.

False wireworms
Darkling beetles (Tenebrionidae)

Blapstinus sp.

Photos: Mike Quinn, BugGuide

Common species in THP

Conoderus vespertinus

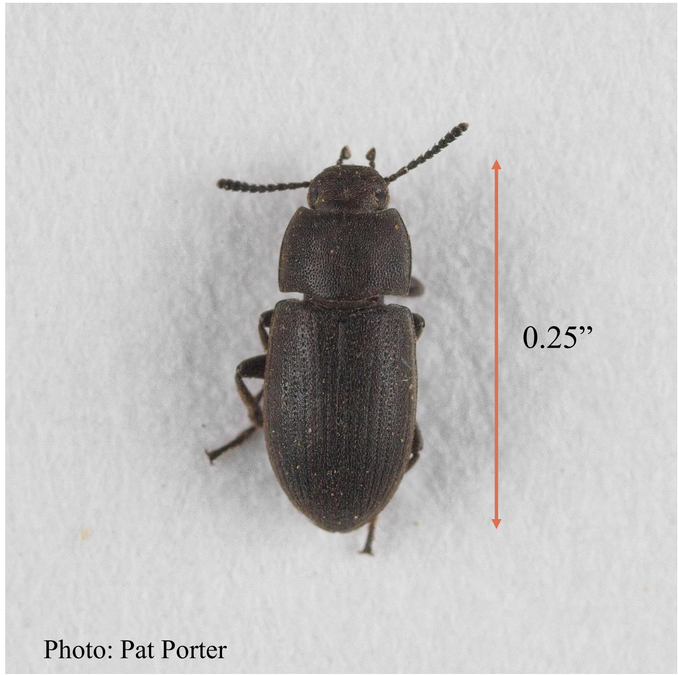


Photo: Pat Porter

Blaptinus sp.

(Photo: Mark Romero, BugGuide)

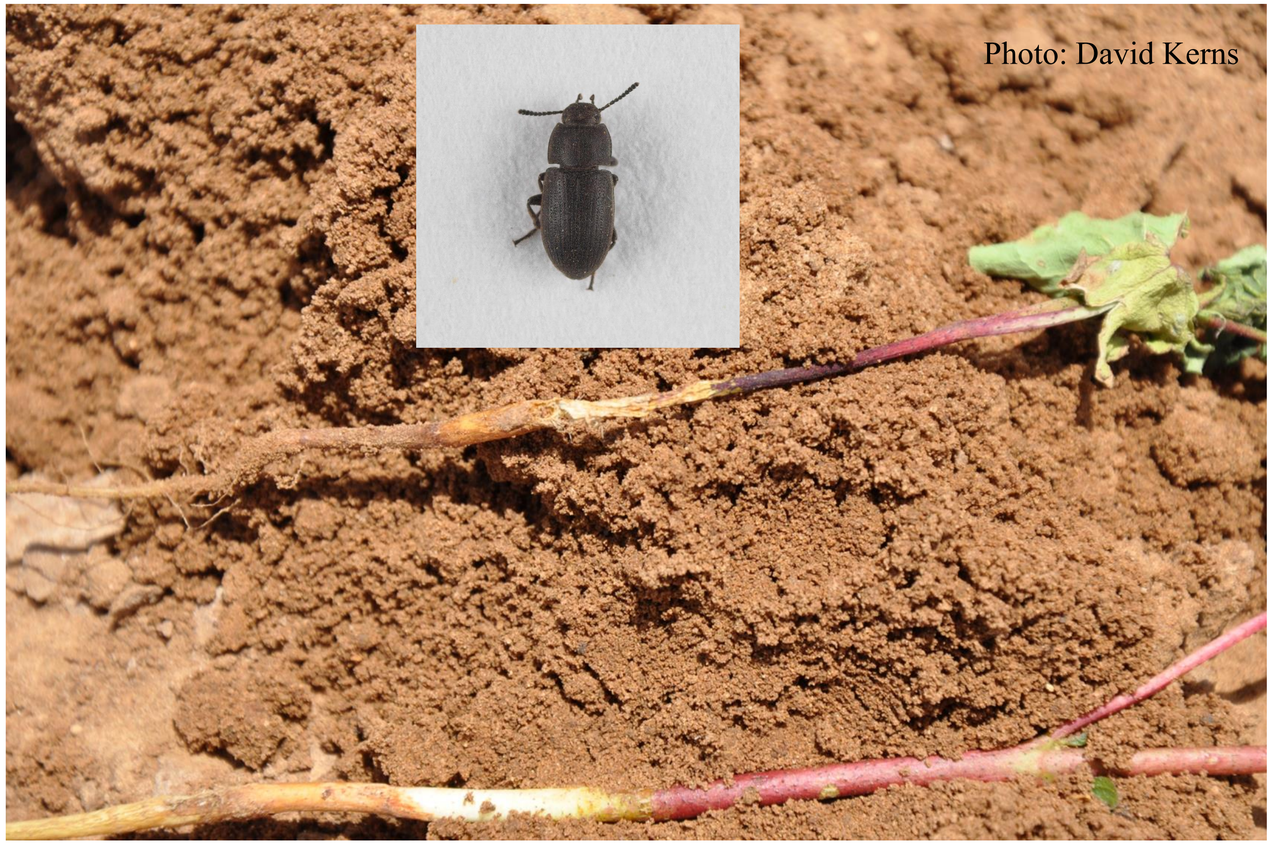
Eleodes sp.

Photo: Pat Porter

Eusattus convexus

Seasonal Movement Through Soil Profile

Soil surface



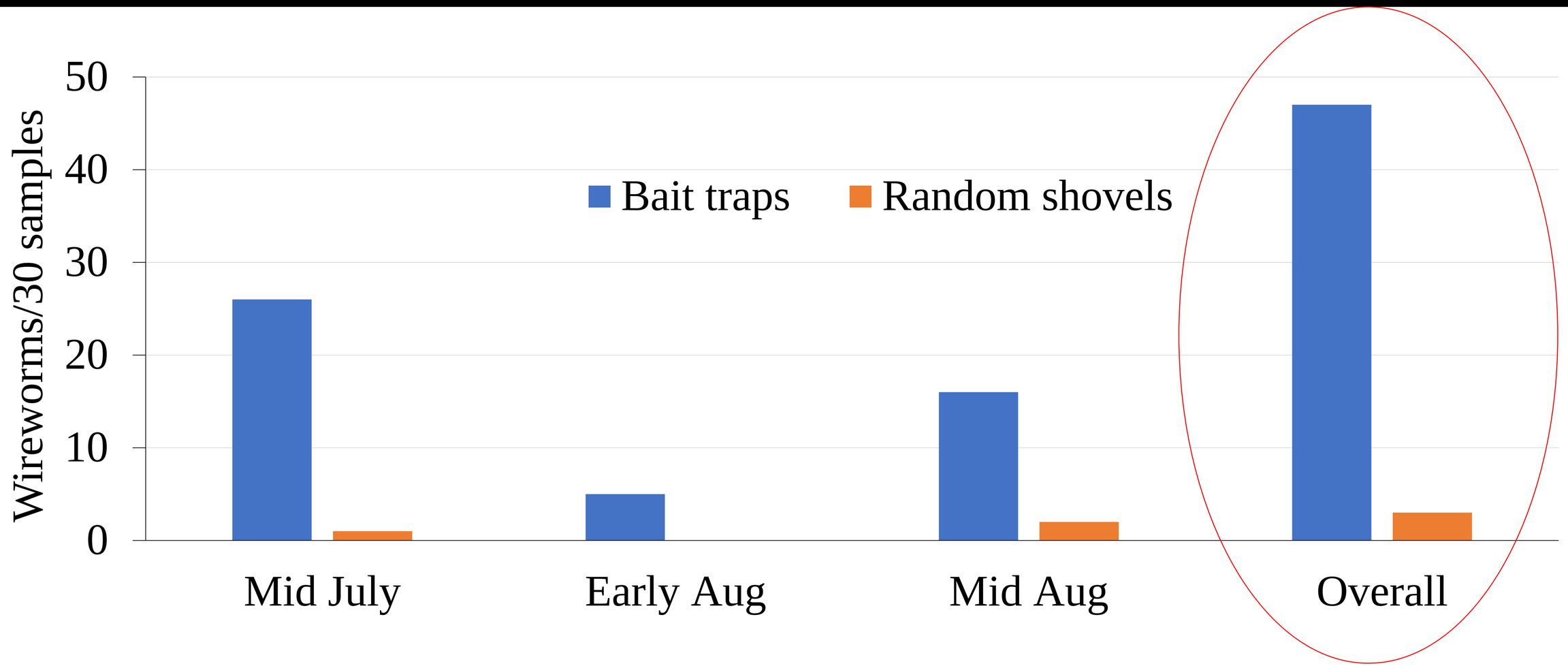
Stem girdling by *Blapstinus* beetles

Challenging Pests to Study

- **Subterranean habitat** and ability to move in the soil make them difficult to find
- The **long-life cycles** (some species up to 11 years in soil) makes lab rearing extremely hard
- **Patchy distribution** among fields and within fields makes sampling difficult and labor intensive

TEXAS A&M AGRILIFE

Bait Sampling Works Better

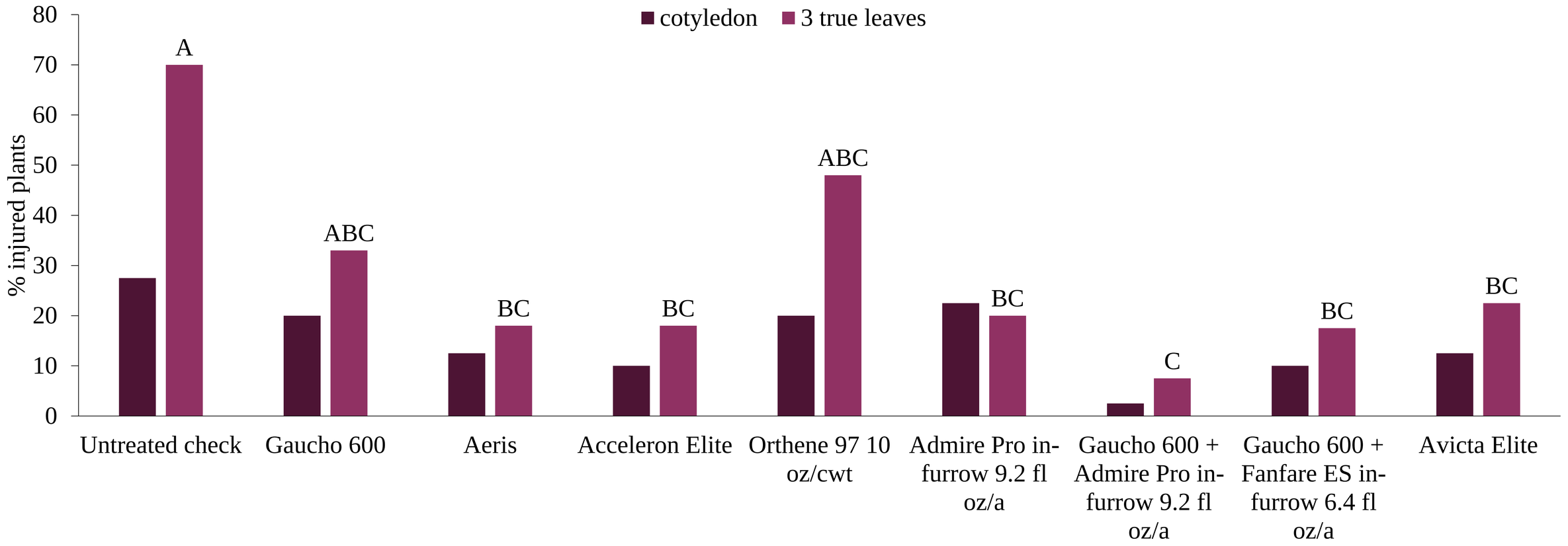


Not all worms in soil are wireworms

Stiletto fly larva

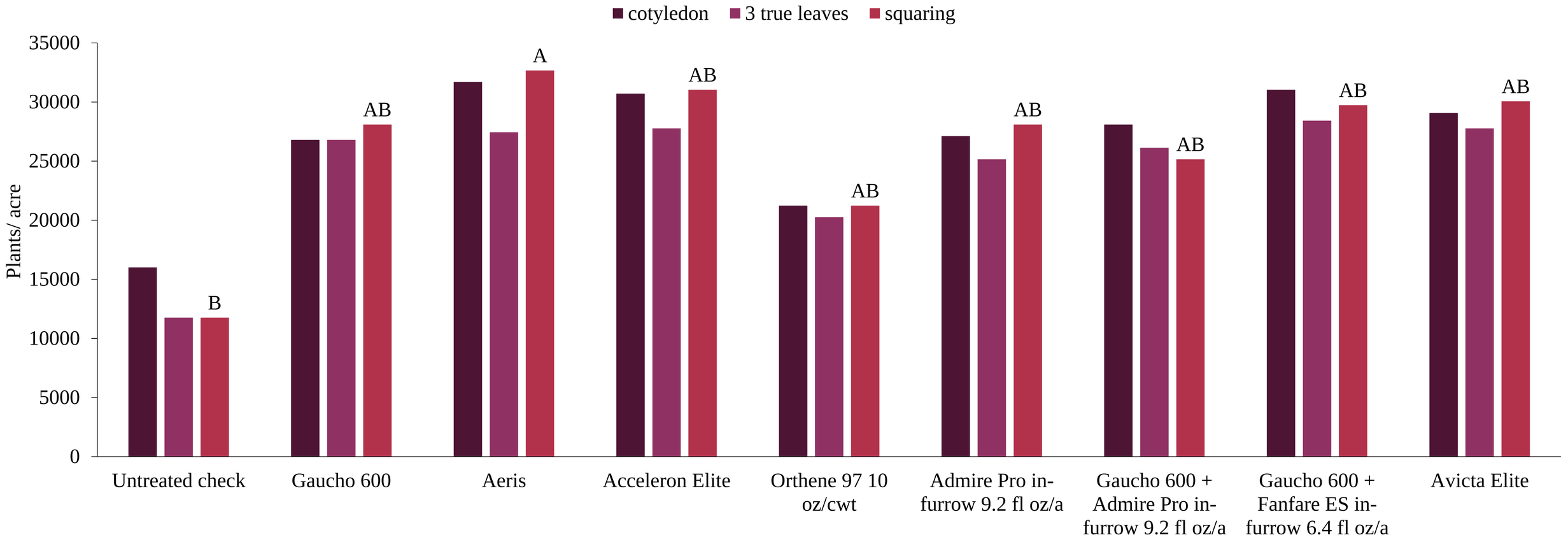
- Smooth white to pinkish
- Legless bodies, taper at both ends
- Small head capsule

True wireworm larva head and **legs** (left) and **serrated plate** with two upturned protrusions (right).



SEED AND AT-PLANT TREATMENTS REDUCE WIREWORM INJURY

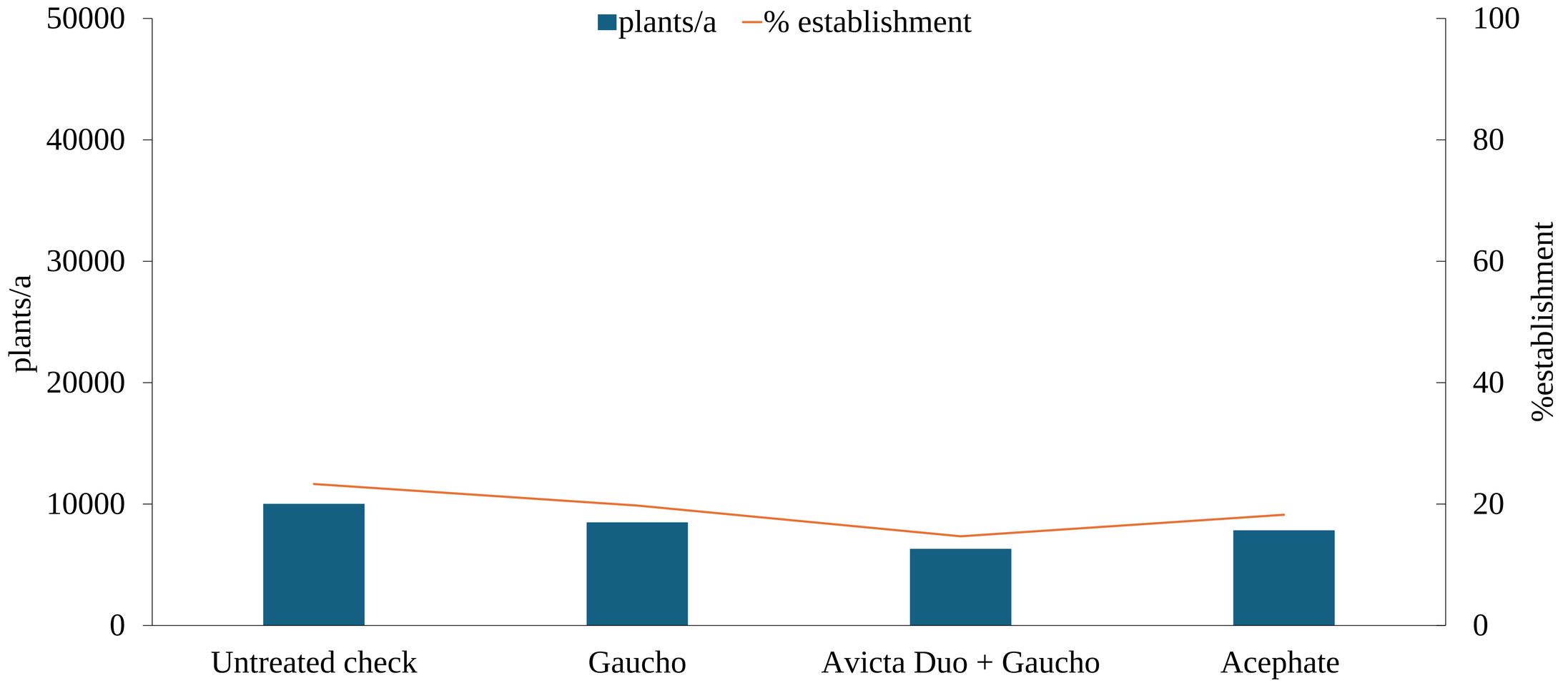
P = 0.1138; 0.0012



AT-PLANT AND SEED TREATMENTS ARE KEY TO BETTER STAND ESTABLISHMENT

P = 0.165; 0.0745; 0.0449

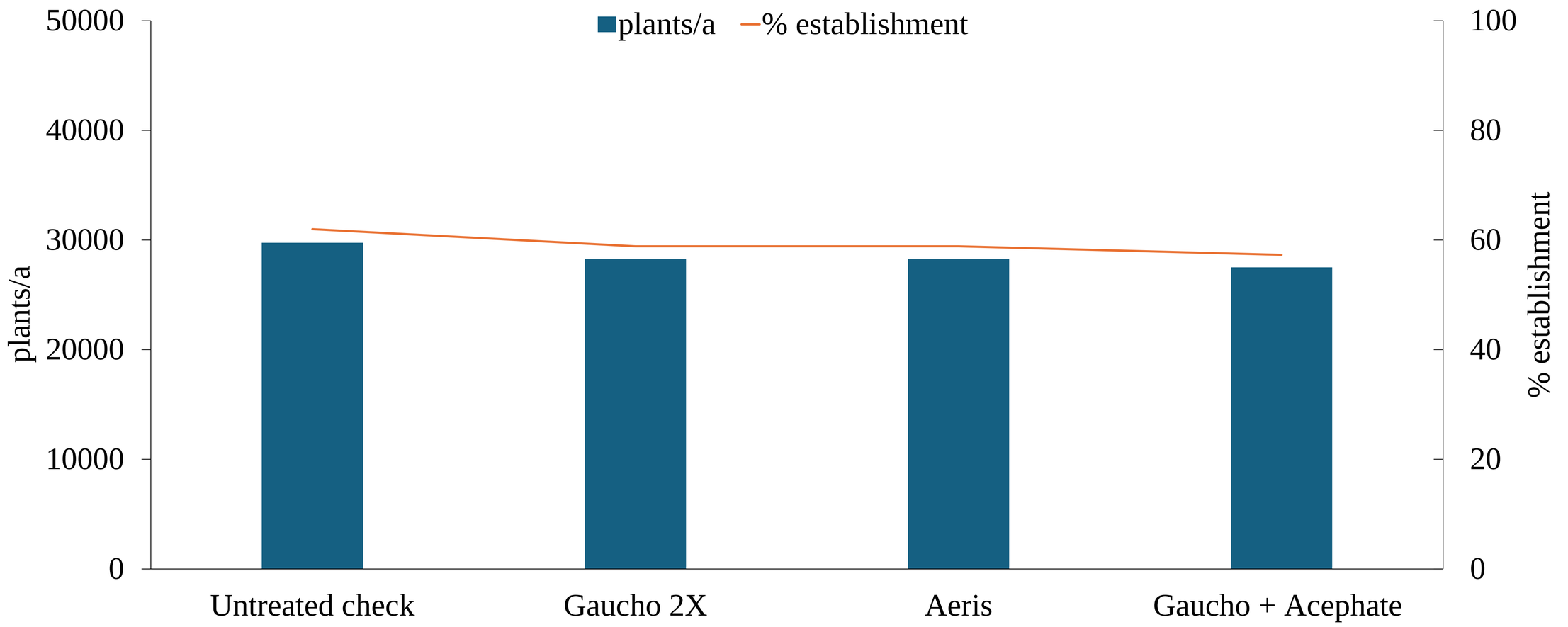
SEED TREATMENTS & STAND ESTABLISHMET (Siders et al. Hockley Co. 2024)



Var. **DP2131B3TXF**; 43k seeds/a

P = 0.1769

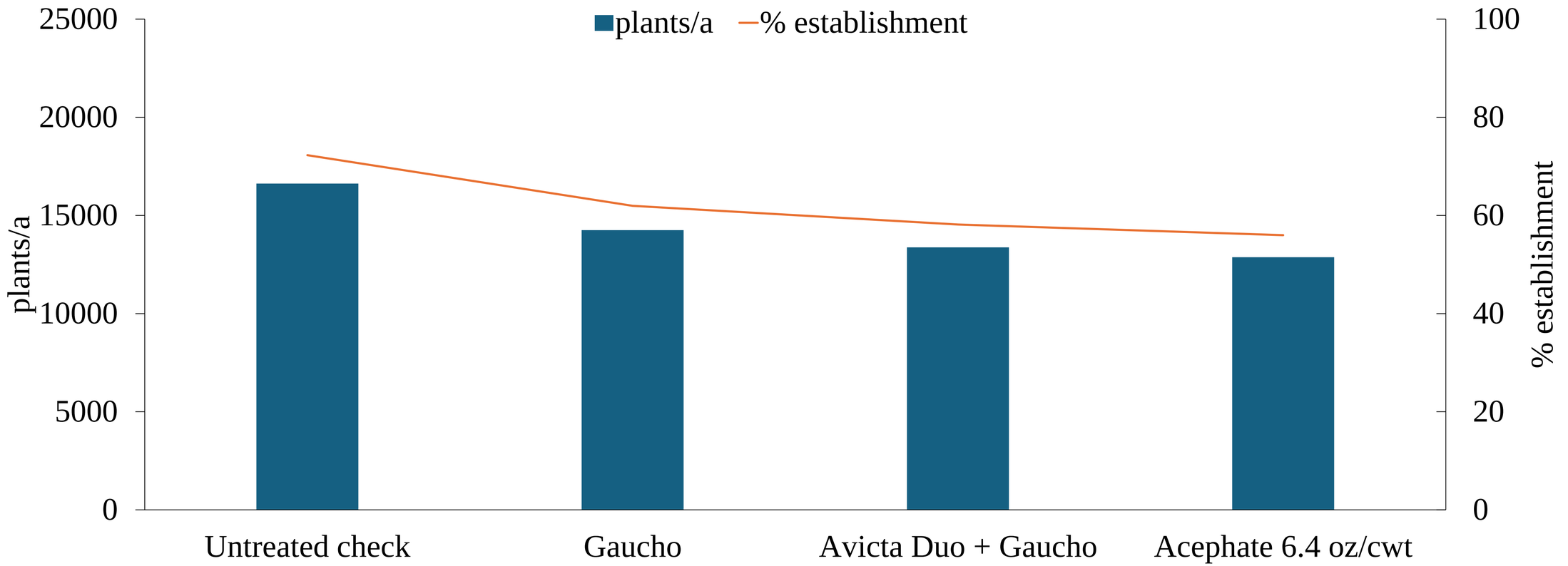
SEED TREATMENTS & STAND ESTABLISHMET (Lubbock, 2024)



Var. **DP2123B3TXF**; 48k seeds/a

P = 0.9311

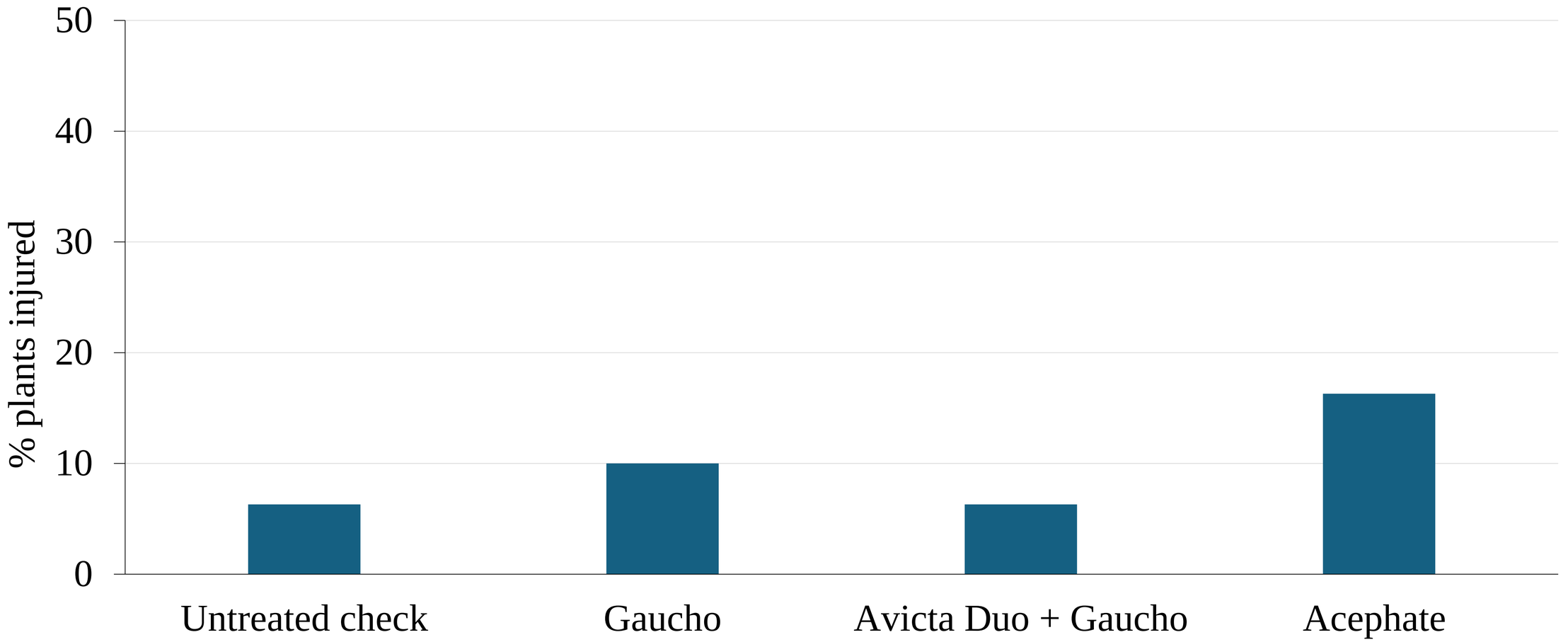
SEED TREATMENTS & STAND ESTABLISHMENT (Martin Co. 2024)



Var. **DP2131B3TXF**; 23k seeds/a

P = 0.6987

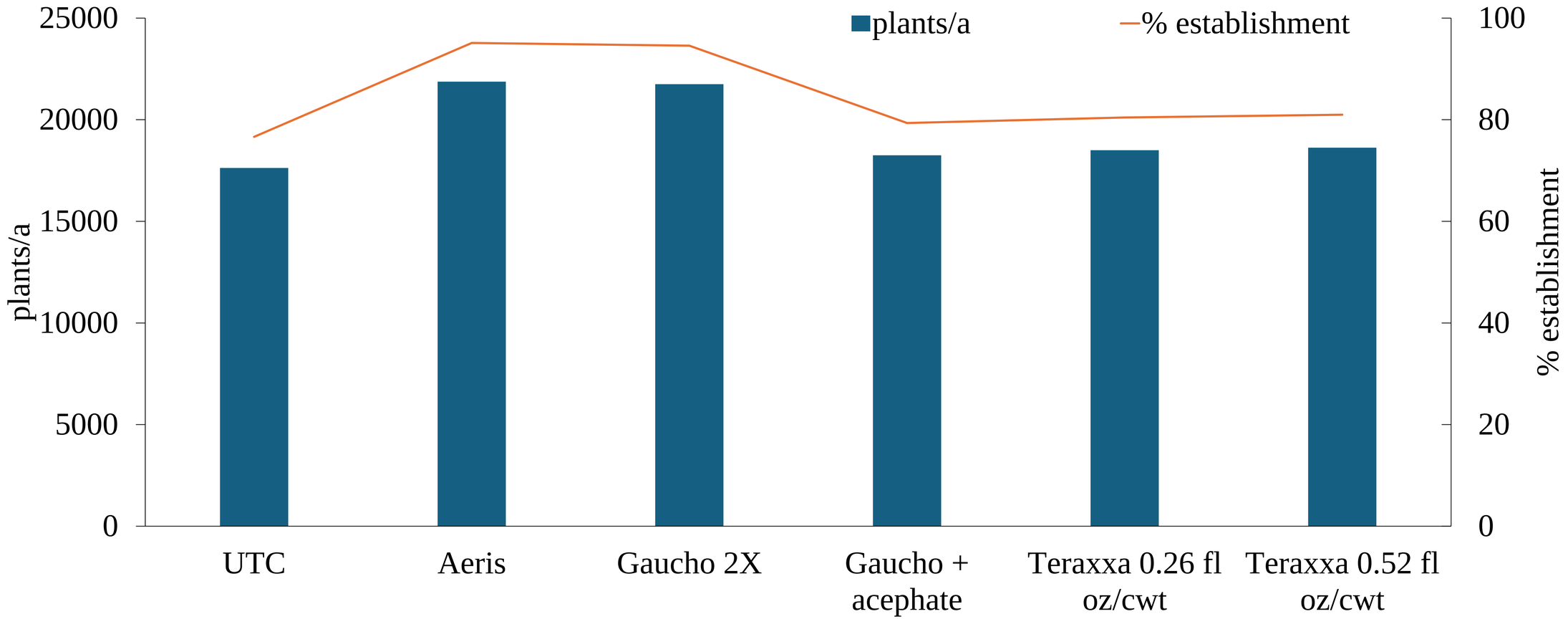
No Impact on Wireworm Injury to Seedlings



DP2131B3TXF; 8DAP

P = 0.5145

SEED TREATMENTS & STAND ESTABLISHMENT (Martin Co. 2024)

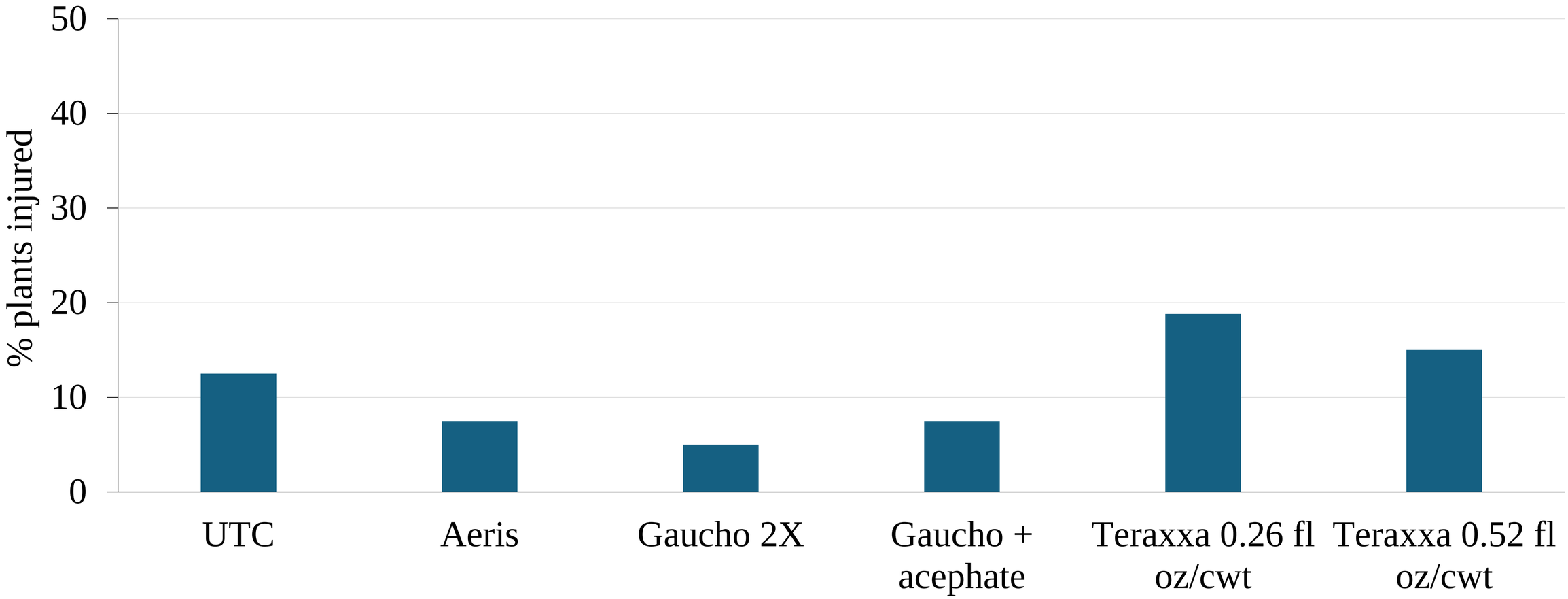


*Teraxxa not registered for use in cotton

Var. **DP2123B3TXF**; 23k seeds/a

P = 0.2010

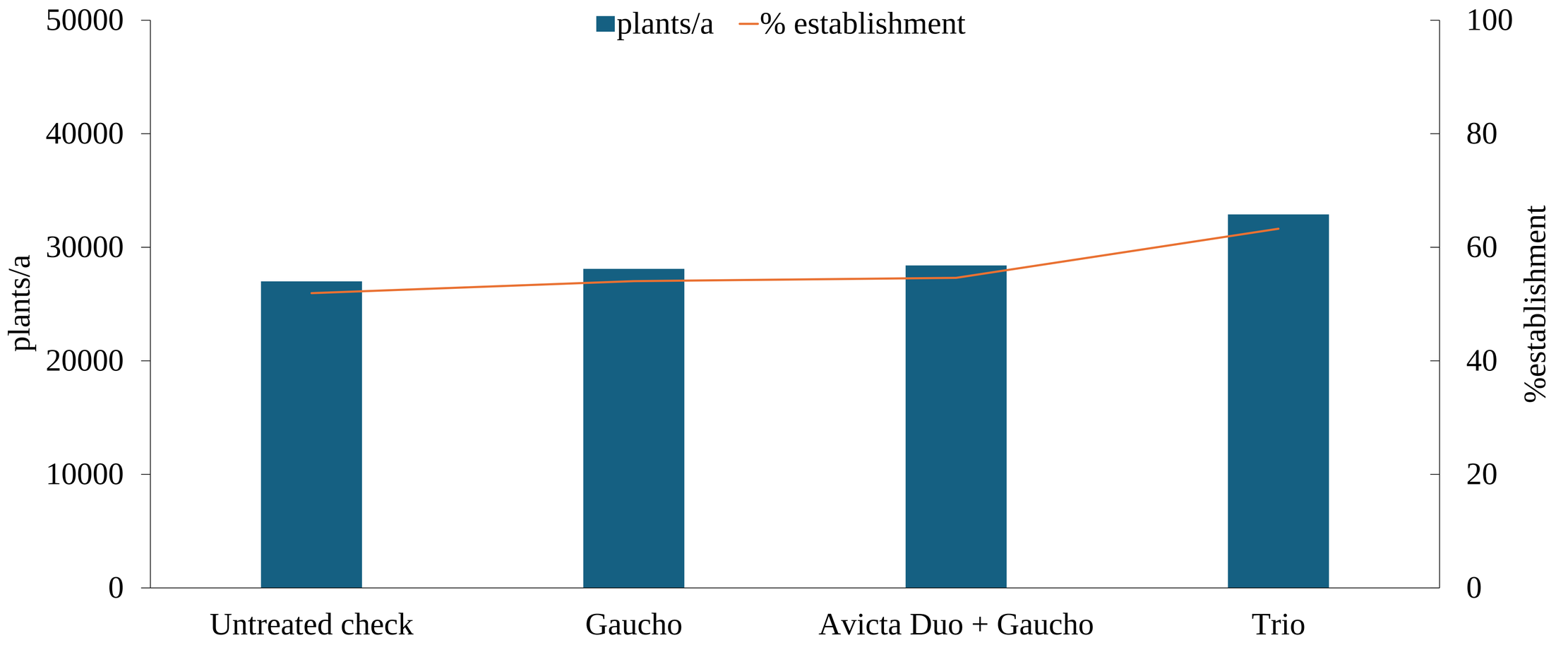
No Impact on Wireworm Injury to Seedlings



DP2131B3TXF; 8DAP

P = 0.1433

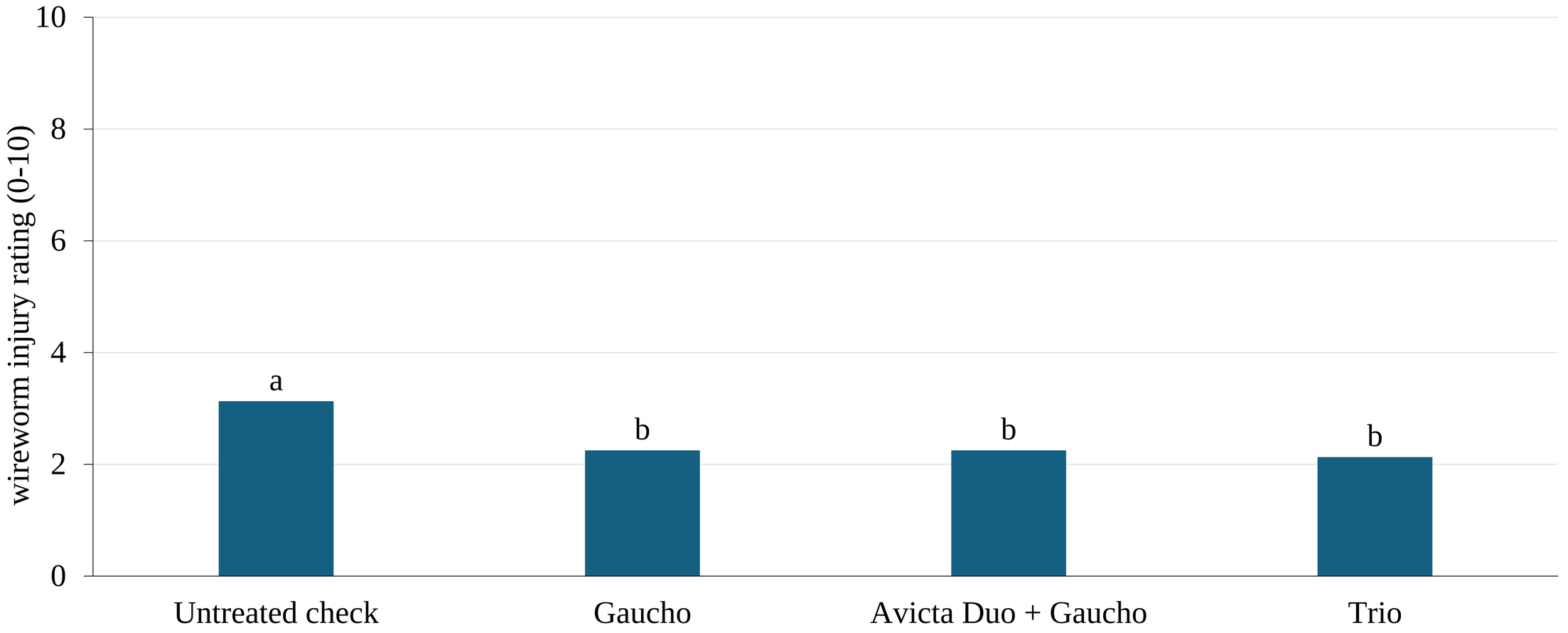
SEED TREATMENTS & STAND ESTABLISHMENT (Reed et al. Swisher Co. 2024)



Var. **PHY250W3FE**; 52k seeds/a

P = 0.2287

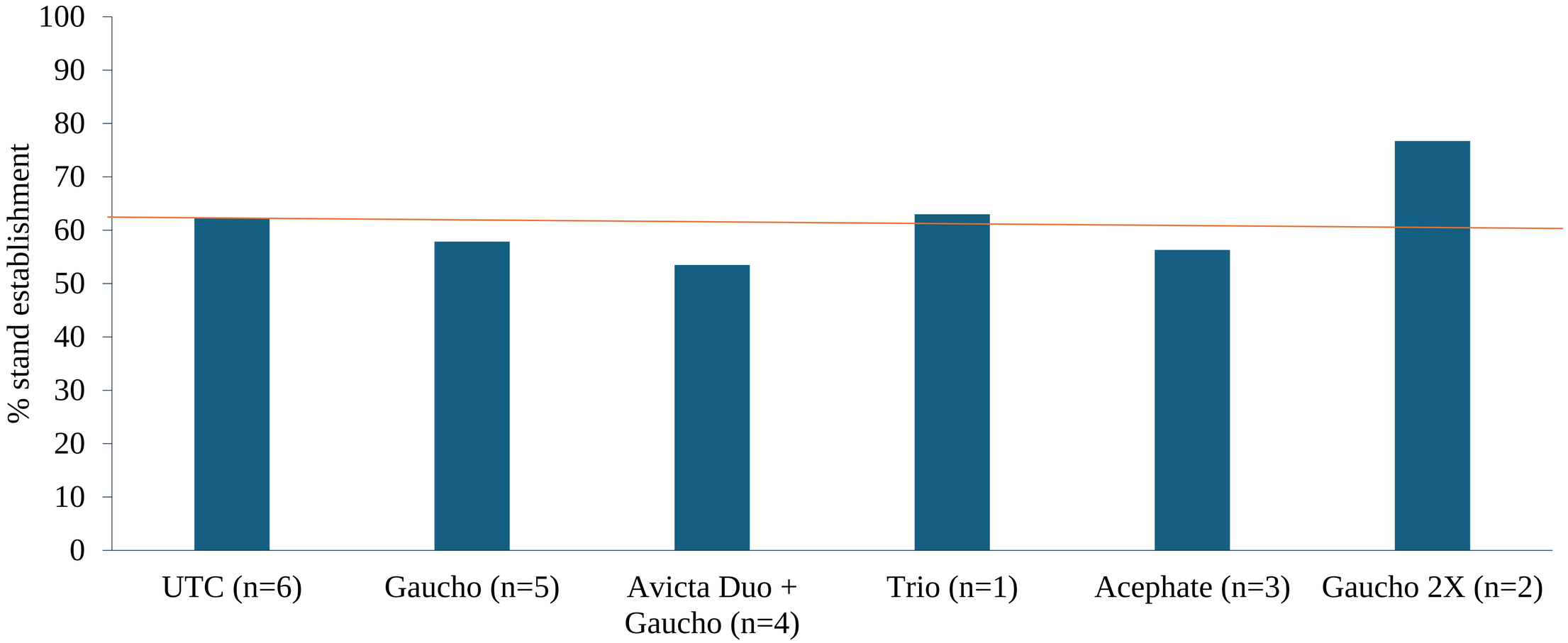
Reduced Wireworm Injury Under Treated Seed, Swisher Co.



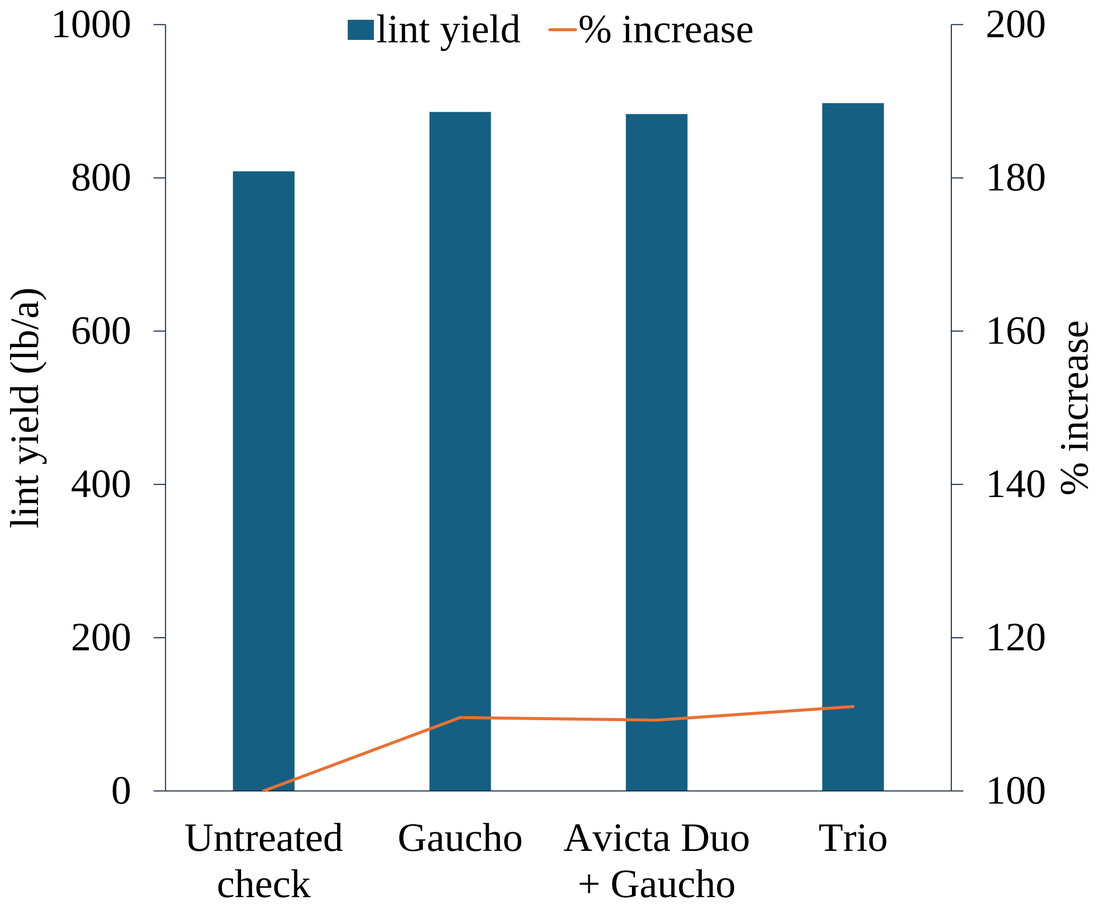
PHY250W3FE; 28DAP

P = 0.0168

Summary Across Trials, 2024

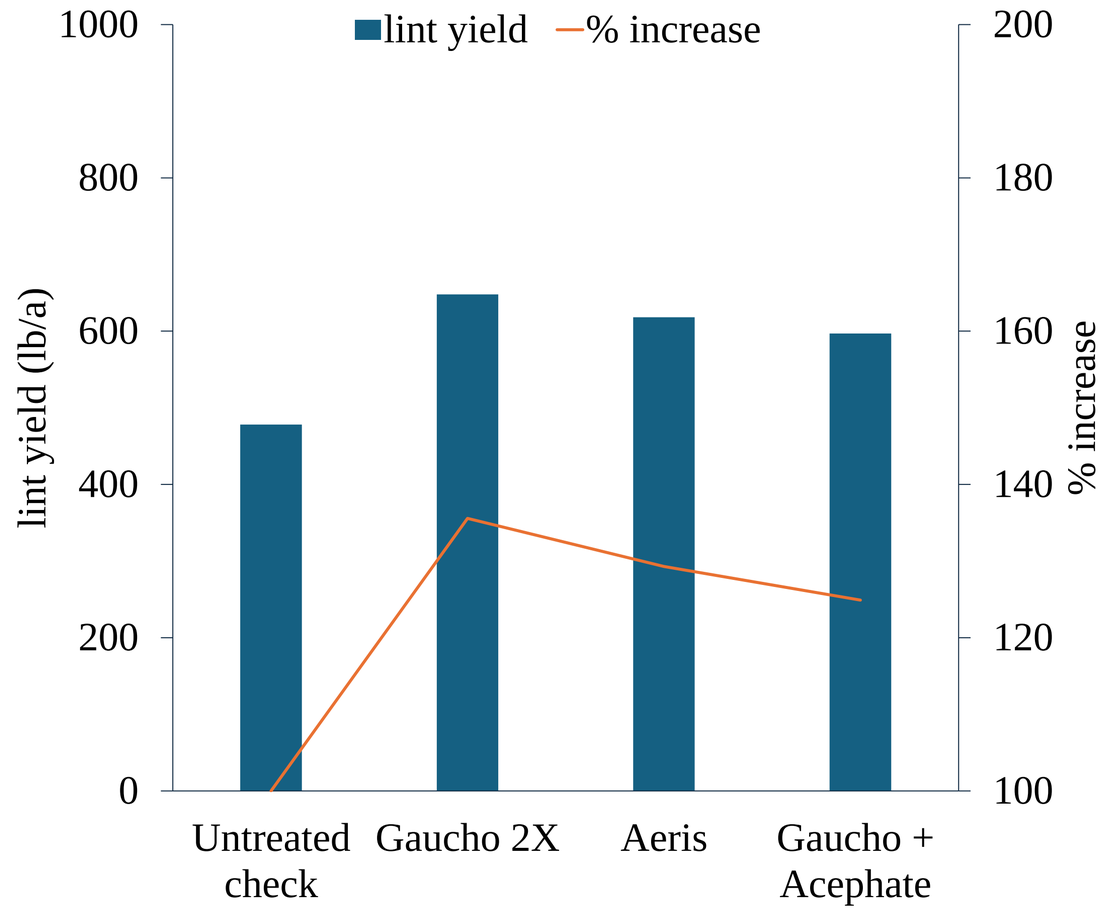


Impact of Insecticide Seed Treatments on Yield



Swisher 2024

P = 0.3203



Lubbock 2024

P = 0.3372

COVER CROPS & PEST ISSUES

COMMENTS FROM FELLOW ENTOMOLOGISTS

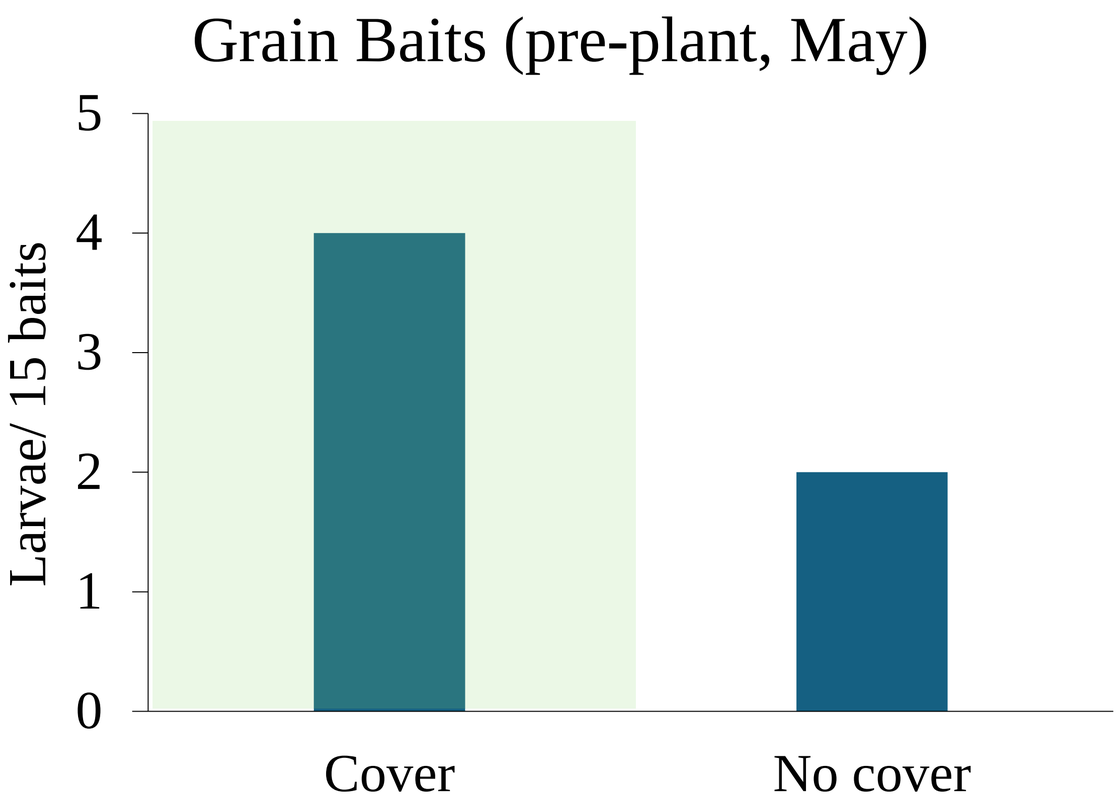
“I JUST DO NOT LIKE COVER CROPS—THEY CREATE TOO MANY ISSUES”

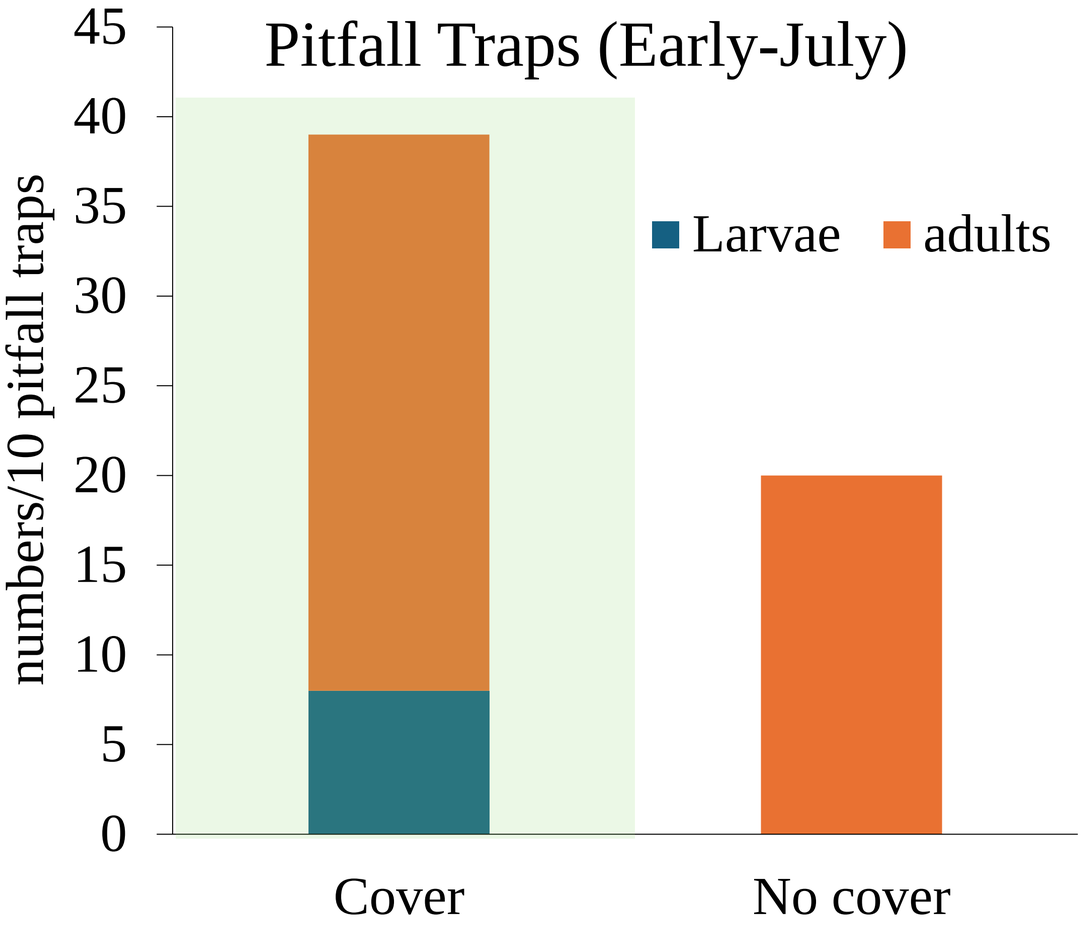
(e.g. cutworms, wireworms, pill bugs, slugs)

IMPACT OF COVER CROPS ON WIREWOMRS

Co-PI: Dr. Wayne Keeling

Higher Number of Wireworms Under Cover





Adults: Elateridae (*Conoderus*) and Tenebrionidae (*Eleodes*)