

Efficacy of Seed Treatments and In-Furrow Insecticides for Wireworm Control in Sunflowers

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INTRODUCTION

Wireworm Biology:

- Larvae go through several stages and may take 3 to 7 years to reach adult stage, depending on species and environmental conditions
- Multiple life stages always present
- Prefer grasses and grass crops, but will attack other crops
- Most active in spring when soil reaches 50F
- Move up and down in soil column depending on moisture and temperature

Wireworm Damage:

- Feed on crop roots and germinating seedlings
- Plant death results in stand and yield loss, with bare field areas that can harbor weeds

Current Situation:

- A resurgent pest problem
- Current insecticides do not reduce populations – slow buildup over time

Objective:

- Compare and evaluate thiamethoxam seed treatment and pyrethroid in-furrow applications

MATERIALS AND METHODS

- Trials conducted near Mohall on sites with moderate wireworm pressure
- Wireworm trapping
- Small plots, 10' x 25' with 30" spacing
- RCBD, 4 replicates
- In-furrow applications made with 3RIVE 3D system on plot planter
- Target stand of 21,500 plants per acre
- Stand counts at V2, V4, V8
- Grain yield

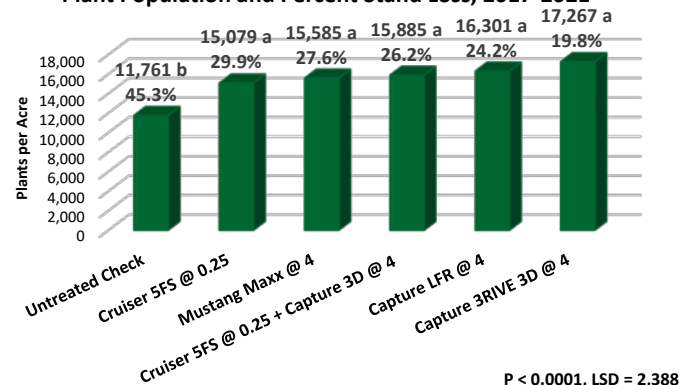
Acknowledgments

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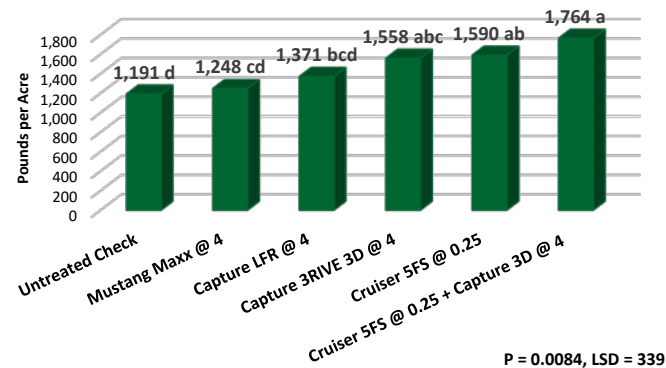


RESULTS

Plant Population and Percent Stand Loss, 2017-2021



Grain Yield, 2017-2021



CONCLUSIONS AND RECOMMENDATIONS

- Use of an in-furrow pyrethroid aids in seasonal wireworm suppression, especially in dry years when a seed treatment alone may be insufficient
- Seed treatments and in-furrow pyrethroid applications do not provide long-term wireworm population reduction
- Over-seed problem areas by 10 to 20% to compensate for wireworm stand loss
- Use Teraxxa (broflanilide) on small grain crops as part of overall crop rotation