Peanut Pest Management Update and Large-Plot Agronomy Results

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Peanut Team at NC State

- Entomology (Brandenburg, phased retirement)
- Plant Pathology (Shew, retired)
- Weed Science (Jordan)
- Nematology (Gorny)
- Agronomy (Jordan)
- Engineering (Roberson and Ward)
- Breeding and Genetics (Dunne and Andres)
- NC State Extension Agents
- NCDA&CS

Topics for Today

- Entomology
- Plant Pathology
- Nematodes
- Weed Science
- On-Farm Summary
- Peanut Risk Tool
- Herbicide Selector Tool

Entomology

- Removal of Lorsban from market
- Efficacy of in-furrow insecticides (consistency of imidacloprid?)
- Spider mites (Portal)
- Caterpillar and Worm Control (Expensive products versus Pyrethroids)

Managing Southern Corn Rootworm without Lorsban

- SCR Risk Index can help avoid high risk fields (but there are financial implications of not planting these “good peanut fields”)
- Generally need 20% scarring to have measurable yield loss due to puncturing of pods (but hotspot fields and areas of fields do exist)
- Soil characteristics that affect survival of SCR larvae are variable across fields
- Consider planting higher risk fields early (finer-textured soils that are poorly drained as well as irrigated fields)
- Greatest concern is irrigated peanut (ample soil water promotes survival of larvae that feed on pods), even in sandy, low organic matter fields
- No evidence that multiple applications of insecticide that affect adults will reduce damage from SCR
- AgLogic, Thimet, and Lorsban are no longer registered for use in peanuts to control SCR – there are currently no chemical options to suppress SCR

Category	Criteria	Points
Soil texture	Loamy sand	5
	Fine sandy loam	10
	Loam	15
Drainage class	Well drained	5
	Moderately well drained	10
	Somewhat poorly drained	15
	Poorly drained	20
Damage history	None	0
	Low	5
	Moderate	10
	High	15
Planting date	Before May 1	5
	May 2 – May 15	10
	After May 15	15
	After June 1	25
Cultivar resistance	Bailey II, Emery, GA 06G, Sullivan, Wynne, TUF 297, TUF 511	20
Irrigation	No irrigation	0
	Periodic irrigation or frequent rainfall	20
	Intensive Irrigation	45
Total score	**50 or less, low risk: 55-65, moderate risk: 70 or more, high risk**	

Opposite of Risk for TSW
Make sure plant population is adequate and thrips control program is effective if planting early

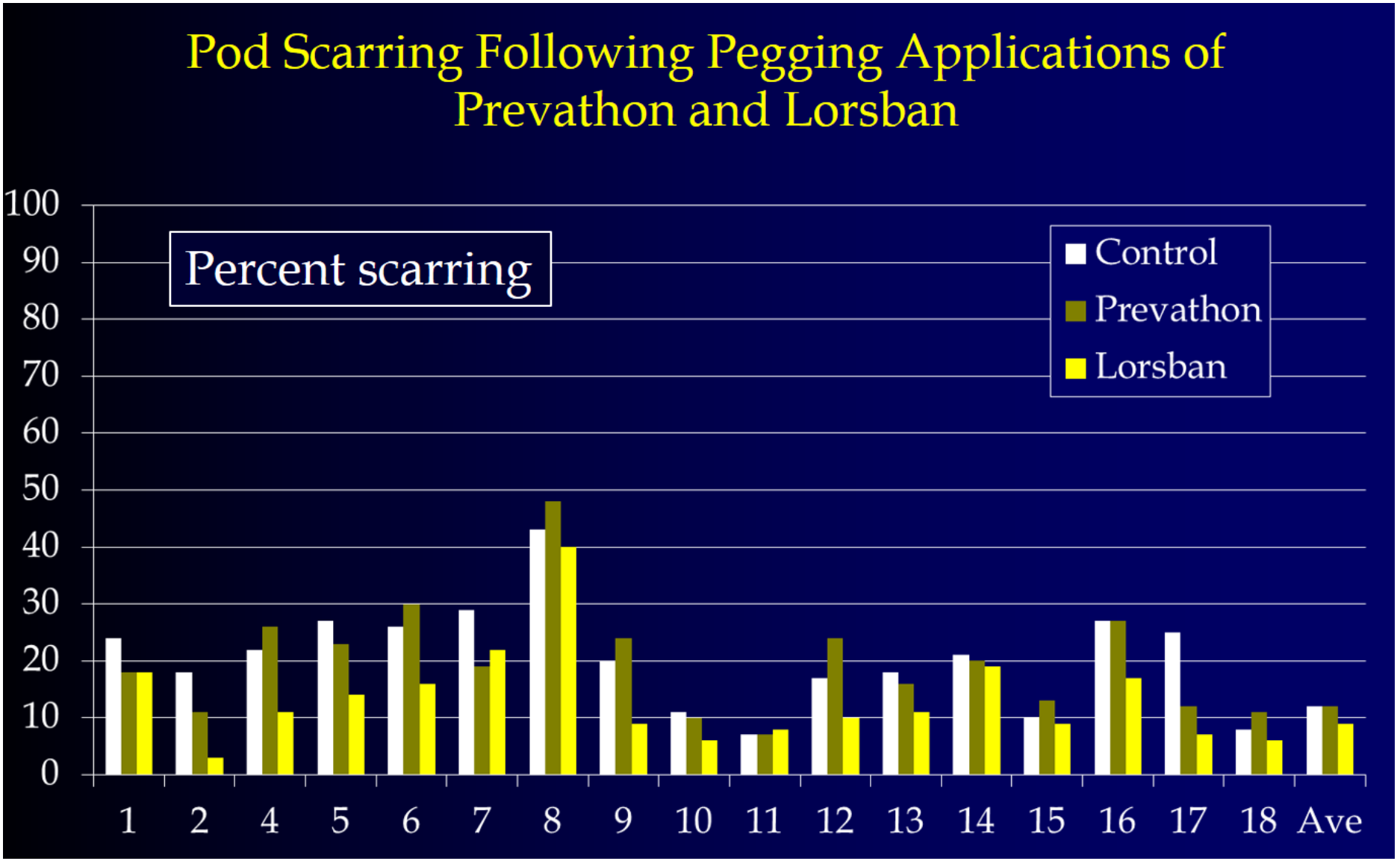
Influence of Prevathon and Lorsban on peanut pod scarring caused by southern corn rootworm and peanut pod yield during 2017 and 2018.†

Treatment	Rate	Growth stage‡	Experiments with pod scarring and yield recorded		Experiments with pod scarring only
			Pod scarring	Pod yield	Pod scarring
	lbs ai/acre		%	lbs/acre	%
Non-treated	-	-	20 a	4,570 a	18 a
Prevathon	0.063	R1-R3	19 a	4,620 a	17 a
Lorsban	2.0	R1-R2	10 b	4,550 a	10 b
P > F	-	-	0.0100	0.4050	≤0.0001
CV(%)			36.4	11.4	36.7
No. of experiments	-	-	15	15	25

†Means within a column followed by the same letter are not significantly different based on Fisher's Protected LSD test.

‡Peanut growth stages defined by Boote, 1982.

Pod Scarring Following Pegging Applications of Prevathon and Lorsban



Plant Pathology

- After new department head for DEPP is hired, two extension plant pathologists will be hired (likely in late 2022)
- Research on Variety Response to Fungicide Programs
- Research on Follow Sprays after Miravis plus Elatus
- Velum in-furrow

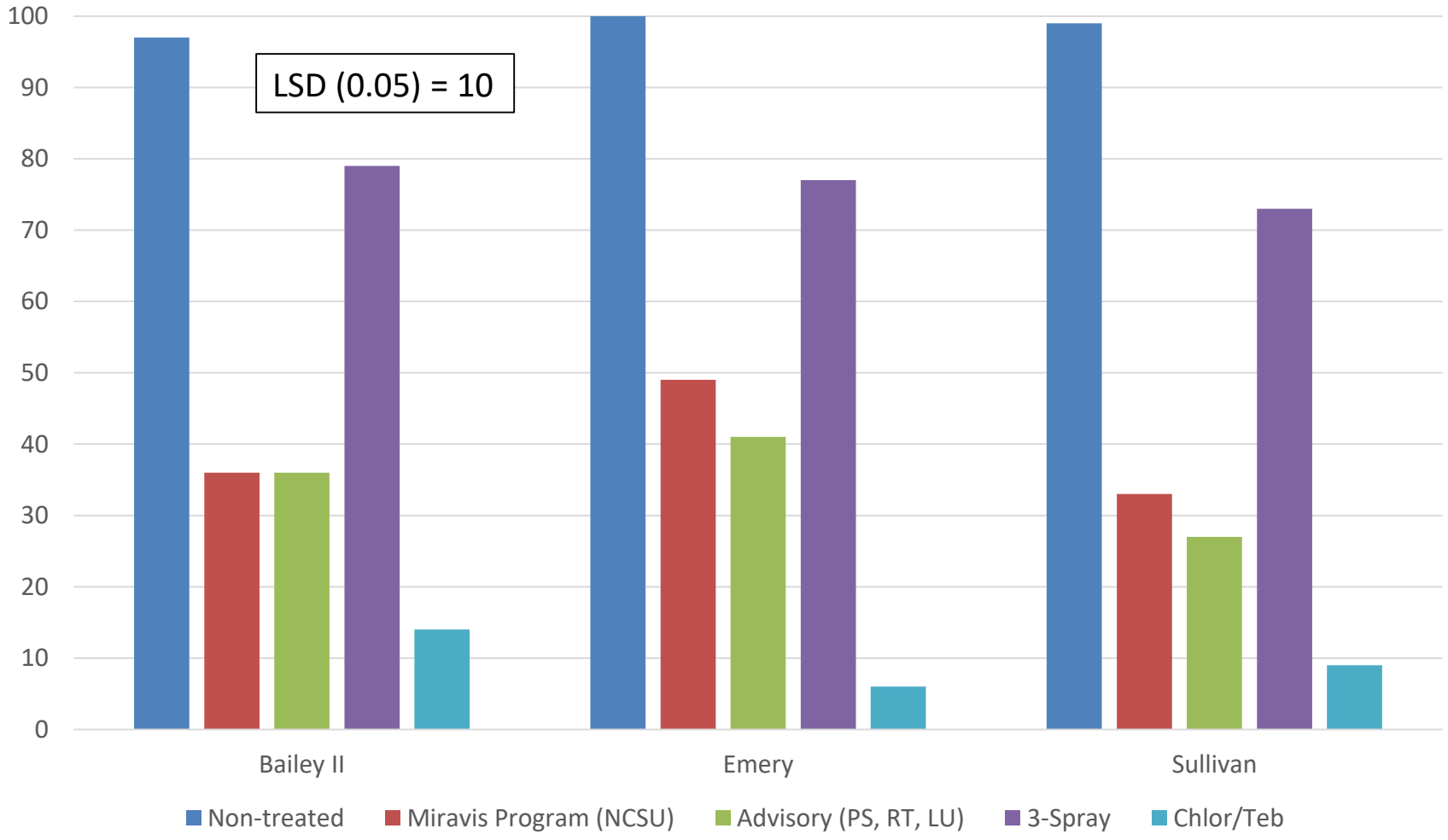
Fungicide Programs and Varieties

Bailey II, Emery, Sullivan

- Miravis program (NCSU)
- Advisory program (Provost Silver, Revytek, Lucento)
- Chlorothalonil plus tebuconazole
- 3-spray program
- Non-treated control

Leaf Spot Incidence (Percent of Leaves with Lesions) at Harvest

Data are pooled over three locations in 2021



Canopy Defoliation (Percent of Leaves Lost) at Harvest

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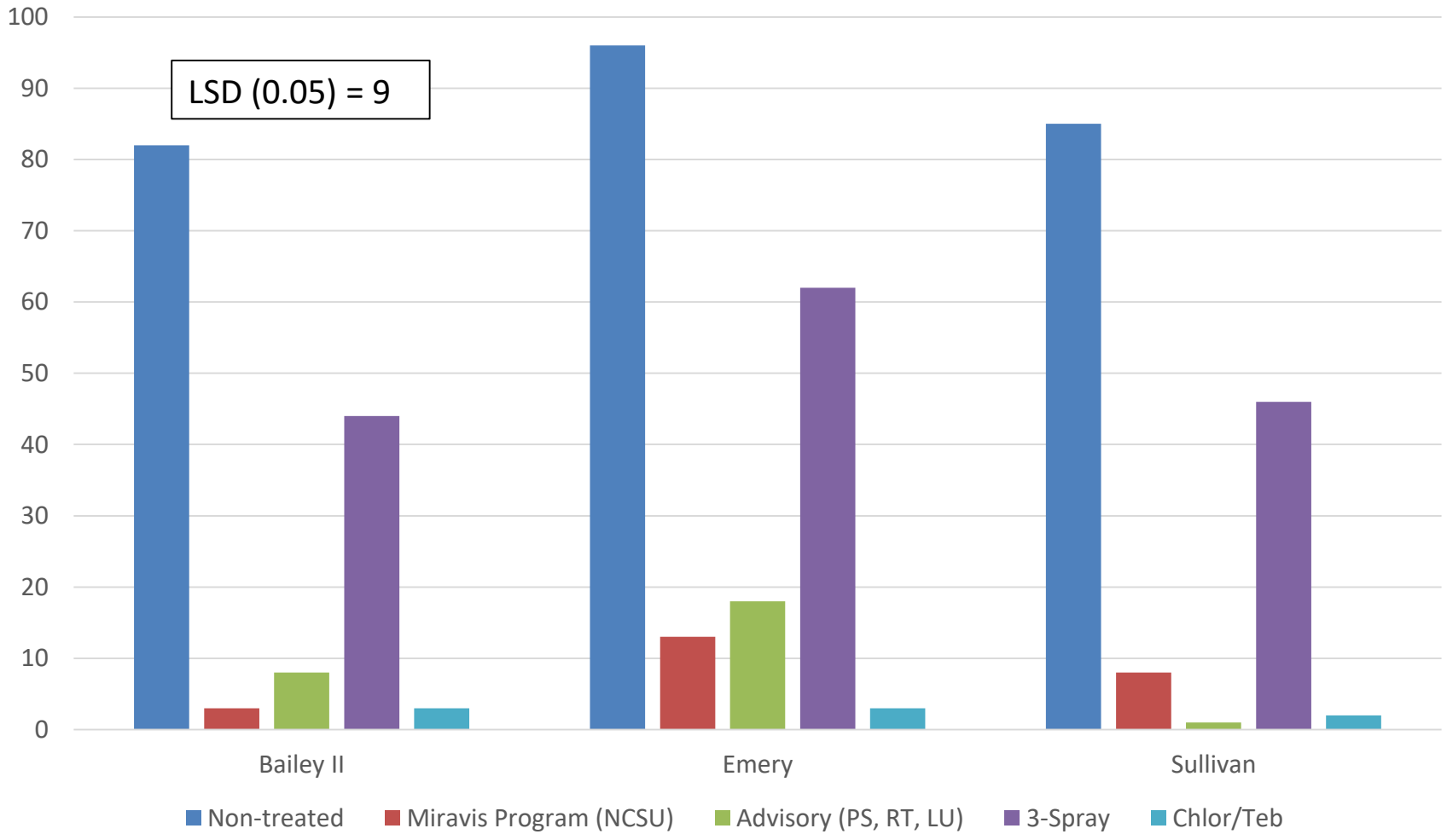
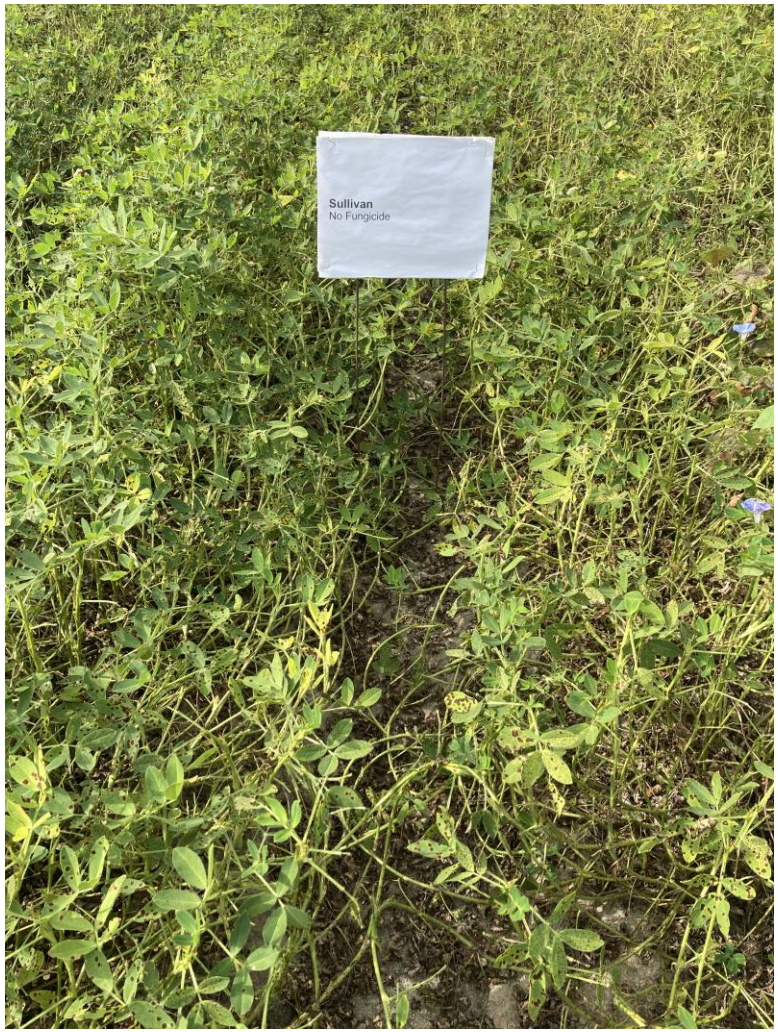
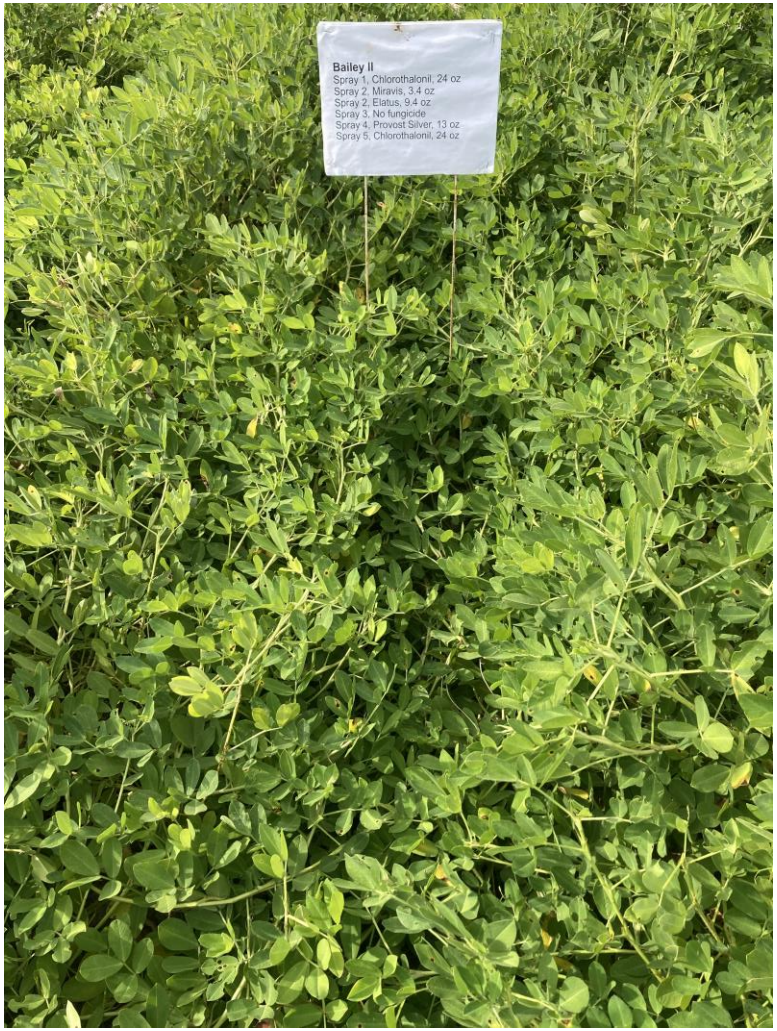



Bailey II
No Fungicide


Emery
No Fungicide


Sullivan
No Fungicide


Bailey II
Spray 1, Chlorothalonil, 24 oz
Spray 2, Miravis, 3.4 oz
Spray 2, Elatus, 9.4 oz
Spray 3, No fungicide
Spray 4, Provost Silver, 13 oz
Spray 5, Chlorothalonil, 24 oz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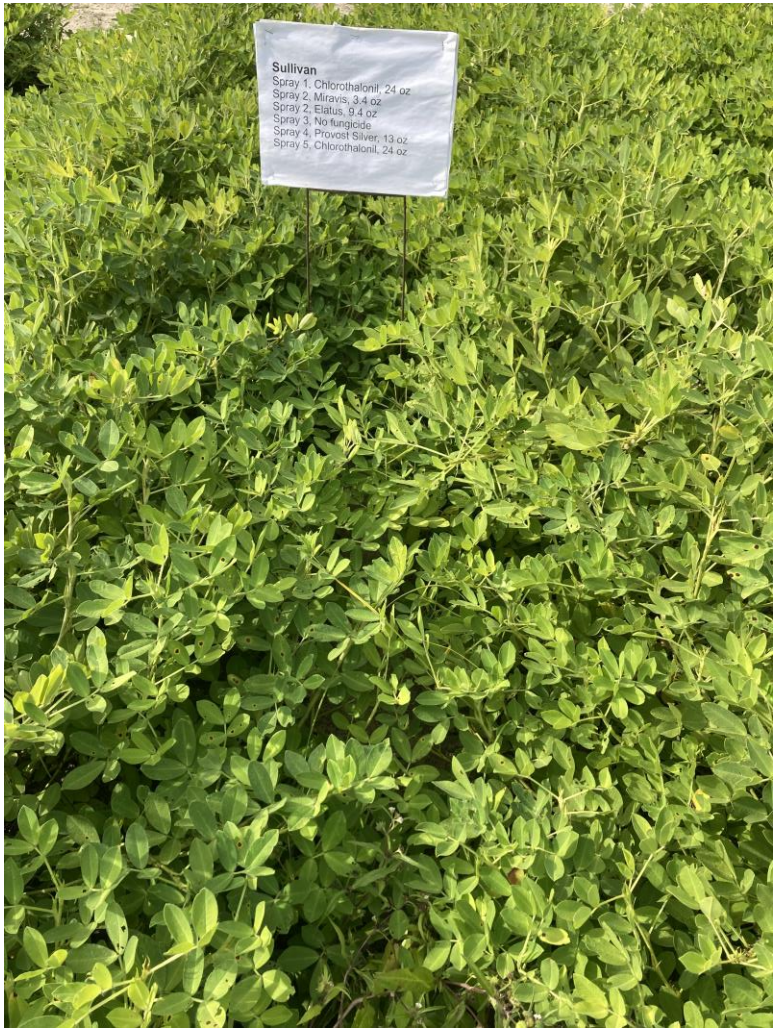
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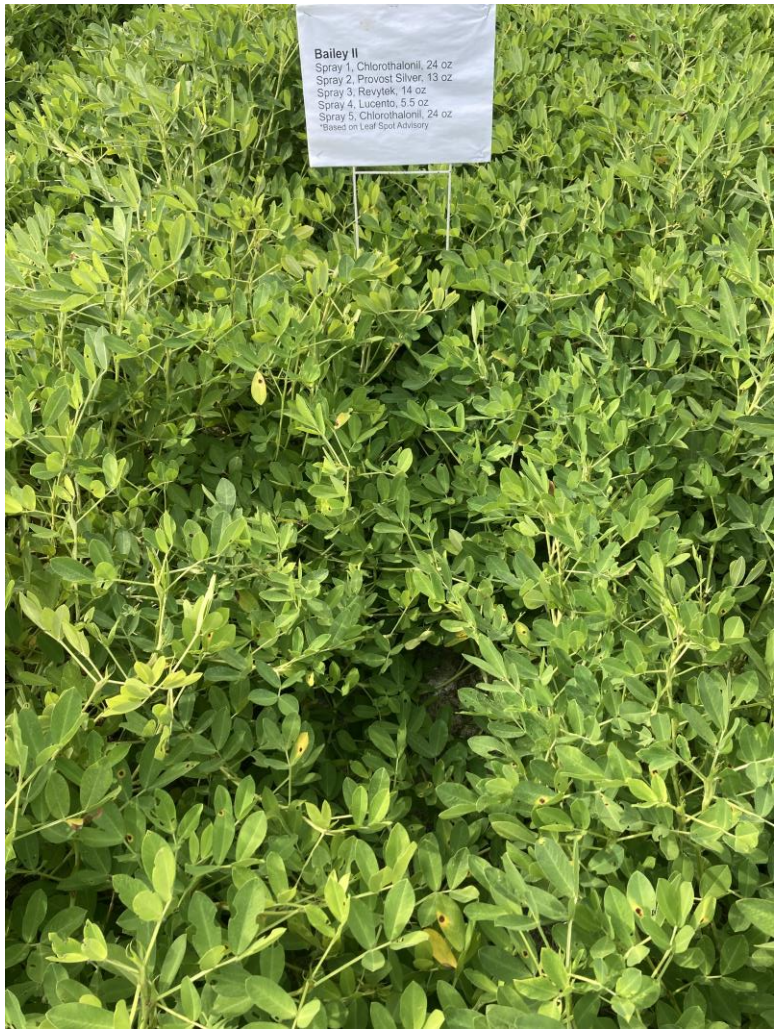
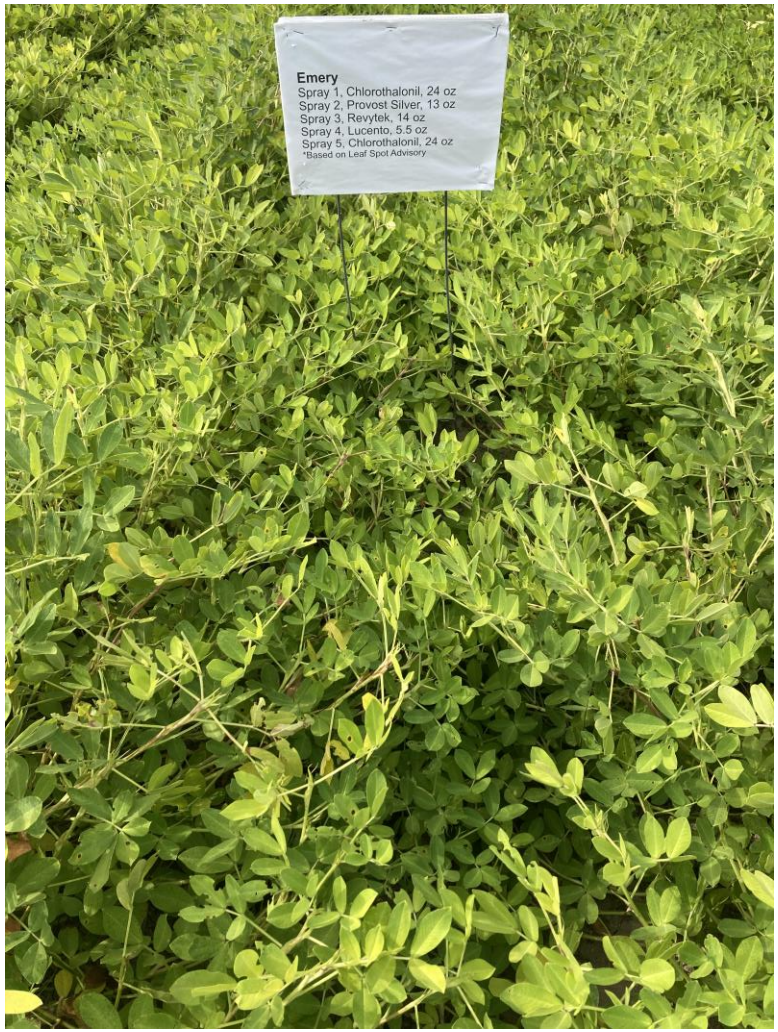

Bailey II
Spray 1, Chlorothalonil, 24 oz
Spray 2, Provost Silver, 13 oz
Spray 3, Revytek, 14 oz
Spray 4, Lucento, 5.5 oz
Spray 5, Chlorothalonil, 24 oz
*Based on Leaf Spot Advisory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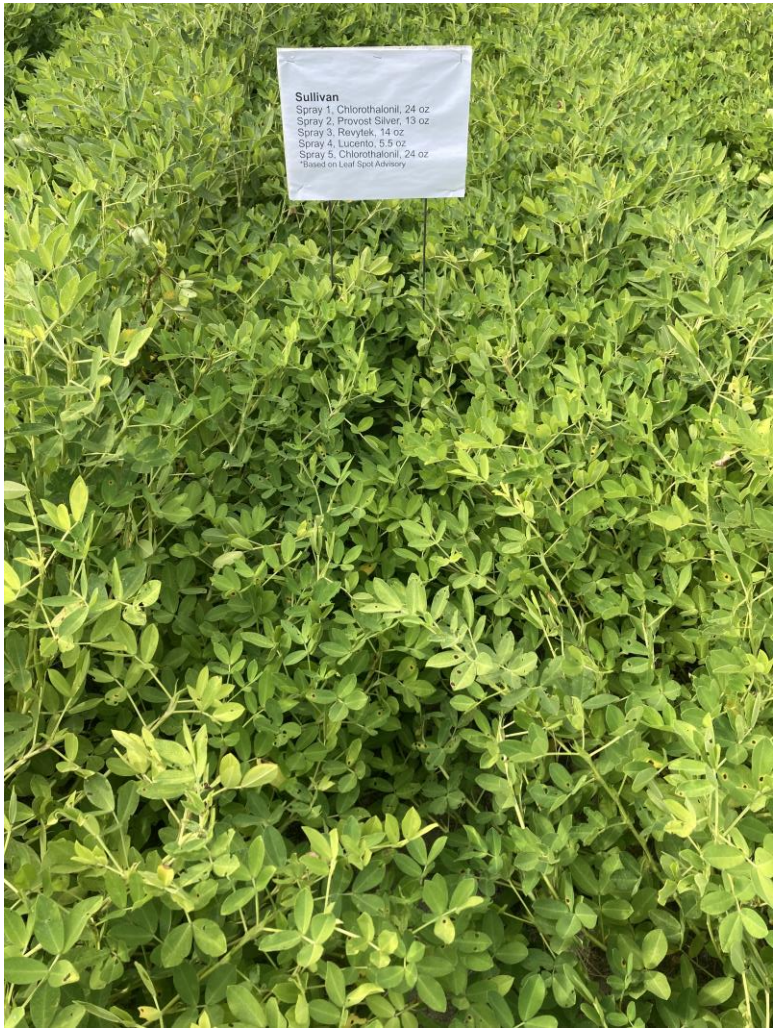
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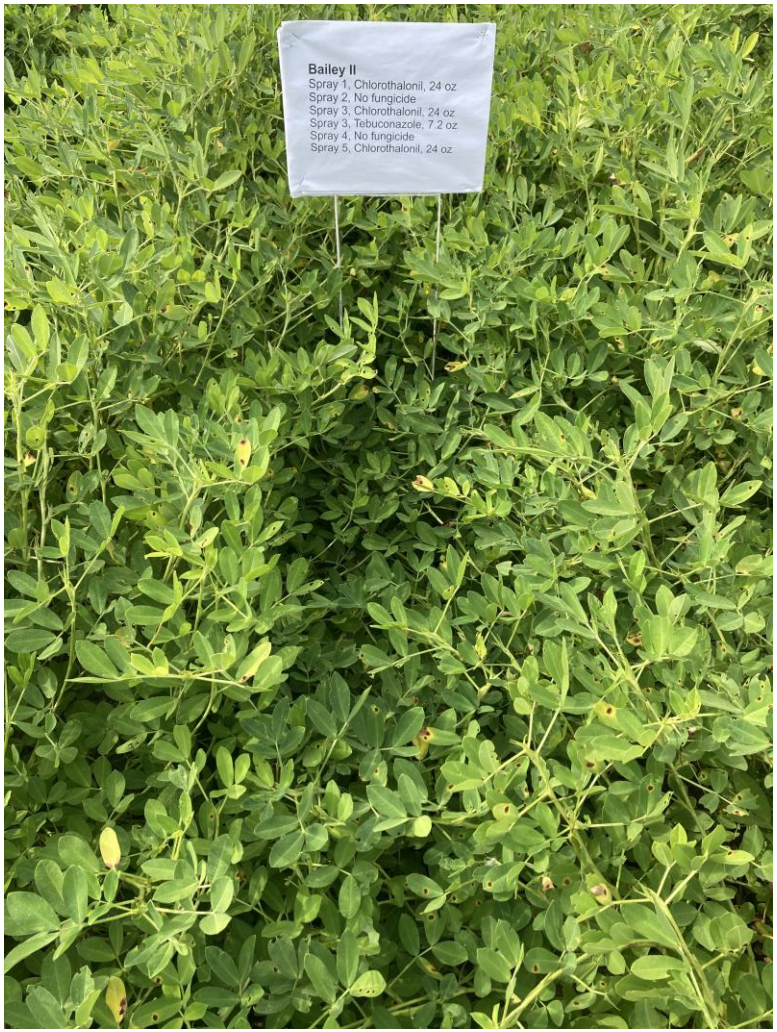
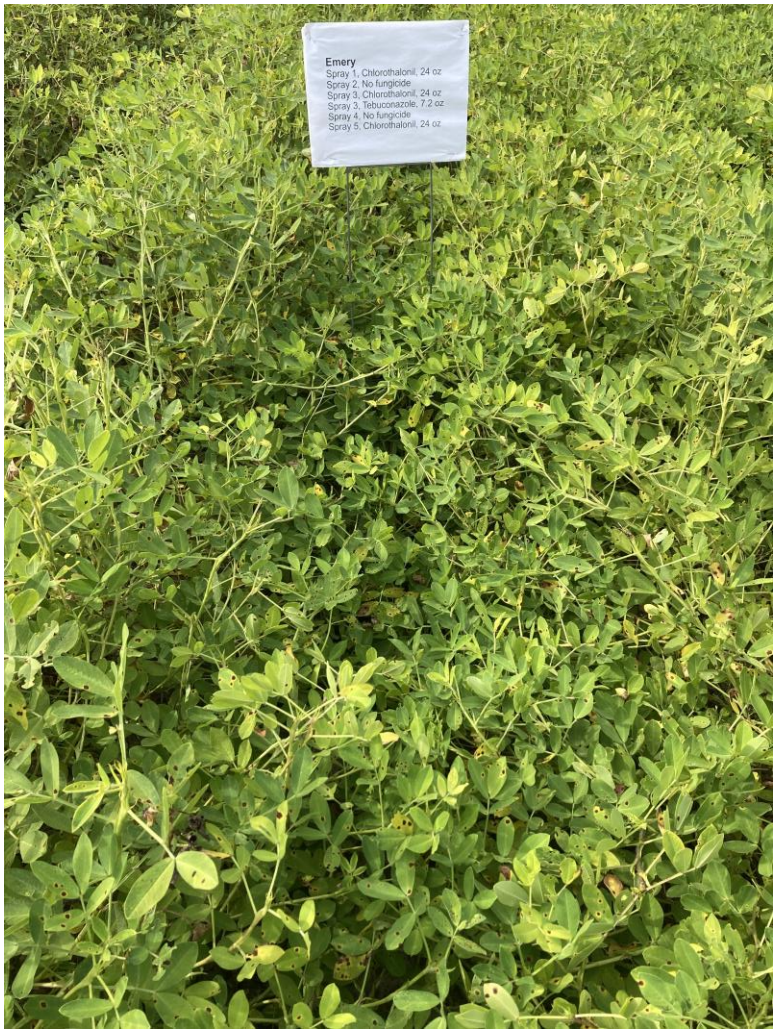

Bailey II
Spray 1, Chlorothalonil, 24 oz
Spray 2, No fungicide
Spray 3, Chlorothalonil, 24 oz
Spray 3, Tebuconazole, 7.2 oz
Spray 4, No fungicide
Spray 5, Chlorothalonil, 24 oz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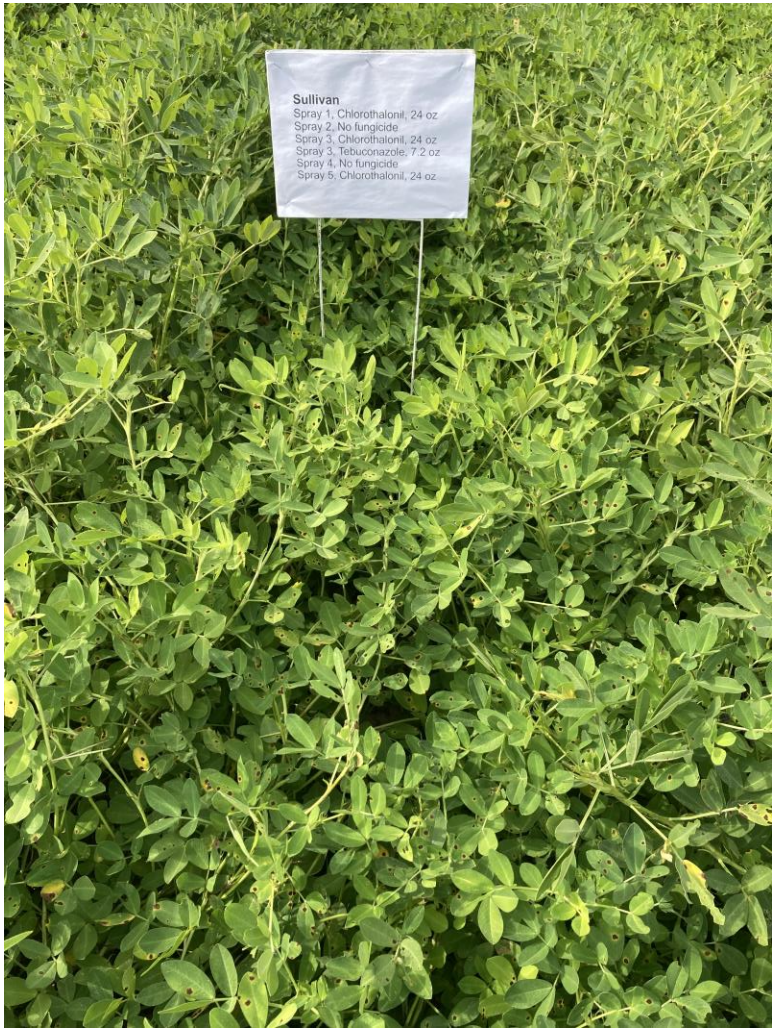
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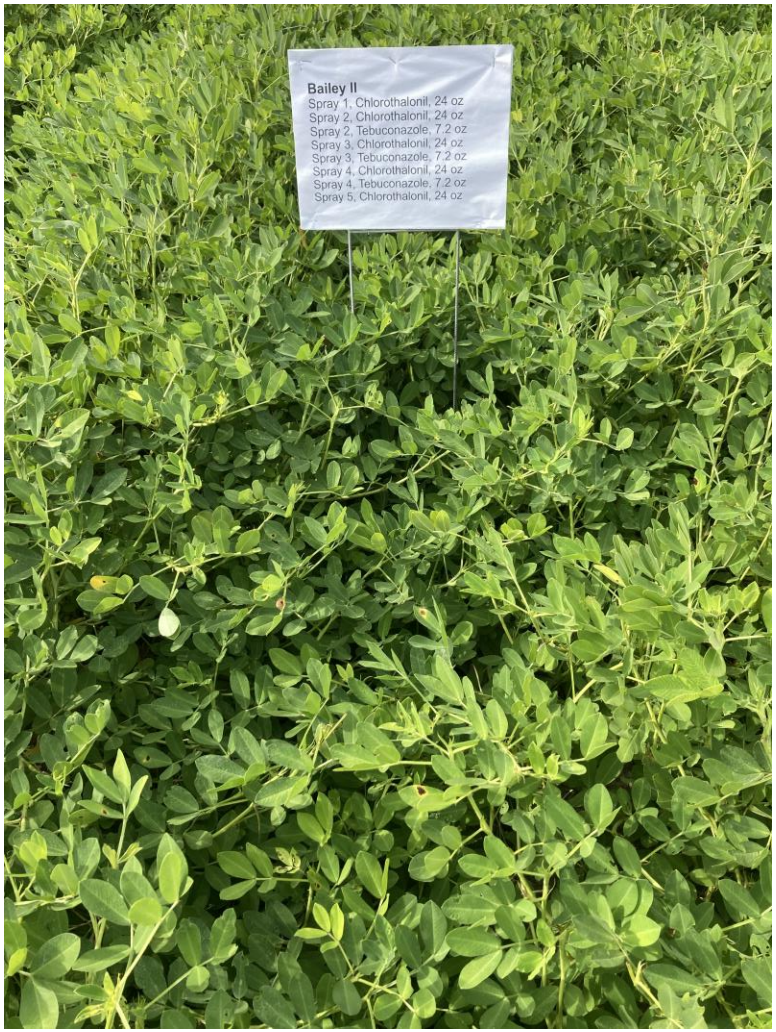
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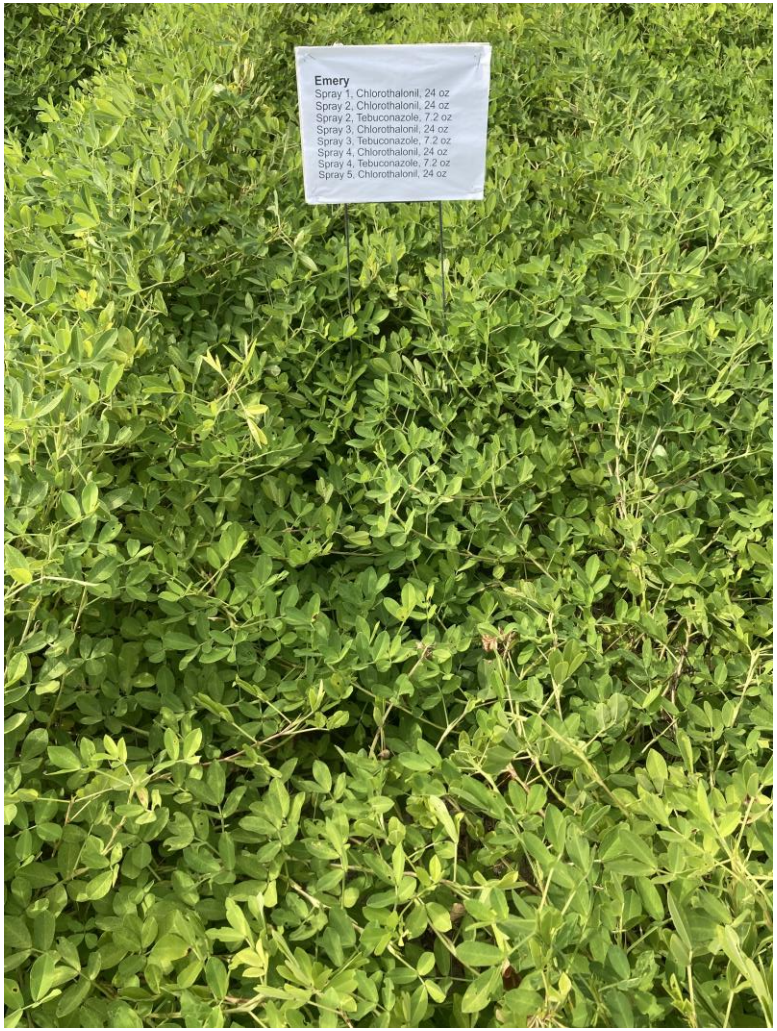
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Peanut Yield (pounds per acre) with Fungicides and Varieties

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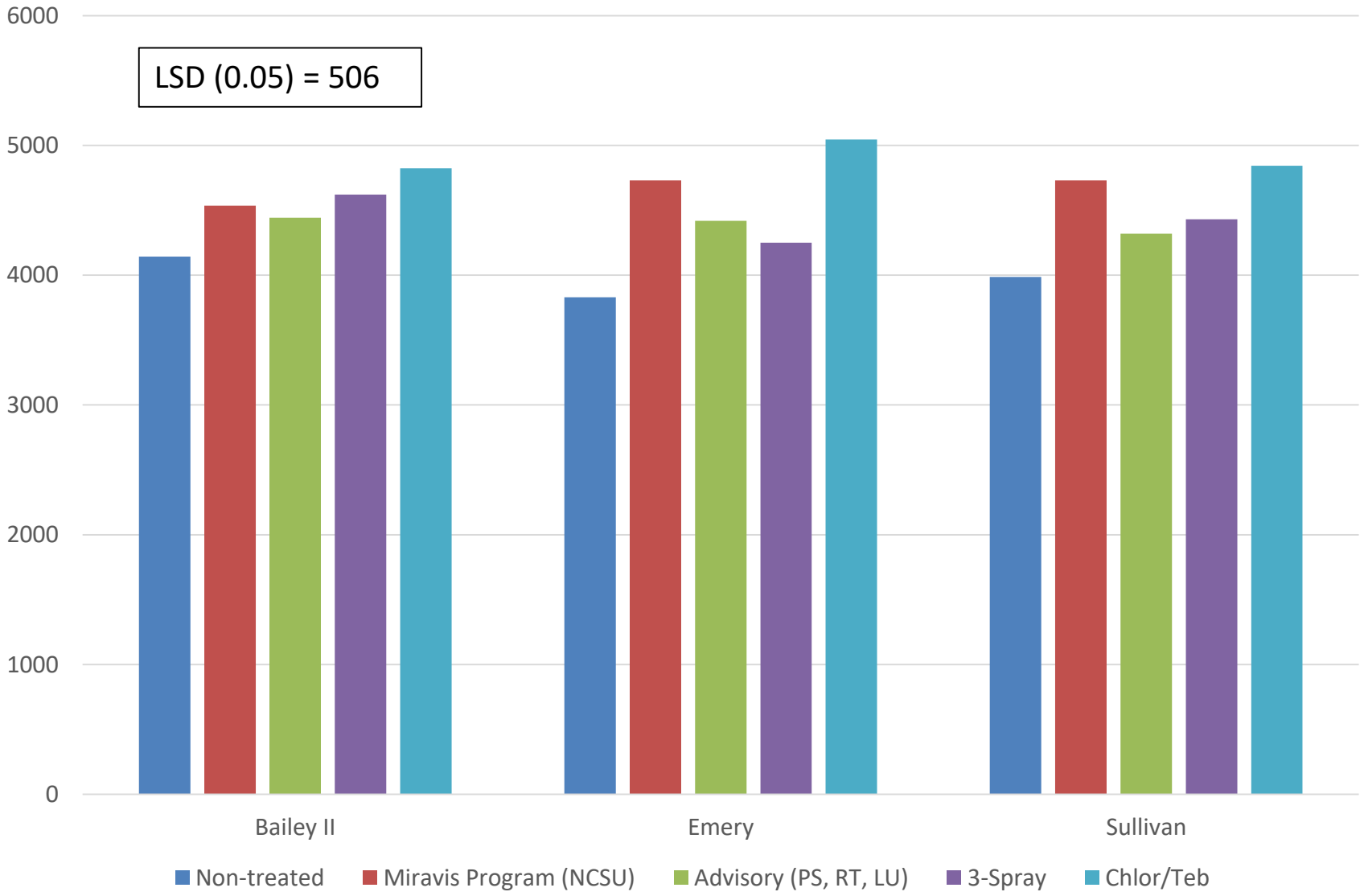

Summary

- Emery was more susceptible to leaf spot than Bailey II or Sullivan – Bailey II was less susceptible than Sullivan
- Miravis program (NCSU) and Advisory program (Provost Silver, Revytek, Lucento) did well
- Chlorothalonil plus tebuconazole did really well (possible issues with this program include flaring spider mites and Sclerotinia blight with this much chlorothalonil **and** the 14-day interval needs to be tight – but the cost is great)