

# ***Improving Peanut Production and Pest Management Recommendations through Applied Research***

## **Proposal for 2023 season**

### **Project Investigator:**

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### **Cooperators:**

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Peanut Agronomists and Weed Scientists in other states

## ***Improving Peanut Production and Pest Management Recommendations Through Applied Research***

Objective 1. To develop solutions to agronomic issues associated with peanut production in North Carolina

Objective 2. To cooperate with the plant pathologist, entomologist, and plant breeder at NCSU to refine IPM strategies for peanut in North Carolina

Objective 3. To conduct appropriate research to develop weed management strategies for traditional and herbicide resistant weeds in peanut in North Carolina

Objective 4. To continue rotation and tillage trials in order to develop more effective cropping systems

Objective 5. Assisting Cooperative Extension Service agents with pod maturity clinics

Objective 6. Enhancing Cooperative Extension Service agent expertise in managing peanut

**Total Budget - \$30,000**

Salary for Graduate Student

Benefits for Graduate Student

Supplies and Materials

***Optimizing Peanut Production and Pest  
Management Through Applied Research  
and Extension Activities***

Summary for 2022 season

## **Objective 1. To develop solutions to agronomic issues associated with peanut production in North Carolina (12 trials)**

Peanut Response to Planting Date (1)

Peanut Response to Kudos (3)

Peanut Response to Inoculants (3)

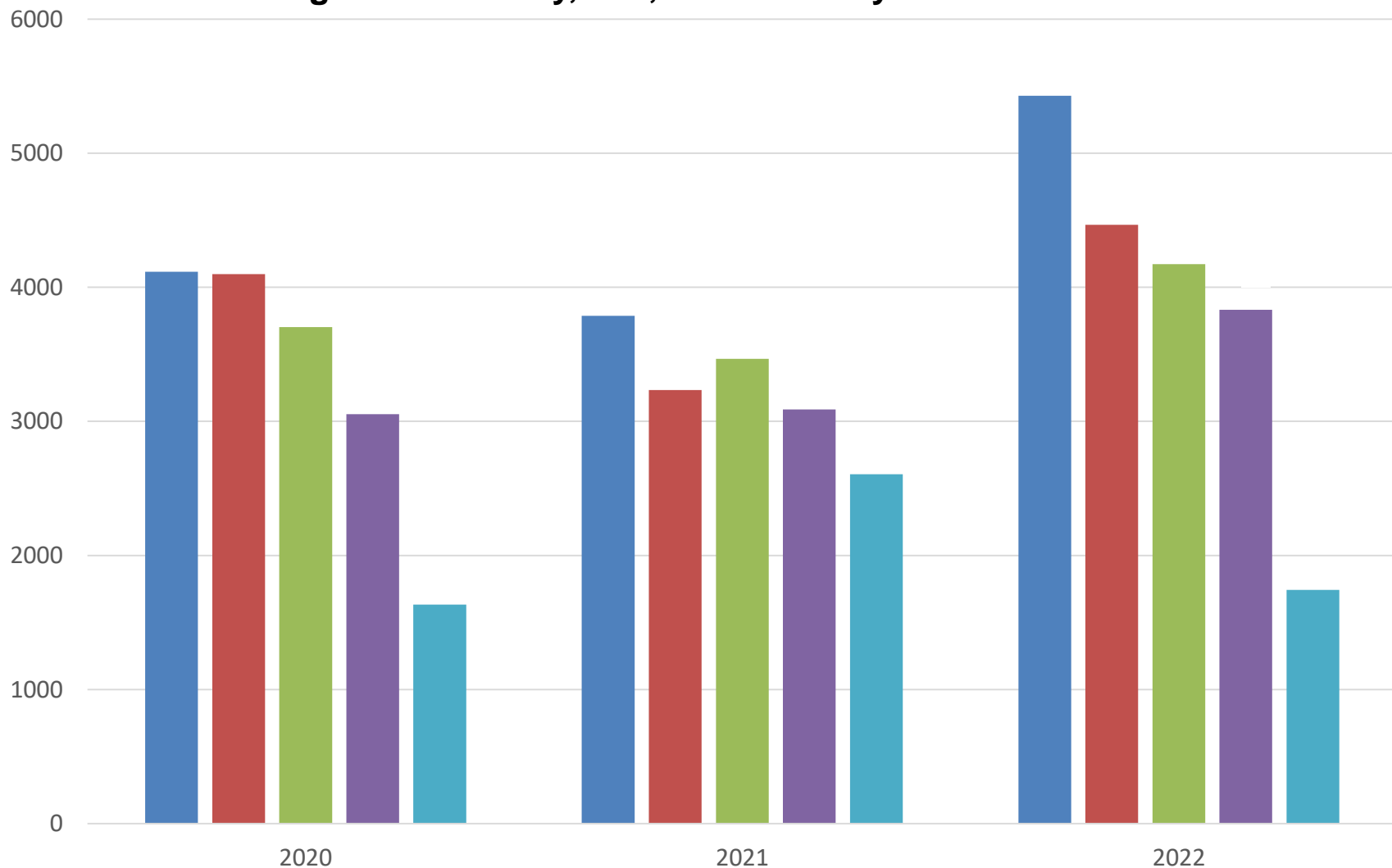
Peanut Response to Soil Stimulants and Micronutrients (3)

Yield of Varieties under Drip Irrigation (1)

Peanut Response to Mepiquat Chloride (1)

# Peanut Yield (pounds per acre) for Bailey II on Five Planting Dates in 2020, 2021, and 2022

Left to right bars – Early, Mid, and Late-May and June 15 and 30



## **Objective 2. To cooperate with the plant pathologist, entomologist, and plant breeder at NCSU to refine IPM strategies for peanut in North Carolina (24 trials)**

Influence of Rye Cover Crop on Pest Management in Peanut (2)

Influence of Rye Cover Crop on Leaf Spot Control Comparing Chlorothalonil and Sulfur (2)

Influence of Variety on Leaf Spot Control with Various Fungicide Programs (4)

Nematode Suppression with Propulse (1)

Thrips Control with In-furrow and Postemergence Systemic Insecticides (1)

Duration of Leaf Spot Control with Miravis (3)

Duration of Leaf Spot Control with Miravis Applied to Different Varieties (2)

Southern Corn Rootworm Control with Foliar Insecticides (9)





## Efficacy and Economics of Foliar-Applied Insecticides for Southern Corn Rootworm<sup>a</sup>

Treatment	Pod damage	Peanut yield	Economic return <sup>b</sup>
	%	lbs/acre	\$/acre
Non-treated control	3.0 ab	4,244 a	178 a
Steward, 11 oz/acre, 3 applications (\$75/acre)	3.3 a	4,333 a	124 b
Brigade, 6 oz/acre, 3 applications (\$12/acre)	2.0 b	4,294 a	178 a

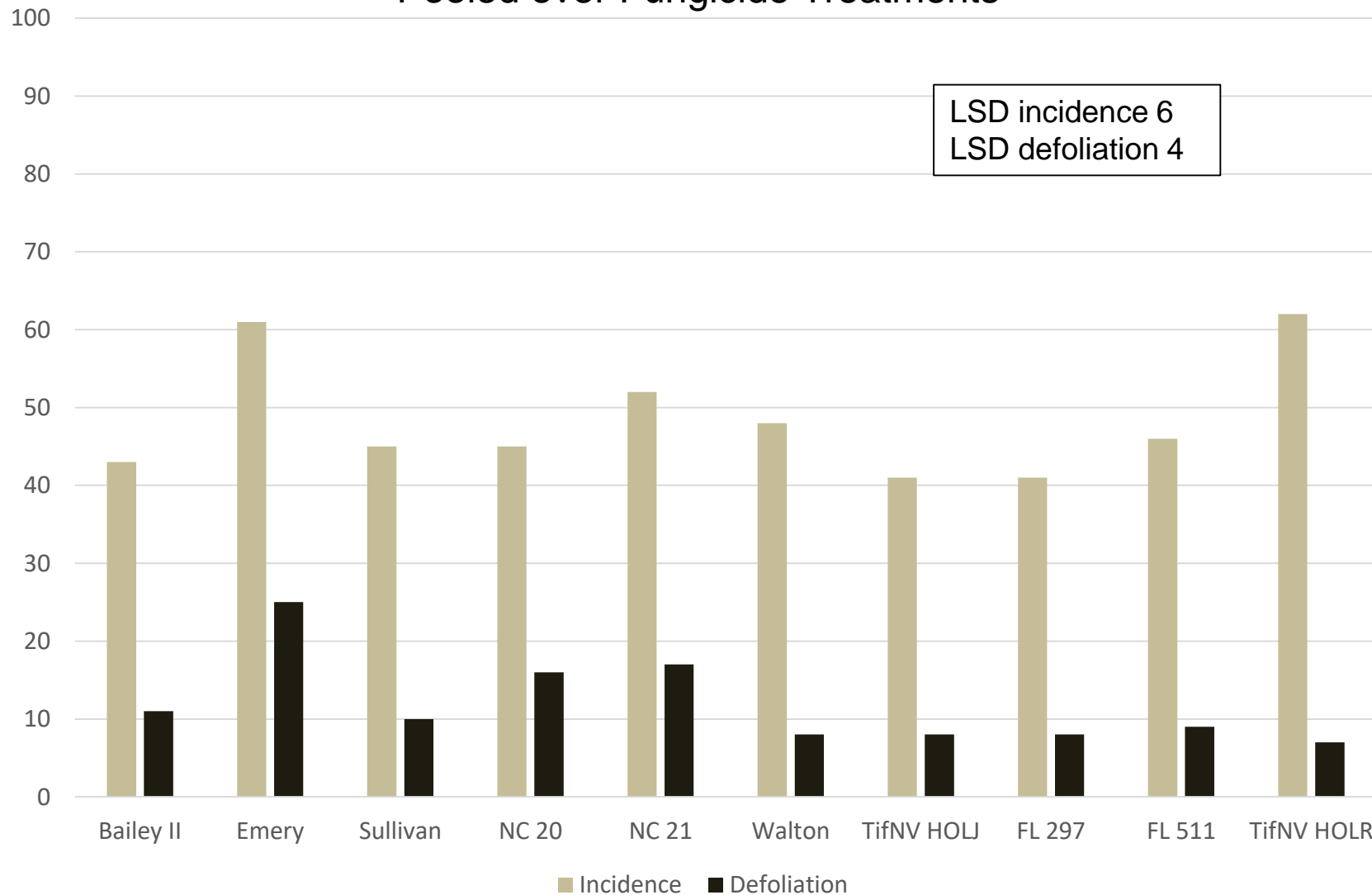
<sup>a</sup>Data are pooled over 9 trials.

<sup>b</sup>Base cost of \$832/acre less drying and hauling costs. Peanut price set at \$535/ton.



# Leaf Spot Incidence and Canopy Defoliation in Late September as Influenced by Variety Selection

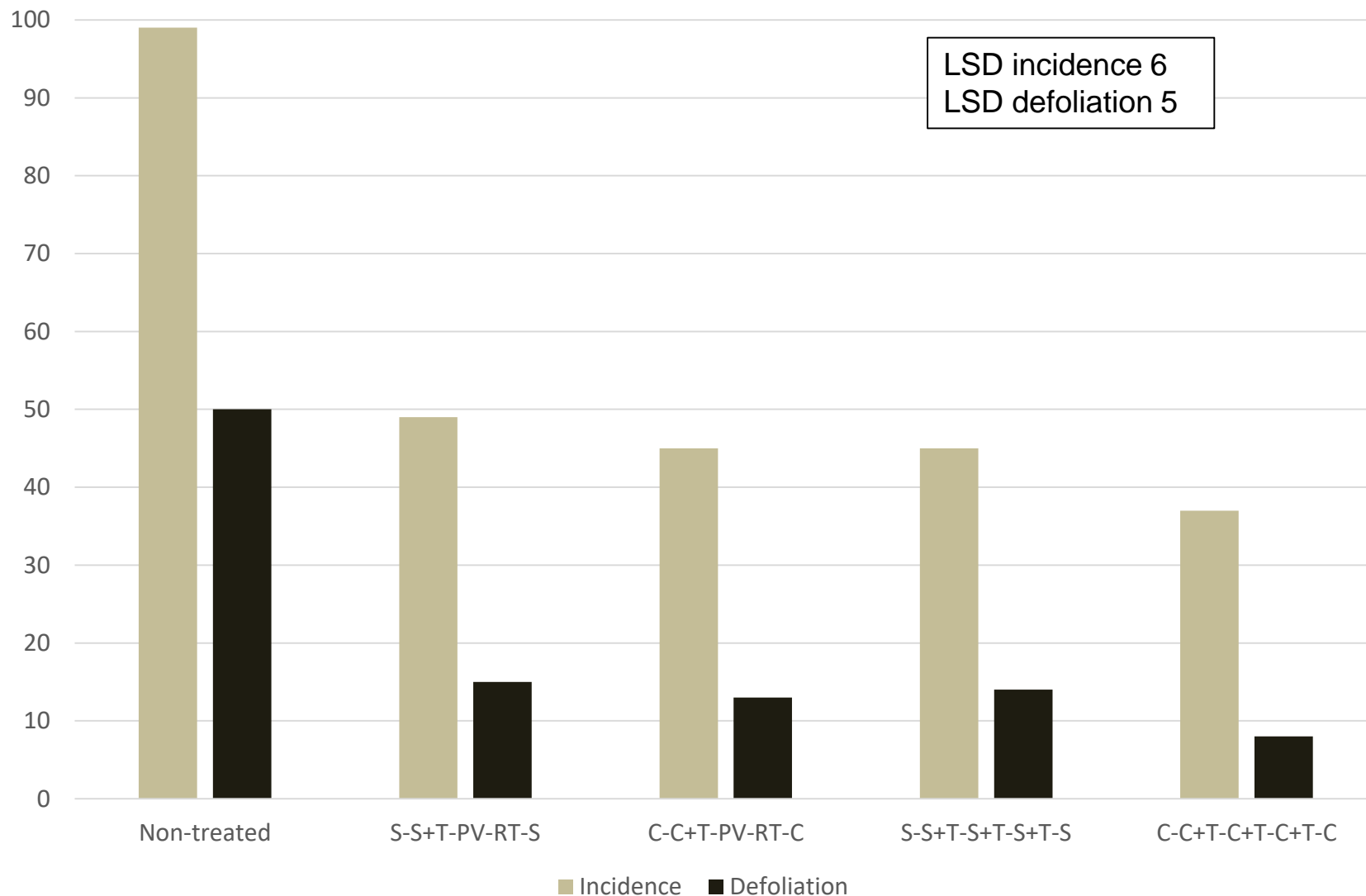
## Pooled over Fungicide Treatments



# Leaf Spot Incidence and Canopy Defoliation at Digging as Influenced by Fungicides

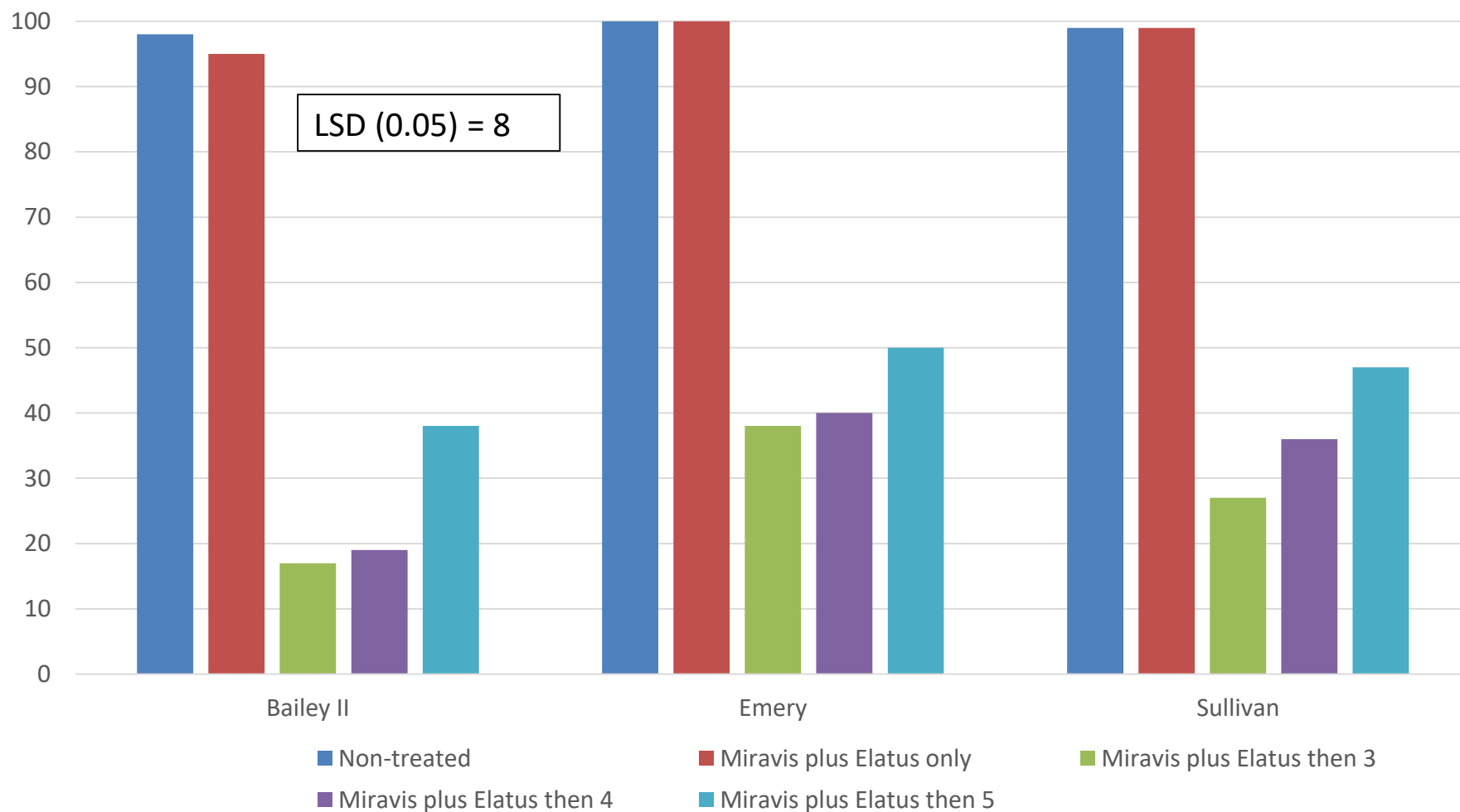
Pooled over Varieties

Abbreviations: C, Chlorothalonil; PV, Provost Silver; RT, Revytek; S, Sulfur; T, Tebuconazole



## Incidence of Leaf Spot (%) at Harvest

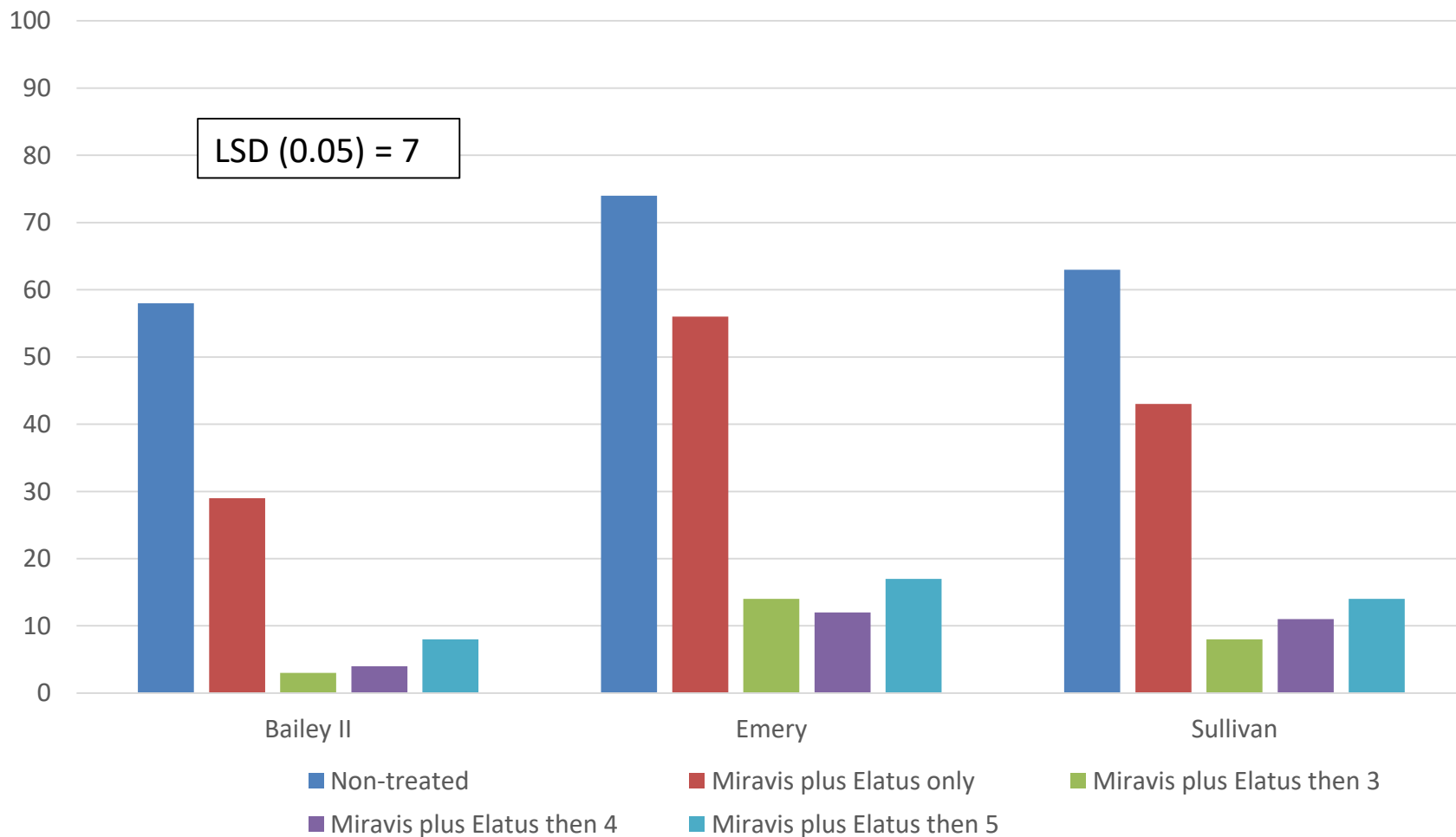
Data are pooled over five trials (2021 and 2022)





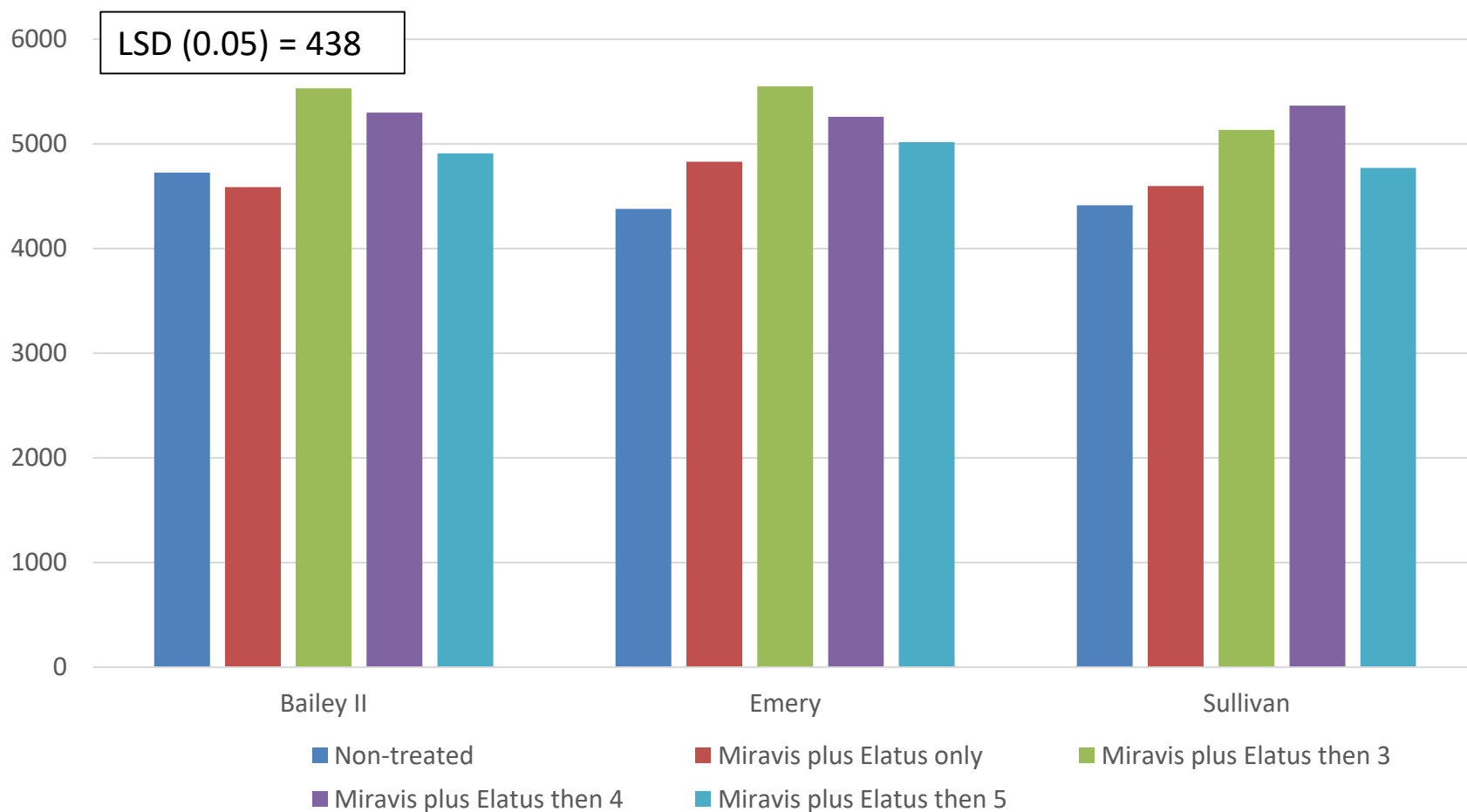
## Defoliation (%) at Harvest

Data are pooled over five trials (2021 and 2022)



# Peanut Yield (lbs/acre)

Data are pooled over five trials (2021 and 2022)





## Crop Practices

Cultivar	Bailey
Plant Density	1 to 2 plants/row ft.
Planting Date	May 03
Row Pattern	Single (32 to 38 inches)

## Field

Borders Early Season	Clean
Borders Late Season	Mowed
Irrigation	Irrigated
Previous Weed Control	Good
Seedbed	Conventional
Weeds	C. Ragweed and Palmer A. (ALS and PPO Resistant)

## Field Crop History

1 Year Ago	Cotton
2 Years Ago	Sorghum
3 Years Ago	Sorghum
4 Years ago	Soybean

## Field Soil

Drainage Class	Well
pH	6.2
Texture	Loam

## Leaf Spot Management

Chorothalonil Application	3 or more
Spray Schedule	Advisory throughout season

## Nematode History

Northern Rootknot	Very Low (NCDA Index < 20)
Peanut Rootknot	Very Low (NCDA Index < 20)
Sting	Very Low (NCDA Index < 20)

## Pest

Host Crops	Field Corn
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## Pest History

Risk



## Arthropod

	Index	Low	Med	High
Southern Corn Rootworm	95	●●●●●	●●●●●	●●●●●
Spider Mites	70	●●●●●	●●●●●	●●●●●
Thrips	65	●●●●●	●●●●●	●●●●●

## Disease (Foliar)

	Index	Low	Med	High
Early/Late Leaf Spot	58	●●●●●	●●●●●	●●●●●
Tomato Spotted Wilt Vir	100	●●●●●	●●●●●	●●●●●

## Disease (Soil Borne)

	Index	Low	Med	High
Cylindrocladium Black R	65	●●●●●	●●●●●	●●●●●
Sclerotinia	130	●●●●●	●●●●●	●●●●●
Southern Stem Rot	50	●●●●●	●●●●●	●●●●●

## Nematode

	Index	Low	Med	High
Northern Rootknot	25	●●●●●	●●●●●	●●●●●
Peanut Rootknot	32	●●●●●	●●●●●	●●●●●
Sting	45	●●●●●	●●●●●	●●●●●

## Plant

	Index	Low	Med	High
Weeds	155	●●●●●	●●●●●	●●●●●

Red Dots - Change practices to eliminate.

Yellow Dots - Consider adjusting practices to reduce risk.

Green Dots - Risk is acceptable for selected practices.

Estimated Cost: \$866/ac



Create Production Log

Ready



2:02 PM

11/13/2020





**Objective 3. To conduct appropriate research to develop weed management strategies for traditional and herbicide resistant weeds in peanut in North Carolina (5 trials)**

Evaluations of Anthem Flex and other Residual Herbicides (2)

Influence of Previous Cropping System and Herbicides on Weed Populations in Peanut (2)

Impact of 2,4-DB on seed production by sicklepod (1)

## **Objective 4. To continue rotation and tillage trials in order to develop more effective cropping systems (6 trials)**

Determining Peanut Yield in Long-term Cropping System Trials with Corn, Cotton, Peanut, and Soybean (2)

Determining Peanut Yield in Tillage and Rotation Trials Including Corn, Cotton, and Peanut (2)

Determining Peanut Yield in Cropping System Trials Including Tall Fescue and Agronomic Crops (2)

## Objective 5. Assisting NC State Extension agents with pod maturity clinics



# Objective 6. Enhancing Cooperative Extension Service agent expertise in managing peanut

*Peanut Notes (241 to date), In-service training sessions, APRES, Field Days*

The screenshot shows a web browser window displaying the "Peanut | NC State Extension" website. The address bar shows "peanut.ces.ncsu.edu". The website has a red sidebar on the left with the following navigation links: "Peanut Risk Tool and Field Log", "Crop Enterprise Budgets", "Equipment Information" (with a sub-link "Peanut Digger-Shaker-Inverter (DSI)"), "Field Days" (with sub-links "2020 NC Peanut Virtual Field Day 2020" and "CHROME Field Day"), "Peanut Notes" (with sub-links "2018 Peanut Notes", "2016 Peanut Notes", and "2015 Peanut Notes ..."), "Pest Management", "Field Crops", "Resources", "Department Extension Sites" (with sub-links "Biological and Agricultural Engineering" and "Crop and Soil Sciences Entomology ..."), and "Extension Agent Information". The main content area has a header "News and Updates" and a "en Español" link. It features six news items in a grid:

- V-C Crop Report November 10 Peanut Notes No. 241 2022**  
The following link includes the final report for the peanut crop in the region for 2022. JLA 14 2022 ...  
— 4 days ago
- Summary of a Leaf Spot Control Trial With Varieties and Sulfur Peanut Notes No. 240 2022**  
The following link includes a summary of a trial with 10 varieties with 5 fungicide treatments. The primary goal ...  
— 4 days ago
- Summary of Leaf Spot Control Trials with Varieties and Fungicides Peanut Notes No. 239 2022**  
The following information includes results from 2021 and 2022 (5 trials) with 5 fungicides programs used for Bailey II, ...  
— 1 week ago
- Planting Date Summary 2020 - 2022 Peanut Notes No. 238 2022**  
A summary of planting date trials for Bailey II are presented at the following link: Planting Date Summary in 2020, ...  
— 3 weeks ago
- V-C Crop Report October 27 Peanut Notes No. 237 2022**  
The most recent crop report for the region can be found at the following link: JLA 13 ...  
— 3 weeks ago
- Summary of Trials 2019 - 2022 With Miravis Sprays Peanut Notes No. 236**  
The following slide set contains a summary of trials designed to determine the most effective follow up spray interval ...

The Windows taskbar at the bottom shows the date and time as 1:39 PM 11/14/2022, and the weather as 50°F Sunny.

## ***Optimizing Peanut Production and Pest Management Through Applied Research and Extension Activities - 2022***

Peer-reviewed articles related to peanut production and pest management (4)

Abstracts and Proceedings (11)

Extension Chapters and Bulletins, new and revised (11)