Optimizing Peanut Production and Pest Management through Applied Research and Extension Activities

Project Investigator:

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Cooperators:

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Barbara Shew, Department of Entomology and Plant Pathology

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Gary Roberson, Department of Biological and Agricultural Engineering

Dan Anco, Clemson

Maria Balota, Virginia Tech

Peanut Agronomists and Weed Scientists in other states

Objective 1. To develop solutions to agronomic issues associated with peanut production in North Carolina (16 trials)

Peanut Variety Response to Digging Date (1)

Peanut Response to Planting Date (1)

Yield of Virginia and Runner Market Types (1)

Peanut Response to Apogee and Digging Speed (1)

Peanut Response to Number of Apogee Applications (4)

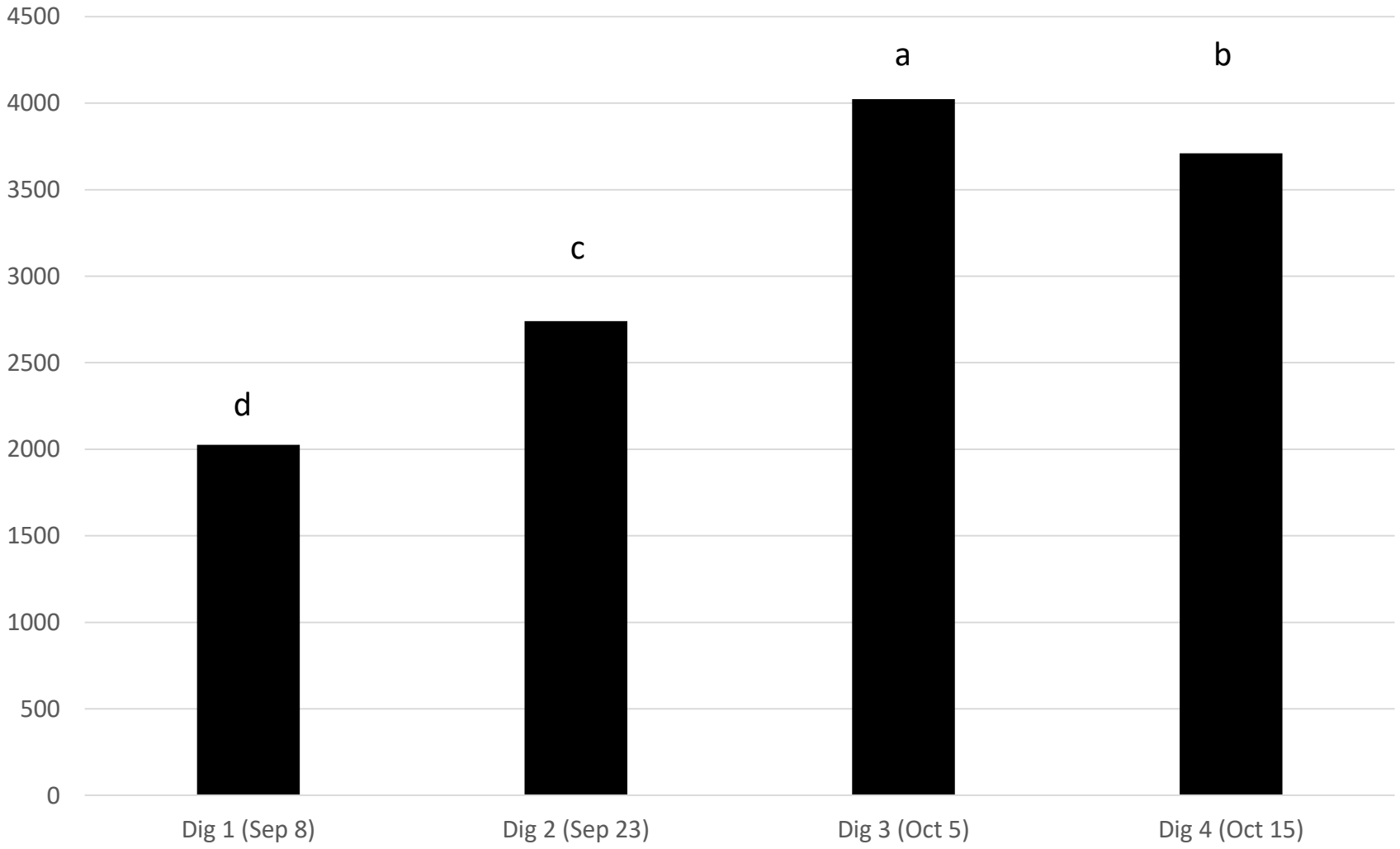
Peanut Response to Inoculants (4)

Peanut Response to Gypsum Products (1)

Peanut Response to Foliar Fertilizer (3)

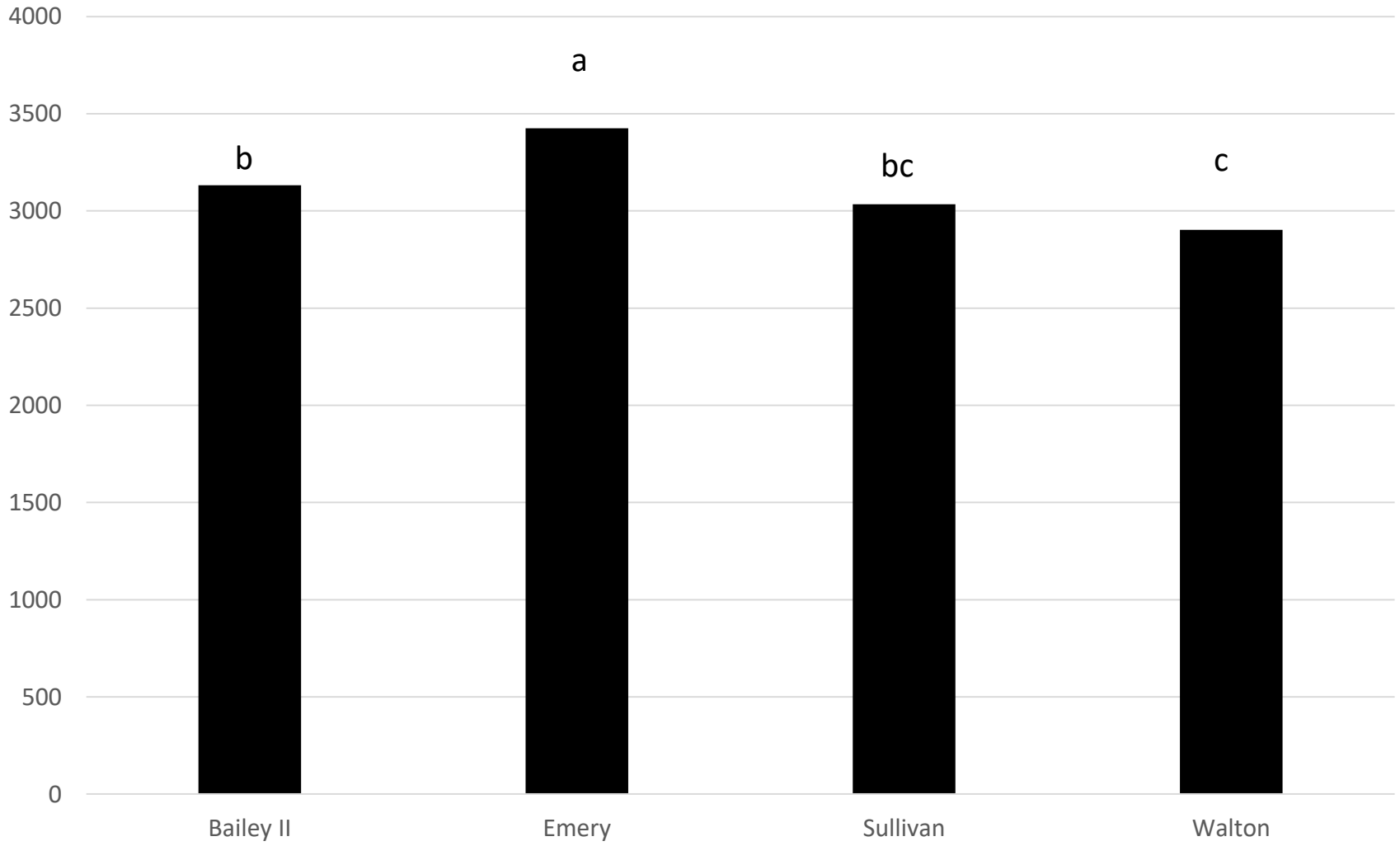
Peanut Yield (pounds per acre) for Four Digging Dates

Data are pooled over 4 varieties in 2021

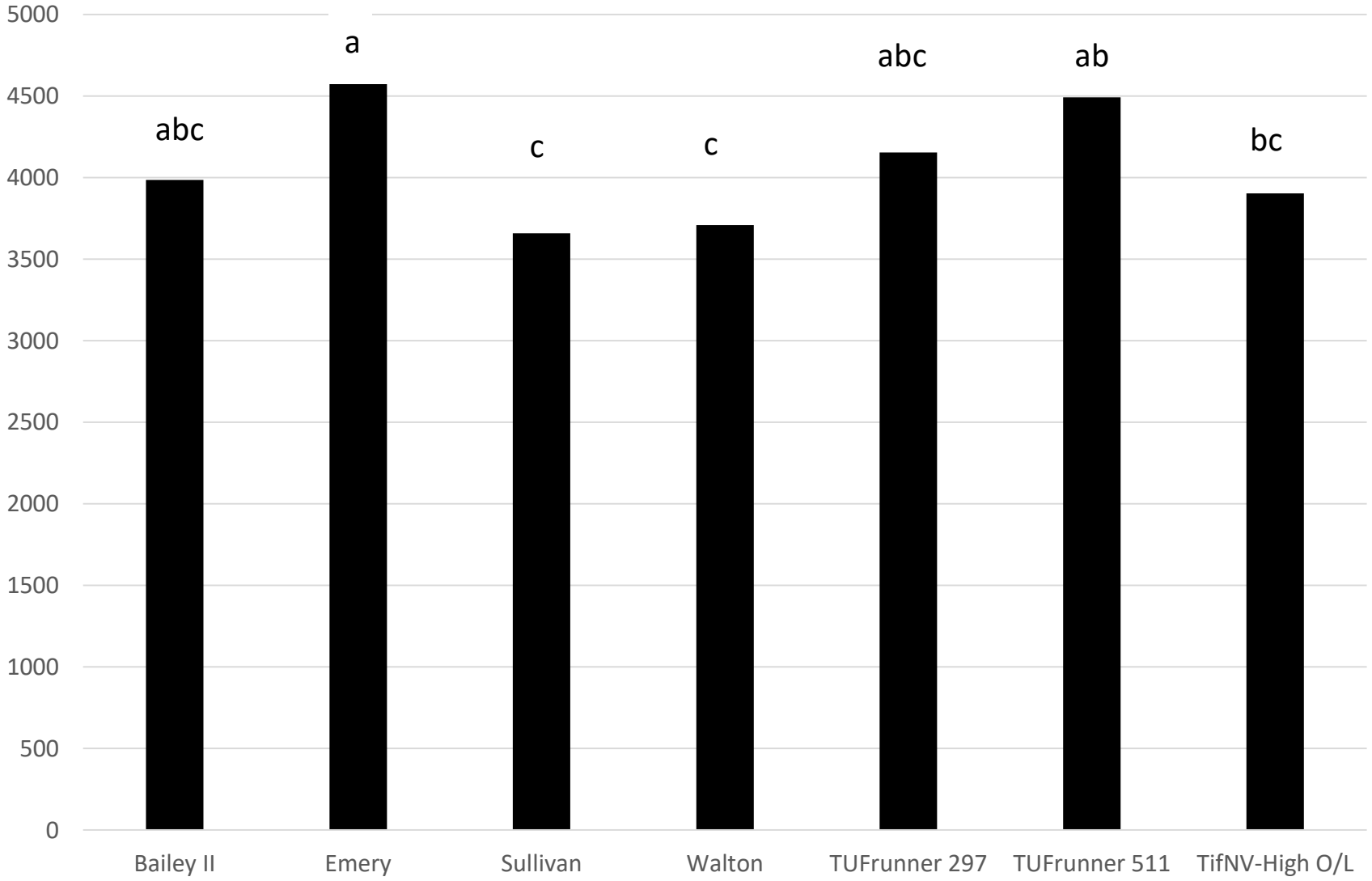


Peanut Yield (pounds per acre) for Bailey II, Emery, Sullivan and Walton

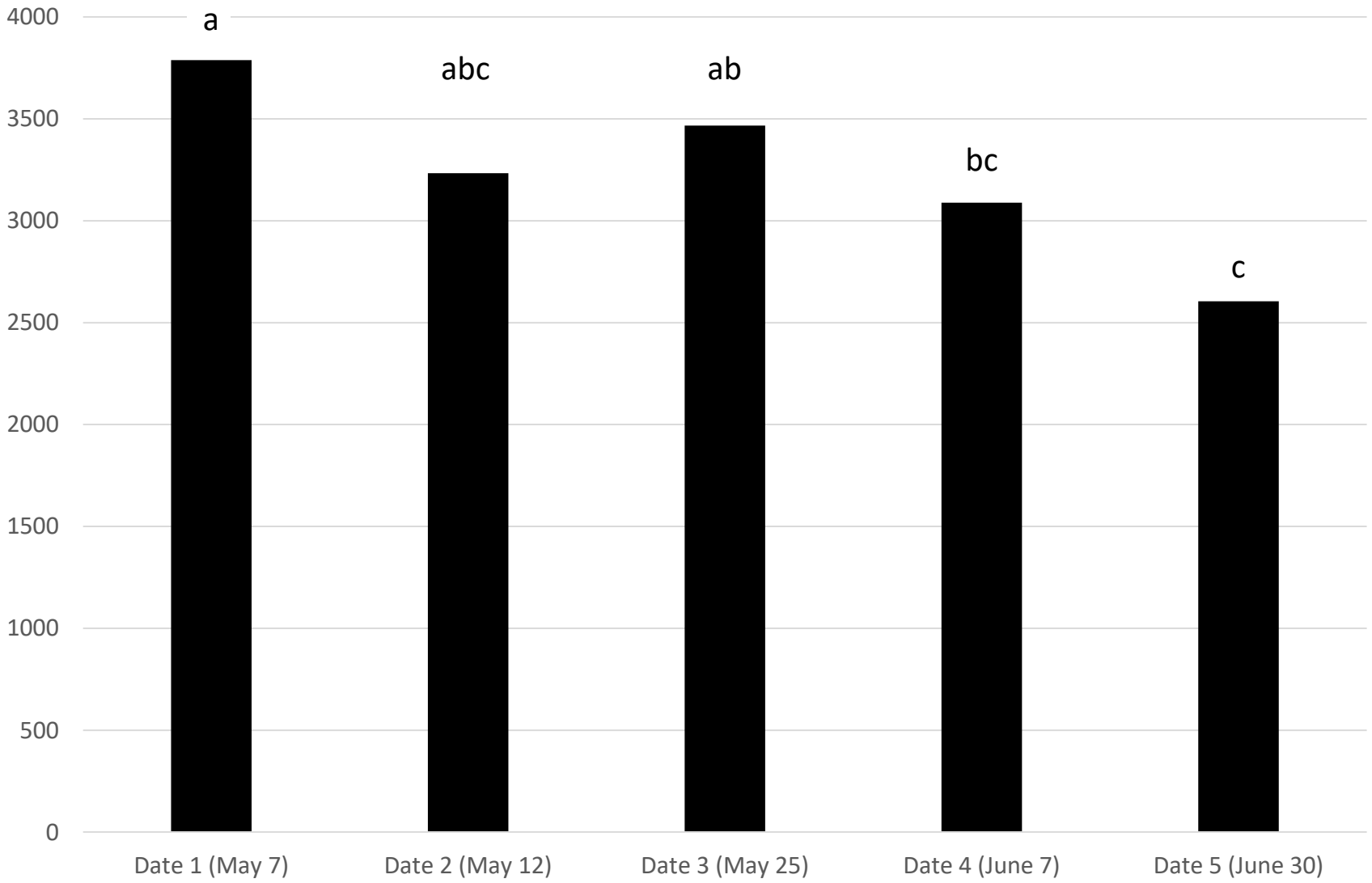
Data are pooled over 4 digging dates in 2021



Peanut Yield (pounds per acre) of Virginia and Runner Market Type Peanut Varieties



Peanut Yield (pounds per acre) for Bailey II on Five Planting Dates in 2021



Objective 2. To cooperate with the plant pathologist, entomologist, and plant breeder at NCSU to refine IPM strategies for peanut in North Carolina (16 trials)

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

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

Interactions of Acephate and Contact and Residual Herbicides (2)

Leaf Spot Control with Fungicides Applied to Bailey II, Emery and Sullivan (3)

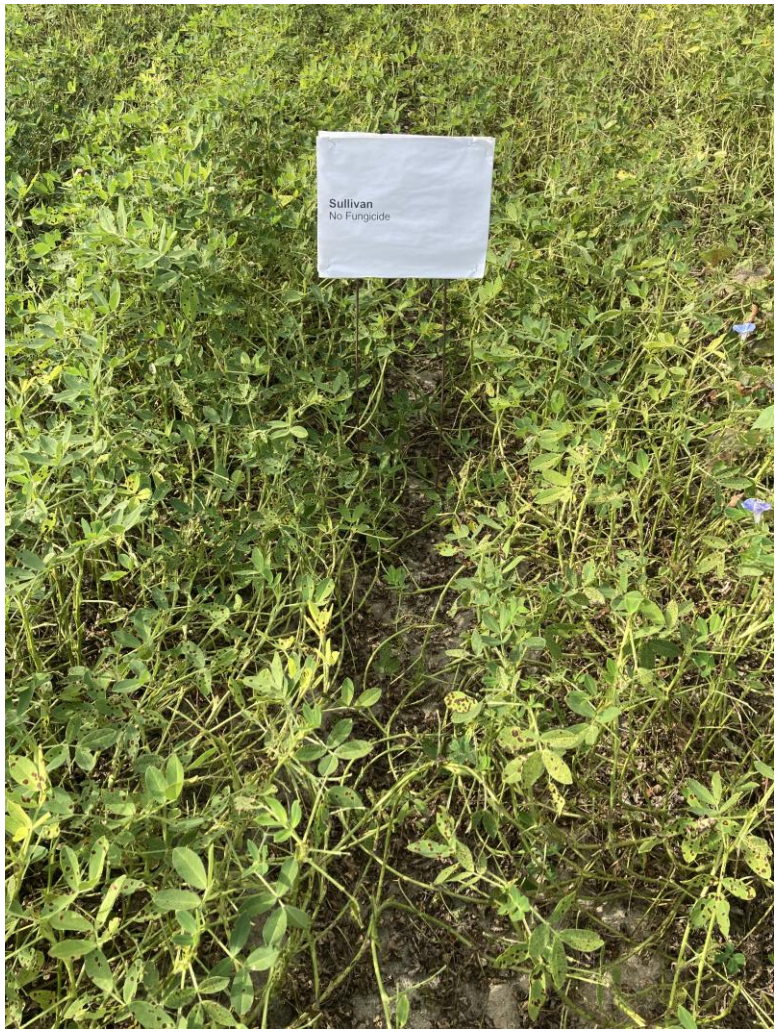
Duration of Leaf Spot Control with Miravis (3)

Duration of Leaf Spot Control with Miravis Applied to Different Varieties (3)

Season-Long Pest Management using TTI and Flat Fan Nozzles (2)

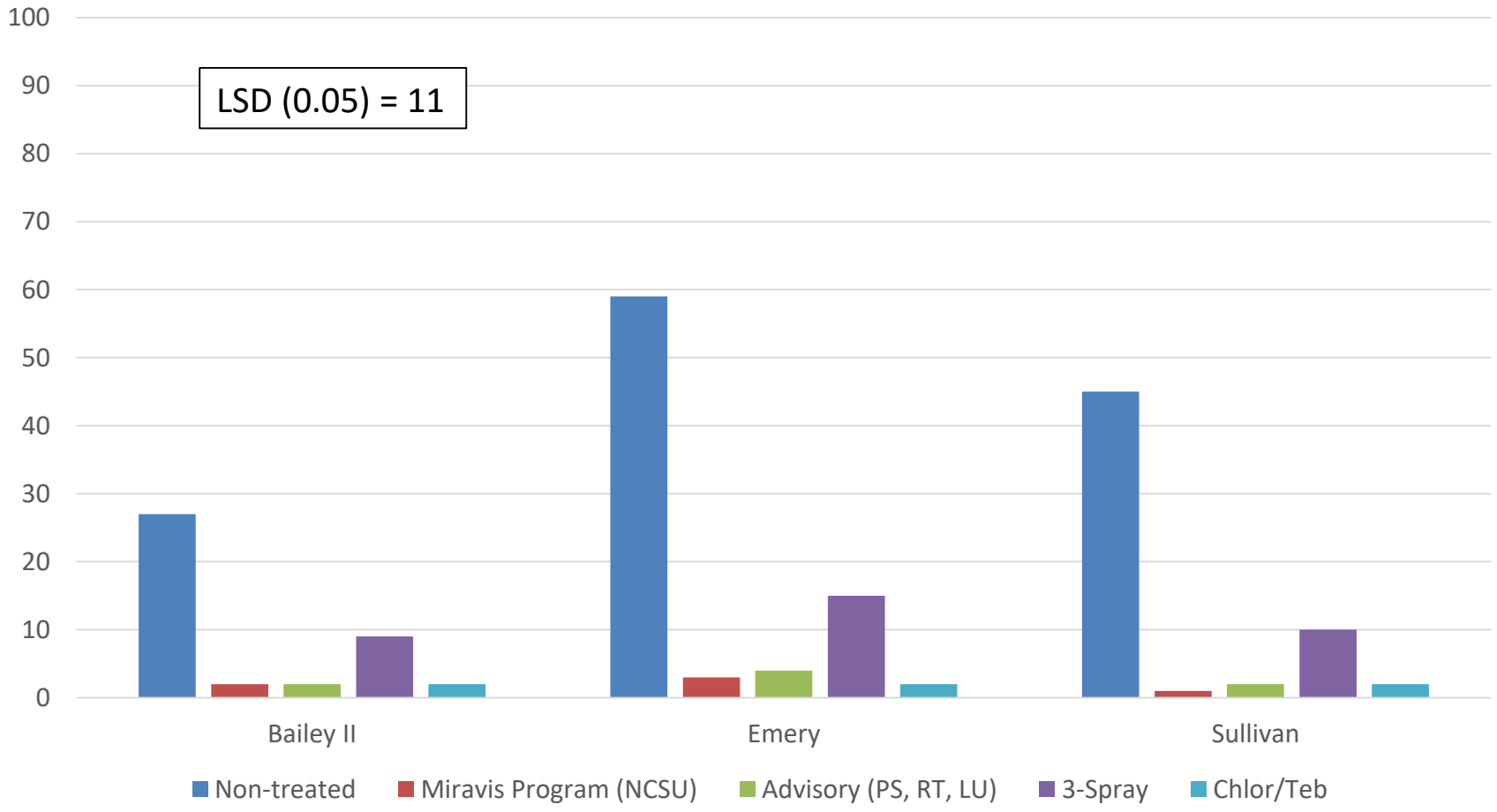

Bailey II
No Fungicide


Emery
No Fungicide


Sullivan
No Fungicide

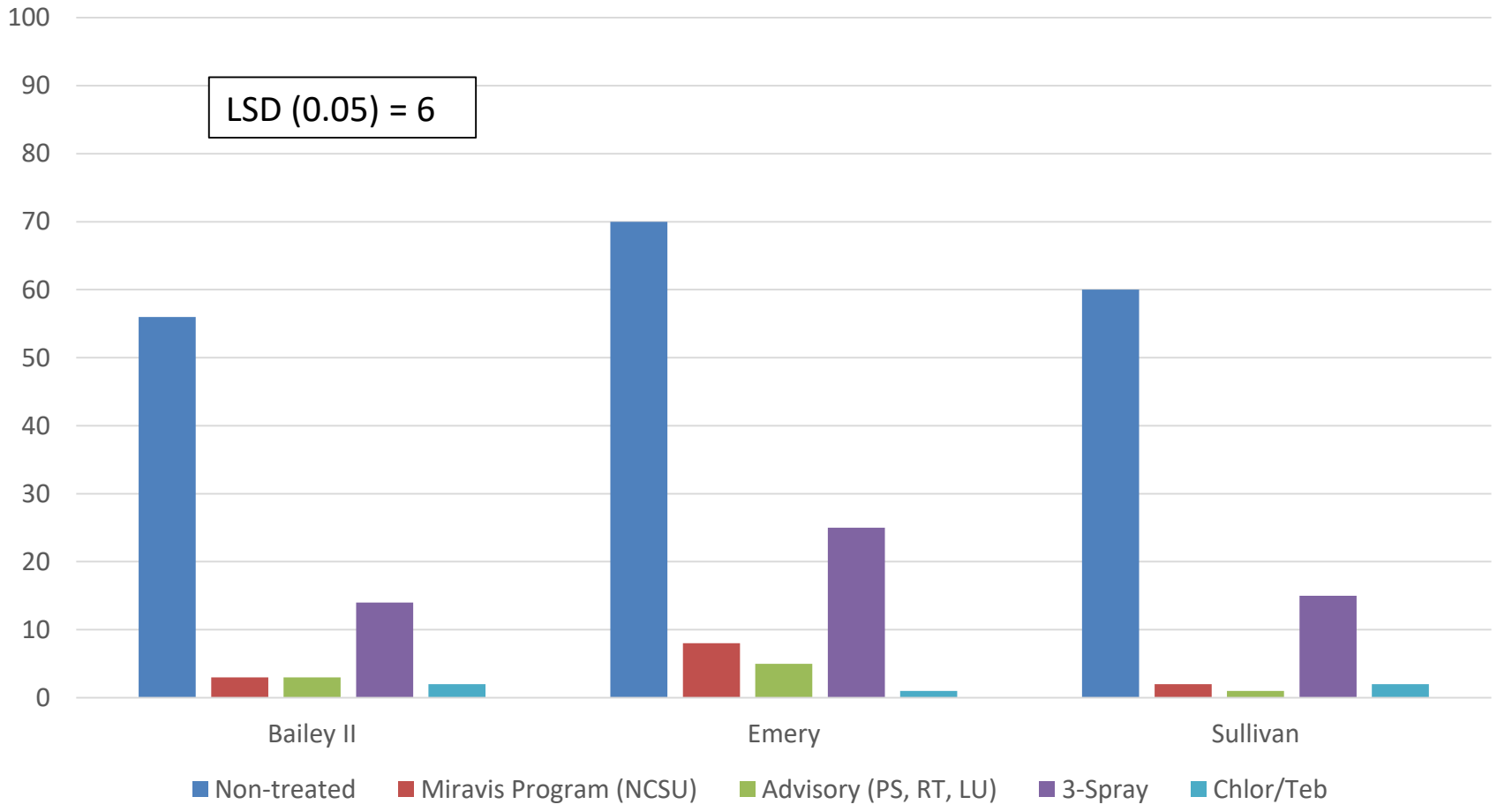
Leaf Spot Incidence (Percent of Leaves with Lesions) 10 Days Before Harvest

Data are pooled over three locations in 2021



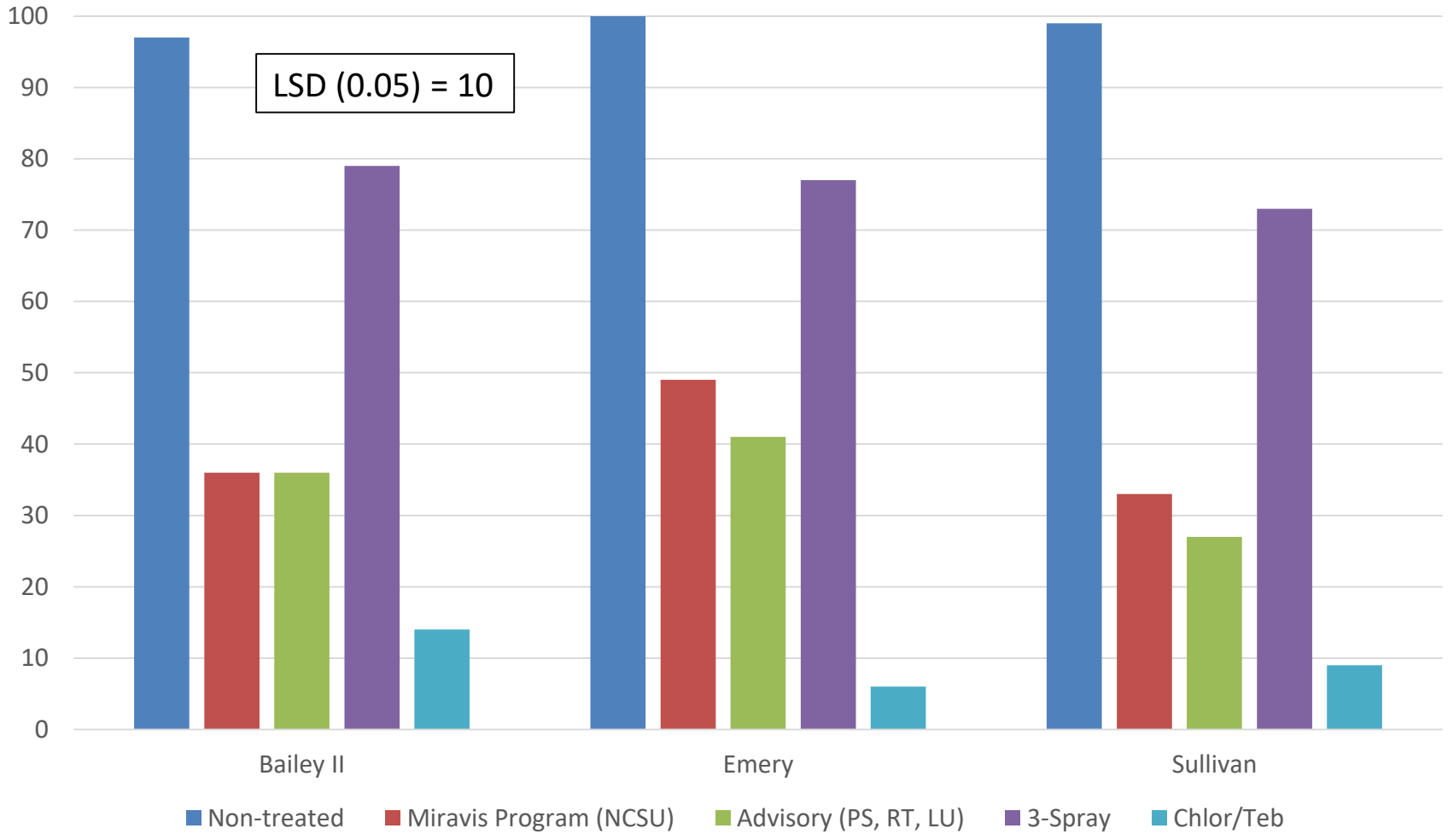
Canopy Defoliation (Percent of Leaves Lost) 10 Days Before Harvest

Data are pooled over three locations in 2021



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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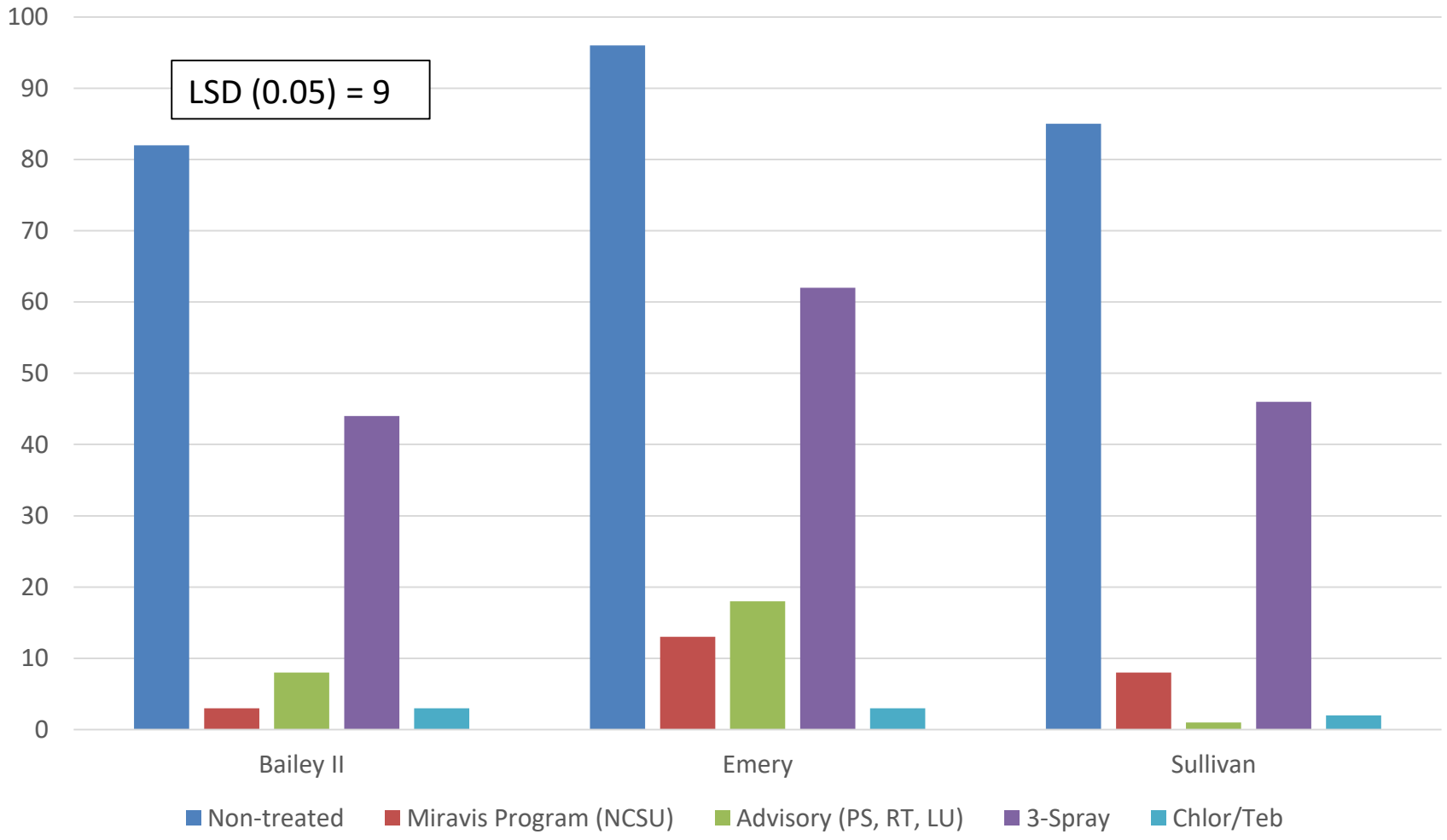
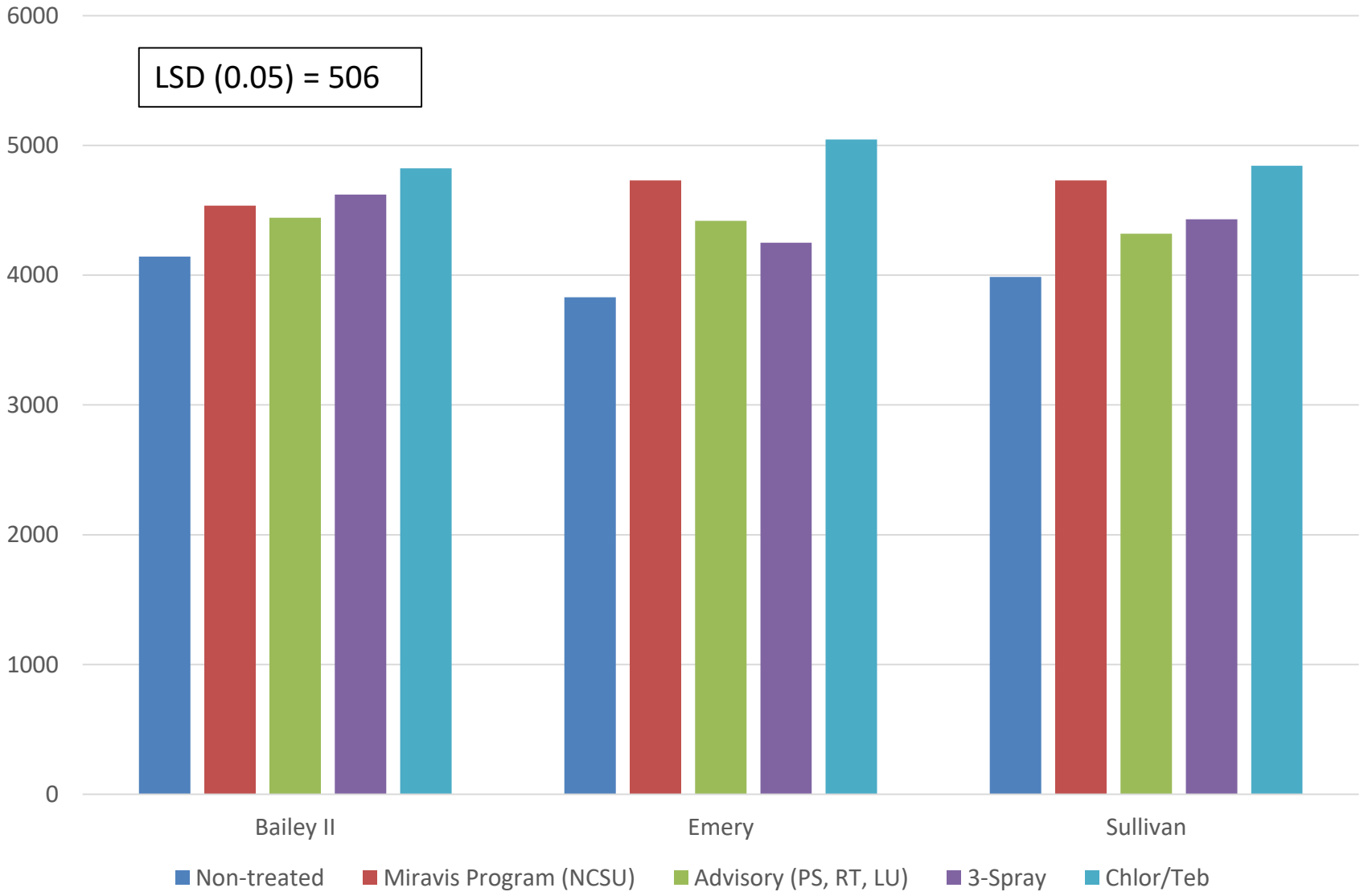
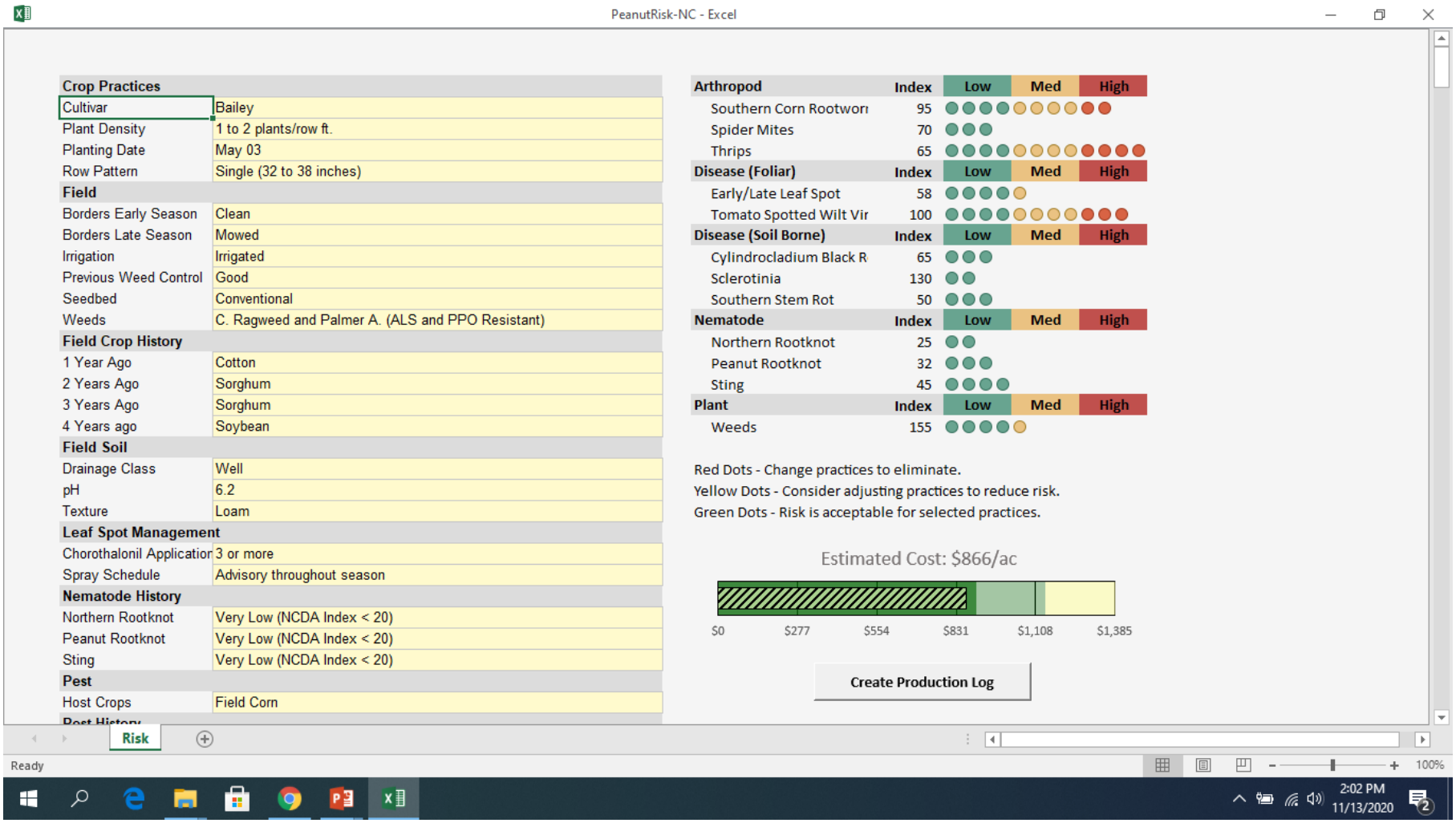


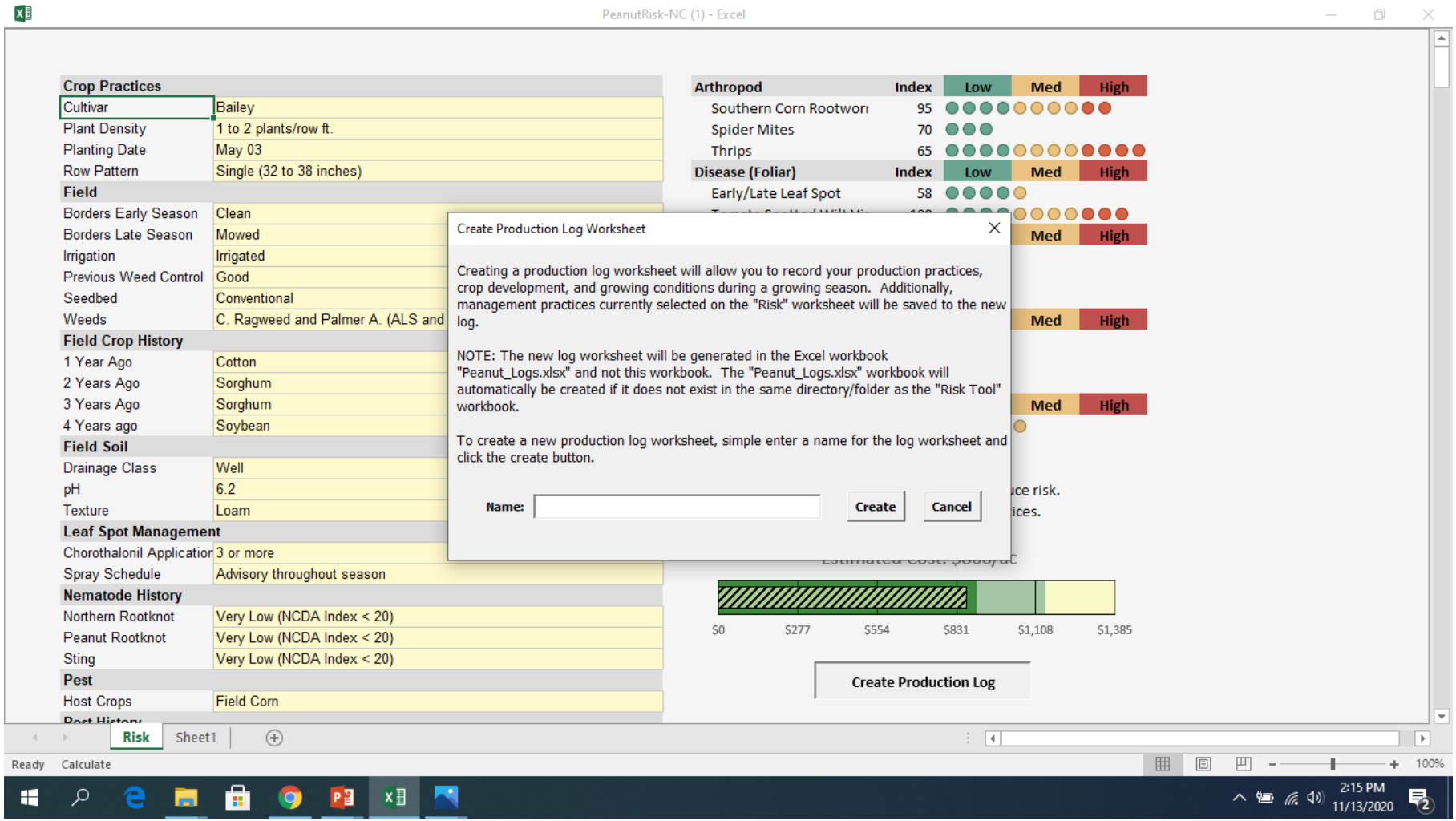
Peanut Yield (pounds per acre) with Fungicides and Varieties

Data are pooled over three locations in 2021




PeanutRisk-NC (1) - Excel
File
Home
Insert
Sign in
Share
Cut
Copy
Format Painter
Paste
Clipboard
Sort & Filter
Find & Select
sel_Crop_...
Crop Practices
Cultivar
Plant Density
Planting Date
Row Pattern
Field
Borders Early Season
Borders Late Season
Irrigation
Previous Weed Contr
Seedbed
Weeds
Field Crop History
1 Year Ago
2 Years Ago
3 Years Ago
4 Years ago
Field Soil
Drainage Class
pH
Texture
Leaf Spot Managen
Risk
Ready
100%
2:02 PM
11/13/2020
FEED THE FUTURE
The U.S. Government's Global Hunger & Food Security Initiative
Peanut Risk Management Tool - North Carolina
David Jordan, Greg Buol, and Gail Wilkerson
Department of Crop and Soil Sciences
Barbara Shew and Rick Brandenburg
Department of Entomology and Plant Pathology
North Carolina State University, Raleigh NC
Press 'Enter' or 'Click' Here to Use the Risk Tool
Editor's Password:
USAID
FROM THE AMERICAN PEOPLE
NC STATE UNIVERSITY
North Carolina Peanut Growers Association, Inc.
Peanut Innovation Lab
College of Agricultural & Environmental Sciences
UNIVERSITY OF GEORGIA


PeanutRisk-NC - Excel
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
Arthropod Index Low Med High
Southern Corn Rootwor 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
$0 $277 $554 $831 $1,108 $1,385
Create Production Log
Risk
Ready
100%
2:02 PM
11/13/2020


PeanutRisk-NC (1) - Excel
Crop Practices
Cultivar
Bailey
Plant Density
1 to 2 plants/row ft.
Planting Date
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Row Pattern
Single (32 to 38 inches)
Field
Borders Early Season
Clean
Borders Late Season
Mowed
Irrigation
Irrigated
Previous Weed Control
Good
Seedbed
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Weeds
C. Ragweed and Palmer A. (ALS and
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 Applicatior
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
Arthropod
Index
Low
Med
High
Southern Corn Rootwor
95
Spider Mites
70
Thrips
65
Disease (Foliar)
Index
Low
Med
High
Early/Late Leaf Spot
58
Med
High
Med
High
Med
High
ice risk.
ices.
$0
$277
$554
$831
$1,108
$1,385
Create Production Log
Create Production Log Worksheet
Creating a production log worksheet will allow you to record your production practices, crop development, and growing conditions during a growing season. Additionally, management practices currently selected on the "Risk" worksheet will be saved to the new log.
NOTE: The new log worksheet will be generated in the Excel workbook "Peanut_Logs.xlsx" and not this workbook. The "Peanut_Logs.xlsx" workbook will automatically be created if it does not exist in the same directory/folder as the "Risk Tool" workbook.
To create a new production log worksheet, simple enter a name for the log worksheet and click the create button.
Name:
Create
Cancel
Risk
Sheet1
Ready
Calculate
100%
2:15 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 (10 trials)

Evaluations of Anthem Flex and other Residual Herbicides (5)

Compatibility of Clethodim Applied with Miravis and 2,4-DB (1)

Evaluation of Salvage Treatments for Weed Control (1)

Influence of Previous Cropping System and Herbicides on Weed Populations in Peanut (3)

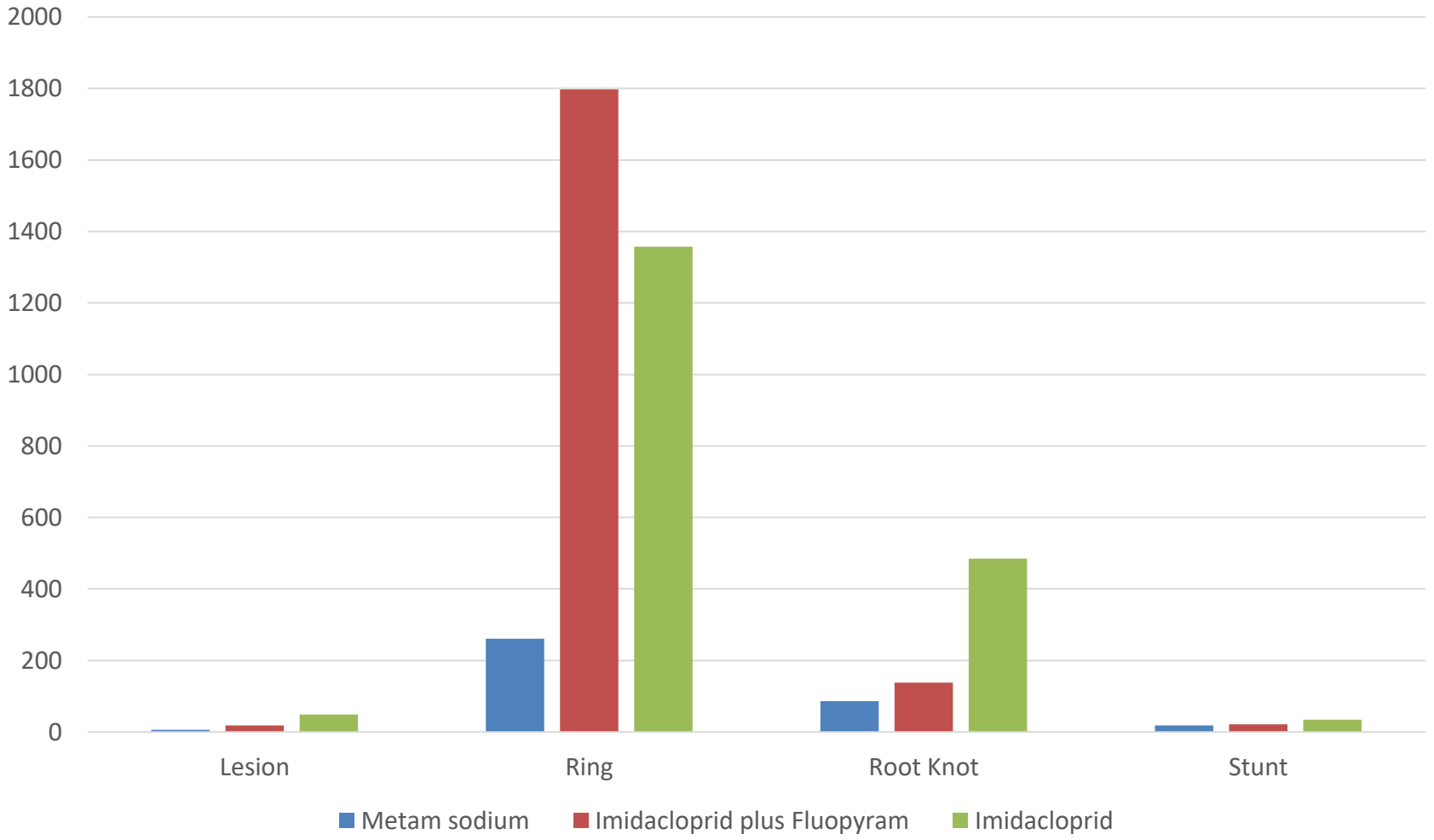
Objective 4. To continue rotation and tillage trials in order to develop more effective cropping systems (6 trials)

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)

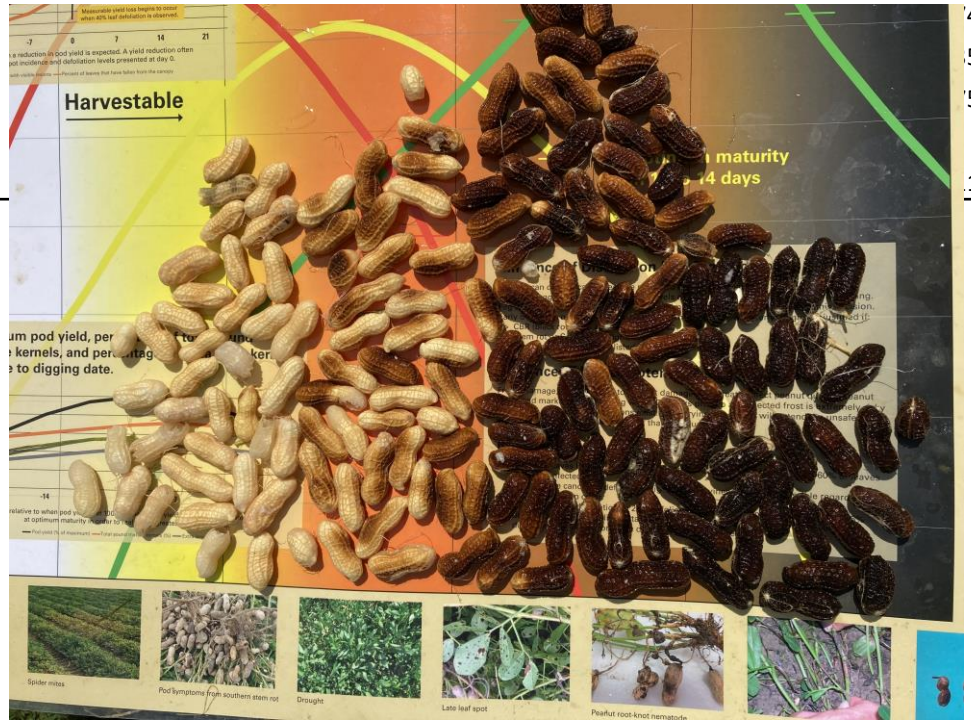
Nematode (Number per sample) Response to Chemicals
Data are pooled over rotations and varieties



Objective 5. Assisting Cooperative Extension agents with pod maturity clinics *Heat unit updates and Images of maturity*

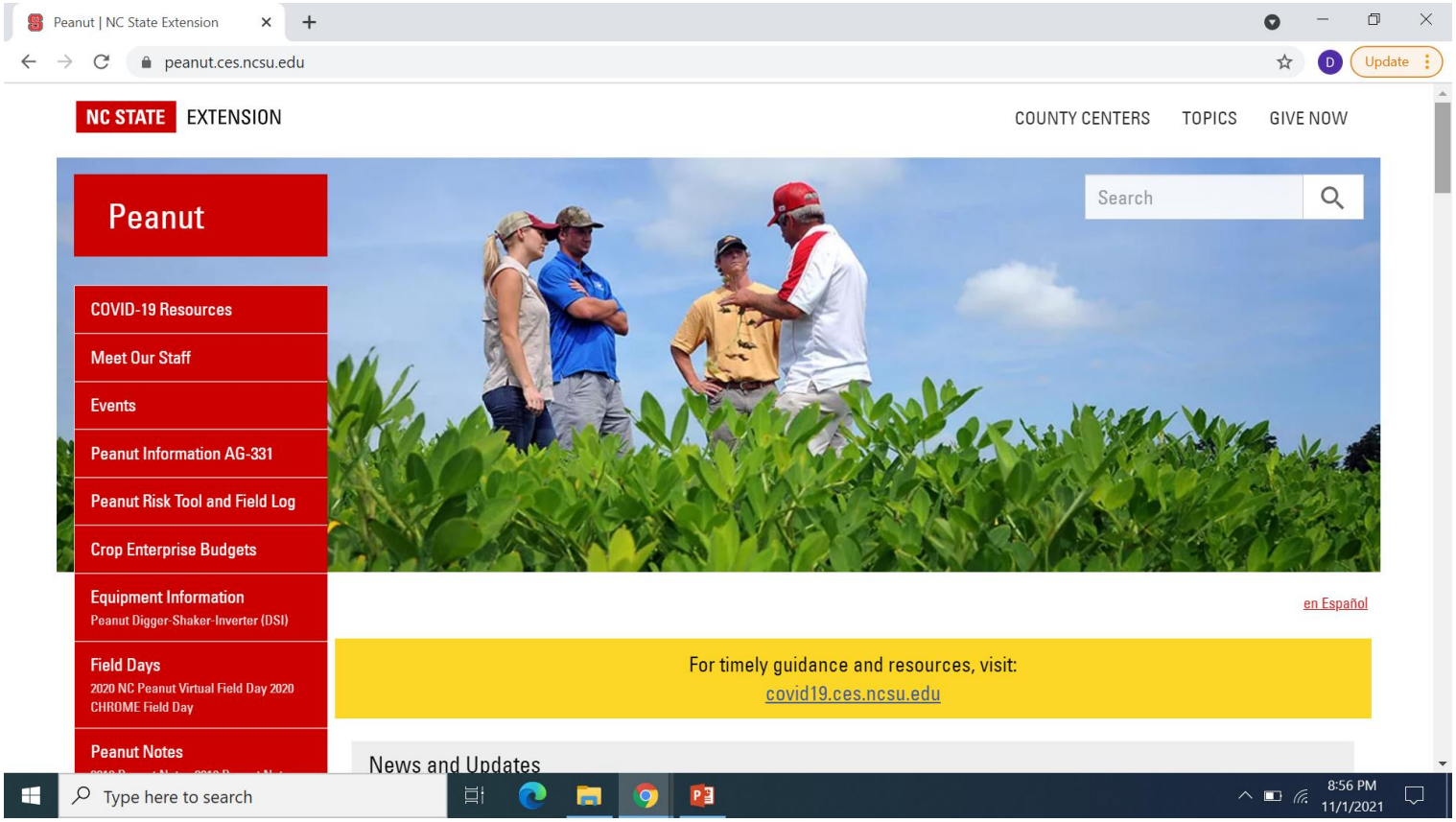
Heat Unit Accumulation (HUA) and recorded rainfall at Wakefield (Virginia), Lewiston-Woodville and Wallace (North Carolina), and Orangeburg (South Carolina) in 2021.

	Wakefield, VA		Lewiston-Woodville, NC		Wallace, NC		Orangeburg, SC	
Period or Month	HUA	Rainfall	HUA	Rainfall	HUA	Rainfall	HUA	Rainfall
	DD_{56}	inches	DD_{56}	inches	DD_{56}	Inches	DD_{56}	Inches
May 1 through October 19	3138	24.70	3077	32.41	3274	27.84	3523	26.01
May 16 through October 19	3042	23.97	2969	31.28	3112	26.84	3348	24.57
June 1 through October 19	2836	22.85	2741	30.22	2843	25.80	3063	24.57
June 16 through October 19	2541	19.76	2454	22.35	2528	20.84	2723	19.42
May	302	1.85	336	2.19	430	2.04	460	1.43
June	589	4.16	576	12.31	621	6.64	677	6.12
July	744	11.69	725	5.40	741	9.75	778	7.57
August						4	782	5.94
September						5	566	3.84
October 1 through 19						5	288	1.09
August 20 through October 19						1	-	6.78



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

Peanut Notes (232 to date), In-service training sessions, APRES, Field Days



Optimizing Peanut Production and Pest Management Through Applied Research and Extension Activities - 2021

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

Abstracts and Proceedings (4)

Extension Chapters and Bulletins, new and revised (10)

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