



# Managing cotton and peanut diseases

Lafayette County Peanut Production Meeting, February 27, 2023

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## **Cotton Disease Management: Take home messages**







Fungicides reduce disease, can save yields Consider protection for 1<sup>st</sup> to 6<sup>th</sup> week of bloom **Costs**; think possibly 100 to 250 Ib of lint saved



#### Areolate mildew and Target spot important foliar diseases



Adaxial side of leaf Image credit: Ian Small



Adaxial side of leaf Image credit: Cotton Inc.



## **Available fungicides for cotton foliar diseases are:**

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#### Reduce defoliation of target spot and areolate mildew with fungicide usage (typically 1 spray at 3<sup>rd</sup> week of Bloom)



Image credit: Kichler and Kemerait



### Scout just before bloom until 30d before defoliation.



Protect 1<sup>st</sup> to 6<sup>th</sup> week of bloom

(Oosterhuis, 1990, with permission ASA)

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# Lint price is important; estimate savings at 100 to 250 lb/lint on average

#### Sensitivity Analysis of Conventional Tillage, Non-Irrigated Cotton

	Net Returns Above Variable Costs Per Acre									
I	Varying Prices and Yields (Lb)									
	-25% -10% Expected +10% +25%									
Price \ l	Lb/Acre	563	675	750	825	938				
	\$0.65	-\$205.72	-\$132.59	-\$83.84	-\$35.09	\$38.03				
ç	\$0.70	-\$177.59	-\$98.84	-\$46.34	\$6.16	\$84.91				
ç	\$0.75	-\$149.47	-\$65.09	-\$8.84	\$47.41	\$131.78				
ć	\$0.80	-\$121.34	-\$31.34	\$28.66	\$88.66	\$178.66				
¢	\$0.85	-\$93.22	\$2.41	\$66.16	\$129.91	\$225.53				

<u>Consider</u> Yield potential Health (drought, stress) Varietal resist.

Extent of disease

Fungicide products can cost \$9 to \$26 per acre Applications can cost \$12 to \$15 per acre



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# Fungicides work, but disease presence is critical

#### LSD= 64.6 1500.0 1322.0 1316.0 1215.0 1207.0 1250.0 1000.0 750.0 Α В Α В 500.0 250.0 0.0 Miravis Top -- 13.7 oz Untreated Abound -- 6 oz Priaxor -- 4 oz Fungicide Application 3 week of Bloom. DPL 1646

Disease Present



#### Disease Absent

Note: letters indicate if a treatment is significantly different.

J. M. Kichler and R. C. Kemerait University of Georgia Extension



# Resistance is very important for disease management (e.g. Bacterial Blight guides)

Note: Foliar fungal disease resistance guides not readily available, talk to company rep and local agents for more info.

#### Cotton Incorporated

#### Plant Pathology Research

Identification and Management of Bacterial Blight of Cotton

Table 1–Response of Cotton Varieties to Bacterial Blight(race 18)								
Variety	Bacterial Blight	Variety	Bacterial Blight					
All-Tex Concho B2XF	Highly Resistant	NexGen 1511 B2RF	Mostly Susceptible					
All-Tex Nitro-44 B2RF	Highly Resistant	NexGen 3517 B2XF	Mostly Susceptible					
Croplan Genetics 3787 B2RF	Highly Resistant	Phytogen 312 WRF	Mostly Susceptible					
Deltapine 1133 B2RF	Highly Resistant	Phytogen 444 WRF	Mostly Susceptible					
Deltapine 1410 B2RF	Highly Resistant							
Deltapine 1518 B2XF	Highly Resistant	All-Tex Arid B2RF	Susceptible					
Deltapine 1639 B2XF	Highly Resistant	All-Tex Dinero B2RF	Susceptible					
DynaGro 3445 B2XF	Highly Resistant	All-Tex Edge B2RF	Susceptible					
DynaGro 3544 B2XF	Highly Resistant	All-Tex Epic RF	Susceptible					
Fibermax 1740 B2F	Highly Resistant	Croplan Genetics 3226 B2XF	Susceptible					
Fibermax 1830 GLT	Highly Resistant	Croplan Genetics 3527 B2XF	Susceptible					

# **Georgia Cotton** PRODUCTION GUIDE WWW.UGACOTTON.COM

#### Variety Selection for Management of Bacterial Blight:

**Note:** unless otherwise noted, ratings for bacterial blight have been provided by the seed companies. In 2017, UGA Extension cotton variety trials were more thoroughly rated for bacterial blight to corroborate industry ratings. See UGA Cotton Webpage for more information.

#### Varieties from Phytogen Cottonseed:

PHY 312 WRF:	rated "partially resistant"
PHY 333 WRF:	considered susceptible
PHY 339 WRF:	rated "resistant"
PHY 444 WRF:	rated "partially resistant"
PHY 487 WRF:	considered susceptible; however in UGA field observations, this variety
appeared to be at less	susceptible to bacterial blight than was DP 1558NR B2RF.
PHY 490 W3FE:	rated as "resistant"
PHY 495 W3RF:	considered susceptible
PHY 496 W3RF:	considered susceptible
PHY 499 WRF:	considered susceptible
PHY 575 WRF:	rated as "resistant"
PHY W3FE varietie	s: rates as "resistant"



#### Peanut disease management: Take home messages







Fungicide responses vary due to disease type Avoid spraying products alone

Product costs can be saved upfront



# **Tomato Spotted Wilt Virus Watch**







### **On-farm Hamilton Co., focus on leaf spot/white mold**

2021										
<b>ZUZ</b> I	<b>LVL</b> 2021 Hamilton County Irrigated Peanut On-Farm Trial									
Note: All numbers in parentheses () are fl oz, finished planting on May 11th										
Planting Date										
5/10/2021		10-May	9-Jun	14-Jun	5-Jul	20-Jul	4-Aug	19-Aug	30-Aug	6-Sep
Harrell Tyree Farms		0	30	35	56	71	86	101	112	119
			Leaf Spot	Leaf Spot	Stem Rot	Leaf Spot	Stem Rot/Limb Rot	Leaf Spot	Leaf Spot	Leaf Spot
Treatment ID	Trt #	In-furrow	1	2	3	4	5	6	7	Extra
ProvostSilver	1	Abound (6)		Proline (5.7)	Elatus (9.5 oz) +	ProvostSilver	Elatus (9.5 oz) +	ProvostSilver (13)	Chloro (16) +	Chloro (24 fl.oz)
FIOVOSISIIVEI	-	Abound (0)		FIOIIIIe (5.7)	Miravis (3.4)	(13)	Miravis (3.4)	F10003t511VEI (15)	Topsin (10)	
Excelia	2	Abound (6)		Droling (F 7)	Excalia (2.5) +		Excalia (2.5) +		Chloro (16) +	Chlore (24 flor)
Excalla	2	Abound (6)		Profilie (5.7)	Miravis (3.4)	Priax01 (8)	Miravis (3.4)	PTIAX01 (8)	Topsin (10)	

Standard	4	Abound (6)	Proline (5.7)	Elatus (9 Miravi	9.5 oz) + s (3.4)	Priaxor (8)	Elatus (9.5 Miravis	oz) + (3.4)	Priaxor	(8)	Chloro (16) + Topsin (10)	Chloro (24 fl oz)
Inverted on:	22-Sep								<b></b>			
Harvest on:	28-Sep											
Variety:	TifNV-H	iOL										
Nozzle:	Flat Fan	i, 20GPA										
GPS of NW Corner	30°28'5	8.5"N 83°07'09.1"W										
Soil Type	Alpin Sa	and, 0 to 5 percent slope (97	7.5%) & Wadley Sand 5	to 12 percei	t slope (2.5	%)						



### **On-farm Hamilton Co., focus on midseason leaf spot**

			2022	Hamilton County Irrigat	ed Peanut On-Farm Tr	ial				
Note: All numbers	in pare	ntheses () are f	fl oz							
Planting Date										
5/3/2022		3-May	1-Jun	20-Jun	5-Jul	19-Jul	2-Aug	16-Aug	30-Aug	
Harrell Tyree Farms		0	29	48	63	77	91	105	119	
			Leaf Spot	Stem Rot	Leaf Spot	Stem Rot/Limb Rot	Leaf Spot	Leaf Spot	Leaf Spot	
Treatment ID	Trt #	In-furrow	1	2	3	4	5	6	7	
				Elatus (9.5 oz) +		Elatus (9.5 oz) +		Chloro (16) +		
1(ProvostSilver)	1	Abound (6)	Proline (5.7)	Miravis (3.4)	ProvostSilver (13	Miravis (3.4)	ProvostSilver (13)	Topsin (10)	MazingaADV (32)	
				Elatus (9.5 oz) +	Provysol (5) + Tel	Elatus (9.5 oz) +	Provysol (5) + Teb	Chloro (16) +	Chloro (16) +	
2(Provysol)	2	Abound (6)	Proline (5.7)	Miravis (3.4)	(7.2)	Miravis (3.4)	(7.2)	Topsin (10)	MazingaADV (32)	
				Elatus (9.5 oz) +	ProvostSilver (13	Elatus (9.5 oz) +	ProvostSilver (13)	Chloro (16) +		
3(Microthiol)	3	Abound (6)	Proline (5.7)	Miravis (3.4)	+ Microthiol (3 lb	Miravis (3.4)	+ Microthiol (3 lb)	Topsin (10)	MazingaADV (32)	
				Elatus (9.5 oz) +		Elatus (9.5 oz) +		Chloro (16) +		
4(Standard)	4	Abound (6)	Proline (5.7)	Miravis (3.4)	Priaxor (8)	Miravis (3.4)	Priaxor (8)	Topsin (10)	IVIazingaADV (32)	
Inverted on:	20-Sep									
Harvest on:	26-Sep				T		T			
Variety:	TifNV-H	iOL								
Nozzle:	Flat Fan	, 20GPA								
GPS of NW Corner	30°28'5	8.5"N 83°07'09.1	"W							
Soil Type	Alpin Sa	nd, 0 to 5 percent	t slope (97.5%) & Wad	lley Sand 5 to 12 percen	t slope (2.5%)					



## **Disease and yields varied between years**

#### 2021 – ELS with defoliation



2022 – ELS with no defoliation

Provost Silver consistently saved more yield.



# Small plot 2022: Focus on mid-season leaf spot

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Planting Date								
5/19/2022	19-May	23-Jun	7-Jul	19-Jul	2-Aug	16-Aug	2-Sep	15-Sep
	0	35	49	61	75	89	106	119
	InFurrow	Leaf Spot	Leaf Spot	Stem Rot	Leaf Spot	Stem Rot/Limb Rot	Leaf Spot	Leaf Spot
Company		1	2	3	4	5	6	7
Untreated	Velum (6.5)							
Chloro. Only	Velum (6.5)	Chloro. (24)	Chloro. (24)	Chloro. (24)	Chloro. (24)	Chloro. (24)	Chloro. (24)	Chloro. (24)
FautaliatC			Chloro (16) +	Chloro. (24) +	Fontelis (16)	Chloro. (24) +	Foundation (4.C)	Chloro (16)
Fontelisto	veium (6.5)		Teb (7.2)	Convoy (16)		Convoy (16)	Fontens (16)	+Topsin (10 )
5 140			Chloro (16) +	Chloro. (24) +	ProvostSilver	Chloro. (24) +	ProvostSilver	Chloro (16)
Provost13	Velum (6.5)		Teb (7.2)	Convoy (16)	(13)	Convoy (16)	(13)	+Topsin (10 )
			Chloro (16) +	Chloro. (24) +	Provysol(5) +	Chloro. (24) +	Provysol(5) +	Chloro (16)
Provysol5	Velum (6.5)		Teb (7.2)	Convoy (16)	Teb (7.2)	Convoy (16)	Teb (7.2)	+Topsin (10)
• • • •			Chloro (16) +	Chloro. (24) +	Chloro (16) +	Chloro. (24) +	Chloro (16) +	Chloro (16)
Convoy16	Velum (6.5)		Teb (7.2)	Convoy (16)	Teb (7.2)	Convoy (16)	Teb (7.2)	+Topsin (10 )
Vareity = Georg	ia 06G							• • • •



# Provost numerically saved more yield than other programs but not significantly.



LSD=575



0 10 20 30 40 50 60 70 80 90100 Defoliation (ELS/LLS, %), 125



# How do these results look in a different region?

Planting Date								
5/19/2022	19-May	23-Jun	7-Jul	19-Jul	<b>75 DAP</b>	16-Aug	2-Sep	15-Sep
	0	35	49	61	75	89	106	119
	InFurrow	Leaf Spot	Leaf Spot	Stem Rot	Leaf Spot	Stem Rot/Limb Rot	Leaf Spot	Leaf Spot
Company		1	2	3	4	5	6	7
Untreated	Velum (6.5)							
Chloro. Only	Velum (6.5)	Chloro. (24)	Chloro. (24)	Chloro. (24)	Chloro. (24)	Chloro. (24)	Chloro. (24)	Chloro. (24)
	Velum (6.5)		Chloro (16) +	Chloro. (24) +	Fontelis (16)	Chloro. (24) +		Chloro (16)
Fontelis16			Teb (7.2)	Convoy (16)		Convoy (16)	Fontells (16)	+Topsin (10 )
D			Chloro (16) +	Chloro. (24) +	ProvostSilver	Chloro. (24) +	ProvostSilver	Chloro (16)
Provost13	Velum (6.5)		Teb (7.2)	Convoy (16)	(13)	Convoy (16)	(13)	+Topsin (10 )
Ducunal			Chloro (16) +	Chloro. (24) +	Provysol(5) +	Chloro. (24) +	Provysol(5) +	Chloro (16)
Provysois	veium (6.5)		Teb (7.2)	Convoy (16)	Teb (7.2)	Convoy (16)	Teb (7.2)	+Topsin (10 )
<b>a a a</b>			Chloro (16) +	Chloro. (24) +	Chloro (16) +	Chloro. (24) +	Chloro (16) +	Chloro (16)
Convoy16	veium (6.5)		Teb (7.2)	Convoy (16)	Teb (7.2)	Convoy (16)	Teb (7.2)	+Topsin (10)
Vareity = Georgi	a 06G							



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#### Despite low disease impacts, Provysol tended to save



#### LSD=1014





# Which symptom & sign is early leaf spot (ELS)







# What if we only vary stem rot/white mold products?

Planting Date									
5/19/2022	Date	19-May	23-Jun	7-Jul	19-Jul	2-Aug	16-Aug	2-Sep	15-Sep
	Act DAP	0	35	49	61	75	89	106	119
	Goal DAP	0	35	49	61	75	89	105	119
		InFurrow	Leaf Spot	Leaf Spot	Stem Rot	Leaf Spot	Stem Rot/Limb Rot	Leaf Spot	Leaf Spot
Company	Code		1	2	3	4	5	6	7
Untreated	Untreated	Velum (6.5)							
Chloro. Only	Chloro	Velum (6.5)	Chloro. (24)	Chloro. (24)	Chloro. (24)	Chloro. (24)	Chloro. (24)	Chloro. (24)	Chloro. (24)
Nichino	Convoy16			Chloro (16) +	Chloro. (24) +	Chloro (16) + Teb	Chloro. (24) +	Chloro (16) + Teb	Chloro (16)
Nichino	CONVOYIO	veium (6.5)		Teb (7.2)	Convoy (16)	(7.2)	Convoy (16)	(7.2)	+Topsin (10 )
Valent	5	Volum (6 E)		Chloro (16) +	Chloro. (24) +	Chloro (16) + Teb	Chloro. (24) +	Chloro (16) + Teb	Chloro (16)
valent	Excalla (5)	velulli (6.5)		Teb (7.2)	Excalia (3)	(7.2)	Excalia (3)	(7.2)	+Topsin (10 )
Syngenta		Volum (C.E.)		Chloro (16) +	Chloro.(24) + Elatus	Chloro (16) + Teb	Chloro.(24) +	Chloro (16) + Teb	Chloro (16)
	Elatus (9.5)	veium (6.5)		Teb (7.2)	(9.5)	(7.2)	Elatus (9.5)	(7.2)	+Topsin (10 )
Vareity = Georgia 06G									



# Elatus tended to save more yield due to late season rust infections and defoliation; not white mold issues

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Note: the rate for Convoy is the low label rate (16 fl oz) compared to higher label rates of Excalia and Elatus



#### **Programs work, disease presence influences savings**





### Each product can affect multiple peanut diseases

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# Don't spray high risk fungicides alone!

**Note:** Mixing two high risk components is **not recommended** to delay resistance evolution where <u>resistance already occurs</u> in the pathogen population to one or both components.



### High Risk MOA Qol(FRAC 11) SDHI (FRAC 7) MBC (FRAC 1)





# Mix in a FRAC 3 or Multisite with FRAC 1,7,11

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### How to save on disease management costs





# Crop rotation can help with early missed sprays



#### Rotation delayed foliar disease identification until 80 days after planting or more



## **Resistant cultivars will delay/limit disease**



Abound in-furrow used

![](_page_27_Picture_3.jpeg)

# Leaf spot diseases are slowed by in-furrow applications (Thimet® and Velum®)

![](_page_28_Figure_1.jpeg)

![](_page_28_Picture_2.jpeg)

## Delayed starts are possible, but assess your risk

![](_page_29_Figure_1.jpeg)

![](_page_29_Picture_2.jpeg)

### Determine risk: <u>https://peanutrx.org/</u>

![](_page_30_Picture_1.jpeg)

Get your risk! Analysis Diseases Resources About

#### **Management Plans**

Choose a management plan	~
Choose a management plan	
BASF	
Bayer	
Convoy	
Corteva	
Excalia	s
FMC	
Syngenta	IPM Guide
Umbra	

![](_page_30_Picture_5.jpeg)

# Things to keep in mind for 2023

• Programs work; adjustments should focus on disease

![](_page_31_Picture_2.jpeg)

Avoid spraying high risk fungicides alone or together

![](_page_31_Picture_4.jpeg)

 Sprays can be changed up front, if risk is known: (<u>https://peanutrx.org/</u>)

![](_page_31_Picture_6.jpeg)

### **Diseases don't follow a calendar!**

![](_page_32_Picture_1.jpeg)

![](_page_32_Picture_2.jpeg)

# Thank you for your support!

![](_page_33_Picture_1.jpeg)

**Bob Kemerait** Jeremy Kichler **UGA** Cotton **NFREC-Suwannee Valley** Keith Wynn Harrell Tyree Farms PSREU UF/IFAS **NFREC-Marianna** Kristen Beckham Preston Stern **Zachary Eldred** 

![](_page_33_Picture_3.jpeg)