

2022 Pecan Pathology Update

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2021 – Unseasonably Cool & Wet

- Conditions favorable for scab
- Delays in timely fungicide applications
- Inadequate drying time
- Need for high number of fungicide sprays

The Upside

- Compared to similar years (2003 & 2013), scab control appeared to be better.
- New plantings
 - Cultivars
 - Tree size and spacing
- Stronger fungicide arsenal
- Attention to resistance management

FRAC Code	common name	Trade Names
1	thiophanate-methyl	Topsin; T-methyl
3	fenbuconazole	Enable
3	metconazole	Quash
3	propiconazole	Orbit, Bumper, Propimax, Tilt
3	tebuconazole	Folicur, Monsoon, Orius, Tebuzol, Toledo
3	tetraconazole	Andiamo, Domark
3	mefentrifluconazole	Cevya
11	azoxystrobin	Abound, Azaka
11	kresoxim-methyl	Sovran, Narvos
11	pyraclostrobin	Headline
11	picoxystrobin	Approach
30	triphenyltin hydroxide (TPTH)	Super Tin; Agri Tin
P7	phosphite	Fosphite, FungiPhite, K-Phite, Phiticide, Phostrol, ProPhyt, Rampart, Reliant, Topaz
U12	dodine	Elast
M	ziram	Ziram
3 + 1	tebuconazole + thiophanate-methyl	Topsin XTR
3 + 7	pydiflumetofen + difenoconazole	Miravis Top
3 + 11	difenoconazole + azoxystrobin	Quadris Top, Amistar Top
3 + 11	flutriafol + azoxystrobin	Topguard EQ
3 + 11	propiconazole + azoxystrobin	Quilt
3 + 11	tebuconazole + trifloxystrobin	Absolute
3 + 11	tebuconazole + azoxystrobin	Custodia, Helmstar
3 + 11	tetraconazole + azoxystrobin	Brixen
3 + 30	tetraconazole + TPTH	Minerva Duo
3 + P7	tebuconazole + phosphite	Viathon
3 + 46	difenoconazole + tea tree oil	Regev

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3 + 1		Topsin XTR
3 + 7		Miravis Top
3 + 11		Quadris Top, Amistar Top
3 + 11		Topguard EQ
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Importance of FRAC Code

- Fungicide resistance management
- Best fit in spray program

Phosphite Use Recommendations

- Stand-alone use
 - Excellent control of leaf scab
 - Nut scab control is cultivar-dependent
- Rates: as recommended by UGA
 - Pre-pollination: min. of 4 pints (2 quarts)
 - Post-pollination: min. of 6 pints (3 quarts)

Group 7

7 + 3	pydiflumetofen + difenoconazole	Miravis Top
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Group 7 - new chemistry recommendation
Received label in 2019.

Resistance risk: medium to high

Best use: nut scab (Jun – Aug)

3	fenbuconazole	Enable
3	metconazole	Quash
3	propiconazole	Orbit, Bumper, Propimax, Tilt
3	tebuconazole	Folicur, Monsoon, Orius, Tebuzol, Toledo
3	tetraconazole	Andiamo, Domark
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3 + 11	tebuconazole + azoxystrobin	Custodia, Helmstar
3 + 11	tetraconazole + azoxystrobin	Brixen
3 + 30	tetraconazole + TPTH	Minerva Duo
3 + 33	tebuconazole + phosphite	Viathon
3 + 46	difenoconazole + tea tree oil	Regev



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Group 3

Group 11

11	azoxystrobin	Abound, Azaka
11	kresoxim-methyl	Sovran, Narvos
11	pyraclostrobin	Headline
11	picoxystrobin	Approach

3 + 11	difenoconazole + azoxystrobin	Quadris Top, Amistar Top
3 + 11	flutriafol + azoxystrobin	Topguard
3 + 11	propiconazole + azoxystrobin	Quilt
3 + 11	tebuconazole + trifloxystrobin	Absolute
3 + 11	tebuconazole + azoxystrobin	Custodia, Helmstar
3 + 11	tetraconazole + azoxystrobin	Brixen

Groups 3 & 11

- Both fit best for foliar diseases
- Efficacy varies between locations.
- Use highest labeled rate.
- Use together in a mix, or with other class.
 - Group 3: **$\geq 75\%$ of stand-alone rate**
 - Group 11: **$\geq 75\%$ of stand-alone rate**

Adding sulfur with DMI fungicides?

- Sulfur has improved efficacy of Group 3, Group 7, and Group 11 fungicides in other pathosystems (e.g. peanut leaf spot).
- **NO BENEFIT** for control of pecan scab.

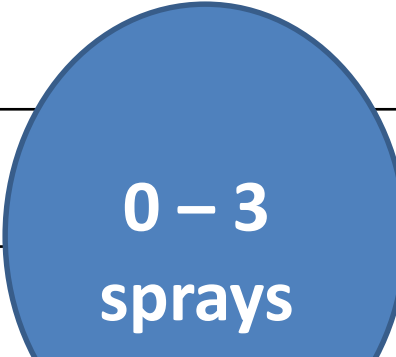



Sample Fungicide Programs

- Based on cultivar scab potential
- Limited data
- Goals
 - framework for scab management
 - built in fungicide resistance management
 - economically effective

Scab Susceptibility Groups

Low	Moderate	Mod/High	High
Avalon	Creek	Caddo	Byrd
Elliott	Kiowa	Cape Fear	Carroll
Excel	Oconee	Hoffman	Desirable
Kanza	Sumner	Schley	Morrill
Lakota	Zinner	Stuart	Pawnee
McMillan		Tanner	Treadwell
		Tom	
		Whiddon	

Scab Susceptibility Groups

Low	Moderate	Mod/High	High
 <p>0 – 3 sprays</p>	 <p>5 – 7 sprays</p>		 <p>≥ 8 sprays</p>
Lakota	Zinner	Stuart	Pawnee
McMillan		Tanner	Treadwell
		Tom	
		Whiddon	

Pre-pollination

- Phosphite
- Groups 3+11

Post-pollination

- Elast
- Tin
- Miravis Top
- Group 3+11
(conditional)
- Phosphite (conditional)

Low Scab Potential (0-3)

- 1) Phosphite
or 11 + 3 ~ mid-April
- 2) Phosphite
or 11 + 3 ~ mid-to-late May
- 3) 11 + 3 mix
or Miravis Top ~ mid-late June

Moderate Scab Potential (5-7)

- | | | |
|---------------------------|-------------|------------------|
| 1) Phosphite | ~ mid April | |
| 2) Phosphite OR 11+3 | ~ mid May | Pre-pollination |
| <hr/> | | |
| 3) Miravis Top | ~ mid June | Post-pollination |
| 4) Elast+Tin OR phosphite | ~ late June | |
| 5) Miravis Top | ~ mid July | |
| 6) Tin OR Elast+Tin | ~ late July | |

High Scab Potential (≥ 8)

- | | |
|----------------------------|------------------|
| 1) phosphite | |
| 2) phosphite | |
| 3) 11 + 3 mix | Pre-pollination |
| <hr/> | |
| 4) Miravis Top + phosphite | Post-pollination |
| 5) Elast + Tin | |
| 6) Miravis Top | |
| 7) Elast + Tin | |
| 8) Miravis Top | |

- A lot of flexibility in **product selection** and **timing**.
- Make sure to pay attention to 1) proper timing of use and 2) resistance management.
- Other diseases (e.g. downy spot, powdery mildew) might become an issue with reduced scab programs.
- **Have Plan A and Plan B for 2022.**