Pecan Disease Management

2015 Pecan
Scout School

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Downy Spot

- Typically starts in lower part of tree
- Initial symptom is a faint spot on the underside of leaflets.
- Symptoms become visible on the upper leaf surface 6-8 weeks later.

Downy Spot

- Symptoms observed in summer.
- Infections period is between budbreak and nut set.
- Any scab program.

Zonate Leaf Spot

Zonate Leaf Spot

- Symptoms h
  - Develops during or after July.
  - Leaf spots (15-20 mm) with concentric rings
  - Primary inoculum comes from woods around field.
  - Cool (43-81 F) & wet periods in late summer.

Zonate Leaf Spot

Management

- June through September
- Tin or Elast not very effective
- Use DMI or Topsin

Powdery Mildew - Leaves

- Large irregular faded areas develop.
- Little fungal growth
- Early infections may lead to misshapen leaflets.

Powdery Mildew - Shucks

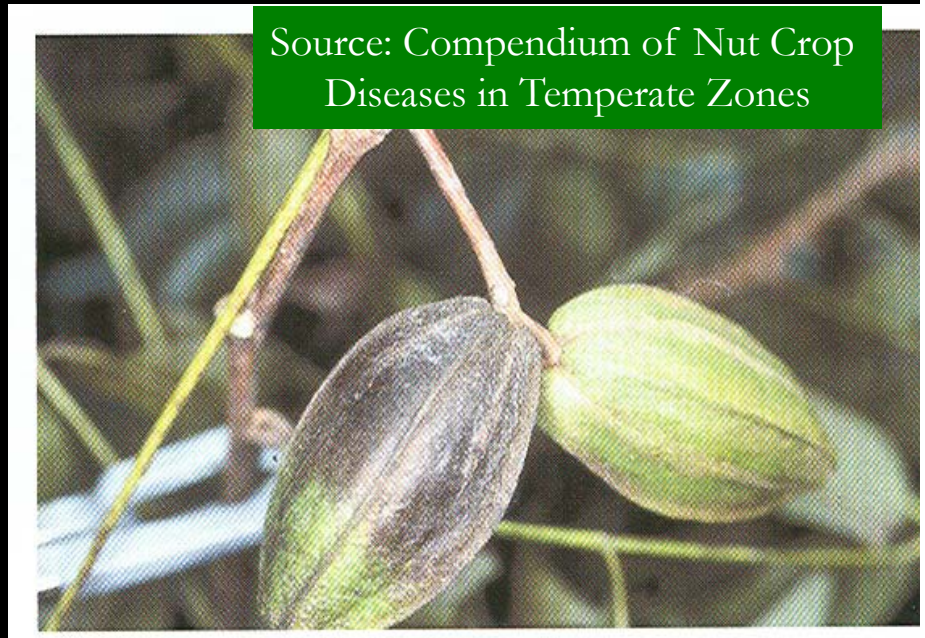
- More common on fruit
- Shucks might become covered with dusty white growth
- Might not have the "powdery mildew', but will appear russeted.

Powdery Mildew - Shucks

- Topsin, DMI, or Strobilurin are best options for control.

Phytophthora Shuck & Kernel Rot

- Dark brown, but does not collapse.
- Starts at stem end of fruit.
- Infected in late Aug/ early Sept: dry and stick tight
- Infected in late Sept/Oct: open before drying; nuts have bitter taste

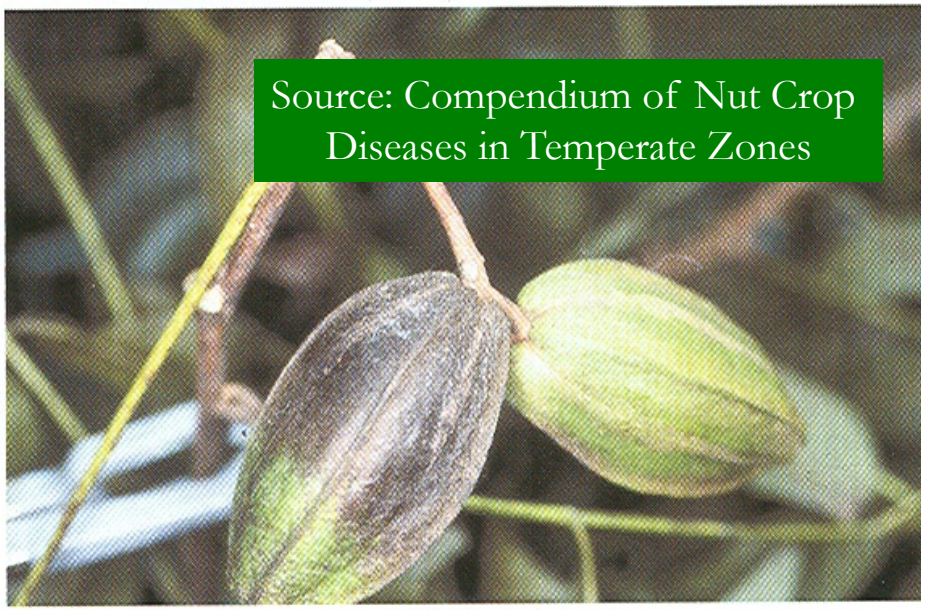


Source: Compendium of Nut Crop Diseases in Temperate Zones

120. Phytophthora shuck and kernel rot of pecan fr
(Courtesy C. C. Reilly)

Phytophthora Shuck & Kernel Rot

- Extended wet periods & <86° F
- Central GA
- Tin or phosphite



120. Phytophthora shuck and kernel rot of pecan frui
(Courtesy C. C. Reilly)

ANTHRACNOSE

- Infection periods beginning in May
- Symptoms typically show up starting in July
- Starts at margin
- Dark margin

Symptoms on shuck

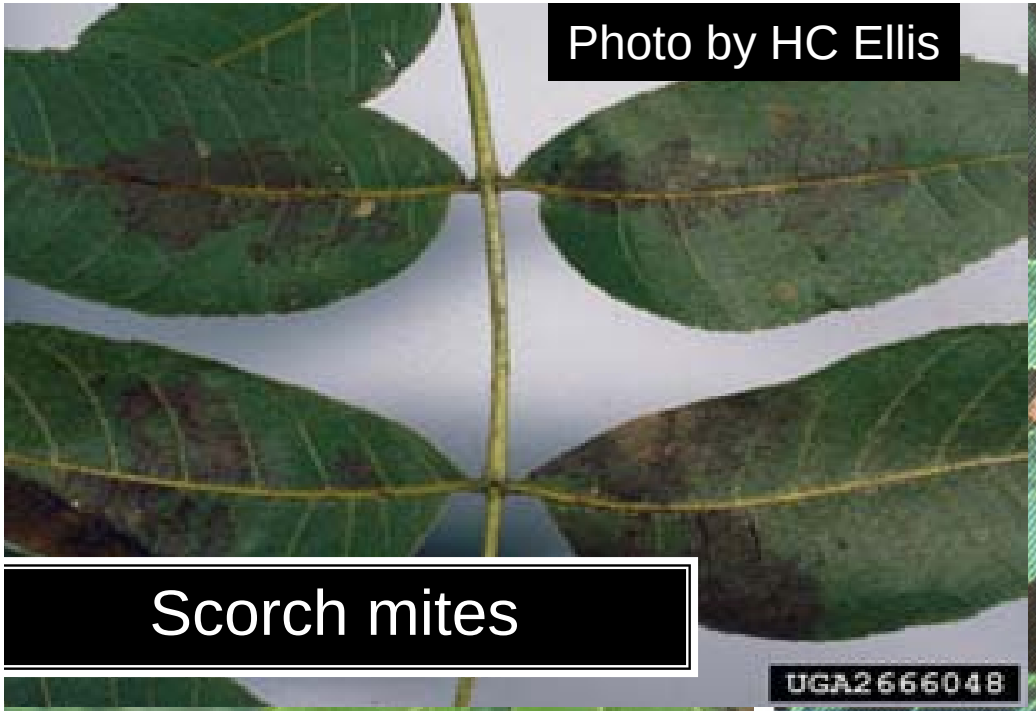
- Dark brown, sunken lesions usually near proximal end or along shuck sutures
- Lesions can enlarge and cover entire shuck
- Salmon-colored spores within sunken lesions

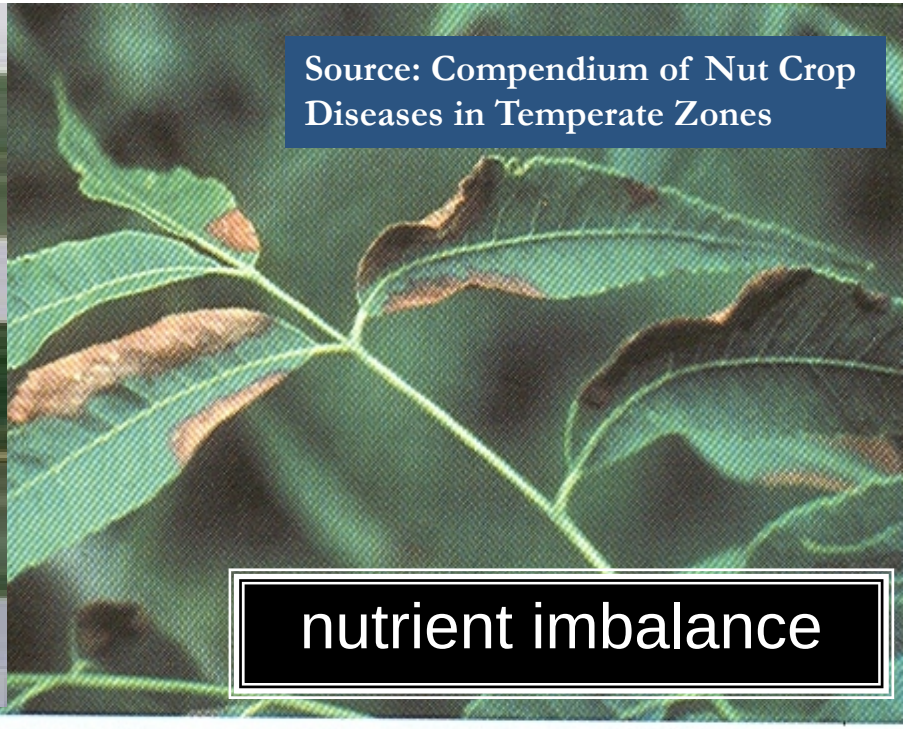
115. Anthracnose lesion along a pecan shuck suture where clustered fruit are in contact. (Courtesy T. B. Brenneman)

Source: Compendium of Nut Crop Diseases in Temperate Zones

ANTHRACNOSE

- Highly dependent on excessive rain & temperatures Around 68°F.
- Topsin, strobilurin, or phosphite





32. Leaf scorch on leaflets of the pecan cultivar Desirable. (Courtesy R. Worley)

Bacterial Leaf Scorch

- Transmitted by xylem-feeding insects (e.g. sharpshooter leafhoppers and spittlebugs) and grafting.
- More sever with heavy crop load or stress.
- Primarily associated with cultivar ‘Cape Fear’, but >20 known to be susceptible.
- No chemical control measures.

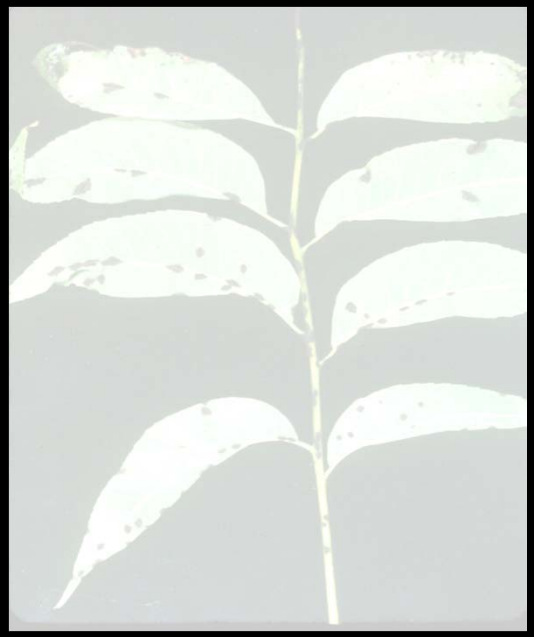
Bacterial Leaf Scorch

- Symptoms appear during August
- Scorching, wilting, & premature defoliation.
- Starts at leaf margin.
- Dark border.
- 1st on older leaves.
- Might be confined to individual branches.

Pecan Scab

- spots appear velvety or rough when sporulating
- Older lesions stop growing, dry out, & crack
- More common on lower leaf surface
- Upper & lower lesions do not always match.

Pecan Scab



- Appearance is similar to leaf lesions
- Early infections = tremendous yield and crop quality reductions
- Late infections = less damaging to both yield and quality.

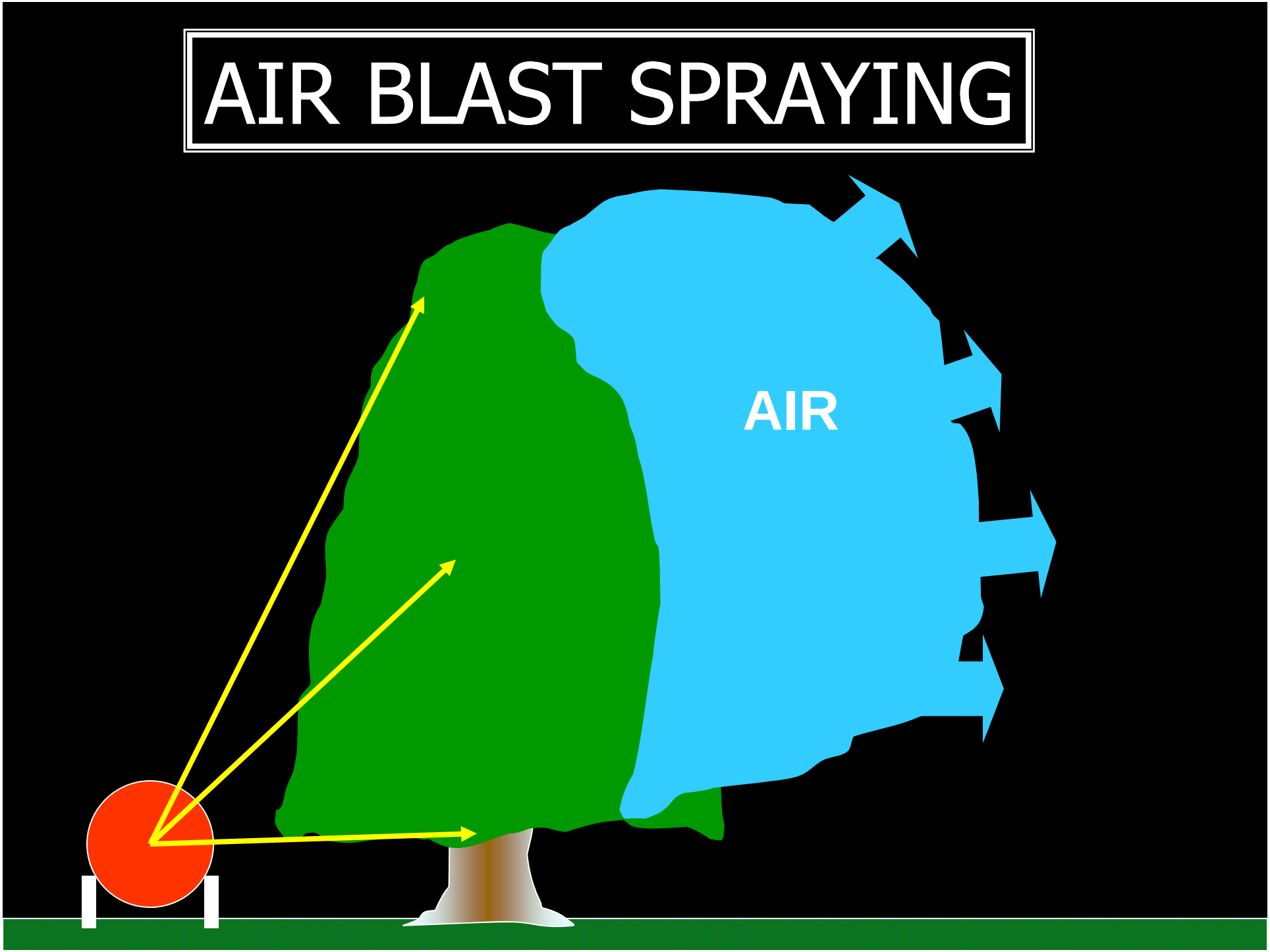
Disease Management

- Spray Coverage
- Spray Timing
- Fungicides

Spray Coverage

The Biggest Obstacle

AIR BLAST SPRAYING



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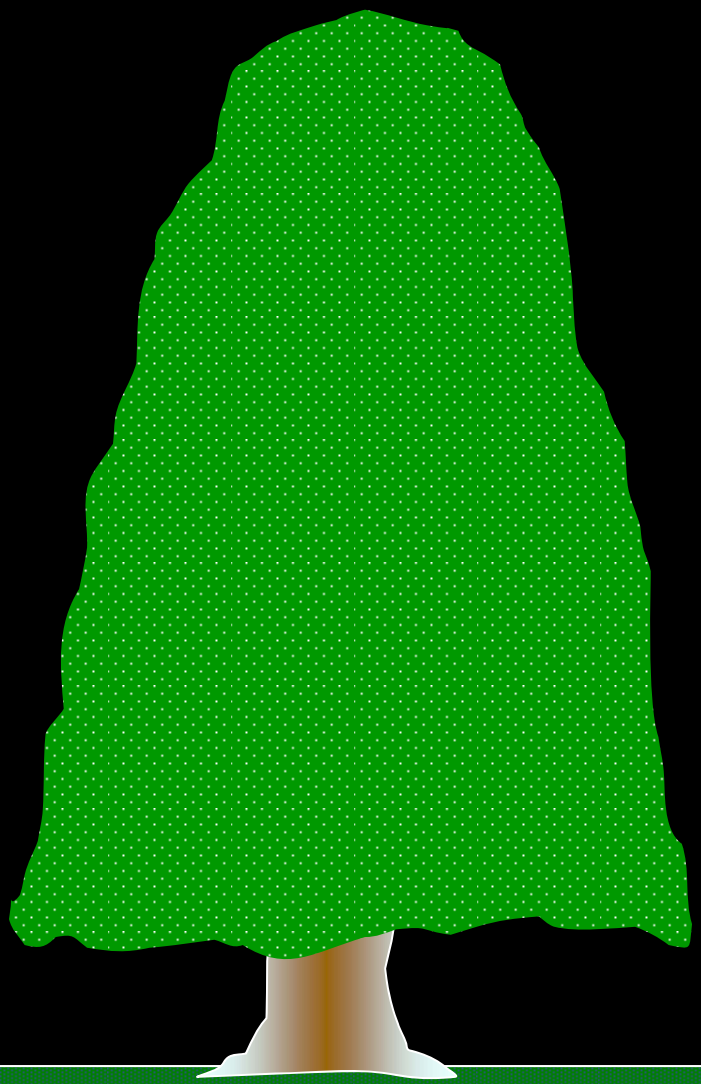

Uniform Coverage

Top to Bottom
&
Side to Side

FUNGICIDE COVERAGE

- Tree Size
- Tree Spacing
- Sprayer Operation

Sprayer Operation

- Misdirected air blast
- Weak air blast
- Excess Speed: (> 1.5 MPH)
  - 2.0-3.5 MPH is usual
- Wind: (> 2 - 4 MPH)

Spray Timing

- Prepollination (budbreak through nutset)
  - every 10-14 days
- Postpollination (nut set to shell hardening)
  - every 10 -21 days

AU-Pecan

Weather-based Advisory System

AU Pecan is Available for Your Farm

- You can generate the advisory using Doppler Radar precipitation estimates for your field. This is a *free* service.

www.awis.com

AU-Pecan Limitations

- Need to cover all trees in ≤ 10 days.
- Labor management
- Coordination with insect control
- Wet years
  - Model might call for more applications than a calendar schedule.

The most practical time to use AUPecan or to adjust spray schedule based on weather.

The most critical time for control of scab.

Spraying **for scab is not generally advised.**

Fungicides

Fungicide class	FRAC group	Common name	Trade name(s)	Risk
MBCs (benzimidazoles)	1	thiophanate-methyl	Topsin M	H
DMIs (sterol inhibitors, triazoles)	3	propiconazole fenbuconazole metconazole difenoconazole tebuconazole	Orbit, Propimax, Bumper, Quilt*, Quilt Xcel* Enable Quash Quadris Top* Folicur, Tebuzole, Monsoon, Toledo, Orius, Absolute*, Topsin XTR**, Custodia*, etc.	M
QoIs (strobilurins)	11	azoxystrobin pyraclostrobin kresoxim-methyl trifloxystrobin	Abound, Quadris Top*, Quilt*, Quilt Xcel*, Custodia* Headline Sovran Absolute*	H
Organotins	30	fentin hydroxide	Super Tin, Agri Tin	L – M
Phosphonates (phosphites)	33	phosphorous acid and salts	Phostrol, ProPhyt, FungiPhite, Reliant, Viathon, Fosphite, Kphite, Phiticide, Rampart, Topaz	L
Guanidines	U12	dodine	Elast (Syllit)	L - M

*** Formulated mixture of a DMI and a QoI**

**** Formulated mixture of a DMI and an MBC**

Post-pollination

Fungicide class	FRAC group	Common name	Trade name(s)	Risk
DMIs + Strobilurin	3 &11	propiconazole difenoconazole tebuconazole	Quilt, Quilt Xcel Quadris Top Absolute, Topsin XTR, Custodia	M
Organotins	30	fentin hydroxide	Super Tin, Agri Tin	L – M
Guanidines	U12	dodine	Elast (Syllit)	L - M

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**** Formulated mixture of a DMI and an MBC**

thiophanate methyl

- Topsin M FRAC GROUP 1
- Do not apply more than **1 to 2 applications**
- Always use in a tank mix.

thiophanate methyl

- Best Use:
  - Early season for leaf scab
  - May/Jun application for anthracnose and scab
  - Nut scab

Triazoles (DMIs or Group 3)

- Shifts in sensitivity dating back 20 years
- Do not follow full rate applications with reduced rates at later date
- Best use: leaf scab; powdery mildew; zonate leaf spot

strobilurins

- Recommended limit of 3 applications per season.
- Do not make more than 2 sequential applications.
- Best Use:
  - Excellent on leaf scab; should be good for anthracnose
  - Premixes with DMIs are also excellent nut scab materials

TPTH

- Do not exceed 45 oz. or 72 fl. oz./year.
- Best Use: nut scab

dodine

- Elast FRAC GROUP U12
- Do not apply more than 6 applications/year.
- Best use: nut scab

phosphites

- For scab control, continue to compare well to our traditional fungicides in UGA research trials (Ponder Farm).
- Their strength is on leaf scab.
- Use full labeled rates for nut scab.
- Should be good selection for suppressing anthracnose.

phosphites

- Use up to 5 applications, but not in consecutive applications
- With susceptible cultivars, mix with other class of fungicide.

Complete Disease Control Program

- Resistant cultivars
- Eliminate overcrowding
- Reduce stress
  - proper fertility
  - adequate moisture
- Sound fungicide schedule