Pecan Production 101: Session 4 Troubleshooting

(Insects, Disease, Cultural Disorders)

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Scab Development

- Rain frequency is more important than total rainfall.
- Heavy rain indirectly favors scab development, because it results in conditions favoring long periods of fog or dew.
- A light evening rain that keeps the trees wet all night will lead to more scab than rainfall ending early enough to allow trees to dry before dark.

Pecan Scab Symptoms

- Small, dark spots (1-5 mm)

- More common on lower leaf surface
- Upper & lower lesions do not always match.
- When pathogen is sporulating, lesions look ‘velvety’ (green to black).
- Leaflets drop if they are infected at the petiole base, but leaf infection does not generally result in defoliation.
- Most damage is the result of poor leaf quality and reduced photosynthesis

Pecan Nut Scab

- Early infections may get larger, become sunken and cracked
- Nuts attacked shortly after nut set usually abort and fall in August.
- Nuts with less than 25% scab show no reduction in yield or quality

- Scab infection can dramatically reduce nut size, depending on the timing and severity of infection.
- Early infections can cause tremendous yield and crop quality reductions; however, experiments have shown that as the season progresses scab infections become less damaging to both yield and quality.
- Once the shell hardens, subsequent infection is apparently more cosmetic then damaging.

Scab Control

- Resistant cultivars would be the most economical and practical control measure.
- The most practiced disease control measure is the application of preventative fungicides.
  - Typically 7-10 sprays
  - Bud break through shell hardening
  - Most critical time is between nut set to shell hardening.
    - Post-pollination period
    - June/July sprays

What to spray for nut scab?

- Post-pollination is the critical period for protection.
- Decide what you want to spray during this time, and work from there.

Fungicide Class	Trade name
Benzimidazole	Topsin-M
DMIs	Tilt, Propimax, ½ of Stratego, ½ of Quilt Enable
Strobilurins	½ of Quilt Sovran Headline ½ of Stratego
Guanidines	Elast
Organo-metallics	Super Tin, Agri Tin

April/May

DMI + Tin

June/July

Stratego or Quilt

August

Tin or Elast + Tin

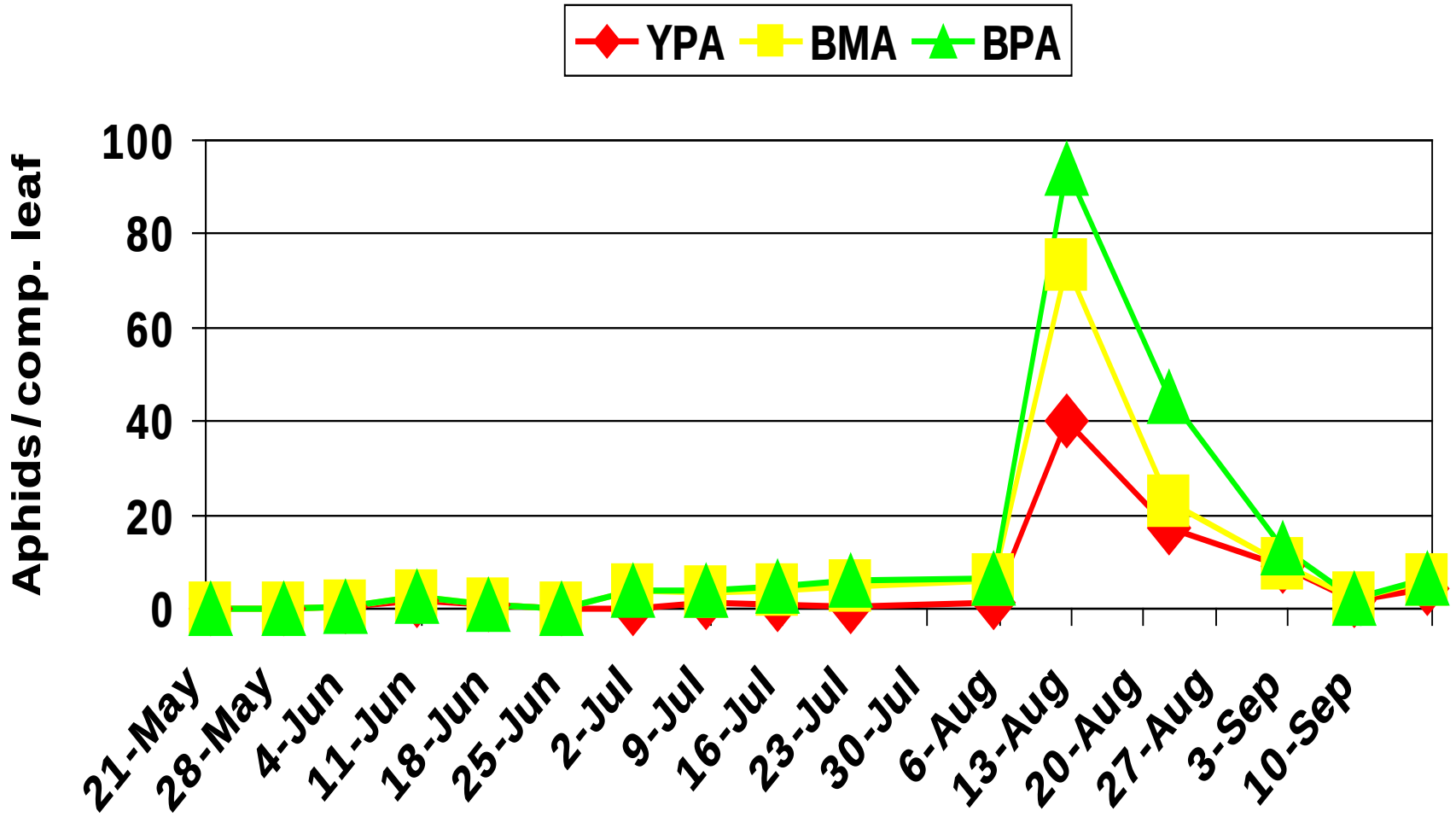
Phylloxera

- Two types – stem and leaf
- “Sucking bugs”, related to aphids
- One generation per year
- Once the galls form, control is difficult
- Treat at bud-break, or go systemic

Leaf Phylloxera

Stem Phylloxera

Aphid Abundance by Date in Untreated Trees

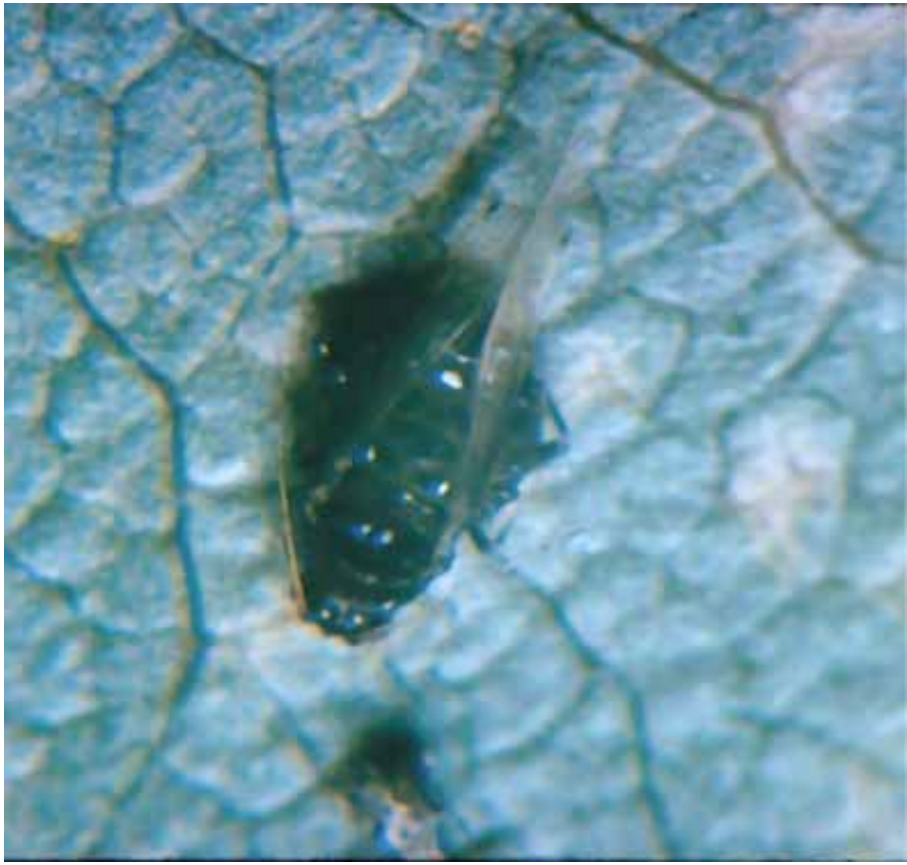


Yellow Pecan Aphid

- May be found any time during the season
- Winged adults are not always present
- Populations usually peak in late summer
- “Threshold” is 20 per compound leaf

Black Pecan Aphid

- Populations usually peak in late season
- Some varieties are very susceptible to damage
- Feeding causes chlorosis and leaflets drop prematurely
- Threshold is 15% 0f terminals with >1



Pecan Aphid Chemical Control

- Soil Treatment – Season-long chemical control is effective with application of systemic insecticide –Admire
- Foliage Treatment - Reliance on beneficial insects for control through early August and foliage application of Dimethoate, Fulfill, Centric, Tri-Max Pro, + Lorsban, etc. from then until October

Pecan Leaf Scorch Mite

- Feeding causes “scorching” effect on leaves
- Mites are usually found on underside of leaflet
- Infestations often start low in the center of the tree
- Vendex, Envidor, Portal, Acramite


UGA2666046

Nut Curculio Adults

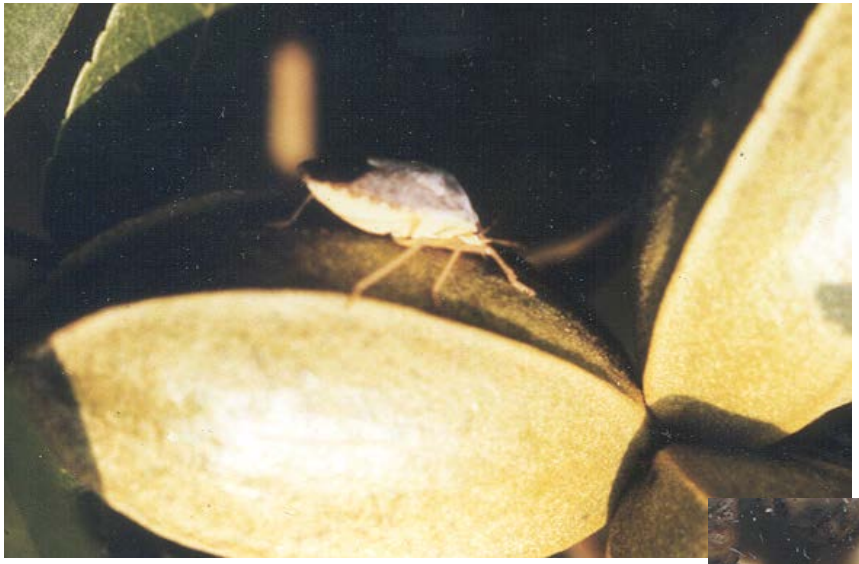

UGA2666008

Hickory Shuckworm

- Losses from two types of damage
  - Nut drop
  - Shuck mining
- Populations build up in three places
  - phylloxera galls
  - then hickory shucks
  - and then pecan shucks

Hickory Shuckworm Damaged Pecans

Pecan Spittlebugs



Control Options

- **Pecan Spittlebug**
  - Imidacloprid, Centric
- **Pecan nut casebearer**
  - IGR's, chlopyrifos, Bt's
- **Hickory shuckworm**
  - IGR's, chlorpyrifos, pyrethoids
- **Hickory nut curculio**
  - Carbaryl, pyrethroids
- **Kernel feeding hemipterans**
  - Pyrethroids
- **Pecan Weevil**
  - Carbaryl, pyrethroids

Basal Leaf Scorch

- Maintain adequate K levels
- When K level is marginal or deficient, N level should be reduced until K is corrected
- Foliar K can help, but does not replace soil applied

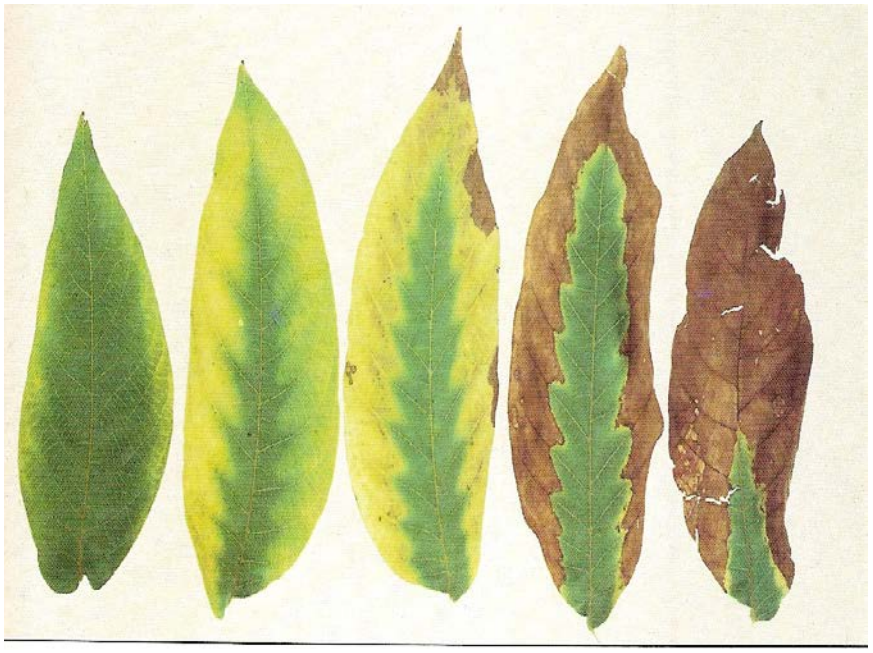
  (Potassium Nitrate: 3 lbs/100 gallons)
- Manage N/K ratio to 2:1
- 1.25-2.5 ppm in leaf analysis
- Manage Mg---(No Dolomitic lime above .45% Mg)

N:P Imbalance

- Similar to N:K imbalance
- Scorching & defoliation occurs 7-10 days before shuck split

Magnesium Deficiency

- 0.35-0.6% leaf
- Deficiency occurs on acid soils (pH <5.5)
- High K or Ca
- Use Dolomitic lime
- If pH adequate, apply foliar Magnesium Sulfate at 5 lbs/100 gallons (4” shoot growth to July)



Iron Deficiency

- Usually induced by:
  Cool, wet spring
  Over-Liming
  High soil Zn, P, Mn
- Occurs early in season
- Chlorosis w/green veins
- Young leaves 1st to be affected

Zinc

- Necessary for shoot elongation, leaf expansion, and yield
- Apply when Zn in leaf is below 50 ppm
- 2 lbs Zinc sulfate + 3 lbs Potassium Nitrate/100 gallons
- Begin 2 wks after bud-break until shoot elongation complete

Nickel

- Zinc Management
- Apply 1 pt/A in spring (April) while canopy is developing (parachute stage);
- 2nd application: 2-4 weeks later
- Third application of 1.5-2 pts/A in late Sept.-early October before leaf fall to prevent mouse ear in the spring flush.

Shuck Decline

- Not a disease
- Brought on by tree stress

  Mainly fruiting stress + drought