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PECAN INSECT PEST MANAGEMENT

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ORCHARDS AT VARYING AGES

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Managing Pests on Young Pecan Trees

- Ambrosia Beetles
- Bud moth
- Borers
  - Flat-headed apple borer
  - Clear-wing moths
  - Twig Girdler
  - Twig Pruner

Ambrosia Beetles

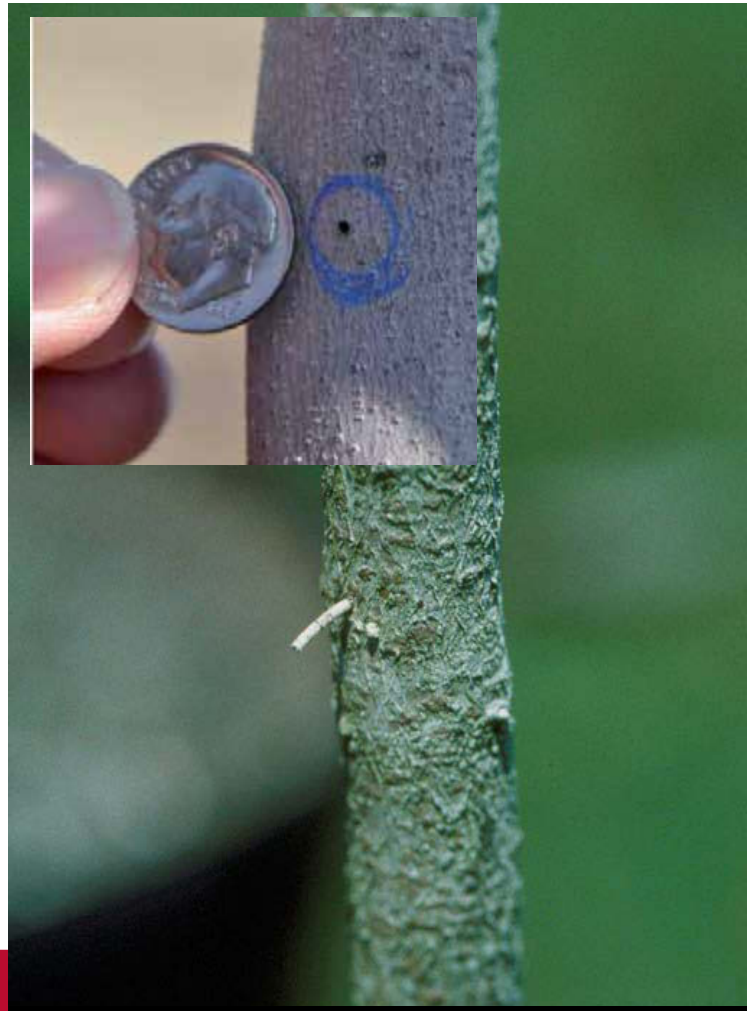
Trees infested with Ambrosia beetles

- Attacks most prevalent in the spring, on young stressed trees
- Traditional barrier sprays not very effective
- Beetles fly usually in March, but sometimes in Feb
- Years of data from nurseries provide no predictive value
- Traps can detect the start of the flight

Ambrosia Beetle Monitoring

- Bolt of hardwood 2”-3” dia.
- Bore a ½” hole down the center and fill with ethanol and cork it
- Deploy traps along woodlines next to orchards by early Feb in south GA
- Traps indicate beetle activity, check traps for ‘toothpicks’ and/or holes

Ambrosia Beetle Treatment



Signs of ambrosia beetle infestations.

- Once the flight starts pyrethroids provide short-term protection
- If attacks are detected trunk sprays must be applied quickly to save the tree
- Once the trees have leafed out completely, the danger is (usually) much lower

PECAN BUD MOTH

- Can be devastating to younger trees
- Attacks start early in the season and continues while trees are flushing new leaves

Pecan Bud Moth Management

- If symptoms are observed, use caterpillar-targeted materials such as Intrepid
- Time sprays when eggs or larvae are exposed outside of buds and shoots

Flat-headed Apple Borer

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Clear-wing Moths

- Often resemble wasps or bees
- Eggs are laid on bark or in wounds
- Caterpillar must chew exit hole before pupating

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Twig Girdler

Twig Pruner

Borer Control

- Usually attack weak or stressed plants
- Control is difficult or impossible once the larvae are in the tree (except Buprestids)
- Traditional barrier sprays worked well, but…
- Pyrethroids are best bet now (except Buprestids)

Managing Pests on Older Nut-Bearing Pecan Trees

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Foliage Pests

Phylloxera

Spittle Bugs

Caterpillars

Aphids

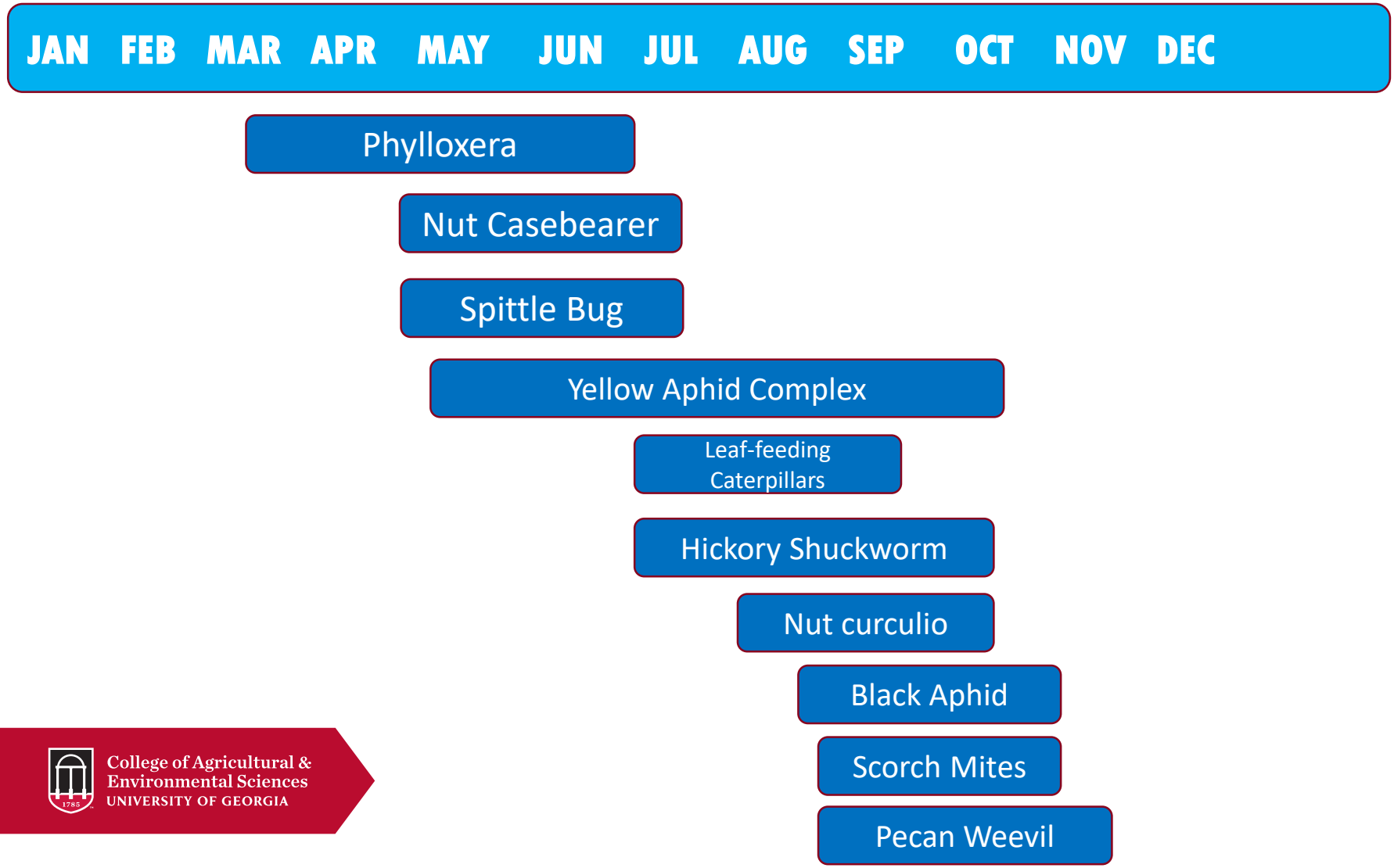
Mites

Nut Pests

Hickory shuckworm

Pecan weevil

IN ORDER OF APPEARANCE



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In Order of Importance

Must treat (if you have them)

- Phylloxera
- Shuckworm
- Black aphid
- Pecan weevil
- Nut curculio

Sometimes need treatment

- Yellow aphid
- Scorch mite

Seldom or never need treatment

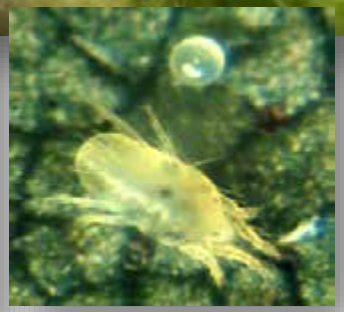
- Nut casebearer
- Spittle bug

Objective : Protecting Pecan Foliage

- Budbreak to Harvest: 8 months
- Pecan foliage has to be conserved and protected from insects and diseases to produce photosynthate for next season’s crop and to reduce the amplitude of alternate bearing cycle

Foliage Feeders

- Phylloxera
- Aphids
- Mites
- Caterpillars



Foliage Pest: PECAN LEAF PHYLLOXERA

Spray at bug break to target the stem mothers.

Foliage Pest: PECAN PHYLLOXERA

- Both leaf and stem species
- Stem species is by far the more damaging
- For both species, treatment window is <u>bud-break</u>

Foliage Feeders: APHIDS

- Short life cycle and produce many offspring
- Lots of natural enemies, so biological control can be effective
- Scouting is critical

Foliage Feeders: SCOUTING FOR APHIDS

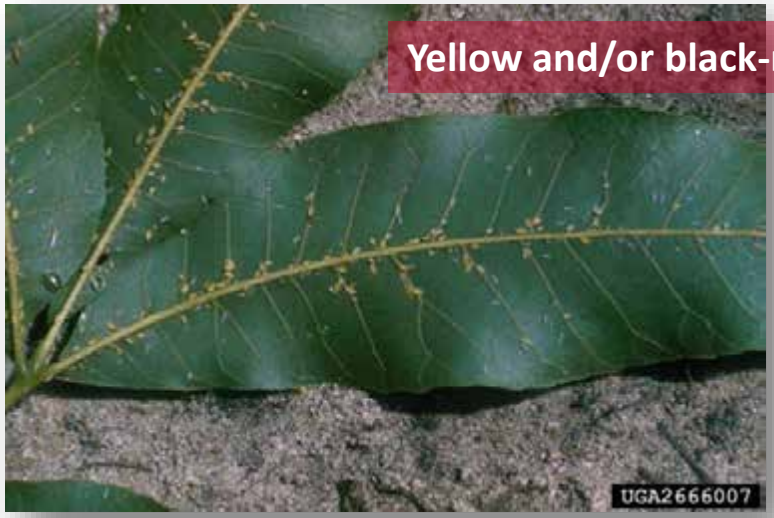
- Orchards should be scouted regularly
- Examine a “random” sample of terminals from trees throughout the orchard
- Know how to identify the aphids
- Recognize beneficial insects
- Know your trees and orchard history

YELLOW PECAN APHID COMPLEX

YELLOW PECAN APHID

- May be found any time during the season
- Winged adults are not always present
- Populations usually peak in late summer

Foliage Pests: YELLOW APHID COMPLEX



Yellow and/or black-margined aphid infestations

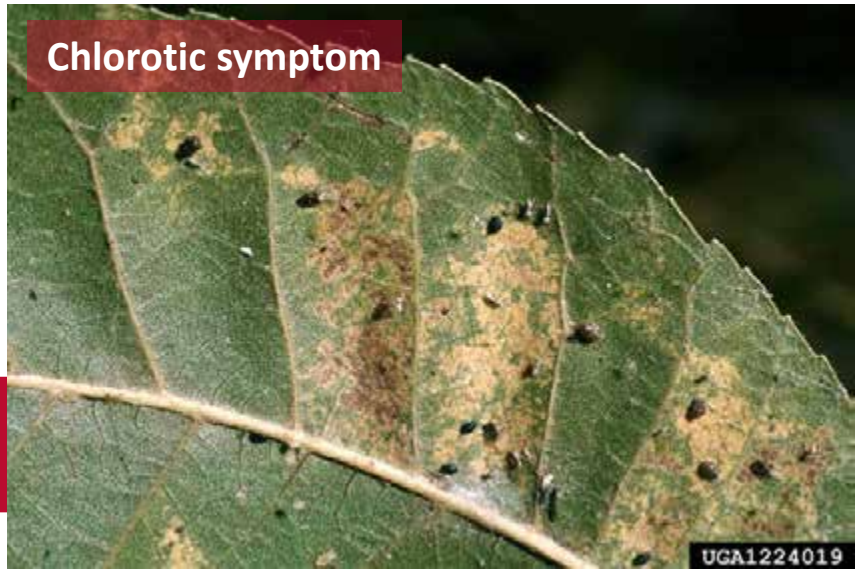
Honeydew excretion from the aphids

Development of Sooty Mold

Foliage Pest: BLACK PECAN APHID


Adult


Nymphs


Chlorotic symptom

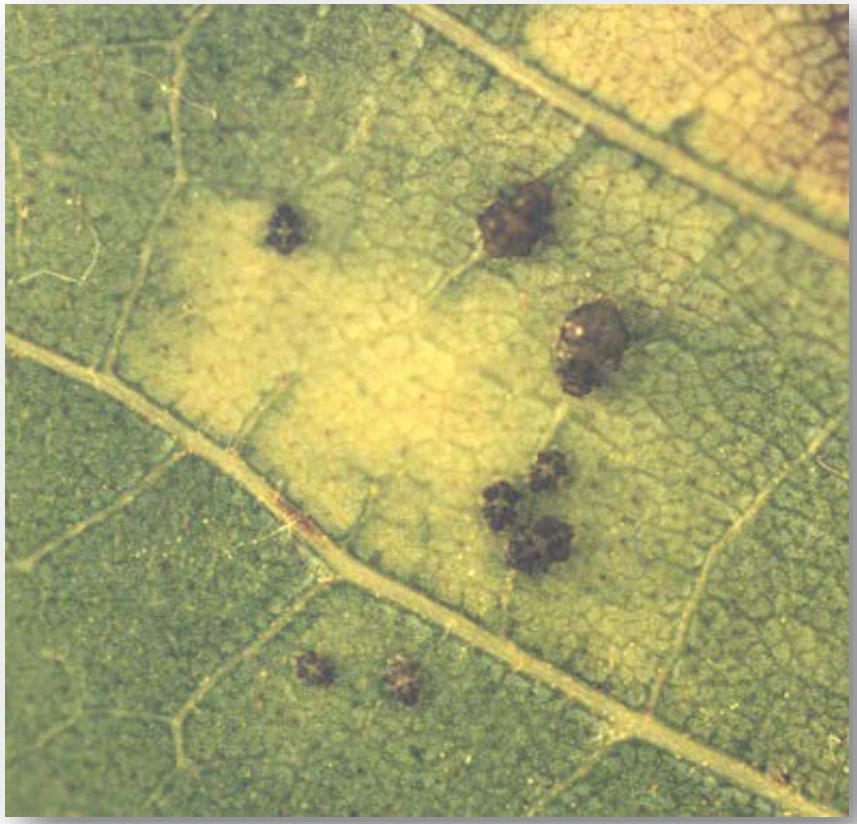
UGA1224019


Heavy infestations can cause defoliation.

UGA1224062

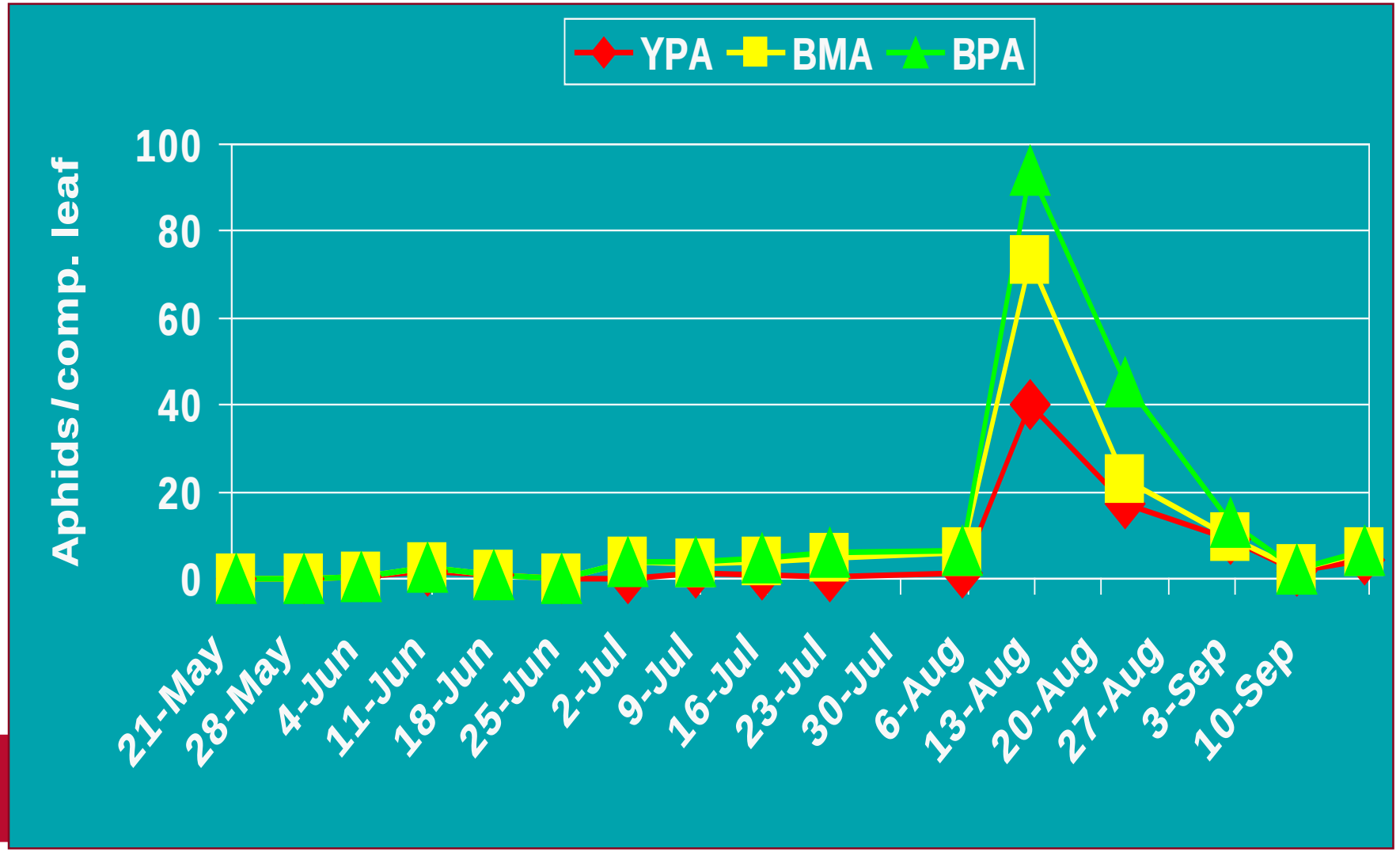
Foliage Feeder: BLACK PECAN APHID

- Populations usually peak in late season
- Some varieties are very susceptible to damage
- Feeding causes chlorosis and leaflets drop prematurely



Foliage Feeder: BLACK PECAN APHID

APHID SEASONAL ABUNDANCE (unsprayed orchard)



APHID MANAGEMENT

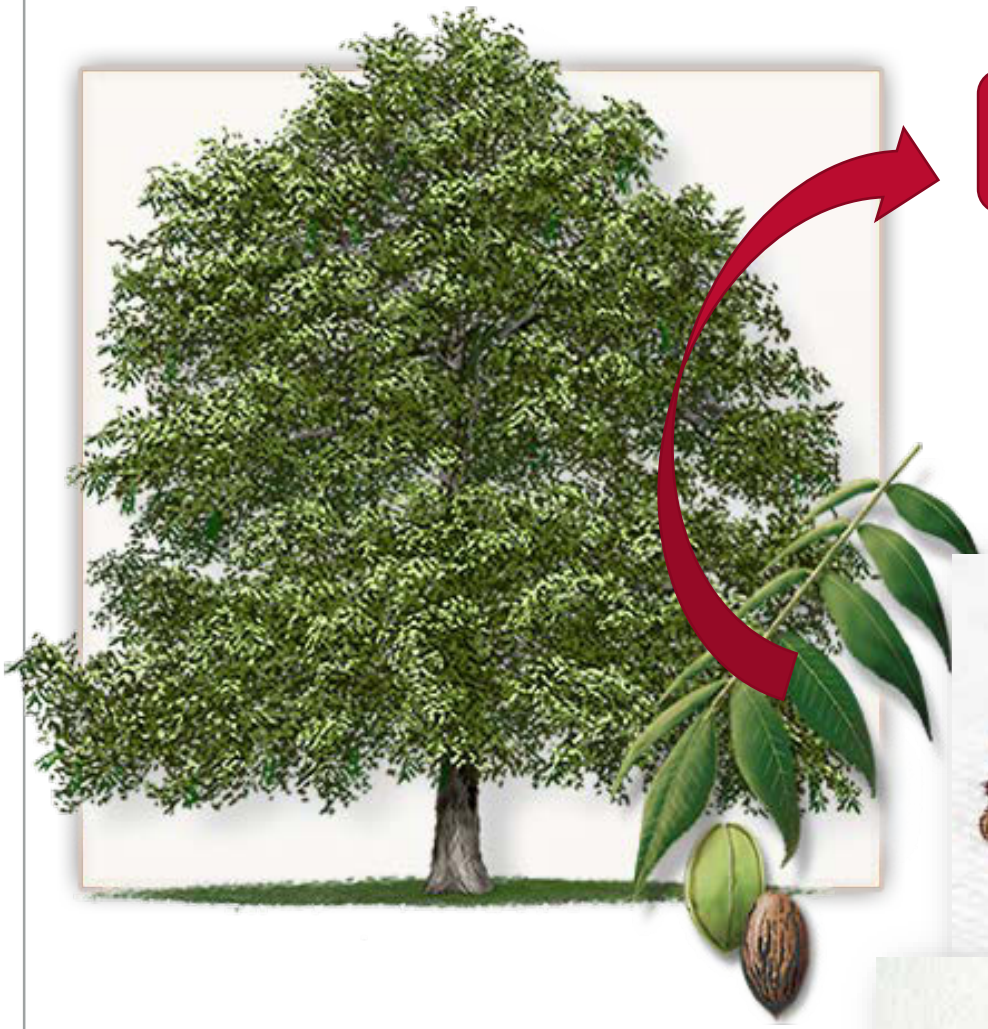
- Reliance on beneficial insects for control through early August and foliage application of insecticides later
- Black Aphid: Spraying of gibberellic acid supplement (mid-July) helps in preventing leaf chlorosis

Foliage Feeder: MITES

- Feeding causes “scorching” effect on leaves
- Mites are usually found on underside of leaflet
- Infestations often start low in the center of the tree
- Miticides are effective but seldom necessary

- ❑ Heavy infestation can cause leaf drop

- ❑ Spraying of broad spectrum insecticides can flare up mite populations



Nut Pests

Hickory Shuckworm

Pecan weevil

Stink bugs

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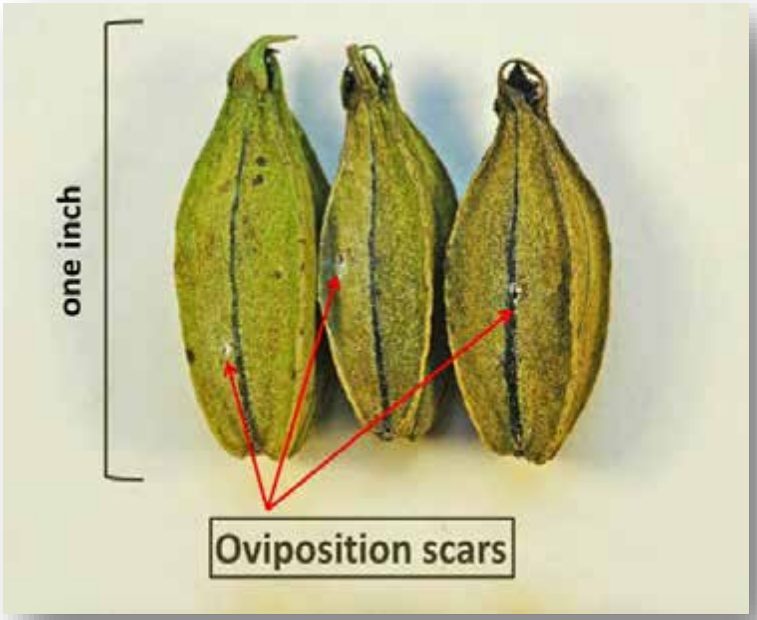
Nut Pest: HICKORY SHUCKWORM

- Losses from two types of damage
  - Nut drop
  - Shuck mining
- Populations build up in three places
  - phylloxera galls
  - hickory shucks
  - pecan shucks
- Impact of nut drop depends on time of season
- Shuckmining causes loss of kernel quality, marks the shell and gives the larvae a secure overwintering site

Hickory Shuckworms infest Phylloxera galls

Orchards with phylloxera infestations should manage for first generation shuckworm.

Nut Pest: HICKORY SHUCKWORM DAMAGE



Shuckworm Injury

Shuckworm Adult

Nut Pest: PECAN WEEVIL

- Starts emerging by July and high numbers occur between August and September
- They feed on and lay eggs inside the nuts

- Spends 1-2 years in the soil

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- Monitoring for adult activity is vital for management decisions

PECAN WEEVIL MONITORING

- ❑ These traps are not baited with lures
- ❑ These traps rely on the behavior of the weevils to walk up on trees via the main trunk upon emergence

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- Check weevil traps twice per week from late July to mid-October
- Prioritize areas where previous weevil infestation occurred

PECAN WEEVIL MANAGEMENT

Spray when:

- Before shell hardens: adult emergence is steady/increasing and significant nut drop occurs

  or

- After shell hardens or pecans are in gel stage: treat when weevils emerge (especially following rain)

Biological control:

parasitic nematodes, fungi

NATURAL ENEMIES

Lacewing Eggs and Larva

Lady Beetles

NATURAL ENEMIES

Pirate bugs

Nymph feeding on aphid

BOTTOM LINE

- You must spray for, if present:
  - Weevils
  - Black aphids
  - Shuckworms
- You might need to treat:
  - Phylloxera
- Almost never:
  - Mites, yellow aphids, nut casebearer

- *Scout*
- *Know your pest and beneficials*

INFORMATION ON WHAT TO SPRAY