INSECT UPDATES

PECAN PRODUCTION MEETINGS

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Pecan Research Entomologists and Extension Specialists

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Dr. Acebes UGA Appointment

- Tree Nut (Pecan) Insect Research (60%)
- Extension (25%)
- Teaching (15%)

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Pecan Entomology Research

1) Investigating effects of hedging trees on insect populations
2) Surveying and monitoring of ambrosia beetles
3) Studying parasitism of pecan aphids
4) Side projects:

- Trapping studies on *Prionus* root borer
- Testing insecticidal netting on pecan weevils
- Insecticidal trials against various pecan pests

INSECT THREATS ON PECAN PRODUCTION

Foliage Feeders

Aphids, Mites,
Phylloxera, Caterpillars

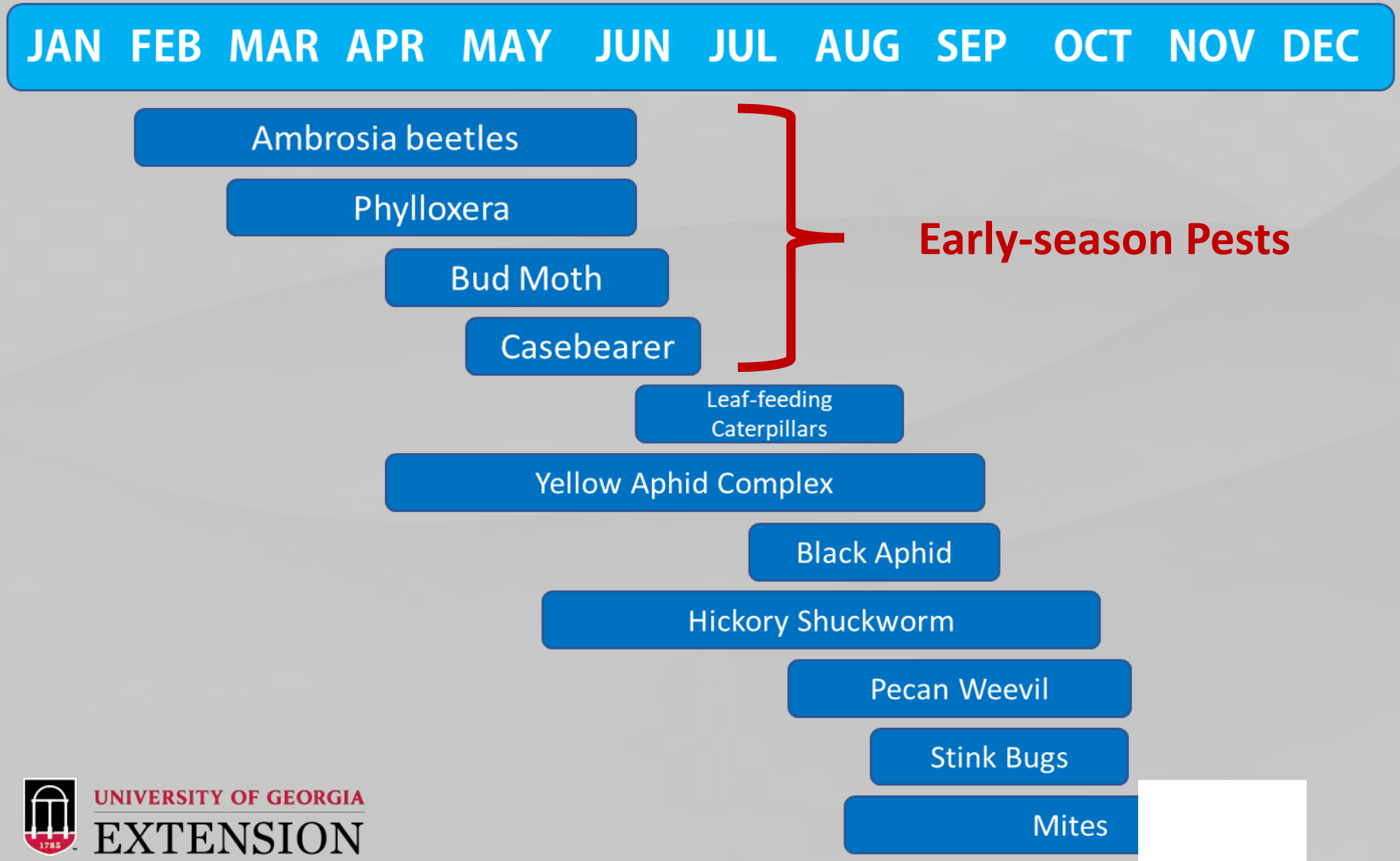
Nut feeders

Pecan weevil, Shuckworm,
Stink bugs, Nut casebearer

Trunk & root feeders

Ambrosia beetles,
Prionus rootborers

TIMELINE OF INSECT PESTS IN PECAN ORCHARDS



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PECAN MANAGEMENT

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Bearing trees only | Both non-bearing and bearing trees | Non-bearing trees only

JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC

TREE PHENOLOGY

DISEASE MANAGEMENT

Fungicide sprays at budbreak

Prepollination fungicide sprays at 10- to 14-day intervals based on disease potential

Postpollination fungicide sprays at 10- to 25-day intervals based on disease potential

Continue fungicide sprays at 14-day intervals

Fungicide may be needed under heavy disease pressure

Pecan scab is possible on immature foliage and expanding new foliage/shoots/grass. Most young, non-bearing trees do not require fungicide applications. With highly susceptible cultivars (e.g., 'Desirable' and 'Pawnee') fungicide applications can be coordinated with insecticide applications.

Available for download here.

INSECT AND MITE PEST MANAGEMENT

Phylloxera - To estimate risk, examine buds of susceptible trees with stereoscope at budbreak.

Hickory shuckworms - Actively mild a previous history of shuckworms may need to be treated as early as the beginning of June. Orchards with phylloxera infestations may need to manage for shuckworms many susceptible products.

Pecan weevils - Male emergence occurs from late July to late September. Deploy traps in late July to orchard blocks with known history of infestation. Monitor regularly for captures and treat whenever sustained captures are observed, especially following rain.

Stink bugs - Monitoring nuts and scattered nuts can be noticeable to stink bug attack. Pheromone traps and visual surveys can be used by number stink bug populations depending on the species.

Posters will be available for pick up at the GPGA Tifton Office by mid-May.

FERTILIZATION

Take soil samples

Apply lime

Zinc, phosphorus, and magnesium may be applied to the orchard floor

Apply all potassium and phosphorus

Apply potassium in July and beyond orchards

Fertilize orchard orchards according to leaf and soil analysis

Make foliar zinc, phosphorus, and boron applications

Make first nitrogen application to mature trees

Fertilize young trees (second year and up)

Apply zinc sprays to correct zinc affected trees as needed

Obtain leaf tissue samples (5 sets of nuts/shells from the current tree variety)

Soil samples may be taken

Make foliar zinc applications

Make second nitrogen application to mature trees if crop load is good

Fertilize trees post-trees exhibiting good growth, and make second fertilizer applications to maintain your trees and up

Make foliar zinc and mineral applications if tree growth flush is present or deficiency symptoms appear

Assess crop load, and if heavy, make third nitrogen application to mature trees

Do not apply nitrogen if there is no crop on trees

Take soil samples

Lime, zinc, phosphorus, and magnesium may be applied

Make zinc application to correcting deficient trees

IRRIGATION

45-70 gal/tree/day
575-840 gal/acre/day
10-20% full capacity
Drip cycle: 60%
Sprinkler Gls./Acre/d: 0.5 in.

75-105 gal/tree/day
900-1200 gal/acre/day
25-30% full capacity
Drip cycle: 70%
Sprinkler Gls./Acre/d: 0.75 in.

90-140 gal/tree/day
1080-1680 gal/acre/day
35-40% full capacity
Drip cycle: 80%
Sprinkler Gls./Acre/d: 1.0 in.

120-350 gal/tree/day
1440-1950 gal/acre/day
45-50% full capacity
Drip cycle: 90%
Sprinkler Gls./Acre/d: 1.25 in.

300-350 gal/tree/day
3600-4200 gal/acre/day
100% full capacity
Drip cycle: 100%
Sprinkler Gls./Acre/d: 1.5 in.

300-350 gal/tree/day
3600-4200 gal/acre/day
100% full capacity
Drip cycle: 100%
Sprinkler Gls./Acre/d: 1.5 in.

90-140 gal/tree/day
1080-1680 gal/acre/day
35-40% full capacity
Drip cycle: 60%
Sprinkler Gls./Acre/d: 1 in.

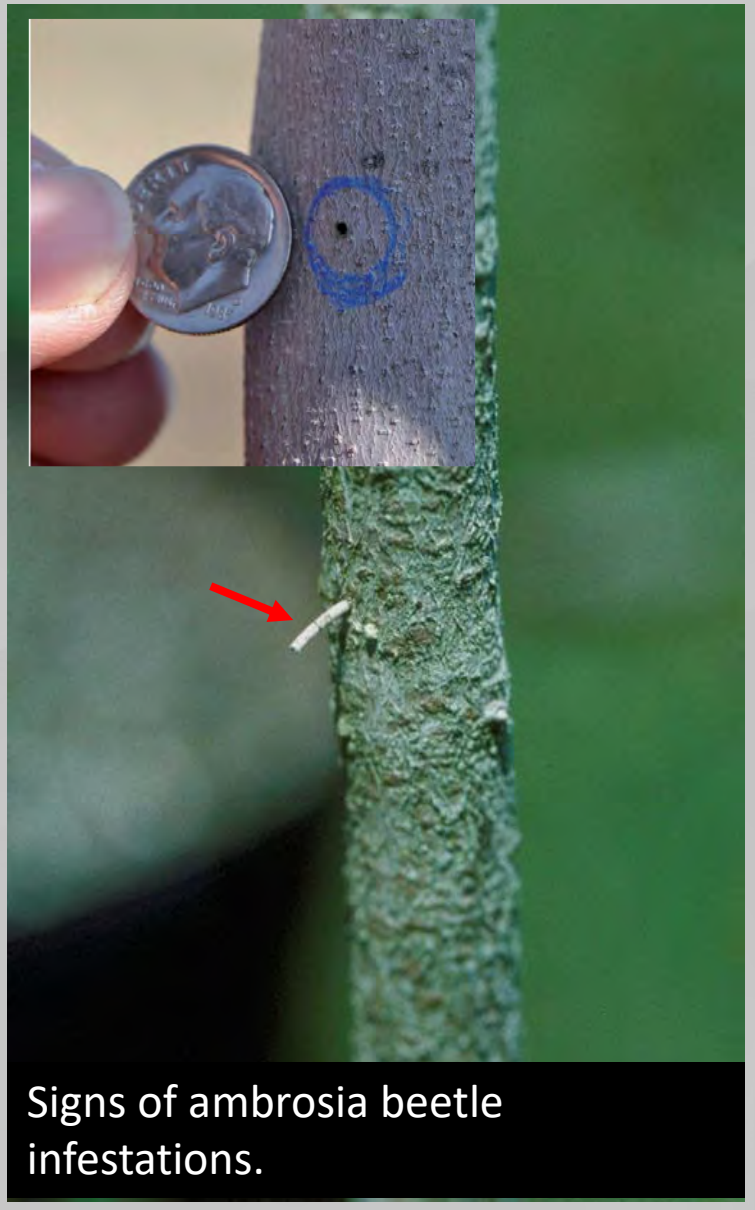
Drip cycle: 60%
Sprinkler Gls./Acre/d: 0.5 in.

Turn irrigation off for three days when receiving >1 in. of rain.

AMBROSIA BEETLES

Ambrosia beetles collected from young infested pecan trees in Georgia.

- **Vulnerable Trees**: Stressed trees (especially under flooded conditions, frost damage)
- Trees can recover, the more the attack, the higher the possibility trees could die
- Immediate action is vital in saving the tree



Signs of ambrosia beetle infestations.

IMPORTANT POINTS

Older trees can be attacked if they are stressed!

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AMBROSIA BEETLE MONITORING

Trap:

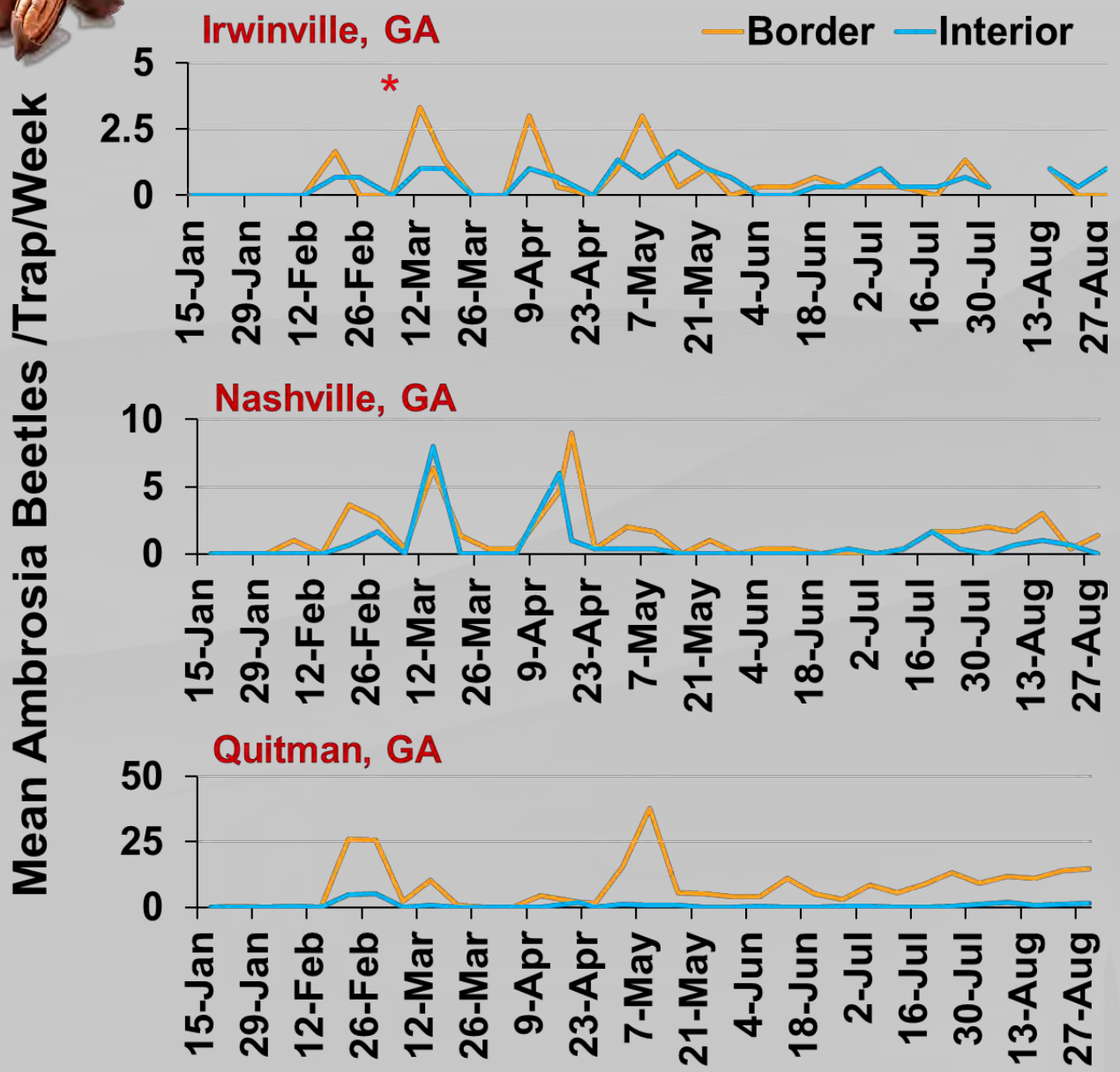
- Bolt of wood with a drilled hole in the middle
- Pour **ethanol/denatured alcohol**, into the hole
- Cover with cork

➢ Deploy traps along woodlines next to orchards by **early Feb in south GA**

Pecan Orchards

Beetle activity starts in <u>early Feb</u>.

Peak Beetle Activity:
late Feb–mid March
early April–mid May



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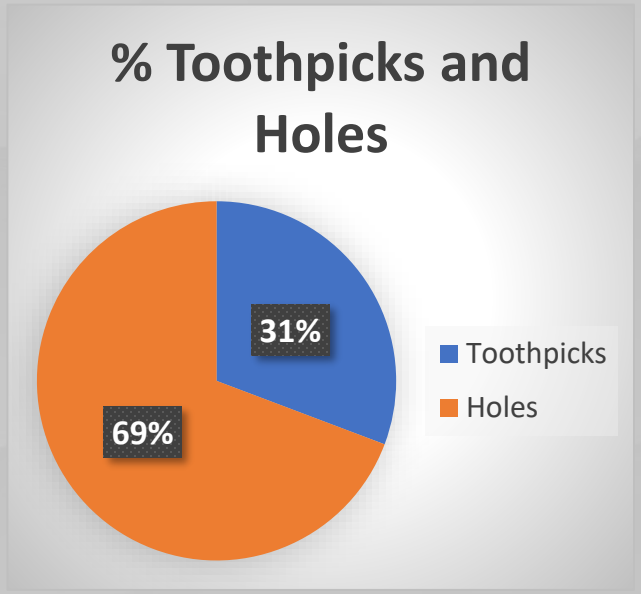
AMBROSIA BEETLE MONITORING

- Check traps for **‘toothpicks’ and holes**, traps indicate beetle activity.



- When attacks are detected, scout trees in areas that may be vulnerable to attacks
- Treat infested trees with **pyrethroids** (repeat applications after 7-10 days)

Ambrosia beetles are OUT!

2020 Start of Beetle Flight Activity:

South GA: mid-Feb
Middle GA: mid-March

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Please Fill Out the Survey

Help us estimate ambrosia beetle impacts on pecans.

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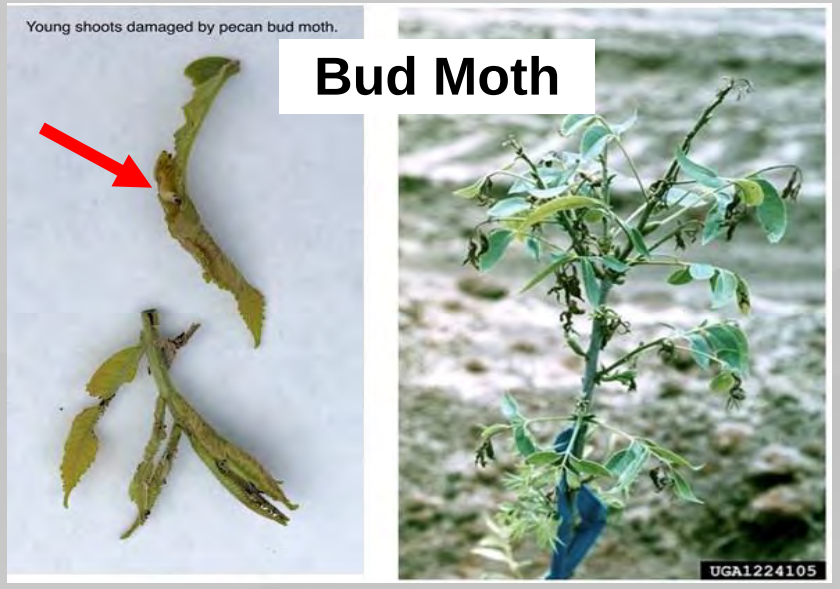
Holes not made by Ambrosia Beetles

OTHER EARLY SEASON INSECT PESTS

- Leaf and stem species
- Orchards with previous history of infestation, spray with imidacloprid
- Treatment window:
  Budbreak with pre-pollination spray
- Spray at budbreak (1st pre-pollination spray)
- Time sprays before the insects are enclosed by the galls
- Too late to spray once damage is observed



- Early season attack can seriously damage young trees (can kill terminals causing multiple branching). Larvae feed on leaves, buds and shoots
- Scout for bud moth damage in young trees
- Time application before caterpillars bore into the shoots
- Intrepid, Intrepid Edge, Dimilin

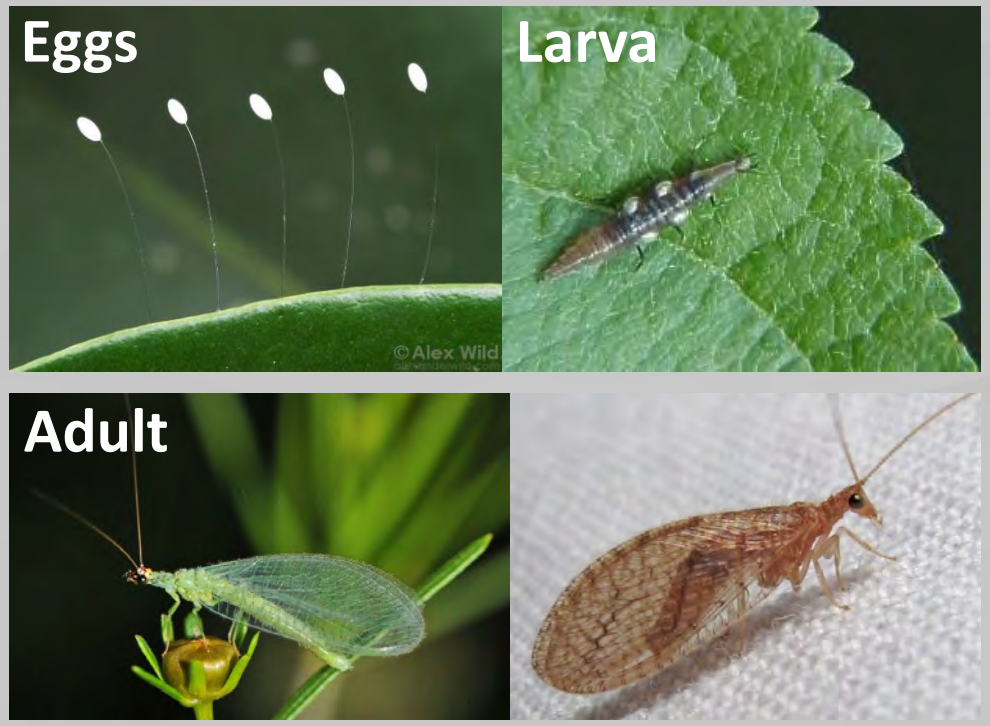
Pecan Nut Casebearer

- Early to mid-May is when eggs are laid (weather dependent).
- **During heavy crop load**, can serve as a natural thinning mechanism.
- Light infestations do not require control.
- Management options:
  Intrepid, Intrepid Edge and Dimilin
- Time application before larvae start feeding inside the nut (monitor for adult emergence)

EARLY IN THE SEASON: HOLD OFF SPRAYING FOR APHIDS! DO NOT USE PYRETHROIDS OR LORSBAN TO CONSERVE BENEFICIAL INSECTS!

Common Predatory Insects

Lacewing



Lady Beetles (Predator)

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European Union
Chlorpyrifos Max Residue: 0.05 ppm (mg/kg)

Common Predatory Insects

Minute Pirate Bugs

Nymph feeding on aphid

Adult

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2019 LATE-SEASON INSECTICIDAL TRIALS

APHIDS AND MITES

APPLY ONLY IF NEEDED!

Yellow and Black Pecan Aphids:

Closer (2.75 oz/A), Carbine (2.8 oz/A)

Nexter (11 oz/A), PQZ (2.4 – 3.2 oz/A)

Mites:

Nexter (11 oz/A*), Portal (32 fl oz/A)

* Different colors represent different mode of actions.

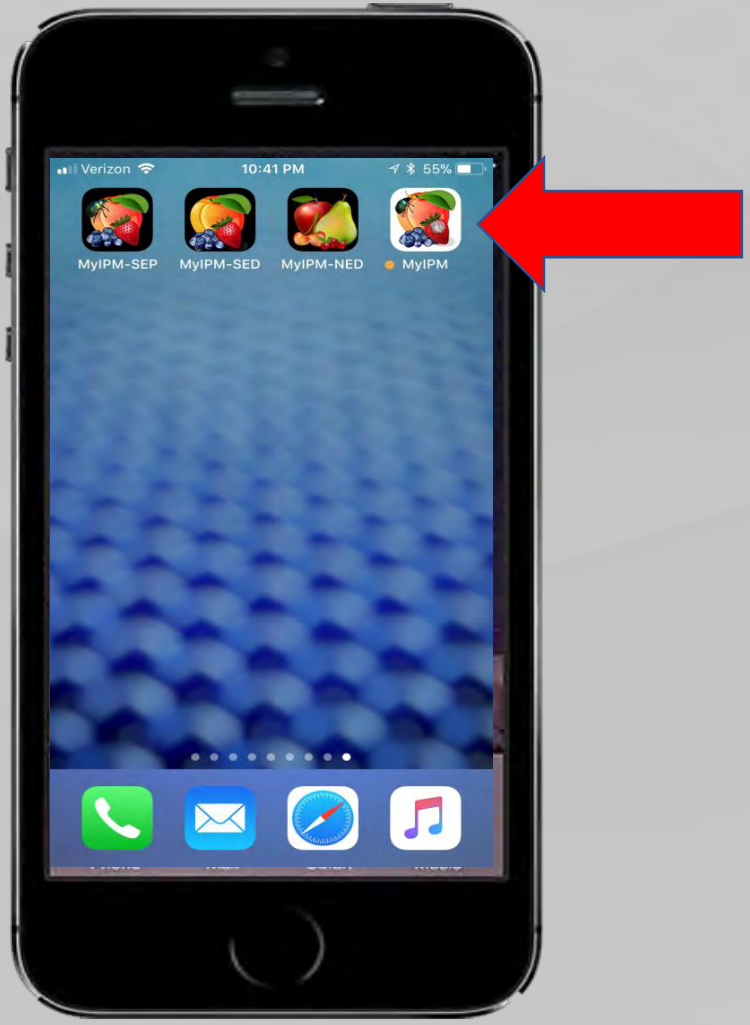
Rotate/Alternate materials to delay resistance development.

Take Home

- **Accurate pest identification, and monitoring is important.**
- **Assess infestation levels and only treat if needed.**
- **If you choose to treat, timing of application and type of material to use is important.**
- **Early season: hold off spraying for aphids, avoid using broad spectrum insecticides (pyrethroids and chlorpyrifos) to help conserve beneficial insects.**

REMEMBER: NOT ALL INSECTS ARE PESTS

MyIPM App:
Free Mobile App with Info on Pecan Pests & Their Management



Available for iPhones & Androids

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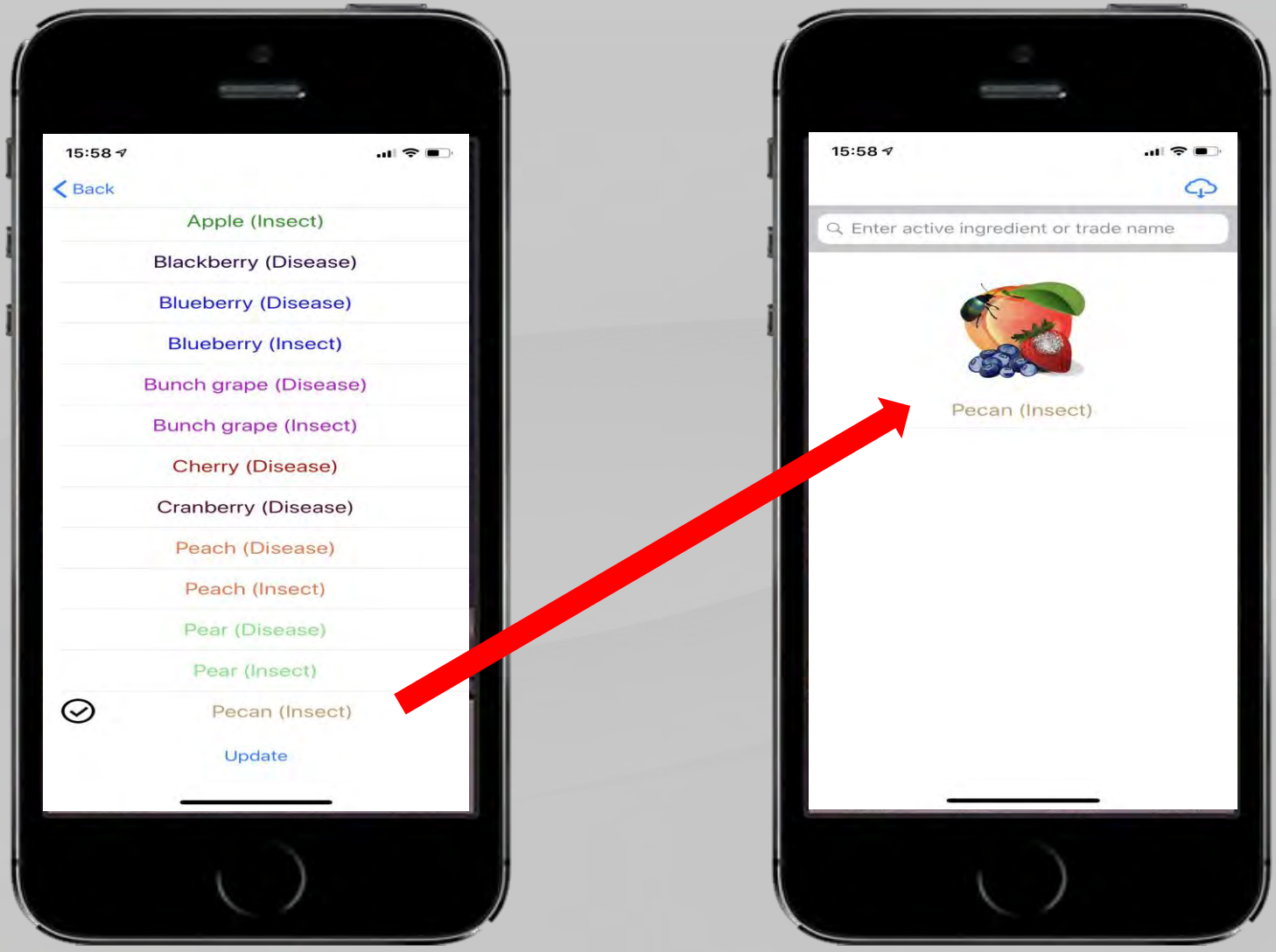
Choose and download crops and pests of your interest.



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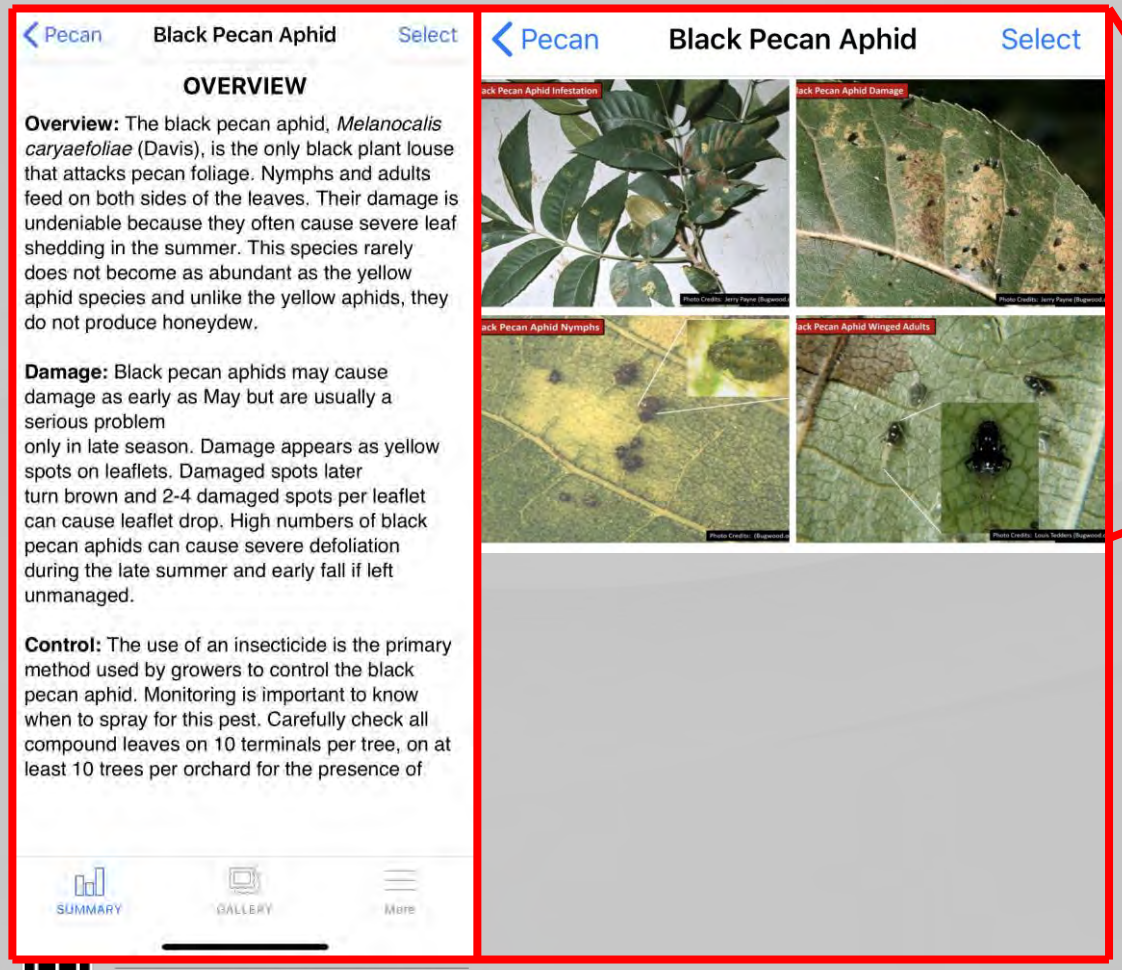
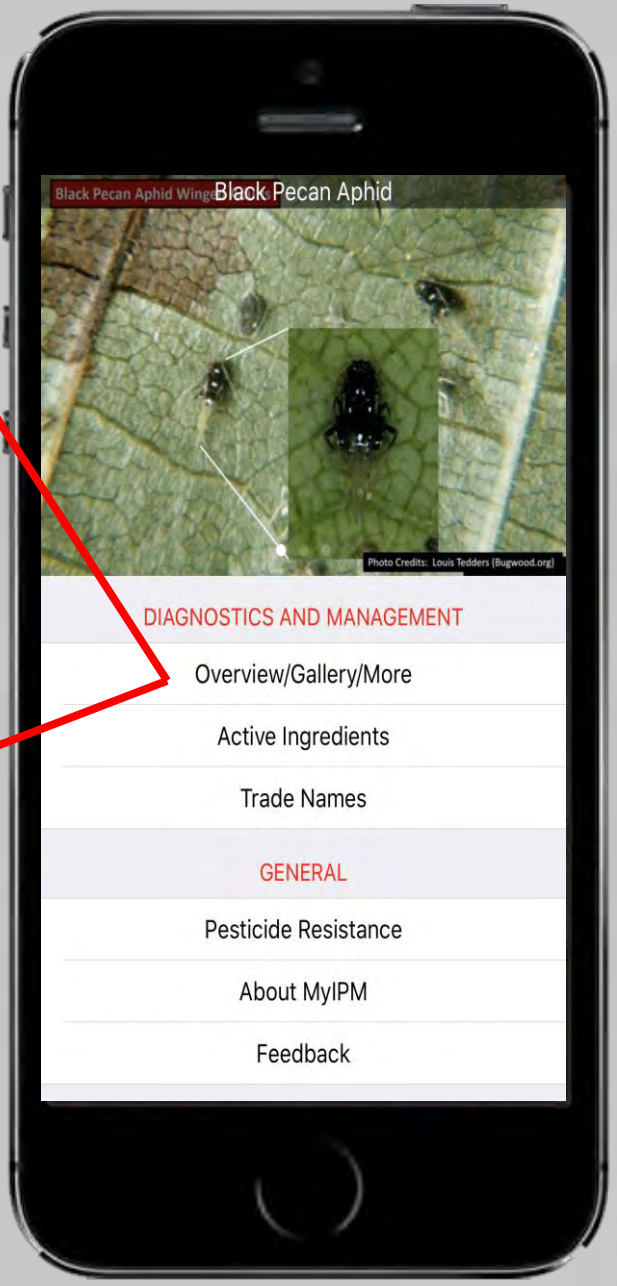
Diagnostic Tools

Descriptions & Zoomable photo gallery

Pest Biology





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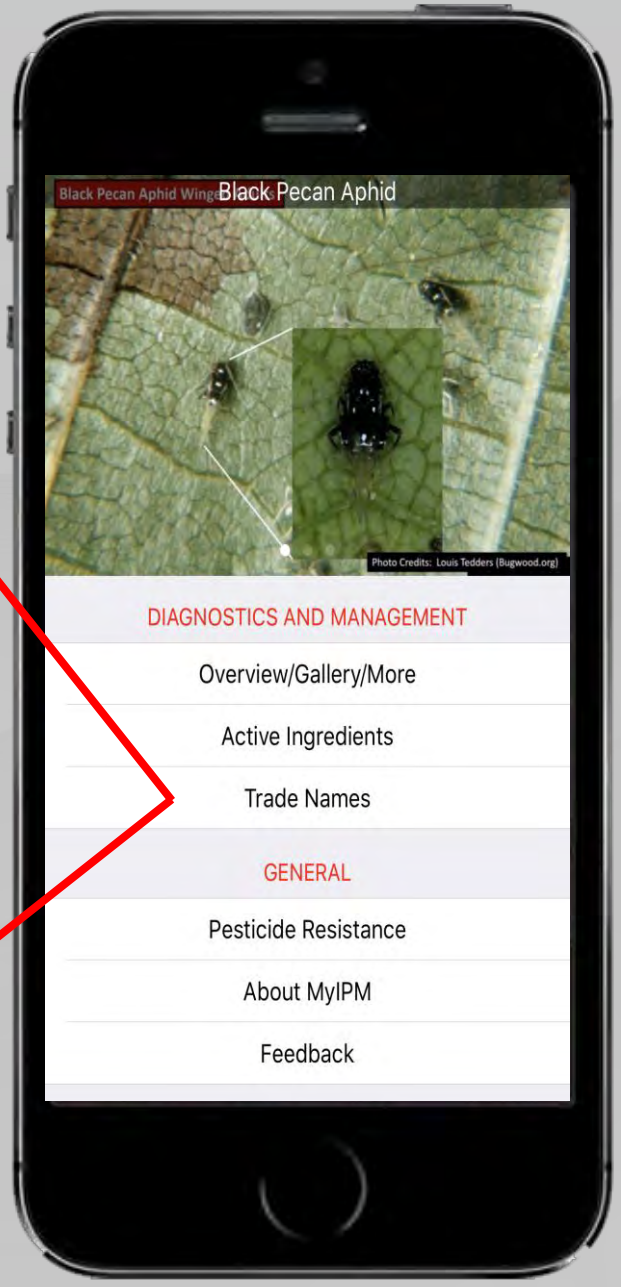
Management Recommendations

Pecan | Black Pecan Aphid | Select

Conventional | Organic

Trade Name	Efficacy	Rate/Acre
Admire Pro	?	7-14 fl oz
Apta	?	17-27 fl oz
Assail 30SG	?	2.5-9.6 fl oz
Belay	?	3-6 fl oz
Beleaf	+++++	2-2.8 fl oz
Carbine	+++++	2-2.8 fl oz
Centric	?	2-2.5 fl oz
Closer	+++++	1.5-2.75 fl oz
Fulfill	?	4 oz
Lorsban	?	Check Label
Nexter	++++	5.2-10.67 fl oz
Provado	?	see label



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Extension Programs

GPGA Conference and Trade Show:

September 10th and 11th 2020

(Tifton Conference Center)

Field Day:

First Thursday of September

Location: UGA

Website:

www.ugapecan.org

Blog:

https://site.extension.uga.edu/pecan/

Acknowledgment

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