

Making Pest Management (PM) Decisions

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Outline

- What is pest management (PM)?
- Seasonal Pests & Insecticide(s) Recommended
- Seasonal Scouting & Decision-making

Pest Management - *timely scouting (visual or traps) for presence of pests and/or damage to aid decision to use a control tactic*

Scouting



Damage



When to use tactic



2020 Southeast Regional Caneberries Integrated Management Guide (p. 47)

Seasonal ‘at a glance’ insecticide spray schedule options for caneberries

Developmental Stage	Delayed Dormant	Shoots 6” long	Pre-Bloom	Petal Fall	Cover Sprays	Pre-Harvest through Harvest	After Harvest
Insects Controlled (Insecticides & Miticides)	Raspberry Crown Borer (Altacor, Asana, Brigade)	Strawberry Clipper (Sevin, Brigade, Danitol, Assail, Delegate, Entrust)	Strawberry Clipper (Sevin, Brigade, Danitol, Assail, Delegate, Entrust)	Aphids (M-Pede, Actara, Assail, Admire)	Spotted-wing Drosophila (Brigade, Malathion, Entrust, Delegate, Danitol, Mustang, Mustang Maxx)	Spotted-wing Drosophila (Brigade, Malathion, Entrust, Delegate, Danitol, Mustang, Mustang Maxx)	Raspberry Crown Borer (Altacor, Asana, Brigade)
	Fire Ants (Extinguish Professional Fire Ant Bait, Esteem Fire Ant Bait)		Stink Bugs (Brigade, Assail, Actara, Azera)	Stink Bugs (Brigade, Assail, Actara, Azera)	Stink Bugs (Brigade, Assail, Actara, Azera)	Stink Bugs (Brigade, Assail, Actara, Azera)	Fire Ants (Extinguish Professional Fire Ant Bait, Esteem Fire Ant Bait)
			Flower Thrips (Entrust, Delegate, Assail)	Rednecked Cane Borer (Brigade)	Rednecked Cane Borer (Brigade)	Sap Beetle (Bait Buckets)	
			Blackberry Gall Midge (Sevin, Brigade, Danitol, Assail, Delegate, Entrust)	Rose Scale (Admire, Assail)	Spider Mites (Savey, Light Summer Oils, Acramite, Kanemite)	Spider Mites (Savey, Light Summer Oils, Acramite, Kanemite)	
			Raspberry Cane Borer (Malathion)		Japanese Beetle, Blackberry Psyllid (Sevin, Malathion)	Japanese Beetle (Sevin, Malathion)	
					Broad Mites (Agri-Mek)	Broad Mites (Agri-Mek)	

Efficacy of selected insecticides against caneberry insects (E = excellent, VG = very good, G = good, F = fair, P = poor, NA = not recommended)

These ratings are benchmarks, actual performance will vary.

Insecticide	IRAC MOA	Raspberry Crown Borer	Fire Ants	Strawberry Clipper Weevil	Stink Bugs	Flower Thrips	Blackberry Gall Midge	Raspberry Cane Borer	Aphids	Rose Scale	Rednecked Cane Borer	Spotted-wing Drosophila	Spider Mites	Broad Mites	Blackberry Psyllid	Japanese Beetle
carbaryl (Sevin XLR)	1A	NA	NA	G	NA	NA	G	NA	NA	NA	NA	NA	NA	NA	G	G
malathion (many formulations)	1B	NA	NA	NA	NA	NA	NA	G	NA	NA	NA	G	NA	NA	G	G
bifenthrin (Brigade 2EC)	3A	VG	NA	VG	VG	NA	VG	NA	NA	NA	VG	E	NA	NA	NA	NA
esfenvalerate (Asana XL 0.66EC)	3A	G	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fenpropathrin (Danitol 2.4EC)	3A	NA	NA	G	NA	NA	G	NA	NA	NA	NA	E	NA	NA	NA	NA
pyrethrins + azadirachtin (Azera)	3A+ UN	NA	NA	NA	F	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
hexythiazox (Savey 50DF)	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	G	NA	NA	NA
zeta-cypermethrin (Mustang; Mustang Maxx)	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	E	NA	NA	NA	NA
acetamiprid (Assail 30SG)	4A	NA	NA	G	G	G	G	NA	VG	G	NA	NA	NA	NA	NA	NA
imidacloprid (many trade names)	4A	NA	NA	NA	NA	NA	NA	NA	E	E	NA	NA	NA	NA	NA	NA
thiamethoxam (Actara 25 WDG)	4A	NA	NA	NA	G	NA	NA	NA	E	NA	NA	NA	NA	NA	NA	NA
spinetoram (Delegate WG 25%)	5	NA	NA	VG	NA	G	VG	NA	NA	NA	NA	VG	NA	NA	NA	NA
spinosad (Entrust 80WP; Entrust SC)	5	NA	NA	VG	NA	G	VG	NA	NA	NA	NA	VG	NA	NA	NA	NA
abamectin (Agri-Mek SC)	6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	G	NA	NA

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Seasonal Scouting of Blackberry

- **March:**

- ✓ If <5% of floricanes have rednecked cane borer gall - *prune out galled canes*



- **Flower buds to 1st bloom:**

- ✓ Check for severed flower buds and strawberry clipper weevil on flower buds



- **May - June:**

- ✓ Trap/check primocane leaves for rednecked cane borer adults



- **July-August:**

- ✓ Cut base of dead/shepherd crooked primocanes = see white raspberry crown borer larva tunnel



Seasonal Scouting of Blackberry

- **Just before ripening - harvest:**

- ✓ Check traps for spotted wing drosophila flies & ripe fruit for eggs or legless larvae



- **May - October:**

- ✓ Check primocane terminals for cupped leaves with broad mites on underside



- **June - harvest:**

- ✓ Check fruit for ...



- **Sept. – 1st fall freeze:**

- ✓ Check for raspberry crown borer moths laying eggs underside leaves



Strawberry Clipper: Monitor and Control

Monitor just before 1st bloom:

- Detect adults/clipped buds
- If damaged, apply insecticide by 1st bloom - **rotate mode of action (#)**:
 - PHI 1 d
 - Assail (4) G
 - Delegate (5) VG
 - Entrust (5) VG OMRI
 - PHI 3 d
 - Brigade (3) VG
 - Danitol (3) G
 - PHI 7 d
 - Sevin (1A) G



Photo: Alan Eaton

*Blackberries
compensate
for this bud
loss*



Save Bees: No sprays from 1st bloom to end of bloom



Rednecked Cane Borer: Biology

Summer: larva girdles cane
causing gall



Winter:
Larva in pith



Rednecked Cane Borer: Reduces yield

Healthy canes leaf out



Winter injured galled canes
have leaves below gall



Rednecked Cane Borer: Cultural Control

Cultural: If < 5% gall canes

Mid-April: prune out and
shred galled canes



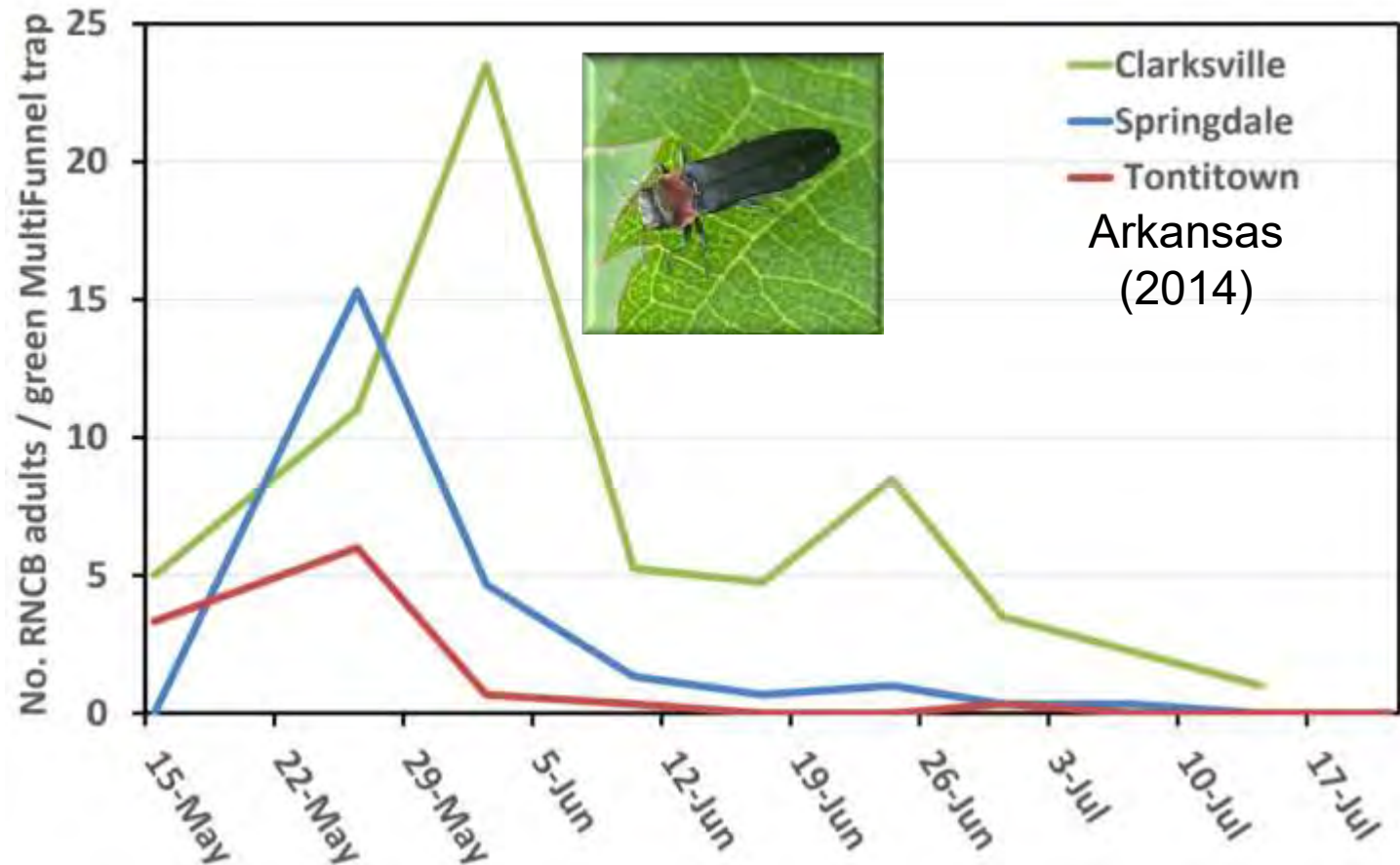
Rednecked Cane Borer: Monitoring

In blocks with history of RNCB galling (> 5% galled):

May-June: weekly look midday for adults on primocane leaves



Or **May-June**, check green multi-funnel trap weekly for rednecked cane borers



P218-Trap-green [Request 8 funnel trap with lid = height of canes
From Agbio Inc. 303-469-9221; agbio@agbio-inc.com)

Rednecked Cane Borer:

Chemical Control

Petal Fall: If adults detected spray primocanes with:

- ✓ Two insecticide sprays applied 10-14 days apart
 - PHI 3 day
 - Brigade (3A) VG
- ✓ Apply weekly only if $< 90^{\circ}\text{F}$ (phytotoxic if hot)
 - PHI 1 day
 - JMS Stylet Oil (OMRI) G



Spotted Wing Drosophila: Monitoring

Covered by Dr. Burrack

3 weeks before ripening:

- Weekly, check for flies in Scentry lure + soapy water baited traps placed at field edge

First ripened fruit:

- Check ripened fruit for eggs or larva

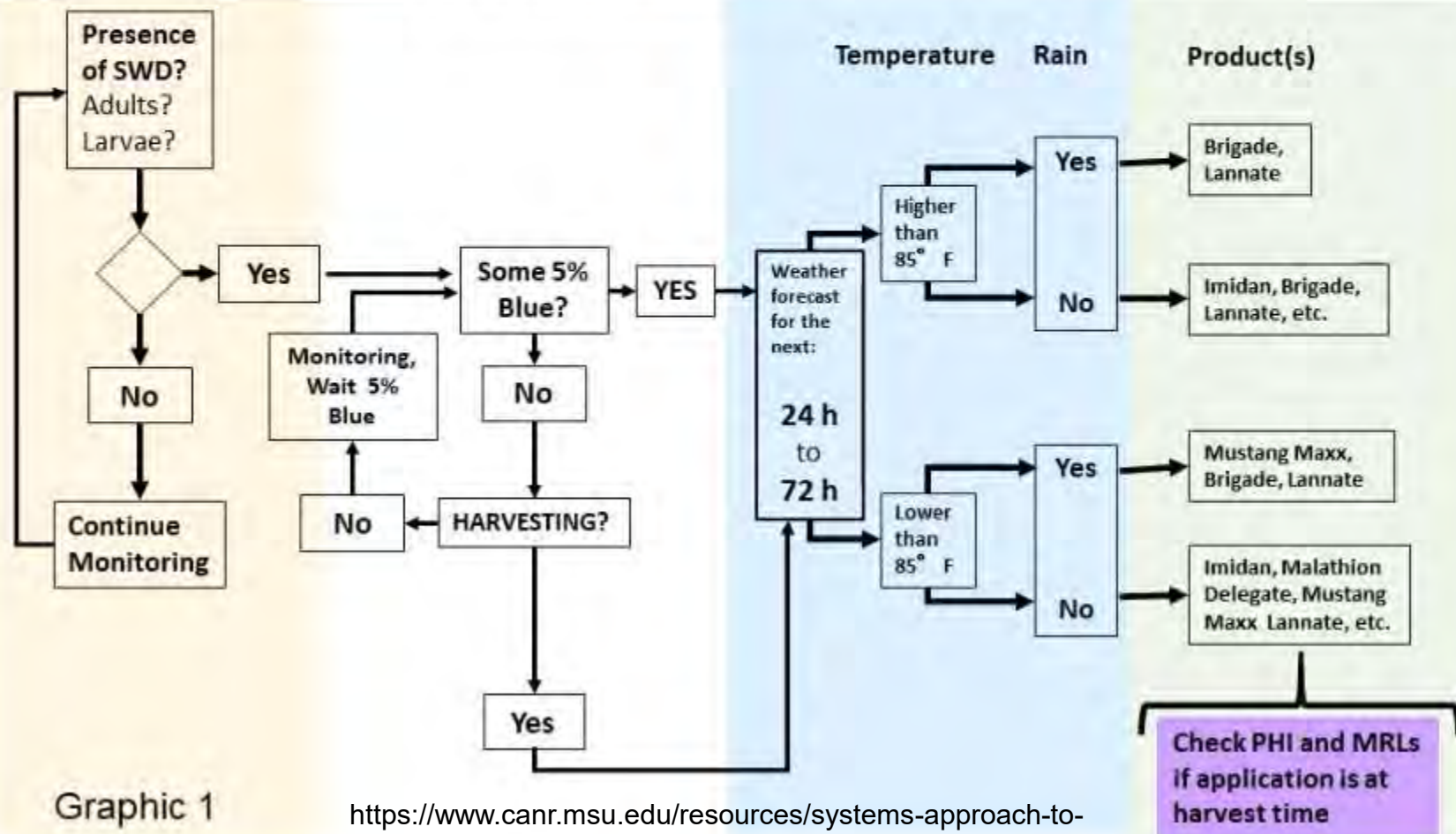
Scentry SWD Bag lure



Spotted Wing Drosophila Decision Model

When and what to spray to control the SWD under a *Systems Approach*

Present?	Ripening?	Rain or > 85°F?	Insecticide?
Pest Condition	Crop Condition	Weather Condition	Selection of Insecticide



Graphic 1

Stink Bug: Look & Control

During ripening check fruit for wingless nymphs:

If nymphs present, apply insecticide (*nymphs are easier to kill*)



- Brigade (3A) VG 1 d
- Assail (4A) G 1 d
- Actara (4A) G 3 d
- Azera (3A + UN) OMRI F 0 d

Twospotted Spider Mites

May on: check weekly for white speckling and spider mites on underside of lower leaves

Recommended cover sprays:

- PHI 0 days
 - Light Horticultural Oil 1-2% F
- PHI 1 day
 - Kanemite (20B) E
 - Acramite (20D) VG
- PHI 3 days
 - Savey (3) G



Japanese Beetles: Look & Control

June & July, check weekly
for adults on flowers

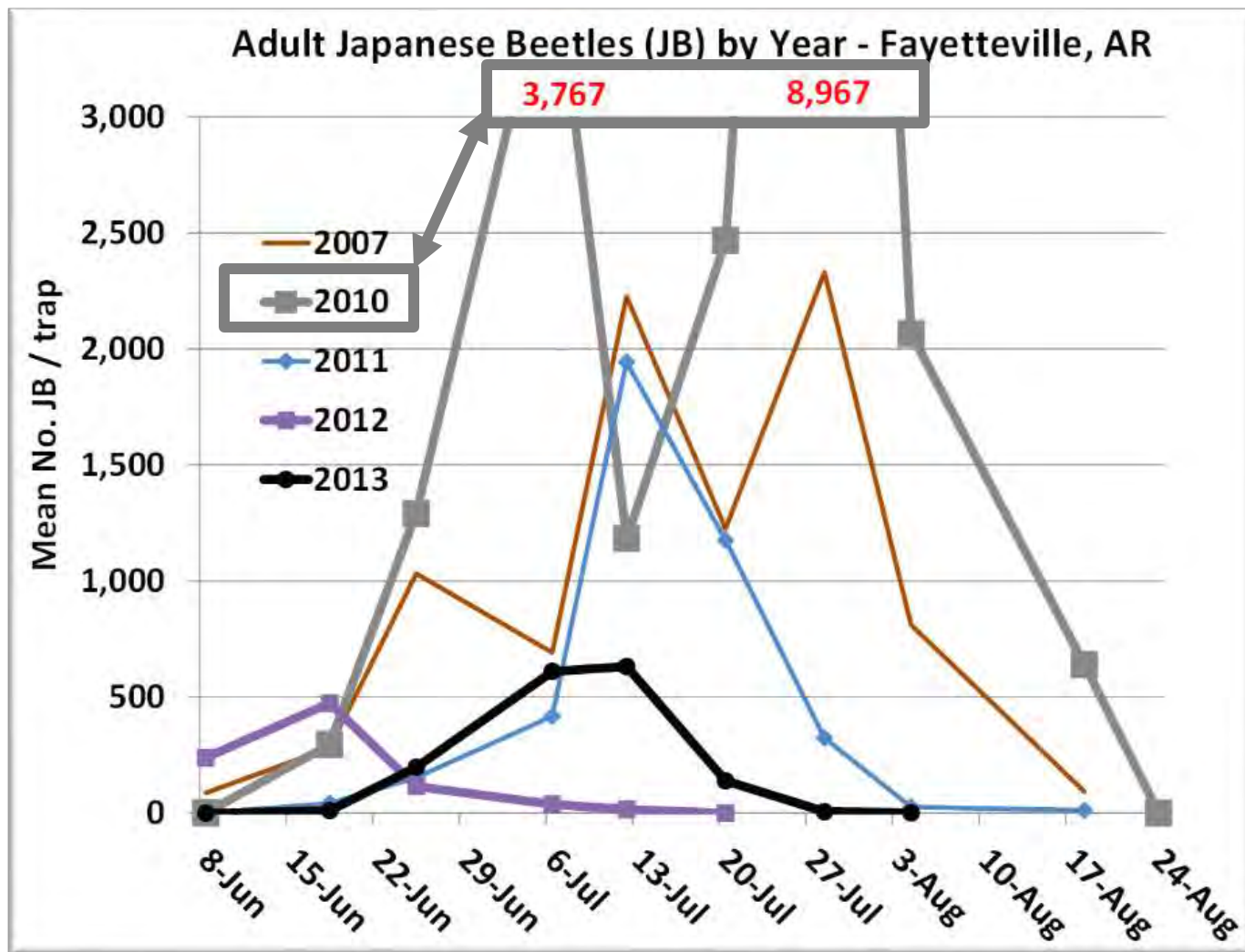
Can eat primocane
flowers



Malathion (1B) G 1 d

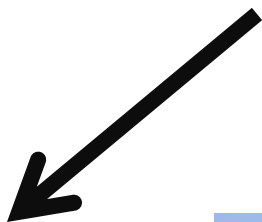
Sevin XLR (1A) G 7 d

Japanese Beetle Trapped in AR



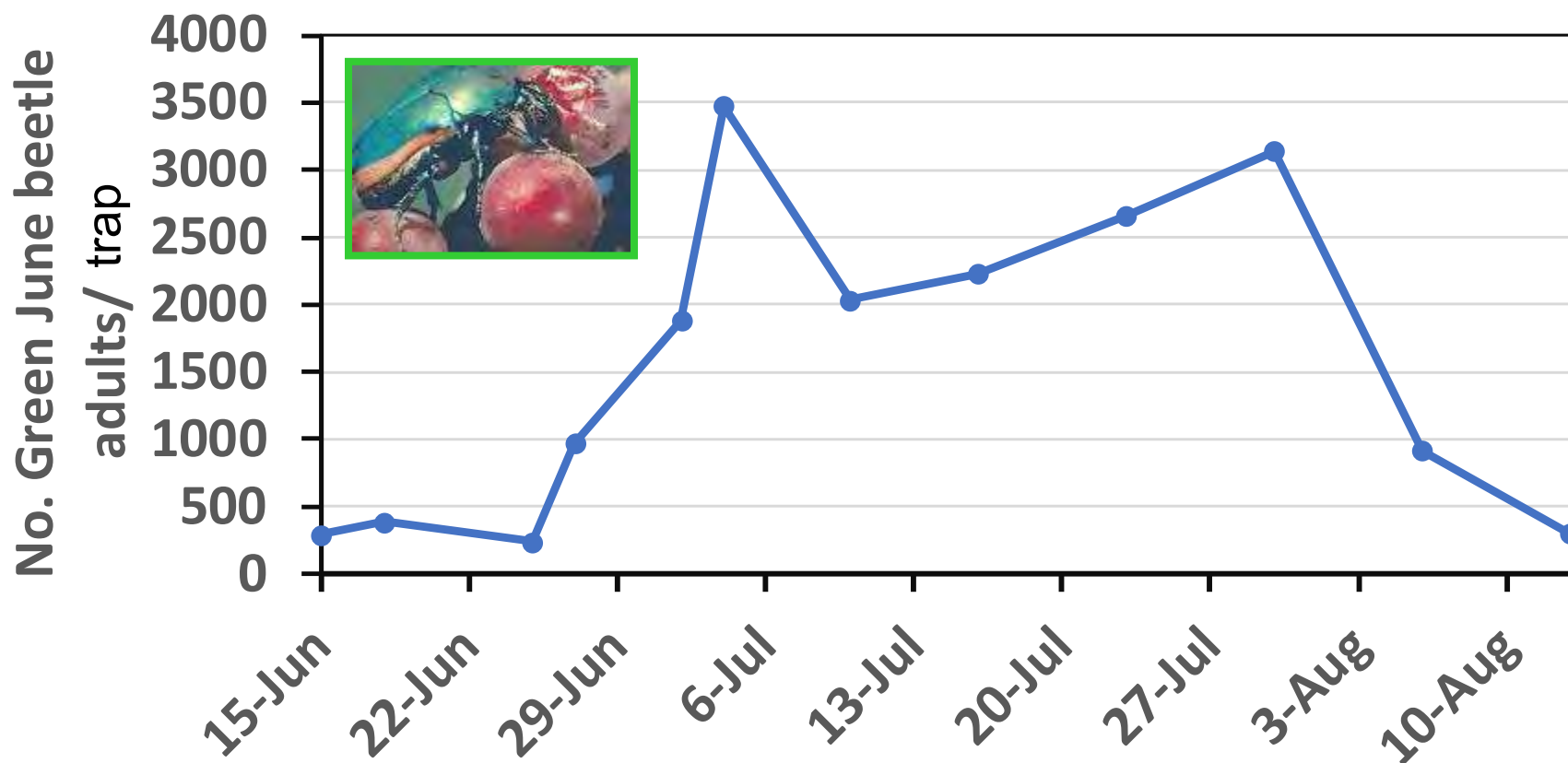
Green June Beetle Trap

7/16" dia. cotton wick in 16 oz
pop bottle filled with 400 ml
91% isopropanol (rubbing
alcohol in pharmacy)



Green June Beetle Catch & Control

Tontitown, AR 2018



Malathion (1B) G 1 d

Sevin XLR (1A) G 7 d

Raspberry Crown Borer:

Cane death and vigor loss in foreground



Donn Johnson

Raspberry Crown Borer: Biology

- **Sept.-Oct.**, adult emerges from pupal skin at cane base
- **Oct.**, lays eggs under leaf that hatch
- **Nov.-March**, overwinter in cane base under soil



Raspberry Crown Borer: Monitor

- **April-August**, look for dying canes (shepherd's crook)
- Prune dead cane at soil and check for tunnel and larva



Raspberry Crown Borer: Control

Fall: Keep blackberry row weed-free

Late-October: apply insecticide as soil drench to base of canes to kill overwintered larva in cane base



Brigade (3) VG 3 d
Altacior (28) VG 3 d
Asana (3) G 7 d



Summary: Blackberry Pests

Larval Periods and Spray Periods

Jan Feb Mar Apr May Jun Jul Aug Sept Oct Nov Dec



Strawberry Clippers



Rednecked cane borers

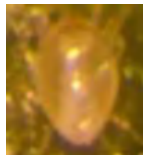


Stink bugs



Japanese beetles or Green June Beetle

Spotted wing drosophila



Spider Mites/ Broad Mites



Raspberry crown borers



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					Broad Mites (Agri-Mek)	Broad Mites (Agri-Mek)	