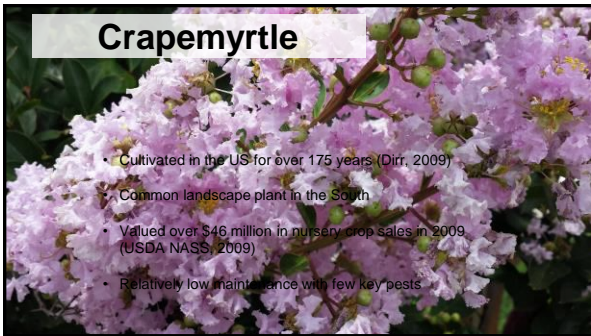




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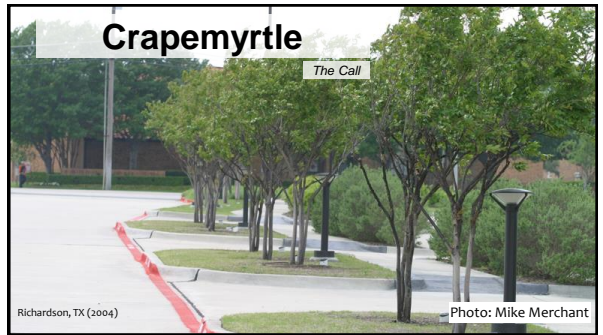
6



Glassy-winged sharpshooter

© Erfan Vafaie 2016

7



Crapemyrtle

The Call

Richardson, TX (2004)

Photo: Mike Merchant

8



Acanthococcus azaleae ?

Photo: Mike Merchant

9



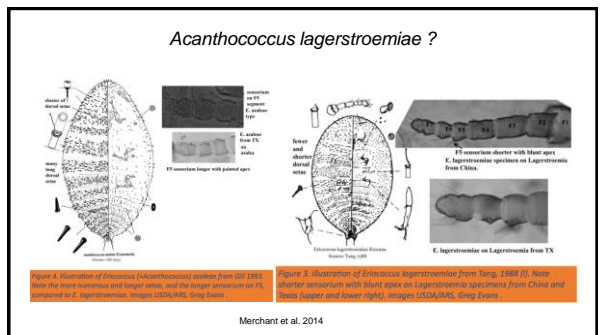
Acanthococcus (=Eriococcus) *lagerstroemiae* Kuwana 1907
Distribution: Inner Mongolia, China & Japan

10



Beijing Botanical Garden November, 2013

11



Acanthococcus lagerstroemiae ?

Figure 4. Illustration of *Eriococcus* (=Acanthococcus) *azaleae* from Gill 2003. Note the more numerous and longer setae, and the longer antennae on TX compared to *E. lagerstroemiae*. Images USDA/ARS, Greg Evans.

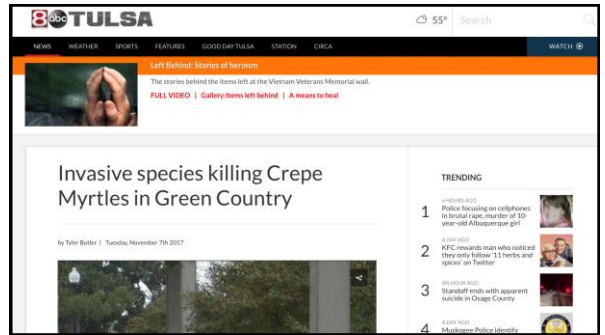
Figure 3. Illustration of *Eriococcus* *lagerstroemiae* from Tong, 1989 (3). Note shorter antennae with blunt apex on *Lagerstroemia* specimens from China and Texas (upper and lower right). Images USDA/ARS, Greg Evans.

Merchant et al. 2014

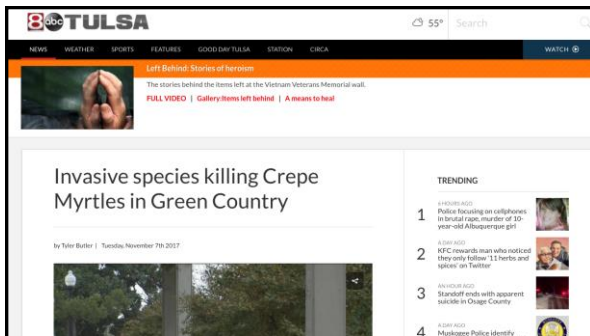
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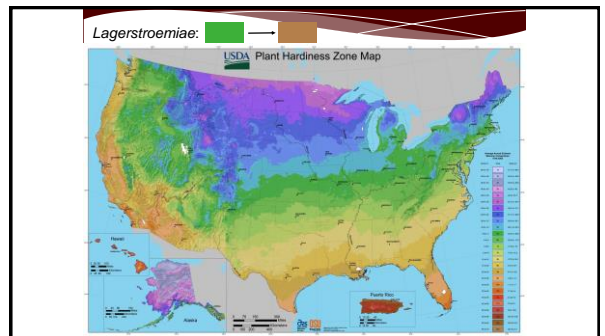
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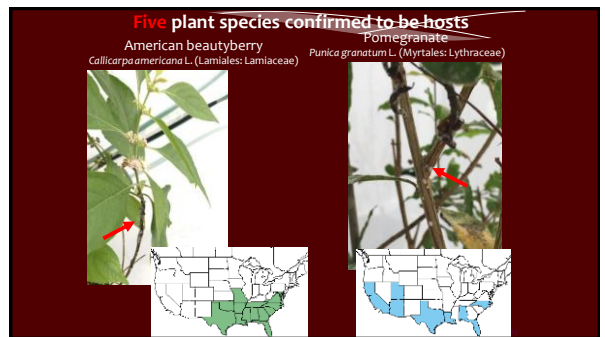
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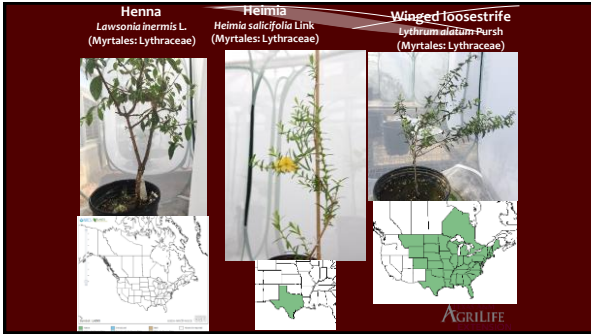
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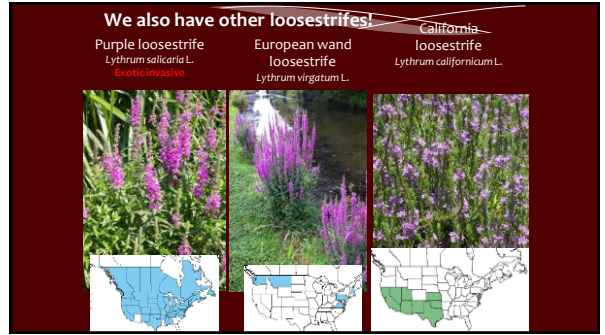
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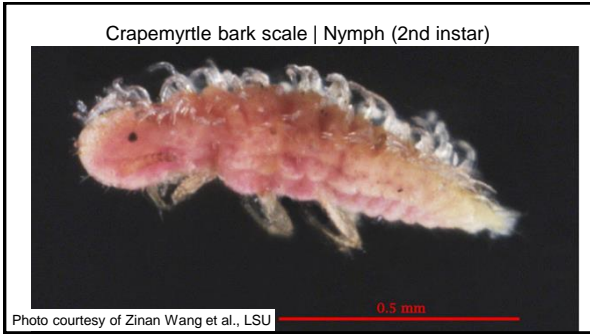
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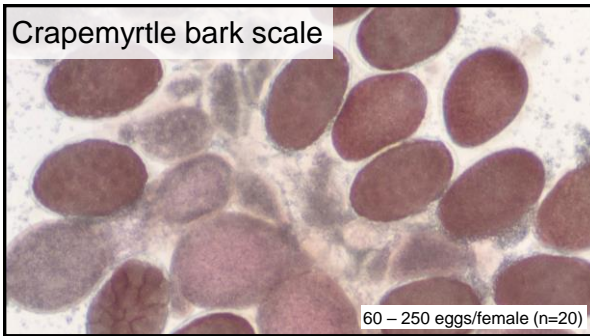
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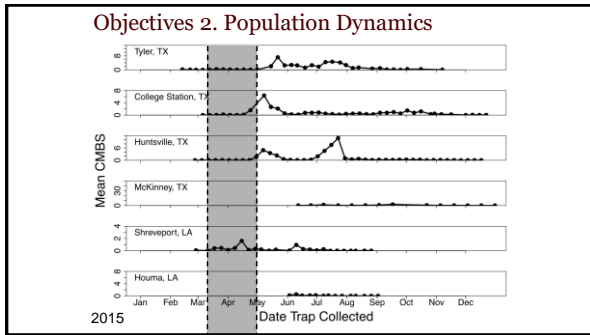


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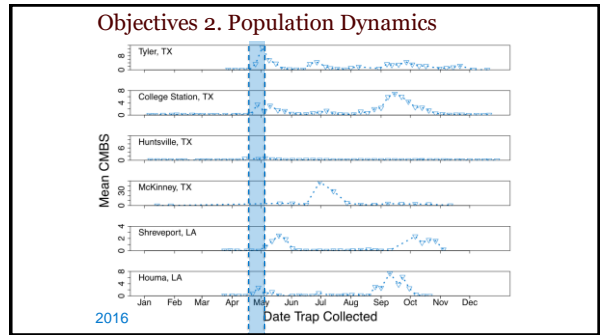
Objectives

1. Cultivar resistance
2. Population dynamics
3. Population control
4. Role of natural enemies
5. Non-chemical control
6. Host Plant Tests
7. Insecticide Residue Analysis
8. Consumer preference surveys

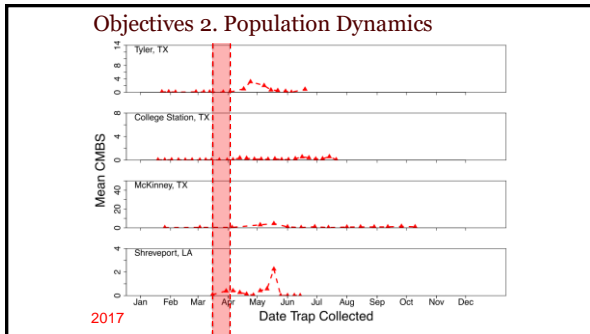
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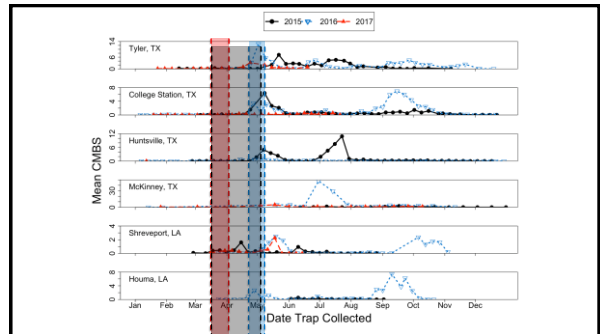
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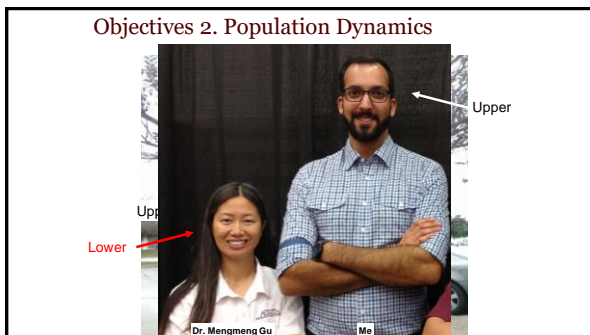
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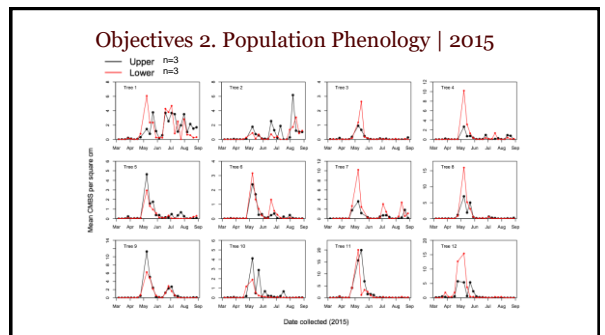
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Objectives 3. Management | Landscape

2016

n = 7 per treatment, n = 6 for control/water



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Objectives 3. Management | Landscape

2016



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Objectives 3. Management | Landscape

2016



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Objectives 3. Management | Landscape

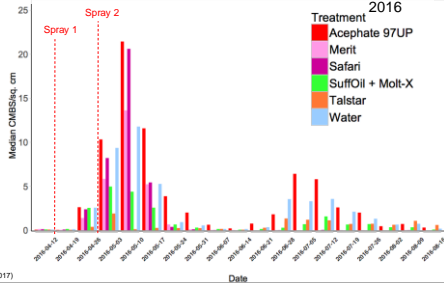
2016



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Objectives 3. Management | Landscape

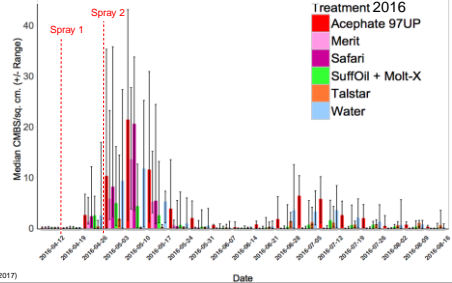
2016



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Objectives 3. Management | Landscape

Treatment 2016



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Objectives 3. Management | Potted

2017

Treatment	Method	Frequency	App 1	App 2	App 3	App 4
Safari Drench	Drench	1	16-Mar			
Safari Bark Spray + Capsol	Spray	1	30-Mar			
Mallet drench	Drench	1	16-Mar			
Fulcrum	Spray	2	30-Mar	6-Apr		20-Apr
Altus	Spray	2	30-Mar		13-Apr	
Grandveo or Venerate	Spray	2	30-Mar	6-Apr	13-Apr	20-Apr
Mainspring	Drench	1	30-Mar			
Acelepryn	Drench	2	30-Mar			22-Jun
BAS 440/Ventigra + Pure Oil	Spray	2	31-Mar		13-Apr	
Talus	Spray	2	30-Mar		13-Apr	
Talstar + Safari Drench	Spray	2	30-Mar	6-Apr		
Control	Drench	1	16-Mar			
		2				

n=5

Double-sided sticky tape (>3 per tree)
5- gallon pots, ~7 feet tall

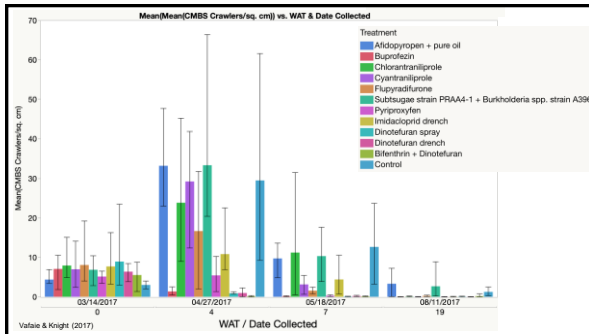
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Objectives 3. Management | Potted

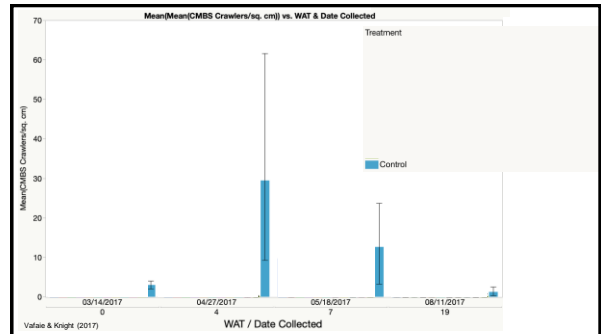
2017



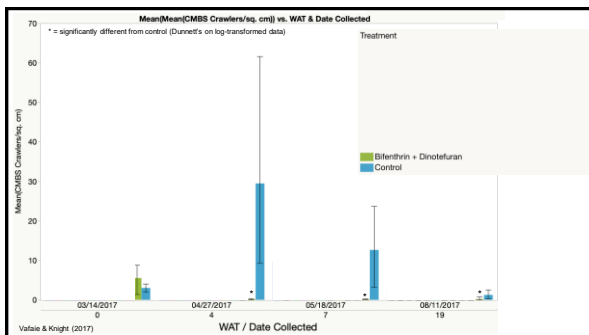
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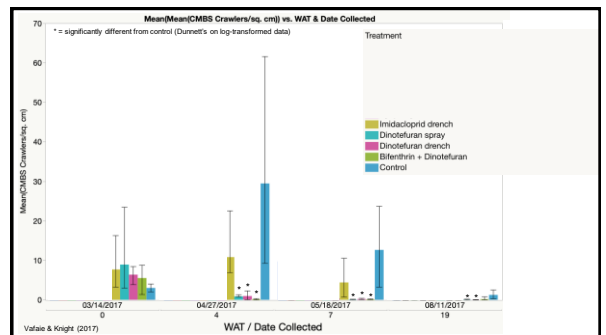
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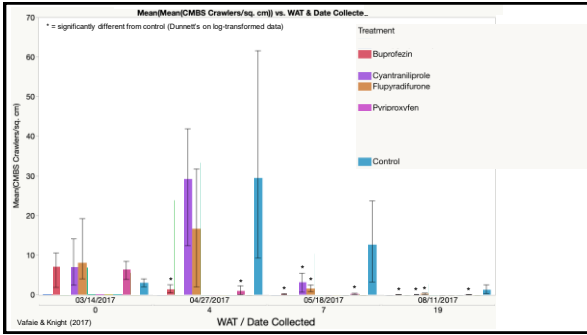
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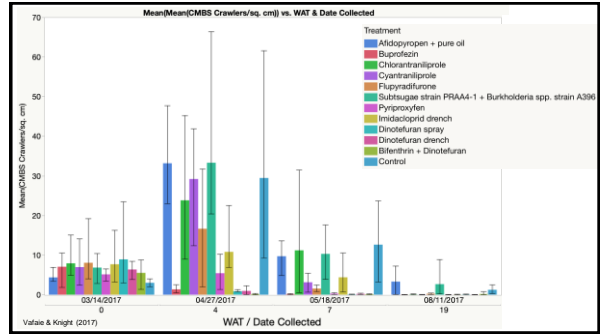
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Table 1.

#	Treatment/formulation	Active ingredient	Application rate	Application method	App 1	App 2
1	Safari 205G	Dinotefuran	4 fl oz of dilute solution (24 ounces/100 gal) in 20 fl oz water	Drench	03-16	
2	Safari 205G + CapSil	Dinotefuran	24 oz/gal	Bark spray	03-30	
3	Müller	Imidacloprid	12 fl oz/100 gal	Drench	03-16	
4	Falcrum	Pyrioxifen	12 fl oz/100 gal	Bark spray	04-06	04-20
5	Altus	Flupyradifurone	14 fl oz/100 gal	Bark spray	03-30	04-13
6	Grandovo / Venerate	Chromobacterium subsogaе strain PRAA4-1/ Burkholderia spp. strain A396	2 bar/50 gal / 2 quart/50 gal	Bark spray	03-30	04-13
7	MainSpring	Cytraniliprole	0.25 fl oz/inch dbh in 40 fl oz water	Drench	03-30	
8	Aclepyra	Chlorantraniliprole	0.25 fl oz/inch dbh in 40 fl oz water	Drench	03-30	06-22
9	Ventigra + Pure oil	Aldodipropen + Pure oil	1.4 fl oz/100 gal / 1 gal/100 gal	Bark spray	03-31	04-13
10	Talus	Buprofezin	14 oz/100 gal	Bark spray	03-30	04-13
11	Talstar + Safari Drench	Bifenxtrin / Dinotefuran	21.7 fl oz/100 gal / 4 fl oz of dilute solution (24 ounces/100 gal) in 20 fl oz water	Bark spray / Drench	03-30	04-06
12	Water check	-	-	-	-	-

Vafae (2019)

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Table 2.

DATE		03/07	04/20	04/27	05/04	05/18	06/02	7/27
Treatment	n							
Safari Drench	5	6.1	1.5*	0.9*	0.4*	0.2*	0.1*	0.0*
Safari Bark Spray + CapSil	5	4.2	4.4	0.9*	0.9*	0.1*	0.1*	0.7
Müller drench	5	8.4	9.7	18.8	16.6	4.4*	1.4	0.0*
Falcrum	5	4.9	10.8	5.4*	1.3*	0.3*	0.0*	0.0*
Altus	5	9.0	12.9	16.6	7.1*	1.3*	0.2*	0.0*
Grandovo + Venerate	5	5.5	11.6	33.3	32.7	10.3	4.0	2.7
MainSpring	5	4.7	23.3	29.2	22.2	3.1*	0.0*	0.0*
Aclepyra	5	8.0	13.9	23.8	21.9	11.2	1.3	0.0*
BAS 440/Ventigra + Pure Oil	5	3.5	12.5	35.2	44.2*	9.7	4.8	4.2
Talus	5	6.2	1.9	1.1*	0.6*	0.2*	0.0*	0.0*
Talstar + Safari Drench	5	6.2	0.1*	0.1*	0.3*	0.1*	0.0*	0.1*
Water check	5	2.7	11.3	29.5	27.2	12.6	2.5	2.0
P value		0.7360	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

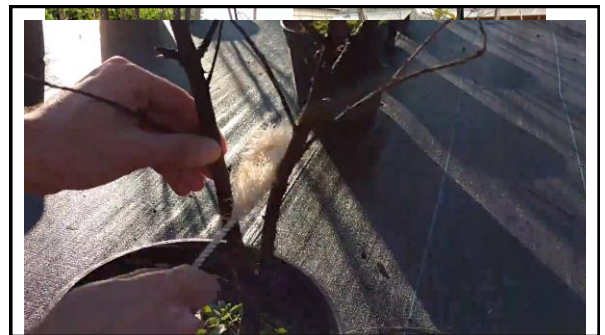
*Significantly different from the water check within a column using the Dunnett's post hoc test on log(x+1) transformed data (P < 0.05).

Vafae (2019)

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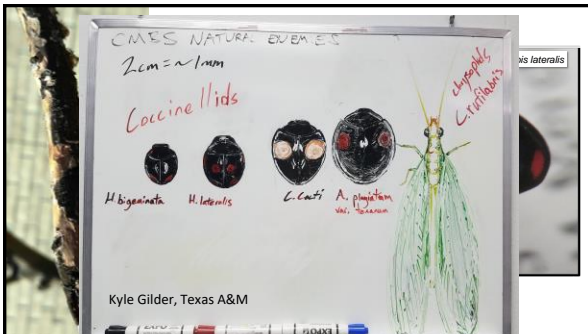
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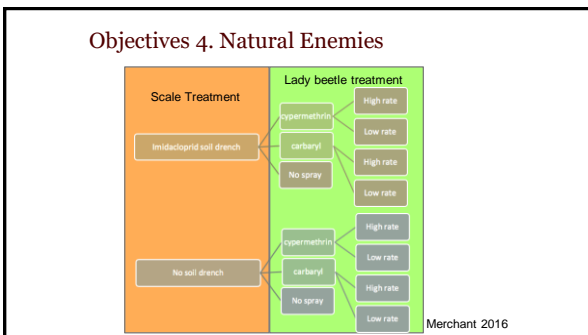
Objectives 4. Natural Enemies

Genus and species	Family	Order
<i>Scale natural enemies</i>		
<i>Hyperaspis bigeminata</i>	Coccinellidae	Coleoptera
<i>Hyperaspis lateralis</i>	Coccinellidae	Coleoptera
<i>Microwisea</i> sp.	Coccinellidae	Coleoptera
<i>Harmonia axyridis</i>	Coccinellidae	Coleoptera
<i>Chilocorus cacti</i>	Coccinellidae	Coleoptera
<i>Axion plagiatum</i> var. <i>texanum</i>	Coccinellidae	Coleoptera
<i>Cybocephalus</i> sp.	Cybocephalidae	Coleoptera
<i>Chrysoperla rufilabris</i>	Chrysopidae	Neuroptera
<i>Symphorobus barberi</i>	Hemerobiidae	Neuroptera
<i>Leucopsis</i> sp.	Chamaemyiidae	Diptera
<i>Hyperaspis lateralis</i> pupal parasitoid		
<i>Homalotylus</i> sp.	Encyrtidae	Hymenoptera
	<i>Leucopsis</i> sp. parasitoid	
<i>Pachyneuron</i> sp.	Pteromalidae	Hymenoptera

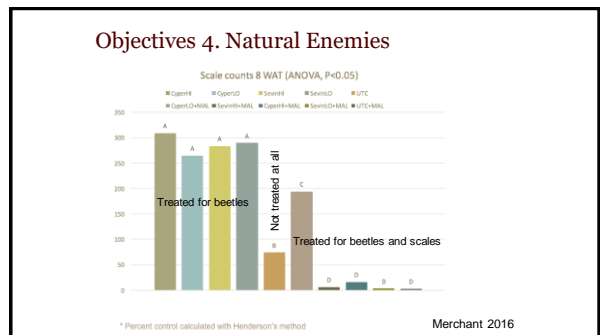


Kyle Gilder,
Masters Student
Texas A&M

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Objectives 4. Natural Enemies | Importation

Natural Enemies from China
Four groups of parasitic wasps

Rear in quarantine, determine efficacy against CMBS, and determine non-target impacts

Kenneth Masloski,
PhD Student
Texas A&M



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Crapemyrtle bark scale | Summary

Phenology	Crawler populations appear most active around beginning of May. Future: Collect data across wider climatic range in order to develop CDD model.
Natural Predators	Mostly lady beetles (<i>Symnus</i> , <i>Hyperaspis</i> , and <i>H. axyridis</i>) Can provide about 75% suppression in the landscape
Management	Bifenthrin, Imidacloprid, Dinotefuran, Buprofezin and Pyriproxyfen show most promise.

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Crapemyrtle bark scale | Summary

Product	a.i.	Application Method	Frequency	Efficacy
Safari	Dinotefuran	Drench	1	Great
Talstar + Safari	Bifenthrin + Dinotefuran	Bark Spray + Drench	2 & 1	Great
Safari	Dinotefuran	Bark Spray	1	Good
Fulcrum	Pyriproxyfen	Bark Spray	2	Good
Talus	Buprofezin	Bark Spray	2	Good
Altus	Flupyradifurone	Bark Spray	2	Moderate
Mainspring	Cyrantranilprole	Drench	1	Moderate
Mallet	Imidacloprid	Drench	1	Moderate - Good
Grandevo & Venerate	Chromobacterium subsugae strain FRAA4-1 & Burkholderia spp. strain A306	Bark Spray	2 & 2	Poor
Acelepym	Chlorantranilprole	Bark Spray	2	Poor
AzaGuard	Azadirachtin	Bark Spray	2	Poor
Acephate	Acephate	Bark Spray	2	Poor
SuffOil-X + Molt-X	Mineral oil + Azadirachtin	Bark Spray	2	Poor
Ventigra	Afidopyropen	Bark Spray	2	Inconclusive
Pradia	Cyclanilprole + Flonicamid	Bark Spray	2	Inconclusive
Sarisa	Cyclanilprole	Bark Spray	2	Inconclusive

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Crapemyrtle Bark Scale

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Acknowledgements

Mengmeng Gu, Mike Merchant, Kevin Heinz

Chris Knight, Briton Grove, Patrick Rydzak, Jon Nemati



Thank You



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