Citizen Scientists to expand the sampling range for natural enemies of BMSB in Maryland

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BMSB Areawide

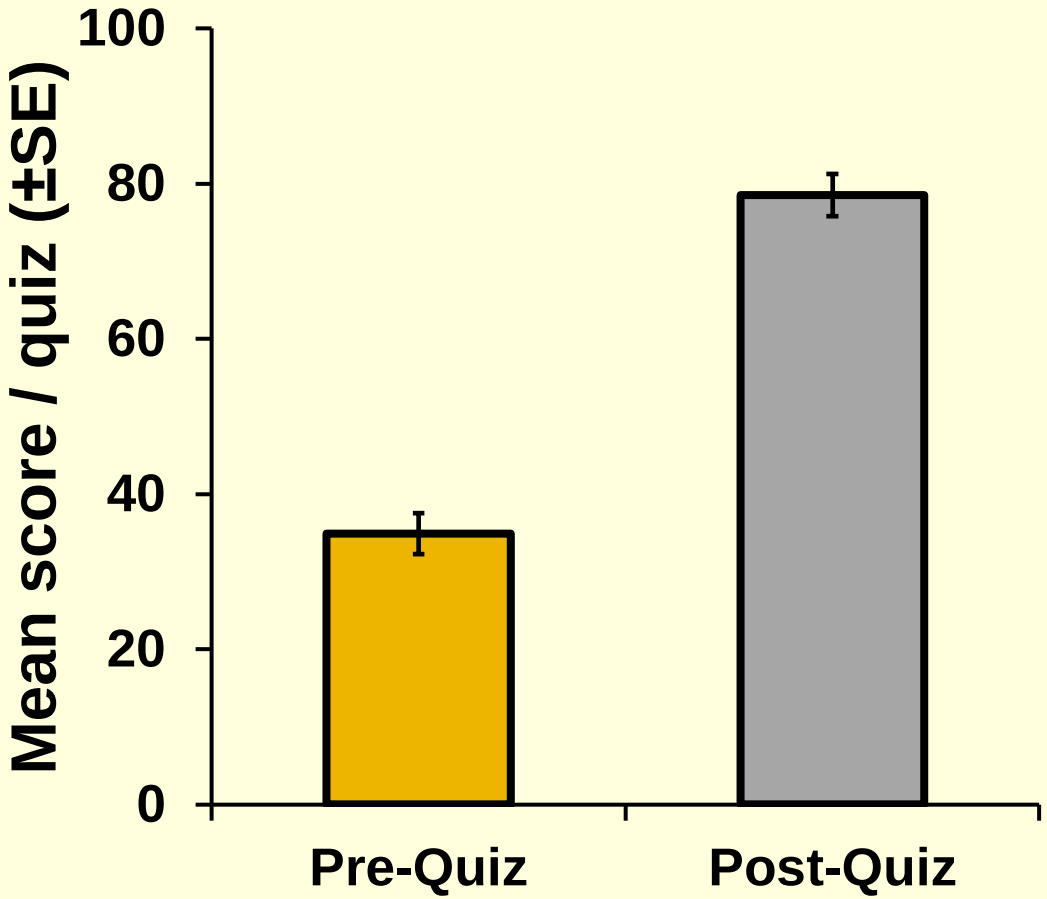
Planning Meeting

Project Stink-be-Gone

https://shrewsburylab.weebly.com/project-stink-be-gone.html

- Citizen science based project with Maryland's Master Gardeners
- Project development
  - Recruitment
  - Development of training materials
  - Training
  - Participant interactions and engagement
  - Logistics
  - Assessing samples

Results: Training



Measure the impact of training in the *change in knowledge* of participants

Enhanced ID Skills

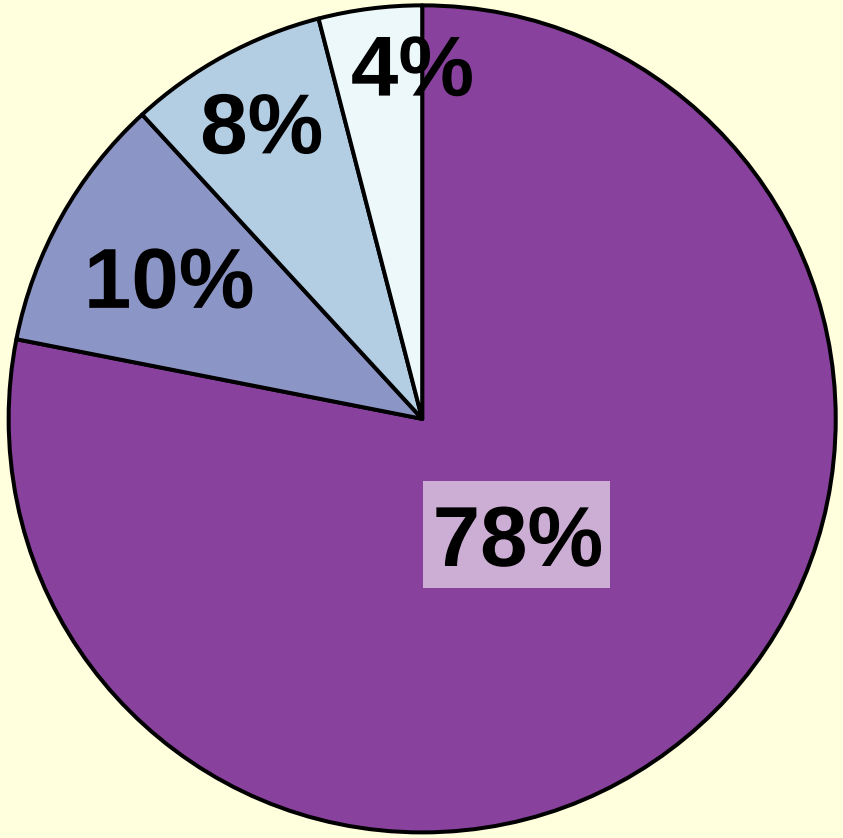
Stink bug egg masses

Moth egg masses

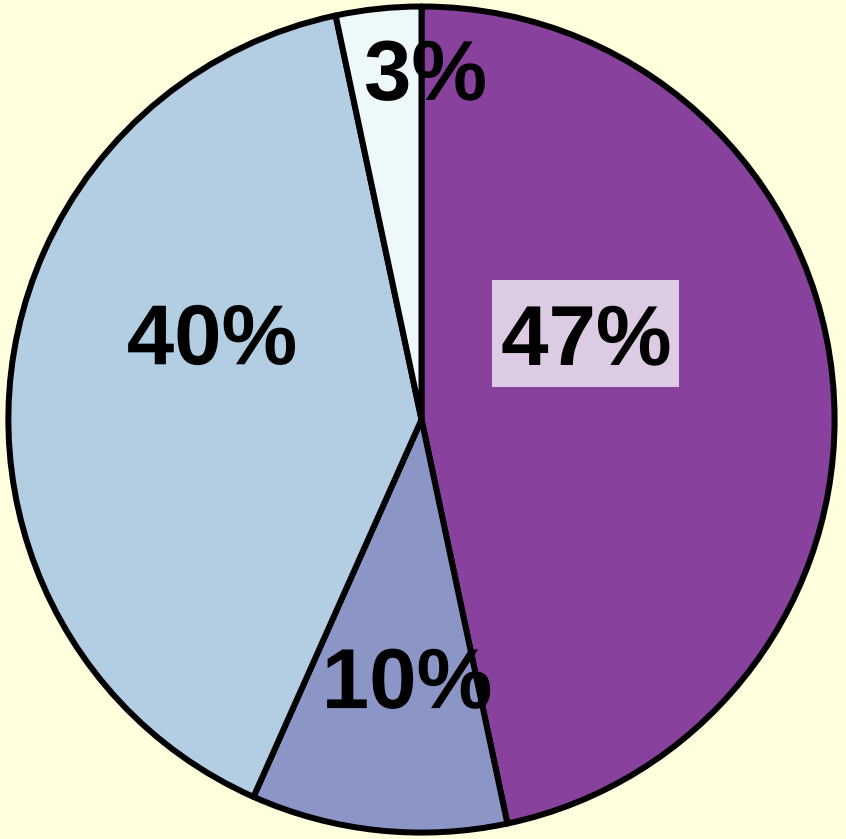
Not eggs/ egg masses

Bug egg masses

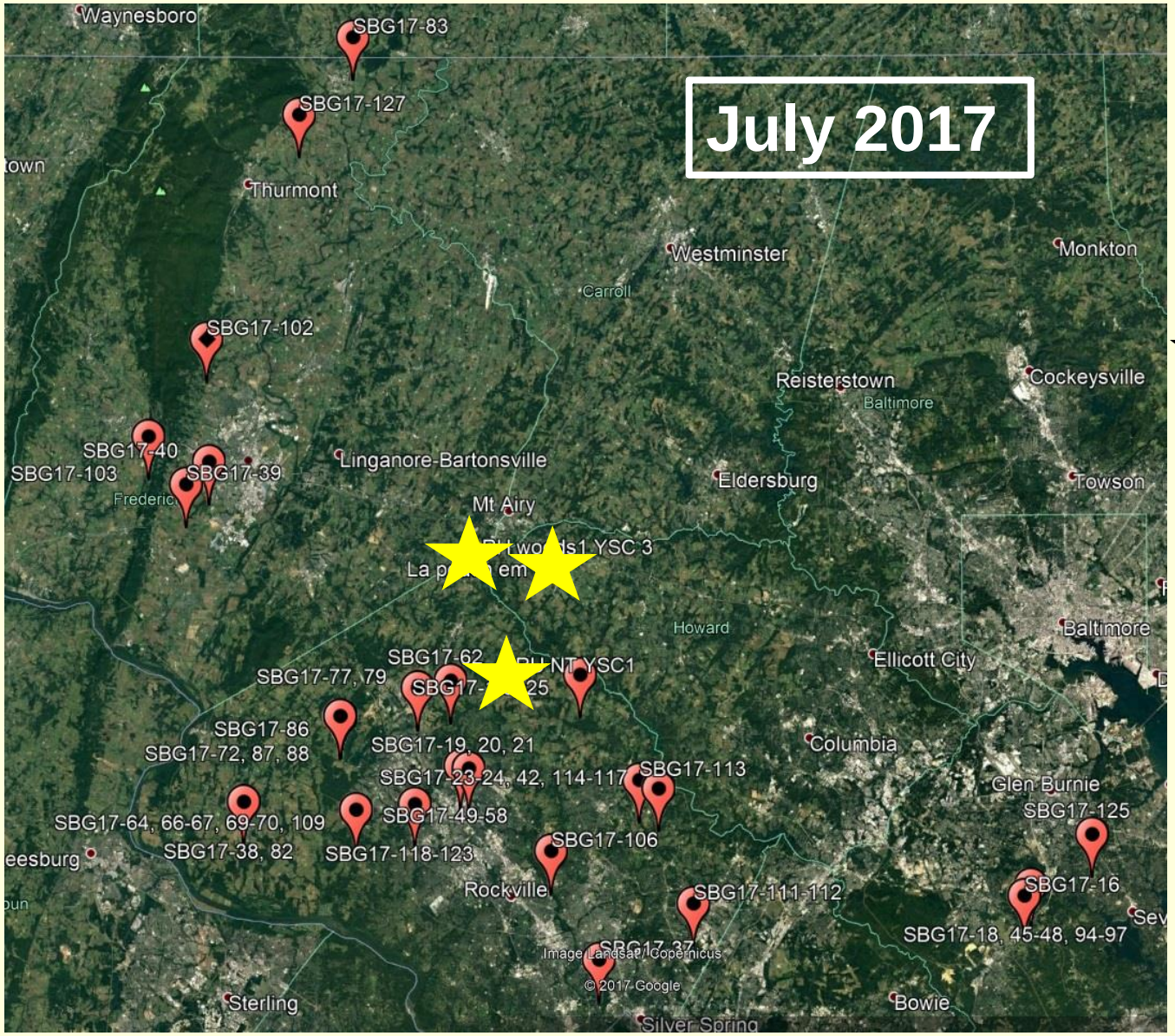
2017 samples: n = 397



2018 samples: n = 60



Results: Locations of stink bugs



Shrewsbury Lab (sentinel and naturally-laid egg masses)

Master Gardener samples with stink bugs

Results: Samples

- **301 stink bug egg masses**
  - ***Brochymena* sp.**
  - ***Chinavia* sp.**
  - ***Cosmopepla* sp.**
  - ***Euschistus* sp.**
  - ***Halyomorpha halys* (9.3%)**
  - ***Mormidea* sp.**
  - ***Murgantia histrionica* (46.2%)**
  - ***Podisus* sp.**
- **16 other bug egg masses**
- **41 moth egg masses**
- **25 other “things”**

Results: BMSB hosts

Trees/shrubs	Perennials	Annual Flowering Plants	Annual, Vegetables	Vines, Various
Cercis (7)	Red raspberry (3)	*Cleome* (4)	Tomato (1)	*Vitis riparia* (1)
Acer (4)	Wine raspberry (1)	*Lantana* (1)		Virginia creeper (1)
Magnolia (1)				
Tilia (1)				
Paulownia (1)				
Callery pear (1)				
Cornus racemosa (1)				

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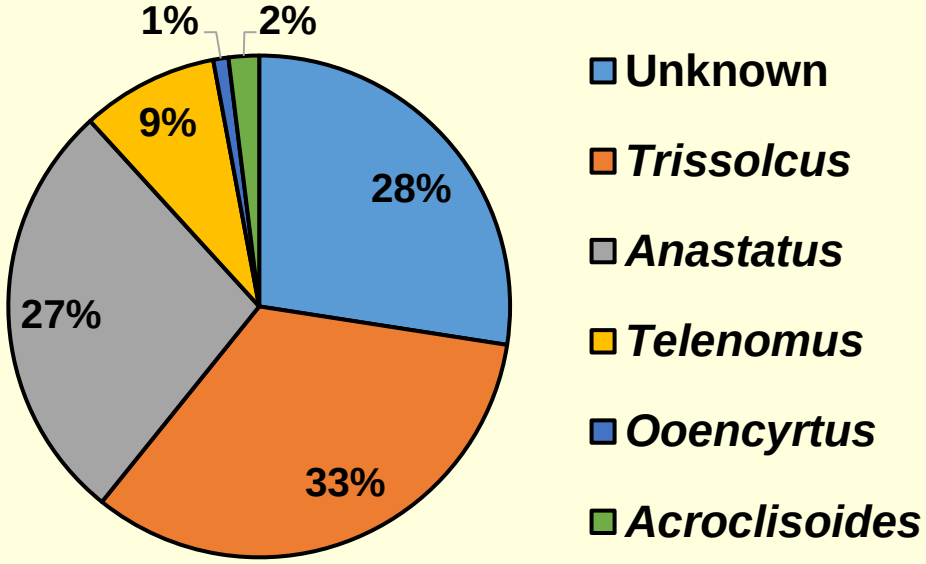
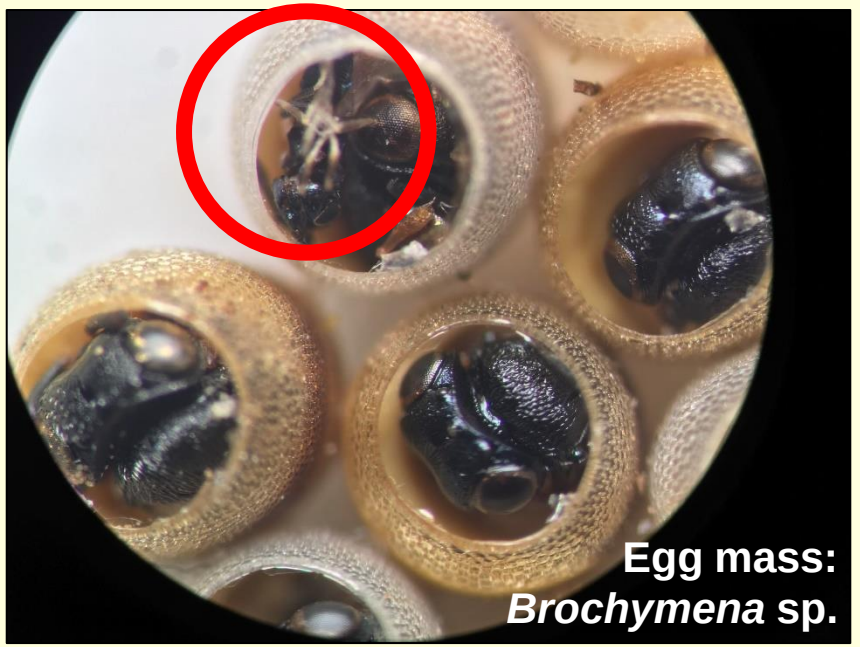
Results: Biological Control

Predation: 5% of all stink bug egg masses with at least one egg eaten

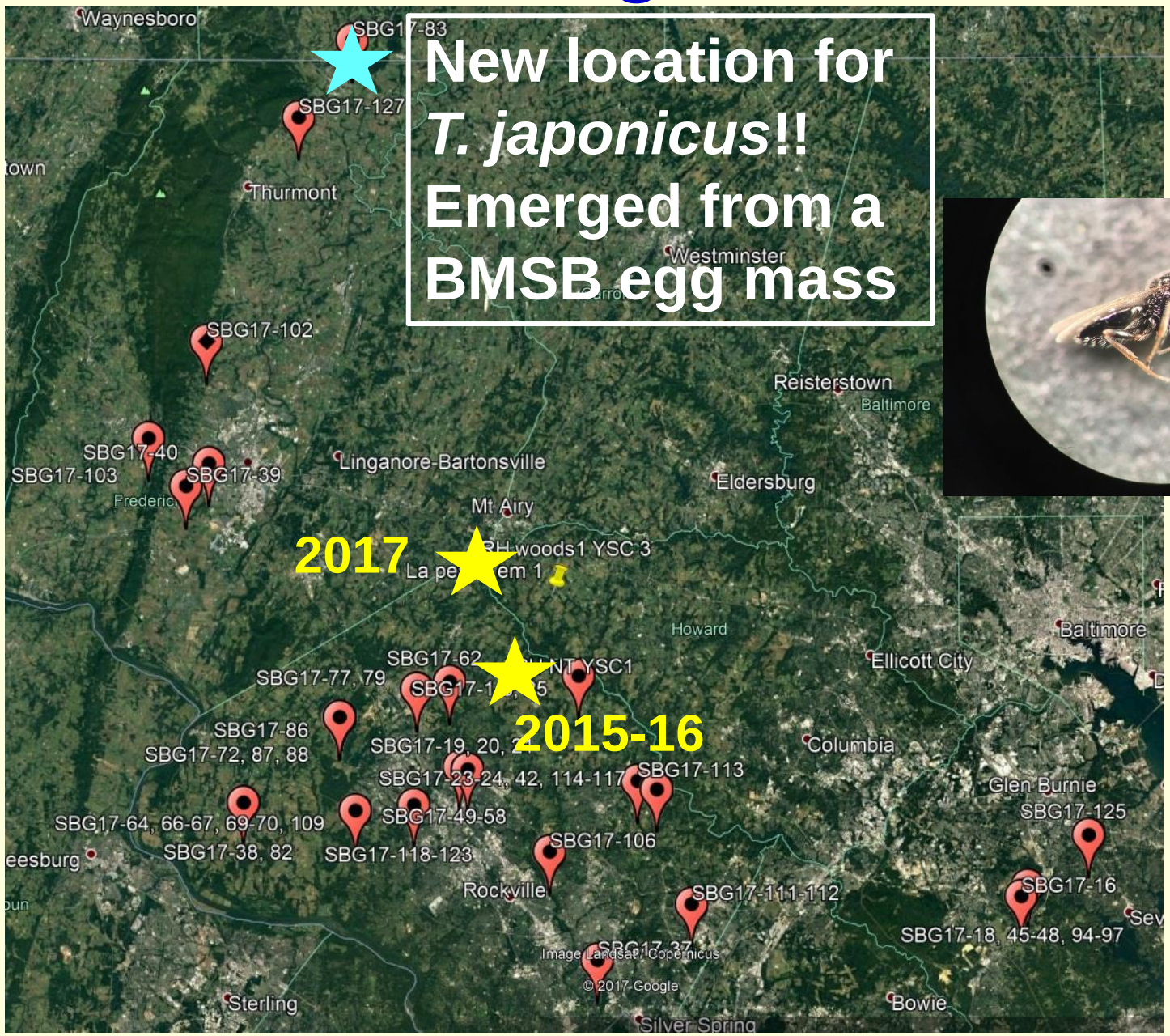
Parasitism: 34% of all stink bug egg masses (102/301)





Parasitoid species and egg fate data coming soon!

Results: Biological Control



Results and Discussion

- **Training was effective:**
  - **Increased knowledge about stink bugs**
  - **~79% of samples were stink bug egg masses**
- **Collectively, citizen scientists searched a larger area**
- **Two new plant hosts of BMSB**
- **Signs of biological control**
  - **~40% of stink bug egg masses**
- **New locality for *T. japonicus***

Acknowledgements

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Master Gardener County Coordinators:

- **Steve Dubik**
- **Michael Ensor**
- **Susan Trice**

Don Weber and Megan Herlihy, USDA ARS IIBBL:

- **Stink bug adults and egg masses**
- **Plant ID**

Elijah Talamas, Florida Department of Ag and Consumer Services

Rock Hill Orchard

Ruppert Nursery

Larriland Farm