The Current State of Satsuma Production in Georgia

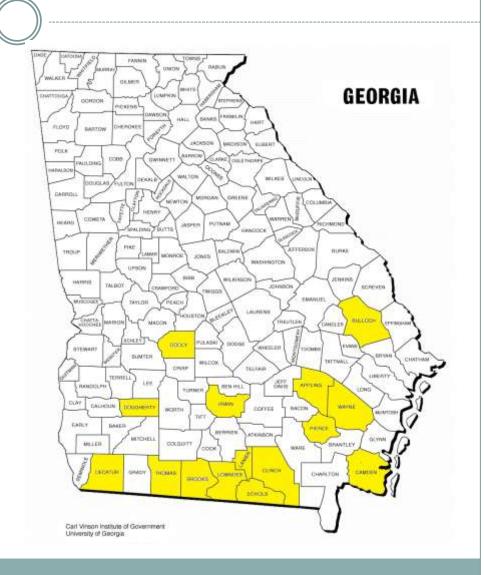
WHERE ARE SATSUMAS BEING GROWN
FACTORS CONTRIBUTING TO TREE LOSS
SOURCES OF TREES
INSECT/DISEASE ISSUES
J.L. LOMAX CITRUS ROOTSTOCK TRIAL
EARLY MATURING VARIETY TRIAL

JAKE PRICE
LOWNDES COUNTY EXTENSION AGENT

Locations of Satumas Producers in Georgia

- Dougherty-420
- Lanier-1500
- Bullock-1600
- Irwin -100
- Pierce-120
- Clinch-1150
- Lowndes-725
- Brooks-400
- Appling-550
- Wayne-600
- Decatur-1400
- Echols-750
- Thomas-800
- Dooly-300
- Camden-400

79 acres/28 growers



Satsuma Varieties Planted

Mid to Late Season (Early/Mid November)

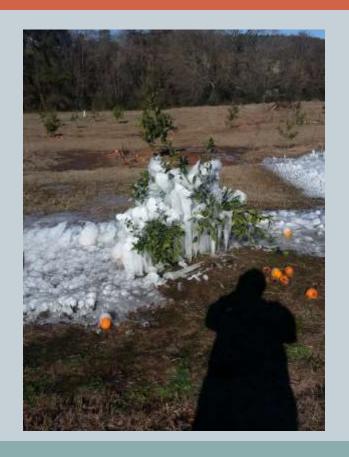
- Owari (75%, majority planted in GA)
- Brown Select (15%)
- Kimbrough

Early Season (Octoberish)

- Armstrong
- Xie Shan
- Early St. Ann
- LA Early
- China 9
- Shiranui
- Miho
- Miyagawa

Factors that contributed to Cold Damage in 2014/15

- Not using trifoliate rootstock
- Lack of windbreaks
- Fertilizing too late in year
- No irrigation for freeze protection
- Not turning on irrigation (forecasts aren't always correct)
- Planting in low areas



How Cold Did We Get in November?

- According to georgiaweather.net on November 19/20
 - o Brooks County- 24,25
 - o Decatur County- 25,25
 - o Tift- 24,27
 - Clinch County 23,21
 - o Dougherty 20,25
 - o Dooly- 20,27
 - o Appling- 19, 23
 - o Wayne- 18,21
 - o Bullock- 23,27
 - o Camden- 25,24

Cold Damaged Satsumas (Different Degrees of Damage)









Rootstocks Being Used

Rootstocks Being Used

Freeze Damage to Carrizo

- Poncirus trifoliata
 - Rubidoux
 - Flying Dragon
 - o Rich 16-6
- Washington sweet x Poncirus trifoliata
 - o Carrizo





Citrus Sources For Georgia Growers

Only Buy From Reputable Sources

Semi Full of Trees

- As of now from Alabama and Louisiana
 - Star Nursery LA
 - Saxon Becnel –LA/TX
 - o Phillips Nursery AL
- Only USDA approved nurseries in Florida
 - o Brite Leaf Citrus Nursery
 - Record Buck Farms
 - Harris Citrus Nursery
 - Rucks Citrus Nursery
 - Holmberg Farms, Inc.
 - Magnolia Co



Florida Department of Agriculture Bureau of Citrus Budwood Registration

The following pathogens, and plants infected with or exposed to the pathogens, are declared to be endemic plant pests and nuisances:

- (a) Citrus psorosis virus and concave gum/blind pocket viruses
- (b) Citrus viroids including exocortis and cachexia
- (c) Severe strains of citrus tristeza virus (most destructive virus)
- (d) Citrus tatterleaf virus
- (e) Citrus leaf blotch virus
- (f) Citrus canker (bacteria)
- (g) Citrus greening (*Huanglongbing or HLB*) (bacteria)

USDA inspectors must inspect and certify all citrus before leaving the state of Florida

Source of Rootstock and Scion Important

To ship out of state, all Citrus Nursery Stock including seedlings, trees and budwood in Florida, must be grown in enclosed greenhouses separated from field citrus trees.



Psyllid Proof Netting





Potential Pest Found So Far

- Citrus Leafminers
- Orange dawgs
- Spider Mites
- Rust Mites
- Leaf-footed Bugs & Stinkbugs
- Scale
- Mealybugs
- Whiteflies
- Citrus Scab
- Fire Ants
- Citrus Canker and Citrus Greening (HLB) Not Found Yet!





Citrus Leafminers

Close-up of Larvae in Leaf Attack New Growth







Giant Swallowtail (Orange Dawg!)





Spider Mites

Red Spider Mites

Spider Mites 3 species

- Feed primarily on upper surface of new leaves
- Feed deeper in leaf than rust mites
- Prefer dry weather and low humidity
- Less active June-Sept
- Many insecticides and oils for control

Citrus Rust Mites and Pink Citrus Rust Mites

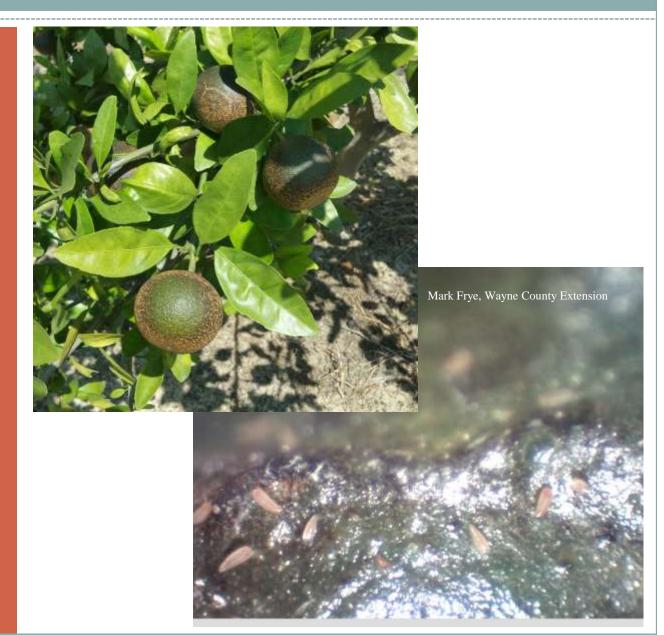
Damage Fresh Fruit

Can attack stems/foliage

CRM Populations peak in July and again in November

PCRM populations peak in July, prefer dry weather

CRM more abundant on outer margins of tree and prefer north lower part of tree









Greening: Serious threat to citrus





J.L. Lomax elementary School

Sponsored by:

Langdale Corporation
United Irrigation
Lowndes County
Farm Bureau
Dasher Services
Loch Laurel Nursery
Hahira Nursery



'Owari 874' Satsuma Mandarin Rootstock Trial

Trial Layout and Rootstocks Used

J.L. Lomax Elementary School



1 and 2	3 and 4	5 and 6	
	North		
border rootstock	border rootstock	border rootstock	border rootstock
sour orange	Swingle	X-639	Carrizo
Rubidoux	Carrizo	Carrizo	Carrizo
Carrizo	US-942	US-942	Carrizo
US-897	X-639	US-897	Navel on SO
US-852	US-852	US-852	Navel on SO
US-812	Rubidoux	US-812	Navel on SO
US-942	US-812	Rubidoux	Navel on SO
Cleo	Cleo	Cleo	Cleopatra
X-639	sour orange	sour orange	Cleopatra
Swingle	US-897	Swingle	US-812
US-897	US-897	Cleo	US-812
US-852	Swingle	US-942	US-942
The second of th	Cleo	US-852	Cleopatra
	US-852	Swingle	Cleopatra
	X-639	sour orange	Navel on SO
	US-812	Carrizo	Navel on SO
The second secon	US-942	US-812	Navel on SO
	sour orange	US-897	Carrizo
ALC: NAME OF TAXABLE PARTY.		Rubidoux	Carrizo
		X-639	Carrizo
		border rootstock	border rootstock
	border rootstock sour orange Rubidoux Carrizo US-897 US-852 US-812 US-942 Cleo X-639 Swingle	North border rootstock sour orange Rubidoux Carrizo US-942 US-897 US-852 US-852 US-812 US-942 US-942 US-942 US-942 US-942 US-8197 US-8597 US-	North border rootstock border rootstock sour orange Swingle X-639 Rubidoux Carrizo Carrizo Carrizo US-942 US-942 US-897 X-639 US-897 US-852 US-852 US-852 US-812 Rubidoux US-812 US-942 US-812 Rubidoux Cleo Cleo Cleo Cleo X-639 sour orange sour orange Swingle US-897 Swingle US-897 US-897 Cleo US-852 Swingle US-852 X-639 Cleo US-852 Rubidoux US-852 Swingle US-852 Swingle US-942 X-639 Cleo US-852 Rubidoux US-852 Swingle US-942 X-639 sour orange US-942 X-639 sour orange US-812 US-812 Carrizo US-812 US-812 Carrizo US-812 US-812 Carrizo Swingle sour orange US-897 Swingle Sour orange US-897 Rubidoux US-897 Rubidoux Carrizo US-942 US-812 Swingle Sour orange US-897 Rubidoux US-897

South

10 Rootstocks Used

- **Rubidoux** Variety of Poncirus trifoliata (do not have yet)
- Kuharski Carrizo Washington sweet x Poncirus trifoliata
- **Swingle** Duncan grapefruit x Poncirus trifoliata
- **US-812** Sunki mandarin x Poncirus trifoliata 'Benecke'
- **US -942** Sunki mandarin x Poncirus trifoliata 'flying dragon'
- <u>US-897</u> Cleo mandarin x Poncirus trifoliata 'flying dragon'
- <u>US -852</u>- Changsha mandarin x Poncirus trifoliata 'English large flowered trifoliate'
- Sour orange Citrus aurantium
- <u>Cleopatra</u> Citrus reshni
- **X-639** Cleopatra mandarin x Poncirus trifoliata

Rootstock Data Average of 6 Trees

Diameter Rootstock/Scion mm

New Growth 12/18/15

• Kuharski Ca: 24.5/20.1

• US-812: 25.8/22.7

• US-942: 24.7/21.9

• X-639: 25.1/21.1

• Cleo: 22.7/21.8

• Swingle: 25.6/18.6

• SO: 16.9/14.2

• US-897: 14.8/11.2

• US-852: 16.8/15.0

Rubidoux: N/A 2016

Kuharski Ca: 2/6

• US-812: 0/6

• US-942: 4/6

• X-639: 2/6

• Cleo: 5/6

Swingle: o/6

• SO: 2/6

• US-897: 1/6

US-852: 1/6

Rubidoux: N/A

Variety Trial of Early Maturing Satsumas

Little data on early varieties although growers are planting them

10 varieties on Poncirus trifoliata rootstock, 'Rubidoux'

Xie Shan, Iveriya, Ueno, Miyagawa, Iwasaki, Miyamoto, Okitsu Wase, Miho Wase, Brown Select, Owari



Early varieties in production

Citrus Greening in Georgia "Just the Facts"

- Georgia is currently under quarantine for HLB
- In 2008 one tree was found with HLB in one sour orange tree in Savannah
- Asian Citrus Psyllids were found in 2008 in Glynn,
 Camden, McIntosh counties in homeowner trees
- Lots of rumors out there. Few facts!
- Let me know if you find psyllids

Current Marketing Efforts by Georgia Growers



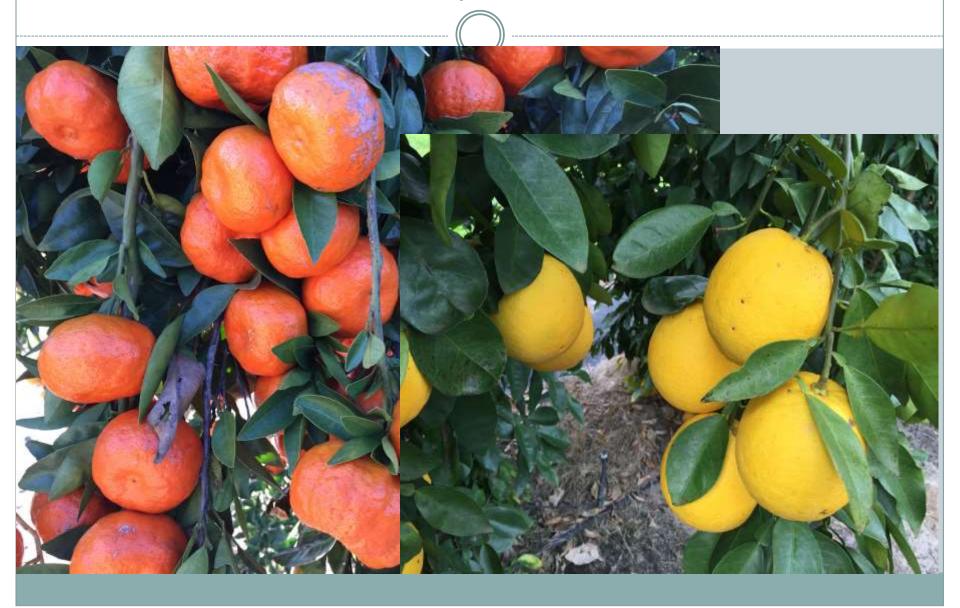
- 5 lb bag for \$10.00
- 3 lb bag for \$5.00
- Some sold in school system
- Marketing agreement with small stores

Potential Issues for Growers

- Inconsistent fruit production
 - O Why?
- Freezing temperatures
 - Make sure to do everything you can to prevent damage
- Possible diseases (HLB), Citrus Canker
 - Monitor for psyllids
- Marketing!
 - Be ready to market when its harvest time.

New Citrus Introductions from UGA

Dr. Wayne Hanna



Thanks!

