

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
- Dooley-300
- Camden-400

79 acres/28growers



Carl Vinson Institute of Government
University of Georgia

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
 - Brooks County- 24,25
 - Decatur County- 25,25
 - Tift- 24,27
 - Clinch County – 23,21
 - Dougherty - 20,25
 - Dooly- 20,27
 - Appling- 19, 23
 - Wayne- 18,21
 - Bullock- 23,27
 - Camden- 25,24

Cold Damaged Satsumas

(Different Degrees of Damage)



Rootstocks Being Used

Rootstocks Being Used

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

Freeze Damage to Carrizo





Windbreaks for cold protection

Photo by Mark Crawford

Citrus Sources For Georgia Growers

Only Buy From Reputable Sources

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

Semi Full of Trees



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.



Ruck's Citrus Nursery



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



Leaf miner larvae

Attack New Growth



Giant Swallowtail (Orange Dawg!)



Photo by Mark Crawford



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/foilage

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



Mark Frye, Wayne County Extension






Greening: Serious threat to citrus





Photo by Tony Smith



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	border rootstock
Carrizo	sour orange	Swingle	X-639	Carrizo
Carrizo	Rubidoux	Carrizo	Carrizo	Carrizo
Carrizo	Carrizo	US-942	US-942	Carrizo
Navel on SO	US-897	X-639	US-897	Navel on SO
Navel on SO	US-852	US-852	US-852	Navel on SO
Navel on SO	US-812	Rubidoux	US-812	Navel on SO
Navel on SO	US-942	US-812	Rubidoux	Navel on SO
Cleopatra	Cleo	Cleo	Cleo	Cleopatra
Cleopatra	X-639	sour orange	sour orange	Cleopatra
US-812	Swingle	US-897	Swingle	US-812
US-812	US-897	US-897	Cleo	US-812
US-942	US-852	Swingle	US-942	US-942
Cleopatra	X-639	Cleo	US-852	Cleopatra
Cleopatra	Rubidoux	US-852	Swingle	Cleopatra
Navel on SO	US-942	X-639	sour orange	Navel on SO
Navel on SO	US-812	US-812	Carrizo	Navel on SO
Navel on SO	Carrizo	US-942	US-812	Navel on SO
Carrizo	Swingle	sour orange	US-897	Carrizo
Carrizo	sour orange	Carrizo	Rubidoux	Carrizo
Carrizo	Cleo	Rubidoux	X-639	Carrizo
border rootstock	border rootstock	border rootstock	border rootstock	border rootstock

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'*
- **US-897** - *Cleo mandarin x Poncirus trifoliata 'flying dragon'*
- **US -852** - *Changsha mandarin x Poncirus trifoliata 'English large flowered trifoliata'*
- **Sour orange** - *Citrus aurantium*
- **Cleopatra** - *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: 0/6
- 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
 - 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!

