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

<table>
<thead>
<tr>
<th>Mid to Late Season (Early/Mid November)</th>
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<tbody>
<tr>
<td>Owari (75%, majority planted in GA)</td>
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<tr>
<td>Brown Select (15%)</td>
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<tr>
<td>Kimbrough</td>
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<th>Early Season (Octoberish)</th>
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<tbody>
<tr>
<td>Armstrong</td>
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<tr>
<td>Xie Shan</td>
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<td>Early St. Ann</td>
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<td>LA Early</td>
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<tr>
<td>China 9</td>
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<td>Shiranui</td>
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<tr>
<td>Miho</td>
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<tr>
<td>Miyagawa</td>
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</table>
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

- **Poncirus trifoliata**
  - Rubidoux
  - Flying Dragon
  - Rich 16-6

- **Washington sweet x Poncirus trifoliata**
  - 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
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!

Photos by Mark Crawford
Citrus Leafminers

Close-up of Larvae in Leaf

Leaf miner larvae

Attack New Growth
Giant Swallowtail (Orange Dawg!)

Photo by Mark Crawford
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

<table>
<thead>
<tr>
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<tr>
<td>Carrizo</td>
<td>Sour Orange</td>
<td>Swingle</td>
<td>X-639</td>
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<td>Rubidoux</td>
</tr>
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<td>Carrizo</td>
<td>X-639</td>
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</table>
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 trifoliate’
- **Sour orange** - *Citrus aurantium*
- **Cleopatra** - *Citrus reshni*
- **X-639** - *Cleopatra mandarin* x *Poncirus trifoliata*
### Rootstock Data Average of 6 Trees

<table>
<thead>
<tr>
<th>Diameter Rootstock/Scion mm</th>
<th>New Growth 12/18/15</th>
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<tbody>
<tr>
<td>• Kuharski Ca: 24.5/20.1</td>
<td>• Kuharski Ca: 2/6</td>
</tr>
<tr>
<td>• X-639: 25.1/21.1</td>
<td>• X-639: 2/6</td>
</tr>
<tr>
<td>• Cleo: 22.7/21.8</td>
<td>• Cleo: 5/6</td>
</tr>
<tr>
<td>• Swingle: 25.6/18.6</td>
<td>• Swingle: 0/6</td>
</tr>
<tr>
<td>• SO: 16.9/14.2</td>
<td>• SO: 2/6</td>
</tr>
<tr>
<td>• Rubidoux: N/A</td>
<td>• Rubidoux: N/A</td>
</tr>
<tr>
<td></td>
<td>2016</td>
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</tbody>
</table>

Note: Rubidoux data for 2016 is not available.
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
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!