Subtropical Peach Production in Florida

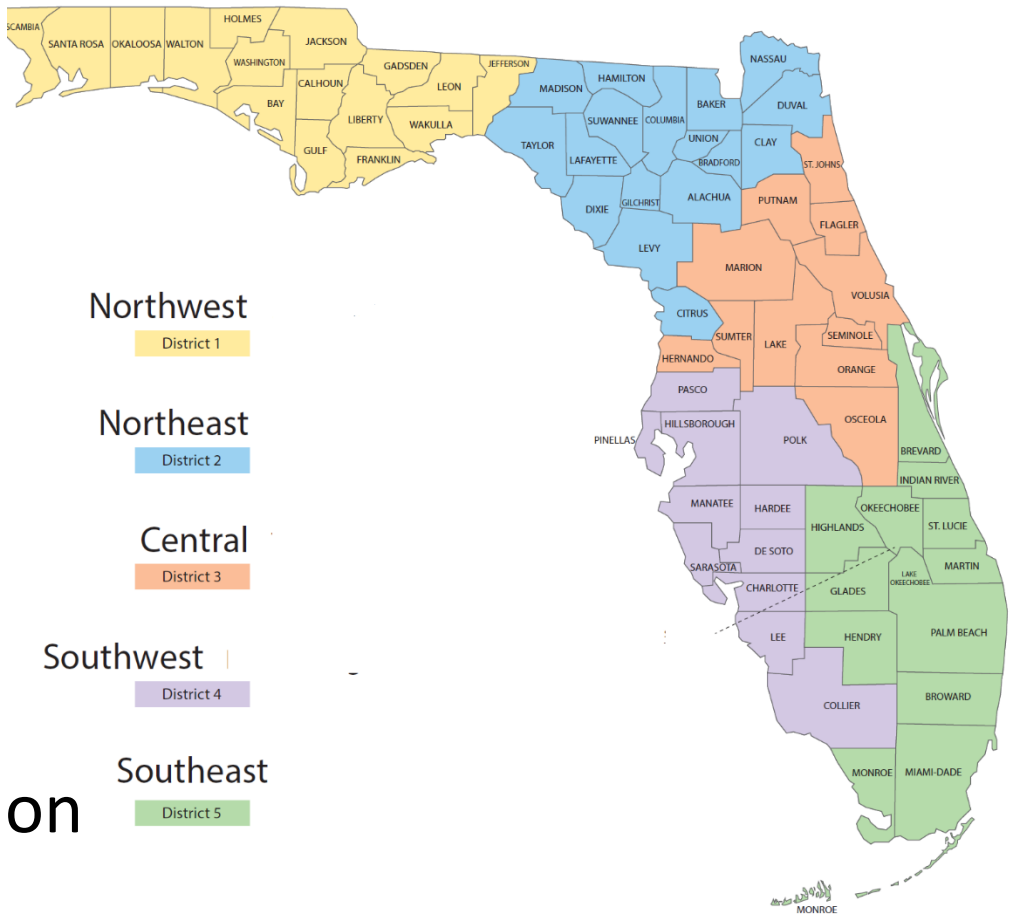


Ali Sarkhosh, Assistant Professor & Extension Specialist

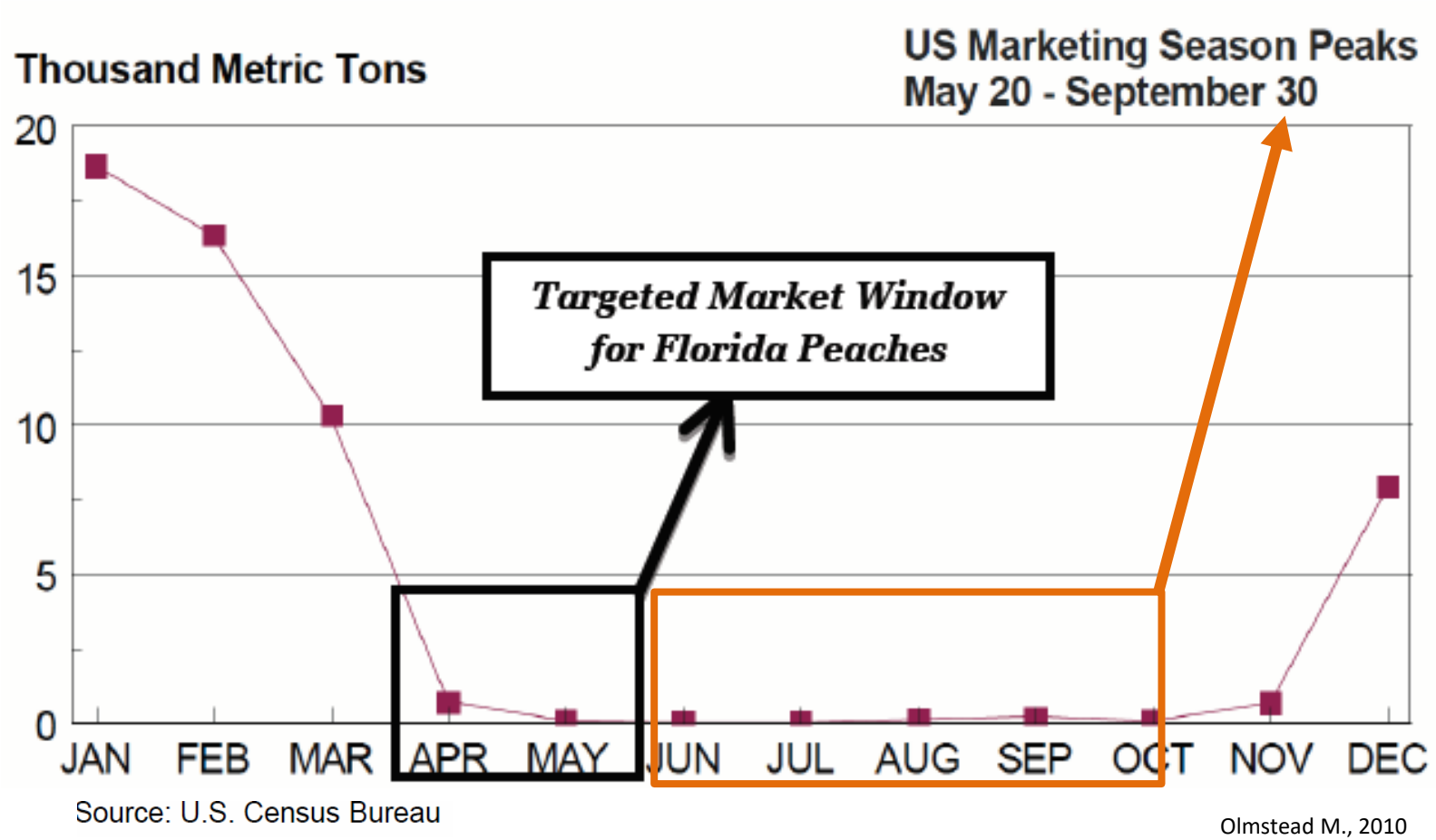
UF | IFAS Extension
UNIVERSITY of FLORIDA

Production History

- Peaked in the 1980s
- Medium-chill varieties
- Marketing challenges
- Domestic competition
- Lack of overhead irrigation

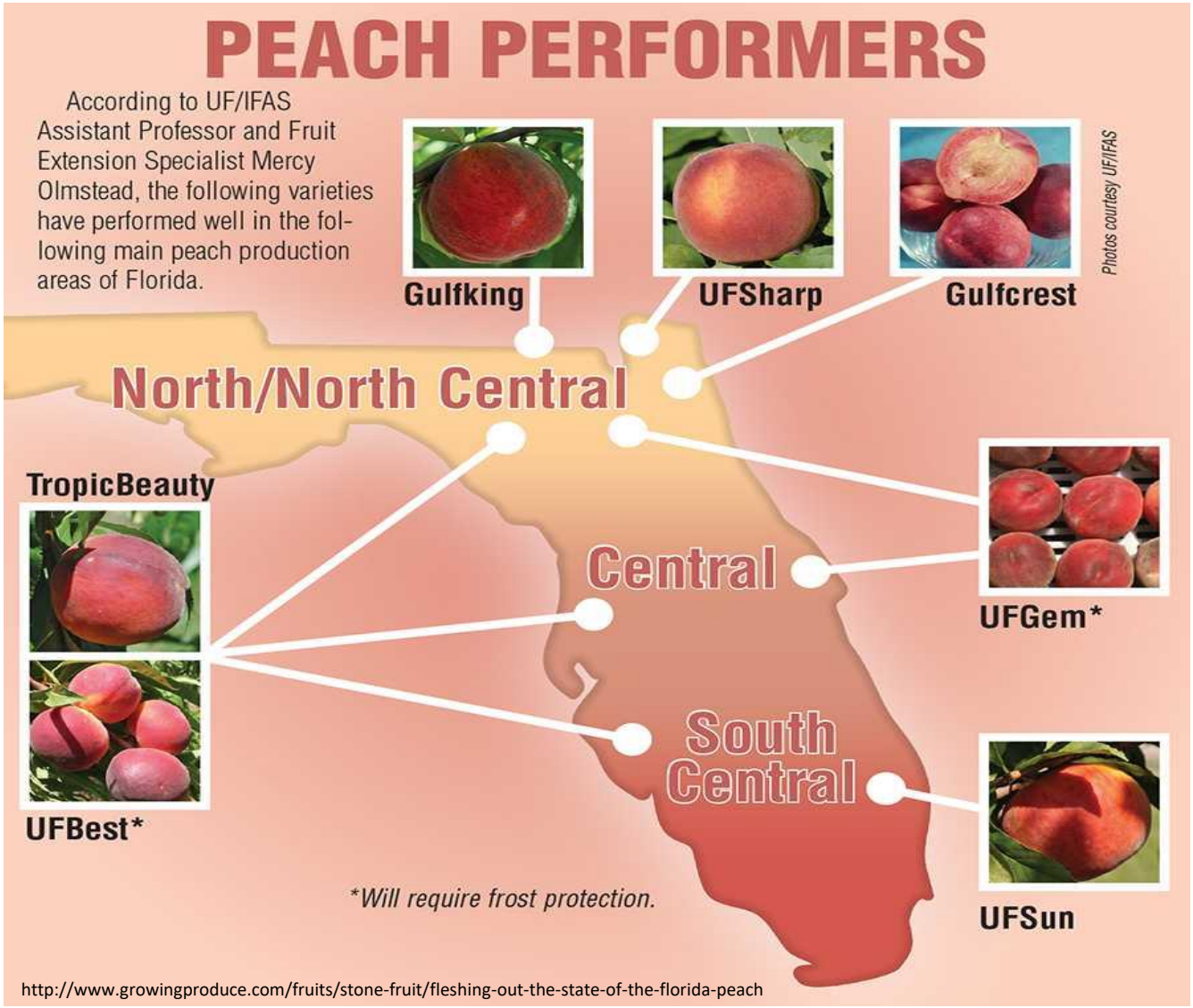


Production window for FL



Olmstead M., 2010

UF stone fruit breeding program



http://www.growingproduce.com/fruits/stone-fruit/fleshing-out-the-state-of-the-florida-peach

Checklist to know before you start

- Highly labor intensive fruit crops
- More difficult to mange than citrus
- Highly susceptible to insects and diseases
- Risk of production due to fruiting season
- Prices significantly depend on fruit quality and size

What you can expect to make?

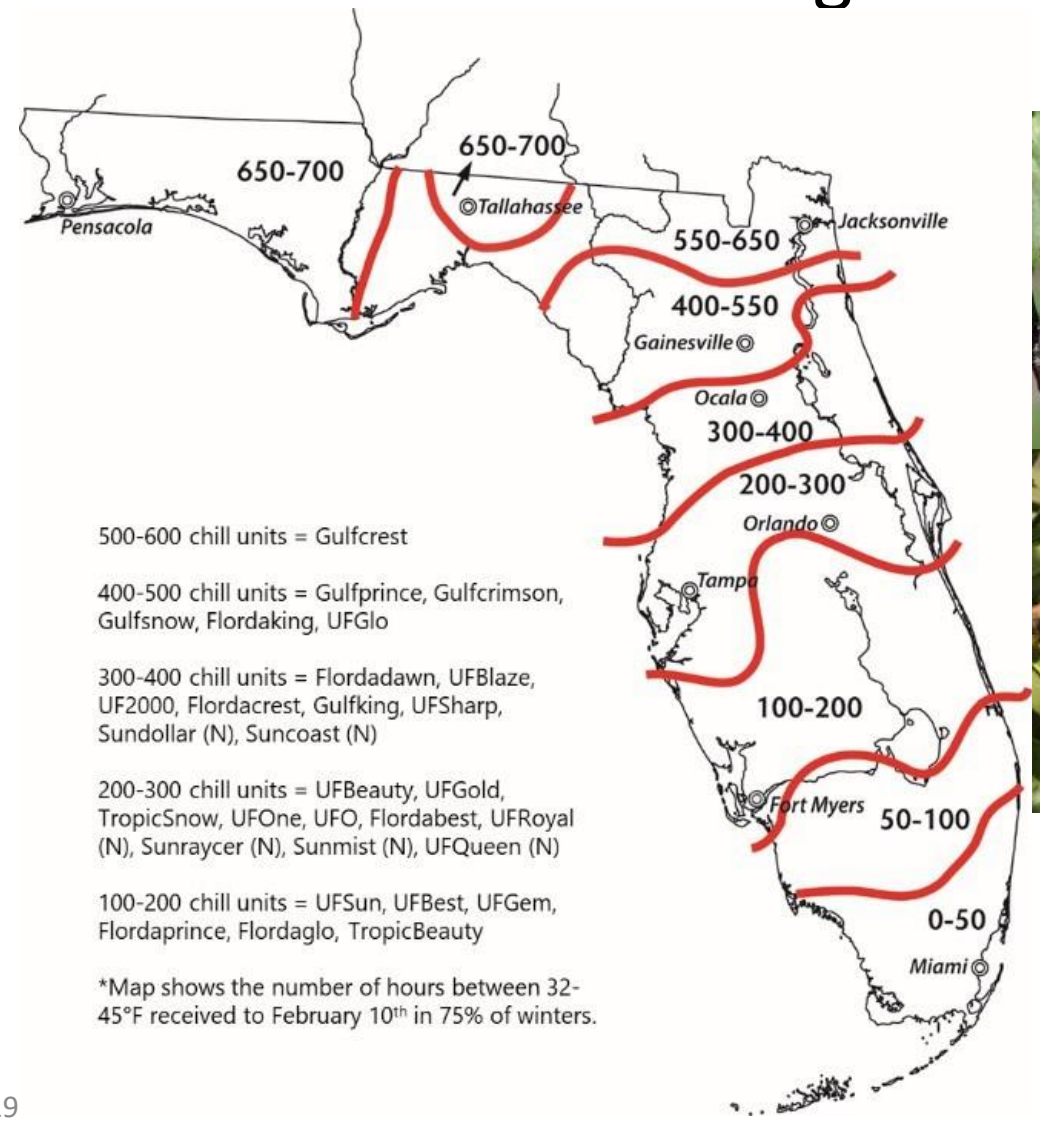
- Yield (156tree/acre, 14ft × 20ft)
  - ~10lb/tree in year 2= 1,560lb/acre
  - ~30lb/tree in year 3=4,680lb/acre
  - ~50lb/tree from year 4 to 12= 7,800lb/acre
- Price
  - ~$2.20/lb to supermarket
  - ~$3/lb retail price
  - ~$2-$3/lb U-pick

Climate

- Stone fruit require a certain period of the rest
- Dormancy and chilling unit=1 hour @ 32°F-45°F
- Insufficient chilling unit = delayed and prolonged budburst
- Crop and tree maybe damaged, if chilling requirement is satisfied soon
- UF varieties has chilling unit assigned

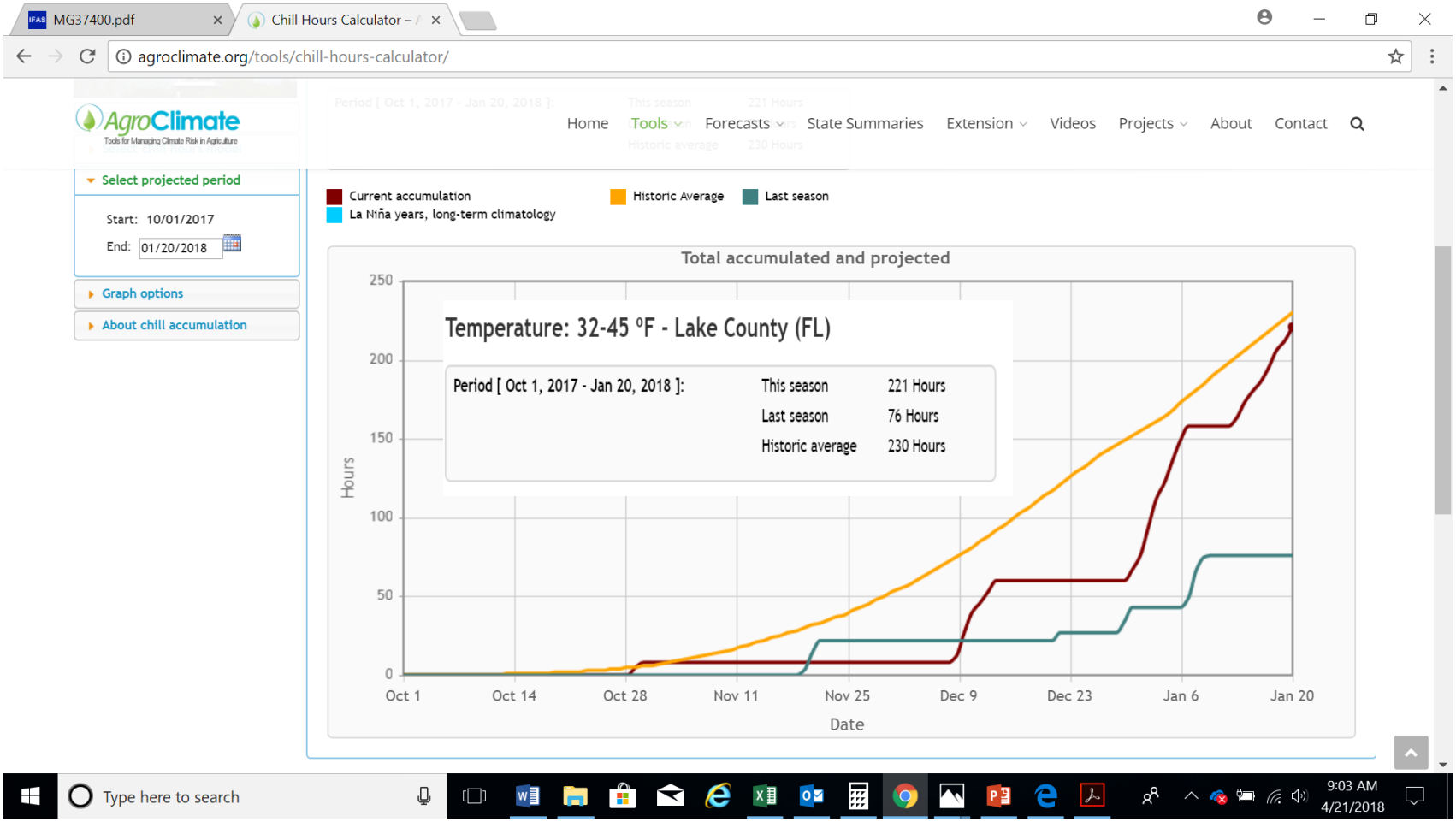
Climate

- UF varieties has chilling unit assigned



Climate

http://agroclimate.org/tools/chill-hours-calculator/



Soil

- Well drained soil (pH 6-7)
- Poor drainage and waterlogging= reduced vigour, root disease, tree death
- Where the top soil is less than 3ft. deep, plant tree on mounds

Irrigation

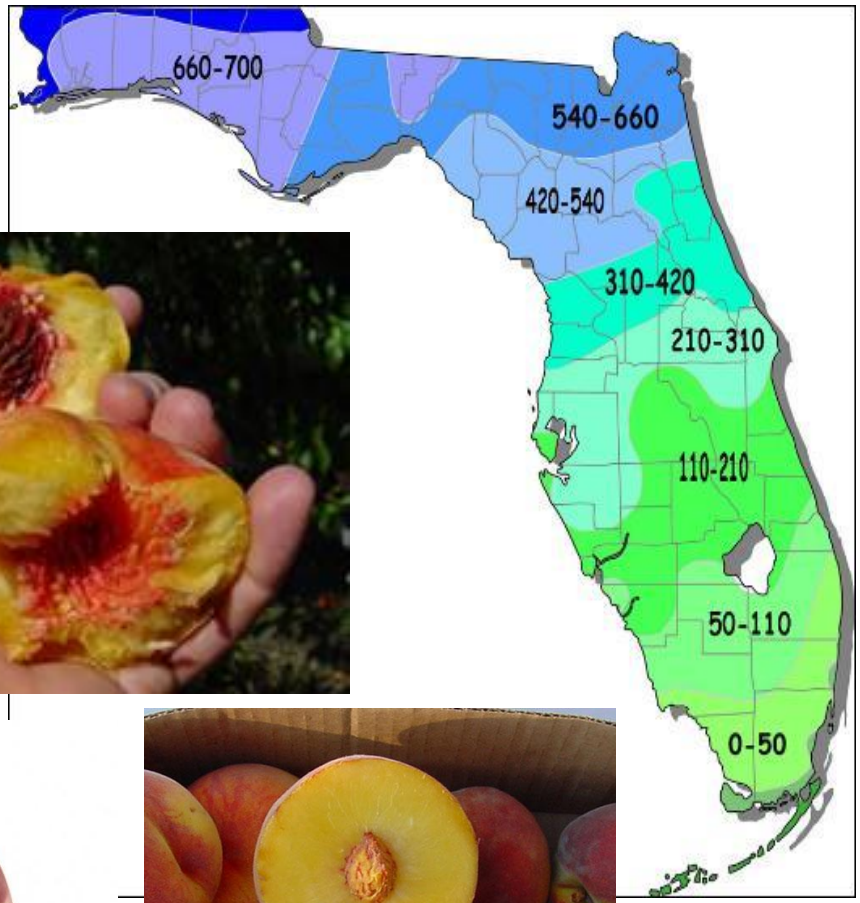
- Irrigation is essential to produce high quality fruit
- Highly sensitive to salt, should not exceed 600 µS/cm
- Flowering and fruit development, January to May
- Vegetative growth, June to November
- Dormancy, December and January
- Soil moisture sensor, torsiometer, ……

What variety and how many different varieties should I plant?

UF peach varieties based on;

-Chilling unit requirement

100-200 chill unit
200-300 chill unit
300-400 chill unit
400-500 chill unit
500-600 chill unit



-Texture

Melting and
Non-melting

-Flesh color

Yellow
white

Photos credit: M. Olmstead

Commercial Peach Cultivars for Central and South Central Florida

‘UFSun’—100 chill units

- Non-melting-flesh
- Bear heavy annual crops of early-season
- Medium-sized fruit, with yellow flesh and clingstone pits
- Develop 50–60% red skin with darker red stripes
- Fruit development period 80 days

Photo credit: M. Olmstead

More information about stone fruit varieties please visit;
http://hos.ufl.edu/extension/stonefruit
http://edis.ifas.ufl.edu/pdffiles/MG/MG37400.pdf

“TropicBeauty’—150 chill

- Non-patented cultivar
- The medium-sized, semi-freestone fruit have yellow, melting flesh
- develop 70% blush over a yellow ground color.
- Ripens between ‘UFSun’ and ‘UFOne’
- FDP of 89 days.

Photo credit: M. Olmstead

‘UFBest’—100 chill units

- Non-melting-flesh cultivar
- produces heavy annual crops of large fruit
- Develop 95–100% red skin over a yellow ground color
- Flesh is yellow with clingstone pits
- Ripens 1 week earlier than ‘UFSun’
- FDP of 85 days.

Photo credit: M. Olmstead

Backyard Peach Cultivars for Central and South Central Florida

‘Flordaprince’—150 chill units

- Melting flesh
- Standard low-chill peach cultivar worldwide
- The fruit develop 80% red blush
- Fruit are large, uniformly firm, and yellow, with semi-clingstone pits
- The fruit ripen about 7–10 days earlier than ‘TropicBeauty’ in Gainesville
- FDP of 78 days.

Photo credit: M. Olmstead

‘Flordaglo’—150 chill units

- Melting-flesh cultivar with white flesh
- The fruit develop 50–60% red blush over a white ground color
- Fruit are early ripening, semi-clingstone
- Ripen in early May, 78 days after full bloom
- Fruit is ideal for backyard or u-pick operations

Photo credit: M. Olmstead

Rootstock

‘Flordaguard’

- Resistant to root-knot nematode *Meloidogyne Floridensis*
- It works well on the acidic soils
- It is not adapted to high pH soils

Root-knot nematode

Tree on the right shows signs of nematode infestation such as yellowing, stunting and reduced vigor. Photo credit: Mary Ann D. Maquilan.

Reduction in foliage is resulting in the production of poor quality fruit.
Photo credit: Mary Ann D. Maquilan.

Tree densities

Various tree densities per acre for vase training systems

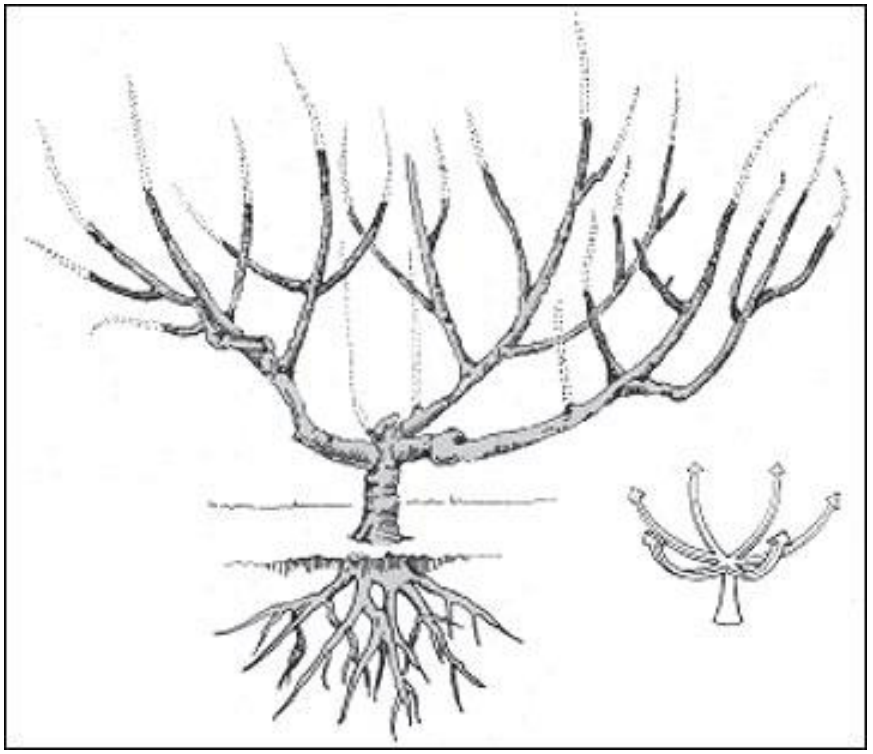
Spacing Between Trees (ft)	Spacing Between Rows (ft)	Total Trees/Acre
15	25	117
15	20	145
10	20	218
10	15	290

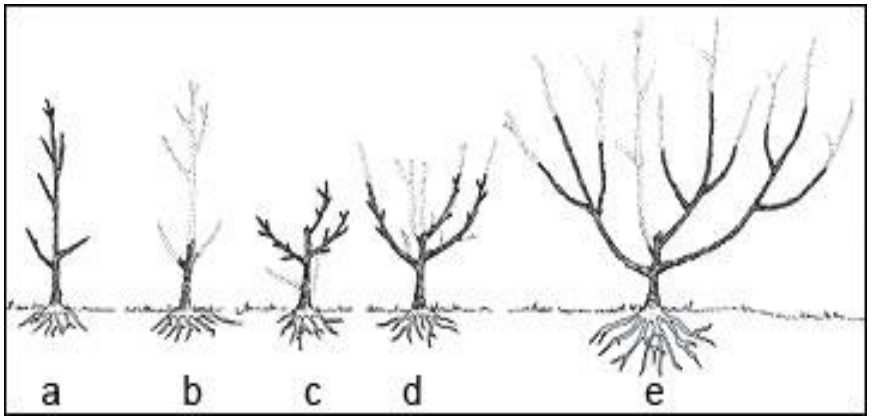
Photo credit: David Myers

Photo credit: M. Olmstead

Vase training systems

- Cut back the plant 18-24 inches above the ground level
- Select 3-4 shoots that will become the primary scaffold
- The scaffold should be distributed evenly around the trunk
- The center of the tree is kept free of large branches and various upright growing shoots





Photos credit: https://extension2.missouri.edu/MG6

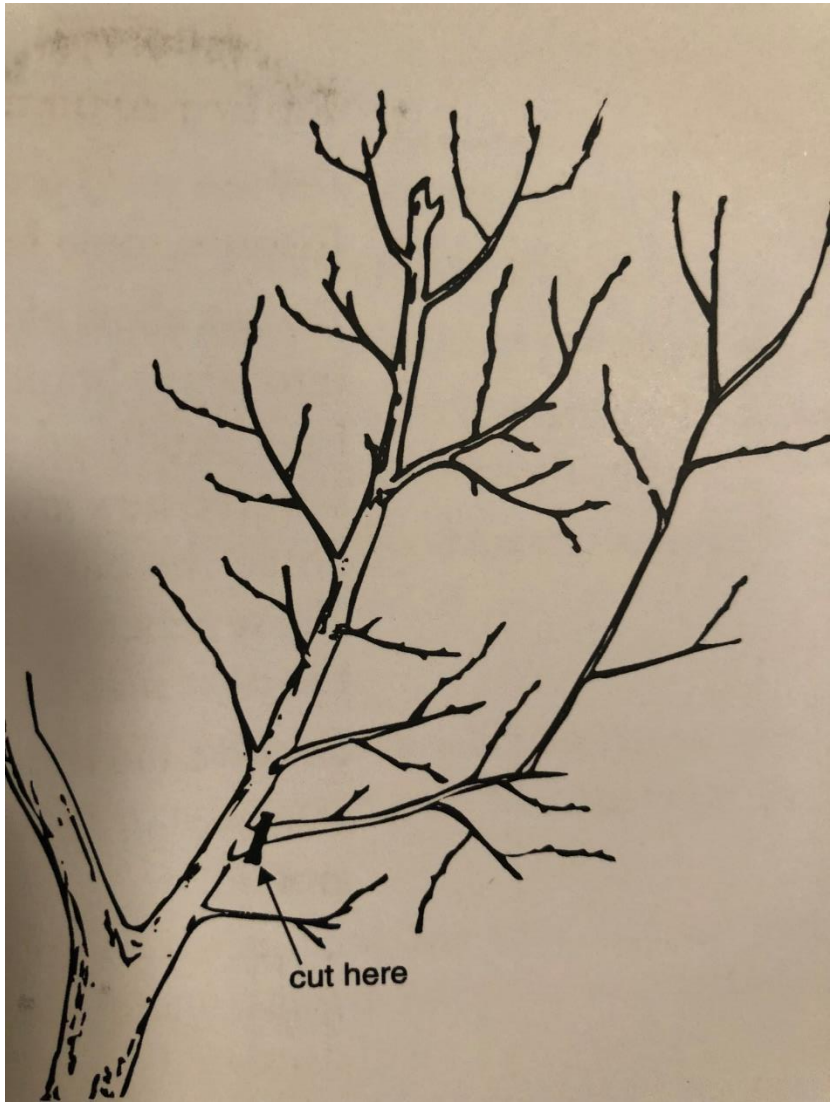
Photos credit: M. Parker

Why pruning?

- It keeps the tree at manageable size
- It allows light and spray materials to penetrate all parts of tree
- It stimulates the production of fruiting wood for the next following season
- It removes excesses fruiting wood during winter

Photo credit: M. Olmstead

Winter pruning



Summer pruning

Photos credit: M. Olmstead

Fruit thinning

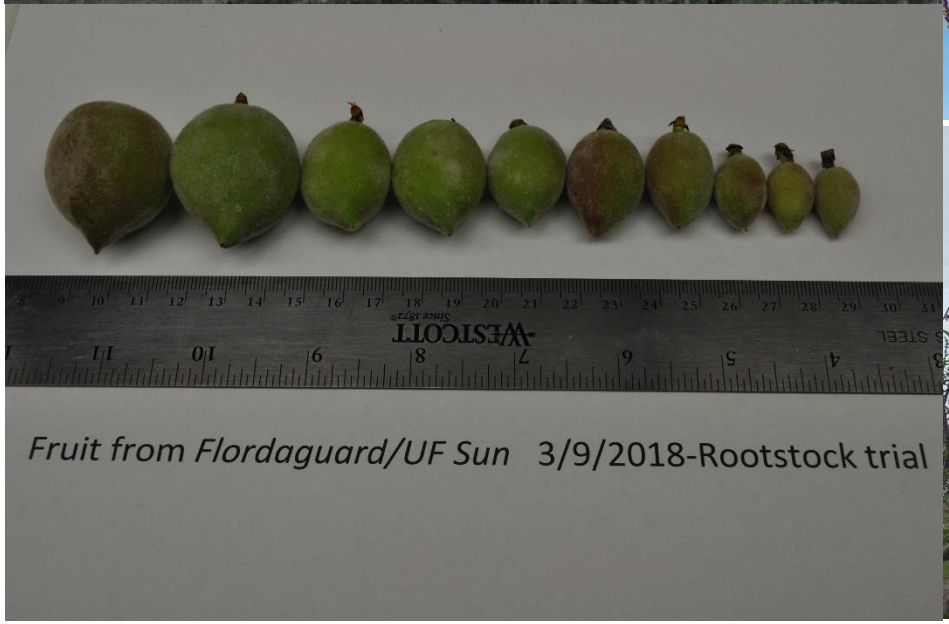
Tree nutrition

- **Young tree:**
  80 lb/acre of 12-4-8 N.P.K.
  Fertilizer very 6 to 8 weeks.

- **Mature bearing tree:**
  12-5-14 N.P.K. plus 3% Ca, 1% Mg, 0.1% Zn and 0.02%

- **Application time:**
  January: 1 lb/tree
  March: 0.5 lb/tree
  April or May: 0.5 lb/tree
  June or July: 1 lb/tree

Frost protection



Weed control

http://edis.ifas.ufl.edu/pdffiles/WG/WG02000.pdf

Photo credit: M. Olmstead

Peach diseases

Fungal Gummosis
Botryosphaeria dothidea

- There is no fungicide registered to use
- Avoid low-lying areas with poor air circulation and soil drainage
- Avoid summer and/or winter pruning in rain events
- Avoid overhead irrigation after pruning or harvesting
- Mechanical injuries from equipment

Photo credit: M. Borden

Peach Scab
Cladosporium carpophilium

- Spots on fruit
- Controlled with fungicides
  - Bravo (Chlorothalonil)
- Important to control shortly after fruit set and into early part of fruit growth
- Can affect leaves as well

- Organic options
  - Sulfur
  - OxiDate
  - Serenade

Peach Leaf Rust
Tranzschelia discolor

- Visible after harvest during wet season
- Causes tree defoliationNee
- Controlled with fungicides
  - Bravo (Chlorothalonil)
  - Application time; before shuck falls or after harvest

- Organic option:
  - Sulfur
  - Oxidate
  - Serenade

Peach Insects

- White Peach Scale
- San Jose Scale
- Control
  - Dormant oil
  - Insecticide: Movento, ……

Plum Curculio

- Remove wild plum trees surrounding new orchard
- There are traps for monitoring
- Controlled with insecticide
- Organic options:
- Surround WP (Kaolin clay)

Stinkbugs

- Spraying between petal fall and shuck-fall
- Avoid excessive weeds in the rows
- Insecticide: Carbaryl (Sevin®)
- Organic options:
- Trap cropping (direct stinkbugs to alternative crop)
- Sunflower, Buckwheat, Sorghum

Photos Credit: M. Smith

Peach Tree Borers

- Controlled by insecticides; Carbaryl (Sevin®)
- Before fruit set or after harvest
- Interior white latex paint on trunk (not organically approved)

Photo credit: University of Florida

Citrus root weevil

- The larvae burrow into the soil where they feed on plant roots
- The adult weevils feed on leaves and they prefer new plant growth
- Controlled with insecticide

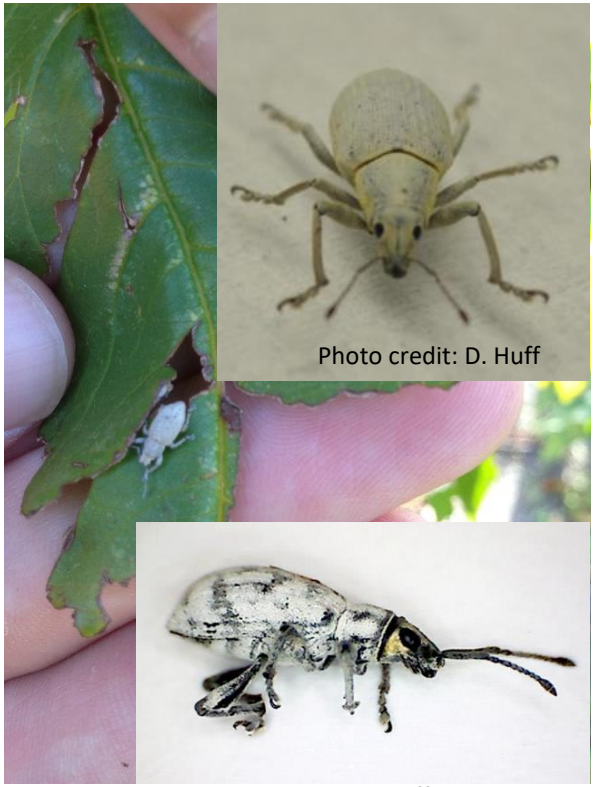


Photo credit: D. Huff

Photo credit: A. Neal, H. Green, D. Huff, A. Sarkhosh,

Photos: Beth Grafton-Cardwell

Left, root weevil larvae create "feeding galleries" on lemon tree roots; *middle*, damaged roots can provide entryways for root-rot organisms; *right*, a lemon tree infested by Diaprepres was defoliated and had a very small root system.

http://calag.ucanr.edu/Archive/?article=ca.v063n03p121

Caribbean fruit fly

- Important pest in S. Florida
- Control methods:
- McPhail traps
- Malathion sprays
- Bait + spinosad (GF-120) can cause markings on peaches
- Available in organic form (Entrust)

Photo credit: by J. W. Lotz

Photo credits: G. Keene, Fresh from Florida

Traps

- Tedders Trap
  - Plum curculio (black)
  - Stinkbugs (yellow)

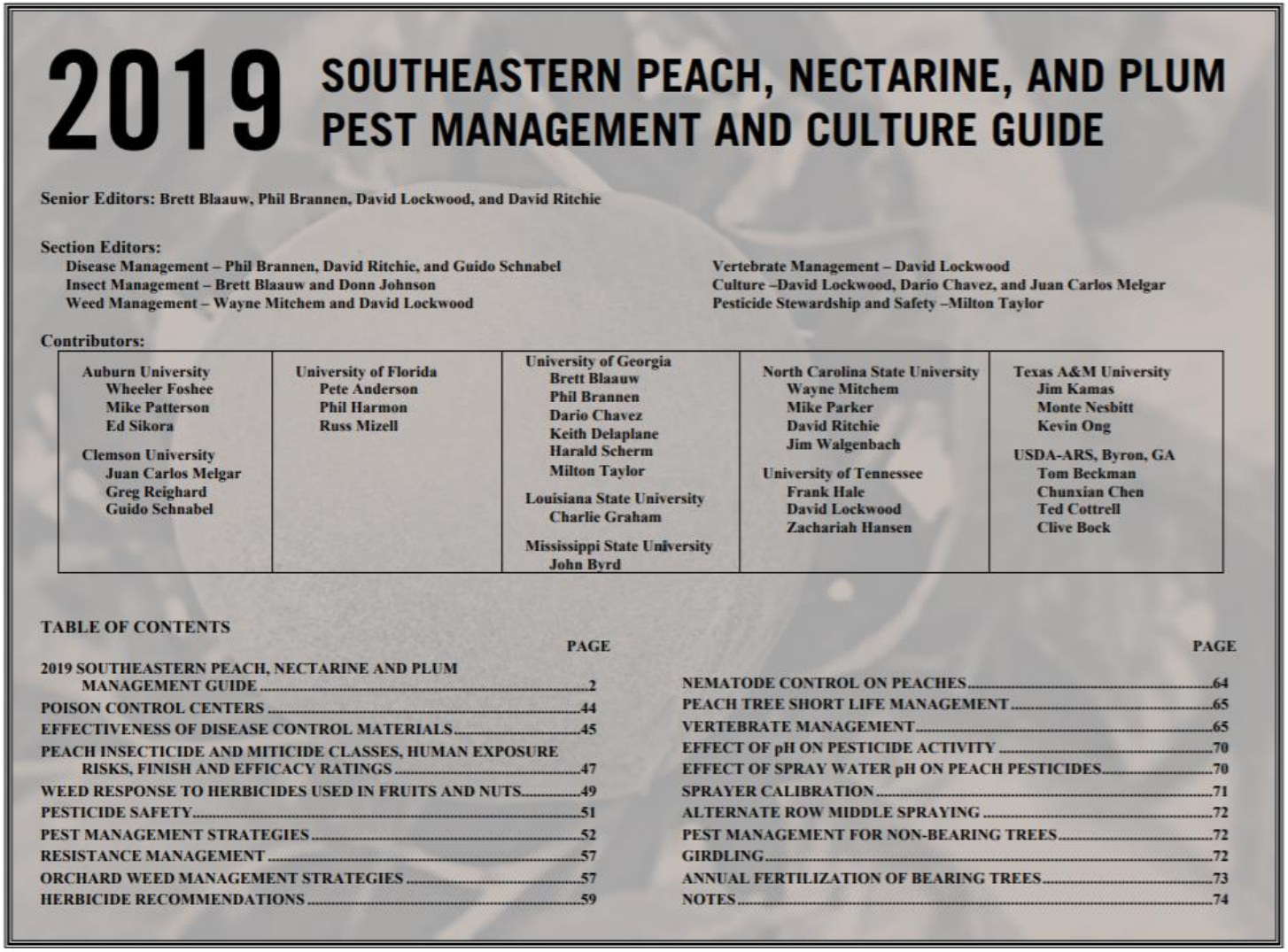
- Pheromone lure trap
  - Peach tree borers

- McPhail traps
  - Caribbean Fruit Fly

http://ufinsect.ifas.ufl.edu/weevil-trapping.htm

2019 Pest Management Guide

https://secure.caes.uga.edu/extension/publications/files/pdf/B%201171_11.PDF



2019 SOUTHEASTERN PEACH, NECTARINE, AND PLUM PEST MANAGEMENT AND CULTURE GUIDE

Senior Editors: Brett Blaauw, Phil Brannen, David Lockwood, and David Ritchie

Section Editors:

Disease Management – Phil Brannen, David Ritchie, and Guido Schnabel
Insect Management – Brett Blaauw and Donn Johnson
Weed Management – Wayne Mitchem and David Lockwood
Vertebrate Management – David Lockwood
Culture –David Lockwood, Dario Chavez, and Juan Carlos Melgar
Pesticide Stewardship and Safety –Milton Taylor

Contributors:

Auburn University Wheeler Foshee Mike Patterson Ed Sikora Clemson University Juan Carlos Melgar Greg Reighard Guido Schnabel	University of Florida Pete Anderson Phil Harmon Russ Mizell	University of Georgia Brett Blaauw Phil Brannen Dario Chavez Keith Delaplane Harald Scherm Milton Taylor Louisiana State University Charlie Graham Mississippi State University John Byrd	North Carolina State University Wayne Mitchem Mike Parker David Ritchie Jim Walgenbach University of Tennessee Frank Hale David Lockwood Zachariah Hansen	Texas A&M University Jim Kamas Monte Nesbitt Kevin Ong USDA-ARS, Byron, GA Tom Beckman Chunxian Chen Ted Cottrell Clive Bock

TABLE OF CONTENTS

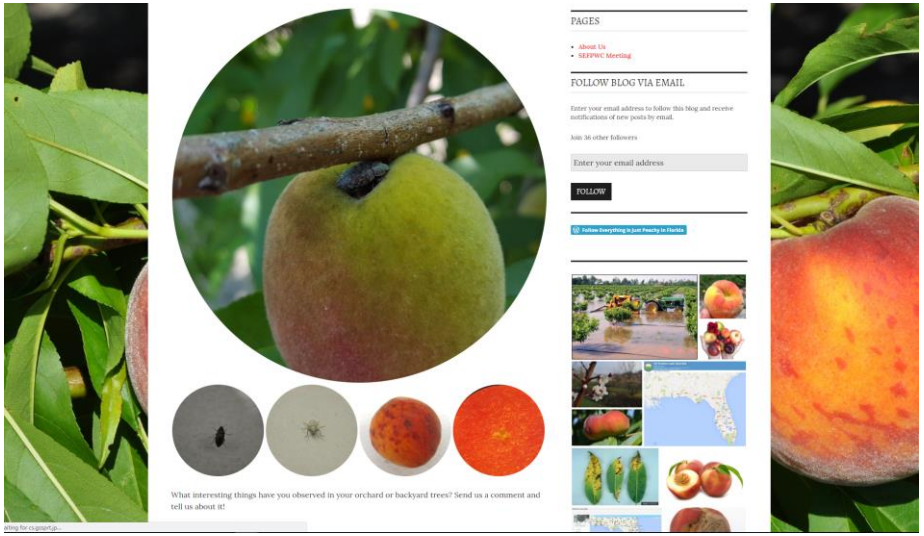
Websites

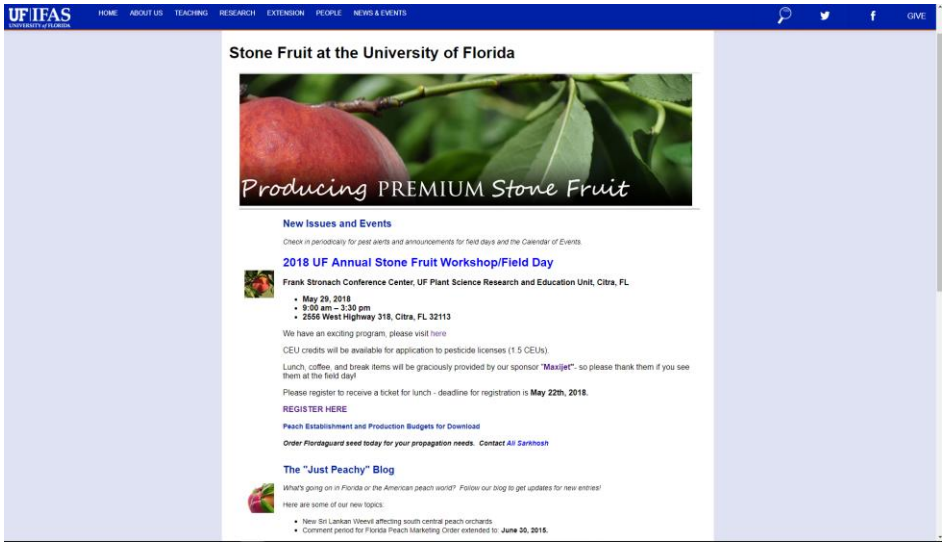
Stone Fruit at the University of Florida

http://hos.ufl.edu/extension/stonefruit

Operation Peaches in Florida

https://ufstonefruit.wordpress.com/#jp-carousel-464





Tel:352-273-4788 Email: sarkhosha@ufl.edu

UF/IFAS EXTENSION PRESENTS

STONE FRUIT FIELD DAY

Tuesday
April 30, 2019
9:30AM–3:30PM

UF IFAS Extension
UNIVERSITY of FLORIDA

NO REGISTRATION FEE

Sponsored by Maxijet

PLEASE RSVP BY APRIL 23
stonefruitfieldday2019.eventbrite.com
or to Staci Sanders (352) 591-2678

Frank Stronach Conference Center
UF/IFAS Plant Science Research and Education Unit
West Highway 318
Citra, FL 32113

Questions?
Contact Juanita Popenoe
Multi-County Commercial Fruit Production Agent,
UF/IFAS ExtensionLake County at
jpopenoe@ufl.edu or
352-343-4101 ext. 2727

AGENDA

9:30 a.m.–10:30 a.m.	**Registration and Welcome** Dr. Sarkhosh, Dr. Popenoe and PSREU team
10:00 a.m.–10:20 a.m.	**Subtropical Peach Production in Florida: Research and Extension Update** Dr. Ali Sarkhosh, UF/IFAS Horticultural Sciences Department
10:20 a.m.–10:45 a.m.	**Progress in Low-chill Peach Variety Development for Florida** Dr. Jose Chaparro, UF/IFAS Horticultural Sciences Department
10:45 a.m.–11:10 a.m.	**Prevention and Management of Peach Diseases in Florida** Dr. Phil Harmon, UF/IFAS Plant Pathology Department
11:10 a.m.–11:35 a.m.	**Maximizing Fruit Quality of Low-chill Peaches through Optimum Preharvest-Management Practices** Dr. Mark Ritenour, UF/IFAS Indian River Research and Education Center
11:35 a.m.–12:00 p.m.	**Prevention and Management of Root-knot Nematodes in Peach Orchard** Dr. Don Dickson, UF/IFAS Entomology and Nematology Department
12:00 p.m.–1:00 p.m.	**Lunch**
1:00 a.m.–1:30 p.m.	**Nitrogen Fertilization in Subtropical Peaches** Dr. Zilfina Rubio Ames, UF/IFAS Horticultural Sciences Department
1:30 p.m.–2:00 p.m.	**Bagging as an Alternative Insect and Disease Management Tool** David Campbell, UF/IFAS Horticultural Sciences Department
2:00 p.m.–2:30 p.m.	**Florida and the Not-So-Giant Peach: Can Peaches from Unthinned Trees be Used in the- Fermentation Industry** Savanna Curtis, UF/IFAS Food Science and Human Nutrition Department
2:30 p.m.–3:30 p.m.	**Field Plot Tour OR Tasting Fruit of Different Peach Cultivars** Drs. Chaparro, Sarkhosh, and Popenoe


Thank You