Potential of selected subtropical and tropical fruits for Florida

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Citrus Expo 2018

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Key factors for tropical and subtropical fruit production

- *Tropical: warm to hot temperatures year-round for most crops*
- *Subtropical: may require or benefit from cold non-freezing temperatures*
- *Site selection: none to infrequent freezing temperatures is best*
  - *Micro-climates*
  - *Nearness to water*
  - *Cold protection possibilities – protected agriculture*
- *Well drained soils and/or well formed beds and drainage system*
- *Tree size management to minimize tropical storm or hurricane damage*
  - *Preparedness for hurricanes*
  - *Preparedness for flooding and/or continuous saturated soil conditions*

Cold temperature tolerance – the temperature at which damage or death may occur

Common name	Temperature (F°)	Common name	Temperature (F°)
Atemoya/sugar apple	M, 28-29/32; Y, 30/32	Mamey sapote	M, 28; Y, <32
Avocado*	W, 25-30; G, 25-28; M, 18-26	Mango	M, 25; Y, 29-30
Banana	<28	Olive	~12 (28 fruit)
Canistel	M, 23; Y, 29	Papaya	<30
Carambola	M, 26-28; Y, 27-32	Passion fruit	<32
Guava	M, 25-26; Y 27-28	Pitaya	~31?
Jackfruit	<32	Pomegranate	~10-15
Jujube (Chinese/Indian)	-28 to 10	Sapodilla	M, 26; Y 30-32
Kumquat	<18	Spondias	<30
Longan	M, 24-28; Y, 28-30	Tamarind	~24
Loquat	Dormant 10, fruit <27-28	Wax jambu	<32
Lychee	M, 24-25; Y, 28-32	White sapote	M, 24; Y, 26
*W=West Indian; G=Guatemalan race; M=Mexican race; M=mature; Y=young			

- *Genetics*
- *Site selection*
- *Preparation*
- *Phenology*

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Avocado (Guatemalan, Mexican and GxM hybrids) ~6,400 acres

Attributes

- Some cultivars tolerate temperatures down to mid-20s
- May be pruned to maintain small stature, <15 ft tall
- Good market demand (consumption increasing)

Issues

- Freeze damage
- Must be grown in well-drained soil (phytophthora root rot)
- Laurel wilt an insect-disease complex that kills trees
  - Race/cultivar differences
  - Ambrosia beetle vectors
  - Tree size, root grafting, effect of light regime

'Carmen Hass'

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Phytophthora root rot and laurel wilt

Laurel Wilt

Phytophthora root rot

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Lychee (Litchi chinensis)

~700 acres

Attributes

- Cold tolerance to ~24-25°F
- Excellent fruit
- Numerous cultivars and potential niche markets

Issues

- Unreliable cropping
- Some insect and disease problems
  - Lychee erinose mite
- Off-shore competition

'Anne Wong'

'Emperor'

'Mauritius'

'Hak Ip'

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Longan (Dimocarpus longan)

~1,368 acres

Attributes

- Cold tolerance to 26-28°F
- Off-season fruit production possible
- A number of cultivars to choose from – potential niches

Problems

- Unreliable "natural" cropping
  - However, may be induced to flower
- Some insect pests
- Off-shore competition is increasing

'Kohala'

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Mango (Mangifera indica)

~1,351 acres

Attributes

- Large number of cultivars
- Diverse niche market (increasing)
- Cold tolerance to 25-30°F

Issues

- Potential freeze – damage, death
- Fruit disease issues
  - Anthracnose
  - Bacterial black spot
- Off-shore competition


'Southern Blush'

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~721 acres

Pitaya (Hylocereus udatus and others)

Attributes

- Can be an excellent fruit
- Numerous cultivars

Issues

- Needs trellis system
- Some pollination issues
- Some disease and insect problems
- Off-shore competition increasing
- Relatively new – so new issues may emerge

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~714 acres

Guava (Psidium guajava)

‘Homestead’ (Ruby x Supreme)

Attributes

- Tolerates to ~25-26°F
- Numerous cultivars for specialty markets (green-hard, green-soft, ripe, pink/white)
- Tree easily kept small
- Long harvest season

Issues

- Caribbean fruit fly
- Some potential insect and disease problems
- Considered invasive in some areas
- May be labor intensive
  - Bagging
  - Constant spraying

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Jujube (Indian – Zyzyphus mauritiana/Chinese – Z. jujube)

Attributes

- Cold tolerance to 10 °F (Indian)/-28°F (Chinese)
- October to mid-March
- A number of cultivars to choose from – potential niches

Problems

- Fruit splitting/cracking
- Minor market
- No major insect or disease issues at present

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Finger limes (*Microcitrus australiasica*)

<u>Attributes</u>

- Very new niche market, novel
- Tolerant to HLB (citrus greening)
- Trees can be kept small

<u>Issues</u>

- Site selection
  - Freeze sensitive
  - Wind protection
- Thorny
- Peel is delicate (scarring)
- Limited market

Singh, A. et al., 2017. Finger lime..
http://edis.ifas.ufl.edu/fe1033






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Protected agriculture

Carambola

‘Arkin’

Papaya

‘Red Lady’

~150 acres

Carambola (Averrhoa carambola)

<u>Attributes</u>

- Numerous cultivars
- Easy to control tree size
- Off-season flowering/fruiting potential
- Seedless to near-seedless fruit possible

<u>Issues</u>

- Florida competitors
- Limited fresh market
- Wind sensitive
- Needs air and soil temperatures ≥68°F
- Some mite problems in-doors

'Arkin'

'Lara'

'Bell'

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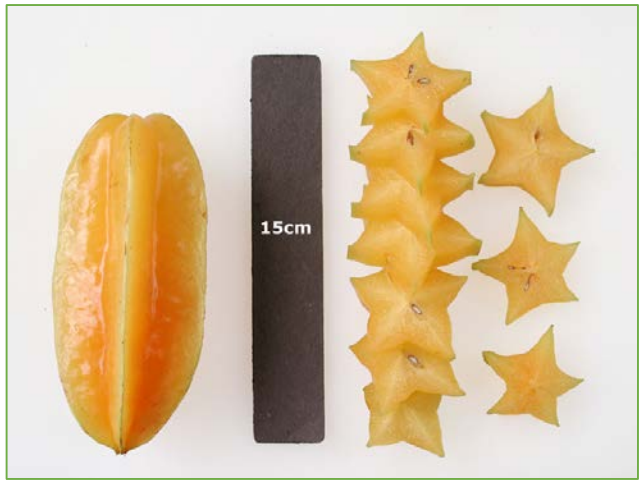
‘Arkin’

‘B-10’

‘B-17’

‘Fwang Tung’

‘Kary’



‘Kajang’

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Wind-protected carambola culture (with/without roof) - limited temperature control

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Papaya (Carica papaya)

~356 acres

Attributes

- Numerous cultivars
- Easy to control tree size
- Potential year-round production

Issues

- Temperature and light
- Some insect issues
- Some disease issues
- Competition

CREC Dr. Arnold Schumann

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Kaffir lime (Citrus hystrix)

Attributes

- Very niche market for leaves and fruit in cooking
- Non-vigorous shrubby plant

Problems

- Susceptible to citrus canker and citrus greening
- Some insect problems

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Further information

University of Florida/IFAS

- On-line publications, EDIS

http://edis.ifas.ufl.edu

- FruitScapes, an on-line website dedicated to fruit growing in the home landscape

http://trec.ifas.ufl.edu/fruitscapes/

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