

Florida Citrus Nursery Industry, Budwood Program, and Disease Threats

Bob Rouse¹, Mike Kesinger², and Mongi Zekri¹

¹University of Florida

²Florida Department of Agriculture

ISTH Dominican Republic
10 October 2005



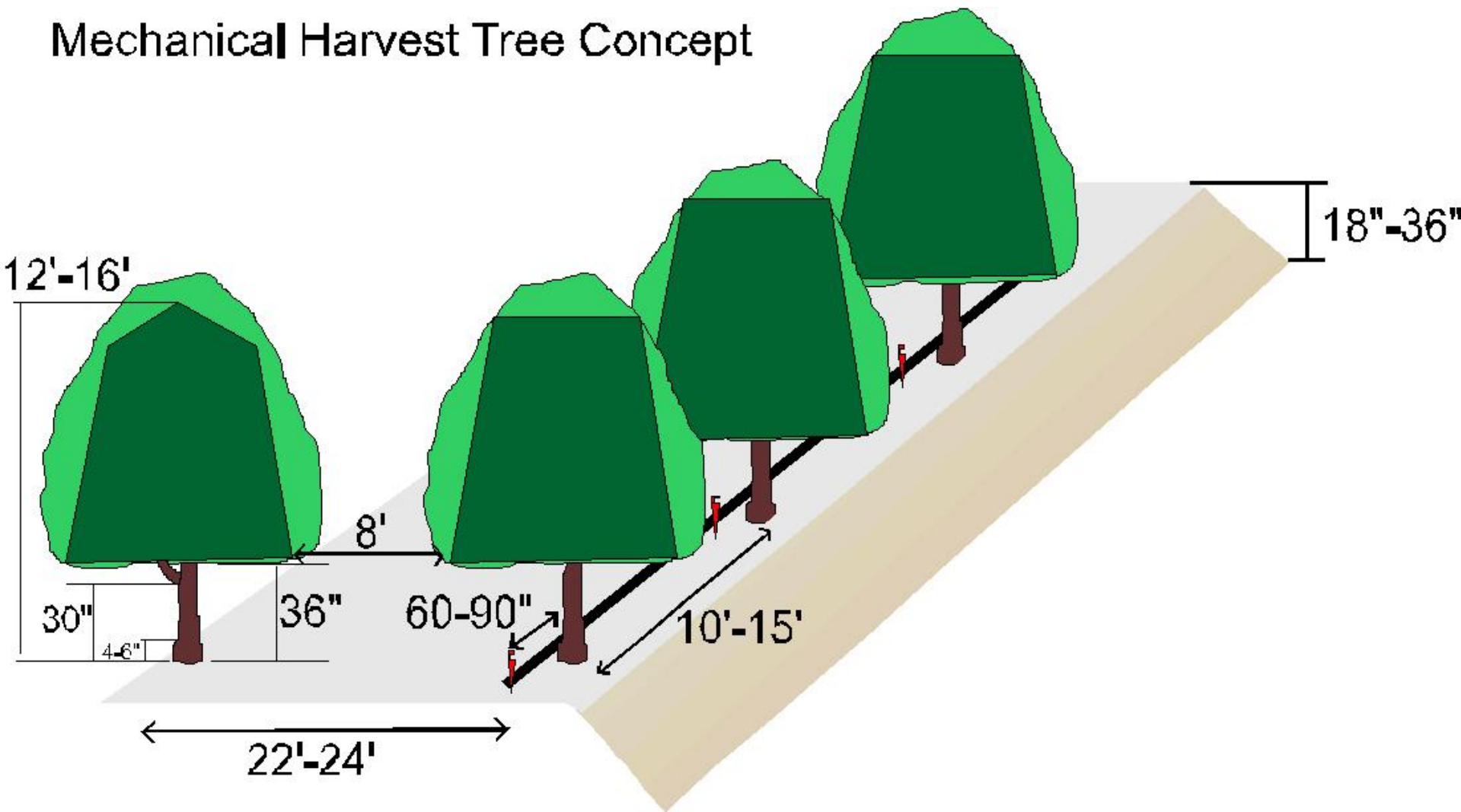
Status of Florida Citrus Industry - 2005

- 98 million trees (down 8.5 million trees)
- 748,555 acres (304 ha), down 83,695 acres (34,022 ha)
- Hamlin and Valencia predominant sweet oranges and used for processing
- Grapefruit predominately fresh fruit
- Since 1995 lost almost all sour orange rootstock
- Florida had three hurricanes in 2004, lost 1/3 orange and 2/3 grapefruit crop
- Hurricanes spread citrus canker – 1,900 foot rule eradication
- Swingle citrumelo most used rootstock

GROWERS PREPARING GROVES for MECHANICAL HARVESTING

1. Groves being prepared for mechanical harvesting
 - a) Change tree shape and grove architecture
 - b) Skirting & hedging
 - c) Plant high-headed nursery trees

Mechanical Harvest Tree Concept





Bud union



New planting



HORTICULTURAL ADVANTAGES OF HIGH-HEADED TREES

- ✓ Reduced herbicide contact to low hanging foliage
- ✓ Less exposure to brown rot, greasy spot, and improved air drainage under canopy
- ✓ More uniform wetting of irrigation emitters
- ✓ Emitters visible for checking and maintenance
- ✓ Fruit production starts sooner because older tree is planted
- ✓ Reduced severity and frequency for mechanical skirting











Status of Florida Nursery Industry - 2005

- Since 2000 propagations decreased from 6 to 2 million
- Less than 50 active nurseries (1,428 in 1960)
- Hamlin and Valencia oranges most propagated
- Nurseries propagate 84 different cultivars
- Swingle citrumelo most propagated rootstock >50%
- Carrizo citrange being replaced by Kuharske citrange
- Sun Chu Sha replacing Cleopatra mandarin (2%)
- Smooth Flat Seville replacing sour orange (1.6%)

Bureau of Citrus Budwood Registration

- 1953 Voluntary budwood program started
- 1964 Policy change allowed CTV trees
- 1976 Bureau began shoot-tip grafting
- 1995 Citrus canker found in Miami residential areas
- 1995 Brown citrus aphid found in Miami
- 1997 Budwood program became mandatory
- 1998 Dooryard nurseries regulated
- 1998 Citrus Psyllid found in Miami area
- 2004 Citrus canker spread by 3 hurricanes
- 2005 Citrus greening found in Miami area
- 2005 Lost primary variety germplasm site in central Florida to canker exposure from neighboring grove

Five year nursery propagations of citrus types in Florida

2000-2005 Florida Nursery Propagations

Year	Oranges	Grapefruit	Mandarin	Lemons & Limes	Other Citrus	Total
2000-2001	4,710,200	540,484	249,044	48,498	27,547	5,575,773
2001-2002	5,000,757	573,574	179,683	53,630	38,729	5,846,373
2002-2003	4,288,075	332,870	196,937	54,867	25,408	4,898,157
2003-2004	3,228,765	526,627	167,818	34,308	14,264	3,971,782
2004-2005 ¹	1,386,812	542,182	131,360	49,770	35,135	2,145,259

Top Ten Scion Cultivars

<u>Year 2005</u>			<u>Five Year Average</u>	
1	Hamlin		1	Hamlin
2	Valencia		2	Valencia
3	Ray Ruby Grapefruit		3	Earlygold
4	Rio Red Grapefruit		4	Midsweet
5	Midsweet		5	Rohde Red Valencia
6	Earlygold		6	Ray Ruby Grapefruit
7	Flame Grapefruit		7	Vernia
8	Ruby Red Grapefruit		8	Ruby Red Grapefruit
9	Murcott		9	Pineapple
10	Pineapple		10	Marsh Grapefruit

Top Ten Rootstocks

<u>2005</u>			<u>Five year average</u>	
1	Swingle		1	Swingle
2	Kuharske		2	Carrizo
3	Carrizo		3	Kuharske
4	Cleopatra		4	Smooth Flat Seville
5	Volkamer Lemon		5	Volkamer Lemon
6	X-639		6	Cleopatra
7	Sun Chu Sha		7	X-639
8	Gou Tou		8	Sun Chu Sha
9	US-897		9	80-8
10	Kinkoji		10	Kinkoji

Threats to the Florida Industry

Reasons for Decline in Acreage and Propagations

- World Competition (Brazil)
- Low Prices
- Citrus Tristeza
- Citrus Canker
- Now Citrus Greening ?
- Now Stem-Pitting ?

Citrus Canker – After 3 hurricanes

Current infection found in Florida in 1995



Citrus trees destroyed since hurricanes in September 2004;

Commercial = 6,000,000 + Residential = 100,000

After hurricanes 269 new infections, loss of 65,000 acres

Canker inoculation in leafminer wounds



Asian citrus greening was found for the first time in the USA in Florida in 2005.

**Initial Find
Homestead
September,
2005**

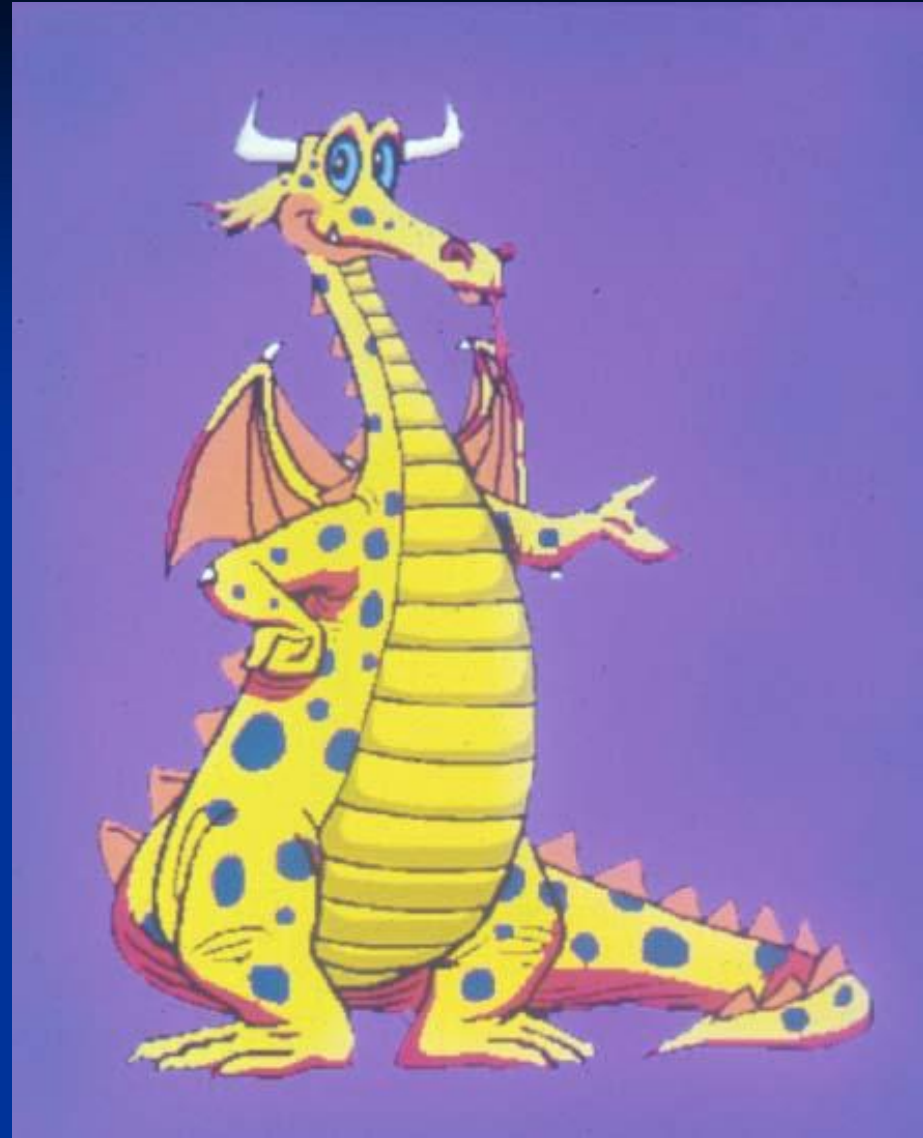


Asian citrus psyllid
***Diaphorina citri* Kuwayama**

Found in Florida 1998



In Asia, Asian citrus psyllid transmits citrus greening disease. The Chinese name of the disease is “huanglongbing,” or yellow dragon disease.



Enverdecimiento del cítrico: Enfermedad del dragón amarillo

Tree infected with greening



Arbol infectado por el enverdecimiento del cítrico

SUMMARY

- Florida industry declining in size
- Nursery propagations down
- Field nurseries will be a thing of the past
- Exotic pest & disease introductions
 - Brown citrus aphid (Tristeza)
 - Citrus canker
 - Citrus Psyllid
 - Citrus greening
 - Stem-pitting