Citrus and Subtropical Fruits
Fall 2002

Distance Education Sites
• Texas A&M-College Station
• Texas A&M-Kingsville
• TAMU Research & Extension Center at Weslaco

Text
  – University Book Store- College Station
  – University Book Store- Kingsville
  – Memorial Student Center
  – Telephone 979/845-8681

Home Page
– http://aggie-horticulture.tamu.edu
– Classes
– HORT 422

Other Sources
• Citrus Industry, Volumes 1, 2, and 3 University of California

Subtropical Fruits
• Origin
  – Between Tropical & Temperate
  – 10 - 30° Latitude
  – Balance between heat & frost
  – “In-between” area
  • Many excellent fruit crops
Origin of Subtropicals

- *Persia americana* - Central America
- *Persia drymifolia* - S. Mexico
- *Citrus medica* - India 330 BC (BCE)
- *Citrus aurantifolia* - India S.E. Asia
- *Citrus limon* - S.E. Asia
- *Citrus aurantium* - South Vietnam
- *Citrus sinensis* - S. China / Indonesia

East Coast Introductions

- 1565 - St. Augustine - Ponce de Leon
- 1764 - Turnbull - wild citrus for Indio
- 1809 - Grapefruit by Don Phillippe
  - *(pummelo x mandarin)* from Cuba/Jamaica
- 1932 - Some still living (*‘Duncan’*)

West Coast Introductions

- 1707 - Father Kino - South Arizona
  - Yuma Mesa expansion with Colorado River water
- 1776 - Jesuits from Baja California
  - Founded mission a San Diego
  - + 21 others
  - Lemons and oranges

US Introductions continued

- Father Kino - Oranges at mission in S. Arizona in 1707
- Expanded on Yuma Mesa with water from Colorado River since Bolder
- Jesuits from Baja California in 1776 founded missions at San Diego and 21 others.
- Lemons and oranges

Early Commercial

- Wolfskill, Los Angeles, 1st commercial orchard. Seedling oranges 1831. Founder of CA Indus.
- ‘Washington Navel’ 1873
- First rail shipment 1877. (St.. Louis)
- By 1894 - 95 ~ 6000 boxes Florida citrus marketed in New York

World Orange Production 1998-99

- Brazil 15.9 M tons
- United States 9.0 M tons
- Mexico 3.0 M tons
- Spain 2.6 M tons
- China 2.4 M tons
- Egypt 1.6 M tons
- Italy 1.4 M tons

FAO, FASS
### World Mandarin Production 1998-99
- China 6.0 M metric tons
- Spain 1.7 M metric tons
- Japan 1.4 M metric tons
- Brazil 0.8 M metric tons
- Italy 0.4 M metric tons

* Sources: FAO, FASS

### World Grapefruit Production 1998-99
- United States 2.2 M metric tons
- Israel 0.32 M metric tons
- Cuba 0.27 metric tons
- China 0.25 metric tons
- Argentina 0.21 metric tons

* Sources: FAO, FASS

### World Lemon Production*
- United States 896,000 metric tons
- Italy 680,000 tons
- Turkey 440,000 tons
- Greece 135,000 tons
- Mexico 835,000 tons of LIMES

* 1995-96 FAS / USDA

### World Citrus Production by Nations*
- Brazil 17.8 M
- United States 14.5 M
- China 6.4 M
- Spain 4.5 M
- Mexico 3.7 M

* 1995-96 FAS / USDA

### World Citrus Production*
- Oranges 53.6 M
- Tangerines 14.4 M
- Grapefruit 4.6 M
- Lemons 3.6 M
- Other (Limes) 2.0 M
- Total 64.2 M

* 1998-99 FAO / FASS

### Southern Hemisphere Citrus Production*
- Oranges 18.4 M
- Tangerines 0.9 M
- Grapefruit 0.4 M
- Lemons 0.9 M
- Other (Limes) 0.7 M
- Total 21.2 M

* 1995-96 FAS / USDA
**Northern Hemisphere Citrus Production***  
- metric tons  
  - Oranges 24.5 M  
  - Tangerines 10.9 M  
  - Grapefruit 3.5 M  
  - Lemons 2.7 M  
  - Other (Limes) 1.4 M  
  - Total 42.9 M  
  - * 1995-96 FAS / USDA

**California Citrus Production***  
- Oranges (all) 2,342,400 short tons  
- Navel + Misc. 1,464,000  
- Valencia 1,024,800  
- Lemons 768,600  
- Grapefruit 329,400  
- Tangerines 91,500  
- Total 6,020,700  
- *URL:http://pom44.ucdavis.edu

**US Early, Midseason, and Navel Orange Prod 1995-96***  
- 1000 short tons  
  - Arizona 24  
  - California 1500  
  - Florida 5490  
  - Texas 35  
  - Total 7049  
  - * Fruit and Tree Nut Outlook/USDA

**US Valencia Orange Production 1995-96***  
- 1000 short tons  
  - Arizona 24  
  - California 1050  
  - Florida 3600  
  - Texas 6  
  - Total 4686  
  - * Fruit and Tree Nut Outlook/USDA

**US Grapefruit Production 1995-96***  
- 1000 short tons  
  - Arizona 47  
  - California 312  
  - Florida 2367  
  - Texas 186  
  - Total 2912  
  - * Fruit and Tree Nut Outlook/USDA

**United States Lemon Production 1995-96***  
- 1000 short tons  
  - Arizona 137  
  - California 779  
  - Total 916  
  - * Fruit and Tree Nut Outlook/USDA
Mandarin Production
Explained
• Mediterranean mandarin market strong
  – Fresh fruit mkt in Europe
  – ‘Clementine’ & satsuma - seedless
  – Attention to quality
    • Clipping

Mandarin Production
Explanation Continued
• US mandarin production declined since the 1970s
  – Poor Quality
    • Labor costs forced non clipping
    • Seediness of ‘Orlando’, ‘Murcott’
      – ‘Dancy’, ‘Nova’, ‘Robinson’

Texas Citrus History
• Orchards established along Texas Gulf Coast in 1880s.
• Earliest in LRGV by Don Macedonio Vela at Laguna Seca Ranch - 1892.
  – Failed - alkaline soil - trifoliolate
• Charles Volz - Sour Orange - 1908

Texas Citrus History
Continued
• Limited grapefruit in late 1920s
• Will and Ben Hannah in Cameron Co.
• ‘Ruby Red’ Grapefruit patented 1934.
• Peak of 100,000 acres in 1948.
• Freezes Jan 1949 after Dec 1948 HORT 422 field trip.

Texas Citrus History
Continued 2
• Freezes inflict a great cost in human misery.
• Old seedy cultivars are gone so new seedless, high quality predominates.
• Cultural improvements - closer spacing, land leveling, low-volume irrigation, mechanical grove care eq.
• What is status in 1996?

Texas Citrus Hectarage

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Citrus in Mexico

500,000 hectares

- Nuevo Leon
- Tamaulipas
- San Luis Potosi
- Veracruz
- Campeche
- Yucatan
- Chiapas
- Tabasco
- Oaxaca
- Guerrero
- Sinaloa
- Sonora
- Baja California Norte
- Michoacan
- Colima
- Michoacan
- Oaxaca
- Tabasco
- Chiapas

Mexican Lime

Texas Oranges

- 13%
- 28%
- 59%

EARLY
NAVEL
VALENCIA

Texas Grapefruit

- 11%
- 17%
- 71%

Rio Red
Ruby Red
Hen/Ray
Others

Texas Citrus

- 29%
- 71%

Grapefruit
Orange

THE END