Classification and Cultivars

Two Tribes
- Clauseneae
- Citreae has 3 Subtribes
  - Triphasiinae
  - Balsamocitrineae
  - Citrinae

Fortunella
- Four species - Small trees and shrubs.
- Flowers later than Citrus.
- Freeze - hardy
- Small fruit
  - ‘Meiwa’ and ‘Marumi’ - round
  - ‘Nagami’ ovate

Poncirus
- Two trifoliate spp.
  - trifoliata ‘Flying Dragon’
  - poyandra
- Deciduous
- Thorny, Cold hardy, long thorns
- Makes great hedges, rootstocks

Microcitrus
- Northeastern rainforest Australia
- Moderate-sized trees.
- Leaves are unifoliate dimorphic
- Microcitrus australasica
  - Resistant to burrowing nematode and phytophthora
- Micro leaves, flowers, and fruit

Clymenia
- Unifoliate acuminate leaves tapering into very short petiole.
- Branches are thornless.
- Style shorter than other true Citrus and stigma is larger and flattened
• Fruit - ovoid, thin peeled, many oil glands, many small seeds.

7  **Eremocitrus**
  • Xerophytic native of Australia
  • Spreading long drooping branches
  • Leaves unifoliate, greyish green, thick, leatherly, and lanceolate.
  • Sunken stomata, freeze hardy
  • Ideal xeroscape plant.

8  **Citrus** - Subgenus  **Eucitrus**
  • Vesicles - no acrid or bitter oil
  • C. medica (Citrons)
    – Uses - candied peel,
      • Jewish ceremony
      • Exocortis indicator

9  **Citrus limon** (Lemons)
  • Commerce
    – ‘Lisbon’ and ‘Eureka’
  • Dooryard
    – Meyer (Lemon hybrid)
  • Rough Lemon
    – Rootstock

10 **Lemon Hybrids**
  • Lemonage (lemon x sweet orange)
  • Lemonime (lemon x lime)
  • Lemandrin (lemon x mandarin)
  • *Eremolemon* (Eremocitrus x lemon) - Australian Desert Lemon

11 **Citrus aurantifolia** (Limes)
  • ‘Key’ or ‘Mexican’ limes
  • ‘Tahiti’ or ‘Persian’ limes some are triploids and seedless
  • *C. macrophylla* (lime-like fruit)
    – Rootstock in California
  • Lemonimes (lime x lemon)
  • Limequats (lime x kumquat)
Not grown either in Tahiti or Persian (Iran)
- Seedless and marketed when still dark green

**C. aurantium - Sour Orange**
- ‘Seville’ in Southern Europe
  - Orange marmalade
- ‘Bouquet’ & ‘Bergamot’
  - Italy
  - Essential oil
- Many forms like ‘Bittersweet’
  - Rootstock - High quality fruit.

**C. sinensis - Sweet Orange**
- Round oranges
  - ‘Valencia’ - Worlds most imp.
  - ‘Shamouti’ - Israel
  - ‘Cadenera’ - Spain
  - ‘Pera’ - Brazil

**C. sinensis - Navel Oranges**
- Secondary fruit - easy ID
- Fresh fruit - Gift packs
- Lower acid thus sweeter taste
- Limonin in juice can be removed
- Environmental stresses
- Best quality in cooler climates

**California Navel Oranges**
- ‘Washington’ most widely grown
  - Old line replaced by nucellars
- ‘Atwood’, ‘Fisher’, ‘Newhall’ are earliest navels
- ‘Lane Late’ - late maturing, fruit hold well on tree.

**Spanish Navels**
- ‘Navelina’ sport of ‘Washington’ at Riverside, CA - 1910
• Early season, smaller tree, and holds well on tree.
  • ‘Navelate’ sort of ‘Washington’ late maturing - vigorous tree.

19 Texas Navels
• ‘Washington’ - most widely planted navel in world
  • ‘Marrs’ - limb sport of ‘Washington’ lacks distinct secondary fruit.
  • Early maturing, low acid.
  • Lower in limonin.

20 Florida Navels
• ‘Summerfield’ early maturing - adapted to humid climate.
  • Nucellar selection - F-56-11 most widely used in new plantings.

21 Brazilian Navels
• ‘Baianinha’ - ‘Bahia’ limb sport
  – Less vigorous and smaller secondary fruit, thus
    • Less prone to fruit drop
    • Adapted to hot, arid climate

22 Australian Navels
• ‘Leng’ major navel orange
  – ‘Washington’ sport - 1934
  – Small size, thinner peel.
• ‘Lane Late’ - late season but subject to regreening and granulation.

23 South African Navels
• South Africa
  – ‘Palmer’ nucellar seedling of ‘Washington’ - 1930s
    • Vigorous, productive, hold well on tree
  – ‘Robyn’ - cooler location

24 Venezuelan Navels
• ‘Cara Cara’
  – Red flesh even in lowland tropics (uncharacteristic of blood oranges)

25 Pigmented Oranges
• Grown in Mediterranean climates with hot days and cool nights.
• Anthocyanin pigment rather than
  – lycopene as in grapefruit
  – carotenoid as in oranges
• ‘Tarocco’, ‘Sanguinello’, ‘Maltaise

26 Acidless or Sugar oranges
• Low acid levels
• Therapeutic properties
• Succari-Egypt
• Mosambi-East African/Portuguese

27 C. sinensis Hybrids
• Citranges (sweet x trifoliate)
• Citrangors (sweet x citrange)
• Citrangequats (citrange x kumquat)
• Citrangeremos (citrange x Euremocitrus)

28 Citrus reticulata
• Satsuma group
  – Primarily grown in Japan
  – Important in Louisiana and for dooryard in Gulf Coast
• Tangerine group
  – Commercial in Fla. - ‘Dancy’ and ‘Clementine’ -deep orange

29 Dancy Tangerine

• Production problems
• alternate bearing
• Susceptible to Alternaria

30 Swingle and Tanaka Differ
• Satsuma
  – C. reticulata - C. unshiu
• ‘Dancy’
  – C. reticulata - C. tangerina
• ‘Cleopatra’
  – C. reticulata - C. reshni

31 More differences
• ‘King’
  – tangor?  *C. noblis*
• ‘Temple’
  – tangor?  *C. temple*
• ‘Calamondin’
  –  (*C. reticulata x C. ichangensis*)
  •  *C. madurensis*

32 🟢 Breeder’s Delight
• ‘Clementine’ and ‘Temple’ produce only monoembryonic seeds.
• No nucellars.

33 🟢 Temple Orange
• Named after W.C. Temple from FL.
• Hybrid of mandarin and orange

34 🟢 Murcott or Honey Tangerine

  • It is hybrid of unknown parentage
  • Fruits are borne terminally so they are vulnerable to wind.

35 🟢 Ponkan (Chinese Honey orange, Nagpur Santra)
• Widely grown mandarin in the world
• Alternate bearing

36 🟢 Tangerine x Grapefruit
• ‘Orlando’ tangelo
• ‘Minneola’ tangelo
• ‘Page’ orange
• ‘Robinson’ tangerine
• ‘Nova’ tangelo
• ‘Ugli’ tangelo

37 🟢 Tangelos
• Commercial - ‘Orlando’ and ‘Minneola’
  – ‘Dancy’ x ‘Duncan’
  • Vigorous
• Freeze hardy
• Weakly parthenocarpic

38 Tangelos Continued
• Fruit set by either
  – Cross pollination
  – GA3
• Which would be best for fresh market?

39 Orlando tangelo
• Duncan grapefruit x Dancy tangerine
• leaves cup-shaped
• seedy

40 Orlando
• Most cold hardy of all comm. citrus except satsuma.
• Oblate to subglobose
• Seedless to 10 - 20 seeds
• + correlation between fruit size and seed number.
• Harvest between Dec - Jan NH

41 Orlando Continued
• Pollinators
  – ‘Temple’
  – ‘Robinson’
• More Nitrogen required than for round oranges because tree is more vigorous.

42 Minneola Tangelo

• Duncan x Dancy
• Cold-resistant
• Distinct flavor being rich (from Dancy) and tart from Duncan.

43 Minneola
• Vigorous tree
• Tree - large and spreading
• Leaves - large, pointed laminae
• Petioles - moderate size
• Fruit - large obovate with neck
• Color - Deep reddish orange.

44 Minneola Continued
• Juice flavor - excellent
• Peel moderately adherent - finely pebbled
• Seed 0 - 20
• Matures - Jan to March - NH
  - July to August - SH

45 Minneola Continued
• Pollinators are ‘Temple’ and ‘Robinson’
• ‘Orlando’ will not pollinate ‘Minneola’
• Large solid blocks set seedless fruits with GA3

46 Nova (Clemenvilla, Suntina)
• Fina Clementine x Orlando tangelo
• Seedless when grown apart from pollinating varieties
• Spain and Israel

47 Page
• Minneola x Clementine
• Sensitive to Bromacil
• Usually referred to as ‘orange’