Tropical and Subtropical Fruit

Citrus, Pineapple and Guava
Citrus - the main subtropical juice crop

Citrus sinensis - sweet orange, China

Citrus limon - lemon, India

Citrus aurantofolia - lime, India

Citrus paradisi - grapefruit, a pomelo X sweet orange found in West Indies
Citrus trees are 2 to 8 m tall, evergreen, spines on seedlings.
Climate subtropical best, 0 to 40 N/S latitude, cool dry period to initiate flowers
Fruit is a berry, with many juice sacks, hi vit.C
Trees usually grafted for size control, flavor, disease
Pruning for size, shape, and disease control.
Tree life 25 to 40 yrs, lime less
Limonene is a byproduct of orange juice processing and used as a solvent in cleaning products

World Production 2009
Oranges  Citrus sinensis origin China/India
68 M Mt
Brazil, 18 M Mt
USA, 8.3 M Mt ($1.6B)
India, 5.2 M Mt
Limes, Citrus aurantifolia (key lime) continental southeast Asia
C. latifolia (Tahiti lime), Lemon  C. limon
14 M Mt
India, 2.6 M Mt
Mexico, 2. M Mt
China, 1 M Mt
US 0.8 M mt ( $330M)

Grapefruit and Pomelo
World production 6.6 M mt
China 2.8 M mt
US 1.2 M mt ( $266M)
Mexico 0.4 M mt
Pineapple - Hawaii’s contribution

- Ananas comosus from South America to HI in 1813, commercial by 1850, Dole starts in 1900.
- Perennial herb, 1 m tall
- Adapted to low rain- 50 to 200 cm/yr, sea level to 800m
- Fruit is fused fruitlets lacking seeds unless cross-pollinated.
- Flowering induced by spraying hormone- ethylene

Hawaii pioneered commercial production based on canning the acidic ‘Smooth Cayenne’ sweeten with sugar cane. Then production moved to lower cost countries growing sugarcane to sweeten product. HI switched to low acid ‘gold’ types for fresh and minimally processed products which require excellent condition.
World Production, 18.2 M Mt
Philippines 2.2
Thailand 1.9 M Mt
Costa Rica 1.9 M Mt
Hawaii, 0.2 M Mt
($50M)
Guava

- Psidium guajava native to American tropics, in HI 1820
- Shrub to 6-9 m tree, single perfect flower
- Fruit is many seeded berry, hi vit. C
- Pruning is to control height and in HI to induce flowering.
- No world data- India 1.8 M mt, Mexico 0.3 Mmt, Brazil 1 M mt
- Production 2009
  - Hawaii 0.0001 M Mt
  - US imports Brazil, 0.002M Mt
  - US imports Ecuador, 0.002 M Mt
- Uses
  Sweet types are dessert fruits
  Acid types like ‘ Beaumont’ are for juice, both high in vitamin C, a leaf tea is used for controlling diarrhea
Before and after pruning to induce flowering

Harvesting by hand and shake harvesting.