Cultivar

- Variety: A group of plants with distinct characteristics
- Cultivar: A contraction of the phrase "cultivated variety"
  - Used interchangeably, country dependent
- Market-related terminology:
  "Variety" is often used as a trade designation for fruit with similar characteristics
  - Often made up of more than one selection of the same cultivar! e.g. Navels, Clementines

How to separate “cultivar” and “variety”?

- Cultivar: A group of cultivated plants with distinct characteristics
  - Example: ‘Clementine’ mandarin (1890s)
  - A cultivar can be further sub-divided into “selections” (clones or mutations of the original cultivar)
  - Example: ‘Nules Clementine’ mandarin (1953)
  - In such cases, “cultivar group” may be used
  - Example: Clementines or Clementine group
- Acceptable market-related terminology
  - Depending on the market/country
    - Nules, Clemenules, Clementina de Nules, Nules Clementine, Clementines, Mandarins, Tangerines

How to ensure labelling is appropriate?

- Ensure that lineage is correct!
  - See later discussion
- Ensure that regulations are correct!
  - Avoid mis-representation, e.g. Clementines
  - Avoid over-regulating to allow trade
  - Universal vs. country requirements
  - Need to account for generic names
  - Need to account for hybrids
  - Need to account for synonyms
  - Need to account for trade names

Background to the citrus labelling issue

- Purpose of the UNECE Standard FFV-14?
  - Concerning the marketing and commercial quality control of CITRUS FRUIT (2012 ed.)
  - Working Party on Agricultural Quality Stds
    - The commercial quality standards developed by the WP on AQS of the UNECE:
      - Help facilitate international trade
      - Encourage high-quality production
      - Improve profitability, and
      - Protect consumer interests
    - UNECE standards are used by:
      - Governments
      - Producers, Traders, Importers, Exporters
      - Other international organizations
      - Considered as global agricultural quality std

How to ensure labelling is appropriate?

- Interpretation & implementation of this Agricultural Quality Standard (I)
  - By definition, this AQS is a universal std, a global std; an umbrella under which country standards are created
  - Therefore, it cannot be too restrictive (since it is a universal or global standard)
  - Whereas, at final point of purchase, e.g. retailer or supermarket, can impose more restrictive quality requirements (“supermarket standard or specification”) vs. wholesale market being less restrictive
  - Country (UK HMI citrus specific marketing standard) or regional (EC Reg no 1221/2008) standards
Background to the citrus labelling issue

- Interpretation & implementation of this Agricultural Quality Standard (II)
- Ensure that regulations are correct!
  - Should be clear
  - Not allow mis-representation
    - i.e. don’t want to be able to sell a mandarin hybrid as a Clementine
- Avoid over-regulating to allow trade
- Universal vs. country requirements
- Need to account for:
  - Generic names
  - Hybrids
  - Synonyms
  - Trade names

Citrus lineage and nomenclature

- Ensure that lineage is correct!
- Need to understand the citrus “family tree”
- Genetic classification and horticultural groups
- Species concept:
  - One of the basic units of biological classification = a taxonomic rank
  - Defined as the largest group of organisms capable of interbreeding to produce fertile offspring
    - Horse x Donkey = Mule
    - Canis lupus familiaris (2005)
- Not the final answer in citrus fruit marketing
PRINCIPLE TAXONOMIC GROUPS
(of commercial importance worldwide)

- Sweet orange \([Citrus sinensis]\)
- Lemon \([Citrus limon]\)
- Lime \([C. aurantifolia (=Mexican), C. latifolia (=Persian)]\)
- Grapefruit \([Citrus paradisi]\)
- Shaddock (pummelo) \([Citrus maxima/grandis]\)
- Mandarin \([Citrus reticulata]\)

RELATED GENERA (of commercial importance)

- Other citrus species
  - Citron \([Citrus medica]\)
  - Sour orange \([Citrus aurantium]\)
- Fortunella spp.
  - Kumquat
    - Nagami
    - Marumi
    - Meiwa
- Microcitrus spp.
  - Finger limes
    - Various cultivar names or marketing names
- ...
  - Not part of this discussion

Grapefruit and hybrids

<table>
<thead>
<tr>
<th>Kind of fruit</th>
<th>Cultivar</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Grapefruit</td>
<td>Marsh Seedless, Duncan, Triumph, Jackson, FE1, Oroblanco, Nartia, Early Marsh</td>
</tr>
<tr>
<td>Pink Grapefruit</td>
<td>Ruby (syn. Ruby Red, Redblush), Foster, Henderson, Ray Ruby, Ruben Jr, Henderson 13 (syn. SweetHeart)</td>
</tr>
<tr>
<td>Red Grapefruit</td>
<td>Star Ruby, Rio Red, Flame, MelRuby, Oran Red (syn. Rouge la Toma), Star Ruby Late, Henderson 27 (syn. Flamingo, RedHeart), UF-914</td>
</tr>
</tbody>
</table>

Grapefruit cultivars

- Initially developed by natural hybridisation
- Extremely difficult to breed by hybridisation
- All current commercial grapefruit cultivars developed via mutagenesis, except Oroblanco
- Recently, grapefruit hybrids have been developed with grapefruit characteristics
- New grapefruit cultivars (mutations and hybrids) need to be accommodated

Grapefruit cultivars [\textbf{Citrus paradisi}]
**Grapefruit cultivars**

Rosé  Star Ruby

**Pummelo (or Shaddock) cultivars**

[Citrus maxima or grandis]

**Pummelo cultivars** [Citrus maxima]

- *Citrus maxima*, one of the original three progenitors of citrus
- Pummelos hybridise very readily (monoembryonic)
- Numerous cultivars of varying flesh and rind colour, size, shape and other characteristics
- Relatively few commercially traded pummelo cultivars in the western hemisphere
- Numerous cultivars produced in China (and other south-east Asian countries); about 10 principle cultivars

**Pummelos and hybrids**

<table>
<thead>
<tr>
<th>Kind of fruit</th>
<th>Cultivar</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Pummelo</td>
<td>Goliath, Melogold, Dsialiano, numerous cultivars from China</td>
</tr>
<tr>
<td>Pink and Red Pummelos</td>
<td>Chandler, Java Shaddock, K202 (syn. Pomelit), numerous cultivars from China</td>
</tr>
</tbody>
</table>

**Lemon cultivars** [Citrus limon]

- Initially developed by natural hybridisation
- Lemons do not hybridise readily (polyembryonic)
- Almost all current commercial lemon cultivars developed via mutagenesis and selection
- Fruit characteristics are typical of lemons
- Numerous marketing names are used according to time of flowering or time of harvest, e.g.
  - Primofiore
  - Verdelli
  - PGI denominations
### Lemons

<table>
<thead>
<tr>
<th>Kind of fruit</th>
<th>Cultivar</th>
</tr>
</thead>
</table>

### Lime cultivars

[C. aurantifolia (=Mexican); C. latifolia (=Persian)]

- Initially developed by natural hybridisation
- Limes do not hybridise readily (polyembryonic)
  - In fact, Persian lime is a natural triploid (almost always seedless)
- Three distinct types with no commercially traded mutations, but with different synonyms
  - Persian lime (syn. Tahiti, Bearss)
  - Mexican lime (syn. West Indian, Key)
  - Sweet lime (syn. Indian or Palestine)
- Limequat (Marumi kumquat x Mexican lime); probably only ornamental value or home production
- Typically traded as “Limes” or “Fresh Limes”

### Sweet orange cultivars

[C. sinensis]

- Initially developed by natural hybridisation
- Sweet oranges are extremely difficult to breed by hybridisation (polyembryonic)
- Almost all current commercial sweet orange cultivars developed via mutagenesis and selection
- Grouped into four principle types
  - Common round orange
  - Navel orange
  - Pigmented or blood orange
  - Acidless or sugar orange

### Limes: large- & small-fruited limes, and sweet lime

<table>
<thead>
<tr>
<th>Kind of fruit</th>
<th>Cultivar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large-fruited limes</td>
<td>Persian, Tahiti, Bearss</td>
</tr>
<tr>
<td>Small-fruited limes</td>
<td>Mexican, West Indian</td>
</tr>
<tr>
<td>Acidless or sweet limes</td>
<td>Indian, Palestine</td>
</tr>
</tbody>
</table>
Common round orange cultivars \([Citrus\ sinensis]\)
- Also referred to as blond or white orange cvs.
- ‘Valencia’ orange cultivar group
  - Most commonly produced orange cultivar
  - Commercially important for juicing
  - Numerous selections of ‘Valencia’ orange
- Other common round orange cultivars
  - Early-, mid- and late-season cultivars, e.g.
    - Clanor, Pineapple, Hamlin, Salustiana, Shamouti, Jincheng, Pera, …

‘Valencia’ orange group \([Citrus\ sinensis]\)
- Distinguished by the stylar-opening of the secondary fruitlet
- Commercially NB as a fresh (dessert) fruit
- Originally from the Far East, commercially developed from Bahia (Brazil) in 1870 to USDA, then to CA and FL (1873)
- Numerous selections of ‘Valencia’ orange (genetically unstable)

Washington and Cara Cara Navel oranges

‘Navel’ orange group \([Citrus\ sinensis]\)
- Also referred to as blood oranges \(sanguine\)
- Similar to common oranges, except for presence of anthocyanin pigments
- Not commonly traded, “niche” markets
- Principle cultivars
  - Sanguinello, Sicily, Italy
  - Moro, Sicily
  - Tarocco, Sicily (now with numerous selections)
  - Maltaise, Tunisia
- Lightly pigmented
  - Tomango, South Africa

Pigmented orange cultivars \([Citrus\ sinensis]\)

‘Navel’ orange selections

Tarocco blood orange selections \([Citrus\ sinensis]\)
Acidless or sugar orange cultivars \([\text{Citrus sinensis}]\)

- Distinguished by their lack of acidity
  - About 10% acid content of common round oranges
- Common names: Dolce, Succari, Sucreña
  - Lima from Brazil
  - Succari from Egypt
  - Imperial Grano de Oro from Spain
  - Vainiglia from Sicily, Italy
  - Vainiglia Sanguigno pink acidless
- Not commercially important
  - Produced for local consumption in Brazil and Egypt, possibly other Middle Eastern countries

Mandarin cultivars \([\text{Citrus reticulata}]\)

- \(\text{Citrus reticulata}\), one of the original three progenitors of citrus
- Initially developed by natural hybridisation, mutagenesis and selection
- Some mandarins hybridise readily (monoembryonic), whereas others are extremely difficult to breed by hybridisation (polyembryonic)
- Currently, innumerable mandarin cultivars and hybrids with varying parentage and characteristics
- Grouped into five principle types (plus their hybrids)
  - King mandarin
  - Mediterranean mandarin
  - Small-fruited mandarin
  - Satsuma mandarin
  - Common mandarin

Sweet oranges and hybrids

<table>
<thead>
<tr>
<th>Kind of fruit</th>
<th>Cultivar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Navel oranges</td>
<td>Ahowood, Bahiainha, Dream, Fischer, Fukumoto, Lang, M7, McClean, Navelina, Newhall, Palmer, Tulegold, Washington, Autumn Gold, Barnfield Summer, Cambria, Cintrina, Chikett Summer, Gilemberg, Glen Ora Late, Gloubi, Lane Late, Navelate, Powell Summer, Robyn, Royal Late (Rustenburg), Summer Gold, Wilkins, Cara Cara, Kirkwood Red</td>
</tr>
<tr>
<td>Pigmented oranges</td>
<td>Malayase, Moro, Sanguinelli, Sanguinella, Tarocco (numerous selections), Tomango, Ruby Valencia</td>
</tr>
</tbody>
</table>

Mandarin cultivars \([\text{Citrus reticulata}]\)

- No universal classification system
- Categorised by various scientists (or for convenience!)
  - King mandarin (\(\text{Citrus nobilis}\))
  - Mediterranean mandarin (\(\text{Citrus deliciosa}\))
  - Small-fruited mandarins (\(\text{Citrus tangerina}\) and numerous other “species”)
  - Satsuma mandarin or Unshiu mikan (\(\text{Citrus unshiu}\))
  - Common mandarin (\(\text{Citrus reticulata}\))
- Mandarin hybrids
  - Tangerine x Tangerine
  - Tangerine x Orange (tangor)
  - Tangerine x Pummelo or Grapefruit (tangelo)
- Higher order, complex hybrids

Sweet oranges and hybrids

<table>
<thead>
<tr>
<th>Kind of fruit</th>
<th>Cultivar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common oranges</td>
<td>Amberwave, Barberina, Cizer, Hamlin, Jincheng, Kepuri, Pera, Pineapple, Salustiana, Shomout, Tomango</td>
</tr>
<tr>
<td>Valencia oranges (numerous selections)</td>
<td>Delica, Della Seedless cyn., Delia, Giusosora, Midknight, Turkey, Limpopo Seedless, Nerviso, Alpha, Lavalle, Assamani, Du Roi, Kleinham, Maroc Late, McLean, McClain Si, Olinda, Valencia Late, Valentine</td>
</tr>
</tbody>
</table>

King mandarin \([\text{Citrus nobilis}]\)

- Of little or no commercial significance
- Breeding parent of a few older mandarin cultivars (King x Willowleaf), but generally low commercial significance (except Kinnow in Pakistan)
  - Kinnow
  - Wilking
  - Encore
- However, next generation King mandarin hybrids, e.g. Kinnow or Wilking as parents, are of commercial significance
  - Orri/Orah (Temple x Kinnow)
  - Shani, Mama, Merav, etc. (Wilking x Michal)
  - Gold Nugget
**Mediterranean mandarin [*Citrus deliciosa*]**

- First mandarin introduced into the Med from China (early 1800s), possibly from Canton mandarin
- Various local common names
  - Mediterranean: Breda, Aroa, Conca, Chino, Lale, Imperial, Imperial, Willowleaf
  - Dropping: yellow-like, mottled habit, bumpy leaves, skipping aroma, frag & low acidity
- Of little commercial significance (except Italy, Brazil, Uruguay)
- Natural hybrids with Mediterranean mandarin as parent are of commercial significance, e.g.
  - Imperial (Australia)
  - Clementine (Algeria), Med mandarin x Guardian sour orange, or directly from Canton mandarin
- Breeding parent of a few mandarin cultivars (King x Willowleaf), but generally low commercial significance
  - Kume
  - Wilking
  - Encore (Japan, Crete, Portugal, New Zealand)
- However, second and third generation Mediterranean mandarin hybrids are of commercial significance
  - Omi/Chah, Shani, Mara, Mata, etc.
  - Mandarins
  - Clementine hybrids
    - Dorad, Fortune, Nova, Los, Robinson, Oserico, Frickhill, Pape

**Small-fruited mandarin [*Citrus tangerina*]**

- Hongshire (syn. Hongju = red tangerine or scarlet tangerine)
- Dancy tangerine (similar or identical to Obienii-mikan from Japan), thought to originate in India, then to southern China and Japan
- Primus: Obienii-mikan (India), closely related to Kiro and Kusma mandarins (India)
- One of the oldest mandarin varieties known in Florida; originated 1867 in a nursery owned by Mr. Moragne, reportedly introduced from Tangiers (Morocco); very seedy
- Dancy probably a nucellar selection of Moragne tangerine
- Selections: Frost nucellar Dancy, Weshart nucellar Dancy
- Dancy tangerine is of little commercial significance (except in Florida), but Hongshire is important in China
- Natural hybrids and man-made hybrids are of commercial significance, e.g.
  - Michal (Clementine x Dancy)
  - Tangerine (Dancy x Dancy)
- Important as a breeding parent of numerous mandarin cultivars
  - Orlando tangelo hybrids: Nova, Fairchild, Los, Oserico, Robinson, Bower, Fortune
- Second and third generation Dancy mandarin hybrids are of commercial significance
  - Fortune, Oso-Elkstar, Los, Mara, Mesa, Tani, etc.
  - Fortune hybrids: Dancy, Mandarin, Salie, Garib, ForEll, Queen
  - (Temple x Dancy) x Florida x TDEs

**Satsuma mandarin group [*Citrus unshiu***]**

- Originated as a commercial cultivar in Japan, after being introduced from China
- Grown initially in Japan, China and Spain, more recently in South Korea, Turkey, Georgia, California, Louisiana, Alabama, Peru, Argentina, Uruguay, Zimbabwe, South Africa
- Numerous selections of Satsuma mandarin, predominantly from Japan
- More recently, hybrids with Satsuma mandarin, e.g.
  - Primosole, Kiyomi, Sonet, Etsu, Queen
- Many of which have Satsuma-like fruit characteristics

**Satsuma mutations**

- Original progenitor of Satsuma mandarin was from China (late 1800s)

**Satsuma hybrids & nucellar selections**

- Satsuma mandarins and their hybrids

<table>
<thead>
<tr>
<th>Kind of fruit</th>
<th>Cultivar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satsuma mandarin</td>
<td>Ashima, Bota, Doba, Boro, Imamura, Kuro, Shino, Inoue, Miyazawa, Ohtsu, Ohtsu, Ume, Ueda, Sumiyama, Kimura, Queen, Sonet, Etsu, Sagayama, Kiyomi</td>
</tr>
</tbody>
</table>
Common mandarin (Citrus reticulata)

- Ponkan mandarin
  - Most widely planted mandarin worldwide
  - Progenitor of modern mandarins??
- Dancy mandarin
  - Could be a natural hybrid of Ponkan
  - Now considered as C. tangerina
  - Traditional Christmas tangerine in USA
  - Used extensively in breeding; tangelos
    - See: Progeny of Dancy tangerine
  - Carrier of Alternaria alternata gene
  - Deep-red rind colour
  - Sexually self-compatible, i.e. very seedy
- Clementine mandarin group

Clementine mandarins

<table>
<thead>
<tr>
<th>Kind of fruit</th>
<th>Cultivar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clementine mandarin</td>
<td>Andes-1, Artufatina, Basol, Cadbus, Caffin, Clemorpon, Clementard, Clem Late, Corsica 2, Estbal, Fina, Guillermina, Hernandina, Marioli, Nour, Nules, Orogonda, Orsol, Ottaro, SRA selections, Sidi Aissa, An Tasjdaate, Tardive de Janvier, Tardive de Mars</td>
</tr>
</tbody>
</table>
Early-maturing Clementine selections

Other mandarin cultivars *Citrus reticulata*

- Mandarin hybrids of:
  - *C. nobilis* (King mandarin)
  - *C. deliciosa* (Mediterranean mandarin)
  - *C. tangerina* (Dancy tangerine)
  - *C. unshiu* (Satsuma mandarin)
  - *C. reticulata* (Common mandarin)
- Combined with:
  - Other mandarins
  - Oranges (*C. sinensis* & *C. aurantium*) = tangors
    - Natural tangors: Temple, Ortanique, Elloesdale, Murcott, Clemontine
    - Man-made tangors: Kiyomi
  - Pummelo (*C. maxima*) or Grapefruit (*C. paradisi*) = tangelos
    - Ugli, Minneola, Orlando, Sweet Spring
- Subsequent generation hybrids
  - Tantangors, e.g. Shiranui, Orah/Orri, Nadorcott, Furr (syn. Clemcott), African Sunset, Valley Gold, TDEs

Mandarin and their hybrids

<table>
<thead>
<tr>
<th>Kind of fruit</th>
<th>Cultivar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandarin</td>
<td>ARCCIT 1519 (B24), ARCCIT 1614 (B17), Amberisweet, Bay Gold, Dancy, Dancy Early Pride, Falguis, Fairchilds, Fortune, Furr (syn. Clemcott, Murcott x Clem), Ellendale, Garbi, Gold Nugget, Hadax, Kimnow, Kiyomi, Mandalate, Mor (syn. Moriah), Minneola, Murcott (syn. Honey tangerine), Nadorcott (syn. Afonser, Clemengold, Delite), Nectar, Nouvelle, Nova, Nova ARC, Oori (syn. Or), Ortanique (syn. Tambor, Topaz, Mandora, Ortane), Page, Prinsoule, Risikon, Roms, Satour, Shani, Sonet, Sarbur, Sunset, Sweet Spring, Tango, Temple (syn. Sue Linda Temple, Thoro Temple), Winola</td>
</tr>
<tr>
<td>Mandarin hybrids</td>
<td>ARCCIT1519 (B24), ARCCIT1614 (B17), Ambersweet, Bay Gold, Dancy, Dancy Early Pride, Falguis, Fairchilds, Fortune, Furr (syn. Clemcott, Murcott x Clem), Ellendale, Garbi, Gold Nugget, Hadax, Kimnow, Kiyomi, Mandalate, Mor (syn. Moriah), Minneola, Murcott (syn. Honey tangerine), Nadorcott (syn. Afonser, Clemengold, Delite), Nectar, Nouvelle, Nova, Nova ARC, Oori (syn. Or), Ortanique (syn. Tambor, Topaz, Mandora, Ortane), Page, Prinsoule, Risikon, Roms, Satour, Shani, Sonet, Sarbur, Sunset, Sweet Spring, Tango, Temple (syn. Sue Linda Temple, Thoro Temple), Winola</td>
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<tr>
<td>Mandarins</td>
<td>ARCCIT 1519 (B24), ARCCIT 1614 (B17), Amberisweet, Bay Gold, Dancy, Dancy Early Pride, Falguis, Fairchilds, Fortune, Furr (syn. Clemcott, Murcott x Clem), Ellendale, Garbi, Gold Nugget, Hadax, Kimnow, Kiyomi, Mandalate, Mor (syn. Moriah), Minneola, Murcott (syn. Honey tangerine), Nadorcott (syn. Afonser, Clemengold, Delite), Nectar, Nouvelle, Nova, Nova ARC, Oori (syn. Or), Ortanique (syn. Tambor, Topaz, Mandora, Ortane), Page, Prinsoule, Risikon, Roms, Satour, Shani, Sonet, Sarbur, Sunset, Sweet Spring, Tango, Temple (syn. Sue Linda Temple, Thoro Temple), Winola</td>
</tr>
<tr>
<td>Late Mandarin</td>
<td>ARCCIT 1519 (B24), ARCCIT 1614 (B17), Amberisweet, Bay Gold, Dancy, Dancy Early Pride, Falguis, Fairchilds, Fortune, Furr (syn. Clemcott, Murcott x Clem), Ellendale, Garbi, Gold Nugget, Hadax, Kimnow, Kiyomi, Mandalate, Mor (syn. Moriah), Minneola, Murcott (syn. Honey tangerine), Nadorcott (syn. Afonser, Clemengold, Delite), Nectar, Nouvelle, Nova, Nova ARC, Oori (syn. Or), Ortanique (syn. Tambor, Topaz, Mandora, Ortane), Page, Prinsoule, Risikon, Roms, Satour, Shani, Sonet, Sarbur, Sunset, Sweet Spring, Tango, Temple (syn. Sue Linda Temple, Thoro Temple), Winola</td>
</tr>
<tr>
<td>Mandarin Lates</td>
<td>ARCCIT 1519 (B24), ARCCIT 1614 (B17), Amberisweet, Bay Gold, Dancy, Dancy Early Pride, Falguis, Fairchilds, Fortune, Furr (syn. Clemcott, Murcott x Clem), Ellendale, Garbi, Gold Nugget, Hadax, Kimnow, Kiyomi, Mandalate, Mor (syn. Moriah), Minneola, Murcott (syn. Honey tangerine), Nadorcott (syn. Afonser, Clemengold, Delite), Nectar, Nouvelle, Nova, Nova ARC, Oori (syn. Or), Ortanique (syn. Tambor, Topaz, Mandora, Ortane), Page, Prinsoule, Risikon, Roms, Satour, Shani, Sonet, Sarbur, Sunset, Sweet Spring, Tango, Temple (syn. Sue Linda Temple, Thoro Temple), Winola</td>
</tr>
<tr>
<td>Tangerines</td>
<td>ARCCIT 1519 (B24), ARCCIT 1614 (B17), Amberisweet, Bay Gold, Dancy, Dancy Early Pride, Falguis, Fairchilds, Fortune, Furr (syn. Clemcott, Murcott x Clem), Ellendale, Garbi, Gold Nugget, Hadax, Kimnow, Kiyomi, Mandalate, Mor (syn. Moriah), Minneola, Murcott (syn. Honey tangerine), Nadorcott (syn. Afonser, Clemengold, Delite), Nectar, Nouvelle, Nova, Nova ARC, Oori (syn. Or), Ortanique (syn. Tambor, Topaz, Mandora, Ortane), Page, Prinsoule, Risikon, Roms, Satour, Shani, Sonet, Sarbur, Sunset, Sweet Spring, Tango, Temple (syn. Sue Linda Temple, Thoro Temple), Winola</td>
</tr>
</tbody>
</table>
Mandarin hybrids

Minneola tangelo  Nova mandarin

Pigmented mandarin hybrids (Clem x Tanocco)

Tacle  Mandared  Ota 9

Citrus hybridisation and development of principle Citrus cultivar groups

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