Mandarin varieties give range of maturities

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A range of excellent varieties of mandarin and the related tangelo are available, and by selective planting, fruits from these varieties can be placed on the market from June to December.

Mandarins (‘tangerines’) are a variable group of loose-skinned oranges all with characteristic aromatic flavour. They have been increasing in popularity, partly because they are easy to peel. The range of varieties now available should further encourage demand.

Varieties of mandarin now available are:

- **Imperial**. This is an exceptionally popular and proven early variety, of excellent colour and flavour. Fruits are small to medium in size and have a high juice content. The skin is smooth, glossy, thin and easy to peel. Imperial ripens from late May to mid June. It is inclined to overcropping, but fruitlets can be spray-thinned using a recommended spray of ethephon (Ethrel R) at a strength of 250 ppm. (See Department of Agriculture for further details). Some stem end injury can occur if fruit is not carefully picked.

- **Emperor**. This is an early variety to follow Imperial, but it lacks in quality and is not highly recommended. Fruits have a paler skin than other varieties and are inclined to be puffy and dry, especially if picking is delayed. It ripens in late June to mid July.

- **Dancy**. Dancy is an excellent mid-season variety. Fruits are thin-skinned, smooth and fairly glossy, peel readily and are a bright reddish-orange when fully mature. It is a leading variety in California and is also popular in South Australia and Victoria. Fruits are small to medium in size, juicy and of excellent flavour. Dancy ripens after Emperor, from late July to September, depending on the locality. The variety is inclined to overcropping in some seasons but as with Imperial, fruitlets can then be spray-thinned. Considerable care at picking is necessary to avoid stem injury.

- **Ellendale**. This is actually a cross between a sweet orange and a mandarin and is sometimes referred to as a tangor. Although of attractive appearance, fruits do not peel as readily as the true mandarins. Fruit size is usually good and flavour and juice content is excellent. However the flesh will dry out if fruit are left on trees for too long. Ellendale is widely grown in Queensland and New South Wales. Fruits ripen in early to late September, filling a gap between mid and late season mandarin varieties. Trees have a more spreading growth habit than the mandarins and limbs tend to break readily and therefore require supporting under a full crop.

- **Hickson**. Hickson is a choice mid to late season variety introduced to Western Australia from Queensland. It has performed extremely well in yield trials. Fruits are medium to large, of excellent flavour, thin-skinned and readily peelable, and have a high juice content. However slight puffiness and loss of flavour will develop if fruits are left on the trees for too long. Fruit ripens from mid August to mid September. Trees have a fairly spreading growth habit.

- **Hansen**. Hansen (Hansen’s late) is a South Australian variety which performs well under local conditions. Fruits are attractive, somewhat flattened in shape, juicy, flavoursome and of good size. The skin is moderately smooth and thin, and peels readily. Hansen ripens in mid to late October, and is therefore an excellent variety to follow Hickson.
• **Kara.** This a prized late season variety originating from New South Wales and also well known in South Australia. Although the skin texture tends to be rough, fruits are well sized, juicy, highly coloured and full of flavour. Fruits may be distinguished by being slightly pointed at the stem end. The variety has outstanding handing and keeping qualities and although fruits ripen in mid to late November they could be cool-stored into the New Year. Trees have a more spreading growth habit than other mandarin varieties.

**Tangelos**

Tangelos, a relatively new citrus fruit to Western Australia, were developed from crossing mandarins and grapefruit. Fruits are orange and more like a mandarin in appearance than a grapefruit. Although some varieties are tight-skinned, varieties such as San Jacinto are relatively loose-skinned.

Juice qualities are outstanding, and tangelos deserve to be better known.

Varieties available are:

• **Orlando.** Fruits of Orlando are small to medium in size, highly coloured but tight-skinned and extremely juicy with excellent flavour. Orlando ripens during July.

• **Miniola.** Fruits of Miniola are highly coloured with a distinctive grapefruit-like flavour, and characteristically ‘pear’ shaped. They have a high juice content. Miniola ripens from mid July to early August.

• **Seminole.** Seminole is a well-sized, attractive, juicy fruit of excellent flavour. Fruits ripen in August filling a useful gap between Dancy and Hickson mandarins. Fruit is only moderately tight-skinned.

• **San Jacinto.** This is a promising late-season tangelo ripening with Kara in Mid November. Fruits are medium to large and relatively loose-skinned, flavour is excellent and slightly sweeter than other tangelos when fully ripe.

**Rootstocks**

Selection of the correct rootstock is critical to tree performance and the Troyer Citrange rootstock is generally recommended for all mandarin and tangelo varieties.

Trees worked on to Troyer Citrange grow and crop well. Fruit quality is also superior to that of trees grown on Citronelle, (‘rough lemon’) rootstock which is widely used for lemons and home-garden citrus trees. Trees on Troyer Citrange rootstock have good tolerance to nematodes, phytophthora root rot and salt.

Sweet orange is an alternative rootstock for sandy situations, and Troyer Citrange is not suited to the alkaline alluvial soils at Carnarvon where Citronelle is favoured. Emperor mandarin and Cleopatra have performed extremely well as mandarin rootstocks at Mildura in Victoria.

**Management**

Mandarins require a high level of nutrition. Close attention needs to be given to trace element deficiencies particularly magnesium, zinc, copper and manganese. Detailed recommendations are available from the Department of Agriculture.

A good irrigation system is essential and the type used is largely governed by soil type. A low-throw, mini-sprinkler system can be adapted to most situation.

Pest and disease control is not difficult, the main problems being brown rot, scale insects, seasonal outbreaks of aphids and beetles and fruit infestation by Mediterranean fruit fly. Strict fruit fly control measures are essential.

Mandarin trees require very little pruning apart from occasional trimming of lower limbs and removal of shoots which develop below the bud union.

**Locality and site selection**

Climatically the region from Gingin in the north of Perth to Busselton in the south is suitable for mandarins.

Site selection is most important; mandarins prefer a well-drained, sandy-loam and the site should have ready access to a suitable water supply. Also suitable are some sandy soils on the coastal plain and the alkaline alluvial soils at Carnarvon.

**Recommended planting distances**

Recommended planting distances are influenced to some degree by the growth habit of the variety, but the following figures are general guide.

- Imperial, Emperor and Dancy mandarin 6 metres x 3 metres
- Kara, Hickson, Hansen mandarins, Ellendale, Tangor and all tangelos 6 metres x 4 metres

**Markets**

Early-season mandarins are fairly well supplied and are subject to competition from fruits imported from South Australia. There is, however, a demand for mid to late season varieties of mandarin especially if close attention is paid to fruit presentation.

As with all horticultural produce, close attention to fruit quality and presentation increases demand and therefore the price. Fruits presented for sale should be clean and free of excessive blemish or damage, especially stem injury.

Mandarins and tangelos can be sold loose in plastic containers, wooden boxes or mesh bags, or can be packed carefully into cartons or, less frequently as fancy fruits into trays.