

## mandarin variety fact sheet

# Okitsu Satsuma



### Origin

Japan, developed from a seed produced by controlled pollination of Miyagawa satsuma in 1940. Imported into Australia in 1991 and released to selected nurserymen in 1996.

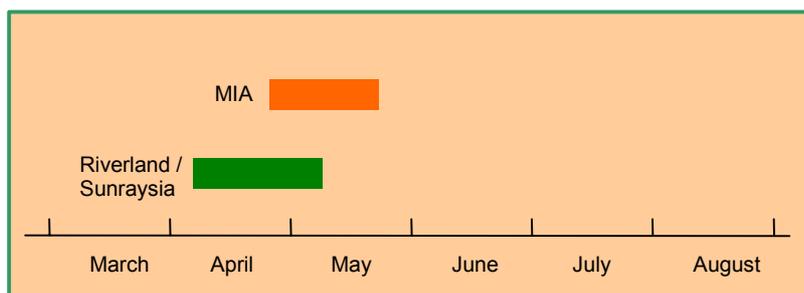
### Type

Early season maturity, seedless, easy peel.

### Market

Fresh, domestic. Export potential. Fruit from southern growing areas would compete with Queensland Imperials on Australian market. Short marketing season of 3 to 4 weeks before fruit becomes puffy and loses internal quality. Difficult to handle due to its 'soft' fruit characteristic, but New Zealand has developed an export market for satsumas into Japan. Production from southern Australia would be concentrated in April, before the main New Zealand season (May).

### Marketing season (estimated)



### Internal quality

Internally mature occurs before full skin colour has been achieved. New Zealand satsumas destined for the Japanese market must reach a minimum of 10 °Brix and have a citric acid level, at point of sale in Japan, of no more than 0.8%. Fruit can be picked at a higher acid level and 'cured' (stored) before despatch to drop acidity. Fruit produced from grafted trees in the Sunraysia region achieved 10 °Brix and 0.78% acidity on 8/4/1999. Controlled water-stress experiments have improved °Brix and acid levels. Internal quality declined very quickly after the first week of May. Juice contents as high as 54% was reached in April. Eating quality has been described as relatively bland for the Australian palate and with a degree of 'chewiness or rag'. Internal appearance is very attractive for an early season mandarin and has received favourable local market comments.

### External quality

A fine, smooth skin that does not reach full colour until late in the maturity period. Skin thickness ranged from 2.8 - 4.0 mm at a leaf nitrogen level of 2.6% and is easy to remove. Fruit is flattened and typically ranges in diameter from 7.1 - 8.0 cm on hand thinned, grafted trees. Fruit deteriorates rapidly if left on the tree and becomes soft and puffy with 'off' flavours by mid May in Sunraysia.

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## Postharvest performance

Fruit must be clipped from the tree and handled carefully because satsuma skin is sensitive to rough harvesting. Damp or wet fruit is much more prone to oleocellosis related problems. New Zealand recommendations suggest a double clipping action. Firstly clip the stalk and then trim it at the button. Satsumas will cool store for extended periods and in Japan are often held for several months to extend the satsuma season.

## Field performance

Satsumas develop into a medium sized, spreading tree that has an open habit and lacks high leaf numbers. They are suited to high density planting systems. Trifoliata has been the preferred rootstock in New Zealand due to its cold tolerance, though there is now a strong trend toward the use of C-35 citrange. Satsumas are also one of the more cold tolerant citrus types having been developed in the north Asia region (Japan). They are also widely grown in humid, sub-tropical areas of southern China. Fruit will develop without pollination (parthenocarpic). Over cropping is a potential problem leading to severe alternate bearing. A fruit to leaf ratio of 1 fruit to 20-25 leaves on bearing trees is a recommendation for producing export sized fruit and reducing alternate bearing. Satsumas are also very sensitive to heat damage and exposed fruit, on the western side of grafted trees was severely sunburnt during a 3 day heatwave of 43°C in January 1999 in Sunraysia. Sunburn problems were also experienced in 2000 during both January and February when temperatures over 3 day periods ranged between 40-43°C. Hand removal of damaged fruit is required before harvest as heat burn can extend to the central section of mature fruit.

## Pest and disease

No specific pest and disease problems have been noted to this point (January 2002).

## Extent of plantings

*Commercial:* Commercial plantings being established. Budwood demand high.

*Research:* Research arboreta, small trials and trees planted for budwood.

## State of knowledge

very  
limited

very  
high

Satsumas are being overtaken by Clementines on the world market, but local and export opportunities may exist for this mandarin type in Australia. Successful production of Japanese satsuma mandarins will require a high level of management and expertise and should only be undertaken by committed citriculturists. Okitsu satsuma has created more initial industry interest than Miho or Clausellina satsuma.

## Disclaimer:

Information contained in this publication is provided as general advice only. For application to specific circumstances, professional advice should be sought.

Last Revised: September 2002

Growers should ensure that trees are propagated from Approved Budwood obtained from AusCitrus.

