

Fruitgro^{science} has an agreement with ExperiCo (Fruit Technology Solutions) to provide relevant, timeous, technical/research-based information that will enhance the quality of South African stone fruit.

Quality management of stone fruit with the focus on post harvest handling and pernicious scale control

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Most plum cultivars have already been harvested with only late cultivars such as Angeleno and Southern Belle still to be picked.

Post harvest quality maintenance of Angeleno and Southern Belle plums

- Harvest maturity remains an important factor in determining the internal quality of Angeleno and Southern Belle plums after cold storage. However, if fruit are harvested within the recommended maturity standards, the risk of internal disorder development during cold storage and subsequent shelf life is low, provided that the fruit are not stored too long.
- Generally Southern Belle does not store as well as Angeleno and to ensure good quality, the cold storage should not exceed 42 days from the date of harvest.
- Southern Belle plums are susceptible to shrivel and should therefore be packed with standard shrivel sheets or perforated grape bags.
- The advantage derived from the use of shrivel sheets is that decay is normally less in this liner type compared to perforated grape bags. However, higher levels of shrivel tend to develop in fruit packed with shrivel sheets compared to fruit packed in perforated grape bags. Consequently, the decay potential of the fruit will be an important driver to decide what packaging liner type should be used.
- Southern Belle plums can be stored at dual- or single-temperature regimes. A minimum TSS of 15% is required if a single temperature is considered.
- If Southern Belle is packed in perforated grape bags and dual temperatures are used, the period at 7.5 °C should be shortened by 2 days, typically from 7 days to 5 days. This is necessary because bags restrict airflow through the pallets of fruit in shipping containers and consequently, the fruit take longer to cool to -0.5 °C after the period at 7.5 °C.
- Angeleno, on the other hand, is normally stored at -0.5 °C with good success, although it will tolerate dual temperatures for shorter storage durations.
- Angeleno is generally not susceptible to shrivel, but for extended storage, perforated grape bags can be used, since there is a tendency for shrivel to develop with extended cold storage.



Insect control

- Insect control is important on late cultivars as insect damage on fruit can be problematic at this time of year, and unfortunately, this damage is not clearly visible due to the dark colour of most of the late cultivars. Packing of insect-damaged fruit can cause rejections of consignments due to the damage itself, but also because the damage usually leads to increased levels of decay.
- In this edition of Fresh NOTES we will focus on pernicious scale (IPDM of apples and pears in KZN. A.G. Sheard & C. Kaiser, 2001) since control is important to ensure healthy trees and to prevent rejections after packing.
- Pernicious scale is viviparous (young are born alive) and the reproduction rate is high. Eggs develop under the body of the female and emerge as young larvae. The mother produces young for a six-week period and up to 600 may be produced.
- The female nymphs, which are wingless and termed crawlers, are not visible to the naked eye but resemble mites under a magnifying glass. If present, they usually settle on the tree and fruit after half a day. Approximately 12 hours after feeding is initiated, they start to secrete wax which will eventually become the protective scale of the insect.
- From birth to adulthood usually takes about a month and there are usually three to four generations per year.
- As the female insect moults, the colour of the scale covering changes from black to grey.
- In contrast to the female, the male adults are winged and are thus mobile. They are, however, short lived after mating.
- Pernicious scale crawlers are spread mainly by wind, birds, animals and implements such as pruning shears.
- The key to limiting the spread of pernicious scale is never to remove untreated prunings from the point of contamination in the orchard.
- Chemical control is usually by means of two spray applications of registered chemicals. The first must be applied before pruning during early winter. The two main reasons for this are:
 - There are relatively large numbers of crawlers present at this stage and they are more predisposed to chemicals than adults due to the lack of the protective scale covering.
 - Spraying before pruning largely eliminates the risk of spreading the disease by means of pruning wood.
- A second spray should be applied 4 to 6 weeks later.
- For both sprays it is important to get good coverage of the entire target area.

I hope you found this information helpful!

Arrie

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