

Best practice guidelines for postharvest handling of apricots

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Apricots to be exported to the EU must be **phytosanitary registered** and comply with the **Fruit Fly Management System** in all registered orchards. All the FFMS information is available on the restricted 'Special Markets' web page on Hortgro's website ([Hortgro Secure Content](#)). Email Suzette Poole (suzette@hortgro.co.za) for access privileges.

Special handling protocols (**gentle picking, rapid cooling, controlled storage, and careful packing/transport**) are critical to preserve the delicate texture, flavour, and market quality of fresh apricots.

1. Apricots have a short harvest window

Apricots ripen quickly on the tree. To prevent harvesting fruit at post-optimum maturity and fruit becoming overripe during storage, the following is recommended:

- Harvest fruit within the prescribed optimum picking window (See Part 2, Annexure 1, Table 4 of the DoA's Export Standards and Requirements).
- Harvest on the **less** mature side of the optimum window to deliver firm fruit with a slightly backward colour for the overseas market – customers can easily and rapidly ripen the fruit at temperatures $\geq 15^{\circ}\text{C}$.
- Pick through trees several times to ensure optimum and uniform maturity fruit are packed for sea export.
- Training and supervising of picking teams is important in this regard. Fruit missed on a pick will be overripe by the next pick.
- Do not pack overripe fruit for long term storage, as it may lead to costly rejections or claims at arrival at the client.

1.1 Determination of harvest maturity

Harvest maturity is determined in two ways for apricots:

- **Wring test**
 - Cut the fruit with a knife around the suture to the stone of the apricot and wring the two fruit halves in opposite directions.
 - The stone must separate easily from the flesh without flesh adhering to the visible half of the stone, except for Charisma where 30% of the flesh may be attached to the stone (otherwise the fruit will become overripe during storage).

- This is applicable to all apricot cultivars, **excluding Bebeco, Grandir, Suapriseven, Suaprieight and Suaprinine.**
- **Minimum colour chart value (on colour chart AP.1)**
 - **For cultivars that must adhere to the wring test:** If some of the apricots in the test batch do not comply with the wring test, those fruit must comply to the cultivar's minimum colour standards as prescribed in Part 2, Annexure 1, Table 4 of the NDA's Export Standards and Requirements for apricots.
 - **For cultivars that do not wring:** fruit must comply to the cultivar's minimum colour standards as prescribed in Part 2, Annexure 1, Table 4 of the NDA's Export Standards and Requirements for apricots.
- **Flesh firmness**

Flesh firmness is not used as a maturity parameter for inspection but is a useful index for reducing breakdown during cold storage.

 - Use a penetrometer fitted with a **6 mm plunger.**
 - The minimum harvest firmness is **2.0 kg.**
 - Begin monitoring fruit firmness in the orchard at least **10 days before the expected harvest date**, as the correlation between firmness and skin colour may vary by orchard and season.
 - Collect a representative sample of **approximately 20 fruit.**
 - For each apricot, measure firmness on two opposite sides after zeroing the penetrometer and record the **average of the two readings** as the firmness value for each fruit.

2. Apricots have a thin, fragile skin

Apricots bruise and tear easily, making them highly vulnerable to mechanical damage during harvesting, packing, and transport. Even minor injuries cause rub marks and accelerate decay. The following steps are recommended to prevent mechanical damage:

2.1 Preharvest

- Avoid overcrowding of fruit on branches through proper pruning and thinning.
- Manage wind exposure with windbreaks or netting to reduce fruit-to-fruit and fruit-to-leaf rubbing.
- Apply adequate, but not excessive, nitrogen fertilization, as soft, vigorous growth increases rubbing risk.
- As a guideline, avoid irrigation at least one day before harvest to reduce the turgidity of the fruit. Contact your technical advisor for more detailed information relevant to your specific orchard conditions.

2.2 During harvest

- It is a good practice if fruit pickers and sorters can wear **clean** cotton gloves to prevent injuries to the fruit.
- Avoid lifting apricots against the branch when picking, as this cause injuries. Instead, gently twist the fruit away from the brand, taking care not to damage the shoulders.
- The branch can be held with one hand to stabilise the picking action and avoid shoulder punctures.
- Do not harvest during the heat of the day, as warm fruit ($> 28^{\circ}\text{C}$) are more prone to injury and rub marks.
- Harvest during the cooler parts of the day but avoid very early mornings when fruit is turgid and easily damaged.
- Do not pick fruit wet from dew or rain, as it bruises easily, and free moisture increases fungal infection.
- Use smooth, padded picking bags or buckets to minimize abrasion.
- Clean the picking bag or bucket regularly to get rid of debris and dust.
- Do not use the picking bags to pick up fallen fruit.
- Avoid overfilling harvest containers, which increases pressure and rubbing.
- Pickers must never run with picking bags containing fruit, as this will cause mechanical damage.
- Transfer fruit gently from buckets to bins in a slow, smooth motion.
- Use plastic harvest bins rather than wooden ones.
- Line harvest bins and crates with smooth, cushioned material to reduce rub marks and fruit-to-fruit impacts and vibrations on the inside of the bin. Liners have the added benefit of minimise bruising and to protect the fruit against dust. Perforated bin liners are recommended to allow air movement through the bin so that the fruit do not heat up while waiting to be placed under cooling. Research on apples, nectarines, and cherries has shown that FRUITGUARDTM works very well as a bin liner.
- Maxi bins are preferred to totes due to their higher volume-to-surface ratio. If totes must be used, stack them tightly in the bins and stabilise them with foam pads.
- Keep fruit surfaces dry, as moisture increases susceptibility to skin damage.
- Limit unnecessary handling and sorting steps.
- When transporting bins to the pack shed, it is worthwhile putting a wet blanket or a 150 mm polyethylene sponge mattress on top of the bin and tie it down tightly to prevent fruit from movement and rub marks.
- Fit bin trailers with suspension (e.g., torsion bars) to reduce vibration during transport to the farm load bay.
- Tire pressure of 2-3 bar should be maintained for a softer drive.
- Use additional trailers or add weighted bins to improve suspension and stability during transport to the load bay.

- Uneven roads greatly increase the probability of bruising. Before harvest, all roads used by bin trailers and trucks must be repaired and levelled. In winter-rainfall regions, ridges to divert stormwater can be levelled until after harvest.
- Gravel roads from the orchard to the loading bay should be wetted where possible, to combat dust.
- Transport full loads whenever possible to the packhouse. For half loads, add weighted bins or use smaller trucks to reduce vibration damage.
- Trucks should be fitted with pneumatic suspension.

3. Apricots have a high respiration rate, are sensitive to temperature and ethylene and lose moisture easily

Apricots respire rapidly after harvest, which accelerates senescence unless cooled and handled carefully. They are highly responsive to ethylene, which speeds up softening and spoilage. Overripe or injured fruit should be removed promptly, and apricots must be kept away from ethylene sources. Their skins also allow high moisture loss, **so proper humidity control is essential to prevent shrivelling**. An RH of 90-95% is strongly recommended. Recommended practices include:

- Ideally, pick and pack apricots **on the same day**, and cool them to -0.5 °C as soon as possible after packing.
- A maximum delay of **12 hours at ambient (20 to 25 °C)** is acceptable, but fruit will be slightly **softer** after storage than fruit packed and cooled immediately.
- **Static room cooling in bins is not advised, as it can take up to 5 days to cool.**
- If packing is delayed more than 12 hours, cool fruit in bins statically to 3 °C before packing, then force-air cool packed fruit to -0.5 °C immediately.
- Half pallets should be statically to 3 °C , then built up to a full pallet the next day and force-air cool to -0.5 °C immediately after completion of the pallet. Only remove half pallets **from cold storage** once enough cartons are available to build a full pallet.

3.1 Packaging

- To prevent rub marks, place one foam pad (3 mm) under and above pulp trays, and 2 foam pads above the top layer of fruit. In extreme cases, use foam pads both under the pulp tray and above the fruit.
- Fruit in punnets usually stores about one week less than loose-packed fruit.
- For long-distance transport, add extra foam pads on top of the fruit in the top three box layers of each pallet to immobilise fruit to prevent rub marks.
- A wooden top deck on the pallet also reduces rub marks.

3.2 Forced air cooling

- After packing, force-air cool apricots to a pulp temperature of -0.5 °C within 12-24 hours.
- Do not cool to a pulp temperature below -0.5 °C, as apricots are susceptible to freezing damage.

3.3 Shipping

- Maximum pulp temperature at loading is 1.5 °C (however, not advised).
- Ship apricots under the D05 regime (-0.5 °C for the full duration of the voyage).
- In containers, keep fresh air ventilation closed; in conventional decks, maintain CO₂ below 0.5%.
- Use void plugs to block container floor openings near the doors, improving cooling efficiency.
- Maximum storage life of apricots are 28 to 38 days, depending on the cultivar and packaging.

3.4 Air freight

- Do not harvest fruit for air freight at advanced maturity, as higher temperatures (approximately 16 °C for 2 days) in this handling chain cause overripening.
- Pack fruit in standard packaging.
- Force-air cool to 3 °C to delay ripening.
- Condensation will form after removal from cold store, but since fruit is marketed within one week, decay risk is minimal.