TIMELY *hints*

DECEMBER 2022
STONE FRUIT PRODUCTION

SOIL

- Take soil samples for maintenance lime and nutrition programmes. Samples can be taken later but it is best to take samples before bottlenecks at laboratories towards the end of January and some Laboratories close over Christmas holidays.
    - Take sample every 2 to 3 years for each orchard or management zone.
    - Take samples from 0 to 40cm depths.
    - Take samples in the root zone.
    - Samples should be taken from 6 to 10 locations in an orchard and mixed in a bucket. Take a 'composite' sample from the bucket.
    - Samples should be 0.5 to 1 kg in size.
    - Note coarse fraction content (stones) as a % of the total volume and give to your advisor to take into account in their recommendations.
    - Place the sample in a plastic bag and label thoroughly.
    - Deliver to a certified laboratory for a standard chemical soil analysis which includes at least the following parameters:
        - Basic cation analysis (Ca, Mg, K and Na)
        - pH
        - Resistance
        - Exchangeable acidity (H)
    - Provide your technical advisor with the results for compilation of a lime programme for the coming autumn and winter. This programme traditionally runs for 2 to 3 years.

IRRIGATION

- Monitor the buffer zone moisture of your soil profile.
    - The buffer zone can loosely be defined as a reserve of soil moisture from where secondary moisture can be accessed by trees during warm periods or when the primary root zone is reaching levels of depleted moisture.
    - This depth can be determined through soil profile observation
        - Dig a profile pit in the root zone

        - Note the depth where 80% of your roots occur. This is your primary root zone.
        - Note the depth and type of limiting layer. This could be a water table, hard rock or clay to name a few.
        - Decide to what depth the tree can realistically extract water. The greater the limitation the shallower the buffer zone depth.
    - Monitor the root zone (typically 0 to 40cm or up to 60cm) twice weekly and the buffer zone (typically 40 to 60cm or up to 80cm) every third time during field observations. Monitor continuously when using probes.
    - A dry root zone should be addressed through a longer irrigation.
    - A typical schedule at this time could be
        - Short irrigation on Wednesday (reaching 0 to 40cm)
        - Short irrigation on Friday (reaching 0 to 40cm)
        - Long irrigation on Monday (reaching 0 to 60cm or even 80cm)

  Note this is an example and field observations based on soil and crop demand should be evaluated prior to compiling the schedule.
    - Never irrigate past your buffer zone unless you need to leach salts, this water will be wasted otherwise.

- When to consider "pulse irrigation"
    - Pulse irrigation is a strategy to reduce sunburn by cooling the atmosphere and increasing the relative humidity around the tree by running the micro irrigation system for 5 to 15mins at a time on an hourly cycle during the warmest period of the day.
    - Although this strategy has short-lived effects, it can reduce the instance of sunburn if executed alongside actual irrigation scheduling.
    - Pulse irrigation should never replace an effective irrigation schedule.
    - Consider pulsing only if:
        - You have enough water for the full season's demand
        - Your soil moisture status is adequate throughout the root and buffer zone.
    - Do not consider pulsing if:
        - Air temperature is below 27 degrees Celsius.
        - Wind is blowing to the extent that you can feel it on your skin.

NUTRITION

- Assess whether adequate new shoot growth has been achieved.
    - This should be 40cm+ of new growth in the current season.
    - Inadequate growth will result in poor bearing potential in the coming season.

- Applying more N based fertilizer or foliar products as discussed in last month's *Timely Hints* can address inadequate growth.
- Do not apply N fertilizer later than mid-December to continue shoot growth as shoot growth should stop towards mid-January.
- Foliar samples at the end of January will guide the autumn fertilizer program. More on this in the January *Timely Hints*.

HARVESTING TIPS

Your exporter will be giving you guidelines as to the maturity standards that they require for export and the Department of Agriculture, Land Reform and Rural Development (DALRRD) applies maturity standards for export which are monitored and verified by the Perishable Products Export Control Board (PPECB) who acts as an assignee for (DALRRD). The following are just some tips when it comes to harvesting:

Apricots

The most common maturity standard used for Apricots is the so called wring test that is when one cuts the apricot in half and wrings the two halves apart. The pit should be loose from the flesh. If it is loose then the apricot is mature enough to harvest. Exporters also have their own firmness guidelines which you must check and as well as checking with your exporter as to what flesh firmness they require. Especially for over maturity, firmness is critical. Soft apricots will be rejected.

When harvesting Apricots the following is recommended:

- Giving the pickers cotton gloves to pick. This is a good idea as will reduce incidents of nail injuries etc. greatly and psychologically also makes them realize it is a very sensitive fruit to handle.
- Injuries such as torn stems or stem causing injuries to the fruit are the biggest problem in apricots.
- Most injuries happen when the apricot is picked as it is lifted against the branch as one picks it. Give apricots a slight twist when harvesting but be careful not to injure the shoulders with this action.
- Once one has determined the colour of the fruit of the maturity that one wants to harvest, one aims to pick to that colour standard. Almost a green, lime, yellow colour, is normally the standard.

Dessert peaches

Also to check with the exporter for the maturity standards they require. Peaches are harvested according to flesh firmness and correct firmness will determine the background colour that one needs to harvest at.

- Injuries are also a major problem and one must take the same care as one would with apricot harvesting and that one does not injure especially the shoulder of the fruit.
- Over mature fruit is a problem, so one needs to harvest dessert peaches at least three and sometimes four to five times.
- Some of the early dessert peaches, it is better to harvest into trays and always keep the tip of the peach upright.
- Spray ReTain (3-Buteoic Acid Hydrochloride) to delay harvest a little bit and give firmer fruit with less soft tips. This works very well for nectarines but also for some of the Peach Varieties. Discuss with your exporter and spray representative.

Nectarines

Nectarines are also picked on flesh firmness; you should check maturity standards with your exporter. Some of the new nectarine varieties that are full red are difficult to harvest as they obtain the full red colour before they mature and one cannot just pick on colour. If there is a bit of background colour, that is useful to pick on but a tip that I have found that worked well over the years is that when the nectarine loses its glossy shine and gets a bit of a dull haze on the epidermis, is normally a sign of correct maturity. Again taking firmness tests and determining which fruit is mature and which fruit is not, can give one an indication of the colour standard one must pick to. Size does play a role in maturity, in that the larger fruit are more mature than the smaller fruit, especially for the first one or two picks.

Yellow cling peaches

Probably the easiest to pick but that does not mean to say they can be handled roughly. Here it is really only colour that determines maturity and especially if one is picking for canning. The canners will determine maturity by colour, they don't want green fruit. South Africa's reputation as a supplier of top quality canned peaches is partly because of the very good yellow colour. This is why many buyers around the world prefer South African canned peaches - because of their excellent yellow colour standard.

Plums

Plum maturity is also determined by flesh firmness, as well as % TSS (Total Soluble Solids). Check with your exporter regarding the maturity standards that they require for their markets. Most

plum varieties are picked out, using colour as the guide of what to pick and what to leave behind. A good rule of thumb is, the day you think you must start picking the plum variety, wait two days and then pick. Your first pick should be at least 20% of the crop, if you cannot take off 20% with the first pick then you are picking too early. The following guidelines are given:

- Varieties such as Laetitia: The first pick is almost always ¾ red fruit and redder. The next pick half red and redder fruit and the last pick is a strip pick. In other words for the 2nd and 3rd pick one has less red colour in the fruit. This rule of thumb generally works.
- Injuries are also a great problem in plums.
- Rub marks are also a big problem in plums. Some varieties are far more susceptible than others. Either pick plums into plastic bins or use plastic liners. The warmer the fruit, the more likely to incur rub marks. Try not to pick in the heat of the day.
- The size, especially with the first pick is an important maturity parameter, normally the larger fruit ripens first.
- For some of the yellow plums such as Songold, one can often get away with a single pick (strip pick). This can only be achieved if one had a very even blossom (Bud break).
- It is best to pick plums into plastic buckets (20 Litre) as the picking bags can cause too many rub marks and then to be transferred gently from the bucket to the picking bin.
- If one is transporting the fruit in bins to the pack shed it is very worthwhile, putting 150mm Polyethylene Sponge Mattress on top of the bin and tie it down tightly, to prevent fruit from moving up and down on the load bed of the lorry and causing rub marks.

A good norm for picking productivity is that a picker in a nine hour picking day should be able to pick 450kgs of plums per day. That is 50kgs per hour. If you are doing a strip pick then the rate should be at least 75kgs per hour.

General

Visit the SA Orchard Training Videos to learn more about picking of stone fruit.

POSTHARVEST CARE OF STONE FRUIT TREES

This is the most critical time for stone fruit trees and it is often the period where many production mistakes are made.

Because the crop has been harvested, it does not mean that the trees must not be looked after. The period from post-harvest until leaf drop in the autumn, is a critical period for building up reserves in the trees for next year's blossom and fruit set.

One must remember that from bud swell until beyond 75% Petal Drop, a deciduous fruit tree lives on reserves stored in the post-harvest period and autumn the previous year. The more reserves the tree has, the stronger the blossom will be and the more and better the chances of a good fruit set.

It is imperative that the tree be kept healthy in the period post-harvest until leaf drop (winter senescence) and that the maximum amount of reserves be built up in the trees. This can only be achieved if one has big healthy leaves that continue photosynthesizing through this period. What one does not want to see during this period is vigorous new shoot growth because the tree will then put its energy into this shoot growth and not into building up reserves for the next year. So it is a fine balance one has to manage in keeping the trees as healthy as possible without stimulating new vegetative growth in the trees. A few cardinal rules for achieving this:

- Control of leaf diseases especially rust in peaches and nectarines and especially in the summer rainfall area is critical. You do not want premature leaf drop because of rust or any other fungal disease of the leaves.
- Post-Harvest Fertilizer should be discussed with your nutrition consultant. The term "post-harvest fertilizer" is not entirely accurate as it is really an Autumn Fertilizer and especially Nitrogen Fertilizer in autumn should only be applied when one knows that it will not stimulate new shoot growth. Apply it as early as possible but not so as to create a whole lot of new shoot growth.
- After harvest, water applications should be cut at least 50%, the trees water requirements are far less once the fruit is off the tree. A good rule of thumb is that water requirements are roughly halved after harvest. One should keep the same set time but double the cycle length, so if one was irrigating four hours every third day, one would now irrigate four hours every sixth or seventh day. Again, irrigation must not stimulate new shoot growth.
- It is useful to prune trees, especially peaches and nectarines in autumn to increase light distribution through the tree canopy.

PEST AND DISEASE CONTROL

- The September *Timely Hints* depicting the control strategies for powdery mildew, thrips, OFM, fruit weevil, brown rust, freckle and gum spot, should be considered and the necessary strategies applied to the cultivars as and when needed, during the mid to late season.
- The October and November *Timely Hints* must please be consulted regarding the proposed control of False Codling Moth, Fruit Fly and the suggested Post Harvest Decay procedures.

- Note: Exirel may NOT be used on export apricots, but the 7 day safety window does apply for the domestic market.
- In addition to these pests and diseases, the following could require additional control inputs:

- **Red Spider Mite – Apricots.** Agrimec Gold @ 225ml/Ha (130–320 ml/Ha) + 250ml/hl Eos oil can be applied with an associated 21 day safety window. A maximum of 2 sprays may be applied per season, applying no closer than 21 days apart.
- **Red Spider Mite - Peaches and Nectarines.** Agrimec Gold @ 225ml/Ha (130-320ml/Ha) + 250ml/hl Eos oil can be applied with an associated 21 day safety window for both export and local. A maximum of 2 sprays may be applied per season, applying no closer than 21 days apart. Alternatively, Epicure @ 100ml/hl may be applied, also with a 21 day export safety window, but a 5 day local market safety window. Here too, a maximum of 2 sprays may be applied per season.
- **Red Spider Mite – Plums.** Agrimec Gold @ 225ml/Ha (130-320ml/Ha) + 250ml/hl Eos oil can be applied with an associated 21 day safety window for both export and local. A maximum of 2 sprays may be applied per season, applying no closer than 21 days apart.
- **Red Spider Mite – All Stone Fruit.** Broadband @ 50ml/hl (minimum of 1L/Ha) with a 0 day safety window being applied at first signs of mite presence and repeated 5-7 days later. Apply at least 3 sprays.
- Fruit Damage Assessments. Must be done in accordance with Hortgro's FF and P/N FMS Management Systems, 6 and 4 weeks before expected harvest and within 10 days of harvest, by inspecting 10 fruit per tree on the marked 25 trees/2Ha block.
- **Fruit Fly – All Stone Fruit.** Spray Devipan @ 100ml/hl with a 14 day safety window, when the pest is noticed. Note that Devipan, being an organophosphate, is not allowed by many of the discerning markets, on their produce.
- **Postharvest Red Spider Mite – All Stone Fruit.** If needed, based on monitoring which confirms the lack of predator activity, a clean-up spray may be needed. Try and use a different chemical group to that which may have been used before harvest, to retard resistance, as residues on the fruit are no longer a problem. Remember, trees under moisture stress are far more prone to spider mite activity than trees that are not stressed for water.
- **Postharvest Fungal Infections – All Stone Fruit.** If orchards have a history of being prone to gum spot, brown rust or powdery mildew, preventative sprays should be applied to ensure the leaf quality and efficacy is not negatively impacted in the postharvest period when reserve assimilation is so important. Generally speaking, the imported cultivars seem far more susceptible to brown rust, than the locally bred cultivars. Either Mancozeb @ 150g/hl or Wettable Sulphur @ 300g/hl could be applied. The wettable sulphur, will control both powdery mildew and brown rust as opposed to Mancozeb, controlling brown rust and gum spot.

TIMELY HINTS CONTRIBUTORS

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