TIMELY *hints*

MAY 2024
STONE FRUIT PRODUCTION

As another stone fruit season for the South African stone fruit industry draws to a close, it is a good time to reflect on the past season and to hold a in house post-mortem as to the performance of individual orchards, varieties etc.

If an orchard is to be profitable, it depends on the 3 P's namely:

- Production (Yield, expressed in tons per hectare)
- Pack-out (Percentage Class 1 Fruit and fruit of desired size)
- Price (not to be discussed in this article)

We as growers can determine the profitability of an orchard by improving yields (production) and pack-out.

At the end of the season, one should analyse the performance of each variety in each individual orchard as far as yield and pack-out is concerned. Be careful not to settle for data per cultivar, but rather per cultivar AND orchard as each orchard is a "factory" and should be evaluated on its own merit.

The following is a short check list that is often used when analysing an orchard's performance to determine why it didn't perform as well as we hoped it would. It is good to analyse every one of these factors and see how much they contributed, if at all, to the lower than expected yields and lower than expected pack-outs.

1. Soil Factors

Probably one of the most limiting factors and often poorly understood in the orchard's performance are soil factors and the following should be checked regarding the soils:

- ✓ **Drainage:** Is the drainage adequate in the orchard, does one have areas of wet feet, tree mortalities. 10% of the trees missing in an orchard mean 10% lower yield per hectare. If drainage is a problem, you will need to make plans to rectify it.
- ✓ **Soil Compaction:** Heavily compacted soils will resultant in poor root activity, gaseous exchanges, water penetration etc.
- ✓ **Organic Contents of the Soils:** How much carbon do I have in the soils, aiming at 3% carbon, the closer that one can get to 3% carbon in the soils, the better the soil structure will be and the better nutrient uptake will be. South Africa soils typically have an OC% of <1.5% so organic matter will have to be added on an annual basis.
- ✓ **Chemical Balance in the Soils:** What does the soil analysis results say? What rectification do I need to make, if any? Consider this in conjunction with the leaf analysis.

- ✓ **<u>Brak Conditions</u>:** Many of our soils have too high a salt content and we need to do something to reduce the salt content. Salinity is typically measured as electrical conductivity (EC) which should be below 1.7 – 2 mS/cm, or Resistance (ohm) which should be greater than 500-600 ohm. Rectifying salinity is not as simple as adding gypsum and a formal amelioration plan should be discussed with a soil scientist.

2. Root Diseases and Insects

We are seeing more and more severe nematode infections in the orchards and do believe that if there is any doubt of nematode infection, sampling for nematodes is very worthwhile. Check for all other root diseases or insects.

3. Pollination

Lack of cross pollination is probably one of the biggest reasons for poor yields in plums, it is always interesting that where you have a Songold tree as a pollinator that is say every ninth tree, it has a full crop and where it is a main variety, you struggle to get a crop and the difference is out and out cross pollination. I urge every plum farmer to make a detailed study of their cross pollination. The cross pollinizers that we have, are they compatible with the variety that we are trying to pollinize? See Hortgro Science's circular regarding Pollen Compatibility and secondly do they blossom at the same time.

4. Tree Vigour

Too much vigour in the tree can be just as harmful as too little vigour. If the tree is too vigorous, it will not produce fruit. It stays in a vegetative phase and does not produce flowers. If they do not have not enough vigour, you will not produce good quality new bearing wood, fill the space allocated to the tree etc. So too much vigour is harmful and too little vigour is just as harmful. Must get the tree into balance between vigour and fruiting.

5. Thinning

How successful was my thinning recipe this past season? Under thinning will result in small fruit size, too heavy a crop load which leads to alternate bearing and all the other problems. Over thinning will give one larger fruit but could result in excess vigour in the tree with resultant poor yields.

6. Irrigation

Have a critical look at your irrigation system. Did the irrigation system deliver water when it was required? How was my scheduling, was the irrigation a limiting factor with regard to yields? Evaluate the water use as m^3/ton fruit. This is a valuable parameter should you have to compile a drought management strategy in future.

7. Wind

Wind Damage, how big a factor was it this past year. Do I need to look at artificial wind breaks, increasing the number of wind breaks planted etc.? Good to analyse the wind situation on the farm.

8. Hail

Was hail a factor limiting production? Do I need to take precaution against hail?

9. Summer Pruning

Did my summer pruning practices help for fruit size, fruit quality, flower bud differentiation for next year? To take a critical look at the summer pruning practices and the timing of summer pruning.

10. Harvesting Practices

Summarize harvesting practice. Did I pick at the correct maturity, picking out strategies, correct quality? Did any damage to the fruit occur during harvesting?

11. Light Management

Are the trees open enough? Are all leaves receiving sufficient amount of light for photosynthesis etc.? Do I need to do some post-harvest light management, removing strong offensive branches, especially wrong ratio branches and excessively vigorous branches?

12. Weed Control

How successful was the weed control strategy this past year? How successful was I controlling perennial weeds, especially kikuyu, tall flea bane, “fynkweek” etc.? Do I need to change my weed killing strategy?

13. Insect and Disease Control

Frikkie van Schalkwyk always said, next season’s insect and disease control is determined at the end of the past season because you know then what the problems were and what needs to be addressed re these problems for the next season. Insects such as mealybug control strategy, pernicious scale control strategy etc., are all determined post-harvest for the following season. The same as for disease control.

Many of the factors affecting yield etc., are influenced by having an adequate number of flowers (adequate flower bud differentiation) and if we do have adequate number of strong flowers, how do we make sure that we have adequate fruit set (pollination, light management, tree reserves etc.) Spending some time analysing the past season and what were the limiting factors can help one greatly to improve yields and pack out for the coming year. It is well worth the exercise.

Pest and Disease Control

Stone Fruit Pests and Diseases:

- **Bacterial Canker, Bacterial Spot/Xanthomonas & Gumspot – All Stone Fruit.** For a standard maintenance programme (no exceptional problems have been experienced this past season) on all stone fruit trees, a **single application of Copper Oxychloride @ 350g/hl,** needs to be applied **@ 75% leaf drop.** If problems have been experienced this past season, **2 sprays of Copper Oxychloride @ 350g/hl** could be applied, with the **first at 50% leaf drop and repeated at 80% leaf drop.**
- **In Xanthomonas problem situations,** a comprehensive Bordeaux programme (Copper sulphate and spray lime mix) could be considered. A series of **"homemade Bordeaux"** sprays**,** should be applied as follows: i) 25-50% leaf drop; ii) 90-100% leaf drop; iii) Middle winter; iv) first signs of bud swell in spring; v) 7-10 days later. This homemade "Farmer Bordeaux" can be produced, by mixing and applying 600g/hl of copper sulphate plus 800g/hl of spray lime. This spray mix is feasible BUT nozzle blockages will happen, which will delay the spraying time considerably.
- **Leaf Curl – Peaches and Nectarines.** A **single application of Copper Oxychloride @ 350g/hl,** needs to be applied **@ 75% leaf drop.**
- **Scales and Mealy bug – All Stone Fruit.** A **minimum of 2 high volume** sprays per season @ 100% TRV must be applied 4-6 weeks apart, comprising **500ml/hl mineral oil (MCW EOS oil) plus 40-50ml/hl Tokuthion.** The first spray should be applied before pruning and followed up after pruning. The second spray should be applied **before the rest breaking spray is applied,** or at latest with it, providing no flower bud or leaf development visible. Dormant applications of Tokuthion will cause no detectable residue being found on fruit in the new season.
- **In problem scale situations**, **3 winter sprays** should be applied **4 weeks apart,** ensuring a thorough coverage and wetting of the tree structure. The second of these sprays should be applied at 70% TRV, DRIVING UP and DOWN THE SAME ROW, for a total wetting. On early flowering cultivars, the first spray will need to be applied with the ¾ leaf drop copper spray, to enable the 3 sprays to be applied with 4-week intervals.

- **Mealy bug Situations – All Stone Fruit. 50ml/hl Tokuthion** as a high-volume application, ensuring a thorough wetting of the tree structure must be applied BEFORE any sign of bud swell.
- **Fruit Fly Baiting – All Stone Fruit.** Continue baiting weekly throughout the entire farm if 1 fly or more are caught per week on the farm. Once zero flies are caught for 2 consecutive weeks on the farm, then baiting can be dropped to once every 14 days.
- Throughout the winter, a minimum of once per month fruit fly baiting, of the evergreen vegetation like wind breaks and home gardens with citrus and subtropical trees, must be undertaken in terms of the Phytclean export certification.

TIMELY HINTS CONTRIBUTORS

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HORTGRO Stone
Growing Fruit IQ
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