

Restoring damaged avocado orchards

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Risk

- Rainfall and hail-day-frequency is inverse related: unusually dry years/months being also have increased hail incidences and vice versa.
- Hailstorms in Limpopo and Nelspruit are most common in November and December.
- Greatest fruit damage and yield losses when hailstorm occurs after physiological fruit drop (December).
- Peak onset time is between 16:00 and 20:00.

Damage

- Damaged bark exposes the vulnerable tissue below to external pathogens:
 - Fungal infections such as Cercospora spot infection on leaves and stems in humid seasons.
 - Phytophthora stem cankers
 - Bacterial canker (caused by *Pseudomonas syringae*)
- Defoliation put trees at risk of sunburn. Branches and trunk are exposed to direct solar radiation that cause localised temperature extremes.
- This problem is aggravated by transpiration losses: Water transpiration occurring from leaves causes an evaporative cooling effect. Defoliation compromise the tree's ability to transpire and keep itself cool.

Recommendations

Appropriate level of intervention will be determined by tree age, season and severity of hail-damage (Figure 1).

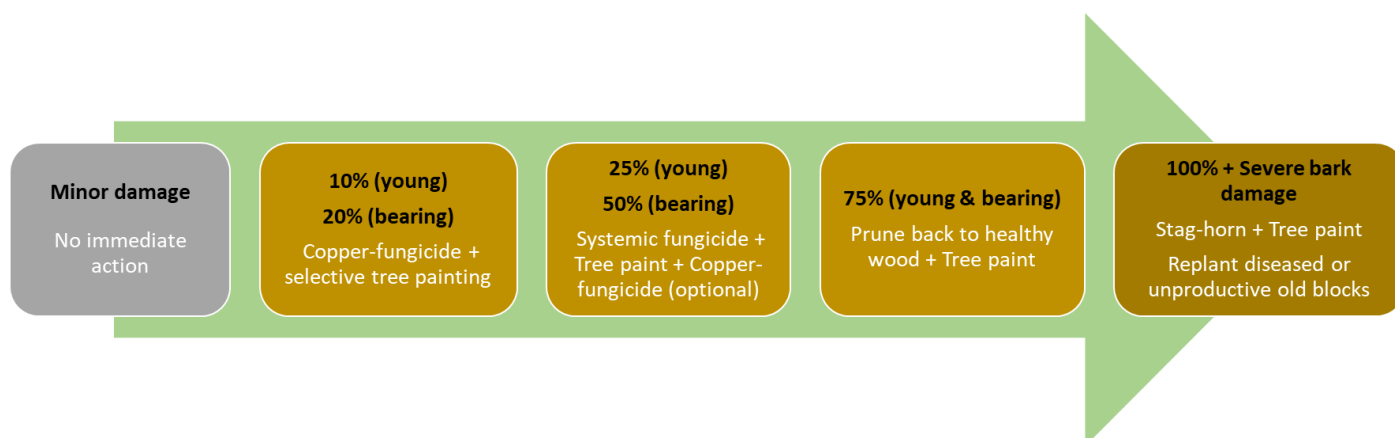


Figure 1: a sliding scale of remedial recommendations following damage by a typical summer-hailstorm, based on percentage total defoliation of trees.

Case study

Following an extremely destructive summer-hailstorm in Letaba on 4 February 2016 that stripped trees to the bark, these actions proved highly effective for restoring production:

- “Stag-horn” branches to best possible healthy wood above root stock union.
- After stag-horning, stumps were sprayed with alliette at 40g/knapsack.
- Trees were painted with PVA and Nordox at 30g/20L.
- No growth regulators were used.
- Manual hand pruning done over 18 months to restore tree shape and remove damaged branches that was passed over before.
- No fertilizer was applied 1st 6 months, from August onwards monthly applications.
- No irrigation over autumn or winter, short irrigation sessions from July onwards.