

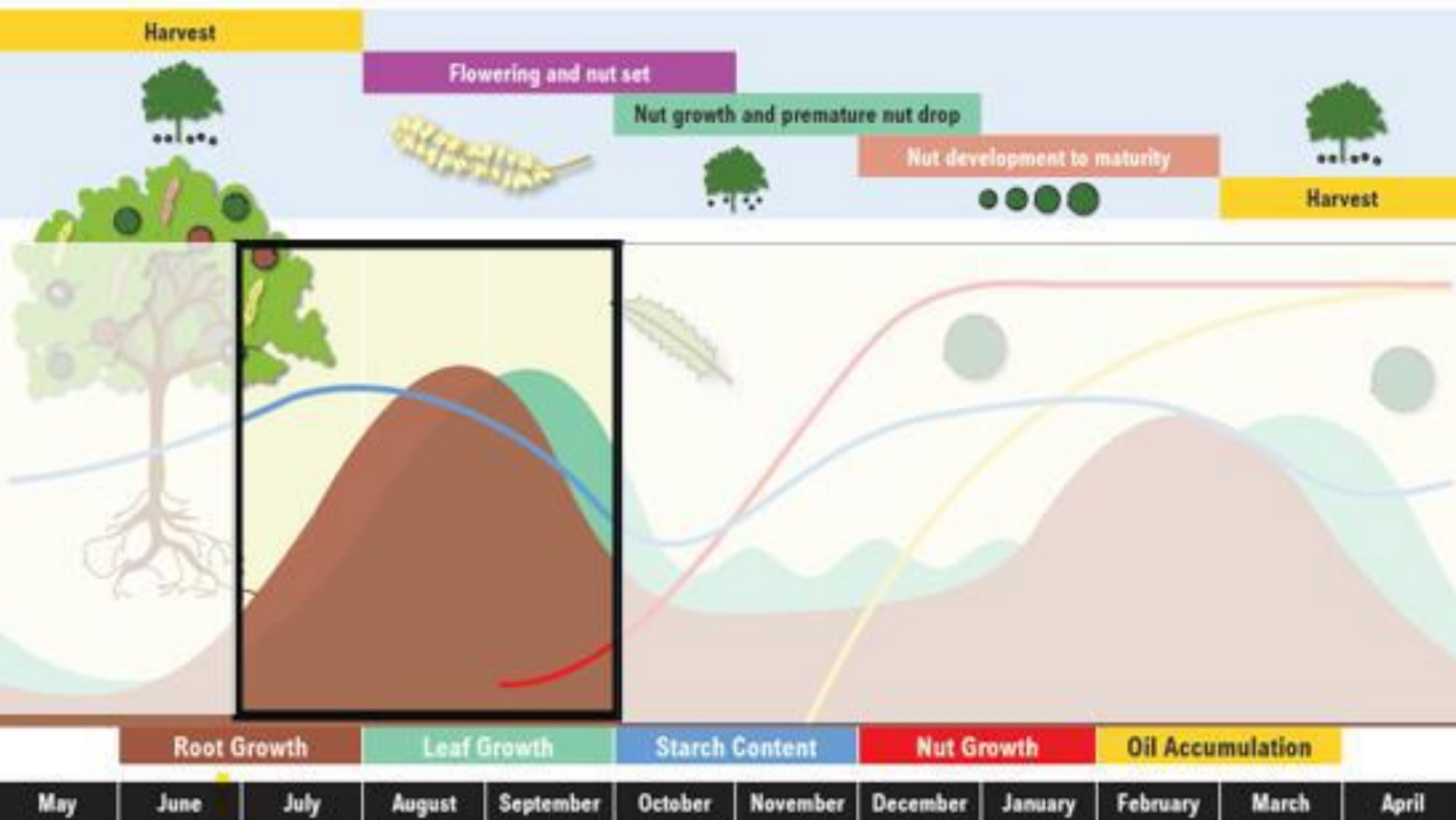


SAMAC Orchard Management News JULY - SEPTEMBER 2023

## Orchard Management Hints in a Nutshell

During this period, a root growth flush earlier in the winter is followed by a leaf growth flush later on. Flower development continues and culminates in full bloom and nut set. Research by SAMAC in South Africa has shown that cross-pollination can increase yields by between 48% and 52% when compared to self-pollination.

Mixed cultivar orchards and optimal honeybee activity contribute to cross-pollination, and the visitation rate of bees can be increased by introducing hives into an orchard. Irrigation and fertilization practices are also important during flowering and nut set to maximize yields and quality.



## General Orchard Management

- Early cultivars can be strip harvested if this has not taken place already.
- Weekly harvest cycles for late bearing cultivars are ideal and harvest cycles should not exceed ten days.
- Annual pruning activities are still taking place to facilitate spraying operations and to maximize light penetration and air movement in the canopy. Regrowth will be controlled by breaking the water shoots off during December and January when they are still soft. Pruning material can be used to mulch under trees to encourage healthy feeder roots.
- Continue with your irrigation and fertilisation schedules as recommended by your technical advisor.

Crop removal and harvest values from the previous season, the general nutrient requirement for growth (dependant on tree age) and soil and leaf analyses determines nutritional schedules. Irrigation during flowering and nut set is important to limit water stress as rainfall is typically low during this period. Recent research has shown that trees stressed during flowering and nut set can have lower total kernel ratios.

- For young trees, soil nutritional analysis, fertilisation and tree training also takes place.
- New orchards are usually established from September onwards but avoid this in areas with a history of out of season cold spells.
- Introduce pollinators into orchards at a stocking rate of at least two hives per hectare.



# Pests and Diseases

- For stink bugs, monitor weekly, preferably early morning when insects are inactive. Only spray chemical products that are compatible with bees, and spray early morning or late afternoon when bees are more inactive.

## Stink bug scouting protocol

Flowering – end of premature abortion ( $\pm$  9 weeks Sept – Late Nov)

- 1) Randomly select data trees the previous afternoon and place the plastic sheeting out, covering at least 80% of the drip zone. Anchor corners of sheets with rocks or pegs to ensure that the sheet is not blown away by the wind.
  - 2) Spray early in the morning before sunrise or when temperatures are still lower than 18°C.
  - 3) Keep the time after the spray to the collection of the bugs constant so that insect populations can be properly compared between successive weekly monitoring intervals. Practically an hour is recommended. Threshold: 0.4 stink bugs per tree.
  - 4) Collect all bugs (immature & mature) and differentiate between coconut bugs, short mouth and long mouth bugs.
  - 5) Damage can also be monitored by dissecting ten prematurely aborted nuts per tree and recording stink bug feeding lesions inside the husk.
  - 6) Nearly all stink bugs can damage the young nuts during this stage as individuals of the winter complex can still be found in most orchards for a few weeks after flowering.
- Citrus thrips, the main thrips pest of macadamias in South Africa prefers to feed on new vegetative flushes. When the growth tips are monitored, ensure that only new flush is therefore selected. Monitor thrips through the “beating method”: spring flush is tapped five times on a black A4 paper to dislodge and count the thrips. Thrips are widely regarded as repercussion or secondary pests, thus ensure that the problem is not aggravated by simply spraying more broad-spectrum contact chemicals.

## Thrips scouting protocol

- 1) Monitor thrips on 10 new vegetative leaf flushes per tree by tapping the flush five times on an A4 black beating sheet.
- 2) The number of larvae and total thrips should be less than 25 and 45 per tree respectively to keep damage under 10%. Scout at least a hundred flushes to obtain an average.



*Thrips damage on a macadamia tree.*

*Photo: courtesy of Dr Armand Smit.*

- For nut borers, monitoring focusses on tracking flowering and nut borer activity to predict the egg-laying peak later in the season, as pheromones must be applied long before the egg-laying peak, while chemicals should be applied close to the peak so that eggs and neonate larvae are exposed to chemical residues.

Flowering – end of premature abortion ( $\pm$  9 weeks  
Sept – late Nov)

- 1) Monitor 10 flowers per data tree and record if flowers are still closed, open or finished.
- 2) Flowering times and concomitant treatment dates will differ from cultivar to cultivar. The window of opportunity for these insects is very narrow and for best results early and late maturing cultivars should be treated separately.
- 3) Delta trap catches should be recorded weekly and accurate records should be kept of moth flights of the two most important pest species (false codling moth and macadamia nut borer). Label threshold values are 7 macadamia nut borer individuals per trap per week and 10 false codling moth individuals per trap per week.
- 4) Five to six weeks after main flowering, 10 randomly selected prematurely aborted nuts per data tree should also be examined for the presence of moth eggs on the young developing nuts, and this should be noted weekly to identify the egg laying peak and the application of chemicals against larvae.



5. Inspect older out of season nuts for the presence of eggs or larvae and identify larvae where possible. This is necessary to deploy the correct pheromone-based product and should be compared with moth counts in the yellow delta traps. Growers are reminded that all SAMAC members have access to the Disease Diagnostic Clinic at FABI free of charge.
  - Blossom blight: preventative sprays before 10% of flowers have opened can be considered.
  - Phytophthora: the presence of stem cankers (vertical bark cracks and gumming) and dieback are indicative of Phytophthora infections.

*Soil-borne oomycetes typically lead to the development of dieback, stem cankers and root rot characterised by a loss of feeder roots in macadamias.*

*Photos courtesy of Prof Adele McLeod.*

