Addressing key production and quality issues

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SUBTROP

PLANT PARASITIC NEMATODES

Ring nematodes, sheath nematodes, dagger nematodes and rootknot nematodes cause tree decline.

Symptoms: Bare twigs and branches, leaf chlorosis, leaf tip burn, poor flowering, excessive fruit drop, up to 40% tree loss, stubby root, darkened root, low feeder root mass.

Control method: Registered nematicide under mulch layer and mulch (e.g. sugarcane tops) applications to increase natural biological populations and protect the roots of defoliated trees from direct sun at the soil surface. See Milne, 1982; Kleynhans *et al*., 1996; Willers, 2002; Daneel, 2010, 2013; Registered chemicals list on **www.litchisa.co.za** under technical info / food safety.

FRUIT CRACK AND BROWNING

Fruit crack when cells stopped dividing and stretches beyond the divided limits. Prolonged periods of rain cause cells to stretch rapidly and cause cracks this season. Some cultivars are more prone to crack than others.

Brown cells are dead and cannot stretch, hence, they crack open. Insect damage also causes browning.

Prevention: Optimal moisture and nutrients (P, Ca, Mg, N, K, B, Zn, Cu) during the first 10 weeks of fruit development.

Control method: Cover bunches with litchi bags. Do not include leaves in the bags and provide a hole for free-water to escape so that the bags dry out easily. See De Villiers, 2002; Froneman, 2002; Stones, 2013.

SUNBURN

Mature fruit show brown spots and lesions.
Control method: Cover exposed litchi bunches on the north-western side of the trees with paper bags. Do this when conditions are dry. Temperature is lower and humidity is higher in the bags. Fruit colour changes to an attractive red in the bags. Fruit can be left on the trees for longer in bags. See De Villiers, 2002, 2010.

TREE DECLINE

Two different syndromes related to soil-borne fungi.

Symptoms: Dull leaves noticed during early summer months on branches, then a complete branch dies off in one to two months with dead brown leaves remaining attached to dead branch. Insect borers infest dead or dying wood.

Control method: Remove dead trees and as much of the dead roots, leave soil open and fallow to six months before replanting. See Manicom, 2002.

FRUIT BATS

Food sources include subtropical fruit: guava, loquats, coffee berries, mango and litchi; wild fruits: wild figs, Cape ash, forest water berry, umdoni, wild plum and red stinkwood; pollen and nectar: e.g. boabab flowers and sausage tree flowers in South Africa. Mostly natural wild fruits in fruit-eating bat diet.

Feeding
Feeding time and distance: Upon fruit ripening, 20 - 40 minutes after sunset until ± 02:00, 12 - 15 km feeding range / night.
Feeding frequency: 1 litchi every 0,5 – 0,75 h is picked.
Feeding rate: Average 8 litchis / bat / night.
Control method: Cover litchi bunches with litchi bags. See Jacobsen, 1976, 1979, 1986; Korine *et al*., 1999; De Villiers, 2002.

BORERS (moth larvae)

Two species of bark borers have been recorded on litchi, macadamia, guava and avocado.

Bark borers
Wild hosts: Wild fig, bush willow, dop-pruim, water berry.
Biology: Larvae hatch from > 270 eggs laid by nocturnal female moths on the bark, feed on the bark and tunnel into wood.

Control: Frass and larval excreta visible on bark should not be removed when registered chemicals are sprayed into the lesions as this helps to absorb the insecticide.

Litchi moth and false codling moth
Larval damage is correlated to fruit ripening.

Control: After the application of a registered insecticide, as many dry litchi bunches as possible should be covered with paper bags. Do not include leaves in the bags. Bags must allow for rain water to run off. Orchard sanitation is important. See De Villiers, 2010; Grové and Schoeman, 2010. Registered chemicals list on **www.litchisa.co.za** under technical info / food safety.

STINK BUGS AND FRUIT FLIES

A full article on stink bugs on litchis was published by Schoeman, 2014. Three indigenous fruit fly species and one fruit fly invader pose a threat to litchi producers in South Africa. Read more in a recently published article by Grové and De Beer, 2014.

Photo reference: https://encrypted-tbn2.gstatic.com/images?q=tbn:ANd9GcQB4g4GkCa6uPMLi7APWvv3yxbJ6VFLwKiv1sNpRZfRsPUAjsm-

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Orchard management: FOLIAR SPRAY - ADDITIONAL NOTE

Boordbestuur: BLAARTOEDIENING - BYKOMENDE INLIGTING

* Potasium is responsible for the translocation of sugars from the leaf to the developing fruit. The peak demand for K is just prior to harvesting. The bulk of K is best supplied through two soil applications in October and November, because of the quantities needed. However, K is easily taken up through the leaves. During heavy crop load, the final sugar accumilation phase can be supported by applying MPK as a foliar two to three weeks before harvesting. K-deficiency symptoms can be rectified with foliar applications from February to April. (Source: Lindsay Tredgold - Consulting Agronomist)

* *Kalium translokeer suikers vanaf blaar na ontwikkelende vrug. K-behoefte piek net voor oes. Weens hoë K-behoefte word twee grondtoedienings aanbeveel in Oktober en November. K word wel goed opgeneem deur die blare. Met swaar oeste kan die finale suiker-akkumulasieperiode ondersteun word deur MPK as blaarvoeding toe te dien twee tot drie weke voor oes. K-tekortsimptome in die boord kan met blaartoedienings tussen Februarie en April behandel word. (Met erkenning aan Lindsay Tredgold - Landboukundige Raadgewer)*