

Beskrywing		Aanbeveling		Oktober	November	Desember	
Details		Recommendation		October	November	December	
Insekbeheer	Insect control	Vrugtevlieg	ECO VRUGTEVLIEGLOKAAS GF-120 of *GF-120 NF; M3 bait station; Bait application; sakkies om vrugte	GF-120 teen 20-100 ml/400 ml *(of 1-1.2 L /19-29 L) water met 'n aanwending van 60 ml *(of 20-30 L) mengsel per boom. Gebruik binne 12 ure ná aanmaak en moenie met ander produkte meng nie.			
		Fruit fly	ECO FRUITFLY BAIT GF-120 or *GF-120 NF; M3 bait station; Bait application; bagging fruit	Apply at GF-120 20-100 ml/400 ml *(or 1-1.2 L/19-29 L) of water at a rate of 60 ml *(or 20-30 L) spray mixture per tree. Use mixture within 12 hours. Do not add any other products to mixture.			
		Lietsjiemot	†Nomolt (not for export/ nie vir uitvoer nie)	t ≤ 10 mm vrug; 20 ml/100 L water; 18 dae weerhouding; pH = 7; herhaal na 2 weke			
		Litchi moth		t ≤ 10 mm fruit; 20 ml/100 L water; 18 day withholding; pH = 7; repeat after 2 weeks			
		Valskoding-mot	†Nomolt; ‡Runner 240 SC	‡ 60 ml/100 L water; 30 dae weerhouding; pH = 4-9			
		False codling moth		‡ 60 ml/100 L water; 30 day withholding; pH = 4-9			
Oes	Harvesting	Pluk selektief volgens die SALGA standaard en uitvoerregulasies. Volwassenheidstoets (TSS:suur) minimum 25:1. Pluk soggens en hou vrugte te alle tye in skaduwee. Gebruik skoon kratte en 'n plukring. Moenie goeie en slegte vrugte meng nie.					
		<i>Pick fruit selectively according to SALGA standards and export regulations. Maturity (TSS:acid) test minimum 25:1. Pick in the morning (not mid-day) and keep fruit in the shade at all times. Use clean crates and picking ring. Do not mix good and bad fruit.</i>					
Na-oes	Post harvest	Swaelberoking (internasionale mark: behandel droëvrugte met SO ₂ binne 3 ure na pluk) / Prochloraz-behandeling (plaaslike mark: 180 ml/100 L water vir 30 sekondes) direk na oes en koue-opberging teen 1°C.					
		<i>Sulfur fumigation (international market: treat dry fruit with SO₂ within 3 hours after picking) / Prochloraz treatment (local market: 180 ml/100 L water for 30 seconds) directly after harvest and cold storage at 1°C.</i>					

The Oriental fruit fly and litchi production

The Oriental fruit fly, *Bactrocera dorsalis*, is a very destructive pest of fruit and vegetables in areas where it occurs. It is amongst the world's most important pests of horticultural crops. The distribution extends throughout much of sub-Saharan Africa, across the Indian sub-continent to China, throughout the South-east Asian Indo/Malay Archipelago, and as far east as New Guinea, the islands of the South Pacific and Hawaii, into the Philippines and Palau.

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THE ORIENTAL FRUIT FLY was first found on the African continent in 2003 in Kenya. Since its first discovery in Kenya, the fly was reported in many countries in Sub-Saharan Africa. It was reported in South Africa for the first time in 2010 in the northern part of the Limpopo Province and was declared present in the Vhembe district municipality in the northern part of Limpopo during 2013. The fruit fly was first reported in Mpumalanga in 2012 and declared present but subject to official control in the Ehlanzeni district municipality in 2015. It was also



The adult Oriental fruit fly is somewhat larger than a house fly and has transparent wings with a uniform leading edge. The postpronotal lobe is yellow. Two narrow yellow lateral stripes are present on the sides of the thorax and the scutellum is yellow. The abdomen has a conspicuous black T-shaped marking.

» TO PAGE 92

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» FROM PAGE 91

declared present in certain other district municipalities of Limpopo, Mpumalanga, North-West, KwaZulu-Natal and Gauteng.

The Oriental fruit fly attacks over 300 cultivated and wild fruits, including apple, apricot, avocado, banana, citrus, coffee, guava, litchi, mango, marula, papaya, peach, pear, pepper, plum, pumpkin, wild fig and tomato. Before the arrival of the fly in Kenya, the indigenous Marula fruit fly, *Ceratitis cosyra*, was the dominant fruit fly pest of mango. Within four years of invasion, the Oriental fruit fly displaced the Marula fruit fly and became the predominant pest of mango. In many African countries the Oriental fruit fly is currently the dominant fruit fly pest species attacking cultivated fruit crops. High damage levels were recorded on commercial fruit due to the Oriental fruit fly. Furthermore, trade of fresh commodities in many African countries has been hampered due to the presence of the fly.

The damage to crops caused by Oriental fruit flies result from the oviposition in fruit, feeding by the larvae and decomposition of plant tissue by invading secondary micro-organisms. Larval feeding damage in fruits with larval infestation varies with the type of fruit attacked. The economic importance of the Oriental fruit fly cannot be evaluated entirely from the standpoint of the actual damage to the various crops affected. The Oriental fruit fly is a limiting factor in international trade. Quarantine regulations imposed by an importing country can either deny a producing country a potential

market or force the producer to carry out expensive disinfestation treatments.

Female flies insert eggs under the skin of fruit in clusters. The larva is white and legless. The mouth is at the pointed end of the body. There are three larval instars. When mature, larvae drop to the ground and pupate in the soil. The puparium is brown. The adult fly is somewhat larger than a house fly and can easily be mistaken for a wasp by an untrained eye. The species has transparent wings with a uniform leading edge. The postpronotal lobe is yellow. Two narrow yellow lateral stripes are present on the sides of the thorax and the scutellum is yellow. The abdomen has a conspicuous black T-shaped marking.

Development from egg to adult takes about 24 days when conditions are favourable. Developmental periods may be extended considerably by cool temperatures. Females begin to lay eggs about eight days after emergence from the puparium. A female can lay more than 1 000 eggs, depending on the conditions. Ripe fruit are preferred for egg laying, but immature ones may be also attacked. Adult flies live for several months depending on the environmental conditions. Males of the species respond strongly to methyl eugenol and this is used for monitoring and estimating populations. The females can be monitored with Biolure® Fruit Fly or 3-component lure.

Various methods can be used to suppress the Oriental fruit fly, which include the use of poisoned protein bait sprays or bait stations, the male annihilation

technique, biological control, orchard sanitation and mechanical control by using bags to cover fruit. Bait sprays target adult flies, especially females, and aim to attract and kill them before they can lay eggs in the fruit. The male annihilation technique involves the attraction and killing of male fruit flies using a high density of bait stations or substrates consisting of a male lure combined with an insecticide to reduce the male population to such a low level that mating does not occur. The parasitoids against the Oriental fruit fly were released in some African countries for biological control. Orchard sanitation entails the collection of all fallen fruit on the ground and destroying it. This can contribute towards the reduction of fruit fly numbers, because larvae can crawl out of the fruit and pupate in the soil.

In South Africa, the Mediterranean fruit fly, *Ceratitis capitata*, the Natal fruit fly, *Ceratitis rosa* and the Oriental fruit fly is of importance for litchi production. Although female fruit flies lay their eggs inside the fruit, fermentation at the sting mark forces the eggs and maggots out, with the effect that the larvae rarely develop inside the fruit. Oriental fruit fly has to be managed together with the Mediterranean- and the Natal fruit fly in litchi orchards. The first step towards the management of fruit flies is to monitor fruit flies. It is important to monitor all three species. For the suppression of fruit fly in litchi orchards, it is important to use the bait application technique in the form of bait sprays of bait stations and the male annihilation technique against the Oriental fruit fly. ♦