REPUBLIC OF KENYA

KALRO
Kenya Agricultural & Livestock Research Organization

NAVCDP
NATIONAL AGRICULTURAL VALUE CHAIN DEVELOPMENT PROJECT

Avocado Mealybugs

KALRO E-mimea Plant Clinic

KALRO/NAVCDP Factsheet No. 195/2024

Other crops:	Mango, citrus, pawpaw, maize, pigeon pea

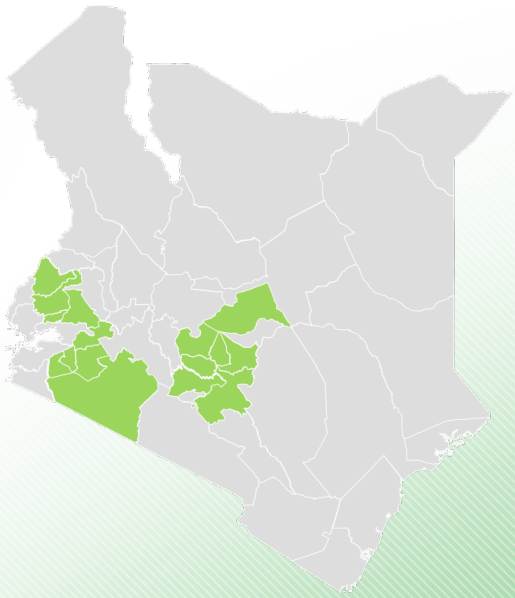
Mealybug infestation of young buds, Source: Lusike Wasilwa, KALRO

Mealybugs feeding and breeding on a young avocado shoot, Source: Joseph Mulwa, KALRO

Pest Name	Avocado mealybug
Description	- Mealybug is a sucking pest that is present across all of avocado producing regions of Kenya. - They often secrete a thin covering of mealy wax across their body, hence their common name. - Mealybugs are most often present on leaves and stems, particularly in tight, protected spaces. - Mealybugs are small, oval, soft-bodied insects that are often covered in a white powdery wax. - The powdery wax sometimes extends off the body as long marginal filaments. - While most species of mealybugs are white, off-white or light grey, some species are yellow, pink or orange. - The mouthparts of all mealybugs are hair-like, being extremely long and thin. - Adult females are similar to nymphs, but larger. - Females are often about 3-6 mm in length and lay egg sacs or masses that are covered by cottony secretions, similar in appearance to cotton wool.

	- Adults generally have longer marginal filaments than nymphs, however they can be broken off naturally. - Eggs within the mass tend to be yellow to orange. - However, not all mealybugs lay eggs, long-tailed mealybug produces live young (crawlers). - In most instances, only females and nymphs will be observed on plants. - Males, when they occur, are small gnat-like insects (about 2 mm long), with two pairs of wings.
Diagnosis/Identification	**Symptoms** Damage begins when the female fly punctures the skin and lays eggs underneath it, which results in a star shaped crack lesion developing on the fruit**.** - Considerable damage can occur inside the flesh before obvious signs of infestation can be seen on the fruit. - The most obvious signs of infestation are small discolored patches on the skin, which develop from punctures or stings made by the female as she lays her eggs. - Infested young fruit become distorted, callused and usually drop; mature fruit develop a water soaked appearance. - The larval tunnels provide entry points for bacteria and fungi that cause the fruit to rot.
Conditions prevailing that contribute to success	- Presence of other host plants fruiting where fruit flies are not managed - Lack of canopy management through pruning - Not practicing field sanitation
Conditions prevailing that contribute to failure	- Proper field sanitation (picking fallen fruits/plant debris and dispose through burying or burning) - Proper pruning of avocado
Management Strategy	The following management options are recommended: *Cultural management* - Always inspect new stock carefully, particularly host plant species that are prone to attack from mealybugs (and other pests and diseases). Inspect all plant parts, including roots for any signs of pests. - Monitor plants regularly, including roots. Plant species that are prone to mealybugs (or other pests) should be monitored more consistently. Refer to monitoring section. - Remove plants with heavy infestations, taking care to reduce spread of mealybugs while doing so. If infestations are limited to a particular branch and it can be pruned, remove it and monitor closely to ensure the rest of the plant is clean.

	- Remove crop debris and disinfect the growing area after removing a consignment of plants that have had mealybugs with a suitable product, e.g. jick or similar products. - When only a small number of plants are present with a low rate of infestation, squash mealybugs and egg batches. Squashing large numbers of mealybugs may irritate skin, but can be avoided by using rubber gloves. The presence of a small number of individuals should prompt regular and rigorous inspections of the consignment. - Avoid movement of infested plant material within the growing area. - Avoid staff movement in areas known to be infested with mealybugs and other pests. If necessary, disinfect clothing and equipment after working in such areas. - Provide an optimal growing environment, including appropriate nutrition, water, growing media and other conditions; weak plants are more susceptible to damage at lower populations of pests. - Control ants as they spread crawlers and protect mealybugs from natural enemies.
	- Thoroughly disinfect recycled pots to avoid transferring eggs and nymphs from crop to crop. - Only propagate from clean mother stock plants. In other words, do not take cuttings from plants that have mealybugs (or other pests). Even one crawler on a cutting (which is virtually impossible to detect) will multiply the problem significantly. - Keep the growing area and surroundings free of weeds. - air movement and increases pesticide coverage. It also reduces ideal environments for mealybugs to develop and increases the ease of detection. *Biological Management* - Apply Metarhizium strains (Metarhizium anisopliae – sold as Campaign® in Kenya)– use 4ml/20L or 200ml/ha (from Real IPM), BIOMYSIS Mean 1.15% WP Wettable powder, Beauveria bassiana Strains (e.g. Eco-Bb Wettable Powder) and PLANOPAR (Parasitic wasps) e.g. Coccidoxenoides perminutus 5000 pupae per 100 cc - Preserve/conserve lady bird beetles, lacewings and syrphid flies that are natural destroyers of mealybugs - Apply Fish Oil, Rosin Soap (25g/litre of water) - Use entomopathogenic nematodes (EPNs)

	- Ensure adequate plant spacing. This allows greater *Chemical Management* Apply PCPB approved pesticides as per prescription such as Diazinon 600g/L, Sulfoxaflor 240g/L, Abamectin 20 g/kg + Acetamiprid 80 g/kg, Imidacloprid 200 g/L and Thiamethoxam 141 g/L+ Lambdacylothrin 106 g/L in strict adherence to the manufacturer's instructions ***Note:*** *Agrochemicals should be used in consultation with professional practitioners and considering existing cautionary/safety measures, particularly the manufacturer's instructions.*
Mandate Centres	More information can be obtained from: ICRI KALRO–NSRC **Email:** kalro.sericulture@kalro.org **Address:** P. O. Box 7816-01000, Thika ABIRI KALRO Perkerra **Email:** director@abiri.org **Address:** P. O. Box 32-30403, Marigat KALRO Seed **Email:** info.kalroseeds@kalro.org; info@kalro.org **Address:** P. O. Box 6223-01000, Thika KALRO-NARL Kabete **Email:** cd.narl@kalro.org; info@kalro.org **Address:** P. O. Box 14733-00800, Nairobi **Website:** www.kalro.org
Geographic Coverage	This is pest is found in major avocado producing areas in Kenya
Geographic Coverage The project counties for avocado are Bomet, Bungoma, Embu, Kakamega, Kiambu, Kericho, Kirinyaga, Kisii, Machakos, Meru, Muranga, Nandi, Narok, Nyamira, Nyeri, Uasin Gishu, and Vihiga Counties where pest occurs Counties with no observation	

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References	
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