



Avocado Pests and Disease

Management



AVOCADO PESTS AND DISEASE MANAGEMENT

- It is very important to differentiate pests and diseases symptoms from nutrient deficiencies.
- Scouting and monitoring the orchard for any infestation is critical.
- Examples of the common avocado pests and diseases in Uganda are shared below.

Pests

| Pest & symptoms | Image | Management |
|--|---|---|
| <p>The Mediterranean Fruit flies</p> <p>White spots occur at the point where eggs have been laid.</p> <p>Puncture on the fruit skin creating a 'star-shaped' crack.</p> <p>Eventually soft rotting may occur on fruits.</p> |  <p><i>Photo by Jackie Atim</i></p> | <p>Use Para-pheromone traps with baited insecticidal spray.</p> <p>Bagging of fruits after their setting.</p> <p>Proper pruning of the tree reduces the spread of fruit flies.</p> <p>Collect and bury all fallen fruits.</p> |
| <p>Mites</p> <p>Bronzing of leaves</p> <p>Premature leaf fall</p> <p>Fruit abortion</p> |  <p>source: www.plantvillage.psu.edu</p> | <p>Pruned properly to expose canopy to direct sun light.</p> <p>Fertilize and providing adequate soil moisture.</p> |



| Pest & symptoms | Image | Management |
|--|---|---|
| <p>False codling moth (FCM)</p> <p>The larva makes a small hole and bores tunnels in the fruit.</p> <p>Discoloration of fruit spots surrounded by a white powdery exudate.</p> <p>Premature ripening and drop of fruit.</p> |  <p><i>Photo by Jackie Atim</i></p> | <p>Regularly collect all fallen and damaged fruits, and either bury them deeply in the soil or burn.</p> <p>Use pheromone traps and baited insecticidal sprays.</p> |
| <p>Flower thrips</p> <p>Leaves and fruits are distorted leaving behind white, silver marks on plants</p> |  <p><i>Photo by Jackie Atim</i></p> | <p>Organic insecticides like Neem (Azadirachtin) in brands such as Nimbicidine are highly recommended</p> |
| <p>Scales</p> <p>Presence of small brown greenish insects on leaves & stem.</p> <p>Patched or deformed fruits and leaves.</p> <p>Rotting of the fruits.</p> <p>Stunting of the trees</p> |  <p><i>Source: www.thoughtco.com</i></p> | <p>Regular weeding and pruning of the overgrown branches</p> <p>Plant repellent crops like onions, garlic in the garden</p> <p>use of wettable sulphur is effective</p> |



Diseases

| Disease &symptoms | Image | Management |
|---|---|--|
| <p>Avocado root rot</p> <p>Sparse foliage with rare new growth.</p> <p>Die back</p> <p>Small black roots that are brittle and dead</p> |  <p>Source: www.gardenpath.com</p> | <p>Drench soil with Metalaxyl based fungicides like Victory, Ridomil, Metazeb.</p> <p>Avoid water stagnation.</p> |
| <p>Anthracnose</p> <p>Pre-mature falling of leaves, flowers and fruits.</p> <p>Leaves dry and have spots.</p> <p>Fruits crack, have spots and rot</p> |  <p>Source: www.plantwise.org</p> | <p>Improve soil fertility</p> <p>Dipping of fruits in warm water (about 40 degrees Celsius) after harvesting.</p> |
| <p>Avocado Scab</p> <p>Development of hard scales on the skin of fruit.</p> <p>Development of circular brown or black lesions on young leaves and stems which interfere with photosynthesis.</p> |  <p>Photo by Jackie Atim</p> | <p>Pruning, and burning debris.</p> <p>Application of fungicides like NORDOX 75 WG or Othello or Azoxystrobin and Difenoconazole based systemic fungicide.</p> |
| <p>Cercospora leaf and fruit spot</p> <p>Darkening of the epidermis.</p> <p>Swelling of the underlying tissues which raises a small dark spot.</p> |  <p>source: www.avocado.co.za</p> | <p>Spray systemic fungicides with Tebuconazole, carbendazim and Triadimefon active ingredients.</p> |

| Disease & symptoms | Image | Management |
|--|--|--|
| <p>Stem End Rot (SER)</p> <p>Decay from stem end begins as slight shriveling around the stem button of the avocado fruit.</p> <p>Decay spreads and rots which becomes dark and shrunken.</p> |  <p>source: www.barmac.com.au</p> | <p>Ensure good sanitation</p> <p>Prune dead branches and dispose them off</p> |
| <p>Powdery mildew</p> <p>Powdery white spore bearing growth on the lower surface of the leaves & branches.</p> <p>Premature leaves fall from infected leaves.</p> <p>In severe infection, flowers abort.</p> |  <p>Photo by Mark Okalebo</p> | <p>Pruning of trees.</p> <p>Use of fungicides such as Dithane M45, Benlate, Antracol and Copper based fungicides.</p> |
| <p>Sooty moulds</p> <p>Black velvety thin membranous covering on leaves.</p> <p>In severe cases, trees appear black and look ugly.</p> <p>Whiteflies and black ants which suck sap on under leaves of Avocado, Citrus/ oranges and other hosts.</p> |  <p>source: www.gardeningknowhow.com</p> | <p>Spraying with wettable Sulphur or Indian oil formulation or Starch at 2% is effective</p> |
| <p>Algal leaf spot</p> <p>Yellowish brown fruit bodies on leaves.</p> <p>Premature leaf fall</p> <p>Leaf deformation</p> |  <p>Photo by Mark Okalebo</p> | <p>Pruning of affected plants to enable air circulation.</p> <p>Mulch to prevent the disease spores from splashing on the leaves</p> |

General practices for management of avocado diseases

1. Pruning of excess branches especially top branches. This leaves side way branches which allow sun flecks penetration and effective air circulation. This will eliminate the excess humidity that promotes fungal growth.
2. Periodic application of a preventive fungicide Dithane M45 at a rate of 3 times per season. This is repeated every after 14 days before flowering and immediately after fruit set. The dose is as recommended by the manufacturer.
3. The fungicides should be applied alternately to avoid resistance. For instance, the first season use benlate and the second season a different one. The rate of application for all is 3 times every after 14 days at a recommended dose by the manufacturer. This should not be during flowering since bees and other pollinators are necessary for the plants. Otherwise, another abnormal condition known as fruit clustering may happen if a farmer applies fungicides at flowering stage.

Nutrition deficiency in avocados

The most common deficiencies are due to lack of macro-nutrients like Nitrogen, Phosphorus and Potassium (NPK). Common micro-nutrient deficiency symptoms are due to lack of Iron, Manganese, Boron and Copper.

| Macro-nutrients | | |
|---|---|--|
| Nutrient & Deficiency sign | Image | Management |
| <p>Nitrogen</p> <p>Leaves become small, narrow, pale and later stiffen and slightly roll inwards. Growth is stunted with reduced fruit production.</p> |  | <p>NPK combinations with high Nitrogen ratio, Urea 46-0-0</p> |
| <p>Potassium</p> <p>Interveinal chlorosis of leaves or light brown spots on leaves. Small, narrow leaves.</p> |  | <p>NPK combinations with high potassium ratio e.g. Poly-Feed foliar fertilizer, NPK granular</p> |

Macro-nutrients

Nutrient & Deficiency sign

Image

Management

Phosphorus

Irregular, interveinal, necrotic spots on older leaves.

Stunted growth. Small leaves. Bronze color on new leaves. Bronzing is common in Lamb Hass.



Mono Ammonium phosphate (MAP)

Di Ammonium Phosphate (DAP)

NPK combinations with high Phosphorus ratio

Micro-nutrients

Boron

Fruit abortion of fruit. Chlorosis of leaf tips. Death of young buds and new growing shoots. Fruit show a wide range of abnormal symptoms like bumps, sickle-shaped growth and sunken corky lesions.



Poly-Feed™

Copper

The terminal and young leaves are the most affected and are usually smaller than normal leaves. Shortening of internodes and death of growth tips



Cotobon or Poly-Feed™ foliar fertilizers

Fungicide treatments containing Cu can supply sufficient amounts.

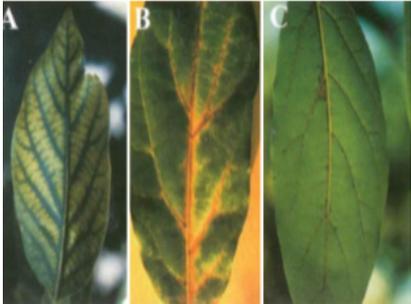
Iron

Green veins and interveinal chlorosis. Symptoms show on young leaves.



Cotobon or Poly-Feed™ foliar fertilizers

NPK formulations with Iron supplement

| Macro-nutrients | | |
|--|---|---|
| Nutrient & Deficiency sign | Image | Management |
| <p>Manganese</p> <p>Interveinal chlorosis, with small reddish- brown spots, mainly appear on young leaves</p> |  | <p>Cotobon or Poly-Feed™ foliar fertilisers</p> <p>NPK formulations with Manganese supplement</p> |

Source of Nutrient Deficiencies table: <https://www.haifa-group.com/online-expert/deficiency-pro/avocado%C2%A0-nutrient-deficiencies>

Note: Manure contains majority of the above nutrients. It can be supplied through mulch and by filling trenches with compost.”



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