Measures to reduce pest and disease problems on fruit trees:
- Select the proper fruit tree and variety that is adapted to your location (if environmental conditions are not suitable for growing fruits, it becomes more difficult to manage pests and diseases)
- Use only disease and insect free planting materials. Roots of plants should not be dry.
- Follow proper fertilization and other applications (lime, manure etc) to maintain proper soil pH for healthy tree growth.
- Fruit trees need to be pruned regularly to allow sunlight to penetrate into the canopy. Pruning also removes damaged and diseased wood whilst stimulating new growth.

Treatment of fruit trees:
- The Entomology Division provides a paid service for the treatment of fruit trees in backyards with a nominal fee of Rs 25 per fruit tree.
  For treatment of backyard fruit trees:
  (i) call at Officer in Charge, Pest Control Unit, Réduit (Tel No: 466 7202) to fill an application form or
  (ii) send a sketch of the site plan by post or fax (Fax No: 466 6434) or by email (moa-entomology@mail.gov.mz)
- The person may wish to carry his own spraying. In that case, the Entomology Division can be contacted for specific advice.
- The Division attends to special requests from individuals/organisations for specific pest problems.
- Advisory field visits in connection with insect problems are carried out upon request.

Contact details:
Tel: 465 8652, 466 7202
Fax: 466 6434
Email: moa-entomology@mail.gov.mz
Website: http://agriculture.gov.mz

Entomology Division
Agricultural Services
Ministry of Agro Industry & Food Security
Réduit
Introduction
Pests and diseases cause significant losses in fruits in terms of quantity & quality. Homeowners who grow fruit in backyards observe that diseases and insect pests often destroy the entire crop and in some instances damage the tree itself. Fruits do not develop properly and drop prematurely. It is thus difficult to produce quality fruits for consumption.

Pests & diseases of fruit trees in Mauritius
Fruit production is regarded as an important activity locally. Besides fruit flies, there are other economically important pests and diseases that occur on fruit trees. In general, many potential pests are maintained below injury levels by action of natural enemies. However, there are certain pests which do not have natural biocontrol agents and, if left uncontrolled, may cause significant damage.

Aphids
They are small sap sucking insects. Feeding results in mottled leaves, yellowing, stunted growth, curled leaves, browning, wilting, low yields & death. The removal of sap results in lack of vigour in the plant, and aphid saliva causes toxicity.

Sooty mould
The disease is common in places where mealy bug & scale insect are not controlled efficiently. The disease is recognised by the presence of a black velvety coating, i.e., sooty mould on the leaf surface. In severe cases the trees turn completely black due to the presence of mould over the entire surface of twigs and leaves.

Algal rot (Cephaleuros mycoidea)
The disease can be easily recognised by the rusty-red spots mainly on leaves and sometimes on petioles and young twigs. Reduction in photosynthetic activity and defoliation as a result of algal attack lower vitality of the host plant.

Bacterial black spot
(Xanthomonas campestris pv. mangiferaeindica)
It can potentially be more damaging to flowers than anthracnose. Leaf lesions consist of black, raised, angular areas, restricted by the veins and frequently surrounded by a yellow margin. Damage by adverse environmental conditions such as wind can also create sites for infection. In young trees the disease can cause dieback of branches.
Mango leaf gall midge (*Procontarinia* spp.)
Midges are very small flies 1-3 mm in length. Mango leaf gall midge produces wart-like galls on leaves thereby reducing photosynthesis. With no control, leaf drop and a reduction in fruit production occurs. Younger trees may die while older trees fail to recover normal growth after repeated attacks. Mango leaf gall midge is spread by wind currents and movement of infested plant material.

**Mango gall midge on leaf (upper and under surface)**

Mango borer (*Batocera rufomaculata*)
This is a stem borer which attacks a number of fruit trees including mango, fig, jackfruit, fruit de cythère. It may also attack avocado, cashew nut and mulberry. The larva (grub) of this pest feeds inside the stem, making tunnels thereby resulting in drying of branches and in severe cases, death of tree. The adults can travel considerable distances and have good dispersal ability.

**Mango borer attack on tree**

**Adult insect**

Lepidopteran pest on *Annona* species.
The larva of this moth attacks fruits of *Annona* species like atemoya & custard apple. Attacked fruits do not develop properly and eventually become dark in colour.

**Lepidopteran pest attack on atemoya fruit**

**Litchi moth** (*Cryptophlebia peltastica*)
It is an important pest of litchi. The larva damages fruits by tunneling along the fruit skin into the fruit pulp to feed on the seed. Damaged and immature fruits drop to the ground.

**Early fruiting stage**

Termites
Termite infestation is a common problem. The termite is a social insect which lives in colonies. Various types of termites can cause lots of damage to trees & wooden structures. They make tunnels on the surface of the ground, on bark and build nests or mounds.

**Termite attack on litchi bark**

**Termite nest on tree**
**Broad mite (Polyphagotarsonemus latus)**

Broad mite is a serious pest of citrus, papaya and nursery plants in general. Broad mite attacks the growing point and the underside of young leaves causing hardening and distortion. It causes terminal leaves & flower buds to become cupped and distorted. Moreover, it can cause fruit scarring.

**Anthracnose**

Symptoms occur on leaves, twigs, petioles, flower clusters (panicles), and fruits. Lesions start as small, angular, brown to black spots on leaves that can enlarge to form extensive dead areas. The flowers die before fruits are produced, greatly reducing yield. Petioles, twigs, stems and fruits are also susceptible. They develop the typical black lesions.

**Mildews**

The characteristic symptom of the disease is the white superficial powdery fungal growth on leaves, stalks of panicles, flowers and young fruits. The affected flowers and fruits drop pre-maturely reducing the crop load or might even prevent fruit set. Rains or mists accompanied by cooler nights during flowering are congenial for the disease spread.

**Mealy bugs and scale insects**

These are plant suckers feeding on a wide range of plants species. They are capable of rapid population explosions. They injure plants by their feeding activities (sap withdrawal) and produce honey dew hence favouring the development of sooty mould. Many of them transmit disease pathogens. Signs of plant damage may include stunted plant growth, wilting, & crinkled leaves.