



Common Pests and Diseases for Passion Fruit

Pests and diseases are a challenge to passion fruit growers. They will reduce the quantity and quality of fruit yields - leading to low profits.

In this booklet, you will find the main pests and diseases affecting the Passion fruit crop including symptoms of attack and the control measures you can take.



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Diseases of Passion Fruit

Fusarium Wilt

Fusarium wilt is caused by a fungus that lives in the soil. The disease starts at the roots of the plant and stops water, nutrients, and minerals from moving up to the rest of the plant.

The disease spreads well in:

- Warm and wet weather.
- Sandy soils.

Symptoms

- The plant starts to wilt and dies.
- In young passion fruit, the shiny green leaves turn pale green in colour and the tips start to die.
- Older leaves turn yellow and drop, and then the plant wilts and dies.
- The roots and stems become dark

Survival and spread

- Fungi can survive in the soil for a long time.
- It is spread by farm tools like a jembe and by run-off or irrigation water.

Cultural Control

- **To prevent, plant grafted seedlings only:** yellow passion rootstock is resistant to fusarium wilt.
- When transplanting, ensure the graft union (point of joining the scion and stock) is 1ft (30cm) above the ground. This is to stop the wound coming in contact with soil and thereby avoiding infection.
- Sterilize potting material for nursery seedlings.



Fusarium Wilt on young and mature fruit vines



Tilling with a Jembe



Fruit with Brown spot

Brown spots

The disease starts out as tiny brown spots, which become big and brown at the center. The skin around the sick area becomes wrinkled and the fruits wither and die.

The disease spreads well in:

High temperature and wet weather.

It appears in fruits during the rainy season and disappears during the dry season.

Symptoms

Red or brown spots on the leaves and fruit.

- Affected leaves drop off the plant.
- In twigs, dark brown scars are elongated and vines may die.
- Slightly round red or brown spots occur on mature and growing fruits. They sink in and damage the inside of the fruit.

Survival and spread

- The disease survives in infected leaves, vines, fruits and in the soil.
- They are spread by wind, water, rain and sometimes by infected seedlings.

Control

- Prune and remove sick vines and leaves to open up the tree.
- Chemical control; apply the right fungicides to control and treat the disease.

Blight/ Die Back

This is a fungal disease affects purple passion fruit and causes root rot in yellow passion fruit.

The fungus can cause: “damping off” at the nursery; “root rot, wilt, and leaf blight” with mature plants.

The disease spreads well in:

- Cool and wet weather.
- Clay soils with poor drainage.

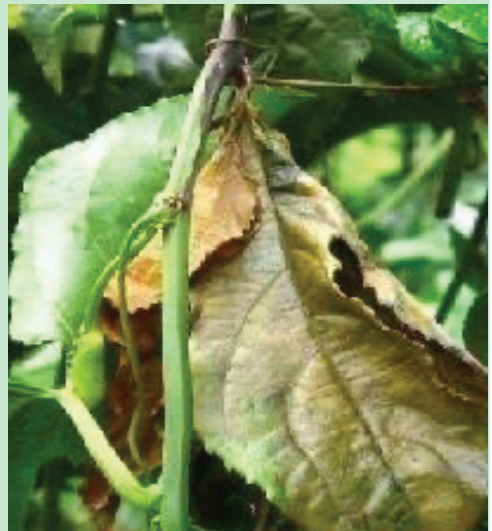
Symptoms

Leaves turn light-brown, look like they are wet and fall off the vine easily.

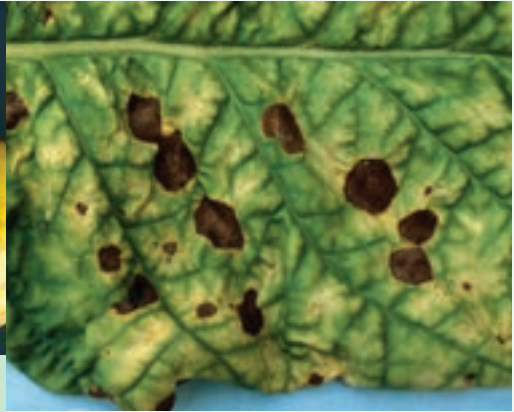
- Affected areas of the stem become purple and later turn brown.
- Fruits develop large, water-soaked areas and fall easily. When wet the fruit is covered by white growth.

Control

- Keep the field clean. Prune to avoid plants touching the ground and to allow free flow of air.
- Use the right fungicides to control and treat the disease.



Blight/die back on passion fruit. Photos:
P. Rheinländer



Alternaria alternata on Passion Fruit and leaf

Alternata Spot

Alternata spot is a fungal disease spread by rain drops, infected seeds, seedlings and cuttings/grafts.

The disease spreads well in:

- Long rainy periods and cold weather.
- The fungus stays and increases in infected plant parts and remains from a previous crop.

Symptoms

- Circular spots on the fruit are smaller than those of brown spot, with a brown centre and a green, greasy margin. Spots can join and form large lesions.
- At later stages, the spots become sunken and lighter brown in colour with a diameter of approximately 1 cm.
- On leaves, spots are generally up to 5 mm in diameter and often surrounded by a yellow halo.
- Similarly, to brown spot, infected leaves drop while infected fruit remain attached to the vine.
- Stems also become infected, usually next to leaf petioles, resulting in lesions but no stem girdling

Control

- Prune to remove affected areas and to open up the tree and improve air flow.
- Follow with an application of a protective fungicide, like Fosphite.

Anthracnose

A fungal disease caused by *Colletotrichum constrictum*. The disease spread in the vineyard is through raindrops, infected seeds, seedlings and cuttings/grafts.

The disease spreads well in:

- Long raining periods and average warm temperatures of 27°C
- The fungus survives and sporulates in infected tissues and crop residues

Symptoms

- On the edge of the leaf, spots, initially 2-3 mm in diameter and oily in appearance, are produced. They become dark brown, round or irregularly shaped and 1 cm in diameter. The centers of spots become brittle and may break apart.
- On the stems, dark brown spots, 4-6 mm in diameter, are produced which eventually turn into cankers. Severe lesions can cause the death of shoots and a partial blighting of the plant.
- Affected flowers abort, and immature fruit drop.
- On fruit, the spots are superficial and light brown and later become sunken and greyish to dark brown. They may be larger than 1 cm in diameter and may reach interior portions of the fruit.
- The fruit skin becomes papery and powdery fungi are formed on the sunken spots and on leaves.

Control

- Pruning to remove affected canes and leaves and to open up and improve ventilation of the canopy.
- Follow with an application of a protective fungicide.



Anthracnose on Passion Fruit



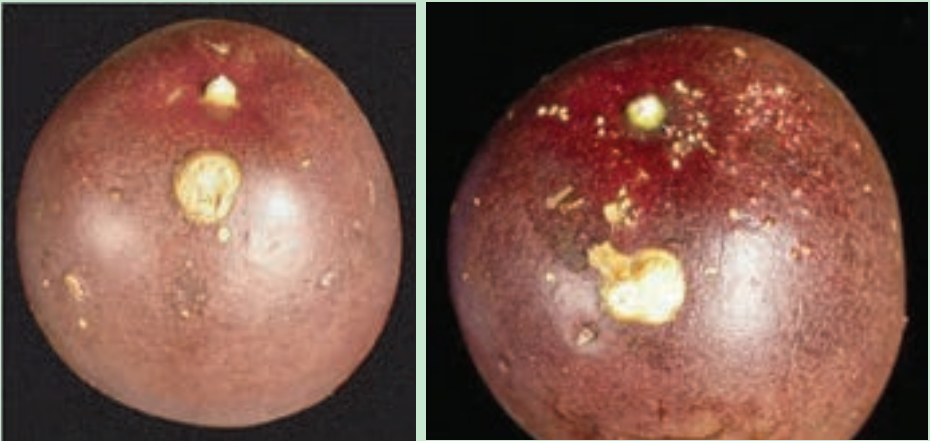
Anthracnose on Passion Fruit leaf

Scab

Scab is a fungal disease that does well in cool and wet weather. It is spread by wind and rains.

Symptoms:

- Round and rough marks on skin.
- The leaves are light brown and see through/clear.
- The spots leave holes on the leaf and sometimes leaves drop off.
- Spots on stems and tendrils are small and brown and may later develop into a canker.
- Severe disease can reduce the number of flower buds leading to reduced yields.



Cladosporium scab symptoms on fruit (Photos: P. Rheinländer)

Control

- Measures recommended for the control of fungal diseases such as brown spot and anthracnose can be used.
- Regular fungicide applications when infection conditions are favorable (rainy with temperatures of $<20^{\circ}\text{C}$)

Woodiness Virus

This is a viral disease caused by the Passion Fruit Woodiness Virus (PWV). The disease makes the fruit hard, spots appear on the leaves and stem.

The virus is spread by aphids and pruning tools that are not disinfected.

The disease spreads well in:

- In passion fruits that are grown close to beans, cabbage, kale, tomatoes, potatoes, and managu.
- Weeds on the farm that act as hosts to aphids.
- Bushes around the farm.
- Dry weather that favors a rise in aphid populations.

Symptoms

- Infected fruit becomes deformed and sometimes cracked, with a thick, hard, and woody skin.
- The juicy part of the fruit is reduced. You cannot sell the fruit when this happens.
- Leaves of infected vines become deformed, they roll up, become wrinkled and rough.
- Leaves have yellow spots.
- The plant has poor growth and will not live for long.
- Early and severe signs woodiness virus on passion fruit

Control

- Once vines become infected, there is no known control.
- To prevent, plant virus-free vines from a registered nursery.

If your passion fruit has the disease, the following farming practices are necessary:

- Immediately remove and replace infected vines.
- Disinfect cutting tools when pruning using bleach (jik).
- Spray to control aphids before they attack.
- Do not intercrop with plants open/ prone to aphid attack e.g beans
- Once the woodiness disease has attacked your passion fruits, there is no cure and it is best to remove them from the farm.



a) Insect injury marks



b) Yellowing leaves: low nutrient uptake



c) Mottling on young leaves



d) Deformed growth of stems

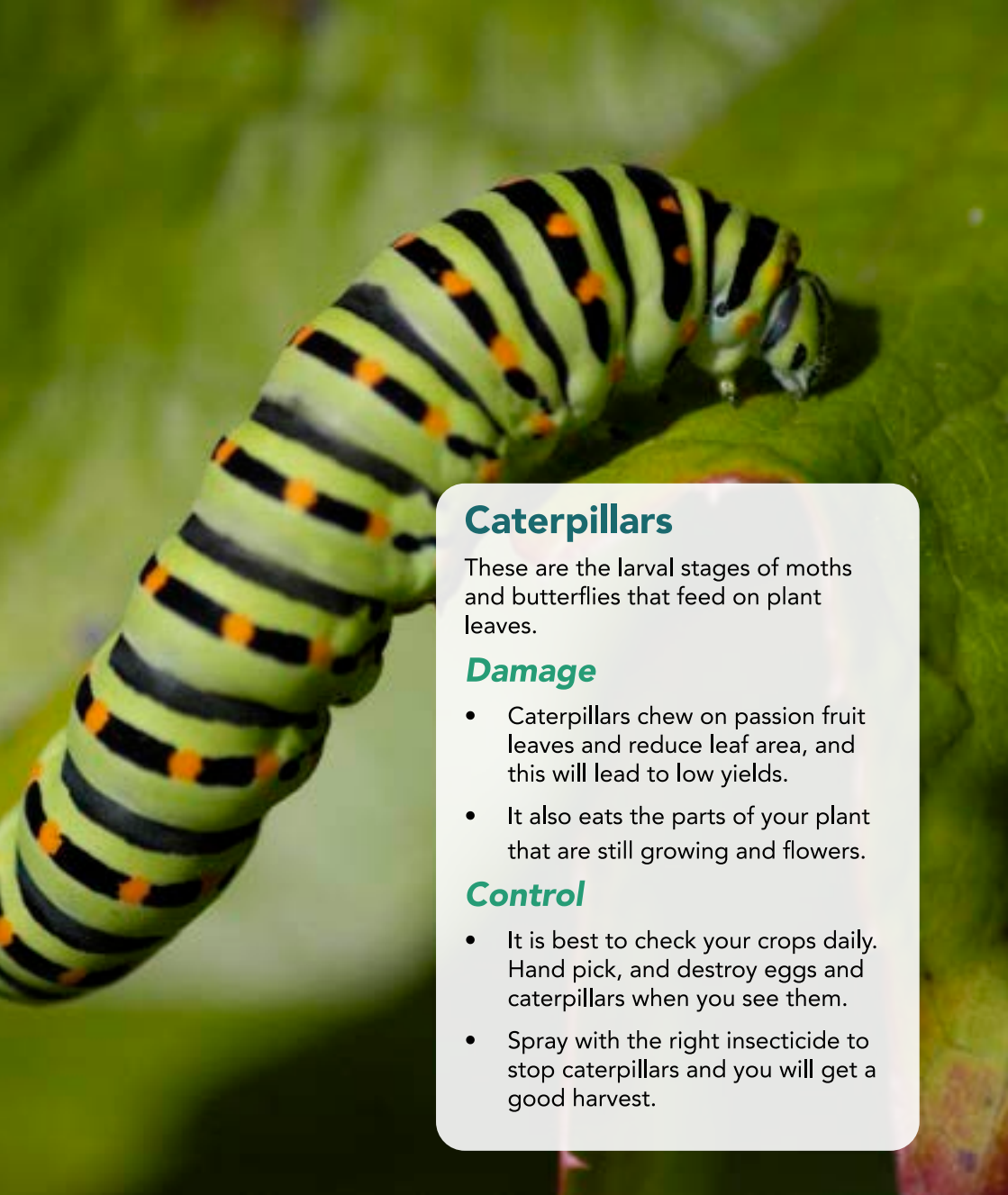


e) Severe mottling of leaves



f) Cracking of young fruit

Passion Fruit Pests



Caterpillars

These are the larval stages of moths and butterflies that feed on plant leaves.

Damage

- Caterpillars chew on passion fruit leaves and reduce leaf area, and this will lead to low yields.
- It also eats the parts of your plant that are still growing and flowers.

Control

- It is best to check your crops daily. Hand pick, and destroy eggs and caterpillars when you see them.
- Spray with the right insecticide to stop caterpillars and you will get a good harvest.

Mites

The Red spider mite comes out when there is little to no rain. The mites feed on many other crops, like citrus, coffee, cashew, papaya, and banana, among others.

Damage

- The plants become weak.
- The leaves turn yellow, become narrow, and easily drop off the tree.
- When they are many, leaves droop and the vines start to die from the tips.

- The fruits shrink and fall before they mature on the plant.
- Spider mites produce webs that cover the leaves.
- A high number of mites on the plant lead to flower drops.

Control

- Check for pests in the farm every day to know when they attack and control them immediately.
- Use several methods of pest control to stop mites. This may include removing weeds and using the right insecticides.



Aphids

They cause minor damage to the leaves but spread viral diseases between plants.

The **green aphid** mostly spreads the passion fruit woodiness disease and the common mosaic virus.

It is best to control it before it attacks your passion fruit.

Control

- Do not plant passion fruits near crops that host aphids e.g beans and kales
- Do not intercrop with crops that easily host aphids. This includes crops like pumpkins, and managu.
- Use the right insecticides as shown on the label to control aphids.
- Keep the farm weed-free. Weeds act as a home for pests.



Aphids on Passion Fruit



Effects of thrips on young passion fruit

Thrips

Thrips are small insects that feed on the underside of a plant's flowers and leaves. The flowers and the young growing part of the plant.

Symptoms

- Tiny scars or markings on the fruit.
- Leaves become pale yellow and may look deformed.
- Attacked flowers and young fruits fall before they mature.

Control

- Remove all plant remains and weeds during land preparation.
- Use the right pesticides. Use a sticker like AGRAL 90 when applying chemicals to help stick the chemical on the leaf for longer.
- Remove badly affected leaves and branches.

Mealy bugs

These are small, oval-shaped sucking insects found on old passion fruit vines. They like to stick together on the plant's leaf joints and under dead leaves or trash.

They suck plant sugars, and this leads to the growth of a black powder known as sooty mould on the fruits and leaves.

A severe attack causes leaves to drop and fruit to become deformed.

Control

- Remove old leaves to allow free flow of air, light and allow insecticide sprays to work well.
- You can use neem oil with insecticide sprays, especially in dry seasons.

Nematodes

Nematodes are small roundworms that live in the soil and feed on plant roots. They stop plant roots from taking up water and nutrients.

Symptoms

- Vines start to wilt even when soil water is enough.
- The leaves are fewer, small, and yellow. Flowers and fruits may drop.
- The roots are shortened or deformed.

Management

- Plan only nematode-free plants from a reliable nursery.
- Avoid planting passion fruit where nematodes may have been an issue in the past few years.
- Use the right nematicides like BIONEMATON every 3 months.





Termites

Termites are increasingly common in passion fruit plantations. They feed on roots and stems of 2-4 year-old passion fruit plants.

Hosts

- Termites enter the roots and continue upwards within the stems.
- The plant often dies.
- If the plant dies, it may tell you that there are other soil diseases that cause the rotting.

Control

- Dig areas that have termites to expose them to the sun. This will chase them away and some may die.
- After you dig the land, treat the soil with Hilban (2.5 milliliters per litre).
- Treat the soil when it is wet to allow the chemical to move freely through the soil.
- When the crop is growing, apply the chemicals from time to time.



Cicada scarring on passion fruit. (Fig: Photo: P. Rheinländer)

Cicadas

When these insects (crickets) land on the fruit, their legs scratch the fruit surface, creating marks lines.

The injuries can be entry points for diseases such as grease spots.

Control Measures

Cicadas are hard to control as they move into the vineyard from neighboring crops. They cause minimal damage and you do not need to spray with insecticides.

Frequently Asked Questions



► ***What is the first thing you should do when exposed to pesticides?***

If pesticide splashes on the skin, drench area with water and remove contaminated clothing. Wash skin and hair thoroughly with soap and water. Later, discard contaminated clothing or thoroughly wash it separately from other laundry

► ***What is the PHI in pesticides?***

PHI (Pre-harvest Interval), also known as the Waiting Period, is the minimum amount of time between the last application of a pesticide and when the crop can be harvested.

► ***What type of pesticides poison bees?***

Queenlessness has associated with the use of a wide variety of insecticides including arsenicals, Penncap-M, Sevin, and parathion. Typically, severe Sevin or Penncap-M poisoning makes at least half of the colonies queenless within 30 days.

► ***What are the common symptoms of bee poisoning?***

Excessive numbers of dead bees in front of hives. Lack of the usual numbers of foraging bees (if not weather-related). Bees in front of hives that appear disoriented and are unable to fly. Healthy hives may experience daily die-off of up to approximately 100 dead bees per day per hive. Avoid using these chemicals to avoid killing bees which are essential for pollination

► ***How do I find out what pesticides a local farmer has been spraying?***

It is advised that all professional users keep records for at least 3 years of all the pesticides they have used as well as the date.

You can ask the farmer about what pesticides they have been using. They will usually just tell you, although they do not currently need to by law.

Watch



Saturdays 1:30pm (English)

Sundays 1:30pm (Kiswahili)



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