

Cashew information kit

Reprint – information current in 1999



REPRINT INFORMATION – PLEASE READ!

For updated information please call 13 25 23 or visit the website www.deedi.qld.gov.au

This publication has been reprinted as a digital book without any changes to the content published in 1999. We advise readers to take particular note of the areas most likely to be out-of-date and so requiring further research:

- Chemical recommendations—check with an agronomist or Infopest www.infopest.qld.gov.au
- Financial information—costs and returns listed in this publication are out of date. Please contact an adviser or industry body to assist with identifying more current figures.
- Varieties—new varieties are likely to be available and some older varieties may no longer be recommended. Check with an agronomist, call the Business Information Centre on 13 25 23, visit our website www.deedi.qld.gov.au or contact the industry body.
- Contacts—many of the contact details may have changed and there could be several new contacts available. The industry organisation may be able to assist you to find the information or services you require.
- Organisation names—most government agencies referred to in this publication have had name changes. Contact the Business Information Centre on 13 25 23 or the industry organisation to find out the current name and contact details for these agencies.
- Additional information—many other sources of information are now available for each crop. Contact an agronomist, Business Information Centre on 13 25 23 or the industry organisation for other suggested reading.

Even with these limitations we believe this information kit provides important and valuable information for intending and existing growers.

This publication was last revised in 1999. The information is not current and the accuracy of the information cannot be guaranteed by the State of Queensland.

This information has been made available to assist users to identify issues involved in cashew production. This information is not to be used or relied upon by users for any purpose which may expose the user or any other person to loss or damage. Users should conduct their own inquiries and rely on their own independent professional advice.

While every care has been taken in preparing this publication, the State of Queensland accepts no responsibility for decisions or actions taken as a result of any data, information, statement or advice, expressed or implied, contained in this publication.



Queensland Government



Problem **SOLVER**

Every crop will inevitably have a problem or two. The key to dealing with problems is prompt identification, and where appropriate, prompt treatment. This section helps you with both of these decisions. The common problems are shown in a series of pictures grouped according to symptom. From the contents find the symptom that best fits your problem. On that page you will find pictures, causes and solutions for the problem.

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Spots or marks on leaves



Anthracnose

Cause. The fungus *Colletotrichum gloeosporioides*.

Solution. This disease may be a problem during wet weather, and new growth flushes are particularly susceptible. The fungal spores are produced on dead twigs, branches and leaves and spread by water splash. Keeping the canopy clean will help to control anthracnose. Apply strategically timed sprays with a protectant fungicide only if anthracnose is affecting a large percentage of the new flush. Check the *Problem solver handy guide* for an appropriate chemical.



Mosquito bug

Upper: Old mosquito bug damage on leaves. Lower: mosquito bug nymph and fresh feeding damage.

Cause. Feeding by nymphs and adults of *Helopeltis* spp. on new leaves. This is a sporadic seasonal pest which is considered a major pest of cashews in India, Africa and Australia.

Solution. Carefully inspect new leaf flushes for the presence of small dark spots, mainly along the midrib and veins of young leaves. Bugs are timid and hide or fly away if disturbed, but the feeding damage is clearly visible. If monitoring shows any fresh activity, spray with an appropriate chemical from the *Problem solver handy guide*.



Spray damage

Cause. Burning of tender plant tissues caused by a chemical application. However, symptoms may be present on old and young leaves.

Solution. Do not spray with chemicals that damage the cashew plant.

Spots or marks on leaves



Sand blasting

Inset: close-up of sand blasting.

Cause. Soil blown onto the lower leaves during machine harvesting.

Solution. Prune lower branches that could interfere with the harvester and exercise care when harvesting. This is a minor problem that is more severe where cashews are grown on very sandy soils.

Yellow leaves



Phosphorus deficiency

On young mature leaves (YML).

Cause. Deficiency of phosphorus in the soil.

Solution. Get a leaf analysis done to confirm the diagnosis and apply fertiliser as indicated by the analysis results.

Red/purple colouring in the young flush is normal on many varieties. These leaves will turn green as they mature.



Nitrogen deficiency

Nitrogen deficient seedling on the left. Symptoms appear as pale yellow, mature leaves.

Cause. Deficiency of nitrogen in the soil.

Solution. Get a leaf analysis done to confirm the diagnosis and apply fertiliser as indicated by the analysis results.

Yellow leaves



Zinc deficiency

Healthy leaf on the left compared with zinc deficient leaves. Symptoms appear firstly on young leaves but may be present on mature leaves after growth continues.

Cause. A deficiency of zinc in the soil. Zinc deficiency can be aggravated by high levels of phosphorus in some soils that hold zinc in a form that is not available to plants.

Solution. Get a leaf analysis done to confirm the diagnosis and apply a foliar spray if indicated by the analysis results.

Distinct yellow patterns on leaves



Potassium deficiency

Upper: Leaf with early stages of deficiency. Lower: A more advanced stage showing leaf burn. These symptoms appear on old leaves.

Cause. Deficiency of potassium in the soil.

Solution. Get a leaf analysis done to confirm the diagnosis and apply fertiliser as indicated by the analysis results.

Bronzed and speckled leaves



Red-banded thrips

The first sign of damage is a slight silverying of the internal mature leaves.

Cause. Feeding and egg-laying by the sap-sucking insect *Selenothrips rubrocinctus*. They prefer to feed on the underside of the leaves close to the midrib. Eggs are covered with a drop of fluid, which dries to a black speck, and excrement also leaves dark stains on the leaves. Damage to the underside of leaves is generally insignificant though the entire leaf surface may be affected.

Solution. Apply a full cover spray using an appropriate chemical from the *Problem solver handy guide*.

Chewed leaves



Mango shoot caterpillar

Cause. Feeding by larvae of the insect *Penicillaria jocosatrix* on young leaves. Damage is usually worst in summer.

Solution. Cover sprays in February and March using an appropriate chemical from the *Problem solver handy guide* may be required. Only spray if fresh damage is found.



Red-shouldered leaf beetle

Inset: close-up of *Monolepta australis*.

Cause. Feeding by the beetle *Monolepta australis*. Swarms of these beetles can severely damage the flowers, young leaves and young fruit of cashews. A tree can be totally stripped within hours of invasion by a swarm. Small numbers of beetles are not a concern but you should be alert for the possibility of swarms during spring and autumn.

Solution. Spray swarms with an appropriate chemical from the *Problem solver handy guide*.

Pink lumps on leaves



Pink wax scale

On older, mature leaves, leaves turn yellow and drab as the infestation advances. The damage progresses to the extremities of the canopy.

Cause. The insect *Ceroplastes rubens*.

Solution. Natural enemies are important in the control of pink wax scale and the insect is only a problem in areas where these parasites are not present. Several species of parasitic wasps lay their eggs in scales. Parasitised scales have a small hole at the top of the shell and are grey rather than reddish-pink inside. To spread parasites, collect parasitised scales from areas where they are common and hang them in mesh bags in the orchard.

Black mould on leaves



Sooty mould

Cause. A black fungus growing on the sap exudates of several sap-sucking insects including aphids and scales.

Solution. Spray to control aphids with an appropriate chemical from the *Problem solver handy guide*.

Silvery tracks on leaves



Leafminer

Cause. Tunnelling by larvae of *Acrocercops* spp. In young maturing leaves the leaf surface of mined areas becomes detached from the leaf, giving it the characteristic blistered appearance. Damage remains visible on old mature leaves.

Solution. Spray with an appropriate chemical from the *Problem solver handy guide* when damage is first observed.

New leaves rolled up



Leaf roller

Cause. Larvae of the insect *Anigraea ochrobasis*.

Solution. Caterpillars are protected by the rolled leaves and can be very hard to control, so early detection is critical. Check in the *Problem solver handy guide* for an appropriate chemical.

Insects on flowers



Mealy bug

Cause. Several species can affect cashews.

Solution. Make sure that the damage level is serious enough to warrant treatment. The pest is rarely serious enough to warrant specific control measures.



Aphids

Cause. The insect *Aphis gossypii* feeding on the new shoots.

Solution. This problem is rarely serious enough to warrant control. If it is a major problem spray with an appropriate chemical from the *Problem solver handy guide*.

Spots or marks on fruit



Fruit rots

Cause. Several fungus species can attack the ripening apple.

Solution. These diseases are mainly a problem during wet weather. Control of fungus diseases on fruit is not required.

Spots or marks on fruit



Damage on nuts



Damage on mature fruit



Damage on immature fruit



Fruit spotting bug nymph



Green vegetable



Passion vine bug

Four insect pests can cause spots or marks on fruit and it is difficult to distinguish between the symptoms caused by each pest. The bugs feed on young fruit and nuts by piercing the plant tissue and sucking on plant sap.

If monitoring shows any recent bug activity, spray with an appropriate chemical from the *Problem solver handy guide*.

Spots which appear at the feeding site can develop into a dark, sunken area causing distorted growth. The stings also allow rots to get into plant tissues, causing further damage to the plant and young fruit. Fruit may also fall off.

Fruit spotting bug

Cause. Feeding by adults and nymphs of the insects *Amblypelta lutescens* and *Amblypelta nitida*.

Solution. Regularly inspect young fruit and apply a full cover spray using an appropriate chemical from the *Problem solver handy guide* when fresh damage is seen. These insects are active and hard to find though the feeding damage is obvious.

Mosquito bug

Cause. Nymphs and adults of *Helopeltis* spp. feeding on young fruit, thumbnail size and smaller. This is a sporadic seasonal pest.

Solution. Regularly inspect newly set fruit for the presence of small black spots and also for the presence of the bugs. Bugs are timid and hide or fly away if disturbed, but the feeding damage is clearly visible.

Green vegetable bug

Cause. The insect *Nezara viridula*.

Solution. Regularly inspect newly set fruit for the presence of small black spots and also for the presence of the bugs.

Passion vine bug

Cause. Adults and nymphs of *Leptoglossus australis*. The bug uses its long, piercing mouthparts to sting developing leaves and fruits.

Solution. Regularly inspect newly set fruit for the presence of small black spots and also for the presence of the bugs.

Spots or marks on fruit



Spray damage

This damage was caused by a zinc application combined with an insecticide.

Cause. Burning of young plant tissues caused by a chemical application.

Solution. Do not spray with chemicals that can damage the cashew plant.

New shoots wilted and dying



Fruit spotting bug

Fruit spotting bug damage is seen as discrete spots.

Cause. Feeding by adults and nymphs of the insects *Amblypelta lutescens* and *Amblypelta nitida*.

Solution. Inspect young shoots regularly and apply a full cover spray using an appropriate chemical from the *Problem solver handy guide* when fresh damage is seen. These insects are active and hard to find, though the feeding damage is obvious.



Mosquito bug

The spots from feeding by mosquito bug are smaller than fruit spotting bug damage, which is more dense.

Cause. Feeding by nymphs and adults of *Helopeltis* spp. on fresh new shoots. This is a sporadic seasonal pest which is considered a major pest of cashews in India and Africa.

Solution. Carefully inspect young shoots for the presence of small black or water soaked spots on the stem and for wilting of new growth. Bugs are timid and hide or fly away if disturbed, but the feeding damage is clearly visible. If monitoring shows any new activity, spray with an appropriate chemical from the *Problem solver handy guide*.

Trees falling over



Termites

Cause. Feeding by various species of termites.

Solution. You can use baits to control termites in the Northern Territory and Western Australia. In Queensland, where no baits are registered, make sure that all stumps and roots have rotted before planting and destroy termite nests. Check if the problem species are a pest in the area you are going to plant before you plan the cashew orchard.



Planting technique/staking/pruning

Upper: young tree. Lower: mature tree showing resulting distorted growth.

Cause. Planting root-bound trees, planting the trees too shallow or not digging a big enough planting hole will contribute to young trees falling over.

Solution. Stake trees that are showing signs of leaning and prune young trees as described in Section 3 on *Managing young trees*.

