

Rockmelon and honeydew information kit

Reprint – information current in 1997



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 1997. We advise readers to take particular note of the areas most likely to be out-of-date and so requiring further research: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- Financial information—costs and returns listed in this publication are out of date.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 1997. 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 the production of rockmelon and honeydew. 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 these decisions. The common problems are shown in a series of pictures, grouped according to the main symptom. From the contents, find the symptom that best fits your problem. On that page you will find the causes and the solutions.

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Seedlings die



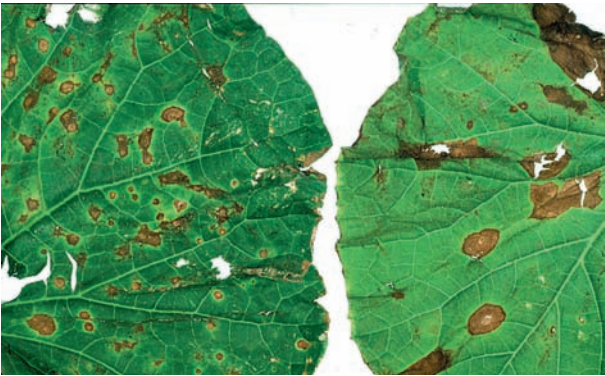
1. Damping-off

Left: in a seedling tray. Right: in the field.

Cause. Fungi, usually *Pythium* and *Rhizoctonia* species. Damping-off can kill young plants.

Solution. In the nursery use Ridomil 50G granules 2.5 g/10 L of potting mix to control *Pythium*. Keep seedlings at least 1 m above the soil to prevent contamination. Spray with an appropriate chemical from the *Problem solver handy guide*.

Spots or dead areas on leaves



2. Alternaria leaf spot

Left: small tan spots become large brown areas, right.

Cause. The fungus *Alternaria cucumerina*. This fungus can be seed-borne and can carry over on crop residue in the soil. It is spread by wind and is worse in warm wet weather.

Solution. Do not plant into soil containing residue of a previous cucurbit crop. Spray with an appropriate chemical from the *Problem solver handy guide*.



3. Angular leaf spot

Cause. The bacterium *Pseudomonas syringae* pv. *lachrymans*. This bacteria can be seed-borne and can carry over on crop residue in the soil. It is spread in wind-blown water droplets and is worse in warm, wet weather.

Solution. Do not plant into soil containing residue of a previous cucurbit crop. Spray with an appropriate chemical from the *Problem solver handy guide*.



4. Anthracnose

Cause. The fungus *Colletotrichum orbiculare*. This fungus can be seed-borne and can carry over on crop residue in the soil. It is spread in water droplets and is worse in warm, humid weather.

Solution. Do not plant into soil containing residue of a previous cucurbit crop. Grow resistant varieties. Spray with an appropriate chemical from the *Problem solver handy guide*.

Spots or dead areas on leaves



5. Bacterial spot

This photo shows infection of the margins on a pumpkin leaf.

Cause. The bacterium *Xanthomonas campestris* pv. *cucurbitae*. This bacteria is commonly seed-borne and can carry over on crop residue in the soil. It is spread in wind-blown water droplets, and is worse in cool wet weather. It is worse on honeydews.

Solution. Do not plant into soil containing residue of a previous cucurbit crop. Spray with an appropriate chemical from the *Problem solver handy guide*. Plant windbreaks in areas where bacterial spot is prevalent.



6. Downy mildew

Note the halo around the spots.

Cause. The fungus *Pseudoperonospora cubensis*. This fungus is spread by wind and needs drops of moisture to germinate. It is favoured by warm, moist weather.

Solution. Spray to fruit set with a protectant fungicide from the *Problem solver handy guide*. In wet weather and after fruit set, use a systemic fungicide from the *Problem solver handy guide*.



7. Gummy stem blight

Cause. The fungus *Didymella bryoniae*. This fungus can be seed and soil-borne. It is spread by wind and splashing water and is worse in warm wet weather. It is more common with the use of plastic mulch which creates a high humidity around the plant stem.

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



8. Herbicide damage

This damage was caused by metribuzin.

Cause. Either a residue of herbicide from a previous crop or a drift or over spray of a herbicide. Cucurbits are highly susceptible to herbicide damage.

Solution. Check the herbicide history of the block. Take extreme care when applying herbicides near cucurbits. Do not use spraying equipment that has been used for herbicide application.

Spots or dead areas on leaves



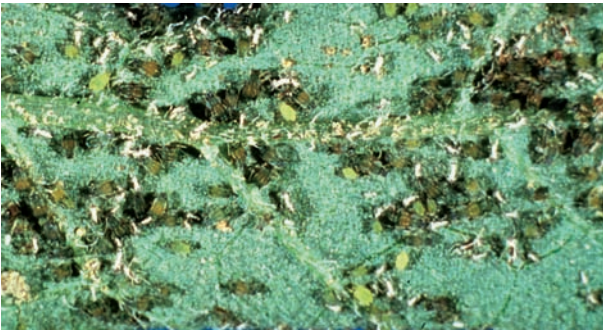
9. Wind damage

Note the brown areas on the leaf and leaf edges.

Cause. Wind drying out young tissue or rubbing leaves together. Usually much more severe on the windward side of rows.

Solution. Before planting, establish windbreaks, for example bana grass or strips of forage sorghum.

Misshapen leaves



10. Aphids

Cause. Aphids feeding on the underside of young leaves. Aphids spread mosaic viruses.

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



11. Hormone damage

Upper: affected new growth on pumpkins.

Lower: twisted rockmelon stems.

Cause. Hormone damage is usually the result of a drift of a chemical on to the plants; for example 2,4-D or 2,4,5-T, used to control weeds. These chemicals can drift several kilometres.

Solution. Do not use hormone-type herbicides near cucurbits. Tell your neighbours that you have a susceptible crop. Use a windbreak that will 'catch' the drift. Do not use spraying equipment that has been used for herbicide application.



Misshapen leaves



12. Mosaic virus

Upper: older leaves show less distortion. Note leaves of a healthy plant lower left.

Cause. There are four viruses that cause distortion and mosaic patterns in cucurbit leaves. Three are spread by aphids, which need only feed on an infected plant for 30 seconds to be able to infect a clean plant. The fourth virus is squash mosaic, see below. The viruses spread by aphids are:

- papaya ringspot virus-type W (PRSV-W), previously called watermelon mosaic virus-type 1;
- watermelon mosaic virus-type 2 (WMV-2);
- zucchini yellow mosaic virus (ZYMV).

Note. Mosaic virus can be confused with hormone damage.

Solution. Plough in old cucurbit crops as soon as the last pick is completed. Destroy any cucurbit weeds or volunteer plants. Do not plant so that new crops are near old crops if possible. Super reflective plastic mulch can delay infection.

Weekly sprays of a mineral oil, for example White oil plus an aphicide, will help reduce infection. This combination is more effective if used with super reflective plastic mulch.

Refer to Pest and disease management in Section 4, *Key issues*.

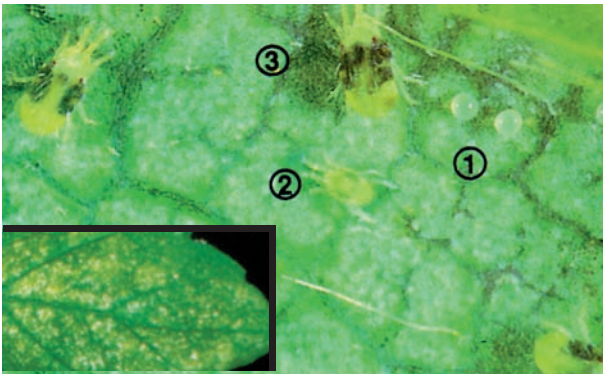
13. Squash mosaic virus

Note mottled appearance on an infected squash plant.

Cause. Squash mosaic virus. This virus is seed-borne and can also be spread by leaf-eating beetles, for example the 28-spotted ladybird.

Solution. Buy seed from reputable seed companies. Control leaf-eating beetles. Spray with an appropriate chemical from the *Problem solver handy guide*.

Mottled yellow leaves



14. Mites

Close up of 1 eggs, 2 nymph and 3 adult (about 0.5 mm). Can also be red-orange. Inset: leaf damage.

Cause. Spider mites, usually the two-spotted mite, *Tetranychus urticae*. Worse in hot, dry weather.

Solution. Spray with an appropriate chemical from the *Problem solver handy guide*. Consider using predatory mites instead of chemical controls.

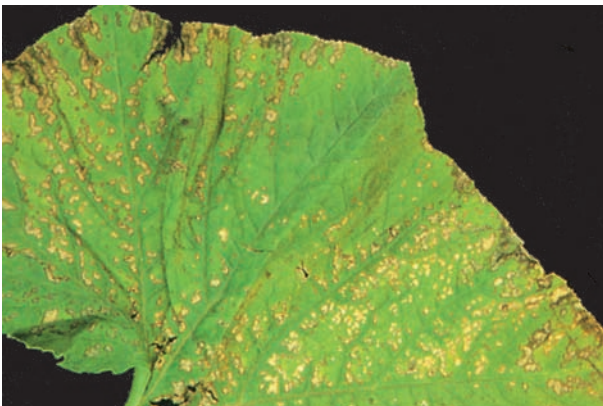


15. Nitrogen deficiency

Left: nitrogen deficient. Right: healthy plant.

Cause. Not enough nitrogen available to the plant. This may be because not enough nitrogen was applied or because heavy rain or too much irrigation has leached the nitrogen below the root zone.

Solution. Apply more nitrogen. Refer to the fertiliser recommendations in Section 3 *Growing the crop* and Section 4 *Key issues*.



16. Magnesium deficiency

Cause. Not enough magnesium available to the plant.

Solution. Inject 20 to 40 kg/ha of magnesium sulphate through the trickle system. Apply foliar sprays of magnesium sulphate at 1 kg/100 L of water. Have soil analysed six to eight weeks before planting and follow the recommendations. Before planting apply dolomite if the pH is low, or spray 150 to 200 kg/ha of magnesium sulphate onto the soil in at least 300 L of water per hectare.

White powder on leaves



17. Powdery mildew

Left: active mildew. Right: effect of old infection.

Cause. The fungus *Spaerotheca fulginea*. It is spread by wind and is worse in dry weather. Powdery mildew usually affects older leaves first and can kill them. It can quickly become resistant to systemic chemicals.

Solution. Use a spray program which combines both protectant and eradicant (systemic) chemicals. Refer to the strategy for controlling powdery mildew in Section 4 *Key issues*. Spray with an appropriate chemical from the *Problem solver handy guide*.

Many small white flies



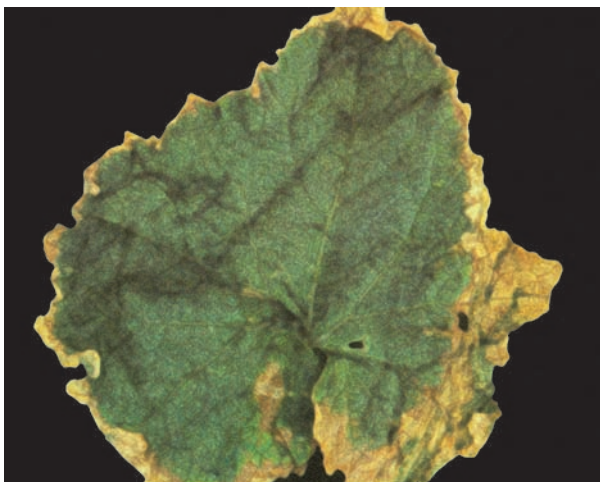
18. Silverleaf whitefly

Left: adult (0.8 – 1.2 mm). Right: nymphs (0.3 – 0.6 mm).

Cause. The sap sucking insect *Bemisia tabaci* biotype B. It was first recorded in Queensland in 1995. It feeds on the underside of the leaf of over 500 species of plants including cucurbits capsicums, tomatoes and eggfruit. The insect can transmit geminiviruses and excretes honeydew that becomes covered with black sooty mould.

Solution. Ensure all transplants are free of whitefly. Keep the farm weed-free and plough in the crop as soon as harvesting is completed. Plant new crops upwind of old crops. Whitefly quickly develop resistance to chemicals. Spray with an appropriate chemical from the *Problem solver handy guide*.

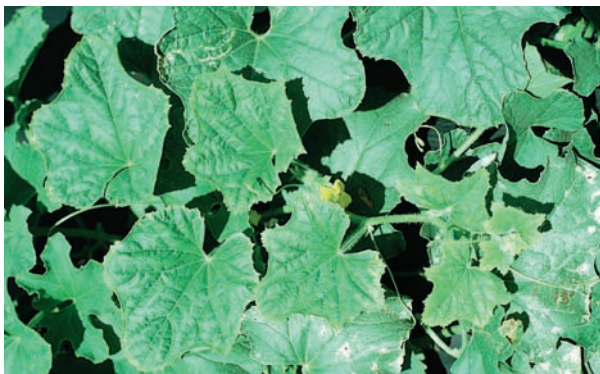
Dead leaf margins



19. Salt damage

Cause. Irrigation with water that is too salty or application of too much fertiliser.

Solution. Check the conductivity of your water supply. Water with a conductivity above 1500 microSiemens per centimetre ($\mu\text{S}/\text{cm}$) will reduce yields in overhead irrigated crops. Trickle and furrow irrigated crops can tolerate higher levels of salinity. Do not make heavy applications of nitrogenous fertiliser.



20. Molybdenum deficiency

Upper: shows mottled effect and dying leaf margins. Lower: close up of upturned leaf margins.

Cause. Not enough molybdenum available to the plant.

Solution. Spray at the four leaf stage and again at the early runner stage with 60 to 100 g of sodium molybdate plus 500 g of urea per 100 L of water, or use another source of molybdenum at the recommended rate.

