

Rockmelon and honeydew information kit

Reprint – information current in 1997



REPRINT INFORMATION – PLEASE READ!

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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 We advise readers to take particular note of the areas most likely to be out-of-date and so requiring further research: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- Financial information—costs and returns listed in this publication are out of date.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.

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Queensland Government



Common **QUESTIONS**

This section contains the most commonly asked questions about growing rockmelons and honeydews. The answers are as brief as possible. Where this is difficult and more detail is required, we refer you to other sections of the kit. Symbols on the left of the page will help you make these links.

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Varieties



Varieties
Section 4 page 8

What variety do I plant?

Almost all rockmelons and honeydews grown in Queensland are hybrid varieties. New varieties are frequently being introduced. The variety you choose depends on your planting time and whether you are growing melons in north, central or south Queensland. Because there are many varieties, planting times and growing areas we refer you to the variety selection table in Section 4 *Key issues*.

Planting

What are the plant spacings for the different varieties?

Plants are spaced 40 to 60 centimetres apart in rows 1.5 to 2 metres apart. A plant spacing of 1.5 m by 50 cm between plants gives you 13 330 plants per planted hectare. Plant spacing is generally similar for all the varieties, though large fruited varieties are sometimes planted closer together to reduce fruit size.

Should I use container grown transplants or direct seed?

Use container grown seedlings when field planting in cold weather or if you expect mice to take seed. For warm weather, planting seeds is adequate.

There is not much difference between container grown transplants or direct seeded plants except where sudden wilt is a problem. In that situation container grown seedlings sometimes do not produce as well as direct seeded plants.

Direct seeding is more subject to plant losses and often produces crops that set fruit over a longer period. A major advantage of container grown plants is a shorter production period in the field.



Transplants or direct
seed
Section 4 page 5

Bees and pollination

Can I plant melons next to pumpkins or other cucurbits?

Yes. Rockmelons can cross pollinate with other rockmelons and honeydews, but not with pumpkins or other cucurbits. Cross pollination will not affect the fruit you get.

Do I need bee hives in melon crops?

Bees are essential for pollinating melon crops. In small areas close to blocks of native trees introducing bee hives may not be



Pollination
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necessary, but check that bees are present and the crop is being pollinated. If the crop is not being pollinated you must introduce bee hives to get a good yield.

Bee management in the melon crop is very important. As a rule of thumb you need at least two hives per hectare. Introduce bees when 10% of the crop is in flower and keep them in the crop for about three weeks. This should ensure good pollination.

What pesticides can I use during flowering?

Do not use pesticides toxic to bees during flowering. The organophosphates are toxic to bees so use less toxic alternatives. Fungicides generally have low toxicity to bees. However, pyrazophos, an organophosphate fungicide used for powdery mildew control, is highly toxic to bees. The *Problem solver handy guide* shows the toxicity of registered chemicals to bees.

Careful management of pesticide schedules during flowering is most important. Carbaryl should not be used during flowering.

When should I spray?

Spray from late afternoon onwards when bees have left the crop. Rockmelon and honeydew flowers are only open for one day and pollination is usually complete by about midday.

Pests and diseases

How do I control cucumber moth?

Monitor the crop from early fruit set on to find out when cucumber moth is becoming a problem. Spray with an appropriate chemical from the *Problem solver handy guide*. Continue to monitor the crop to make sure the pesticide is effective.

How do I control Atherigona?

The only way to control Atherigona fly is frequent harvesting and making sure that all fruit are removed from the field. No pesticides are registered for its control. Atherigona is only a problem in export melons.

The Atherigona fly lays its eggs around the stem scar once the fruit have slipped, and in cracks on the fruit. There is no practical way of removing eggs from the fruit.

How can I control nematodes?

To control nematodes apply a registered nematicide before planting. Soil fumigants will also control nematodes. In badly affected areas a bare fallow for 12 months will greatly reduce numbers. Nematode control depends largely on crop rotation and improving levels of organic matter in the soil. This encour-

ages the build-up of antagonistic organisms which will reduce the number of nematodes which can affect your crop.

How do I control powdery mildew?

Use protectant fungicides until fruit set, then alternate a protectant fungicide with a systemic chemical, or mix a systemic with a protectant. Alternate between at least three groups of systemic fungicides for controlling powdery mildew to delay development of resistance to these chemicals. Only systemic fungicides are registered for use within seven days of harvest.

Spray with an appropriate chemical from the *Problem solver handy guide*. Plough old plantings in immediately after final harvest. Correct calibration of spray equipment, including nozzles, is essential.



Pest and disease
management
Section 4 page 30

How do I control downy mildew?

Use protectant fungicides through most of the crop cycle. If there is high disease pressure or wet weather, use a systemic chemical. Alternate between the two groups of systemic fungicides for controlling downy mildew to delay development of resistance to these chemicals.

Plough in old plantings immediately after final harvest. Spray with an appropriate chemical from the *Problem solver handy guide*. Correct calibration of spray equipment, including nozzles, is essential.



Pest and disease
management Section
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How can I control viruses?

Preventing viruses from getting into the crop is the most important means of control. Once a plant is infected with a virus there is no cure.

Until the vines grow over the plastic, super reflective mulch works very well in discouraging the aphids that carry the virus landing in the crop. Oil sprays, either alone or in combination with insecticides, can help. The oil reduces the aphid's ability to pick up the virus and to pass it on.

Insecticides used alone will prevent a build-up of aphids and can reduce the spread of virus in the crop. However they will not prevent the initial infection because the plant is infected as soon as the aphid feeds on it. It may take 30 minutes for the aphid to die after spraying, during which time it could have infected several plants.

Is virus carried in the seed?

Most viruses are not carried in the seed but there is a very small percentage of zucchini yellow mosaic virus that is seed-borne. Squash mosaic virus is carried in the seed.

Is virus carried in the soil?

No. A virus can be held in undecomposed plant residue but it is not a problem once the residues have dried and are not attractive to aphids.

Fertiliser

What fertiliser should I use?

The best way to manage fertilising is to do soil and leaf analyses so that you know what nutrients are in your soil and plants and what are missing. Follow the recommendations made from these analyses. The most important thing to remember about fertilising is not to use too much nitrogen, particularly after the early runner stage. Too much nitrogen will make plants very bushy but more importantly it will reduce the quality of your melons, causing split and soft fruit.

Do not apply nitrogen too late. Unless the crop is obviously deficient do not apply fertiliser after early fruit set, that is when the first fruit reach golf ball size.



Fertilising
Section 3 pages 14,
25, 28, 36

What fertiliser can I put through the trickle system?

Only soluble fertilisers, for example potassium nitrate and calcium nitrate, can be put through the trickle system. Several commercial soluble fertiliser mixes containing nitrogen, phosphorus and potassium can be used.

Irrigation

What is a good irrigation schedule for melons?

It is important to wet the soil profile at planting, particularly when using trickle irrigation with plastic mulch. Vines need moderate amounts of irrigation as they grow and spread over the mulch.

From flowering and early fruit set demand for water is high and the crop needs more frequent irrigation. Transpiration is very high, particularly during the peak flowering period. Plants must not be stressed during this stage, there should be no sign of wilting. Reduce water applications about a week before maturity. To improve the sugar content of the fruit, apply minimal amounts of water once harvesting starts.

Tensiometers are relatively cheap instruments that can be used to make irrigation scheduling much easier and more accurate. The Enviroscan can also be used.



Irrigation and water
management
Section 4 page 18



Tensiometers Sec-
tion 4 page 22

Harvesting

When should I harvest

If possible harvest early in the day before the fruit get warm. Honeydews should not be picked when wet, for example with dew, as they mark more easily if handled wet.

How do I know when my rockmelons are mature?

When mature the melons 'slip' cleanly from the vine, that is the stem pulls easily from the fruit without tearing. At the half slip stage, if pressure is put on the stem attachment to the fruit, it comes away cleanly half way through that attachment. At full slip, the fruit are mature, while at half slip maturity is acceptable. Rockmelons are usually harvested for market at the half slip stage.

How do I know when my honeydews are mature?

The skin surface of honeydews changes from white to a creamy colour for most white varieties, but some become a brighter white. The fruit are maturing when the skin becomes waxy, the blossom end becomes springy under moderate pressure, and the fuzz or hairs on the surface of the fruit are lost. The fruit may be mature before this but ripening has not begun. At this 'green mature' stage ethylene gas could be used to speed up ripening but is unnecessary in the latter stages of maturity.

Do melons ripen after they have been picked?

No. Melons do not get any sweeter or produce any more sugar after they have been picked.

What yields can I expect?

Yields vary considerably depending on variety, how well the plants are growing and how well they were pollinated.

For rockmelons an average yield is about 1800 trays per hectare. A tray holds between 12 and 18.5 kilograms of fruit. Honeydews usually yield a little higher than rockmelons, about 2000 trays per hectare. Yields range from 1000 to 2500 trays per hectare.

Fruit breakdown

What causes rockmelon fruit to break down?

The main causes of fruit breakdown are alternaria fruit rot, geotrichum fruit rot, gummy stem blight, rhizopus rot and fusarium fruit rot. Most of these breakdown rots can be controlled by treating the fruit in a fungicide mixture.



Postharvest treatment
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How often should I change the mixture for my rock-melon postharvest treatment?

One hundred litres of mixture will treat about 200 to 220 trays of fruit if the fruit were not washed before treatment. If the fruit were washed about 300 trays could be treated before renewing the mixture. Both dips and spray systems which recycle the chemical mixture are commonly used. In either case change the mixture if it becomes dirty. If the mixture is clean, the container can be topped-up using the registered rate of the chemicals.

What causes flesh breakdown in honeydews?

Honeydew flesh usually breaks down because the fruit are over mature. It is not common. Calcium deficiency can also cause internal breakdown.

Marketing

Do I need to cool the fruit?

Yes. Remove field heat from the fruit as soon as possible after picking. Refrigerate packed fruit as soon as possible after packing and hold them at 3 to 5°C for rockmelons and 7 to 10°C for honeydews.

What treatments are required for sending fruit interstate?

The treatments required vary from state to state. No treatments are required for melons going into Victoria or New South Wales, except for the Murrumbidgee Irrigation Area of New South Wales.

more info



Interstate requirements
Section 3 page 44

What are the requirements for exporting fruit to Asia and New Zealand?

Requirements vary. There are few restrictions into Asia but New Zealand has strict requirements. Produce for export must be grown and packed on properties or in premises that have been inspected and have a registered number.

more info



Contacts
Section 6 page 10

Australian Quarantine and Inspection Service (AQIS) officers supervise registration of establishments. Contact your local AQIS officer for the latest information on export requirements.



Section 5
Problem solver

Things that go wrong

What causes the brown dead areas on my melon leaves?

Brown dead areas on leaves can be caused by wind damage, downy mildew, powdery mildew, alternaria leaf spot, gummy stem blight, bacterial spot and angular leaf spot.

What causes my melon plants to wilt suddenly?

Sudden wilt is usually caused by the root rot disorder sudden wilt, the fungus gummy stem blight or by under watering.

Why do plants die soon after planting out?

Transplants usually die from damping-off fungi in the soil. It is more likely when there is undecomposed organic matter in the soil and is made worse by over watering. Losses may also be caused by cutworm or wireworm attacks.

What causes stunted plants, cupped pale leaves and brown edges?

Stunted plants, cupped pale leaves and brown edges are symptoms of molybdenum deficiency. Apply molybdenum as a foliar spray at the four leaf stage and three weeks after transplanting.

What causes yellow margins on leaves?

Yellow margins on leaves can be caused by boron deficiency. Foliar applications of boron as Solubor, at 200 grams per 100 litres of water applied at the four to five leaf stage, should correct this problem.

NOTE: Too much boron can be toxic and can kill plants. A sap analysis will detect boron deficiency.

What makes leaves go bronzed or mottled yellow with fine webbing under the leaf?

Spider mite damage, usually the two-spotted mite, produces these symptoms. The underside of the leaf will have webbing and small dark yellow-green mites with a couple of dark spots on their sides. Most of the mites are usually near the main veins.

What makes the veins between the netting on the fruit go brown?

Some varieties of rockmelons have smooth veins or sutures between the netting. These can turn brown. Browning usually only develops in hot weather and is believed to be caused by high intensities of ultra violet light.



Why haven't my vines set fruit?

Poor pollination because not enough bees were in the crop at flowering is the most common reason for vines not setting fruit. Conditions that stop bees working include windy, wet or overcast weather, and poor spray management.

If plants are too vigorous, for example too much nitrogen was used early in the crop, fruit set is generally poor.

What causes measles on honeydews?

Measles on honeydews are caused by guttation (sweat) droplets on the surface of fruit and sometimes on leaves and stems. The droplets contain concentrated salts which burn the skin of the fruit, causing the characteristic brown pimple or measles-like symptom.

A combination of over watering late in the crop and a lack of calcium available to the plant are believed to contribute to measles.

General

What is the best cover crop for melons?

For summer planting, forage sorghums are used in southern Queensland, and dolichos lab lab or forage sorghum are planted in north Queensland. Dolichos is susceptible to nematodes whereas the forage sorghums are not.

In cooler areas, use oats or barley during winter. For a long term cover crop use a grass/legume mixture.



Cover crops
Section 3 page 9

What area of melons can one person manage?

One person could manage the preharvest growing of about 10 ha of melons but extra labour would be needed for laying plastic mulch and trickle irrigation tape, planting and early weed control.

More labour is needed for harvesting and packing as it is important to harvest fruit and get them into the shed before they get hot. Four to eight people per hectare (eight to 16 working hours) are needed to harvest the crop early in the day.

Packing takes about the same amount of time.

Why are some rockmelons poorly netted?

Poor netting is often a symptom of forced ripening, that is fruit ripen prematurely. Forced ripening can occur because powdery mildew or some other disease has reduced the leaf area, or the plants may have been knocked around after a few harvests. The melons then ripen prematurely because there is insufficient leaf to complete the filling and proper ripening of the melon.

Melons set after plants are infected with mosaic virus are usually poorly netted. Poor netting is usually associated with poor flavour.

How long does it take from planting to first harvest?

Planting to first harvest for rockmelons and honeydews usually takes about 10 to 16 weeks. It varies considerably, depending on the time of year, variety, district, and whether the crop was planted as seed or container grown transplants.