

Managing cucurbits, including melons, pumpkins, cucumber, zucchini and button squash during wet weather

Inundation and water logging

Waterlogged soils are deficient in oxygen as the oxygen between soil particles is replaced by water. Oxygen is essential for healthy root growth and the lack of oxygen in soils over a period of time results in root and eventually plant death.

As flood damaged crops may have extensive root death, irrigation timing is vital to recovery and to avoid ongoing plant stress.

Cucurbit crops, particularly those with edible skin such as zucchini and button squash that have been flooded with off-farm water and may be contaminated should be treated with appropriate postharvest sanitiser treatments or destroyed.

After heavy rain or inundation there is an increased risk of post-harvest fruit rots. A postharvest sanitiser or fungicidal treatment should be applied to reduce the risk of breakdown.

Pollination

Wet, overcast, windy weather is not favourable for bees, so fewer flowers will be properly pollinated.

Unpollinated fruit will most likely yellow, wither and fall off while immature.

Zucchini and button squash will have misshapen or deformed fruit. Consider bringing in bee hives to aid pollination if the crop is still flowering.

Pest and disease control

Management of any disease during wet weather is going to be very difficult, especially if the grower is unable to get access to the crop. If a fungicide can be applied, there is the increased risk that subsequent rain events will wash the product off the plant especially if it is only a protectant.

Not all fungicides will have a systemic action so take care when selecting a fungicide.

Crop hygiene is important to reduce or prevent disease spread. Physical contact of equipment and people can transfer diseases through a crop, particularly bacterial and fungal leaf diseases.

Risk of transfer of bacteria is greater if the crop is wet. Similarly, transfer of soilborne diseases will occur in mud attached to equipment or shoes. To reduce these risks, ensure equipment is cleaned if moving between an affected crop and other crops or properties. Removal and destruction of old crops prevents build-up of disease inoculum thus helping to protect subsequent crops.

Movement of surface water across blocks, farms or districts increases the risk of movement of soilborne diseases (e.g. Fusarium). If you know of previously affected areas on your property, be aware that any areas downstream may now also be affected. If you are direct seeding, damp or waterlogged areas will be more prone to damping off diseases such as pythium and rhizoctonia. If

possible avoid these areas or wait until they are drier.

Extended wet weather conditions in Queensland regions that produce cucurbits are highly favourable for infection and disease spread. If these conditions continue further infections and spread is likely. Therefore it is important to get a curative spray on affected plants as soon as possible.

If you have affected plants, do not wait for disease symptoms to appear on your remaining plants. Instead, apply a protectant spray as a precaution as soon as possible. Good spray coverage when applying a protectant (e.g. copper) is needed for effective control. A spray-tank adjuvant will help with this. Your local chemical supplier or contacts listed at the end of this note may assist you in chemical selection.

Common cucurbit diseases that need to be managed are:

- Downy mildew
- Gummy stem blight/Fruit etch
- Bacterial leaf spot
- Soft rot
- Bacterial fruit blotch
- Fungal leaf spots
- White mould/nest
- Damping-off

Current registered products and permits are available at www.apvma.gov.au or by contacting your local chemical reseller or key contact at the end of this note.

Copper sprays are the only products registered for control of bacterial diseases.

Monitor for pests and apply chemicals to control them as necessary. Fruit fly may be more active in moist, humid conditions.

Always read the label before applying a chemical. When spraying crops close to harvest remember to maintain the correct withholding period.

Fertiliser replacement

Intense rainfall and flooding most likely results in nutrient leaching from the soil, especially nitrogen. While replacement of removed fertiliser is important, gradual replacement of fertilisers is critical for recovery of a healthy root system without causing further root damage. Therefore small but frequent applications are best. Adjustment to planned fertiliser rates is made by typically raising rates by 20% above normal to account for leaching.

Postharvest storage of cucurbits

Road and market closures due to weather conditions may result in a delay of getting harvested crops to markets. Cucurbits can have an extended storage life if stored at the correct temperatures and humidity.

Optimum storage conditions for zucchinis, button squash and cucumbers are 7°C and 95% relative humidity in an ethylene free atmosphere.

Rockmelons and honeydew require similar conditions but can be cooled further down to 5°C.

Watermelons and pumpkins can be transported in bulk bins without refrigeration.

Future planning

If rainfall and flooding has resulted in a planting delay, inform relevant supply chain partners, such as seedling nursery and wholesalers. It may also be important to check that new planting times suit your selected varieties.

With a forecast of continued wet weather it is advisable to plant varieties with superior disease resistance if available.

If ratooning trickle and plastic mulched beds, consideration needs to be given to herbicide residues on the plastic mulch if the previous crop is sprayed out. Consider a soil test of the beds to aid in developing a crop nutritional plan (especially pH management) and drenching of young seedlings soon after transplanting to reduce the risk of damping off.

More information

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For essential information on important diseases affecting fruit crops grown across Australia, pick up a copy of Diseases of fruit crops in Australia, available for purchase from CSIRO at www.publish.csiro.au

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