

Managing lettuce and brassica fields during wet weather

Inundation and waterlogging

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 cells, 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. Apply small amounts often until the root system is functioning properly. When possible cultivate between the rows to break surface sealing and improve soil aeration.

Leafy vegetable crops that have been flooded with off-farm water and maybe contaminated should be treated with appropriate post-harvest sanitiser treatments or destroyed.

Heavy rain or flood water inundation will increase the risk of breakdown of lettuce and brassica vegetables, before and after harvest. Apply a postharvest treatment to reduce the risk of breakdown.

Disease control

Correct identification of diseases prior to implementing management strategies will reduce the chance of unnecessary costly chemical usage.

Common diseases of brassica crops are:

- Black rot
- Head and soft rots
- Alternaria spot
- Black leg
- White blister

Common diseases of lettuce crops are:

- Bacterial leaf spot
- Varnish spot
- Soft rot
- Downy mildew
- Grey mould
- Lettuce drop
- Septoria spot

Always read the label before applying chemicals. 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.

Management of pests and diseases during wet weather is very difficult, and protective applications to

younger crop stages are particularly important. Do not wait for disease symptoms to appear, monitor for pests.

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 water soaked 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 brassica and leafy vegetable are highly favourable for infection and disease spread. As these conditions continue further infections and spread is likely. Therefore it is important to get a curative spray as well as a protectant spray on as soon as possible. Do not wait for disease symptoms to appear.

An appropriate wetting agent may improve rain fastness and maximise product effectiveness. Your local chemical supplier or contacts listed at the end of this note may assist you in chemical selection.

Copper sprays are the only products registered for control of bacterial diseases such as black rot of brassicas and bacterial leaf spot in lettuce. These diseases are particularly common after intense rain. While waiting for a spraying opportunity it is important to talk to your chemical suppliers regarding product availability.

Fertiliser replacement

Intense rainfall and flooding will most likely result in nutrient leaching from the plant root zone, especially nitrogen. While replacement of leached fertiliser is important, gradual replacement is critical to rebuilding a healthy root system without causing further root damage.

Small but frequent applications are best for recovering plants. Adjustment to planned fertiliser rates is made by typically raising rates by 20% above normal to account for leaching.

Postharvest storage

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

Optimum storage conditions for lettuce and broccoli are 0oC and 95% relative humidity in an ethylene free atmosphere. Rapid, high humidity forced-air cooling is recommended to attain these conditions as soon as possible after harvest.

Cauliflower require similar conditions but can be stored at 0oC to 2oC.

Cabbage do not require rapid pre-cooling but storage conditions similar to cauliflower is recommended.

Future planning

If rainfall and flooding has resulted in delay of planting it is important to inform seedling supplier and wholesalers. Check that your new planting times suit your selected varieties.

More information

Peter Rigden

Development Horticulturist

Agri-Science Queensland

Department of Agriculture and Fisheries

Ph: 13 25 23 or visit www.daf.qld.gov.au

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

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