

# DPI Primefact

## Managing floodwater associated food safety risks in melon production and postharvest handling

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Floodwater is known to be a carrier of biological, chemical and physical hazards that affect food safety during the production and processing of fresh horticultural produce. Run-off from livestock, industrial, residential and sewage treatment areas into waterways and their overflow can contaminate water sources, production fields and postharvest processing facilities (Singh, 2023).

Flooding involves large run-off and/or overflow from surface water sources such as rivers, creeks, lakes and dams, which enters production fields and postharvest facilities. Floodwater can carry physical (e.g. wood, metal and glass), chemical (e.g. chemical residues, heavy metals and toxins) and biological (e.g. bacteria, viruses and parasites) hazards and transfer them into water sources, production fields, processing facilities and on to fresh produce (Figure 1).

### Risk management options

Growers and packers affected by floodwaters are advised to reassess food safety risks associated with producing and postharvest handling of melons. Consider the following factors in risk assessment and management:

- The melon farm's location with respect to floodwater catchment is crucial. If the farm is close to livestock operations, residential, and industrial zones, the food safety risk is high. Run-off from overflowing rivers and creeks can introduce significant food safety hazards from upstream catchment zones. Determine the risk level based on floodwater catchment and neighbouring land use.
- Clearly identify and mark flood-affected zones on the farm to restrict potential transfer of microbial pathogens and produce from the affected zone to the clean zone. Segregate flood-affected crops from non-affected crops with a 10 m buffer zone to prevent cross-contamination between flooded and non-flooded fields.
- **Ready-to-harvest melons that have come in direct contact with floodwater are considered adulterated and cannot be sold for human or animal consumption.**
- For melon crops exposed to a lesser degree, conduct a thorough risk assessment considering factors such as floodwater hazards, type and stage of crop growth, degree and duration of crop exposure to floodwater, and related conditions. Assess the likelihood for crops to absorb or internalise potential contaminants.
- **Conduct microbiological testing for faecal indicators and foodborne microbial pathogens on immature melons, soils, and water samples. Growers can contact the NSW DPI's Safe Melons team for further advice on sampling and risk assessment.**

- Clean and sanitise harvest and postharvest equipment to minimise the risk of microbial contamination and cross-contamination.
- For rockmelons and honeydews, increase sanitiser concentrations in wash water to compensate for additional microbial load expected due to wet weather. Watermelon growers opting to wash fruit during wet conditions are also advised to use increased sanitiser levels.
- Flood-affected fields should not be replanted for at least 30–60 days after floodwater recedes. This waiting period is based on known die-off rates of pathogens and factors such as weather conditions and soil type. Replanting with crops that have edible parts growing away from the soil and are likely to be consumed after cooking or processing is more suitable.
- Conduct thorough risk assessments of flood-prone areas and implement appropriate mitigation strategies. Improving water and flood management systems, including proper drainage and irrigation practices, is critical.
- Enhance hygiene practices during harvesting, processing, and transporting fresh produce, coupled with regular testing and monitoring of water sources used in preharvest and postharvest operations, are practical management options.

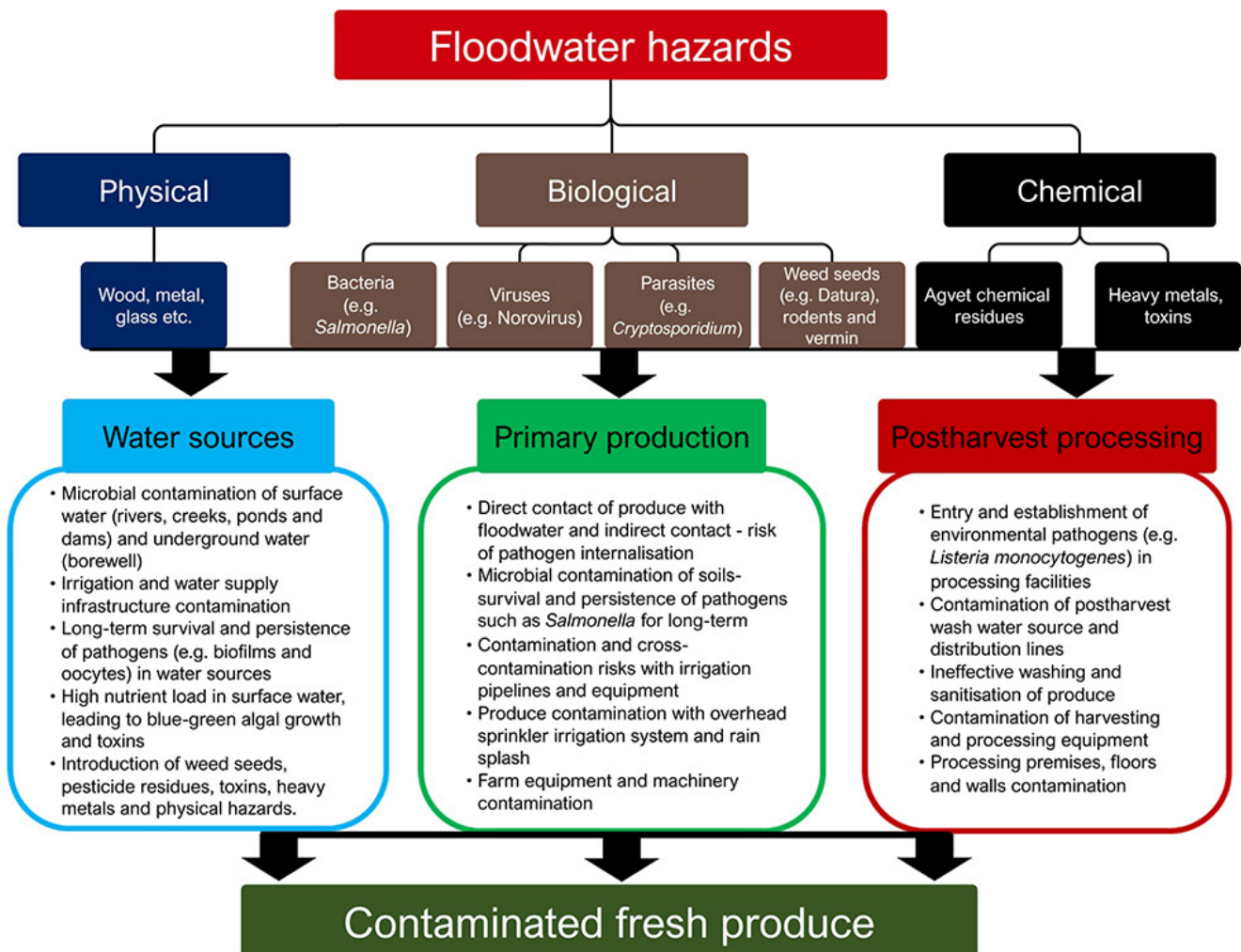


Figure 1. Floodwater as a source and route of microbial contamination in fresh horticultural produce adjacent to livestock, industrial and residential areas. Source: Singh (2023).

For further information, please contact Dr SP Singh, 0420 593 129 [sp.singh@dpi.nsw.gov.au](mailto:sp.singh@dpi.nsw.gov.au)

## Reference

Singh SP (2023) Flooding adversely affects fresh produce safety. *Microbiology Australia*, 44(4), 185–189.  
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