

*After a fire has passed through your area or property you may find burnt material, ash and soil from paddocks in water sources used by your livestock. Once in the water these materials promote the growth of bacteria and algae. These organisms then rapidly multiply, using up the oxygen in the water and causing the water source to become poor in quality.*

## WATER QUALITY FOR LIVESTOCK

Water of poor quality in dams (or other water sources) is unpalatable to livestock. Symptoms of a poor-quality water source may include dark water, a bad smell and black scum around the dam's edge. Thick scum around the water's edge may also prevent animals accessing the water. Animal carcasses in dams will increase the risk of botulism and should be removed immediately.

Aeration, clarification and/or chlorination will resolve most water quality issues resulting from burnt material entering dams.

- Aerating water from a stagnant dam is the first step in improving water quality for livestock. Aeration can be done by pumping to a tank and reticulating it to a trough. If aerated water is returned directly to the dam, the organisms growing on the organic matter will quickly remove all the air again.
- Clarification, the removal of suspended solids and solid particles, can be achieved by adding a flocculent (such as aluminium sulfate or ultrafine gypsum) which causes suspended particles to form into bigger particles and settle out, thereby clarifying the water. Whilst a flocculent can be added to a dam or a tank, much less flocculant is needed when treating water in a tank as there will be less suspended material to treat. Clarifying water will also reduce the amount of chlorine needed to treat the water. Filtering water on its way to a tank will also remove suspended matter, providing clarification.
- Chlorination will destroy remaining bacteria and ensure water is safe for stock to drink again.

## AFTER A BUSHFIRE

- Provide troughs where possible instead of relying on creeks and dams – they are easier to monitor and clean. Reducing the distance stock need to travel to water can improve their ability to cope in these difficult conditions (make sure that troughs are of a height that all classes of livestock can access)
- Monitor water temperature – stock will not drink hot water
- Monitor turbidity – stock will not want to drink dirty water
- Remember to watch water sources and dams for the carcasses of dead animals – prompt removal of carrion decreases the risk of botulism

Pumping water into a tank, treating that water and then reticulating it to troughs is ideal as this provides the aeration component and water in tanks won't be impacted when the next rain event brings more ash and debris from the fire-ground into the dam (requiring you to start the process again).

When pumping to troughs, dams and pumping equipment should be monitored regularly to ensure the dam has sufficient water and equipment is in good working order. Livestock will not drink dirty water. Troughs should be cleaned regularly and be of a height suitable to the stock using them. Check temperatures within the troughs on hot days as livestock will avoid hot water.

If ash and other soil material enters a dam it will eventually settle by itself and can be removed with an excavator. However, it is best to intercept this material upslope of your dam or within the surrounding catchment if possible.

While bushfire debris remains in the environment, fencing on the windward side of the dam using closely woven material (such as hessian or silt mesh) can trap wind-blown material before it reaches the water. Sediment traps can also be used to filter out ash and debris in upstream creeks and gullies that flow into a dam when it rains. These can be made using small rock mounds or wooden pickets lined with a permeable fabric, coir logs or hay bales on their upstream face that allow the water to filter through before entering the dam.

Tips on how to prevent organic pollution entering your dam can be found here: <http://agriculture.vic.gov.au/about-us/media-releases/prevent-organic-pollution-in-farm-dams>

There are a number of other ways to improve water quality for livestock at your property:

- Provide troughs, instead of relying on creeks and dams. Reducing the distance stock need to travel to water can also improve their ability to cope in these difficult conditions.
- Fence off dams and restrict or exclude livestock from accessing them, and pump water instead. This protects dam walls, avoids silting up of dam inlets and overflows, and stops livestock from churning up, and muddying their drinking water.
- Restrict access to creeks, which protects the watercourse and the stream banks.
- Ensure paddocks have good groundcover at all times. Groundcover acts as a filter and disperses the water as it approaches creeks and dams or enters the groundwater supply.
- Consider planting shelterbelts to help disperse and absorb excess water.

While thinking about water quality, also give some thought to the amount of water you have available for livestock. The table below provides a guide to how much water is needed per day (note that the consumption level is at the upper end on hot days).

Table 1: Water requirements – litres/animal/day

Livestock type	Water consumption (grazing grassland; litres/head/day)*
Adult dry sheep	2-6
Ewes with lambs	4-10
Sheep weaners	2-4
Dry cattle (400kg)	35-80
Lactating cattle	80 -100
Cattle weaners	25-50
Horses	40-50

*\*When calculating, allow for evaporation, consumption by native and feral animals, and other farm water requirements. There is a higher water requirement if grazing vegetation such as saltbush (not included in this table).*

## Water quality

Water supplied to stock should be low in salt, organic matter, suspended clay and free of other toxic substances such as blue-green algae, heavy metals and chemical residues.

If there is any question regarding its suitability, a sample should be collected from the water source and sent to an appropriate water testing laboratory for analysis.

## Resources

More information on organic pollution of farm dams can be accessed at: <http://agriculture.vic.gov.au/agriculture/farm-management/managing-dams/organic-pollution-in-farm-dams>.

If you are concerned about stock water quality, you may need to have your water tested:

<http://agriculture.vic.gov.au/agriculture/farm-management/soil-and-water/water/farm-water-solutions/how-much-water-does-my-farm-need/water-quality-testing-contacts>

Maintaining farm water quality and protecting surface catchment once the fire has passed:

<http://agriculture.vic.gov.au/agriculture/emergencies/recovery/farm-and-land-recovery-after-bushfire>

If your stock water looks or smells unusual, you should investigate alternative water sources or agistment.

For measures of acceptable water quality see:

<http://agriculture.vic.gov.au/agriculture/farm-management/managing-dams/water-quality-for-farm-water-supplies>

If you have limited water access and need assistance developing a water budget (i.e. how much water do my stock need?):

<http://agriculture.vic.gov.au/agriculture/emergencies/recovery/livestock-after-an-emergency>

If you have stock in a containment area in the aftermath of the fire, please see the following important information about water supply: <http://agriculture.vic.gov.au/agriculture/farm-management/managing-dams/water-supply-for-stock-containment-areas>

## More information

For more information on agriculture recovery, please contact Agriculture Victoria on 136 186 or visit: [agriculture.vic.gov.au/agriculture/emergencies/recovery](http://agriculture.vic.gov.au/agriculture/emergencies/recovery).

## Acknowledgement

Content courtesy NSW DPI.

Agriculture Victoria wishes to acknowledge that information from the NSW DPI note, *Stock water impacted by bushfire ash and debris*, has been used in this document.

[https://www.lls.nsw.gov.au/\\_data/assets/pdf\\_file/0011/1195283/Fact-sheet-Bushfire-ash.pdf](https://www.lls.nsw.gov.au/_data/assets/pdf_file/0011/1195283/Fact-sheet-Bushfire-ash.pdf)

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