

Stock water impacted by bushfire ash and debris



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 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 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** 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.

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 (causing 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.

NSW DPI have a Primefact on Farm water quality and treatment (March 2014, Primefact 1337) which provides further detail on how to apply these techniques at your property.



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 - removal of carrion decreases the risk of botulism

Water requirements of livestock



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. Whilst 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.

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 ground cover 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, it's at the high end on hot days).

Stock Type	Consumption (L) per head per day
Sheep Weaners	2-4
Adult dry sheep	2-6
Lactating ewe	4-10
Young cattle	25-50
Dry cattle (400kg)	35-80
Lactating cow	80-100
Horses	40-50

NSW DPI offers a water testing service to determine the water suitability for agricultural and domestic purposes (water is not tested for suitability for human drinking purposes).

Local Land Services can assist your to access this service and encourages stock owners to take advantage of this. Contact your local office, where staff will be able to talk you through the process and help you understand test results.

The same process causing stagnation to your farm dams also impacts rivers and creeks, if you notice any fish death in waterways near you please report this to the Fishers Watch Phonenumber on 1800 043 53.

NSW DPI have several related useful Primefacts:

- Farm water quality and treatment. Primefact 1337, March 2014
- Stock water a limited resource. Primefact 269, February 2019
- Blue-green algae poisoning of livestock. Primefact 1046, March 2016
- Water for livestock: interpreting water quality tests. Primefact 33, April 2014