Blue-green algae: options for livestock drinking water

It is likely that blue-green algae (BGA) incidents will become more common as a result of climate change and current land management practices. It is imperative that livestock owners are prepared and have access to alternate water supplies for their livestock in the event of BGA contamination of their primary water supply.

# LIVESTOCK OWNERS must BE PREPARED

## Lessons learnt from the summer of 2016

During the summer of 2016, the Murray River, initially upstream of the Yarrawonga Weir, was affected by high levels of blue-green algae. This algal bloom extended until it contaminated virtually the entire length of the Murray River, and persisted for an unprecedented period of time for Victoria. BGA alerts were not lifted until the winter of 2016.

During this period, many farmers were forced to supply livestock with BGA contaminated drinking water, as they had no available alternate water supply. Fortunately, the algal bloom in 2016 was not toxic, and no stock deaths were directly attributed to BGA toxicity during this incident.

It is imperative, given the likelihood that the frequency of algal blooms may increase, that all livestock owners have access to an alternate water supply if their primary water supply becomes contaminated with a toxic algal bloom.

## Livestock should not drink BGA affected water

BGA contaminated water can cause deaths in livestock very quickly. Not all blooms are **toxic** but they should be **treated as toxic** until the water has been **tested.** Alternative drinking water supplies should be provided if BGA contamination of water supplies is suspected.

Death may occur suddenly, and a number of livestock may be affected. Apparently unaffected or recovered animals may continue to die over a number of months. Productivity losses may occur with milder cases of algal poisoning, which in dairy cattle may be seen as a loss of appetite and consequent decline in milk yield.

Algal blooms can appear very quickly. Livestock owners need to identify an alternate water supply prior to their primary source of livestock drinking water being affected by a bloom. There may not be time to identify an alternate water source once the primary water supply is affected.

## Options for alternate water supplies

Algal blooms may be large scale and affect many livestock owners, as seen in 2016, or may occur in individual farm dams. Either scenario requires removal of livestock from the affected water supply until it is deemed safe. Options to ensure livestock have access to safe water include to:

* calculate how much water livestock will require if the primary water supply is not available for up to 100 days (see Table 1 to assist calculations)
* ensure it is possible to isolate specific dams and not receive contaminated water (if receiving water via channels)
* determine if purchasing water from an external source, and having sufficient storage capacity (tanks and/or dams) for its storage, is an economically and logistically viable option
* identify another property where livestock can be agisted until the contaminated water supply is considered safe (not on the same water system which would be likely to be affected also).

Not every livestock owner will be able to identify a potential alternate water supply easily. However, it is not an acceptable alternative to leave livestock with no access to clean, safe drinking water.

**Table 1. Livestock water requirements**

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| **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  | 40 -100 |
| Cattle weaners  | 25-50 |
| Horses | 40-50 |

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

**Other control measures**

Other control measures to consider, **which do not necessarily provide immediate access to a safe water supply**, include:

* barley straw, applied in plastic mesh bags at a rate of 100 grams over 1000 litres of water, can help break up algal blooms in farm dams. It can take a number of weeks to be effective.
* the use of an outboard motor or fire pump to circulate oxygen through the water supply (i.e. farm dam) in order to aerate the water source and disperse the algal scum
* the selective withdrawal of water from different depths in a water source may minimize the intake of high surface accumulations (scum) of blue-green algae
* products such as Phoslock™ are available for use as water conditioners. These products reduce the amount of nutrients present in the water and may reduce the amount of BGA present in a dam

#### chemical algicides are available to kill algae in farm water storages. Any agent that kills BGA will result in an initial increase in toxin levels as the algae die and more toxin is released into the water supply. Water should not be used for a period (as per manufacturer guidelines) after the use of algicides to prevent the increased risk of BGA toxicity. For this reason, algicides do not necessarily provide a short-term solution to the lack of an alternate water supply. Care should also be taken with copper based algicides as livestock are very sensitive to copper toxicity.

Every livestock owner should consider their own circumstances and ensure they are prepared if they lose access to their primary water supply, potentially with no or little notice. It is imperative they incorporate this plan into their overall farm management plan.

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