

Managing blue-green algae in farm water supplies

What are the signs of blue-green algae in a water supply?

- A sudden change in water colour overnight due to a mass of vivid green algae floating to the surface of the water.
- The formation of scum which often looks like green acrylic paint and may leave sky blue marks on rocks or plants around the edge of the dam, particularly on the leeward side of the dam or backwater of a stream.
- The scum may be green, blue-green or khaki green, and can turn brown/green or white when dying off.
- Scums may appear at dusk or dawn and disappear during the day.
- Scums may produce a strong earthy smell, or if the bloom is breaking down, it may produce a strong rotting smell.
- In the early stages of a 'bloom', small green flecks may appear in the water.

Why are blue-green algae a problem?

Blue-green algae in large numbers or 'blooms' can seriously reduce water quality, producing odours and thick scums on the surface of water supplies. Of particular concern, some species of blue-green algae can produce toxins which are poisonous to humans, livestock and other animals. When algae decompose they may deplete oxygen in the water, causing fish to die.

Not all blooms are **toxic** but they should be **treated as toxic** until the water has been **tested**.

What are the effects on livestock health?

The effects of blue-green algae vary, and will depend on the strains of blue-green algae present and the level of toxin accessed by livestock.

Blue-green algae contaminated water can cause deaths in livestock. Alternative drinking water supplies should be provided if blue-green algal contamination of water supplies is suspected.

Death may occur suddenly, and a number of stock may be affected. Signs of toxicity may include muscle tremors, respiratory distress, convulsions, and death. Liver function may be affected and livestock may show signs such as decreased appetite, behavioural changes, jaundice and photosensitivity. 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.

What can be done about an algal bloom?

Inspect farm dams and water troughs regularly (at least 2 or 3 times a week) during hot, dry times of year.

If you suspect you have a blue-green algae bloom:

- Isolate stock from the dam or water supply.
- Ensure stock have alternative water supplies wherever possible.
- Send samples for testing at a water quality testing laboratory as soon as possible. The fact sheet Water Quality Testing Contacts on the Agriculture Victoria website: (<http://agriculture.vic.gov.au/agriculture/farm-management/soil-and-water/water/farm-water-solutions/how-much-water-do-i-need/water-quality-testing-contacts>) has details of these laboratories.
- If no other water supply is available, where stock water is piped, foot valves or inlet pipes could be moved as far below the surface of the water source as possible, where concentrations of blue-green algae may be lower. This may reduce the amount of algae pumped into stock troughs. This alternative may continue to pose a potential risk to stock and they should be monitored very closely for signs of toxicity.

If no other water supply is available and stock are drinking from low risk affected dams (determined by water testing), animals should be allowed to drink only from shore areas kept free (by prevailing winds) of dense surface scums of blue-green algae. Stock should be carefully monitored for signs of ill-health as there still may be a potential risk of exposure.

Contact a veterinarian if livestock show signs of poisoning.

Managing water contaminated with blue-green algae

There are several options to manage algae in farm dams and farm storages.

- Barley straw applied in plastic mesh bags at a rate of 100 grams over 1000 litres (1 cubic metre) of water can help break up algal rafts. It can take one month to start working but lasts for up to six months.
- 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.
- In addition to registered products (outlined below), Phoslock™ is available for use as a water conditioner, meaning that it reduces the amount of nutrients present in the water column. As blue green algae rely on these nutrients for growth, a secondary result of use as a water conditioner may be a reduction in algae.

Options for chemical treatment of farm dams and storages are listed below.

There are a number of agricultural chemicals registered for the control of blue-green algae in specific situations such as farm dams, tanks and troughs. A full list of products can be found at <http://apvma.gov.au/>, including the following copper products that are specifically registered for use in Victoria.

- Coptrol Aquatic Algicide
- Cupricide Algicide
- Cupricide 110 Algicide
- Copcide Algicide

The product labels for these chemicals contain a number of important instructions or directions that address the potential risks posed by the use of the products. Users should ensure that

they read, understand and follow the directions contained in the product label to minimise any risks.

For example, some products contain the following prohibitive label statements

- 'DO NOT treat drinking waters used by farm animals grazing on heliotrope or ragwort'.
- 'DO NOT discharge treated water into rivers or lakes without the authority of the Environmental Protection Authority'.
- 'DO NOT use on areas where aquatic birds are feeding'.

It is important to note that the products are registered for limited situations such as use in farm dams, tanks and troughs. Use outside of these situations may result in undesirable environmental effects for which the user may be held legally responsible.

Any agent that kills blue-green algae 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 (use as per manufacturer guidelines) after the use of algicides to prevent the increased risk of blue-green algae toxicity. For this reason, algicides do not necessarily provide a short-term solution to the lack of an alternate water supply.

If an algicide is used, water should be monitored for toxin levels, or all animals should be excluded from the water supply for at least twenty eight days after its use, because the water can remain toxic for that period.

Copper based algicides should be used with extreme caution due to the potential to cause copper toxicity in livestock. Animals that may have compromised liver function (eg. have been grazing plants such as heliotrope or ragwort) are particularly susceptible to copper toxicity and must not drink water that has been treated with copper based algicides.

Any persons considering the off label use of an agricultural chemical to control blue-green algae are responsible for the risks associated with off-label use and must ensure that their use complies with the requirements of the *Agricultural and Veterinary Chemicals (Control of Use) Act 1992*. More information on the off label use of agricultural chemical can be found at <http://agriculture.vic.gov.au/agriculture/farm-management/chemical-use/agricultural-chemical-use/off-label-use/off-label-chemical-use-in-victoria>

Contact us

Contact the Customer Service Centre 136 186.

Sources of information:

<https://www.agric.wa.gov.au/livestock-biosecurity/how-avoid-poisoning-livestock-blue-green-algae>

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