

During periods of low rainfall, when pasture cover falls to critical levels, wind-borne dung and other organic materials may be blown or washed into dams. This can result in the growth of bacteria and algae and putrefaction of the water.

Bacteria and algae grow rapidly using up all free oxygen in the water (ie it becomes anaerobic) and putrefaction results. Symptoms are dark water, a bad smell and black scum around the edge.

Effect on stock

Organic pollution in dams can have an effect on stock. While polluted water is not poisonous to healthy sheep, it may be harmful to the young or the weak. Stock find the water unpalatable and thick scum around the water's edge may prevent access to the water. This can result in:

- sheep taking several days to start drinking it
- tender wool problems
- a reduction in body weight of 2-4 kg.

While weight loss can occur, weight was rapidly regained once the sheep started drinking.

Correction of the problem

There are actions that can be undertaken to remedy the pollution.

Prevent organic matter from reaching the dam

The best prevention is to maintain an adequate vegetative cover around the dam. Permanent vegetated filter zones excluded from general grazing should be utilised.

Where vegetation has already suffered, protective structures could be used. These include netting fences, corrugated iron fences or earth banks.

Different design is required for preventative actions aimed at wind-borne materials compared to those designed for water-borne materials.

Where soils are suitable, ripping of bared areas can reduce movement of organic materials.

Removal of organic rubbish from dam

It is important to remove organic material from the water as soon as possible, as it usually saturates and sinks within 48 hours. Skimming the surface of the water is the most effective method.

A system to rapidly remove floating organic matter has been developed by farmers in WA:

1. Floating material is skimmed from the water's surface using a hand held "boom". This is a 30 m length of linkmesh (See Figure 1), 45 cm wide, with floats wired on both sides of the top edge. Ropes are attached to each corner of the 30m length of linkmesh to allow for it to be dragged across the dam. The boom is used to retain the scum along one side of the dam.

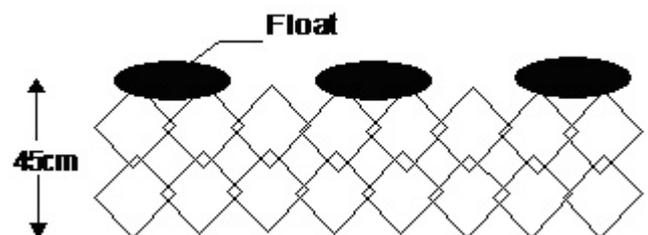


Figure 1: Part of linkmesh boom with floats.

2. The scum is then scooped from the water using a wire cage (see Figure 2) pulled by a vehicle. The cage is hitched to the vehicle by two strong parallel tow ropes (say of 12.5 mm nylon or 6.25 mm steel). Once emptied, the cage is dragged back to repeat the process. The cage is made of a 12.5 mm and 25 mm pipe frame with heavy gauge weldmesh (15 cm x 7.5 cm) attached. 25 mm x 25 mm weldmesh is wired over the frame to trap pasture and stubble remnants. Bird wire mesh is needed to trap sheep manure.

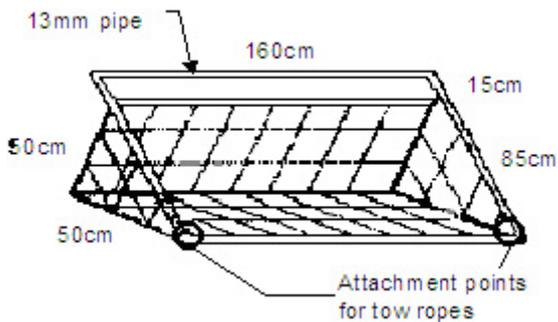


Figure 2: Cage for dragging materials from dam.

Improving the palatability of the water

Water quality (look, taste & smell) of lightly polluted, or above treated waters can be improved by aeration and/or chemical treatment.

Aeration will occur naturally over time (2-3 weeks) if organic contamination is removed. It can be hastened by pumping-out the water and spraying it back onto the surface. However if organic material remains it will continue to break down and turn the water anaerobic again. It may be more successful to pump water to a tank as part of the aeration process to protect valuable water.

Where further improvement of palatability is required, chemical treatment may be necessary. Chlorination is most common. It is best used on water which is relatively clean of organic contamination. Pre-treatment to settle suspended particles will probably be required. Seek advice from supply houses if undertaking this.

Aeration and chlorination may be done simultaneously.

Recommendations

- Maintain vegetation around the dam so that it is effectively able to filter and trap wind- and water-borne organic matter. Protect from general grazing.
- Shelter the dam from direct movement of wind- and water-borne organic matter by temporary mechanical barriers around strategic parts of the dam.
- Skim floating organic material and scum from the dam before it sinks.
- Desludge sunken materials from the edges of the dam, and the bottom if possible.
- Aerate and/or chemically treat anaerobic water if it is urgently needed for stock or domestic use.

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ISBN 978-1-76090-272-8

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