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Water treatment factsheet

**Considerations for feedlot water
treatment methods**

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Criteria for water treatment

Water used in a feedlot may require treating (filtering and disinfecting) if:

- It has been recycled from effluent, cleaning, or trough overflow.
- It is wastewater being used to irrigate crops¹.

Table 1 provides some example scenarios of when water needs treatment.

Table 1 Examples of when water may need to be treated

	Should the water be treated?
There is a chance this water has animal feces in it, or it has been contaminated by animals	Yes
This water has been used for cleaning pens and will be recycled	Yes
This water has come from the vehicle dip and will be recycled	Yes
The water has come from a bore and the pipes are clean	No
The water source is safe but the pipes are old and can be affected by flooding	Yes
The water is not clear	Yes

Water treatment options

There are several different options for treating water. Feedlots should consult with a [water treatment specialist](#) to decide on the most appropriate and cost-effective system for your facility. Below is a list of common methods and key points around their application.

UV treatment

- Water must be filtered before UV treatment is applied².
- Lamps need to be checked and replaced regularly to ensure the intensity remains at an effective level.
- Water should flow over the UV lamp as a thin film for the UV to disinfect it (don't place a UV lamp within a large water tank)³.
- UV treatment does not have ongoing efficacy so if treated water then flows into dirty pipes it will become re-contaminated.

¹ Waste water being used to irrigate crops should be treated to prevent illness in the humans or livestock that will eat the crop.

² If the water is turbid or has a high level of dissolved solids, the UV will not be able to disinfect the water.

³ UV treatment will not work if the UV lamp is placed in a large water tank.

Reverse Osmosis

- Water treated by reverse osmosis is usually filtered first to remove sediment and larger particles.
- The process requires water to be under some level of pressure to work.
- Reverse osmosis doesn't have ongoing efficacy, so if the water then flows into dirty pipes, it will become re-contaminated.

Filtration

- The water needs to be clear with sediment and larger particles removed or settled at the bottom.
- The filtration process can remove dissolved particles.
- Filtration will not remove viruses, and depending on the size can remove bacteria and oocysts so water still should be disinfected to treat for viruses afterward.

Chemical treatment

- Chlorine is commonly used.
- Chemicals can have a residual effect so they can continue to disinfect the water after the initial treatment i.e. in the pipes, unlike UV treatment or reverse osmosis.
- The concentrations required will be dependent on the pathogens targeted and may exceed that which is safe for water to be consumed by animals or people (4-5mg/L or 4-5ppm).

Heat treatment

- Boiling, pasteurization, or ultra-high temperature pasteurization can be used.
- The method and duration of heat treatment will be dependent on the target pathogens.

Water testing frequency

Water testing frequency will depend on the water source and the end use of the water. If water is discharged into the surrounding environment testing protocols should follow government guidelines ([Regulations of the Minister of Agriculture of the Republic of Indonesia Number 101/Permentan/OT.140/7/2014](#)).

Water for cleaning and watering stock

Water coming from a large source, such as a dam or holding tanks that will be used for cleaning and watering stock should be tested at least twice a year, at the change of seasons (dry to wet). Samples may need to be taken from various parts of the watering system depending on the quality of the pipes and if different storage units are used.

Any time there is a health issue indicating that water may be contaminated (such as a diarrhoea outbreak), water should be tested. If water consumption by stock decreases, it is recommended to have the water tested for mineral content and contaminants as these may be impacting the palatability of the water.

Vehicle dip water

Water and disinfectants used in the vehicle dips should be tested or changed based on the manufacturers recommendations for the disinfectant used. Water used in the initial cleaning of vehicles should be tested twice yearly if sourced from the common water source. If a cleaning dip is used prior to a disinfectant dip, the water in the dip bay should be emptied after each vehicle.

Water recycling

Water recycled from cleaning or vehicle dips will need to undergo thorough treatment with a method that will deactivate the target pathogens. Water treatment specialists should be able to provide the information and guidance on the most appropriate method.

If recycled water is to be used for cleaning or on crops for human or livestock consumption it is crucial that water is properly disinfected.

Water treatment providers

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