



by Wiaan Faber

THE RED FLAGS OF POOR WATER MANAGEMENT

The reality is we can no longer simply assume that our water is safe for human or animal consumption. It is alarming to think that 2,1 billion people, worldwide, do not have access to good-quality water, according to the United Nations. The question is, what impact does water have on animal performance? Truth is, your farm's water quality can be a fine (liquid) line between success and failure.

A part from oxygen, water is the single most important nutrient for animals, and it is vital for an animal to maintain the water content of its body. The amount of water in an animal's body varies between species, and also according to age and body condition. Water makes up 80% of blood and approximately 75% of meat in an animal's body, locked inside the cells and muscle tissues.

Water has many important functions. It is needed for blood circulation, regulation of body temperature, normal rumen fermentation, digestion and metabolism, proper flow of feed through the digestive tract and good nutrient absorption, transporting nutrients to and from body tissues, and excretion of waste products. If animals do not have a good water supply, they cannot make good use of the nutrients supplied in the feed.

WATER INTAKE

The amount of water required varies between species and between animals of the same species, depending on a number of factors:

- ❗ animal factors, including age, body weight, pregnancy status, and activity;
- ❗ environmental factors, such as season, climate condition, type of feed, and water management; and
- ❗ water quality factors, including odour, taste, salinity, pH, toxic elements, and algal growth.

When water intake is suppressed, feed intake will also decrease and the animal's immune function will be suppressed, which, in turn, leads to decreased production and efficiency, reduction of health status, metabolic and digestive disorders, and impaired reproduction.

WATER QUALITY

High-quality water can be defined by a number of factors including taste, odour, and turbidity, as well as the presence or absence of certain substances. The first step in securing high-quality drinking water is information. The only way to know for sure if drinking water has an excess concentration of nutrients is to have the water analysed by a reputable laboratory (Table 1).

The only way to know for sure if drinking water has an excess concentration of nutrients is to have the water analysed by a reputable laboratory.



Table 1: Guidelines for assessing water quality for cattle

Nutrient (unit)	Upper level (livestock)	Maximum upper level
Calcium (ppm*)	100,0	200,0
Chloride (ppm)	100,0	300,0
Copper (ppm)	0,2	0,5
Iron (ppm)	0,2	0,4
Magnesium (ppm)	50,0	100,0
Manganese (ppm)	0,05	0,5
Nitrate-nitrogen (ppm)	20,0	100,0
Phosphorus (ppm)	0,7	0,7
Potassium (ppm)	20,0	20,0
Sodium (ppm)	50,0	300,0
Sulphates (ppm)	50,0	300,0
Total dissolved solids (ppm)	960,0	3 000,0
Zinc (ppm)	5,0	25,0
pH	6,0–8,5	8,5
Coliform (count/ml)	0,5	0,5
Faecal coliform (count/ml)	0,1	0,1
Total bacteria (count/ml)	1 000	1 000

*ppm=parts per million

RED FLAGS THAT INDICATE POOR WATER QUALITY



- 🚩 Any off odour or flavour, or colour of drinking water.
- 🚩 Increased off-feed events and erratic eating patterns.
- 🚩 Health or performance issues.
- 🚩 Digestive upsets or scours.
- 🚩 Depressed immune function and deteriorating health status.
- 🚩 Increased animal reproduction failure.

Water contaminated with coliform bacteria can be detrimental to livestock health and attention is needed to eliminate the site of contamination. Iron and manganese may have the greatest impact on animal performance by reducing palatability, as these minerals have a bitter taste. They also create deposits on pipes and hinder water flow. Nitrates and nitrites may cause reproductive failure and poor growth and can result in poor oxygen-carrying capacity of the blood. Sulphates generally have a laxative effect on livestock, which reduces feed efficiency and performance. Sulphur and sulphates can also affect copper and selenium absorption rates, creating a need for adjustments in supplemental levels.



It is important to design and locate water devices to allow animals to drink comfortably.



WATER MANAGEMENT

Once water quality problems are identified, the challenge is to improve water management by discussing potential solutions with your nutritionist, finding an alternate water source, or employing an effective water treatment system.

While water quality is not an issue, farmers should implement good basic water management practices. Small changes in water management may enhance animal health and performance. Sound management practices include the following:

- 🚫 Cleaning drinking devices on a weekly basis.
- 🚫 Ensuring that water systems provide adequate volume to meet water needs, especially during peak demand.
- 🚫 Designing and locating water devices to allow animals to drink comfortably.
- 🚫 Providing ample amounts of available drinking space per animal.
- 🚫 Protecting the water source from contamination.

When planning a water system, it is important to determine the water quantity required, water trough design, water storage capacity, water pressure, livestock watering habits, and possible wildlife that may drink from the water system. The set-up should also include a back-up system.

The greatest losses due to inadequate water quantity or quality to producers are often through undetected production inefficiencies. The future viability of livestock production systems will depend upon much more efficient use of water to maximise animal performance and health, while reducing each farm's water footprint. [®]