

Water requirements of livestock: 7 factors to consider

Water is a key factor in the digestion and absorption of nutrients such as carbohydrates, proteins and fats in livestock. A lack of water will, therefore, have more immediate and drastic effects on body physiology than the lack of other nutrients. Furthermore, in terms of health management and disease control, it is preferable to add medication to drinking water rather than to mix it with feed. This helps ensure fast and easy ingestion of medication and also ensures an adequate consumption of the drug.



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What determines how much water is needed?

Water requirements vary according to several factors. The following aspects give an indication of when and how much water is required.

Animal type

The average daily water requirements are about 30kg for all types of cattle and about 4kg for sheep and goats. These differences between species are due to different body size as well as other factors related to metabolic activity and level of production in each case.

Age of the animal

For the same type of animal, the requirements for water may vary according to age, mainly due to the percentage of water in the animal's body. For example, the newborn's body contains 75-80% water, gradually decreasing to about 50% with age due to the changes in metabolic processes and the increased deposition of fat in the body, which naturally follows the low rate of water consumption during that period for the reasons mentioned earlier.

Ambient temperature

Cattle tend to increase water intake as temperatures rise, with 27°C being the temperature where marked changes in water

intake are noted. This may be attributed to the animal's need to dissipate body heat and/or the reduced feed intake (by 30% or more) under heat stress and the animal's need to maintain the sensation of gut fill by drinking a larger amount of water.

Production level

The daily need of water increase depends on the level of production. For example, a cow that produces 10kg of milk per day needs twice as much water as a cow that produces 5kg, assuming that the other factors affecting water consumption remain unchanged.

Moisture content of feed

The amount of water required per day is increased if the animal is fed a diet containing a low percentage of moisture such as hay or straw, which has about 10% of moisture, compared to the state of feeding on another diet based primarily on silage, which contains about 70% moisture.

With the same type of feed, the moisture level may vary from time to time on the same day. For example, it is found that in some types of pastoral shrubs such as Acacia, the moisture level is about 1% during the day, and then increases to 30% after four hours of sunset, then to 40% after eight hours, which affects the rate of water consumption during these different periods of grazing.

The percentage of moisture in the feed material also varies according to the method of manufacture of the feed material. For example, if concentrates are produced in the form of pellets, their moisture content is reduced due to high temperatures during the manufacturing process. This, in turn, increases the water consumption rate compared with non-processed concentrate feeds.

Feed energy sources

The daily needs of drinking water vary according to the different energy source in the feed. In diets where starch constitutes an essential source of energy, water consumption increases in comparison with diets to which fats are added in large amounts to provide energy.

Protein level in the feed

The amount of water needed by the animal increases daily depending on the increase in the proportion of protein in the food. In this case, the animal needs extra water to dispose of the excess nitrogen from the body through the urine in the form of urea dissolved in water. This phenomenon is more evident in mammals, but in other species such as birds, the primary product of protein breakdown is uric acid, which is disposed from the body in a solid state without the need for additional water for the purpose of dissolution.

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