

WILMAR AGSERVICES

STOCKFEED WITH UREA USER GUIDE

Urea is the most economical and commonly used non-protein nitrogen supplement for ruminants. However, under certain conditions, cattle may be susceptible to urea poisoning.

This user guide provides important safety information in relation to the use of the **SuplaFlo® 10NP + urea** stockfeed range for cattle.

SuplaFlo® 10NP + urea should not be fed to sheep.

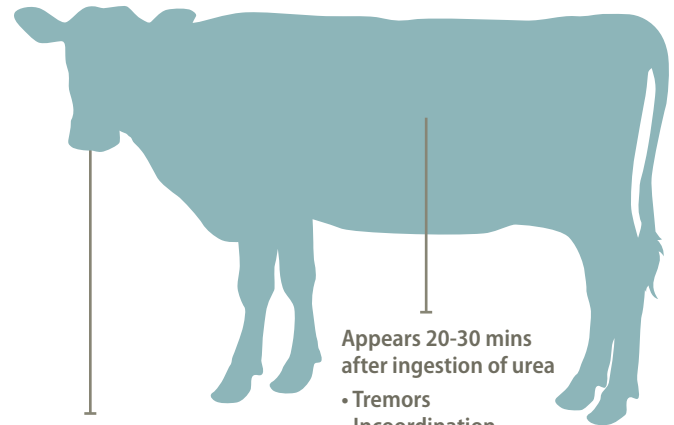
CAUSES OF UREA POISONING

- Excessive or irregular consumption rates of urea.
- Sudden introduction of high quantities of urea to cattle not previously adapted to it.

When cattle consume urea, it is converted into ammonia in the rumen and can be used by the rumen microflora to synthesise protein. This protein then becomes available to the body through digestion and absorption processes. However, if too much urea is consumed, the rumen organisms cannot metabolise effectively and the excess ammonia is absorbed from the rumen into the blood. The ammonia is transported into the liver, where it is converted back to urea and excreted by the kidneys. This pathway can be very easily overwhelmed when excess ammonia and urea circulate in the blood to toxic levels. Poisoning can occur rapidly, from a few minutes to four hours after consumption. Suspect possible urea poisoning if cattle are found dead in close proximity to the supplement.

SIGNS OF UREA POISONING

- Twitching of ears and facial muscles
- Grinding of the teeth
- Frothy salivation
- Bloat and abdominal pain
- Frequent urination
- Forced, rapid breathing
- Weakness and/or staggering
- Violent struggling and bellowing
- Animals found dead close to the source of the urea supplement



- Excessive salivation
- Rapid/laboured breathing

Appears 20-30 mins
after ingestion of urea

- Tremors
- Incoordination
- Inability to stand & tetany

DIAGNOSIS OF UREA POISONING

The most useful diagnostic indicators are the history of access to urea and the signs shown by live, affected animals. Laboratory tests of blood samples are not very helpful, and no specific changes are seen at post-mortem examination. The following are general indicators of urea poisoning:

- Cattle having access to urea.
- Laboratory testing of collected blood and rumen fluid immediately after death may indicate urea poisoning.
- Post-mortem: bloat; white foam in airways; ammonia odour when the rumen is opened; and rumen pH 7.5-8.0.

Often a large pool of rumen fluid is seen on the ground at the nose of the beast. Animals usually suffer severe bloat and the fluid build-up in gas forces the rumen fluid out through the mouth when the animal dies.

Recent feeding history is important. Cattle become accustomed to metabolising urea over time but if they miss out for a couple of days, the rumen can be impacted by these sudden changes. Tolerance is decreased by starvation and by a low-protein, high-fibre diet. In cattle, as little as 0.25g per kilogram of live body weight may give rise to urea toxicity and cause death¹. The table overleaf details the consumption rates that may lead to urea toxicity for different urea products and cattle classes.

Intake of product which may cause urea poisoning in different cattle classes

Cattle class	Live body weight (kg)	Grams of urea for lethal dose	Daily intake of product (L/h/day) which may cause urea toxicity*			
			SuplaFlo+3% Urea	SuplaFlo+4% Urea	SuplaFlo+5% Urea	SuplaFlo+6% Urea
Weaner calf	180	45	1.49	1.12	0.90	0.75
Adult	360	90	2.98	2.24	1.80	1.50
Cow	500	125	4.14	3.12	2.49	2.08
Bull	800	200	6.63	4.98	3.99	3.33

* All values are typical values. Based on 0.25g per kg of live body weight of cattle.

TREATMENT OF UREA POISONING

Treatment of urea poisoning is rarely effective. However, if cattle can be handled, a stomach tube can be passed to relieve the bloat and drench the animal with a large volume of cold water: 45L for an adult cow is suggested, followed by 2-6L of 5% acetic acid or vinegar. This dilutes rumen contents, reduces rumen temperature and increases rumen acidity, which all help to slow down the production of ammonia. Treatment may need to be repeated within 24 hours, as relapses can occur. For complete and specific support and treatment, we recommend you seek the advice of a vet.

BEST PRACTICE WHEN USING UREA SUPPLEMENTS

- If cattle have not been previously supplemented, start with a high urea concentration (urea is unpalatable) and only provide a small amount in the trough to cattle. Increase it slowly and gradually.
- Ensure urea supplements are positioned well away from water troughs. Having water in close proximity may encourage further consumption of urea supplements.
- Water for the rumen is essential for rumen microbes to survive and digest urea². Ensure drinking water for cattle is clean with a pH between 6.2 and 7. Water quality is important as rumen microorganisms require rumen conditions to remain within a specific, limited range to function properly.
- Monitor feed intake and ensure that a feed program with urea is consistent for cattle. Once started, regular or daily consumption of the supplement should continue, to avoid sudden changes which may impact rumen biota.
- If cattle unavoidably miss out on urea supplementation for a couple of days, restart them at a lower intake level.
- Salt can be added to reduce consumption rate, however the addition rate must be carefully considered. Less than 2% salt concentration (20kg in 1000L) may actually increase consumption rates, while the addition of salt around 4% should start to decrease palatability and consumption. Consult an animal nutritionist for more advice.
- If cattle are found dead in very close proximity to the supplement, remove supplement from herd to avoid potential further deaths.

FURTHER INFORMATION

Queensland Department of Agriculture and Fisheries
Urea supplementation:

<https://www.daf.qld.gov.au/business-priorities/environment/drought/managing-drought/drought-strategies/urea-supplementation>

Managing for healthy rumen function:

<https://www.daf.qld.gov.au/business-priorities/animal-industries/dairy/feed-and-nutrition/nutrition-for-lactating-dairy-cows/healthy-rumen-function>

Department of Primary Industry and Resources, Northern Territory

Urea poisoning in cattle:

https://dpif.nt.gov.au/_data/assets/pdf_file/0003/233058/796.pdf

Wilmar

Stockfeed safety data sheets and product certifications:
<https://www.wilmaragservices.com.au/sds-s>

CONTACT

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¹ Lloyd, W. (1970) Chemical and metabolic aspects of urea-ammonia toxicosis in cattle and sheep.

² DAF – Managing for healthy rumen function.