



WILMAR LIQUID STOCKFEEDS
PRODUCT RANGE
INFORMATION



THE SUPLAFLO® RANGE

SuplaFlo® is a co-product of Wilmar's BioEthanol Distillery at Sarina, where molasses is fermented in a unique Biostil process to produce ethanol. The **SuplaFlo** product is based on fermented molasses with simple sugars/volatiles removed and fortified with yeast.

The key nutritional benefits of the **SuplaFlo** range are:

- ✓ YEAST
- ✓ ESSENTIAL AMINO ACIDS
- ✓ MICRONUTRIENTS

YEAST

Studies have demonstrated the beneficial effects of yeast to overall rumen function, as seen in the image below. Yeast in the rumen of livestock may assist with:

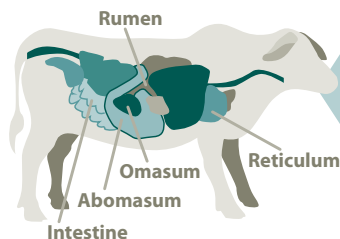
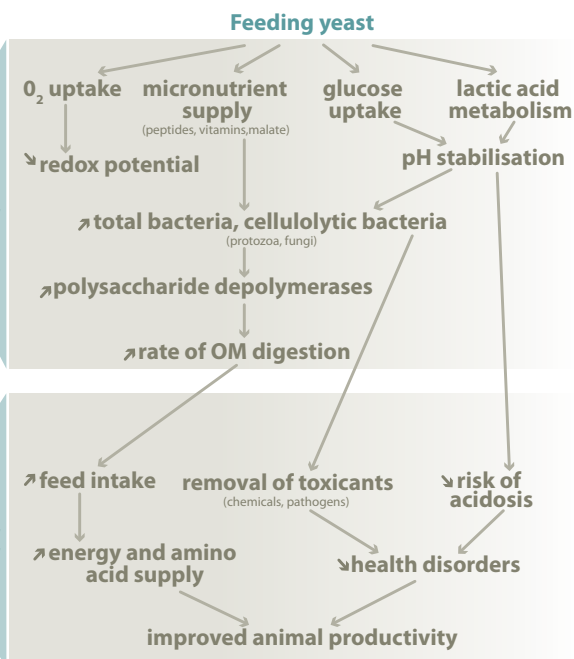
- ✓ Rumen available natural protein
- ✓ Rumen available nutrients/minerals
- ✓ Increased feed intake
- ✓ Enhanced feed efficiency
- ✓ Reduced risk of acidosis
- ✓ Improved immune system

Effect of yeast in the cattle digestion system



Yeast

At the rumen level



At the animal level

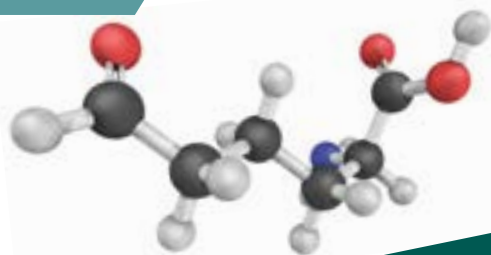
Jouany, J. (2006) 'Optimising rumen functions in the close-up transition period and early lactation to drive dry matter intake and energy balance in cows', *Animal Reproduction Science*, Vol. 96, pp. 250-264, Elsevier, France

ESSENTIAL AMINO ACIDS

Amino acids are the building blocks used to make protein. Ruminants (cattle) have the ability to synthesise most amino acids from non-protein sources.

Essential amino acids are those that cannot be synthesised in the animal's body and so it must find these in the diet. The animal's protein production is limited by the particular amino acid that is in shortest supply in relation to its requirement for forming the protein. Poor pasture and feed may not deliver essential amino acids and this is something that urea cannot deliver either. The **SuplaFlo range** contains essential amino acids including:

- ✓ Lysine
- ✓ Phenylalanine
- ✓ Valine
- ✓ Threonine
- ✓ Tryptophane
- ✓ Isoleucine
- ✓ Methionine
- ✓ Histidine
- ✓ Arginine
- ✓ Leucine



Lysine amino acid

BREEDERS AND DAIRY CATTLE

Lysine, methionine and arginine are the most commonly deficient essential amino acids in this cattle class. They are the key components for milk production.

BEEF CATTLE

For calves and growing cattle, the most important essential amino acids are *methionine, lysine, isoleucine, threonine and leucine*. They are key components for body growth and maturity.



MICRONUTRIENTS



The **SuplaFlo range** offers a number of micronutrients to accommodate areas of deficiencies in feed, or to enhance the grazing and base feeding regime, in order to boost cattle health and condition.

Some key micronutrients that are commonly deficient in Australian grazing country for cattle, and which the **SuplaFlo range** offers, are:

COPPER (Cu)

Deficiencies are likely to occur in:

- Coastal sandy soils, granite soils, peat swamps
- Extended periods on green feed
- Breeding stock
- Growing stock.

** Signs of copper deficiency include rough coat, sandy-coloured Hereford or bronze-tinged Angus, poor growth/diarrhea.*

SELENIUM (Se)

Deficiencies are likely to occur in:

- Coastal sandy soils, acidic soils, sedimentary and granite soils as well as high rainfall areas
- Lush green feed periods
- Young growing cattle.

** Signs of selenium deficiency include stiff legged gait, sudden death, poor growth.*

COBALT (Co)

Deficiencies are likely to occur in:

- Calcareous sands, high rainfall granite soils and krasnozem
- Young growing cattle.

** Signs of cobalt deficiency include ill thrift, emaciation.*

The **SuplaFlo range** includes a range of nutrients and micronutrients including:

- | | |
|-------------|-------------|
| ✓ Calcium | ✓ Copper |
| ✓ Magnesium | ✓ Iodine |
| ✓ Sulphur | ✓ Manganese |
| ✓ Potassium | ✓ Selenium |
| ✓ Sodium | ✓ Zinc |
| ✓ Cobalt | |

PRODUCT SELECTOR TO SUIT YOUR CATTLE

	SuplaFlo®	SuplaFlo +3%Urea	SuplaFlo +4%Urea	SuplaFlo +5%Urea	SuplaFlo +6%Urea	OrganicFlo
	SuplaFlo +Phos	SuplaFlo +3%Urea +Phos	SuplaFlo +4%Urea +Phos	SuplaFlo +5%Urea +Phos	SuplaFlo +6%Urea +Phos	
	SuplaFlo +Max Phos					
Pregnant or lactating breeder cows	✓(a)	✗	✗	✓	✓	✓(a)
Dry finishing steers/ heifers	✓(a)	✓	✓	✓	✓	✓(a)
Weaners	✓	✗	✗	✗	✗	✓
Bulls	✓(a)	✗	✗	✓	✓	✓(a)
Organic certified cattle (ACO/USDA NOP accredited)	✗	✗	✗	✗	✗	✓(a)

(a) These products do not contain urea and may exceed feed intake in dry conditions.

Use the **SuplaFlo range** as part of your feeding program to:

- ✓ Supplement feed heifer/cow breeders prior to joining with bulls
- ✓ Supplement breeders through pregnancy, particularly through poor pasture conditions
- ✓ Encourage growth in young cattle
- ✓ Finish steer/heifers to optimise beef production
- ✓ Supplement cattle in times where poor pasture/ low quality feed may limit nutrition
- ✓ Wean calves to develop rumen health and growth
- ✓ Supplement bulls prior to joining breeders.

FEEDING METHOD

The **SuplaFlo range** can be fed freely by open trough. In drought conditions where excessive

feeding may occur, lick wheel troughs may assist in controlling intake.

It can also be added to feed immediately before feeding out.

STORAGE CONDITIONS

SuplaFlo must be stored in a feed-grade or molasses-grade tank. Water-grade or concrete tanks may not be suitable. Ensure storage vessels are vermin-proof, weather-proof and have vapour vents. If storing for long periods, circulate the tank from the bottom to ensure adequate suspension of nutrients and prevent settling.

SHELF LIFE

Use within six months from batch date. Clean troughs regularly to preserve the best quality for your livestock.

OUR PRODUCT RANGE

PRODUCT

BEST SUITED

DESCRIPTION



- ✓ Weaner cattle
- ✓ Cattle in yards
- ✓ Sheep

SuplaFlo offers a safe and highly digestible form of natural protein, amino acids and micronutrients. It does not contain urea, making it safe to feed to younger cattle.



- ✓ Weaner cattle
- ✓ Cattle in yards
- ✓ Sheep

SuplaFlo+Phos helps address appetite-limiting phosphorus deficiencies in livestock. It contains natural protein, essential nutrients and added phosphorus to maintain livestock condition.



- ✓ Dry cattle
- ✓ Pregnant cattle
- ✓ Lactating cattle

SuplaFlo+Max Phos is formulated to support cattle in wet season pasture conditions. It also addresses appetite-limiting phosphorus deficiencies in phosphorus deficient country.



- ✓ Dry cattle
- ✓ Pregnant cattle
- ✓ Lactating cattle
- ✓ Bulls

SuplaFlo+Urea is available with additions of 3%-6% urea to best suit the nutritional needs of livestock.



- ✓ Dry cattle
- ✓ Pregnant cattle
- ✓ Lactating cattle
- ✓ Bulls

SuplaFlo+Urea+Phos is available with additions of 3%-6% urea, plus added phosphorus, to best suit the nutritional needs of livestock.



- ✓ ACO/USDA NOP cattle or sheep

OrganicFlo is a certified allowable input for Australian Certified Organic (ACO) and USDA National Organic Program (NOP) for organic grazing operations.

STOCKFEED WITH UREA

SAFE FEEDING OF UREA

SuplaFlo with added urea e.g. **SuplaFlo+Urea (3/4/5/6%)** may pose a risk of urea poisoning if not fed correctly to cattle. Below is best practice for feeding urea products:

- 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.
- Ensure drinking water for cattle is clean with a pH between 6.2 and 7.

- 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.
- If cattle are found dead in very close proximity to the supplement, remove supplement from herd to avoid potential further deaths.

Please refer to our **Wilmar AgServices Stockfeed with Urea User Guide** for more information.



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®+Urea and SuplaFlo®+Urea+Phos** stockfeed range for cattle.

These products should not be fed to sheep.

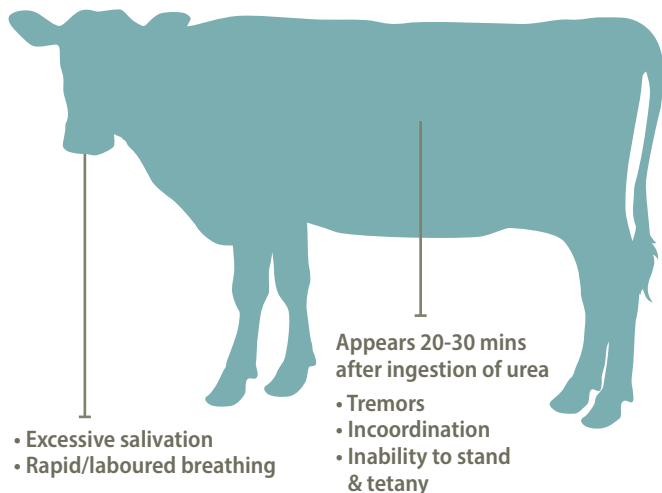
CAUSES OF UREA POISONING

- 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



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.

STOCKFEED WITH UREA

USER GUIDE

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
			SuplaFlo +3%Urea +Phos	SuplaFlo +4%Urea +Phos	SuplaFlo +5%Urea +Phos	SuplaFlo +6%Urea +Phos
Weaner calf	180	45	1.49	1.12	0.90	0.75
Dry cattle	360	90	2.98	2.24	1.80	1.50
Pregnant or lactating 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/agriculture/disaster-recovery/drought/managing/urea-supplementation>

Managing for healthy rumen function:

<https://www.daf.qld.gov.au/business-priorities/agriculture/animals/dairy/nutrition-lactating-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.wilmarsugar-anz.com/safety-data-sheets>

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.



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