



Pure rumen
conditioning
with bio-available
minerals



Conditioning the Rumen in Lactation

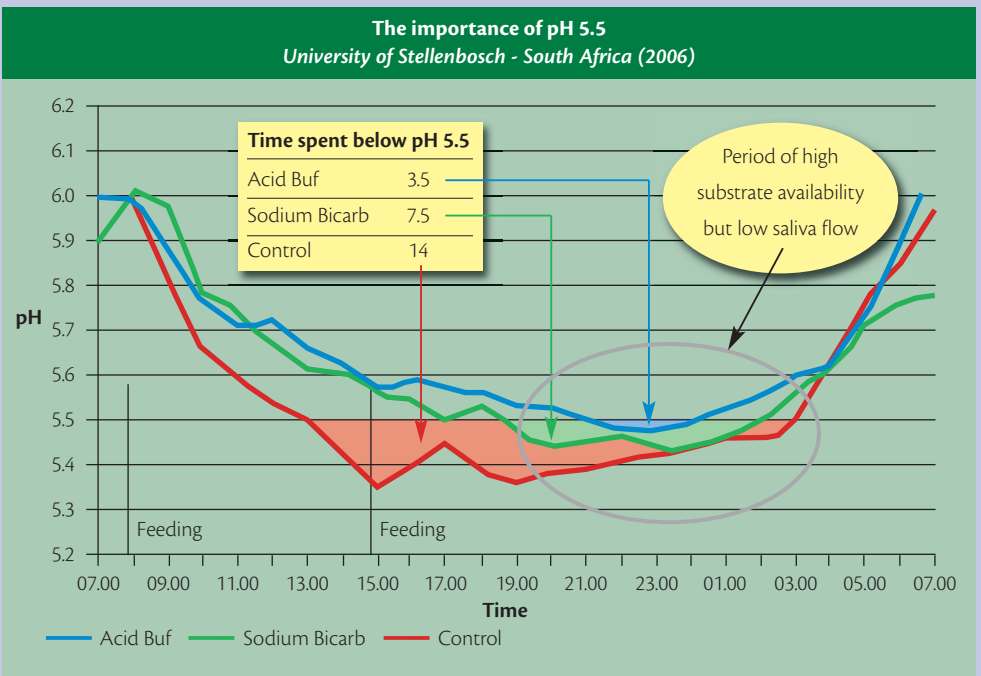
Failure to maintain a consistent rumen pH in high yielding dairy cows may result in metabolic disorders and reduced production performance. Increasing energy supply through increased use of concentrates or rapidly fermentable fibre can plunge the rumen into acidosis, at which level lactic acid starts to accumulate and volatile fatty acid (VFA) production is compromised. This results in a very inefficient rumen.

To optimise both milk yield and quality, it is important to minimise the amount of time rumen pH drops below 5.5. This will lead to increased volatile fatty acid production and improved rumen efficiency



How does Acid Buf condition the rumen?

1. By holding the rumen pH between 5.5 and 6.2:



The effect of conditioning the rumen with Acid Buf (90g/cow/day) was compared with a buffering agent, sodium bicarbonate (180g/cow/day) and a control (see graph bottom left).

The graph demonstrates clearly that the Acid Buf treatment minimised the amount of time the pH spent below 5.5, resulting in a much more efficient rumen leading to greater milk production:

Production trial results:			
	Control	Acid Buf	NaHCO ₃
Average Daily Milk Yield (kg)	27.6	31.8	29.1
4% FCM (kg)	26.9	32.8	29.9
Average Milk Fat (%)	3.86	4.21	4.18
Average Milk Protein (%)	3.43	3.47	3.38
Average Milk Lactose (%)	4.57	4.58	4.59
Milk Fat Yield (kg/d)	1.06	1.33	1.22
Milk Protein (kg/d)	0.93	1.09	0.98

2. By increasing total volatile fatty acids:

The balance of volatile fatty acid production is crucial to rumen efficiency and optimum milk production.

The production of propionate needs to be maximised with an optimum amount of acetate still being produced.

Feeding Acid Buf at between 80-100g/cow/day maintains the VFA ratio while increasing volatile fatty acid production leading to optimum rumen efficiency and milk production.

Effect of Acid Buf on volatile fatty acid production		
Acid Buf (g/cow/day)	Acetate: Propionate Ratio	Total VFA (m.moles/litre)
<60	2.5 : 1	80-85
80-100	2.5 : 1	120
>150	3.3 : 1	100 and falling

3. By providing a bio-available source of calcium and magnesium:

Calcium Release				
	0-2 hours	2-4 hours	4-6 hours	6-8 hours
Calcium	56.71%	74.57%	87.55%	100.00%

Magnesium Release				
	0-2 hours	2-4 hours	4-6 hours	6-8 hours
Magnesium	86.17%	87.16%	95.96%	98.66%

Certain minerals are utilised by bacteria within the rumen and others (e.g. magnesium) are absorbed directly through the rumen wall. It is therefore essential that these minerals are in a soluble form at rumen pH. The calcium and magnesium in Acid Buf are totally bio-available and can be readily absorbed through the rumen wall or utilised by the bacteria to improve rumen efficiency.

Acid Buf and the Close Up Dry Cow Diet

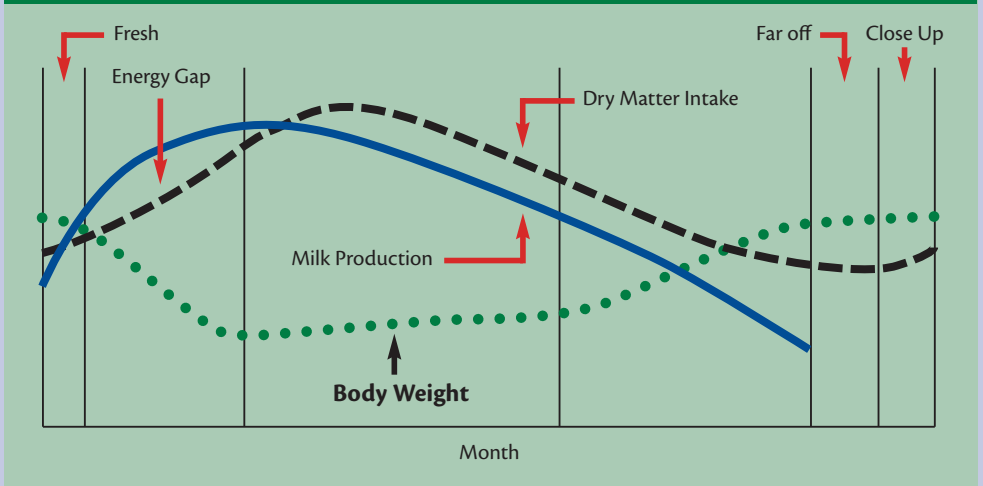
The management of the post calving negative energy gap starts in the close-up dry cow diet by feeding increased levels of concentrate.

Reducing the negative energy gap improves milk sustainability, as well as allowing the cow to gain weight for better fertility. Unfortunately, by increasing concentrate levels during transition the cow runs the risk of increased incidence of sub-acute ruminal acidosis and metabolic disorders.



Management of the negative energy gap

Courtesy of the University of Illinois



How does Acid Buf help reduce the negative energy gap post-calving?

Acid Buf has a neutral loading, eliminating any causes of imbalances within the diet allowing:

- Increased consumption of concentrates pre-calving
- Reduced incidence of sub-acute ruminal acidosis and metabolic disorders



Acid Buf conditions the rumen and allows it to work more efficiently. Acid Buf is manufactured from calcareous marine algae, which is harvested from clean, unpolluted waters off the coasts of Ireland and Iceland. It is a highly effective rumen buffer and pure source of bio-available minerals deposited within its structure by the sea, especially calcium and magnesium.

Thanks to its unique honeycombed physical structure and large surface area, Acid Buf breaks down slowly in the cow – conditioning the rumen and neutralising significantly more acid, over a longer period, than many conventional buffers. As Acid Buf breaks down it releases highly bio-available calcium and magnesium to the cow.

Acid Buf in the lactating cow

- **Better neutralisation of rumen acid**
- **Excellent source of bio-available minerals**
- **Improves fibre digestion**
- **Boosts milk yield and quality**

Acid Buf in the dry cow

- **Allows increased concentrate feeding close to calving**
- **Excellent source of bio-available minerals**
- **Reduces the risk of metabolic disorders**
- **Conditions the rumen for lactation**



Recommendations for Use:

Dairy cows (Lactation)

50g-80g/cow/day

Note:

1. Diet acidity should be taken into consideration when determining rate of inclusion. The more acidic the diet, the higher the inclusion.
2. In the event of the diet acidity not being apparent include at 80g/cow/day and reduce to level of acidosis control.
3. During periods of high summer temperatures (heat stress) increase inclusion rates by 20%.

Dairy Cows (Dry cow transition)

50g/cow/day

Beef Cattle (Feedlots):

25g-50g/cow/day

Sheep & Goats (Feedlots):

0.5% of compound feed



Celtic Sea Minerals

Strand Farm, Currabinny, Carrigaline, Co. Cork, Ireland.

T: (353) 21 4378377 F: (353) 21 4378466

www.celticseaminerals.com