

SeaBuff

Ruminant Acid Guard



Benefits of SeaBuff®

- **SeaBuff®** is a rumen pH optimiser that optimises the fermentation process inside the rumen so that the conversion of feed to milk and/or meat is as efficient as possible.
- **SeaBuff®** Elongate the time that rumen stays between 5.8 to 6.8.
- **SeaBuff®** is a main rumen fermentation driver as stabilizing the rumen environment optimises fiber digestion, raising final milk components (butter fat and solids), improving milk quality and quantity and increasing daily gain and meat yields.
- **SeaBuff®** buffering action provides an ideal media inside the rumen for optimum production of the VFA's in right proportions. i.e. propionate as glucose precursor which increase the potential for milk production and milk protein, acetate which increase the potential for milk butter fat
- **SeaBuff®** suppresses rumen protozoan Entodinium spp., thus maximizing nitrogen utilization by rumen bacteria.
- **SeaBuff®** decreases methane production by 15–32% (Hay) and by 50–70% (Barely Grain).
- **SeaBuff®** has a high acid absorbency and absorbs more than twice the level of the regular low magnesium calcite buffers.



Chemical structure of SeaBuff®

The calcium-magnesium carbonate product contained in SeaBuff® is made by a mole-for-mole exchange of Ca by Mg without macrotransport of carbonate. This can be expressed by the chemical equation



This result in forming a space-supporting framework (skeleton), then lead to a marked increase in permeability and porosity, resulting in high surface area to volume ratio.

Origin of SeaBuff®

SeaBuff® is derived from seawater Magnesium plus other vital elements from seawater. SeaBuff® is derived from special coastal, supratidal Atlantic seawater basins deposits in which evaporite-saline minerals accumulate inside a sedimentary carbonate platform. Layers of both calcium and magnesium ions alternate within SeaBuff® structure.

**Rumen calcium to magnesium ratios – should you be concerned?,
include the following:**

CALCITIC BUFFERS	SEABUFF®
Low magnesium content and are derived from deposits of primarily calcium carbonate.	Derived from deposits of calcium carbonate combined with magnesium carbonate and contains much higher levels of magnesium (more than double the regular calcitic buffers).
Only contains calcium in the form of calcium carbonate with very low magnesium content.	Sea Buff contains significant amounts of magnesium along with calcium.
Will only supply sufficient calcium but insufficient magnesium to maintain rumen condition (Low Buffering)	SeaBuff (high magnesium) has the added benefit of increasing available magnesium (High Buffering).
Increase rumen calcium to magnesium ratio (Only %5 magnesium) resulting in tetany (grass tetany) or paresis (milk fever).	Balanced Calcium to magnesium ratio. 22 %Ca to 12 % Mg
Rapidly dissolved in Water so act for short time inside rumen.	Slowly dissolved in water so maintained buffered rumen pH for prolonged time.

The key factors in deciding which of these types of buffer should be applied to your dairy ration is the acidity challenge inside the rumen and the critical magnesium level. There is a significant difference between buffer types in their respective ability to 50 Average Peak Milk (kg) Somatic cell count (SCC) neutralize rumen acidity. Also, as long as the amount of each is adequate, the balance of magnesium and calcium still has a major impact on Ruminant Animal Performance.





Research **And** *Development*

Research Trials

Research Trial 1

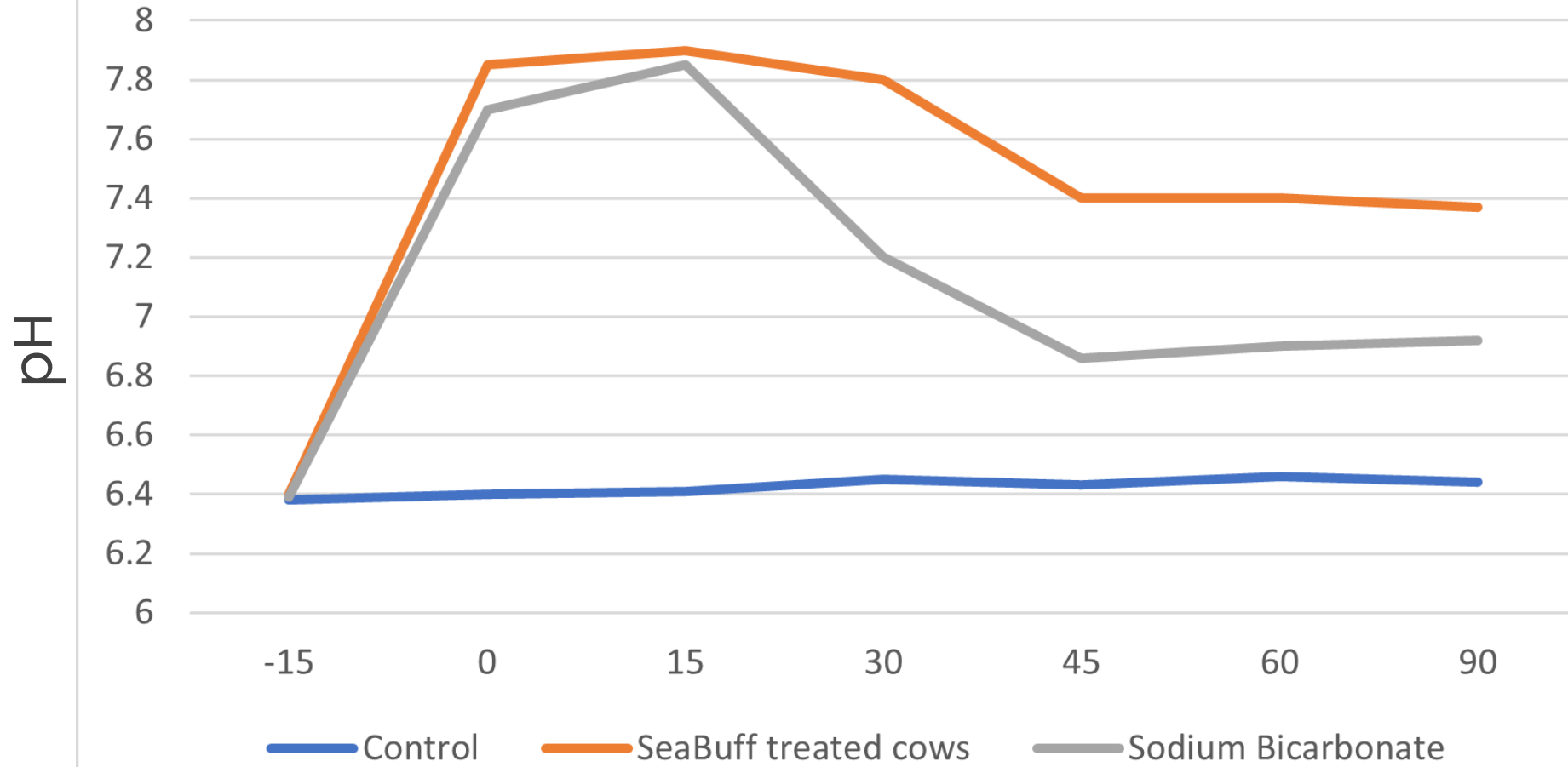


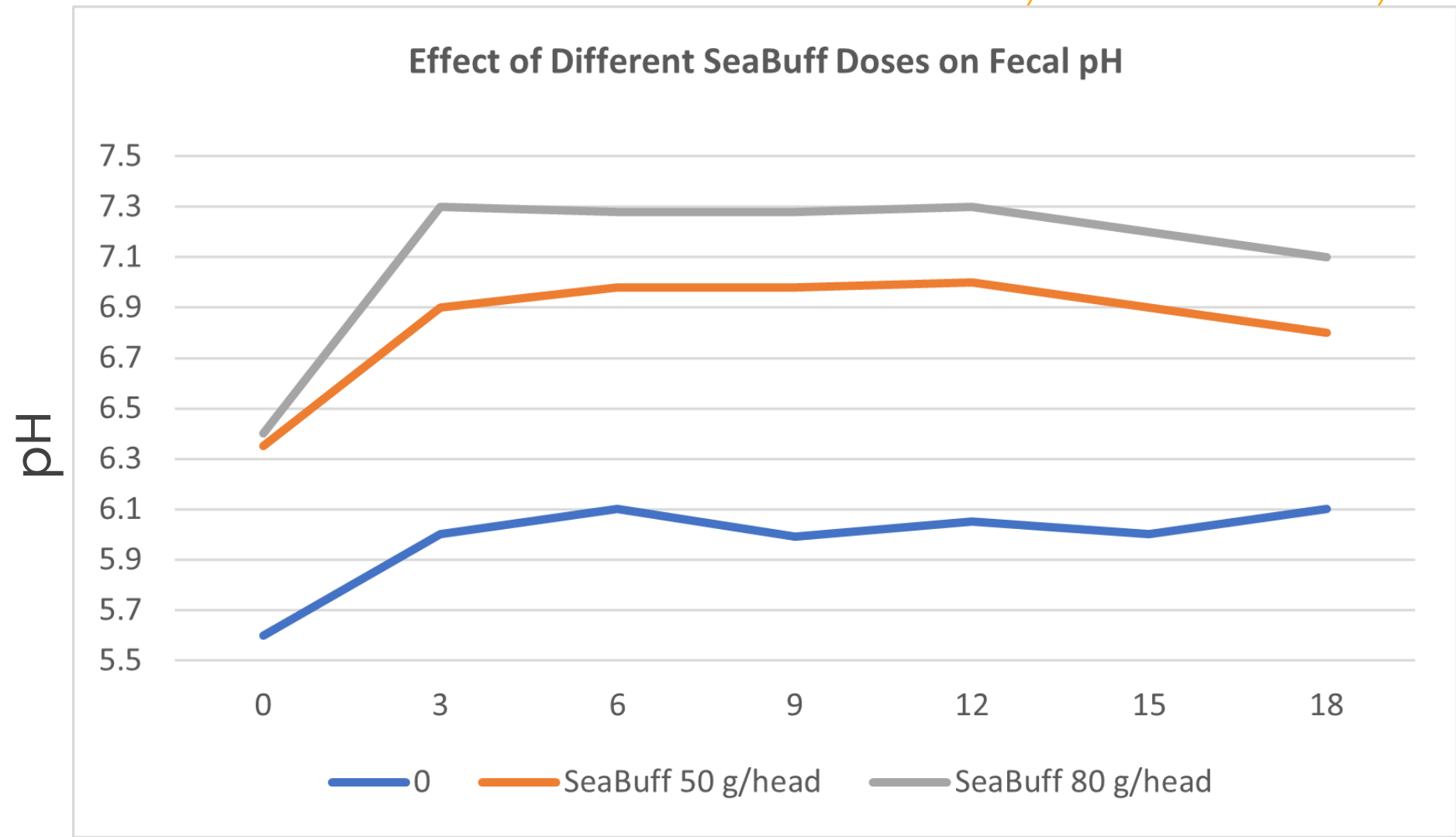
Materials & Methods

- 10 Fermenters of a dual-flow continuous-culture system were used.
- The experimental diets were formulated based on 690 kg body weight, 47 lg milk with 4% fat and 3.3 protein according to NRC 2001.
- Treatment groups:
 - Control
 - SeaBuff dose
- Corn silage, grass silage, corn, soybean meal, mineral mix.
- The composition of the feed was analyzed at ADDiCAN company Laboratory (FOSS NIRS DS2500 F Analyser-ISiScan NOVA operating software) , PEI analytical lab (BioCommons Park, 23 Innovation Way, Charlottetown, PE, Canada C1E 0B7), Agri-analyze (1730 Wellington Sud, Sherbrooke, Quebec, Canada J1M 1K9).
- Simulators are adjusted at 39 OC, agitation 100 rpm and N2 gas supply. Artificial saliva were infused at rate 3.1 ml/min.. System passage was 10%/hr.
- Period of the experiment was 45 days, pH was monitored and samples were collected.



Effect of Different Treatments on Rumen pH





Research Trial 2

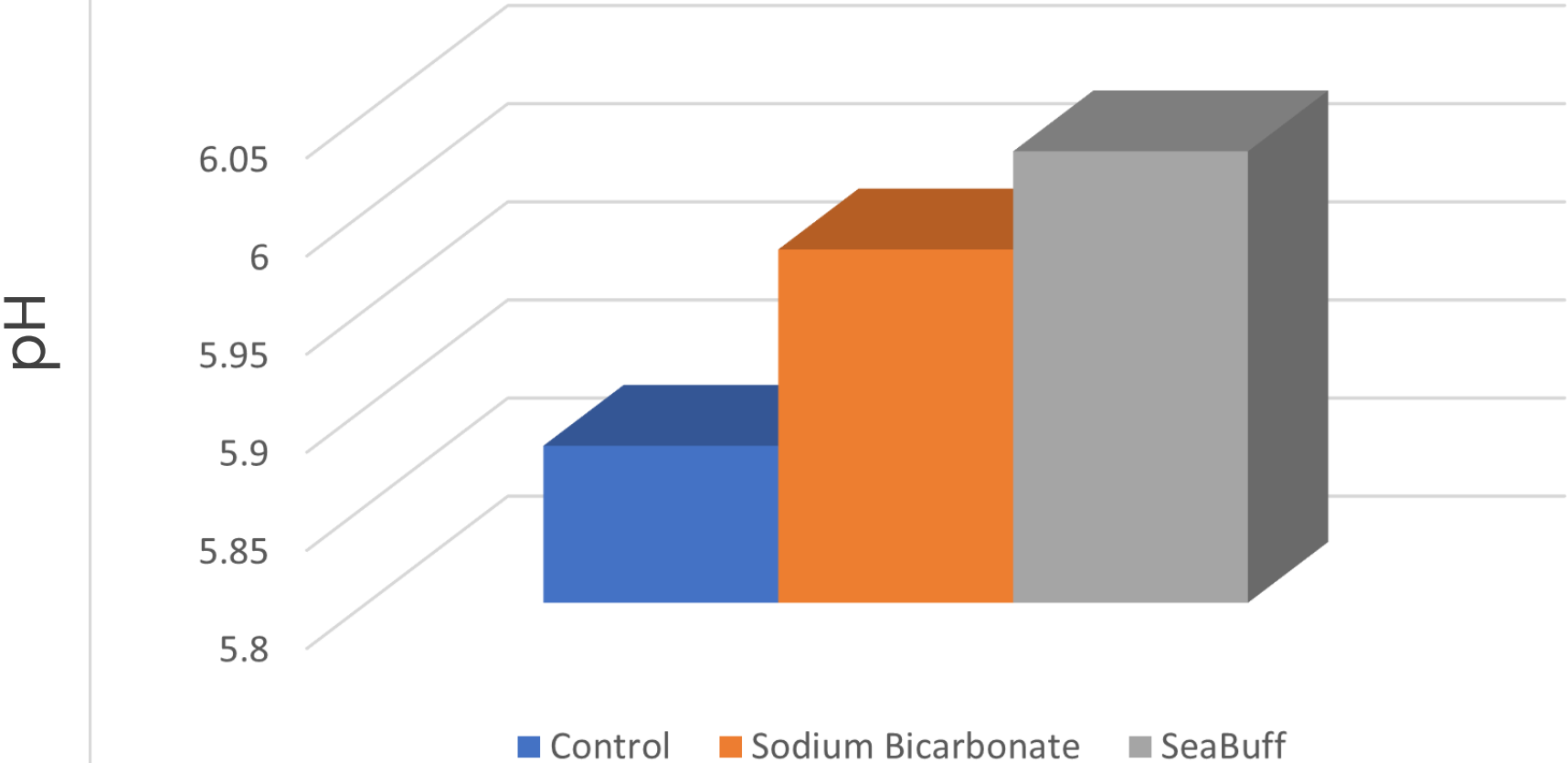


Methods & Materials

- Five rumen fistulated Angus Beef animals were fed 85:15 concentrate to roughage ratio.
- Measurements were made at 0, 0.5, 1, 1.5, 2 and 4 hours after feeding.

- The composition of the feed was analyzed at ADDiCAN company Laboratory (FOSS NIRS DS2500 F Analyser-ISIScan NOVA operating software) , PEI analytical lab (BioCommons Park, 23 Innovation Way, Charlottetown, PE, Canada C1E 0B7), Agri-analyze (1730 Wellington Sud, Sherbrooke, Quebec, Canada J1M 1K9).

Effect of Treatment on Rumen pH



Effect of Treatment on Acetic to Propionic Acid Ratio

Acetic:Propionic Ratio

