

The effect of chop length of hay on the rumen and intake levels in sheep

Brooke White BVSc/BVBio (Hons)

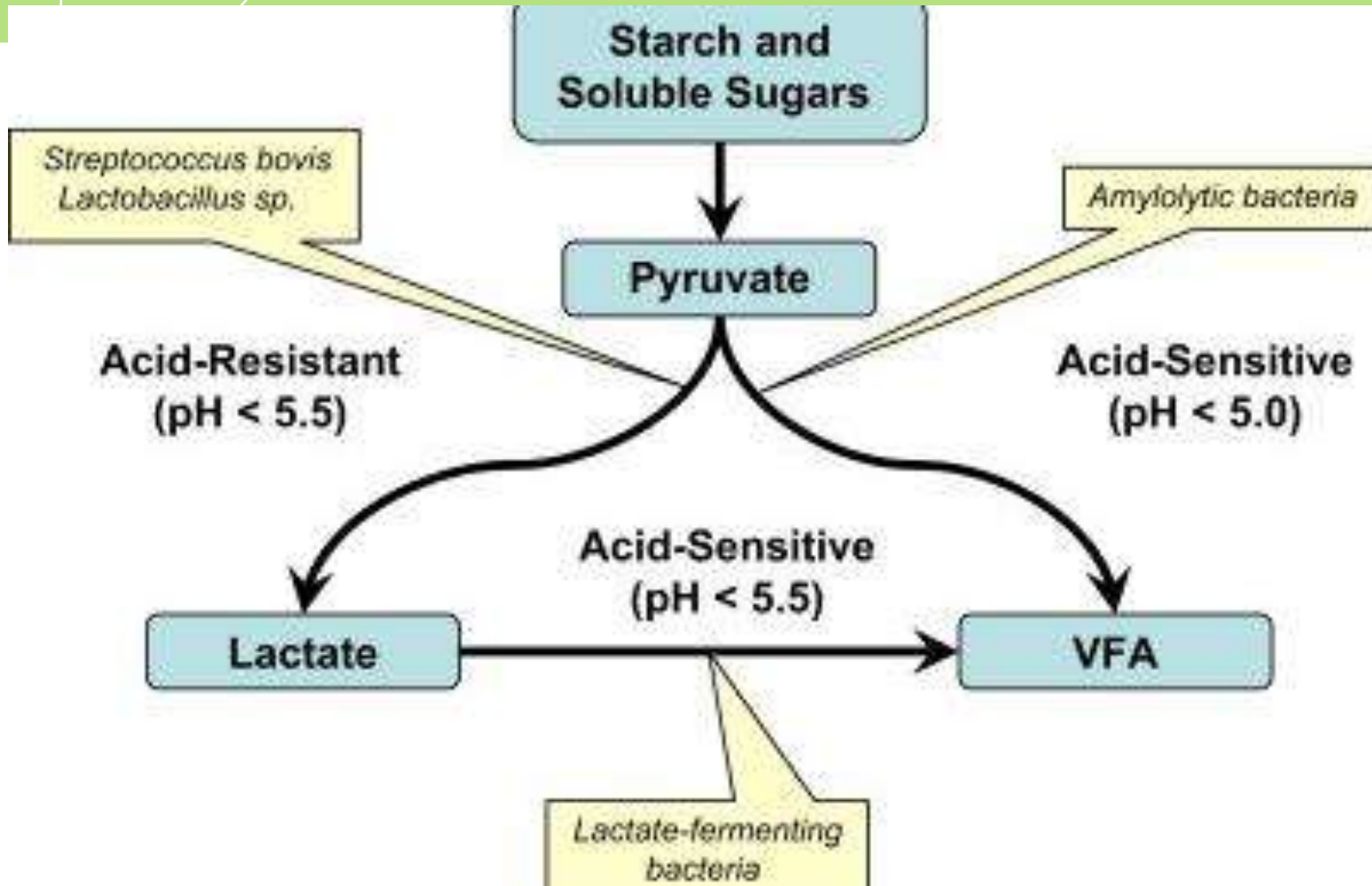
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Acidosis

- Acidosis: rumen pH falls below 5.0 and lactate producing bacteria predominate.
- Sub-acute rumen acidosis (SARA): rumen pH falls to between ~6.0 and 5.0 and there is an increase of volatile fatty acids in the rumen

Volatile Fatty Acids

- Microbes in the rumen ferment carbohydrates into volatile fatty acids which are absorbed through the rumen wall into the blood stream.
- Volatile fatty acids are the main energy source for ruminants. They are used primarily by the microorganisms for reproduction and growth, with the excess production being used by the ruminant itself.
- The three main volatile fatty acids produced in ruminants are **acetic acid**, **butyric acid** and **propionic acid**



How do they counteract the acid production?

They CHEW!



What Do We Already Know?

- Dairy industry – well established guidelines
- Sheep industry – no published studies regarding chaff



The Trial

- 24 wethers



- Three treatment groups – long, medium and short.

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Samples

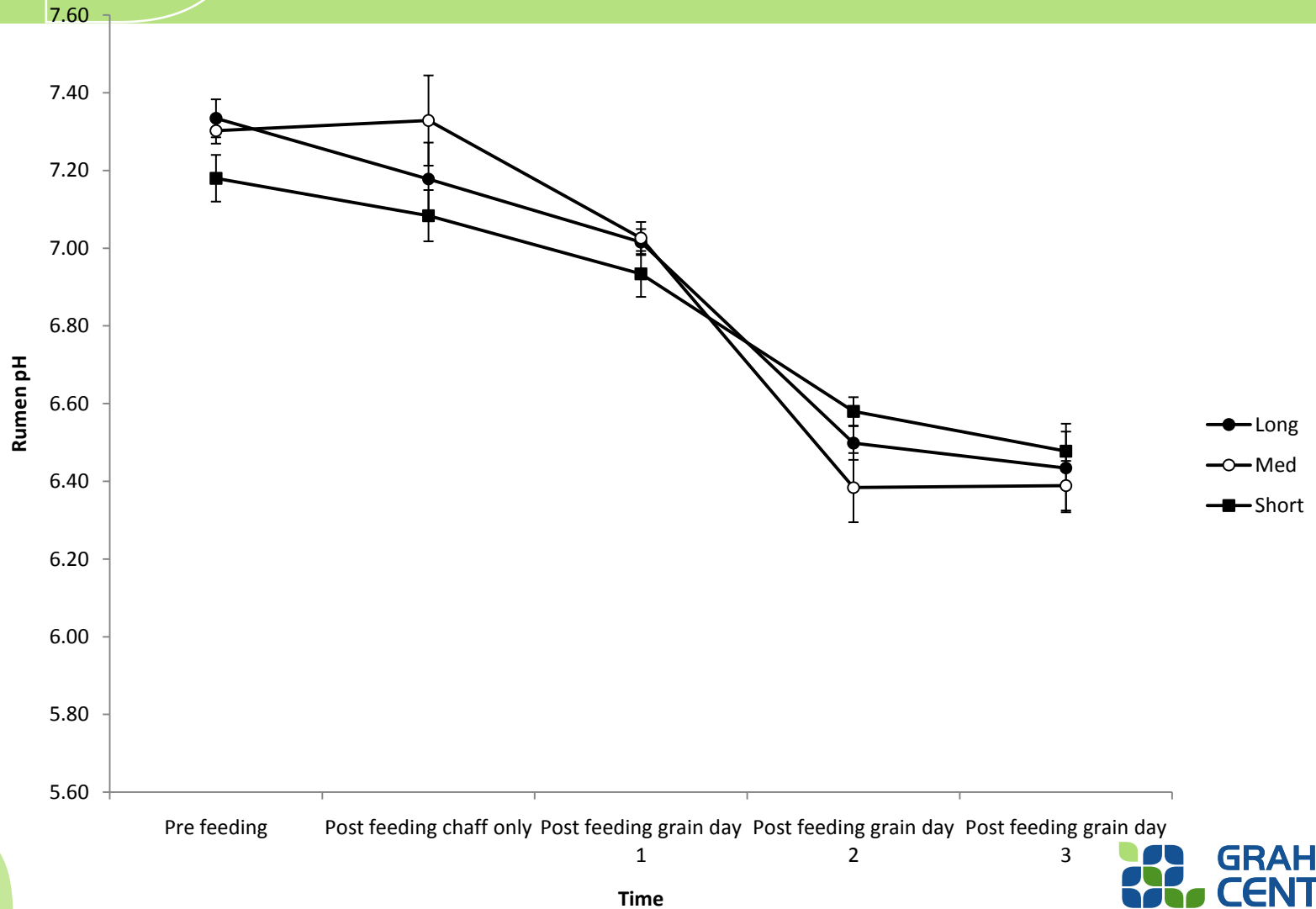
- Rumen fluid pH and VFA concentrations measured for three days.
- Intake of chaff and grain measured for ten days.



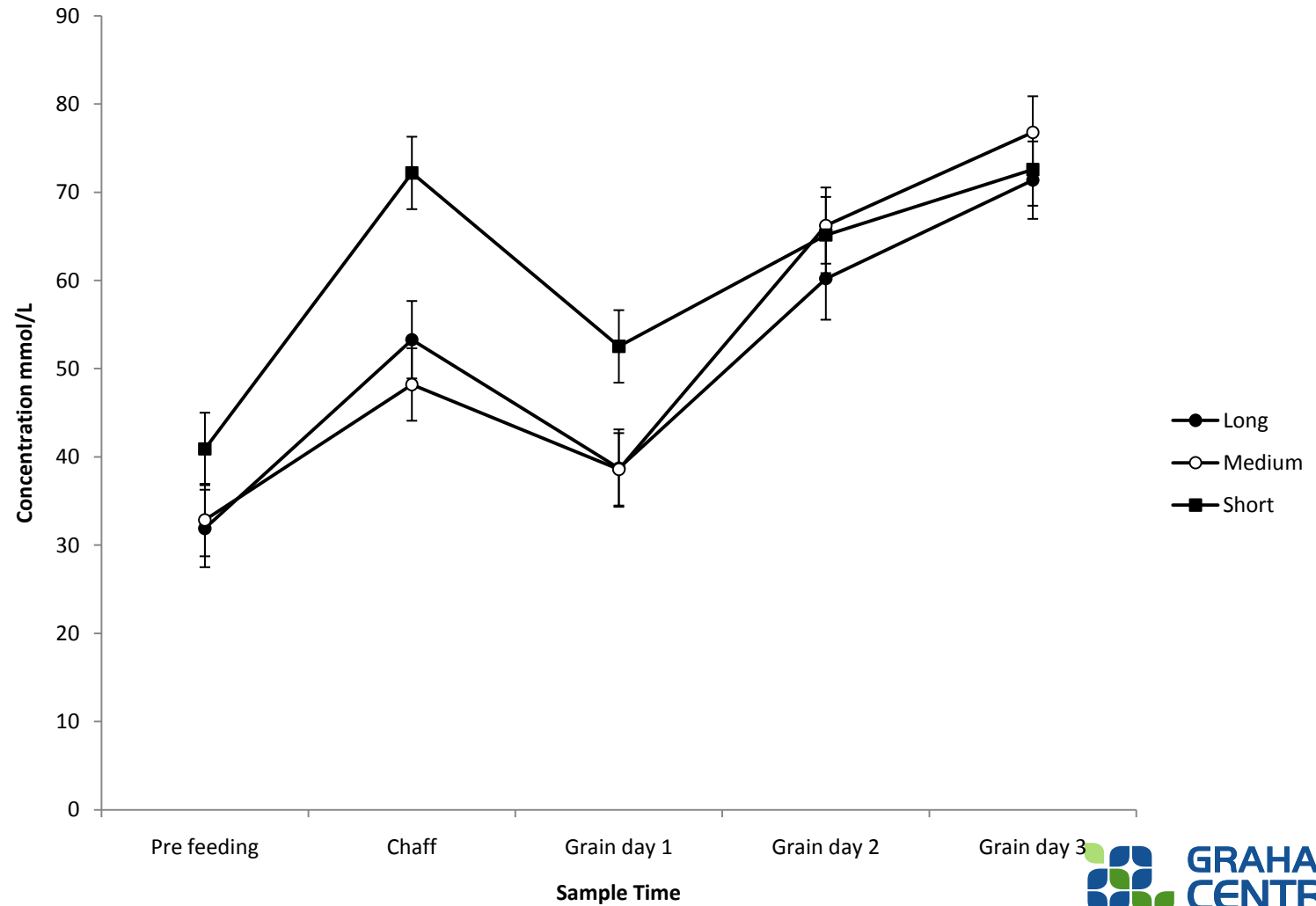
What did we find?

- **No** difference in pH
- Some significant differences in VFA concentrations.
- Significant differences in intake at 3 hours and 24 hours after feeding.

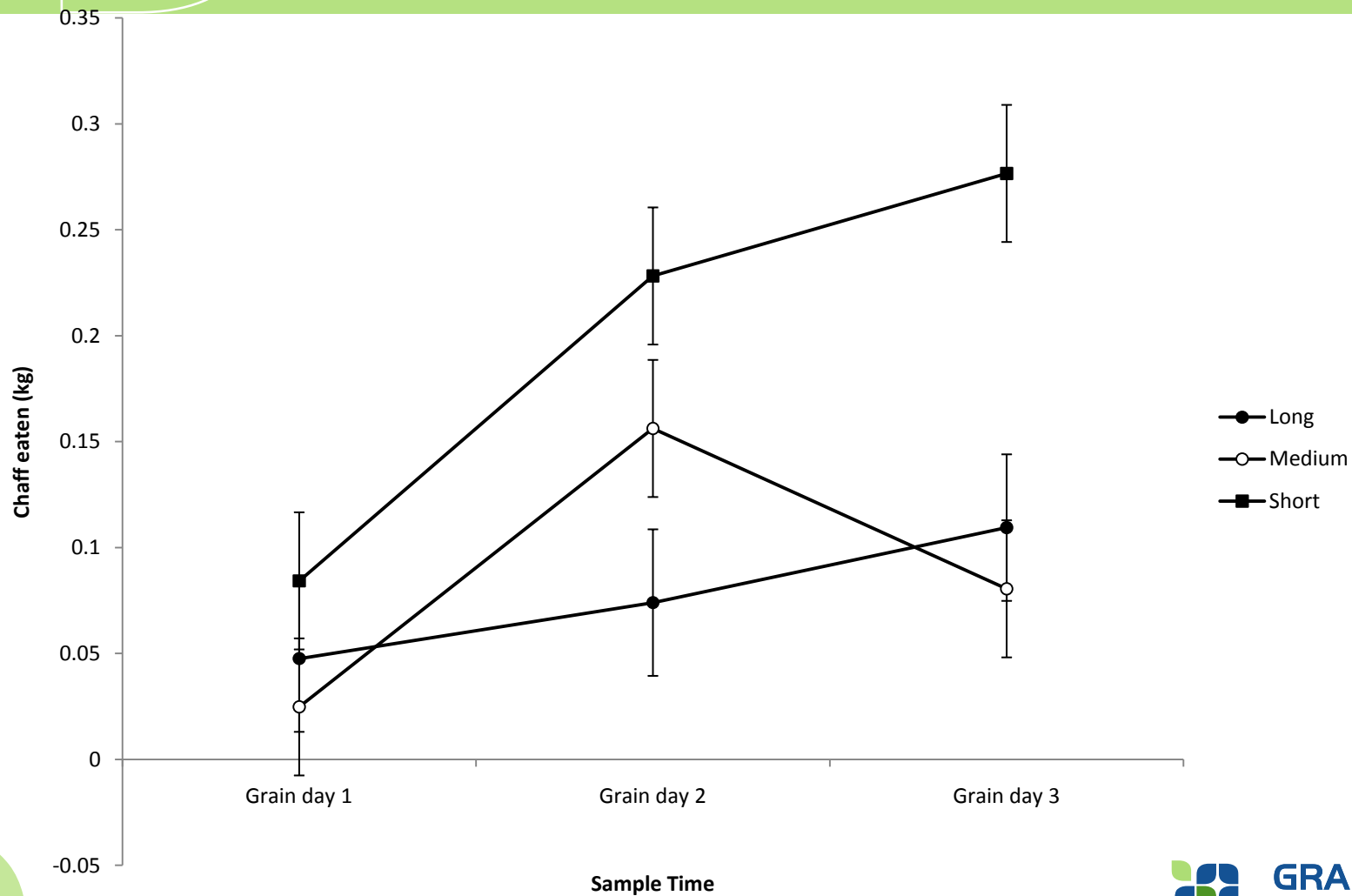
Rumen pH



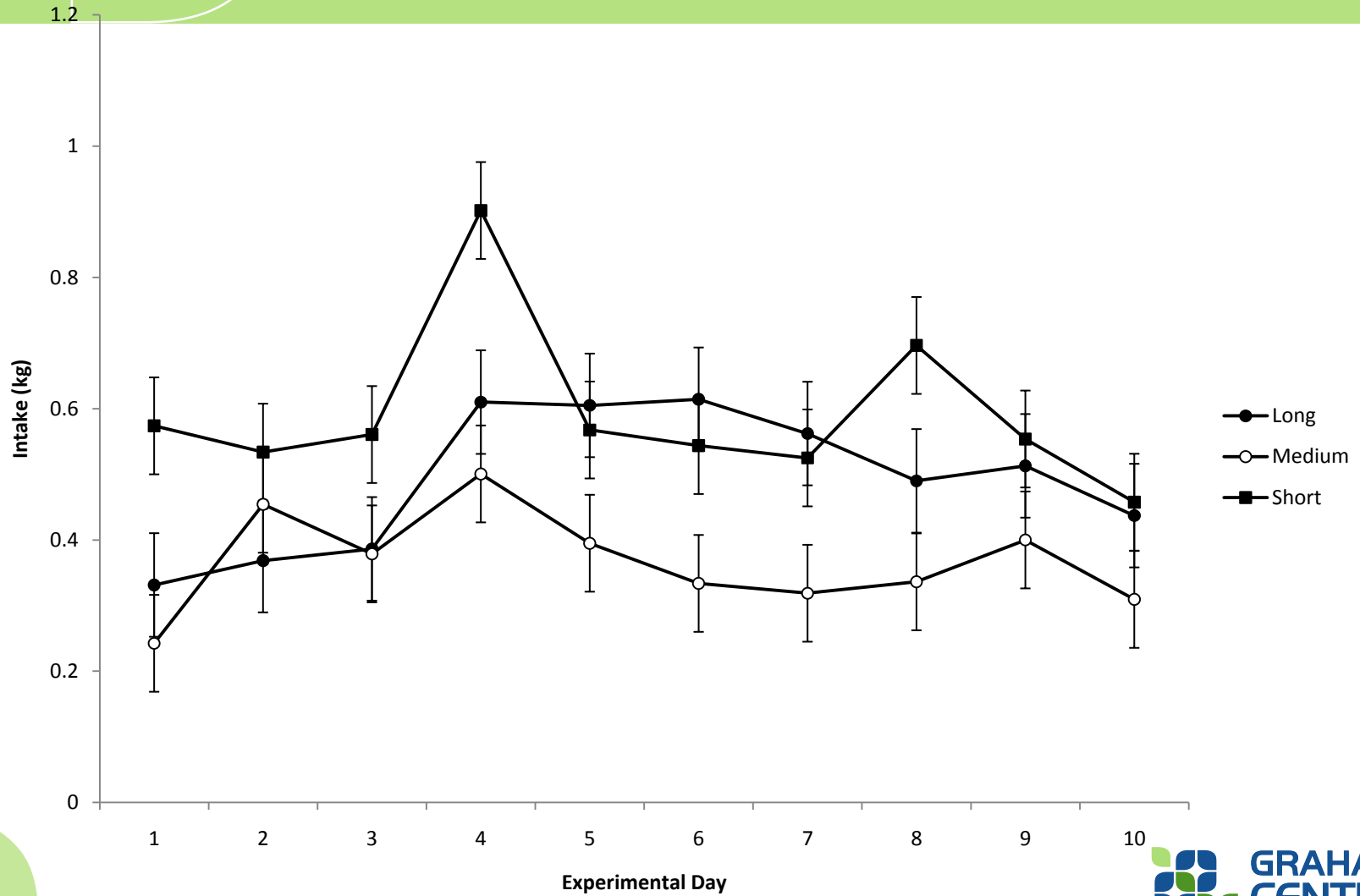
Total VFAs



3 Hour Chaff Intakes



Daily Chaff Intakes



So What Does This Mean?

Short

- ✓ Eat it
- ✓ Good pH
- ✓ Good VFA levels

Medium

- × Eat it
- × Lowest pH
- ✓ OK VFA levels

Long

- ✓ Eat it
- ✓ Good pH
- ✓ Good VFA levels

So What Do We Feed?

- Short chaff initially: intake levels
- Long chaff after grain adaptation: buffering effects and long term rumen stability.



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