



Similar Growth Rate and Rumen Development in Weaned Dairy Calves Fed an Alternative Compared with a Traditional Calf Starter Concentrate

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Hypothesis

- That it would be possible to formulate an **ALTERNATIVE** calf-starter with low starch content that:
 - prevented acidification of the rumen
 - maintained its efficacy in stimulating fore-stomach development
- To obtain such a starter, we substituted grain with molasses, grass meal, and dried sugar beet pulp.

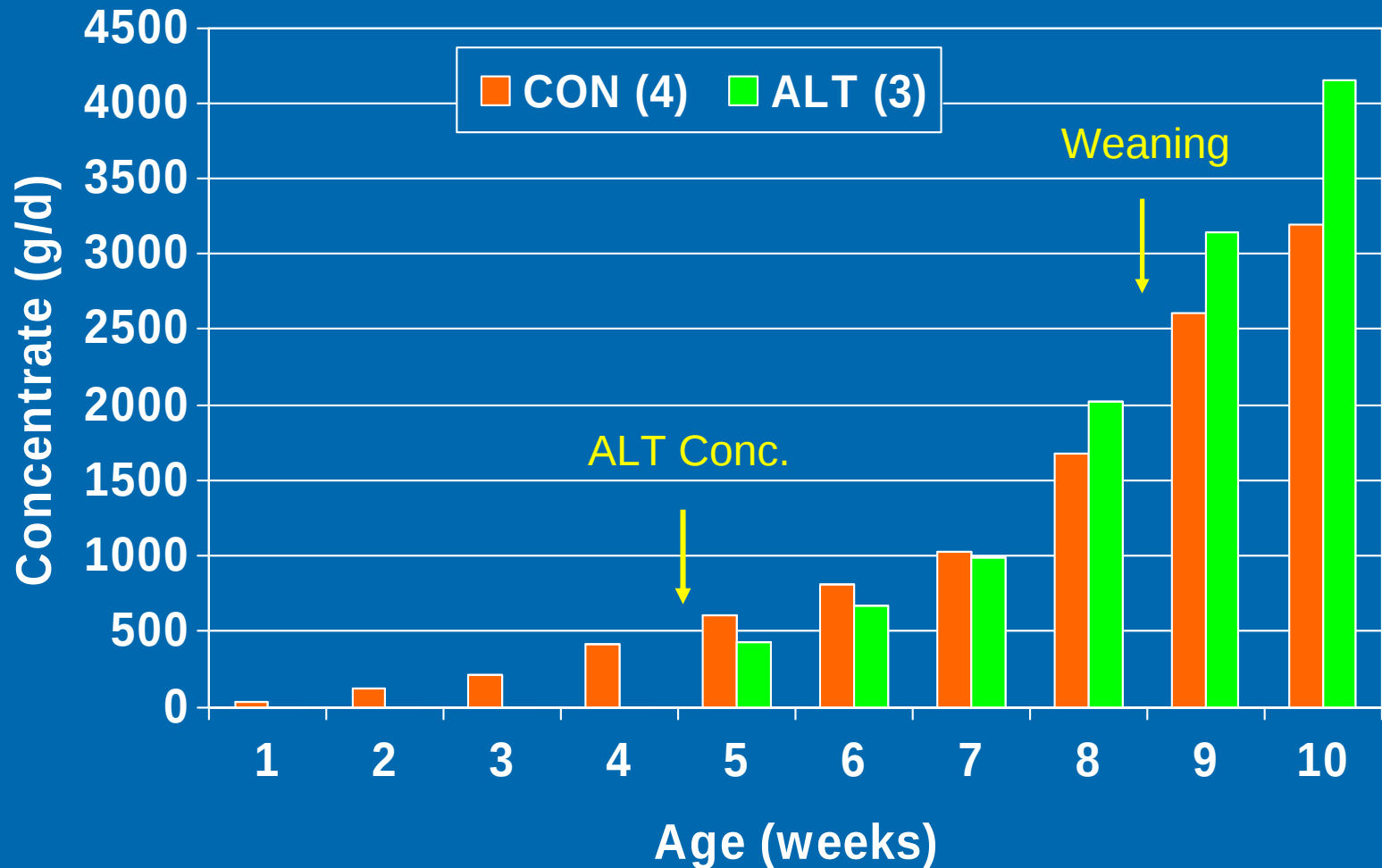
Materials and Methods (I)

- Eight Holstein calves implanted with ruminal cannulas on d 7 ± 1
- Two feeding regimens :
 - **CONTROL, High Starch**: *Ad libitum* access to barley-based calf-starter (**337 g starch/kg**) and artificially dried grass hay from d 4.
 - **ALTERNATIVE, Low Starch**: No access to concentrate until wk 4 where the calves got *ad libitum* access to a low-starch concentrate (**68 g starch/kg**). *Ad libitum* access to artificially dried hay from d 4.

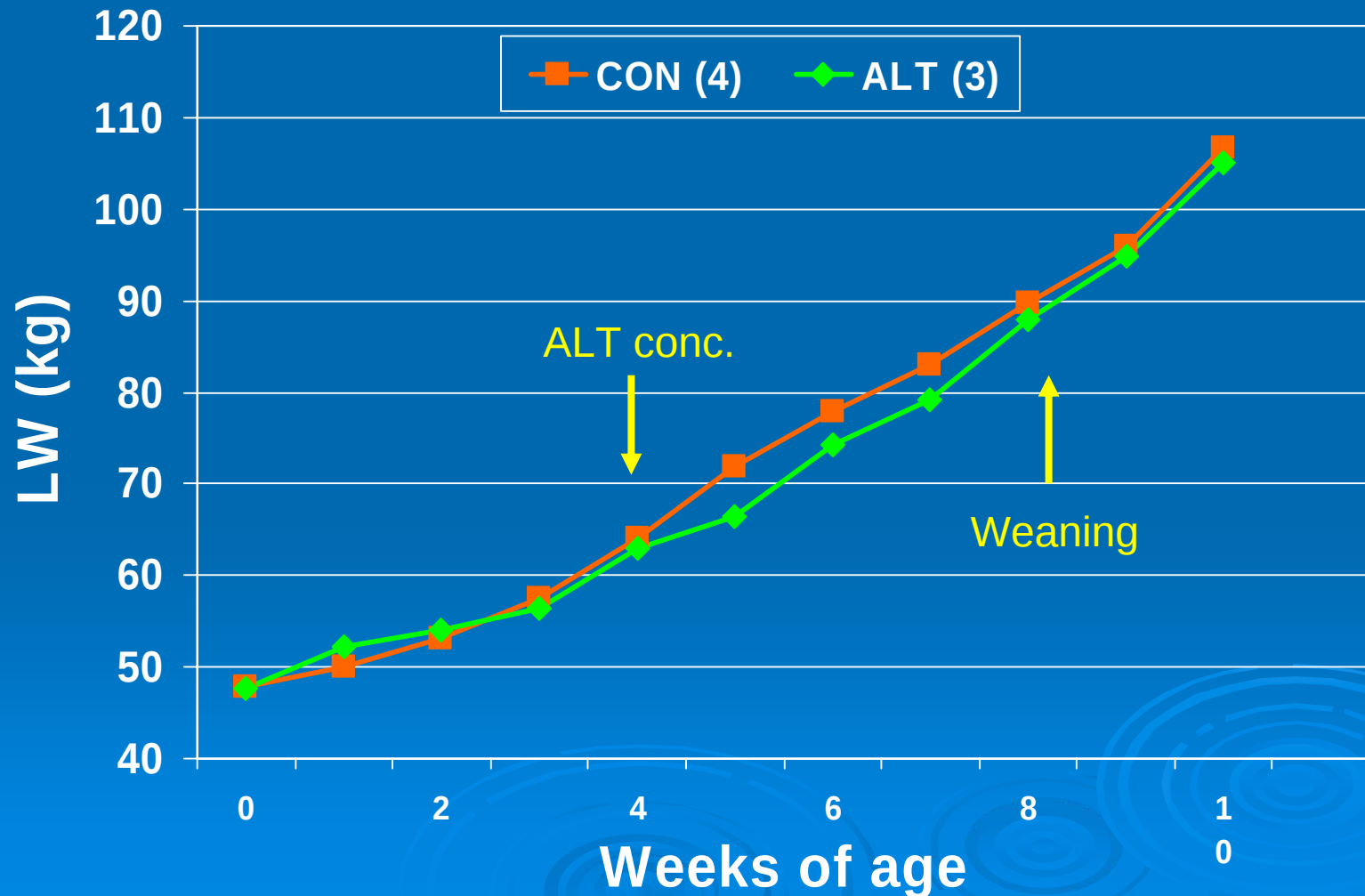
Materials and Methods (II)

- Skim-milk based milk-replacer was fed in two daily meals (123 g milk-replacer DM/kg milk):
 - 4.74 kg/d, wk 1 to 2
 - 6.60 kg/d, wk 2 to 7
 - 3.30 kg/d, wk 7 to 8
- Weaning after week 8

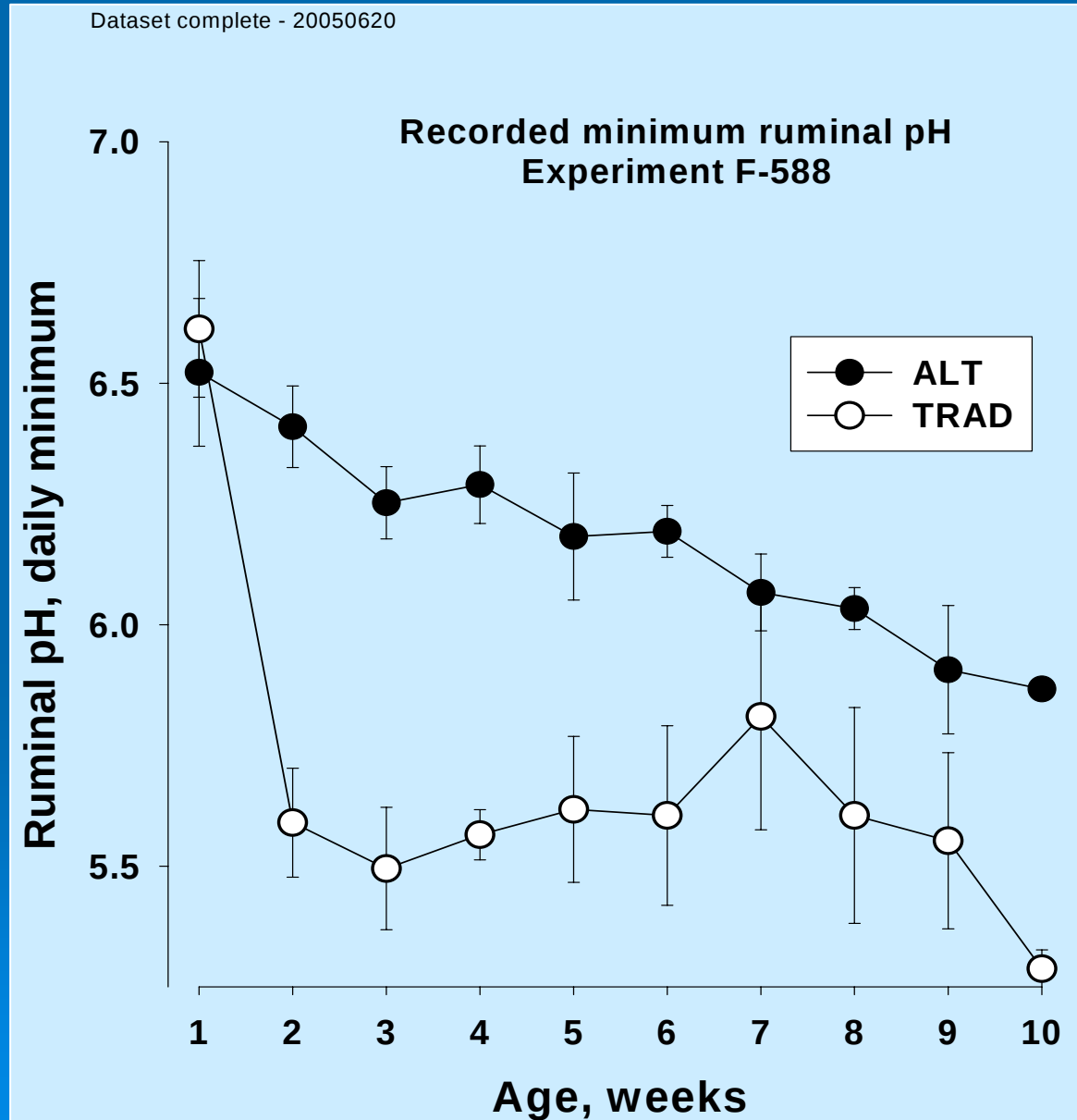
Intake of Concentrate (g/d) in the 10 week experimental period



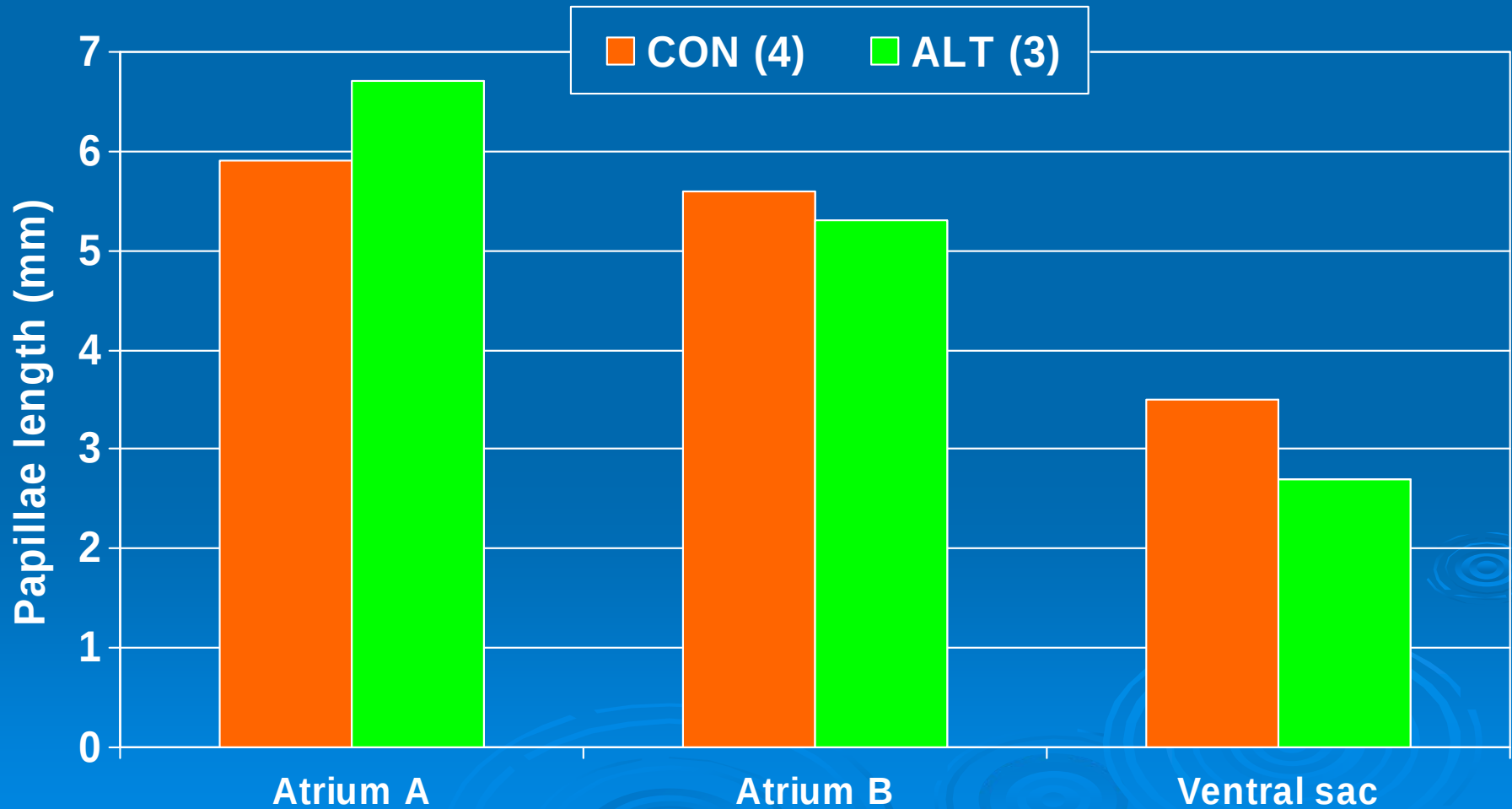
Weight of CON and ALT calves in the 10-wk experimental period



Minimum rumen pH in wk 1 to 10



Length of papillae in atrium and in ventral rumen sac



Conclusion

- It is possible to formulate a rumen-friendly low-starch concentrates without compromising growth or ruminal development in milk-fed calves
- The optimum composition of the 'ALTERNATIVE' calf-starter, and the effects of time of introduction and milk-level pre-weaning are currently being investigated

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