

Measuring motivation for forage of finishing cattle fed high-concentrate diets using a short-term thwarting test



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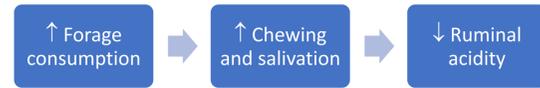
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Background

- Finishing cattle are commonly fed a high-concentrate diet, increasing their risk of Sub-Acute Ruminal Acidosis (SARA)
- Cattle may be motivated to consume forage to offset the negative symptoms of SARA



- The importance of a resource to an animal can be measured by thwarting access to the resource and measuring the behavioral response to its thwarting

Objective

To quantify finishing cattle' motivation to access forage using a short-term thwarting test

Hypothesis

Finishing cattle will spend more time and show more interest in a source of forage, compared to an additional offering of their primary diet

Methods

- 16 finishing steers and heifers
- Fed a TMR (16% forage) 2x/day
- Group-housed except during trial periods (2x/day for 4 days) held in a solitary experimental arena

- Two dietary treatments offered during trial periods (1-8):
 1. 100 g Beardless Wheat Hay (WH; n=7)
 2. 100 g TMR (n=9)



WH TMR

Behaviors measured using video cameras and trained observers:

- Time spent with head in bin
- Movement of bin with muzzle
- Latency to approach bin

1.

3.

2.

4. Period 9 – Thwarting Test

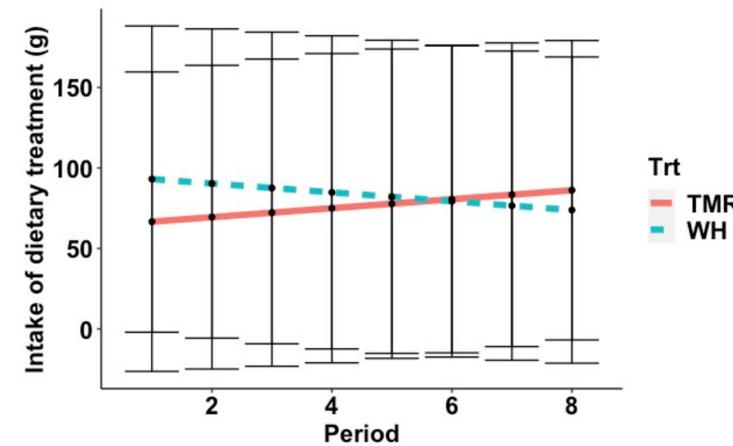
- Animal thwarted from accessing dietary treatments for 30 min during Period 9 using a mesh lid



Results

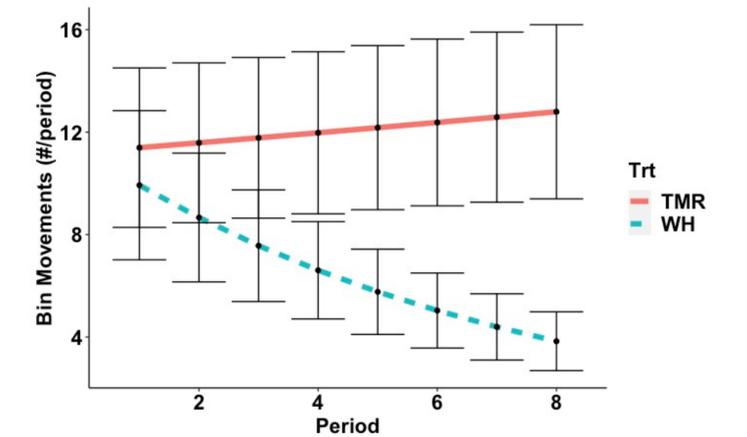
No overall treatment differences -- No differences detected between treatments for any behaviors during the thwarting test ($p \leq 0.26$)

Decreased interest in WH over time -- WH cattle tended to spend less time with their head in the bin than TMR cattle during periods 1-8 ($6.3 \pm 0.5\%$ vs. $7.5 \pm 0.6\%$; $p = 0.06$).



Intake for WH cattle was higher than for TMR cattle during periods 1-4 ($p \leq 0.042$).

All animals were quick to approach the dietary treatment, measured as a proportion of total time with treatments (WH: $7.2 \pm 1.6\%$ vs TMR: $8.9 \pm 1.6\%$; $p = 0.79$).



Bin movements were lower for WH cattle than for TMR cattle during periods 4-8 ($p \leq 0.031$).

Conclusions

- No detectable differences between treatments during thwarting test possibly because of disinterest in the rewards offered
- Animals may not have been experiencing SARA due to moderate forage content (16%) in primary diet leading to little motivation for WH

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