

LAIRAGE TIME AND TEMPERAMENT EFFECTS ON GLYCOGEN CONTENT IN HEREFORD STEERS

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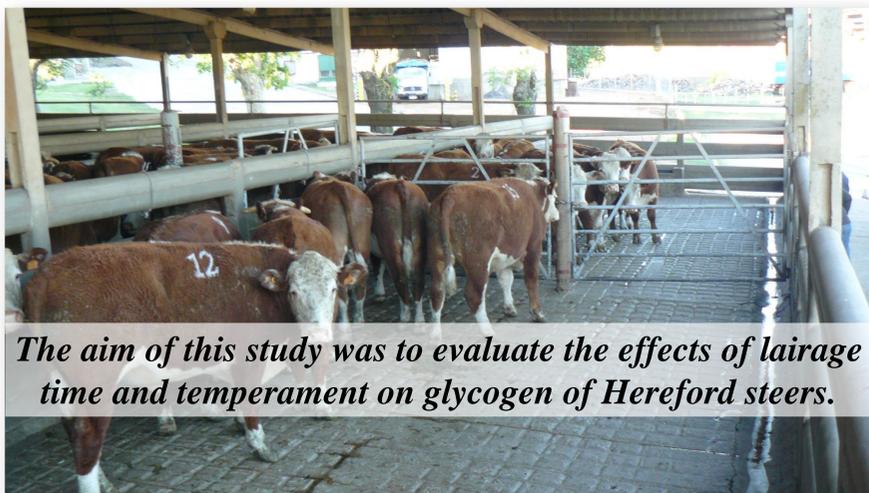
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INTRODUCTION

Pre-slaughter procedures are considered critical for cattle because the animals are exposed to stressful situations as fear, hunger, increased physical activity that may negatively affect meat quality.



The aim of this study was to evaluate the effects of lairage time and temperament on glycogen of Hereford steers.

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MATERIALS AND METHODS

- ✓ Fourteen Hereford steers fed on pasture were assigned to two treatments (T) according to lairage time: 3 hours (T1, n = 7) and 12 hours (T2, n = 7).
- ✓ Individual temperament was assessed using crush score (CS) and flight speed (FS).
- ✓ Muscle samples were extracted from *Longissimus thoracis et lumborum* (LM) muscles 45 minutes *post mortem*, to determine glycogen content.
- ✓ To evaluate the effect of lairage time and temperament on glycogen content, analysis of variance was used fitting a general linear model including the fixed effects of lairage time, CS, and FS in classes.
- ✓ Adjusted means were compared by the Tukey test and the results were considered statistically significant when $P < 0.05$.

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RESULTS/DISCUSSION

The muscle glycogen content differed between treatments ($F_{1,13} = 12.93$; $P = 0.007$). Animals kept in lairage for 3 hours showed lower muscle glycogen content than those kept for 12 hours (3.03 ± 0.85 and 8.39 ± 1.11 , respectively) suggesting a higher level of stress in T1.

In the present experiment the more reactive animals (crush score 4) showed lower concentration ($P < 0.05$) of glycogen in the muscle when compared to calmer individuals (crush score 2).

Table 1. Effect of temperament traits (CS and FS) of Hereford steers on muscle glycogen content

Traits	N	Glycogen (mg/g)
CS		
1	0	-
2	8	$8.72^a \pm 1.34$
3	4	$7.02^{ab} \pm 1.91$
4	2	$1.38^b \pm 0.42$
FS		
1	5	6.97 ± 2.27
2	5	5.37 ± 1.50
3	4	4.78 ± 1.66

Data show average \pm standard error. Crush score and flight speed are the temperament variables analyzed. Means followed by the same letter in columns do not differ by Tukey test at 5% probability.

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SUMMARY/CONCLUSIONS

In conclusion, animals kept in lairage for 3 hours had lower muscle glycogen storage than those kept for 12 hours and animals with a more excitable temperament had lower muscle glycogen content than calmer ones. Thus, the shorter pre-slaughter lairage suggested a higher risk regarding meat quality, probably due to the higher level of stress in these animals.