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Does the carcass grading site affect marbling score and predictions of eating quality in late-maturing beef cattle?

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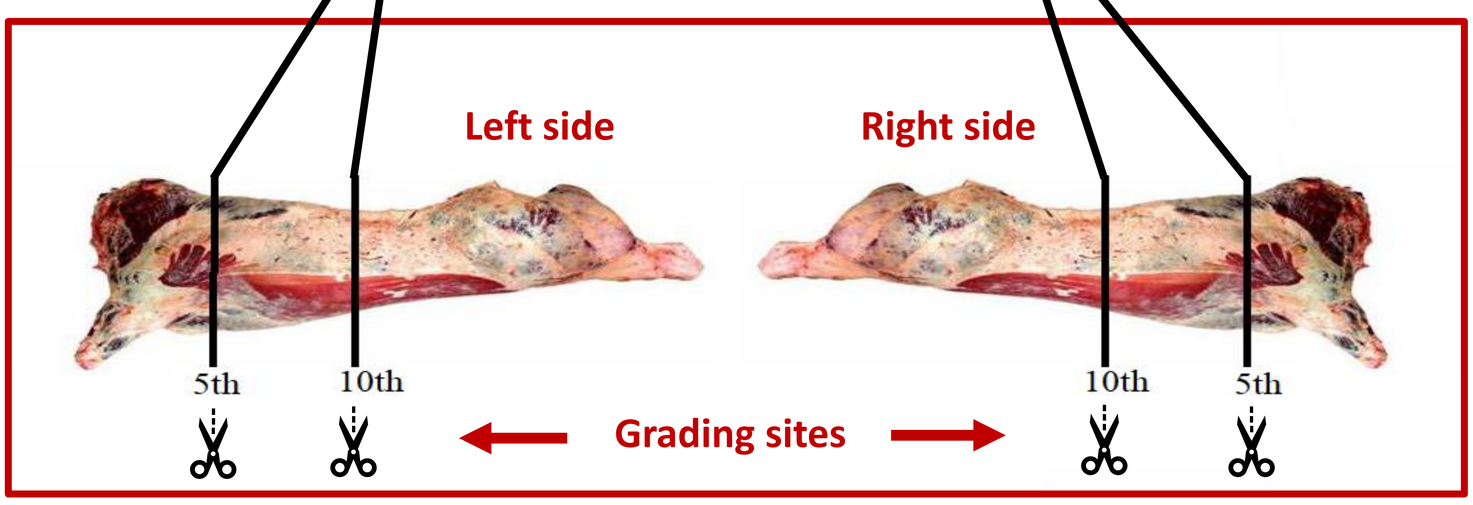

OBJECTIVE

To investigate the impact of the grading site (5th vs 10th rib) and the carcass side (left vs right) on i) predicted MQ4 scores of 5 cuts, ii) predicted MSA index, and iii) intramuscular fat measured visually using 2 marbling scoring systems in late-maturing beef cattle.

CONCLUSION

From a practical point of view an adjustment for the MSA model could allow better prediction of late-maturing beef cattle avoiding over- or under-estimation of animal's potential.

BACKGROUND

- ✓ European beef industry lacks mechanisms for delivering feedback from the consumer to the producers.
- ✓ The Meat Standards Australia (MSA) grading scheme can assess the quality of beef meat using quality scores of several cuts (MQ4 scores) and of the whole carcass (MSA index) including interactions with cooking methods and aging time.
- ✓ Since the MSA model has been developed in Australia, it is important to investigate if it can be applied in Europe.

DATA AND STATISTICAL ANALYSIS

- ✓ 55 young bulls and heifers were collected using the MSA guidelines by a trained MSA chiller assessor.
- ✓ AUS-MEAT marbling, MSA marbling and all the MSA variables collected in the slaughterhouse were used to predict the MQ4 scores for 5 cuts as well as the MSA index using the MSA model.
- ✓ A mixed linear model was used to investigate if the grading site and the carcass side affect marbling scores as well as the predicted MQ4 scores and MSA index.

RESEARCH OUTCOMES

The MSA marbling and AUS-MEAT marbling scores, the MSA index and MQ4 scores were higher at the 5th grading site ($P<0.01$), whereas they did not vary significantly according to carcass side (Table 1). The overall results pointed out the different intramuscular fat deposition between the anterior and posterior of animal's body; intramuscular fat started to deposit from the anterior to the posterior part, and this is probably exacerbated in late-maturing breeds.

Table 1. Least squares means and standard error of the mean (SEM) of MSA traits and predicted MQ4 scores and MSA index for the side and site effects.

Trait	Carcass side		SEM	P-value	Grading site		SEM	P-value
	Left	Right			5th rib	10th rib		
Meat Standards Australia								
AUS-MEAT marbling score	2.11	2.02	0.18	0.14	2.32	1.81	0.18	<0.01
MSA marbling score	457	452	17.0	0.21	480	429	17.0	<0.01
Predicted MQ4 scores								
M. longissimus thoracis grilled	67.6	67.6	0.44	0.80	68.2	66.9	0.44	<0.01
Anterior striploin piece grilled	62.1	62.1	0.54	0.82	62.8	61.3	0.54	<0.01
M. gluteus medius grilled	54.2	54.2	0.32	0.66	54.4	54.0	0.32	<0.01
M. gluteus medius roasted	62.8	62.8	0.33	0.42	63.0	62.6	0.33	<0.01
M. obliquus internus abdominis stir fry	72.2	72.2	0.47	0.67	72.8	71.6	0.47	<0.01
MSA index	61.0	61.0	0.33	0.94	61.4	60.6	0.33	<0.01