

Effect of transport, unloading, lairage, pig handling and stunning on meat quality

V. Van de Perre^a, L. Permentier^a, S. De Bie^b, G. Verbeke^c, R. Geers^a

^aLaboratory for Quality Care in Animal Production, K.U.Leuven, Bijzondere weg 12, B-3360 Lovenjoel, Belgium

^bBelpork vzw (VLAM vzw: Flanders' Agricultural Marketing Board), Koning Albert II-laan 35, box 54, B-1030 Brussels, Belgium

^cInteruniversity Institute for Biostatistics and statistical Bioinformatics, K.U.Leuven, Kapucijnenvoer 35, B-3000 Leuven, Belgium

Introduction

Appropriate pre-slaughter handling of pigs is very important, not only from a welfare point of view, but it also affects pork quality and is consequently linked to economic implications. PSE meat is a major problem in the pork industry.

Objectives

Studying the combined effect of different pre-slaughter parameters i.e. transport, unloading, lairage, pig handling, stunning method and season on meat quality.

Materials and methods

Experimental design:

- 17 slaughterhouses
- 95 sampled groups (12,725 pigs)

Pre-slaughter measurements:

- Transport (5)
- Unloading (8)
- Lairage (10)
- Stunning (9)
- Other (2)

Meat quality measurements

- pH_i (*M. longissimus dorsi*)



Figure: Pre-stunning stress

Table: Final model of significant risk factors ($P < 0.05$) in the generalized linear mixed model for meat quality based on pH_i measurements

Parameter	Level of parameter	Estimate	S.E.	P-value
Intercept		6.6184	0.1566	<0.0001
Season	Spring	-0.08868	0.04330	0.0009
	Summer	0.007195	0.04216	
	autumn	-0.07003	0.04162	
	winter	0		
Mean noise level produced during unloading (dB(A))	continuous variable	-0.00525	0.001956	0.0073
Percentage of panting pigs observed during unloading	continuous variable	-0.03445	0.01168	0.0032
Use of electric prods	no frequent use	0.0885	0.02167	<0.0001
	intermediate use	0.2027	0.07479	
	frequent use	0		

Results

Influencing factors:

- Seperate analysis (10)
- Global model (4):
 1. Mean noise level produced during unloading
 2. Percentage panting pigs
 3. Use of electric prods
 4. Season

Conclusion

Stress during unloading, season and the percentage of panting pigs performs an important role to determine meat quality. Moreover, pre-stunning stress mainly caused by an electric prod affects meat quality and decreases the effect of lairage.

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