DANISH TECHNOLOGICAL INSTITUTE

Cutting and boning before temperature equalisation
– Would electrical stimulation improve the meat quality?

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AIM

The chilling process is the most time-consuming part of the slaughter process and is known to influence the meat quality, e.g., tenderness and drip loss. Electrical stimulation of the carcass will accelerate the glycolysis during the rigor processes when slaughtering. The aim of this study was to investigate the influence of electrical stimulation on meat quality parameters at the pig slaughter line in combination with cutting before complete temperature equalisation.

METHOD

40 carcasses were stimulated with (15s, pulse/pause 5/65 ms, 280 mA) for 14 minutes after sticking and then cut into the three main cuts either 12 or 22 hours post-mortem (pm). 40 other carcasses were used as control carcasses. The temperature and pH were measured during equalisation, while drip loss, colour and WBSF were measured in the Longissimus just after cutting.
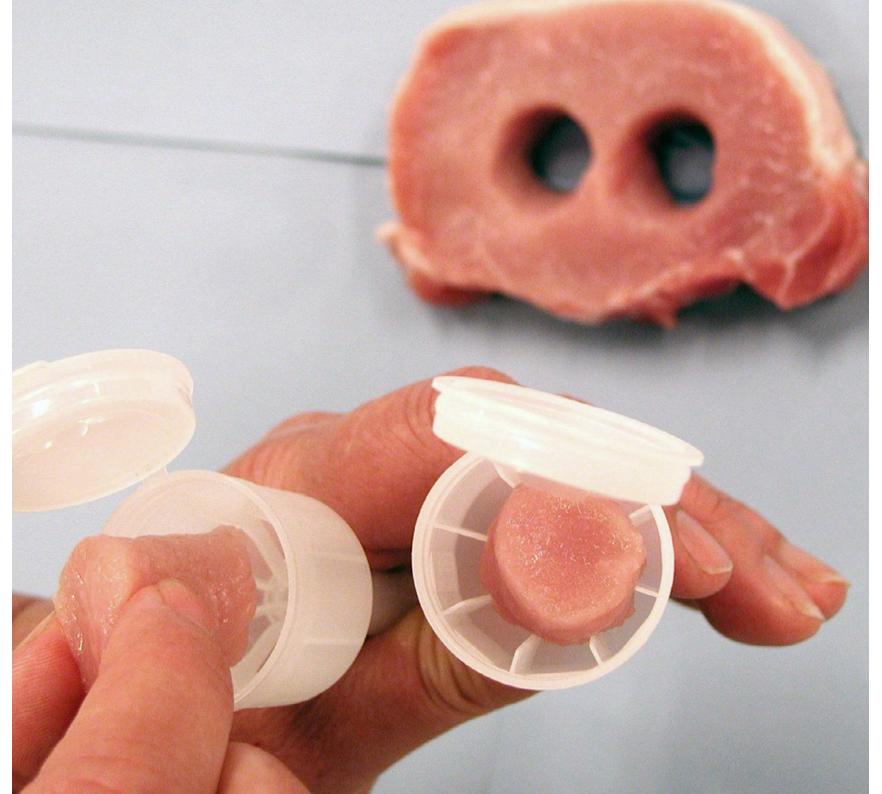

Figure 1a. Electrical stimulation.
Figure 1b. Cutting the carcass into the three main parts: middles, fore-end and ham.
Figure 1c. Loins ready for quality inspection.
Figure 1d. EZ – driploss.
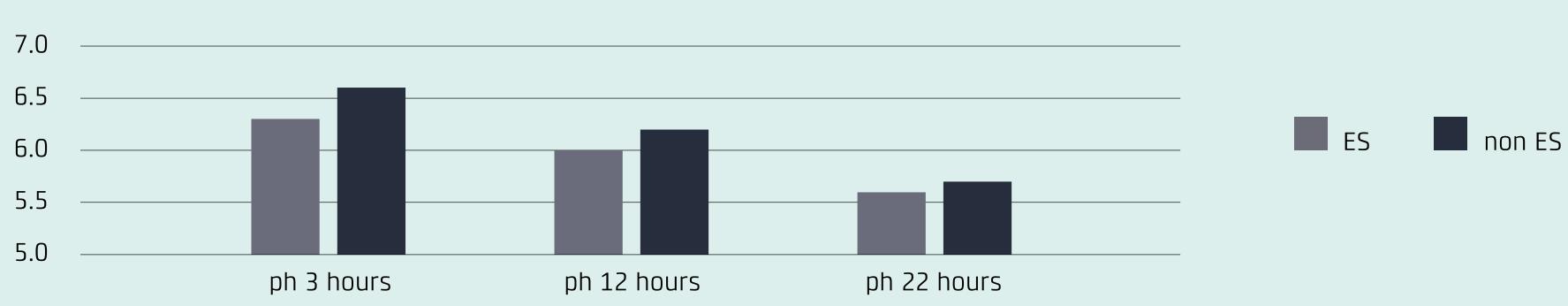**Figure 1e.** Measuring Minolta colour.

RESULTS

Figure 2a. pH in the loin during temperature equalisation

Table 1. Electrical stimulation and cutting time – effect on meat quality

	ES		non ES		Sign. Elec.	Sign. Cutting
Cutting time (pm)	12 hours	22 hours	12 hours	22 hours		
EZ drip loss % (LD)	3.28	3.19	3.64	2.44	NS	0.05
L* (LD)	46.22	52.39	43.79	49.15	0.001	0.001
a* (LD)	4.27	4.89	4.27	4.58	NS	0.05
WBCF N (LD)	66.6	56.07	68.95	60.54	NS	0.01
Shortening mm (PM)	7	0	11	0	0.001	-

CONCLUSION

The time of cutting is still important for the final meat quality in *M. longissimus dorsi*. In this investigation, electrical stimulation reduced the quality difference between cutting 12 hours pm and cutting 22 hours pm, thus, electrical stimulation can be a tool to reduce the equalisation time.

ACKNOWLEDGEMENTS

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