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POST-MORTEM AGEING OF PORCINE M. LONGISSIMUS DORSI FROM BOARS AND GILTS.

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KEYWORDS: tenderness, ageing, meat quality.

OBJECTIVES

It has been previously documented extensively that beef quality improves as it is aged (Penny, 1980, Gessink et al. 1995). However, research has been performed on pork in this regard. This work was used to ascertain the extent of pork quality improvement during at well as identify the different quality traits in pork between entire males (boars) and females (gilts).

INTRODUCTION

In general pork is not aged or conditioned on an industrial scale. Carcasses are generally fabricated after slaughter and consumed a^{diff} later (Buchter and Zeuthen, 1971). When beef is aged over a 14 day period its overall quality improves (Dransfield, 1994). The effective of the second secon ageing has not been studied as extensively in pork as beef. Work has suggested that pork ages faster than beef (Dransfield, et al., 1984). some of the quality differences between tough and tender meat samples, but this has been shown not to be the case (Avery et al., 1997 suggests that proteolytic breakdown of myofibrillar proteins causes the ageing of pork and is the main mechanism for improvem tenderness and that pork quality improves as it is aged (Tornberg et al., 1994). The effects and commercial advantages of ageing clearly defined in the pork industry. The relationship of these changes by sensory analysis with instrumental and chemical analysis and determined. Some reports in the literature state that sex, breed, location of slaughter, pig supplier etc., all have an effect on the overall of pork (Somers et al. 1988). However Barton - Gade (1987) found essentially no differences in meat quality between the set Kempster et al., (1986) found no differences as regards eating quality and overall acceptability. This study examines the change quality during ageing and identifies differences between pork from boars and gilts during this period.

EXPERIMENTAL METHODS

32 pigs of mixed breed aged 6-8 months, 80-110 kg live weight were slaughtered and hung conventionally in a chill at 4°C. The right side *m. longissimus dorsi* (LD) muscles were excised and sampled at 1, 3 and 7 days. Measurements were taken for colour (Strange 1974), sarcomere length (Cross et al. 1980), sensory analysis (AMSA, 1978). SDS PAGE (Greaser et al. 1983, Troy, D., 1987) Warner Bratzler (Shackleford et al. 1991) shear force. In addition pH measurements were taken at 45 minutes, 3 hours, and 24 hours mortem with an Orion pH meter with a 'spearhead electrode' and temperature was measured every 15 minutes approximately 1.5 hours slaughter. Drip loss determination was determined out 2 days post mortem (Taylor, A. A. and Dant, S. J., 1971).

RESULTS AND DISCUSSION

Pork quality increased in terms of tenderness, texture acceptability, flavour and overall acceptability during the ageing period. analysis scores for tenderness increased from 4.45 on day 1 to 5.76 on day 7. Flavour, texture acceptability and overall acceptability of similar increases (see table 1). Warner Bratzler shear force decreased from 6.04 Kg to 3.57 Kg. Sarcomere length did not signific change over the 7 day period. However from SDS PAGE profiles of myofibrillar proteins, there is a high degree of probability myofibrillar proteolysis may be responsible for the increase in tenderness with many gels displaying an increase in concentration of kDa troponin T fragment as the pork was stored are 7 days Think and the proteolysis and the pork was stored are 7 days and 100 million of the proteolysis and the pork was stored are 7 days and 100 million of the proteolysis and 100 m kDa troponin T fragment as the pork was stored over 7 days. This fragment increased to a much greater extent as muscle fibres aged appears from this work that there is a distinct advantage in ageing pork up to 7 days.

The results of quality traits in entire males and females are given in table 2. As quality variables studied including pH, sensory analysis shear force, showed no significant differences (P > 0.05) between boars and gilts. No differences in the appearence of the 30 kD^a between boars and gilts could be identified. Protein and water content differed significantly between males and females ($P < 0.0^{5}$) differences were small. This agrees with other work (Barton - Gade, 1987 and Kempster et al., 1986) and suggests that sex has little influence on the quality of pork from pigs aged 6 -8 months old.

Table 1.

Sarcomere	Warner	Tenderness	Texture	In the second	10
lenath	Bratzler	Score	Accordent	Flavour	Overall
slaughter.	shoar	Score	Acceptability.	Score	Acceptability
(µm)	force (Kg)				
1.68	6.04	4.46	3 75	2 55	0.50
1.76	4.72	5.11	3.97	3.33	3.52
1.82	3.57	5.76	4.23	3.98	3.79
	Sarcomere length (μm) 1.68 1.76 1.82	Sarcomere Warner length Bratzler shear (μm) 1.68 6.04 1.76 4.72 1.82 3.57	Sarcomere Warner Tenderness length Bratzler Score shear (μm) force (Kg) 1.68 6.04 4.46 1.76 4.72 5.11 1.82 3.57 5.76	Sarcomere Warner Tenderness Texture length Bratzler Score Acceptability. shear (μm) force (Kg) 1.68 1.68 6.04 4.46 3.75 1.76 4.72 5.11 3.97 1.82 3.57 5.76 4.23	Sarcomere Warner Tenderness Texture Flavour length Bratzler Score Acceptability. Score shear (μm) force (Kg) 1.68 6.04 4.46 3.75 3.55 1.76 4.72 5.11 3.97 3.71 1.82 3.57 5.76 4.23 3.98

Tenderness score ranges from 1 : extremely tough to 8 : extremely tender. Texture acceptability ranges from 1 : very poor to 6 : very good. Flavour score ranges from 1 : very poor to 6 extremely good.

Overall Acceptability ranges from 1 : not acceptable to 6 : extremely acceptable.

Table 2.

diable	Chief Aller State			
pH (45min)	Male	Female	Р	Significance
pH (3hr)	6.36	6.39	0.12	N/S
pH (24br)	6.08	6.14	0.67	N/S
Sens (tond	5.65	5.66	0.87	N/S
Sens (tend 1d)	4.40	4.51	0.64	N/S
Sens (tend 3 d)	5.21	5.00	0.44	N/S
W/B (1d)	5.85	5.66	0.30	N/S
WIB (3d)	6.22	5.86	0.43	N/S
W/B (7d)	4.88	4.62	0.33	N/S
Protein	3.63	3.51	060	N/S
Fat	22.51	23.5	0.02	*
Moisture	1.71	1.76	0.85	N/S
	75.44	74.49	0.01	*

N/S: Not Significant.

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* Significant at P < 0.05.

CONCLUSION

The overall quality of pork improves significantly as it is aged up to 7 days with tenderness increases probably as a result of enzymatic $My_{0 \text{fibrit}}$. ^{hy}ofibrillar proteolysis. It seems a distinct advantage to age pork before offering for sale. There are no quality differences in pork between ^{hy}ofibrillar proteolysis. It seems a distinct advantage to age pork before offering for sale. There are no quality differences in pork between entire males and females in terms of the attributes studied.

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