BEHAVIOURAL AND PHYSIOLOGICAL CHANGES IN PIGS SUBJECTED TO DIFFERENT FASTING OR LAIRAGE TIMES

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OBJECTIVES

To determine the effect of different on farm fasting and lairage times on behavioural and physiological parameters.

BACKGROUND

Pre-slaughter conditions influence to a great extern both welfare and meat and carcass quality. Incorrect fasting can lead to welfare problems (sickness, vomiting…). Allowing pigs a recovery after transportation may contribute to ameliorate its effects, provided that lairage conditions are good enough. Moreover, fasting of pigs can result in some other benefits on economical grounds (saving of feed for the producer), environmental grounds (reducing waste at the abattoir) or welfare grounds (decreasing mortality during transport).

MATERIAL and METHODS

Seventy-five entire male pigs of a commercial cross (Pietrain X (Landrace X Duroc)) were housed in 6 groups and 3 groups were subjected to either 12 or 2 hours of fasting (12F and 2F). Each group was videotaped before (6h) and during fasting (3 or 1,5h for 12F and 2F) and analysed afterwards with scan sampling method to record behavioural data (activity, inactivity, aggressive patterns and eating,Figure 1). Pigs were also observed by focal sampling during fasting to determine total number of aggressions. Blood samples were obtained before transportation and at exsanguinations to determine Pig-Map (PFA), cortisol (C), creatine phospho-kinase (CK) and lactate dehydrogenase (LDH) values.

Figure 1. Test pens

Animals were transported in 3 groups and kept in lairage with the same groups without mixing. Three lairage times were applied 0, 5 or 10 hours (0L, 5L, 10L) to each of the fasting times. As apart of the carcass quality assessment, skin lesions were recorded by Meat and Livestock Commission pattern (MLC, Figure 2). Data was analysed by PROC GLM using SAS.

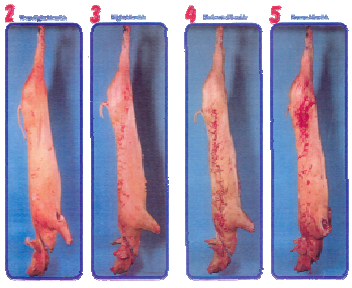

Figure 2. MLC skin lesions pattern

RESULTS

Table 1. Pre – slaughter behaviour of the two fasting groups.

	Fasting Time		P
	2F	12F	
Activity	11,91 (0,34)	8,48 (0,73)	NS
Inactivity	85,89 (1,25)	89,15 (1,25)	NS
Aggressive interactions	0,01 (0,02)	0,03 (0,02)	NS

NS P>0.1, 2F= 2 hours fasting; 12F= 12 hours fasting

Table 2. Skin lesions assessed by MLC pattern.

	Fasting Time		P
	2F	12F	
Skin Lesions	1,82 (0,06)	1,97 (0,06)	+

+ P<0.1, 2F= 2 hours fasting; 12f= 12 hours fasting

Table 3. Physiological parameters of the two fasting groups.

	Fasting Time		P	Lairage Time			P
	2F	12F		0L	5L	10L	
PFA	1,25 (0,08)	1,19 (0,08)	NS	1,15 (0,11)	1,28 (0,10)	1,23 (0,11)	NS
C	1,70 (0,17)	1,91 (0,17)	NS	$2,38^{b}$ (0,22)	$1,65^{a}$ (0,20)	$1,38^{a}$ (0,21)	***
CK	1,17 (0,18)	2,00 (0,18)	***	1,29 (0,23)	1,89 (0,21)	1,57 (0,22)	NS
LDH	1,09 (0,11)	1,58 (0,11)	***	1,26 (0,14)	1,51 (0,12)	1,23 (0,13)	NS

*** P<0.001, 2F= 2 hours fasting; 12F= 12 hours fasting*

CONCLUSIONS

1- No differences in general behaviour between 12F and 2F groups were observed, but more aggressive interactions were recorded in the 12F groups.

2- More skin lesions were observed in the 12F group.

3- A higher increase in CK and LDH was observed for the 12F group, suggesting a major physical stress for those pigs.

4- Cortisol increase was higher for the 0L group compared to 5L or 10L, suggesting that not allowing lairage may imply more physiological stress for the pigs.

These findings suggest that, under the minimal stress conditions of the present study, fasting and lairage times had an effect on pig welfare and this influence could be of greater importance if concomitant factors (mixing, short transport time, poor handling ...) under commercial conditions were present.