

Optimal handling of entire male pigs at the day of slaughter

Susanne Støier¹, Helle Daugaard Larsen, Lars Blaabjerg, Peter Vorup, Margit Dall Aaslyng

sst@dti.dk, Danish Technological Institute, Danish Meat Research Institute, Gregersensvej 9, 2630 Taastrup, Denmark

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Introduction

Entire male pigs are known to be more aggressive than castrates (Boyle & Björklund, 2007). Therefore, it is important to optimize the handling at the day of slaughter to avoid fighting, which can result in reduced animal welfare and meat quality. Besides management and design of the lairage facilities, keeping pigs in small groups during lairage is a well-known way to increase welfare (Gade & Christensen, 1999). However, the effect of the ratio of entire male pigs versus female pigs in a pen is not known. It would complicate the handling of pigs at the slaughterhouse if a specific ratio must be met, and therefore it is necessary to know the welfare consequences of different gender ratios.

The aim of this study was to investigate animal welfare at different ratios between entire male pigs and female pigs in the pens during one hour of lairage before slaughter.

Methodology

On five successive days during a warm period (up to 29°C outdoor temperature), ten pens each containing 14 pigs were observed for one hour. The gender combination in the pens were: 0/14, 4/10, 7/7, 10/4 or 14/0 entire male pigs/female pigs resulting in a total of 10 observed pens per ratio. The different ratios were distributed to ensure that all five combinations were represented in each pen-string and for an equal amount of times at each pen number (1-5) (see the example in Figure 1). Every five minutes, a scan was made identifying how many (and which) pigs were laying down. From these observations, a rest index was calculated as the total number of pigs laying down*100/the total number of observed pigs. Previously, studies have shown that the rest index is closely related to aggression as well as mounting behaviour.

The study was conducted under commercial circumstances, and due to practical reasons, 10 of the pigs that should have been females were castrates. Furthermore, four of the recordings were broken resulting in 10 replicates of the 10/4 ratio and 9 replicates of the other combinations. The effect of the gender ratio as well as the location of the single pens were analysed.

Race to the stunner	
Pen 1 0 EM/14 F	Pen 1 4 EM/10 F
Pen 2 14 EM/0 F	Pen 2 10 EM/ 4 F
Pen 3 7 EM/7 F	Pen 3 7 EM/7 F
Pen 4 10 EM/ 4 F	Pen 4 14 EM/0 F
Pen 5 4 EM/10F	Pen 5 0 EM/14 F

Figure 1. An example of how pens with different combinations of entire male pigs (EM) and female pigs (F) were placed on one day of observation. During the study, each day had a new combination, and all combinations were represented in all pens.

Results

The rest index of the five different ratios between entire male pigs and female pigs can be seen in Figure 2. The rest index in pens with 0 or 4 entire male pigs was in general higher than if more entire male pigs were present, but there was generally a huge variation in rest index between pens. This means that some pens with mainly female pigs had a low rest index, while some pens with mainly entire male pigs had a high rest index. The average rest index in all pens was above 0.7 meaning that the pigs were laying down during 70% of the hour spend in the lairage area.

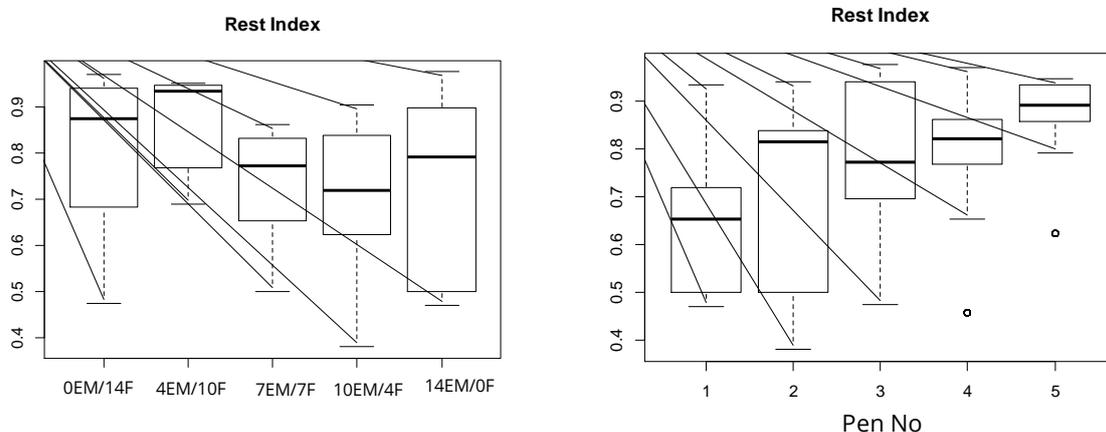


Figure 2. A boxplot of the rest index in pens with different ratios of entire male pigs (first number) and female pigs (second number) (left plot) or situated differently from the race to the stunner. 1 was the pen closest to the race, and 5 was the pen farthest off (right plot).

The rest index, dependent on how far away from the race to the stunner the pen was situated, is illustrated in Figure 2 left. The closer the pen is to the race, the lower the rest index. This might indicate that the pigs are disturbed by the push-hoist gates. Furthermore, the average rest index in pen 1 is lower than the average rest index of pens that only contained entire males showing that the position of the pigs in the lairage area is more important than the ratio between genders.

Entire male pigs are more aggressive than female pigs, and it is interesting to see if the rest index differs between the two genders. Figure 3 shows the individual rest index per gender.

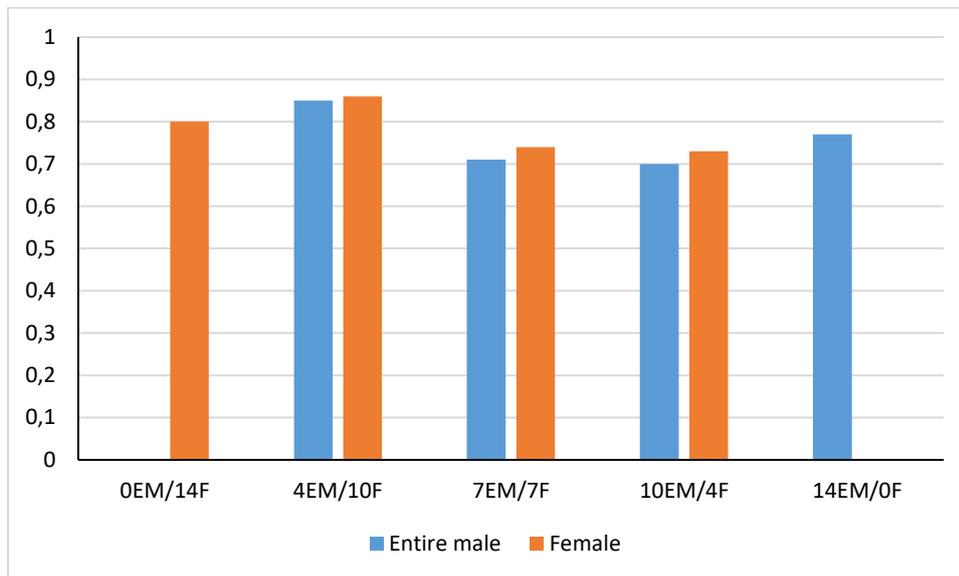


Figure 3. Rest index during one hour of lairage depending on ratio between entire male pigs (EM) and female pigs (F), blue being entire male pigs and orange being female pigs.

The rest index does not differ between the two genders. This indicates that even though the entire male pigs are expected to be more aggressive, all pigs in the pen are disturbed and not only the aggressors.

Conclusion

To maintain a cost-effective production system including an efficient and fast process flow in the lairage facilities and to improve animal welfare, pigs should be handled as little as possible during unloading. Therefore, it is desirable if the ratio between entire male pigs and female pigs is unimportant. Our results show that even though a lower rest index was seen in pens having many entire male pigs compared to pens with mainly female pigs, there is no reason to give specific guidelines regarding the ratio between entire male pigs and female pigs.

References

P.B. Gade, L. Christensen **Automatic handling at lairage improves welfare.** Meat International, 9 (4) (1999), pp. 17-19

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