The effect of behaviour, handling and attitude of stockpeople on the welfare and productivity of pigs in intensively housed systems.

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Introduction

Pigs in intensively housed farming systems come into frequent contact with humans and the nature of these interactions may have an effect on the welfare and productivity of these animals. The relationship between the behaviour, attitude and handling of the stocksperson, and its effect on welfare and productivity, appears to be mediated via high fear levels, and consequent high stress levels, of the pig. Thus an attempt to investigate the nature of this relationship provides an opportunity to improve the welfare of pigs, whilst concurrently improving economically important productivity measures.

Hemsworth et al (2002) examined the relationships between handling prior to slaughter and measurements of muscle physiology indicative of meat quality in pigs. The study hypothesised that if the behaviour of stockpeople towards pigs prior to slaughter is stressful to the extent that meat quality and welfare are adversely affected, then there are likely to be opportunities to reduce such limitations. The study particularly looked at identifying, and targeting for improvement, those stockperson behaviours that induce fear responses prior to slaughter.

Similarly, Hemsworth (2003), examined previous research into livestock industries, and particularly intervention studies in the pig industries, that show the potential of cognitive-behavioural intervention techniques designed to target specifically those attitudes and behaviours of stockpeople that have a direct effect on animal fear. The study also considered areas for future research.

Both studies specifically assessed behaviour and handling techniques. Day et al (2002) investigated an additional dimension in the interactive effects of handling and environmental enrichment on the behaviour, performance and welfare of growing/finishing pigs. Previous studies have concluded that aversive treatment of pigs results in poor approach behaviour, poor weight gains and adrenal gland morphology indicative of chronic stress (Gonyou et al 1986). Barren environments have been implicated in the development of adverse behaviours and environmental enrichment can increase the expression of exploratory behaviour, reducing the animal's fear (Pearce and Paterson, 1993). This study aimed to explore the separate and interactive effects of these two factors which could have important ramifications for animal welfare.

The Experiments

Hemsworth et al (2002) randomly selected 100 crossbred female pigs, reared intensively, and observed them at the abattoir. Behaviour of the stockpeople immediately prior to slaughter was recorded and classified as either positive in nature (pats, strokes), or negative in nature (slaps, pushes, hits and prods with an electric goad). The latter category was further divided into moderately or highly aversive. Blood samples taken immediately post-slaughter were analysed for plasma cortisol, lactate and glucose levels, and six to eight hours post slaughter, pH and light scatter of the meat was measured. These values were used as criteria in assessment of the pigs' handling stress prior to slaughter and the meat quality.

Significant correlations between the stockperson's behaviour, plasma lactate and glucose, and muscle lightness, showed there was increased muscle glycogenolysis, most likely occurring under the influence of adrenergic mechanisms as a consequence of acute stress pre-slaughter in those pigs which had encountered highly negative interactions (mainly electric goad use). Further, a significantly greater percentage of this group of pigs were classed as having Pale-Soft Exudative meat (PSE).

Hemsworth (2003) looked at the effects of negative handling on productivity and stress physiology of pigs in previous studies in which growth rate, basal free cortisol and adrenal gland morphology were used as indicators. Once again, negative tactile interaction such as slaps, or use of an electric goad, were classified as highly negative interactions, and resulted in pigs showing increased fear of humans and basal cortisol concentrations. The study also explored the importance of stockperson attitude and its qualification via attitude questionnaires and direct behavioural observation. Significant results lead to a review of opportunities to improve attitudes and behaviour of stockpeople.

Day et al (2002), took 320 growing pigs and divided them into groups to assess the separate and/or interactive effects of two levels of handling (P: Pleasant or M: Minimal) and four levels of enrichment. Daily food intake was significantly affected by handling during weeks one to six, P- group eating more than M-group. However, this was not reflected in daily weight gain or food conversion ratio. Approach tests to measure fear of humans showed no differences between the P-group and the M-group and, surprisingly, ease of handling test showed the P-group taking significantly longer to exit their pen than the M-group. There were very few significant interactions between handling and environmental enrichment.

Discussion

These studies show that the behaviour and attitude of a stockperson towards pigs can significantly affect welfare and productivity, but that there is a requirement for further research into this area. The studies identify highly negative interactions, or "aversive" behaviour, as the category of handling most likely to negatively impact upon welfare and productivity. They found little difference in the impact of pleasant handling and minimal handling. Hemsworth (2003) offers the explanation that this is logical as stress is unlikely to limit the productivity of the latter group as they are not in regular contact with humans. The absence of a negative handling category in the study by Day et al (2002) may explain the lack of significant differences found in measurements of fear and stress between groups of pigs. In conjunction with the finding that pleasantly handled pigs were more difficult to move than minimally handled pigs, this suggests a need for further research into what forms of interaction we can classify as "positive". In acknowledging that any tactile contact may be fear-provoking, at least initially, it may be worthwhile exploring other interactions such as visual and auditory stimuli.

Conclusion

Reducing the use of an electric goad, slaps and hits (all considered highly negative interactions) is clearly illustrated to be beneficial to animal welfare, meat quality, and therefore to productivity, in these studies. Hemsworth (2003), further makes the recommendation that a training program, targeting improvement of stockpeople's behaviour and attitude, should be introduced into livestock industries to reduce animal fear. This would provide a more ambitious but perhaps more fundamental beginning to improving the welfare of intensively housed pigs.

References

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