Aggression and its Welfare Implications in Newly Weaned Piglets

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Introduction

Under commercial conditions, weaning presents an extreme stressor for piglets (Parratt *et al*., 2006). The common management practice of sorting pigs into groups based only on weight leads to abrupt mixing of unfamiliar pigs, which may result in vigorous fighting, wounds and, occasionally, death (Friend *et al*., 1983; Petherick & Blackshaw, 1987). Thus, current weaning practices often significantly compromise piglet welfare. This paper reviews three recent research articles in the literature investigating the effect of pre-weaning mixing, weaning into single-sex groups, and the use of lesion scoring to identify aggressive behaviour in young pigs.

Discussion

A study conducted by Parratt *et al*. (2006) investigated whether allowing piglets to co-mingle briefly in the pre-weaning period would reduce fighting post-weaning. Previous studies (Pluske & Williams, 1996; Weary *et al*., 1999) have investigated this hypothesis, but have allowed piglets to mingle for longer periods (up to four weeks pre-weaning). Lengthy pre-weaning mixing reduced post-weaning fighting, but to the detriment of pre-weaning growth rates, because suckling behaviour was disrupted. Parratt *et al*. (2006) allowed co-mingling for only five days pre-weaning, a modification that resulted in no adverse effects on growth rates.

The study used 21 litters in both the experimental and control groups. In the experimental group (divided into units of three sows), the backboards of three adjacent farrowing crates were removed, allowing piglets access to a communal corridor. Piglets in control litters were not allowed to mix. Weight gain and skin lesions were monitored and fighting behaviour recorded by video camera.

Compared with the control group, mixed piglets showed significantly reduced fighting in the immediate post-weaning period, yet pre-weaning fighting was significantly increased. These results confirm that pre-weaning mixing is successful in reducing fighting post-weaning, and can be achieved without compromising growth rates. However, as Parratt *et al*. (2006) state, before endorsing this technique, further research is required to investigate its consequences. Fundamentally, this method simply shifts fighting from the post-weaning to the pre-weaning period, which may or may not enhance welfare overall.

A weakness of this paper is that it consisted of two independent studies, each investigating either the pre-weaning or post-weaning conditions. More reliable results would have been obtained if the two studies had been carried out using the same starting cohort of piglets.

In another recent study, Colson *et al*. (2006) aimed to assess the extent of aggressive behaviour in piglets weaned into same-sex versus mixed-sex groups. The hypothesis was that same-sex groups would display aggressive behaviour less. It investigated not only the influence of sex on fighting behaviour, but also the effect of familiarity among piglets, thus paralleling the study by Parratt *et al*. (2006).

Four experimental groups (each containing eight piglets) were created: (L-MF) four males and four females reared together, (A-MF) four males and four females that were unfamiliar, (A-M) eight unfamiliar males, and (A-F) eight unfamiliar females. Fights were classified using an aggression score of 1-4, with agonistic responses including threatening, chasing, head-knocking and biting being recorded (Colson *et al*., 2006).

Results showed that the duration and severity of fighting were greatest in the unfamiliar mixed-sex group (A-MF), and there was no significant difference in aggressive behaviour between all-male and all-female groups. The presence of females in mixed-sex groups increased male aggression, with fights mainly involving two piglets of the opposite sex. Reinforcing the findings of Parratt *et al*. (2006), this study demonstrates that grouping familiar piglets at weaning induced shorter and less severe fights than grouping unfamiliar piglets.

The result of mixing unfamiliar pigs, as occurs in current weaning practices, is that aggression can be intense and often results in the accumulation of skin lesions. In their 2006 study, Turner *et al*. assessed the validity of lesion scoring, a gauge of the outcome of fighting, as a proxy measure of individual aggressiveness.

A sample of 350 piglets was weaned at four weeks of age and placed into groups with unfamiliar pigs. Aggressive behaviour displayed in the initial 24 hours post-mixing was recorded using video equipment. Aggression was recorded when bites were delivered. After the initial 24 hours, lesion scoring was performed by one observer.

The study found a correlation between the location of lesions and aggressive behaviour. Pigs that initiated fights seemed to accumulate lesions to the cranial third of the body, and pigs that were recipients of bullying accumulated lesions to the caudal third of the body.

This information on the location of lesions (+ number) has refined the method of lesion scoring, and may allow it to be used to identify highly aggressive behavioural phenotypes, and possibly to breed out such characteristics. This study formed part of a larger project investigating the heritability of aggressiveness in pigs.

However, as a subjective measurement performed by a single person, both the accuracy and reliability of lesion scoring is debatable. Consequently, the usefulness of this technique for assessing aggression may not be as promising as Turner *et al*. (2006) advocate.

However, as a subjective measurement, both the accuracy and reliability of lesion scoring is likely to be reduced if performed by multiple observers. If instigated as a tool by pig producers, this would definitely occur, and consequently, the usefulness of this technique for assessing aggression may not be as promising as Turner *et al*. (2006) advocate.

Conclusion

Initial post-weaning aggression results from the mixing of unfamiliar pigs. It is assumed that minimising fighting among piglets may alleviate some stress of the weaning process, thus improving the welfare of these animals (Parratt *et al*., 2006). Pre-weaning mixing to familiarise piglets, weaning into single-sex groups and using lesion scoring to identify overly aggressive phenotypes are techniques that may help to reduce aggressive behaviour and thus improve the welfare of newly weaned piglets.

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