

Comparison of Management Factors Affecting Aggression in Group Housed Sows

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SUMMARY

This study investigated the aggression and injuries resulting from group formation after breeding. Five social management treatments were imposed with four of them designed to reduce aggression compared to the Control treatment. The results indicate that the Familiar treatment had the most potential to reduce aggression and injuries, where the same social group was maintained as in the previous gestation.

INTRODUCTION

Group housing of sows during gestation involves some degree of aggression when the groups are formed. Although short-lived, this aggression results in scratches to the animals and, more seriously, may affect farrowing rate. The objectives of this study were to reduce the level of aggression among sows re-grouped within a few days of breeding, using five experimental social treatments.

EXPERIMENTAL PROCEDURES

Groups of 16 bred sows were used. All animals had previous experience in group housing with an electronic sow feeder. Re-grouping occurred at 11 days post-partum, and subsequent observations occurred in a mixing pen providing approximately 80 m² (860 ft²) of partially slatted floor.

Unless otherwise noted in treatment specifications, each group consisted of approximately equal numbers of parity 1-2 (Young) and 3-6 (Old) animals, and less than 50% of all social pairs within the group were familiar with each other based on sharing a pen during the previous gestation. The largest group of sows originating from the same previous gestation group were designated as Acquainted, while those from smaller groups were referred to as Unacquainted.

The treatments included:

1. Control: group formed as above
2. Familiar: sows from the same previous gestation group
3. Dominant: standard group of sows and three socially dominant animals that were large (5th parity or higher), had been housed together for at least 6 weeks, and well acquainted with the mixing pen
4. Protected: standard group of sows but provided with 7 free-access half-stalls to provide protection to their head and shoulders
5. Exposed: standard group of sows except that they had been weaned directly into the mixing pen and kept there for 48 hours before being moved to the breeding stall

Following regrouping, saliva samples and data on aggression and injuries were collected.



RESULTS AND DISCUSSION

The incidence of aggression and injuries among the five social management treatments are presented in Table 1. The Familiar treatment appears to have the most potential for reducing aggression. The relatively short fights among familiar sows probably represents reinforcement of social position rather than the establishment of a new hierarchy.

“Having dominant sows within the group had a tendency to reduce aggression and injuries on the first day following regrouping.”

The Dominant treatment, which involved the presence of three older animals from a well-established social order, tended to have fewer aggressive events, particularly on the 1st day of group formation. The concept behind this treatment is that sows would avoid initiating aggression when in the presence of a clearly dominant individual.

The Exposed treatment, in which the sows had spent 48 hrs together after weaning, but before being stalled for breeding, did not reduce the incidence of aggression compared to the Control group except on the first day. However, the level of injuries was reduced. The short period of pre-exposure used in this study may have only accomplished a weak social order that required additional establishment after the subsequent re-grouping.

This study confirmed other reports of the ineffectiveness of protective stalling on the aggression among re-grouped sows.

There were no differences in overall salivary cortisol concentration among the five treatments (Table 1). However, there were differences in cortisol levels on different days, with the lowest concentration prior to re-grouping and the highest concentrations on all the days following regrouping (Table 2).

Table 1. Incidence of aggression and injuries among regrouped sows on five social management treatments.

	Treatments					SEM	P-Value
	Control	Dominant	Exposed	Protected	Familiar		
Fighting (#/6 hrs)							
Overall	6.4	4.3	6.9	13.9	5.7	3.16	0.33
1st day	11.4	5.8	8.6	17.5	10.8	3.49	0.07
2nd day	3.9	3.7	6.3	6.5	2.9	3.41	0.07
3rd day	3.7	3.9	5.8	17.7	3.5	3.53	0.07
Fighting (sec/6 hrs)							
Overall	79	48	71	105	21	33.38	0.55
1st day	203	88	116	207	45	40.30	0.17
2nd day	17	37	63	55	11	39.06	0.17
3rd day	18	28	32	54	8	41.19	0.17
Injuries (score)							
Day 1-3	7.7	6.2	4.7	6.2	4.2	0.99	0.03
10 days	4.1	5.6	3.3	3.3	2.5	3.37	0.03
Cortisol (nmol/L)							
Overall	5.9	7.2	5.6	4	5.8	1.02	0.26

Table 2. Incidence of aggression and injuries among regrouped sows on five social management treatments.

	Day					SEM	P-Value
	Pre	24 hr	48 hr	72 hr	10 days		
Cortisol (nmol/L)	3.9	5.9	6.6	5.6	6.5	0.70	0.01

CONCLUSIONS

If sows are maintained in similar groups from gestation to gestation, it is more likely that aggression will be reduced compared to the other re-grouping strategies tested. However, this method would not always be practical. Having dominant sows within the group had a tendency to reduce aggression and injuries on the first day following regrouping. A similar trend was found when sows were exposed to each other before breeding. Providing protection during re-grouping did not have an effect on aggression or injuries.

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