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Grouping piglets from five different litters

Connecting five single-farrowing crates when piglets were 10 days old to bring in contact suckling piglets of different litters did not disturb daily working conditions.
Six from 50 litters of the combinations 5a and 5b had to be separated due to illness. Daily weight gain of suckling piglets in connected crates was significantly reduced by 16-23 g compared to piglets of isolated kept litters. This result is at least partly in contrast to other investigations. Fighting between piglets of different litters occurred mainly during the first days after connecting the crates.

Keywords:
Suckling pigs, early contact, growth, injuries, work

Abstract
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There is indication [1, 2] that early contact between piglets of different litters still during suckling period can reduce stress in the post weaning phase and enhance piglet's growth after weaning, if the groups are not changed when transferring them from farrowing pens to rearing pens. The above mentioned investigations combined litters by removing the farrowing pen's side wall and growth of piglets was not affected [2] or partly not affected [1]. The sows were kept in farrowing crates during the whole suckling period.

In this investigation five litters were combined, as in the rearing period groups of 30-50 piglets are common. Besides piglet's growth also the effects on working conditions were of interest.

Material and method

The study included a total of 75 litters and 5 runs, 15 litters per run. 3 of the 15 litters were kept singular throughout the whole suckling period, 10 litters were combined to two groups of five litters each, and two more litters were combined to a group of two litters. Sows farrowed in crates. Grouping of piglets took place ten days after farrowing by removing (combination 5a) or opening (combination 2, 5b) the pen walls (fig. 1, fig. 2).

Just before opening the pens piglets were marked with electronic ear tags and weighed individually (day 0). Weight was again taken on the day before weaning (day 16). On the day of grouping the litters (day 0), 1 day (day 1), one week (day 8) and two weeks (day 15) later injuries of skin of face and shoulder were noted of two randomly selected piglets of each litter. Injuries ranged from 0 (no injuries) to 3 (severe injuries), new ("open") injuries and healing ("scarred") injuries forming different classes. Suckling acts and activity of piglets were noted on days 1, 8 and 15.

Information about the effects on working conditions and about animal health was gathered from the farm employees. Piglets had to be sold on the day of weaning and could not be studied throughout the post weaning phase.

Growth and animal health

Analysis of variance was used on growth data taking into account also run, piglet's weight and age on day 0, number of piglets per mother on day 0 and duration of the experiment.

Piglets grew significantly faster when kept in singular litters than in groups of five litters. Daily weight gain from day 0 to day 16 was 287+64 g in singular kept litters and 277+77g, 265+58g and 271+58g for combination 2, 5b and 5a respectively. Piglet's body mass at the beginning and at the end of the experimental phase did not differ significantly between the combinations. On day 0 piglets weighed 3810+88g.

Therefore it is not clear why grouping affected piglet's growth, but two possible reasons may be suggested. Maybe piglets in the combined pens performed lesser milk intake. In singular pens at 5.2% of all suckling acts piglets were chosen from the udder during milking phase and at 11.1% of all suckling acts piglets did not come to the udder for suckling. These percentages were much higher in combined pens, approximately 2-fold higher for combination 2 and 3-4fold higher in combination 5a and 5b. Another reason could be a higher immunologic challenge in the combined pens resulting from the contact of different litters. Indication give results from a Dutch farm, where health problems in piglets and fattening

pigs were reduced by avoiding consequently any transfer from piglets from one litter to another [3]. Results from studies with rearing piglets suggest, that immunologic challenge is higher the higher the number of litters in contact [4]. This may explain why in this study, where five litters were combined, growth was reduced but not in the study with only two combined litters [1].

Injuries caused by piglet's fighting

Figures 3 and 4 show how average range of "shoulder open" and "shoulder scarred" developed through the experimental phase. After combining the litters the index for "shoulder open" rose clearly for combination 2, 5a and 5b due to fighting between non-littermates. Fighting was probably limited to the first few days after bringing together different litters as the index for open, fresh injuries on day 8 was the same as on day 0. Accordingly the index for scarred, healing injuries rose from day 0 to day 8 and then remained stable until day 15. The same development could be noticed for injuries of the face.

Analysis of injuries was done by chi-square test with two classes "injured" (notes 1-3) and "not injured" (note 0) taking into account the number of combined litters. Compared to the piglets of individually kept litters frequency of open injuries of face and shoulder on day 1 was 2.5-3fold higher with piglets of five combined litters, frequency of scarred injuries of face and shoulder on days 8 and 15 being 2.5-3fold higher too. Almost all differences were significant (table).

Working conditions and management

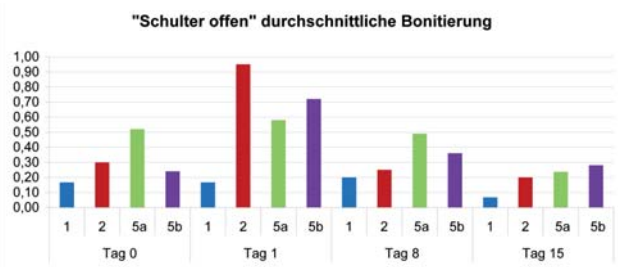
According to the animal handler's opinion, working conditions in experimental pens were not adversely affected. As the combining of the pens took not place before day 10 post partum only daily routine work had to be done after opening the pens. If it was necessary to catch a piglet, pens could be closed for a few minutes.

Fig. 1

Connecting the pens by opening a gate (combination 5b and 2)

One litter of combination 5a had to be separated for the rest of the experimental phase due to illness. The remaining 4 pens rested combined. In this situation the arrangement of combination 5a, with 2 and 3 pens on the right and left side of a corridor proved of value. In combination 5b, where all five pens were arranged on the same side of the corridor and were connected only by openings in pen's side wall, the exclusion of one litter could have destroyed the whole combination or would have caused extra work and immunologic challenge by exchanging litters and pens. In another run all five litters of combination 5a had to be separated due to diarrhoea.

Fig. 3



Average index of injuries of the criteria „shoulder open" on different days for different combinations of crates

Fig.2

Connecting the pens by removing the crate's rear wall (combination 5a)

Conclusions

In this investigation working conditions were not adversely affected by opening individual farrowing pens on day 10 post partum and therefore bringing in contact piglets of five different litters. Only few sows had to be excluded from this system due to illness, but it must be taken into account, that no precise criteria exist to define which sow is appropriate. Six from a total of 50 litters of combination 5a and 5b had to be separated during experimental phase due to illness. Therefore two of a total of 10combinations of five litters could not be run according to the system.

In contradiction to other studies piglets combined litters grew slower. Therefore there should be more investigations on the impact of bringing together piglets of different litters during suckling period focussing especially on the hygienic aspects.

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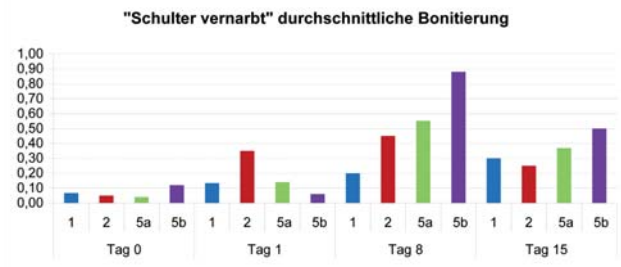
Fig. 4



Average index of injuries of the criteria „shoulder scarred" on different days for different combinations of crates

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Table

χ^2-test for frequency of injuries of face and shoulder

	1 Wurf	2 Würfe	5 Würfe (5a)	5 Würfe (5b)	p (Chi-Qu)
Gesicht offen Tag 1	10,0 %^{ab}	5,0 %^{a}	26,0 %^{b}	32,0 %^{c}	<0,05
Schulter offen Tag 1	16,7 %^{a}	55,0 %^{b}	46,0 %^{b}	44,0 %^{b}	<0,05
Gesicht vernarbt Tag 8	16,7 %^{a}	30,0 %^{ab}	42,9 %^{b}	50,0 %^{b}	<0,05
Schulter vernarbt Tag 8	16,7 %^{a}	30,0 %^{ab}	34,7 %^{ab}	54,0 %^{b}	<0,05
Gesicht vernarbt Tag 15	20,0 %^{a}	30,0 %^{ab}	55,3 %^{b}	36,0 %^{ab}	<0,05
Schulter vernarbt Tag 15	23,3 %	25,0 %	28,9 %	34,0 %	>0,05