

ANIMAL WELFARE

Title: Effect of Day Mixing Gestating Sows on Measures of Reproduction and Animal Well-Being –
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Scientific Abstract:

This study tested for the effects of day of mixing sows following breeding on reproduction and well-being during the summer months on a commercial farm. Sows ($n = 1436$) of mixed parity (2 - 6) were weaned and assigned at estrus to housing treatment in: 1) stalls from weaning through gestation (Stall); 2) stalls from weaning until mixing at d 3-7 (D3 Mix); 3) stalls from weaning until mixing at d 13-17 (D14 Mix); and 4) stalls from weaning until mixing after d 35 (D35 Mix). Sows were mixed into pens in a group of 58 sows. Measures of well-being were obtained to include fighting events, lesions, and lameness, cortisol change, and body condition in the first 12 d after mixing or movement into a permanent stall (Period 1) and lesions, lameness and body condition thereafter until farrowing (Period 2). Conception rates were lower with D3 (87.1%) and D14 Mix (89.2%) compared to D35 Mix (92.2%) and Stall (96.2%). Farrowing rates remained lower in D3 Mix (82.8%) compared to other treatments but D14 Mix (87.8%) did not differ from D35 Mix (90.5%) and Stall (92.8%). Litter size was not affected by treatment ($P > 0.10$) and averaged 12.0 total born pigs. For sows that farrowed, there was an effect of treatment on the proportion of sows bred within 10 d of weaning which was lower ($P < 0.05$) for sows in the D3 and D14 Mix treatments compared to those in Stalls but not the D35 Mix. Number of fights in the first 24 h after mixing was lower in the D14 Mix compared to the D3 and D35 Mix groups ($P < 0.0001$). In period 1, cortisol increases were greatest ($P < 0.05$) in mixed sows compared to sows in Stall. There were ($P < 0.05$) effects of treatment, period and interactions for lameness, leg inflammation, lesions and body condition score. In periods 1 and 2, mixing resulted in increased incidence of lameness, and increased lesion scores compared to Stall. Incidence of leg inflammation was not different in period 1 but was increased in period 2 for D3 Mix and Stall compared to other treatments ($P < 0.05$). A ranking from best to worst was

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performed using all measures for reproduction, and well-being measures in each period. Final ranking order was the same for all measures and periods with the best ranking order: 1) Stall; 2) D35 Mix; 3) D14 Mix, and 4) D3 Mix. These results suggest that optimal reproduction and well-being can be achieved with use of stalls and that day of mixing can reduce all measures. Mixing in the first week results in reduced farrowing and well-being measures compared to mixing after the fifth week, while mixing after the 2nd week shows intermediate effects. When mixing sows, short term responses for well-being and long term measures for reproduction and well-being must be considered to evaluate the effects of housing management. Overall however, when examining the endpoint measures of reproduction and taking into consideration the classification of average well-being scores, our data suggests that in well-managed farms problems associated with day of mixing could have minimal impact.