

**Title:** Effect of weaning age and commingling after the nursery phase on humoral and behavioral indicators of well-being and on growth performance - **NPB #02-163**

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**Abstract:** Pigs from one farrowing group in which gilts were bred to farrow pigs that would be either 14 or 21 d of age at weaning, were divided into older and younger age groups (108 pigs/group) and penned 12 pigs/pen (1.5 × 3 m) in a wean-to-finish facility. At the end of the nursery phase, one-half of the pigs in each age group were removed, re-randomized, and commingled for the finishing phase, whereas the other half of the pigs remained in their original pens. Pigs were fed common Phase 1 (d 0 to 14) and Phase 2 (d 14 to 35) nursery diets, and fed a common four-phase program diet during growing/finishing with transitions at 45, 68, and 90 kg. The study was terminated when the lightest weight block averaged 107 lb. Plasma was obtained on d 0, 2, 10, 27, 37, 44, and 65 after weaning to determine leukocyte concentrations. Also, behavior was monitored during the nursery period at weaning, d 7, 14, and 27 post-weaning, and during the growing/finishing phase on d 35 (after commingling following the nursery phase), 38, 44, and 65 post-weaning. Older pigs were heavier throughout the nursery period; and the BW difference between younger and older pigs increased from 2 to 6.5 kg at the start and end of the nursery period. Older pigs had a greater concentration of white blood cells and lymphocytes on d 0, 2, and 10 post-weaning than younger pigs. Younger pigs spent less time lying recumbent on the day of weaning and more time standing or walking during the overall nursery phase, suggesting that younger pigs were less apt to settle into their new environment than older pigs. During Phase 3 (early finishing) and the overall finishing phase, younger pigs had greater ADG and G/F than older pigs. Moreover, during Phase 3, ADFI decreased when older pigs were commingled compared to older pigs that were not commingled, whereas there was no difference in ADFI of younger pigs, regardless of whether they were commingled or not. Unmixed pigs weaned at 14 d of age spent a greater percentage of time engaged in feeding behavior than mixed pigs weaned at 14 d of age, implying that young, mixed pigs greatly reduced feeding behavior in response to commingling compared to young, unmixed pigs. Results of this study indicate that weaning age affects growth performance in a wean-to-finish facility, as well as behavioral and immunological responses to weaning and commingling after the nursery phase. Weaning pigs at an early age results in a less immunologically-developed pig compared to pigs weaned later, but this may contribute to the benefits of early-weaning with respect to an overall improvement in gain and days to a common weight. However, management strategies should be further explored to optimize these benefits without the detrimental effects on health observed during the nursery period in this study.

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