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Effect of mixing on performance of finishing swine

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EFFECT OF MIXING ON PERFORMANCE OF FINISHING SWINE

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Summary

Two feeding trials were conducted to evaluate the effect of mixing finishing pigs on subsequent performance. Growth rate of heavier pigs was reduced 15-35% in the two weeks after mixing when compared to the non-mixed pigs. This reduction in weight gain resulted in a significant difference in average daily gain overall for pigs mixed at 5 weeks compared to non-mixed pigs. An 8% reduction in the two weeks following mixing was observed for pigs mixed at 3 weeks compared to non-mixed pigs. However, during the following weeks of the trial, these pigs recovered, resulting in a non-significant reduction overall in average daily gain. In trial 2, pigs that were sorted randomly into two groups at 5 weeks grew 6% faster than controls and overall had a significantly faster rate of gain than controls.

Introduction

Swine producers often ask about the feasibility of mixing finishing pigs after marketing the heavier pigs from several pens. Some researchers have reported that mixing pigs at weaning had less effect on daily gain and feed efficiency than did mixing pigs 4 weeks after weaning. Other researchers have reported that the more times pigs were mixed the more fights resulted, and the more variable the gain and feed efficiency of the pigs. The purpose of this study was to evaluate mixing pigs at two stages of the finishing period upon subsequent performance.

Procedure

Experiment 1 utilized 144 finishing pigs. The pigs were allotted by sex, weight, and litter to four treatments with two replicates per treatment. Treatment groups were as follows:

- A. Control, Eighteen pigs fed together in a 12 X 15 pen with two two-hole self feeders and two nipple waterers.
- B. Mix at 3 wks. (Approx. wt. 155 lbs.) Eighteen pigs were assigned randomly to two pens (6 X 15), nine pigs per pen with one two-hole self feeder and one nipple waterer. On day 21, the two groups were weighed and the pen divider was removed so that for the remainder of the finishing period all pigs were together in a 12 X 15 pen with two two-hole self feeders and two nipple waterers.
- C. Mix at 5 wks. (Approx. weight 180 lbs.) Procedure same as treatment B, except pigs were mixed at 35 days.

- D. Selected Mix at 5 wks. (Approx. weight 180 lbs.) Instead of mixing the 18 pigs all together, the heaviest pigs from one pen were mixed with the heaviest pigs from the second pen. Likewise, the lighter pigs were put together, so that only 9 pigs remained in each pen.

Pigs were housed in the KSU finishing barn, with pen flooring of 50% concrete slats and 50% solid concrete. The ration used for all four treatments was a fortified sorghum grain-soybean meal diet with a calculated analysis of 15.5% crude protein, .80% calcium, and .70% phosphorous.

In Experiment 2, 160 pigs were assigned to four treatments. Treatments A-B-C used in Experiment 1 were repeated in Experiment 2 and were conducted in the same manner. Treatment D was changed to a sorting design, in which 20 pigs were housed together initially. At 5 weeks, pigs were placed randomly in two pens of 10 for the remainder of the finishing trial. Pigs were fed the same ration and housed in the same facility as Experiment 1.

Results and Discussion

In Experiment 1, pigs mixed at approximately 180 lbs (5 wks) gained significantly slower than non-mixed pigs (Table 1). This difference occurred after mixing since growth rate of both groups was similar (1.52 vs 1.50) during the first 5 weeks of the trial. Upon mixing, growth rate of the mixed group (5 wks) declined 35% for the following 2 weeks, with a slight recovery in the next 2 weeks (Figure 1). Pigs that were selectively mixed at 5 weeks showed a 15% depression in ADG for the 2 weeks after mixing but recovered satisfactorily, since there were no significant differences overall in average daily gain or feed efficiency.

The pigs that were mixed at 3 weeks (approximately 155 lbs) had a reduced rate of gain (8%) in the 2 weeks after mixing (Figure 1), but recovered sufficiently the in following 4 weeks so that the differences in average daily gain and feed efficiency were not significant. It would appear that mixing the heavier pigs caused more stress and thereby reduced performance more than mixing lighter pigs.

Table 2 presents the performance data of Experiment 2. Performance patterns were somewhat similar to those observed in Experiment 1. Average daily gain was depressed 15% in the 2 weeks following mixing at 5 weeks when compared with non-mixed (Figure 2). Pigs mixed at 3 weeks grew 8% slower than controls during the 2 weeks following mixing. Overall, pigs mixed at 5 weeks grew significantly slower than non-mixed pigs. Feed efficiency was the same for all pens.

In Experiment 2, one group of pigs was sorted randomly at 5 weeks and placed in two pens of 10 head each. Growth rate of these pigs exceeded the control pigs by 6% during the next 2 weeks after the sort. Overall, the pigs assigned to the sorting treatment grew significantly faster than pigs in the other three treatments.

Table 1. Effect of Mixing Finishing Pigs on Overall Performance (Experiment 1).^c

Pig Treatment	ADG, lbs.	ADFI, lbs.	F/G
A. Control, non mix	1.38 ^a	4.65	3.38
B. Mixed, 3 wks	1.28 ^{ab}	4.58	3.58
C. Mixed, 5 wks	1.20 ^b	4.29	3.57
D. Selected Mix, 5 wks	1.32 ^a	4.51	3.42

^{ab} Means with different superscripts are significantly different (P<.05).

^c 18 pigs per pen, 2 pens per treatment. Avg. initial weight 130 lbs, final weight 212 lbs. Trial length-62 days

Table 2. Effect of Mixing Finishing Pigs on Overall Performance (Experiment 2).^d

Pig Treatment	ADG, lbs.	ADFI, lbs.	F/G
A. Control, non mix	1.77 ^b	6.00	3.39
B. Mixed, 3 wks	1.74 ^{bc}	5.88	3.38
C. Mixed, 5 wks	1.66 ^c	5.56	3.35
D. Sorted, 5 wks	1.87 ^a	6.26	3.36

^{abc} Means with different superscripts differ significantly (P< .05).

^d 20 pigs per pen, 2 pens per treatment avg. initial weight 142 lbs., final weight 227 lbs. Trial length 49 days.

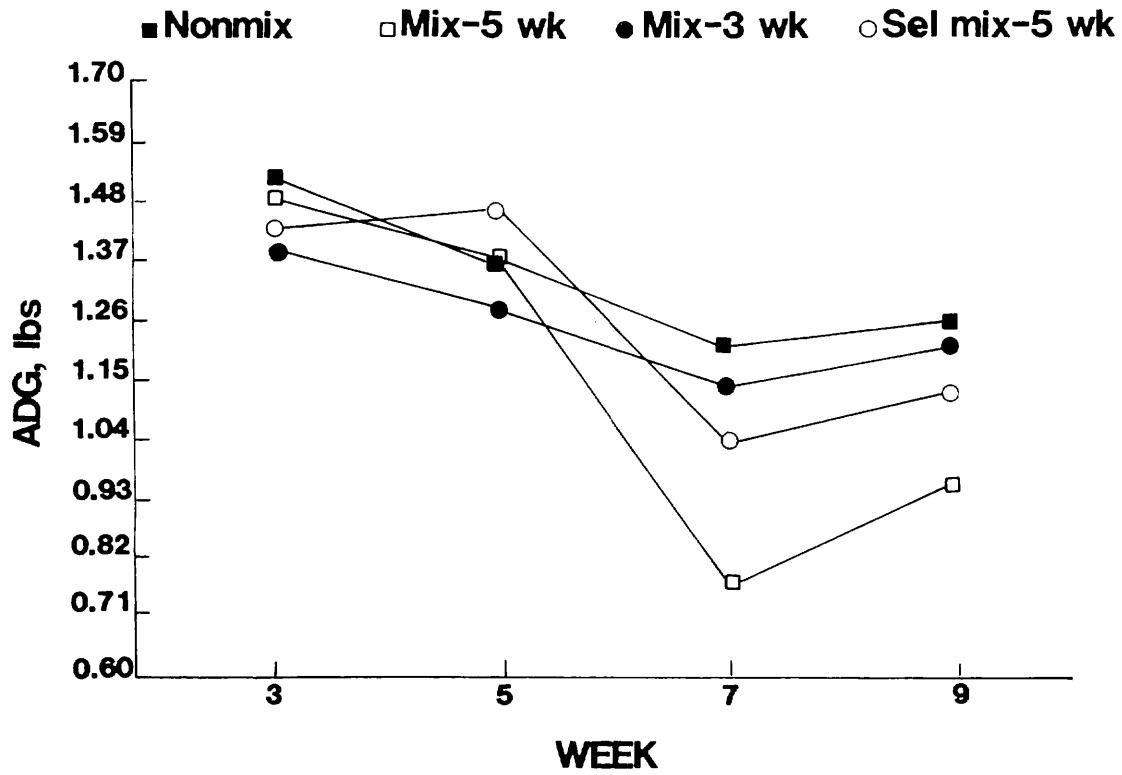


Figure 1. Effect of Mixing on ADG of Finishing Swine, Experiment 1.

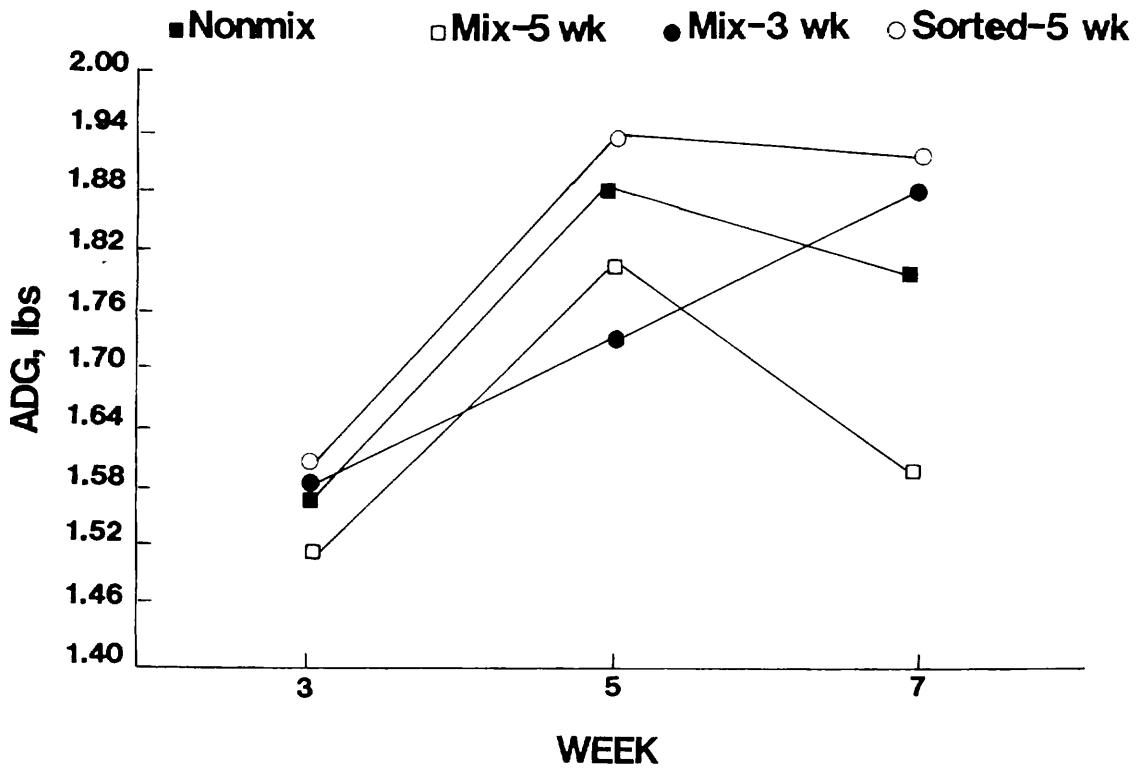


Figure 2. Effect of Mixing on ADG of Finishing Swine, Experiment 2.