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Influence of weaning weight and growth during the first week postweaning on subsequent pig performance

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INFLUENCE OF WEANING WEIGHT AND GROWTH DURING THE FIRST WEEK POSTWEANING ON SUBSEQUENT PIG PERFORMANCE¹

*M. D. Tokach, R. D. Goodband, J. L. Nelssen,
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Summary

A total of 1,350 pigs was used in three growth trials to determine the influence of weaning weight and average daily gain during the first week postweaning on subsequent growth performance. Average initial weight and age were 13.7 lb and 21 d, respectively. Pigs were weighed on d 0, 7, 28, and 56 postweaning in all three trials. Pigs were also weighed at market in trial 1. Weaning weight influenced postweaning growth performance such that each additional pound at weaning translated into approximately 2 lb by d 56 postweaning and 4 lb at market. These results indicate the importance of maximizing milk production during lactation to increase litter weaning weights. Average daily gain during the first week postweaning also had a major impact on subsequent growth performance. Pigs that gained greater than .5 lb/d during the first week postweaning were 17 lb heavier at market than pigs that lost weight during the first week postweaning. These results provide further evidence that nutritional programs designed to increase starter pig performance also influence performance during the subsequent grower and finisher phases.

(Key Words: Starter, Performance.)

Introduction

Pig throughput has a major impact on profitability of modern swine confinement operations. Several swine specialists have

discussed the importance of obtaining heavier weaning weights to improve pig performance from weaning to market. However, few attempts have been made to determine the influence of weaning weight on subsequent growth.

Management and nutrition of the newly weaned pig also are thought to influence subsequent performance. However, little information is available to accurately characterize the impact of initial growth in the nursery on subsequent growth performance. Therefore, this trial was conducted to determine the influence of weaning weight and weight gain during the first week postweaning on subsequent growth performance.

Procedures

A total of 1,350 pigs was used in three growth trials to determine the influence of weaning weight and average daily gain during the first week postweaning on subsequent growth performance. Average initial weight was 13.7 lb with a range of 10 to 20 lb. Average initial age was 21 d with a range of 17 to 25 d. Pigs were weighed on d 0, 7, 28, and 56 postweaning in all three trials. Pigs were also weighed at market in trial 1.

Pigs were housed in an environmentally controlled nursery from d 0 to 28 postweaning. On d 28, pigs were moved to an environmentally controlled grower where they were housed from d 28 to 56 postweaning. Pigs were housed in a modified

¹The authors wish to thank Dale Keesecker and Keesecker Agribusiness, Washington, KS, for use of facilities and animals in this experiment.

open-front finishing building from d 56 postweaning to market. Pigs were housed 12 to 14 per pen in the nursery and grower and 24 to 30 per pen in the finisher.

Pigs used in this trial were involved simultaneously in three nutrition trials with different experimental diets. However, general diet sequence was to feed a high nutrient density diet containing 10% plasma protein and 20% dried whey for the first 7 d postweaning. Pigs were then fed a corn-soybean meal diet containing 10% dried whey and 2.5% spray-dried blood meal from d 7 to 28. Simple milo-soybean meal diets were fed from d 28 postweaning until market. Pigs were allowed ad libitum access to feed and water.

Data was examined in a retrospective manner. Pigs were categorized by weaning weight and weight gain during the first week postweaning for the statistical analyses. Weaning weight was used as a covariate to examine the influence of weight gain during the first week postweaning on subsequent performance.

Results and Discussion

Weaning weight influenced ($P < .001$) postweaning growth performance such that each additional pound at weaning transmitted into approximately 2 lb by d 56 postweaning and 4 lb at market (Table 1). These results indicate the importance of maximizing milk production during lactation to increase litter weaning weights. Producers should consider several management options to increase milk production, including selecting a genetic background of high production, maintain-

ing proper body condition, and maximizing intake of a properly formulated diet during lactation.

Average daily gain during the first week postweaning had a major impact ($P < .001$) on subsequent growth performance (Table 2). Pigs that gained $> .5$ lb per day during the first week were 3.5 lb heavier on d 7 postweaning than pigs that did not gain any weight during the first week postweaning. This weight advantage increased to 10 lb by d 56 postweaning and to 17 lb at market (d 156 postweaning). The 17 lb translates to market advantage of 10 d (marketed at 240 lb).

Other research has demonstrated that including milk products or spray-dried blood meal in the starter diet increases subsequent growth performance. These results provide further evidence that nutritional programs designed to increase starter pig performance also influence performance during the subsequent grower and finisher phases.

Figure 1 combines the influence of weaning weight and ADG during the first week postweaning on subsequent growth. This figure indicates that ADG during the first week postweaning has an influence on pig weight on d 56 postweaning for both light and heavy pigs. However, a fast start in the nursery appears to be especially important for pigs that are lighter at weaning.

In conclusion, these data indicate the importance of properly formulated three-phase starter programs and high-producing sows to maximize throughput in modern swine operations.

Table 1. Influence of Weaning Weight on Pig Performance^a

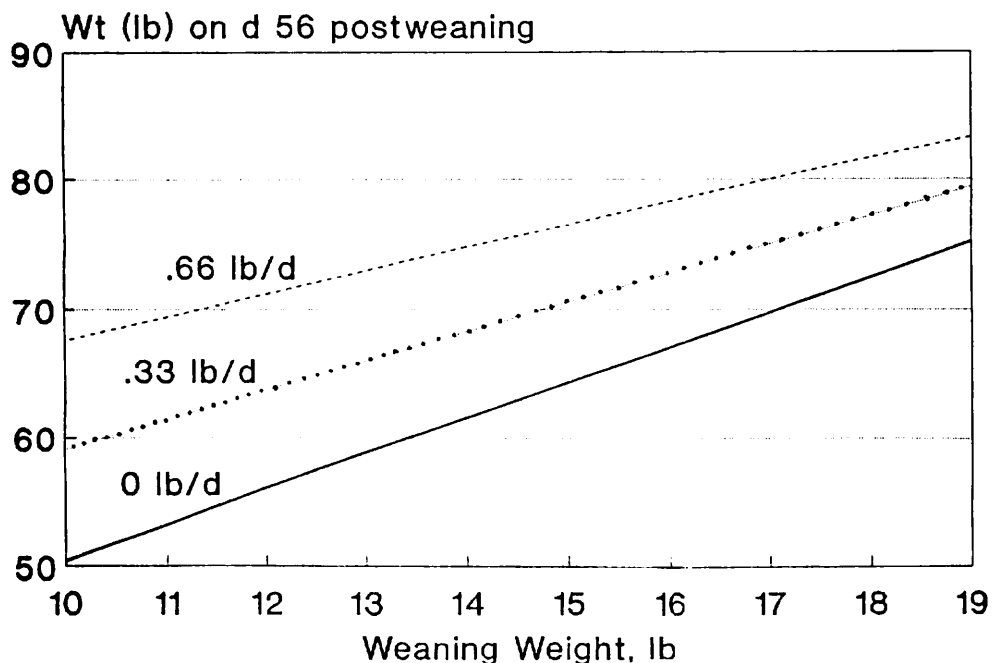
Weaning wt, lb	Wt (lb) on postweaning d			d to market
	28	56	156	
10 - 11	27.1	60.8	---	---
12 - 13	30.6	66.5	236.2	181.3
14 - 15	33.3	70.0	240.4	179.2
16 - 17	35.7	74.6	248.6	174.1
18 - 20	37.9	77.8	250.4	171.8

^aPigs were weaned at an average age of 21 d with a range of 17 to 25 d. Data for d 28 and 56 are from 1350 pigs. Market weight data (d 156) are from 566 pigs.

Table 2. Influence of Weight Gain During the First Week Postweaning on Subsequent Performance^a

Wk 1 ADG, lb	Wt (lb) on postweaning d			d to market
	28	56	156	
≤ 0	32.4	66.3	232.2	183.3
0 - .33	35.3	70.2	238.4	179.2
.33 - .50	37.3	71.6	245.1	175.2
> .50	40.1	76.6	249.8	173.0

^aPigs were weaned at an average age and wt of 21 d and 13.7 lb, respectively. Data for d 28 and 56 are from 1350 pigs. Market weight data (d 156) are from 566 pigs.

**Figure 1. Influence of Weaning Weight and Weight Gain during the First Week Postweaning (0, .33, or .66 lb/d) on Weight on D 56 Postweaning.**