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## EFFECT OF WEANING AGE ON PIG PERFORMANCE TO EIGHT WEEKS

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The economic return that is realized by a commercial swine operation is largely determined by the efficiency of the sow herd. Increasing litter size and shortening the interval between litters results in greater yearly production per sow unit. Weaning at 2 weeks and allowing 10 days for rebreeding, theoretically, allows the production of 2.65 litters per sow per year, compared to the national average of 1.7 litters.

This study was conducted to determine the effect of weaning age on post weaning performance.

### Experimental Procedure

One hundred sixty two crossbred pigs were weaned on the same day and assigned to 3 management treatments based upon age at weaning. Within age groups they were allotted to 8 replications based upon weight. The treatments were: (2+) pigs weaned between 2 and 3 weeks of age, (3+) pigs weaned between 3 and 4 weeks of age and (4+) pigs weaned between 4 and 5 weeks of age. Although the pigs were not allotted on the basis of sex, sex distribution between treatments was basically equal. Prior to weaning, the pigs had free access to the sow's feed, but had not received creep feed.

The pigs were housed in groups of 6 to 8 in an environmentally regulated room (75 to 80 F) on raised slotted floor pens (4.0 x 6.0 ft). Water was provided by nipple waterers. A non-pelleted, 21.3% crude protein, diet was provided ad libitum. The diet included corn, soybean meal, dried whey and oat groats as major feed ingredients (Table 1).

Days of age at weaning for the three management groups were 15.6 (2+), 23.9 (3+) and 32.5 (4+) (Table 2). Pig weights and feed consumption were recorded on a weekly basis. Final pig weights (8+ weeks of age) were on a staggered basis 42, 35 and 28 days after weaning of the 2+, 3+ and 4+ groups of pigs, respectively.

Table 1. Starter Diet Composition

Ingredient	Percent of diet
Yellow corn	37.2
Soybean meal, 44%	30.0
Dried whey	20.0
Oat groats	10.0
Dicalcium phosphate	1.4
Ground limestone	0.8
Salt, white	0.25
ASP 250 <sup>a</sup>	0.25
Trace mineral mix <sup>b</sup>	0.05
Vitamin mix <sup>c</sup>	0.05

<sup>a</sup> Provided 100 g Aureomycin, 100 g sulfamethazine and 50 g penicillin per ton.

<sup>b</sup> Provided the following minerals in ppm: zinc, 100; iron, 75; manganese, 25; copper, 7.5; iodine, .175; selenium, .1.

<sup>c</sup> Provided per pound of diet: vitamin A, 2000 IU; vitamin D, 200 IU; vitamin E, 10 IU; vitamin K, 2.0 mg; riboflavin, 3.0 mg; niacin, 16.0 mg; vitamin B<sub>12</sub>, 12.0 mcg; pantothenic acid, 12.0 mg.

Table 2. Allotment

Source	<u>Age at weaning</u>		
	2+	3+	4+
Pigs/treatment	53	52	57
Pigs/pen	6.6	6.5	7.1
Initial wt, kg	9.6	12.0	16.1
Initial age, d	15.6	23.9	32.5
Age at 4 wk wt, d	28.7	29.7	32.5

## Results and Discussion

Growth performance as measured by average weight, average daily gain, average daily feed intake and average feed efficiency is summarized in Tables 3-6, respectively.

Table 3. Average Weight (lb)

Source	<u>Age of weaning</u>		
	2+	3+	4+
2 weeks	9.6		
3 weeks**	10.5	12.0	
4 weeks** <sup>a</sup>	13.6	13.5	16.1
5 weeks** <sup>b</sup>	18.5	16.8	19.8
6 weeks* <sup>b</sup>	25.9	23.1	24.9
7 weeks	34.5	31.2	33.6
8 weeks	43.7	40.9	42.4

\* P<.05.

\*\* P<.01.

a

Linear response.

b

Quadratic response.

Average weights at 4 weeks of age varied linearly (P<.01), 13.6, 13.5 and 16.1 lb for the 2+, 3+ and 4+ weaning groups, respectively. There was a quadratic response in weight at 5 weeks (P<.01) and 6 weeks (P<.05) but no significant differences at 7 and 8 weeks.

Average weights at 8 weeks were: 43.8 lb (2+), 40.9 lb (3+), and 42.5 lb (4+). There was a quadratic response (P<.05) in average daily gain from 4 to 5 weeks of age: .70 lb (2+), .46 lb (3+), .62 lb (4+) and a linear response (P<.01) from 5 to 6 weeks; however, there were no significant differences in average daily gain from 6 to 7 or 7 to 8 weeks. Average daily feed varied linearly (P<.01) due to treatment from 4 to 5 weeks 1.17 lb (2+), .77 lb (3+), .79 lb (4+), and also from 5 to 6 and 6 to 7 weeks. There were no significant differences in feed efficiency from 4 to 5 weeks of age or from 5 to 6 weeks. Feed efficiency varied linearly (P<.01) from 6 to 7 weeks and quadratically (P<.05) from 7 to 8 weeks. Pig mortality was: 3 (2+), 1 (3+), 0 (4+). With the exception of one death in the 2+ treatment, all of the deaths occurred prior to 5 weeks of age. There were no data available for pigs in the 4+ treatment concerning deaths prior to weaning to allow for statistical comparison.

Table 4. Average Daily Gain (lb)

Source	2+	<u>Age of weaning</u> 3+	4+
2-3 weeks	0.18		
3-4 weeks**	0.42	0.24	
4-5 weeks* <sup>b</sup>	0.70	0.46	0.62
5-6 weeks** <sup>a</sup>	1.06	0.92	0.75
6-7 weeks	1.23	1.17	1.23
7-8 weeks	1.32	1.39	1.28

\* P<.05.

\*\* P<.01.

a

Linear response.

b

Quadratic response.

Table 5. Average Daily Feed Intake (lb)

Source	2+	<u>Age of Weaning</u> 3+	4+
2-3 weeks	0.48		
3-4 weeks**	0.73	0.40	
4-5 weeks** <sup>a</sup>	1.17	0.77	0.79
5-6 weeks** <sup>a</sup>	1.61	1.32	1.17
6-7 weeks** <sup>a</sup>	2.27	1.80	1.85
7-8 weeks	2.49	2.29	2.24

\* P<.05.

\*\* P<.01.

a

Linear response.

Table 6. Average Feed Efficiency

Source	<u>Age of Weaning</u>		
	2+	3+	4+
2-3 weeks	2.77		
3-4 weeks	1.73	1.68	
4-5 weeks	1.89	1.64	1.33
5-6 weeks	1.51	1.45	1.62
6-7 weeks** <sup>a</sup>	1.81	1.53	1.54
7-8 weeks* <sup>b</sup>	1.87	1.66	1.77

\* P<.05.

\*\* P<.01.

a

Linear response.

b

Quadratic response.

Table 7. Mortality

Source	<u>Age of Weaning</u>		
	2+	3+	4+
2-3 weeks	1		
3-4 weeks	0	1	
4-5 weeks	1	0	0
5-6 weeks	0	0	0
6-7 weeks	0	0	0
7-8 weeks	1	0	0
Total	3	1	0
%	5.7	1.9	0

### Summary

One hundred sixty two crossbred pigs were grouped according to age at weaning to evaluate the effect of weaning age on post weaning performance. The pigs averaged 15.6, 23.9 and 32.5 days of age for the 2+, 3+ and 4+ week weaning treatments.

Pigs weaned at 2+ and 3+ weeks exhibited post weaning slumps in feed intake and daily gain not observed in the 4+ week group. However, both feed intake and daily gain were greater for these groups during part of the 4 to 8 week of age common test period. The result was that at 8 weeks of age, no significant differences existed in pig weights due to time of weaning. Overall mortality was higher for pigs weaned at 2+ weeks of age with the majority of the losses occurring in the first week. No record of deaths was kept for the non-weaned groups during this period.

Under the conditions of this experiment, no disadvantage was observed in terms of post weaning performance by weaning pigs at two or three weeks of age, with adequate management and proper facilities, in comparison to weaning after four weeks of age.