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SQUARE FOOTAGE REQUIREMENT OF WEANED PIGS

Robert H. Hines & Berl A. Koch

Summary

One hundred and twenty weaned pigs were used to evaluate the effect of space allowance. Pigs were housed in a control environment nursery with woven wire flooring with 4, 6, 8, 10, or 12 head per 4' x 5' pen which allowed 4.5, 3.0, 2.25, 1.8, and 1.5 square feet of usable space, respectively, for each pig. No significant differences were observed in performance for the five-week period. However, during week 3, 4, and 5 of the trial, pigs with 1.8 and 1.5 sq. ft. of space, respectively, had a markedly reduced feed intake and average daily gain. Feed gain ratios were not affected. This study suggests a minimum of 2.25 sq. ft. will support pig performance equal to those pigs allowed more space for the 5-week period.

Introduction

Increased building costs have stimulated interest in answering the question of how many square feet a weaned pig needs for satisfactory performance. In 1980, KSU built a controlled environment nursery with 4' x 5' pens. Feeders occupied approximately 2 square feet so that each pen had approximately 18 square feet of space for pigs. Since the nursery was new we also wanted to know how many pigs each pen would accomodate without impairing performance during the 5-week post weaning period.

Experimental Procedure

KSU nursery pens are 4' x 5' with woven wire flooring over a flush gutter. Each pen contained a nipple waterer and a 4-hole plastic single-sided feeder. Effective pig space in each pen was approximately 18 sq. ft. Pigs per pen were varied with 4, 6, 8, 10, or 12 pigs assigned to each pen for a 5-week feeding trial after weaning at an average age of 35 days. This allowed each pig a square footage of 4.5, 3.0, 2.25, 1.8, and 1.5, respectively. Pigs were weighed at 2 weeks, 4 weeks, and 5 weeks after the start of the trial to determine effect of space allowance on growth rate and average daily feed intake. Each treatment was replicated 3 times. The basal diet was a corn- soybean meal, fortified diet that had a calculated analysis of 17.7% crude protein, .88% lysine, .84% calcium, and .71% phosphorous. The initial weight of the pigs was 18 lbs. with the final weight being 51 lbs.

Results and Discussion

Table 1 presents the performance data. The initial 2 weeks of the trial resulted in no significant differences in average daily gain, average daily feed intake, or feed gain ratio. Pig performance during week 3 and 4 was affected by space allowance in that pigs with 1.8 sq. ft. of space had a significant decrease

in average daily feed intake and average daily gain compared to those with 4.5 sq. ft. However, pigs with 1.5 sq. ft. performed similarly to the other treatments. During week five pigs with 1.8 and 1.5 sq. ft. of space both showed a significant reduction in feed intake with the corresponding significant reduction in average daily gain. Feed/gain ratios were not significantly affected by treatment during any periods.

Overall, square footage allowance did not significantly effect average daily gain, average daily feed intake, or feed gain ratio during the 5-week trial. Previous studies at KSU (Report of Progress 406, 1981) suggested that 2.5 sq. ft. of space was adequate for this age pig. These studies suggest that 2.25 sq. ft. of space is adequate, however pen size and flooring were different. From these studies we can conclude that 2.25-2.5 sq. ft. of space is required for a pig from 15 lb. to approximately 50 lbs.

Table 1. Weaned Pig Performance^{xy}

Item	No. Pigs/Pen Space:sq. ft.				
	4 4.5	6 3.0	8 2.25	10 1.8	12 1.5
<u>Avg. da. gain, lbs.</u>					
Wk 1-2	.70	.62	.65	.65	.72
Wk 3-4	1.23 ^a	1.01 ^{ab}	1.03 ^{ab}	.94 ^b	1.02 ^{ab}
Wk 5	1.42 ^a	1.28 ^{ab}	1.18 ^{ab}	1.13 ^b	1.04 ^b
Wk 1-5	1.06	.90	.90	.86	.90
<u>Avg. da. feed int., lbs.</u>					
Wk 1-2	1.46	1.25	1.23	1.21	1.32
Wk 3-4	2.42 ^a	2.06 ^{ab}	2.08 ^{ab}	1.74 ^b	2.00 ^{ab}
Wk 5	2.98 ^a	2.69 ^{ab}	2.57 ^{ab}	2.43 ^b	2.43 ^b
Wk 1-5	2.15	1.85	1.84	1.65	1.81
<u>Feed/gain</u>					
Wk 1-5	2.03	2.06	2.03	1.91	2.00

^x Average initial wt. 18 lbs; final wt. - 51 lbs.

^y Average initial age 35 days.

^{ab} Means on the same line with different superscripts differ significantly (P<.05).