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The Effect of Size and Type of Slat Upon the Performance  
of Growing-Finishing Pigs

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On approximately December 1, 1973, the first group of pigs was put on test in the new confinement finishing barn at the SDSU swine research unit. The barn consists of 24 pens with space for 8 pigs per pen or a total of 192 head of pigs. Three different slat types and sizes are included in the building which allow a comparison of pig performance as related to floor type. Ten of the pens have concrete slats 5 inches wide, 10 of the pens have concrete slats 8 inches wide and 4 of the pens have 3½ inch aluminum slats. The information included in this report is a summary of data and observations during the first year related to slat types.

Experimental Procedure

Three trials that make valid comparisons of pig performance on different types of slats were conducted in the new total confinement finishing barn during the last year.

The first trial involved 144 pigs averaging 53 lb. which were allotted to pens which contained either 8-inch or 5-inch concrete slats. Each slat type was replicated nine times with 8 pigs per pen.

Trial 2 involved 64 crossbred pigs in four replications of both 5-inch and 8-inch concrete slats. Again, each pen contained 8 pigs averaging approximately 60 lb. at the beginning of the experiment.

In trial 3, four replications of 5-inch concrete slats, 8-inch concrete slats and 3½-inch aluminum slats were utilized. Each pen contained 8 pigs which made a total of 96 pigs with an average starting weight of 56 pounds.

In each trial different nutritional studies were superimposed across slat types. However, the different dietary treatments were equalized across slat types and thus did not affect performance values. All trials were terminated at an average pen weight of between 200 and 210 pounds.

Results and Discussion

A summary of the pig production data from trial 1 is shown in table 1. During the initial period until pigs weighed 120 lb., pigs confined on 8-inch slats grew significantly faster than those on 5-inch slats. However, feed consumption and feed required per unit of gain were statistically the same. During the period from 120 lb. to market weight and during the overall period, no significant differences existed. However, gain and feed/gain slightly favored pigs on 8-inch slats during both of these time periods.

Feet of all pigs were examined when they were taken off test. Injuries and lesions to both inside and outside toes were recorded. Although many lesions such as cuts and bruises of both the heels and toes as well as sand cracks in the side of the toes were observed in a majority of the pigs, there were no apparent differences due to type of slat.

A summary of the results of the second trial is shown in table 2. No statistical analysis was conducted. Gains for all periods slightly favored the pigs on 8-inch slats, while feed/gain slightly favored the pigs on 5-inch slats during the initial period and during the overall trial.

In trial 3 pigs were confined on both 5-inch and 8-inch concrete slats as well as 3½-inch aluminum slats. Average daily gain favored the pigs on the 5-inch slats during the initial period to 120 lb. but favored the pigs on 8-inch concrete slats and 3½-inch aluminum slats during the finishing period, resulting in nearly equal gains for pigs on all slat types during the overall period. Unit of feed required per unit of gain was poorest for pigs on 5-inch slats during all periods. During the overall growing-finishing period feed/gain favored pigs on the 3½-inch aluminum slats.

Although some differences in daily gain and feed/gain were observed when pigs were placed on the three slat sizes and types, it appears that pig performance was satisfactory using all types of slats. A general observation is that the aluminum slats were a little slicker and resulted in more slipping. The pigs on 8-inch concrete slats appeared to be a little more at ease in walking on the larger surface area. All pens stayed equally clean with no scraping. How clean a pen stays is probably more a function of how crowded the pigs are in the pen than size of slats.

#### Summary

Three trials were conducted during the past year that allowed for comparison of pig performance on 5-inch concrete slats, 8-inch concrete slats and 3½-inch aluminum slats in a total confinement building. Although average daily gain and feed/gain varied among slat types, pig performance was satisfactory using all slat types. No adverse effects on foot damage or pen cleanliness were observed.

Table 1. Pig Performance for Trial 1

	<u>Width of concrete slats</u>	
	5-inch	8-inch
Number of pigs	72	72
Number of pens	9	9
<u>Initial to 120 lb.</u>		
Avg. daily gain, lb. <sup>a</sup>	1.48	1.55
Feed consumption, lb.	4.62	4.74
Feed/gain	3.12	3.06
<u>120 lb. to market</u>		
Avg. daily gain, lb.	1.54	1.58
Feed consumption, lb.	5.64	5.72
Feed/gain	3.68	3.64
<u>Overall</u>		
Avg. daily gain, lb.	1.50	1.57
Feed consumption, lb.	5.14	5.26
Feed/gain	3.43	3.37

<sup>a</sup> Significant difference ( $P < .05$ ) due to slat type.

Table 2. Pig Performance for Trial 2

	<u>Width of concrete slats</u>	
	5-inch	8-inch
Number of pigs	32	32
Number of pens	4	4
<u>Initial to 120 lb.</u>		
Avg. daily gain, lb.	1.61	1.62
Feed consumption, lb.	4.40	4.58
Feed/gain	2.73	2.82
<u>120 lb. to market</u>		
Avg. daily gain, lb.	1.65	1.71
Feed consumption, lb.	5.57	5.77
Feed/gain	3.37	3.36
<u>Overall</u>		
Avg. daily gain, lb.	1.64	1.67
Feed consumption, lb.	5.06	5.25
Feed/gain	3.10	3.13

Table 3. Pig Performance for Trial 3

	Width and type of slats		
	5-inch concrete	8-inch concrete	3½-inch aluminum
Number of pigs	32	32	32
Number of pens	4	4	4
<u>Initial to 120 lb.</u>			
Avg. daily gain, lb.	1.49	1.42	1.44
Feed consumption, lb.	4.32	3.94	3.97
Feed/gain	2.92	2.76	2.76
<u>120 lb. to market</u>			
Avg. daily gain, lb.	1.65	1.75	1.78
Feed consumption, lb.	6.03	6.12	5.82
Feed/gain	3.65	3.50	3.28
<u>Overall</u>			
Avg. daily gain, lb.	1.57	1.60	1.62
Feed consumption, lb.	5.24	5.11	4.94
Feed/gain	3.34	3.19	3.05