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Performance of Growing-Finishing Swine
Under Different Environmental Conditions

R. C. Wahlstrom¹, R. W. Seerley¹, H. G. Young² and J. F. Fredrikson³

The performance of growing-finishing pigs maintained in pens with different floor construction has been studied in two experiments (winter and summer). The four types of floor construction are: completely slotted, 50% slotted, 25% slotted and a sloped concrete floor with a narrow gutter across the lower end of the pen. Pits under the slotted floors accumulate the manure.

In addition to floor type, a comparison has been made of number of pigs per pen and controlled and uncontrolled house temperatures. Pen size was 5 x 15 feet when 8 or 9 pigs were used per pen and 10 x 15 feet when the pig numbers were doubled thus allowing the same number of square feet per pig. Feeder and water space per pig was also equalized between lots.

During the winter trial two lots of pigs were also confined in an uninsulated house and bedded with straw. Feeders and waters were located inside of these houses. Identical rations were fed to all lots of pigs in both experiments. The composition of the rations fed are shown in Table 1.

Results and Discussion

Results of the two trials are shown in Table 2 and 3. It is obvious that the type of floor did not have any effect on pig gains during either the winter or summer trial. Likewise, the number of pigs per pen did not have any effect on rate of gain. One would hardly expect a difference to exist between groups of this size (8 and 16 pigs) when feeder and water space are equalized.

Feed efficiency, although it did vary between lots more than the rate of gain, did not show any significant trends due to floor type or pen size. Slightly more feed was required per unit of gain during the summer trial than during the winter although rate of gain was quite similar in both trials.

Somewhat difficult to explain is the performance of the pigs in the uninsulated house during the winter trial. These pigs actually gained slightly faster and required less feed than those in the controlled temperature house. Although the temperature in the uninsulated house did vary more than in the insulated house and temperatures below freezing were common in the uninsulated house on certain

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days, these temperatures were not of long duration. It should also be remembered that the pigs were confined in the uninsulated house and based on results of research at the Experiment Station at Brookings one would expect better performance than if their feeder and waterer were outside.

Temperature and labor data were also obtained. These results will be presented when sufficient information has been acquired. It might be pointed out here, however, that the day-to-day labor requirements were considerably less with pigs on the slotted floor.

Table 1. Swine Rations Used at Southeastern Experimental Farm^a

	lb.	lb.	lb.
Shelled corn	766	820	872
Soybean meal (44%)	200	150	100
Dicalcium phosphate	15	10	10
Limestone	7	8	8
Trace mineral salt	5	5	5
Premix ^b	2.5	2.5	2.5
Calculated analysis:			
crude protein, %	16	14	12
calcium, %	.72	.61	.58
phosphorus, %	.59	.48	.51

^a The 16% crude protein ration is fed from weaning to 75 lb., the 14% ration from 75 lb. to 125 lb. and the 12% ration is fed to market weight.

^b Each pound of premix provided 2 gm. oxytetracycline, 600,000 U.S.P. units of vitamin A, 60,000 I.C. units of vitamin D₃, 400 mg. of riboflavin, 1000 mg. of pantothenic acid, 3000 mg. of niacin, 20,000 mg. of choline and 2 mg. of vitamin B₁₂.

Table 2. Results of Winter Trial (1964-65) and Summer Trial (1965)

Floor Type	Completely	50%	25%	Narrow	Uninsulated
	Slotted	slotted	slotted	gutter	house
	<u>Winter Trial</u>				
No. of pigs	32 ^a	32 ^a	32 ^a	32 ^a	16 ^b
Av. initial wt., lb.	37.7	38.5	37.9	38.5	38.2
Av. final wt., lb.	178.7	181.3	179.2	181.4	186.2
Days on experiment	91	91	91	91	91
Av. daily gain, lb.	1.55	1.54	1.55	1.57	1.63
Av. daily feed, lb.	4.88	4.85	4.80	4.85	4.70
Feed per lb. gain, lb.	3.15	3.20	3.09	3.08	2.88
	<u>Summer Trial</u>				
No. of pigs	36 ^c	35 ^c	36 ^c	34 ^c	
Days on experiment	95	95	95	95	
Av. daily gain, lb.	1.53	1.58	1.59	1.54	
Av. daily feed, lb.	5.20	5.36	5.48	5.53	
Feed per lb. gain, lb.	3.40	3.39	3.45	3.59	

a Two lots of 8 pigs each and one lot of 16 pigs

b Two lots of 8 pigs each

c Two lots of 8 or 9 pigs each and one lot of 17 or 18 pigs

Table 3. Results of Different Numbers of Pigs Per Pen

	Winter Trial		Summer Trial	
	Single Pen	Double Pen	Single Pen	Double Pen
Pigs per pen	8	16	9	17 or 18
Days on experiment	91	91	95	95
Av. daily gain, lb.	1.52	1.58	1.59	1.61
Av. daily feed, lb.	4.74	4.94		
Feed per lb. gain, lb.	3.11	3.13		