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Effect of reduced nighttime temperature on nursery pig performance

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EFFECT OF REDUCED NIGHTTIME TEMPERATURE ON NURSERY PIG PERFORMANCE

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and Mike Johnston

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Summary

A total of 144 weaned pigs were used to evaluate the effect of reduced nighttime temperatures on pig performance. No differences were observed in average daily feed intake, daily gain, or feed efficiency regardless of temperature treatment. These results indicate that constant high temperature may not be required for nursery pigs.

Introduction

Recent studies at the University of Illinois and Nebraska have shown equivalent performance between nursery pigs housed in constant high temperatures versus those housed in facilities with reduced nighttime temperature. This study was conducted to determine the effect of various degrees and durations of temperature reduction. With lowered heat input into nursery facilities, energy cost could be reduced drastically.

Procedures

Three groups of 48 pigs each were used to evaluate the influence of reduced nighttime temperature. Pigs were weaned at 28 days and assigned to one of three treatments. In Exp. 1, pigs (16 pigs/treatment) were assigned to: 1) a control group housed at 95° F for 24 hr; 2) 4 hr at 68° F and 20 hr at 95° F; or 3) 8 hr at 68° F and 16 hr at 95° F. In Exp. 2, pigs (16 pigs/treatment) were assigned to: 1) 24 hr at 95° F; 2) 12 hr at 95° F and 12 hr at 68° F; or 3) 8 hr at 95° F and 16 hr at 68° F. In Exp. 3, pigs (16 pigs/treatment) were assigned to: 1) 24 hr at 95° F; 2) 16 hr at 95° F and 8 hr at 59° F; or 3) 12 hr at 95° F and 12 hr at 59° F.

In all experiments, pigs were housed at 95° F for 5 days after weaning. Pigs then were weighed and temperature reduction treatments were imposed for a 28-day period. Pigs were housed in environmentally controlled (continuous light 24 hr/day) rooms (four pigs/pen) with plastic-coated expanded metal floors. All pigs were fed a pelleted milo-soybean meal diet containing 1.25% lysine. Pigs were weighed weekly and gain, feed intake, and feed efficiency were measured.

Results and Discussion

Average daily feed intake, daily gain, and feed efficiency were not affected by reduced temperature in any of the three experiments. Nighttime reductions of 4, 8, 12, or 16 hours to 68° F appeared to have no effect on pig performance or mortality. However, pigs housed at 59° F for 12 hr (Exp. 3) tended to consume more feed and have higher feed to gain ratios. Mortality and incidence of scours were similar for all treatment groups.

It is important to realize that all pigs were housed at 95° F for the first 5 days postweaning. If reduced temperature treatments were imposed immediately after weaning, results might have been considerably different. Future studies are planned to further investigate the influence of reduced nighttime temperature.

Table 1. Effect of Reduced Temperature on Pig Performance (Exp. 1).

Item	Temperature treatment		
	24 hr @ 95° F	20 hr @ 95° F 4 hr @ 68° F	16 hr @ 95° F 8 hr @ 68° F
No. of pigs ^a	16	16	16
Daily feed intake, lb	1.27	1.29	1.27
Average daily gain, lb	.89	.85	.86
Feed to gain ratio	1.42	1.51	1.45

^aFour pigs/pen.

Table 2. Effect of Reduced Temperature on Pig Performance (Exp. 2).

Item	Temperature treatment		
	24 hr @ 95° F	12 hr @ 95° F 12 hr @ 68° F	8 hr @ 95° F 16 hr @ 68° F
No. of pigs ^a	16	16	16
Daily feed intake, lb	1.34	1.56	1.38
Average daily gain, lb	.97	1.03	.93
Feed to gain ratio	1.38	1.51	1.48

^aFour pigs/pen.

Table 3. Effect of Reduced Temperature on Pig Performance (Trial 3).

Item	Temperature treatment		
	24 hr @ 95° F	16 hr @ 95° F 8 hr @ 59° F	12 hr @ 95° F 12 hr @ 59° F
No. of pigs ^a	16	16	16
Daily feed intake, lb	1.30	1.29	1.44
Average daily gain, lb	.84	.82	.81
Feed to gain ratio	1.56	1.60	1.77

^aFour pigs/pen.

