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Performance of Pigs in a Swedish, Bedded Group Lactation and Nursery System

Abstract

In the 1980s, Swedish swine producers were forced to develop several production models to remain profitable due to the strict legal policies facing the swine industry. By 1994, approximately 150 Swedish farms were using a sustainable model for pig production. This model, a deep-bedded, group housing system for pregnant, farrowing, and nursing sows and their litters, was known as the Västgömodel. Ljungström and Thorstensson are two versions of the Västgömodel system. In the Ljungström system, sows farrow in conventional pens and are moved with their litters to group nursing rooms after the pigs are 10 to 14 days old. In the Thorstensson system, sows farrow in group nursery rooms in temporary wooden farrowing boxes, which are removed after the pigs are 7 to 10 days old and have begun to climb out of the boxes. Group lactation ensues.

Keywords

Animal Science

Disciplines

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Performance of Pigs in a Swedish, Bedded Group Lactation and Nursery System

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Introduction

In the 1980s, Swedish swine producers were forced to develop several production models to remain profitable due to the strict legal policies facing the swine industry. By 1994, approximately 150 Swedish farms were using a sustainable model for pig production. This model, a deep-bedded, group housing system for pregnant, farrowing, and nursing sows and their litters, was known as the Västgömodel. Ljungström and Thorstensson are two versions of the Västgömodel system. In the Ljungström system, sows farrow in conventional pens and are moved with their litters to group nursing rooms after the pigs are 10 to 14 days old. In the Thorstensson system, sows farrow in group nursery rooms in temporary wooden farrowing boxes, which are removed after the pigs are 7 to 10 days old and have begun to climb out of the boxes. Group lactation ensues.

In 1995, an existing 1950s style hog house was retrofitted as a deep-bedded facility to demonstrate the Thorstensson housing system at the Iowa State University Armstrong Farm, Atlantic, IA.

By 1999, five more groups in the Thorstensson housing system were analyzed and summarized. Nursery phase growth was excellent resulting in 55-lb pigs with a 1.22 average daily gain. Prewean mortality was 28.3 with 81% of the piglet deaths occurring by three days of age. It was concluded that the system would perform well if prewean mortality could be reduced. Preweaning mortality may be reduced by farrowing in conventional farrowing crates or

pens and by moving the sows to group lactation when the pigs are 7 to 10 days old (Ljungström).

In 1999, The Ljungström system was demonstrated at the Iowa State University Armstrong Farm. The Ljungström system was implemented to reduce prewean mortality, while maintaining or improving nursery phase performance.

Materials and Methods

Seventeen sows were farrowed in conventional farrowing crates at the Iowa State University Lauren Christian Research and Demonstration Farm, Atlantic, IA. The trial was conducted in February and March. The sows were assigned to two treatments: conventional weaning (<21 d), and a group lactation with a 35 d weaning. On day 21, the conventional weaning group pigs (n=51) were weaned and placed in a fully enclosed mechanically ventilated confinement nursery with a plastic totally slatted floor. There were eight pens (5 × 13 ft) in the experimental room, and the middle four pens were used for the trial. Each pen was equipped with one nipple cup waterer and a 6-hole feeder (35.9 × 11.7 × 28.3 in.) with feeding spaces 5.7 in. wide and 4.0 in. deep. All conventionally weaned pigs had ad libitum access to four commercial diets in phase and water throughout the 60 d trial. On day 14, the group lactation piglets and sows were transported seven miles to a straw bedded group lactation building at the Iowa State University Armstrong Farm. For the next 21 days, the sows lactated as a group and were given ad libitum access to feed. The piglets had access to creep feed. On day 35, the sows were removed and the piglets were fed three commercial diets in phase for the remaining 25 days of the 60 d trial.

Results and Discussion

Performance of the two groups of sows and their pigs in the conventional farrowing room is shown

in Table 1. The average number of pigs born alive per litter was 9.6 pigs for both systems. The average birth weight was similar (3.2 vs. 3.3 lb/pig).

Prewean mortality was reduced in this study with the conventional farrowing crates (2%) used in conjunction with the bedded group lactation system (Table 1). Weaning occurred at 21 days for the conventionally weaned pigs and 35 days for the group lactation pigs. The group lactation sows weaned 9.6 pigs/litter and the conventionally weaned pigs had 9.6 pigs/litter.

Pig growth data are shown in Table 1. The weaning lag for the conventionally weaned pigs is apparent. The pig growth rate decreased 32% when comparing the week before weaning with the week after weaning. Growth rate for the group-lactated pigs increased steadily, including the week after weaning. The rate of gain for the first week of group lactation (14-21 d) was 24% less for the group lactated pigs than for the conventional pigs; however, during the next week the group-lactated pigs grew 65% faster than the conventionally weaned pigs. Overall, the growth rate was similar, the group-lactated pigs grew 7% faster than the conventionally weaned pigs. Comparisons of feed intake and costs were not attempted. The conventionally weaned pigs required special diets beginning with the 21 d weaning. The group lactation pigs consumed

some creep feed during days 21–35. Also, the sows consumed greatly different amounts of feed. The conventionally weaned sows were limit fed after 21 days, but the group lactating sows were fed ad libitum for days 21–35.

Other major differences probably included the subsequent sow reproduction performance (wean-to-estrus interval, conception rate, litter size), housing costs, bedding costs, sow fatness, etc. However, it is clear, that the preweaning mortality of the Swedish bedded system can be reduced by keeping the sows and litters in farrowing crates for the first two weeks until movement to the group lactation room. Pig growth in the bedded group lactation and nursery room was equal to pigs conventionally weaned into a modern nursery facility with environmental control.

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For a complete report of this project, contact M.S. Honeyman, 515-294-4621, honeyman@iastate.edu, or visit the website <http://www.extension.iastate.edu/ipic/> reports.

Table 1. Pig performance in conventional and bedded group lactation systems.

	Group	
	Conventional	Group Lactation
No. pigs born alive/litter (ave.)	9.6	9.6
No. pigs weaned/litter (ave.)	9.5	9.3
Ave. pig wt (0 d), lb	3.3	3.2
Ave. pig wt (14 d), lb	9.0	8.4
Ave. pig wt (21 d), lb	13.4	12.0
Ave. pig wt (35 d), lb	19.4	22.0
Ave. pig wt (60 d), lb	47.0	50.0
ADG (0-14 d), lb	.41	.37
ADG (14-21 d), lb	.63	.51
ADG (21-35 d), lb	.43	.71
ADG (35-60 d), lb	1.10	1.12
ADG (0-60 d), lb	.73	.78

