

Internal Parasites of Pigs Housed in a Hoop Structure and Confinement

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Summary and Implications

Fecal samples were collected from both a confinement building and a hoop building at the ISU Rhodes Research Farm. The fecal samples were collected from heavy market hogs. The fecal samples were frozen and thawed at a later date. Floats were performed on the fecal samples and slides were made from each original fecal sample. The results showed no evidence of internal parasites in pigs from either the confinement or the hoop structures.

Introduction

In recent years, there has been research to compare pig performance in hoop structures and confinement. The Hoop Research Complex (HRC) was developed in 1997 at the ISU Rhodes Research Farm, Rhodes, IA, to conduct research and demonstrations related to feeding pigs in hoop structures. The HRC has three hoops and one mechanically ventilated modular confinement building with slatted floors. Comparing the two housing systems can give a clearer picture of the impact of parasites. This feeding trial was conducted from October 2000 through February 2001.

The primary objective of the study was to determine the infestation levels of *Ascaris suum* (large roundworms) in pigs in both confinement and hoop structures.

Materials and Methods

This study began when pigs were placed in their respective production system. The hoop structure pigs average starting weight was 36.1 lb on October 11, 2000, and the confinement pigs average weight was 38 lb on October 18, 2000. This trial used a deep-bedded hoop structure and a mechanically ventilated confinement building. There were 150 pigs placed in the (30 ft × 60 ft) bedded hoop structure. The ventilated confinement structure with slatted floors has six pens with 22 pigs per pen. Each unit was filled with one delivery of pigs that were weaned at the same time. The pigs were injected with ivermectin and vaccinated for erysipelas at the beginning of the trial. The pigs in the hoop structure were wormed with Safeguard in the feed at 130 lb avg. from December 2 to December 7, 2000. The confinement group of pigs were wormed at 124 lb avg. from December 4 to December 10, 2000.

The stocking densities for finishing pigs in the hoop structure were 12 ft²/pig and in confinement were 8 ft²/pig. With 12 ft² per pig, the hoop structure was designed to hold 150 pigs. The confinement pens (13.5 × 13 ft) were designed to hold 22 pigs per pen. All pigs were terminal Duroc boars cross on predominantly white sows. The pigs were a mixture of barrows and gilts.

The pigs were fed five diets in phase *ad libitum* during the trial. All diets were corn- and soybean meal-based and were fed in meal form. The hoop structure was operated as a cold facility that uses cornstalk bales for deep bedding. The north end was kept closed during the winter and the south was left open. This allowed air to be exchanged at a sufficient rate to prevent condensation on the underside of the roof. Bedding was added to maintain a relatively dry bedding pack.

Twenty fecal samples were collected on February 8, 2001, in both the confinement and hoop structure. The samples were taken fresh at different locations in each pen. The samples were then labeled and frozen. A float was performed on the fecal samples by using the modified Sheather's sugar flotation technique. The frozen fecal samples were thawed in a warm water bath on February 22, 2001. Samples (1–2 g) were placed in 10-ml test tubes. The tubes were filled with Sheather's solution (sucrose, tap water, 40% formaldehyde solution, U.S.P.). Test tubes were centrifuged for 5 minutes at high speed (1,500 revolutions per minute). A wet mount slide was prepared by transferring a standard amount of the centrifuged sample to the slide. The wet mount slides were inspected for eggs.

Results and Discussion

No large roundworm eggs were discovered in any of the slides from confinement or hoop pigs.

We expected to find more large roundworm eggs in the hoop structure pigs because the life cycle of the large roundworm is dependent on ingestion of worm eggs. The hoop structure is more advantageous for the large roundworm life cycle because feces remain available to the pigs. The large roundworm is historically present in 50–75% of all pigs. The results of this study did not confirm our original projected outcome. We do not have any logical theories to support our findings. Therefore, it is recommended that this trial be repeated in the future.