

Analysis of Growth of Pigs in Grow-Finish Facilities

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Introduction

Pork production is a dynamic and ever-changing industry. Producers are continually evaluating pork production systems, with the goal of improving or maintaining their competitive position. Production systems range from totally enclosed confinement to pasture systems. Although the method of finishing hogs in hoop structures is not necessarily new, it is a system with a renewed focus in the industry. The Iowa State University Rhodes Research Farm is a research site of hoop as well as confinement pork production. The facilities at the Rhodes Farm consist of three hoop structures and one modular confinement unit.

The focus of this report is to evaluate growth of grow-finish pigs in a hoop system and provide a comparison to a confinement system. At this time, there have been three groups of pigs finished in each system: winter 97/98, summer 98, and winter 98/99. This report provides pig growth functions for the summer 98 and winter 98/99 production period along with the annual results.

Although this report focuses on the second (summer) group and third (winter) group of pigs that were finished in the facility, the basic facility research will eventually contain results from at least five feeding trials over at least a 2-year period and with more than 2500 pigs.

Summer trial. The summer trial was started on June 30, 1998, with the hoops and confinement facility stocked over a 2-week period. All pigs were marketed by November 24, 1998. The stocking of the hoops and confinement was staggered. Prior to starting the grow-finish trial, the pigs

were used in a SEW trial for 39 days. At the end of the SEW trial (June 30 for hoops and July 13 for confinement) the head count in each building was reduced to grow-finish capacity for the grow-finish phase. The pigs started the trial weighing approximately 37 lb. On June 30, the three hoop buildings contained 451 pigs and on July 13, the confinement facility contained 132 pigs.

Winter Trial. The winter trial was started on November 24, 1998. The stocking of the hoops and confinement was staggered over a 3-week period. The first pigs were marketed on April 12, 1999, and all were marketed by May 11, 1999. The pigs started the winter trial weighing about 33 lb on average. The winter pigs were of the same genetics as the summer group and the pigs for both trials were procured from the Lauren Christian Research and Demonstration Farm at Atlantic, IA. The three hoop structures were stocked with 451 pigs and the confinement building was stocked with 132 pigs.

Growth

For both trials, the hoop and confinement pigs were allocated 12 and 8 sq ft, respectively. The space allotment was based on industry norms for stocking rates in these two systems. At a later date, these space allocations could be investigated. For now, it is assumed space is adequate. The basic focus is obtaining production efficiency information.

Relative growth curves appear to be dependent on season. Figure 1 shows the average weights of the pigs in each system from the start of trial to the first marketing day (day 111). The growth curves (Figure 1) for the summer group show that about day 60 of the trial, the hoop pigs overtook the confinement pigs. Initially, they grew at a slightly slower rate and then at a faster rate. This faster rate continued to day 111, as seen by the continuing separation of the growth curves.

Figure 1. Summer average growth curve.

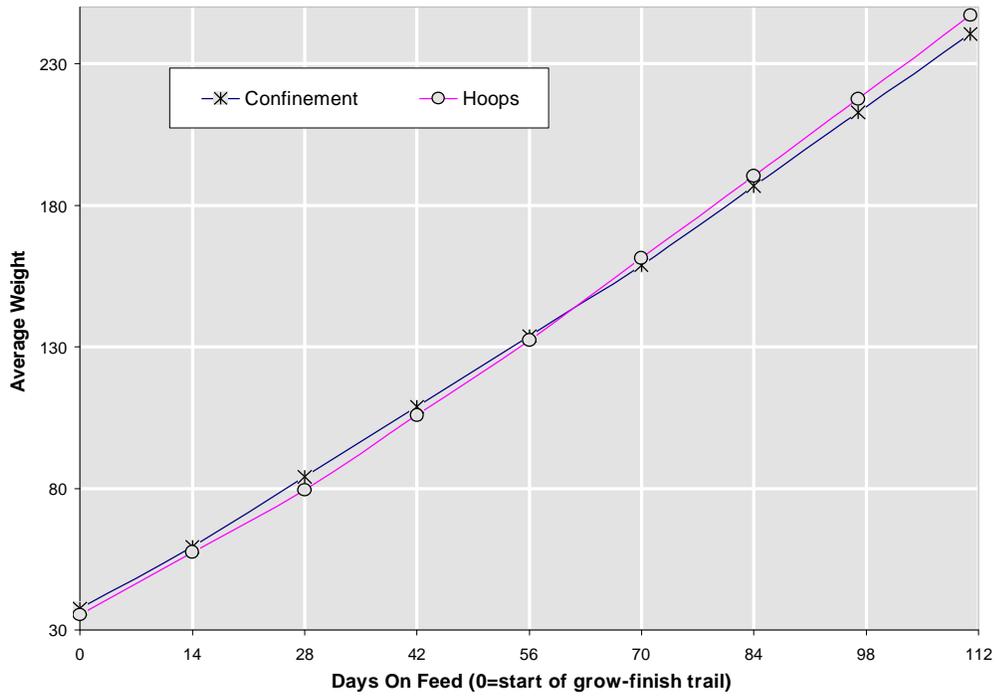


Figure 2. Winter average growth curve.

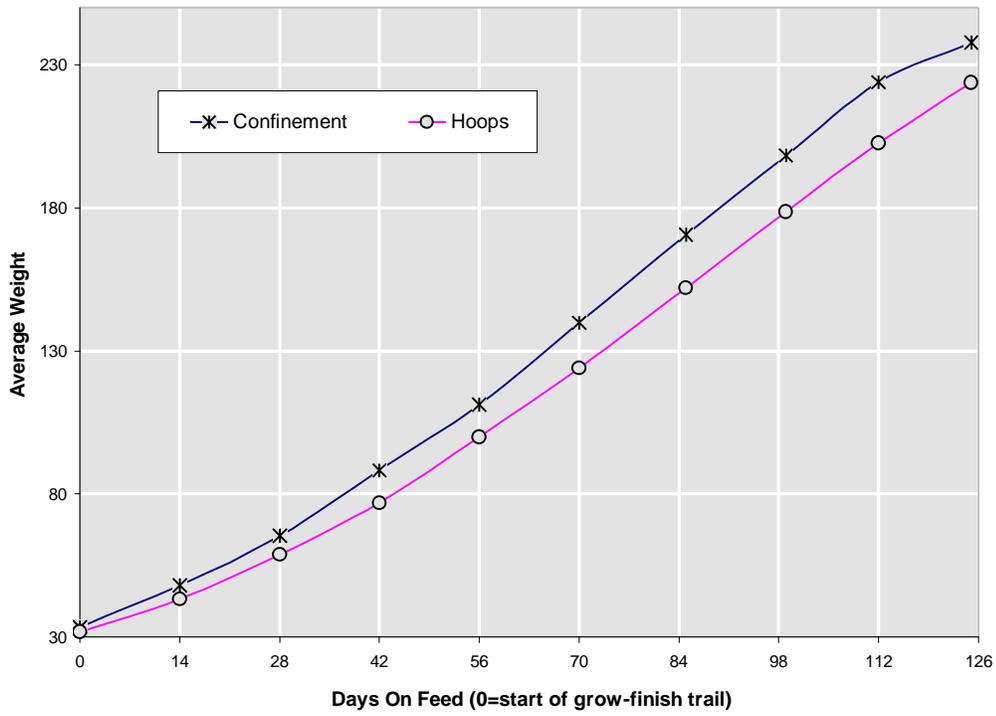
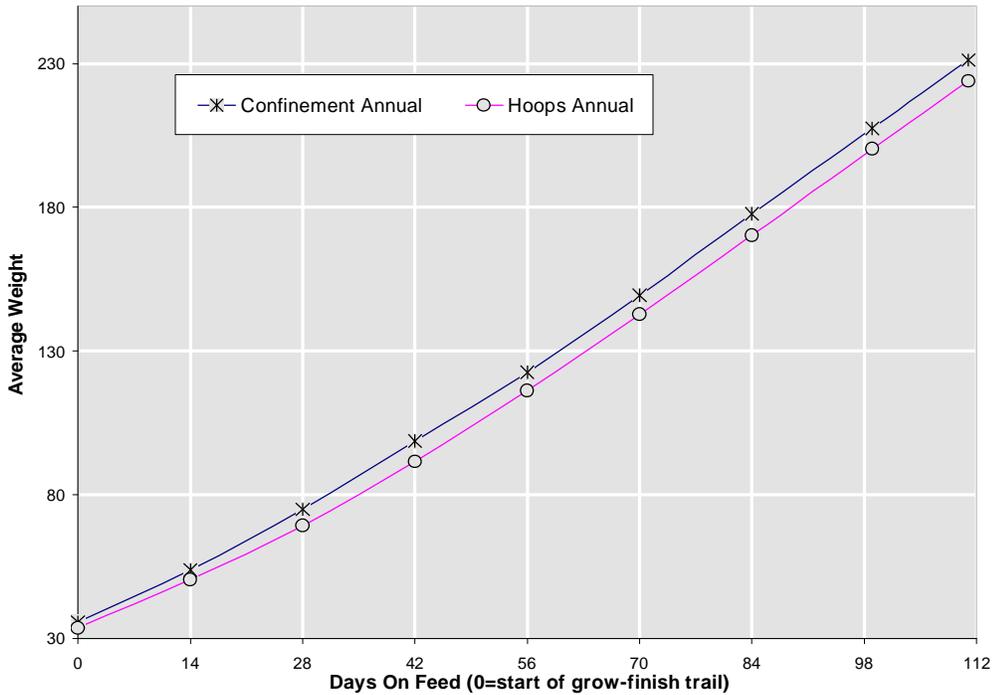


Figure 3. Annual average growth curve.



The growth curves for the winter pigs exhibited a different pattern. Figure 2 shows the average weight from start of trial (day 0) to the first marketing day, day 125. The confinement pigs gained weight relatively faster than the hoop pigs throughout the growth cycle until just prior to marketing. The growth rate of the confinement pigs started to level off, but the weight remained above the hoop pigs. The hoop pigs did not exhibit the leveling of growth.

Figure 3 shows the growth curves from the summer and winter trial as an annual average. On average, for both

winter and summer, the confinement pigs grew faster than the hoop pigs in the first 42 days and then grew at about the same rate until marketing occurred.

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