

Using Serial Ultrasound Scanning to Compare Growth, Loin Muscle Area, and Back Fat Thickness of Pigs in Bedded Hoop and Confinement Buildings During Summer and Winter in Iowa

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In recent years the high fixed cost and increased risk of building confinement swine finishing buildings, coupled with increased pressure from environmental, community, and animal welfare groups about confinement swine finishers has led farmers to explore hoop buildings as an alternative to confinement finishers. The Hoop Research Complex (HRC) at the Iowa State University Rhodes Research Farm near Rhodes, IA was developed in 1997 to conduct research and demonstrations related to feeding pigs in hoop buildings. This experiment examined the growth and development of finishing pigs in relation to housing environment, and the seasonal effect of raising finishing pigs in hoop or confinement buildings by using serial ultrasound measurements of back fat thickness and loin muscle area, coupled with serial weighing during the finishing period. In the) pigs were either housed in a (9.1 x 18.3 m) hoop finishing building (designed to hold 150 pigs in one pen) or a mechanically ventilated, totally slatted confinement building (designed with six pens holding 22 pigs per pen). Pigs were placed in pens at 16 kg and were marketed at 124 kg. Forty-eight pigs were randomly selected from the hoop building and eight pigs were randomly selected from each of the six pens in the confinement building. All pigs were fed corn-soy diets ad libitum. Pigs were weighed and ultrasound images were recorded every 14 days during the last 56 days of the finishing phase. All pigs were scanned by a certified technician using an Aloka 500 ultrasound machine. The study consisted of a summer trial (April through August) and a winter trial (October through February). Comparisons were made between hoop and confinement buildings within a season (summer and winter) and for both seasons combined. Comparisons between seasons within building type (hoop or confinement) were made. Preliminary results indicate that although pigs in each building type reached a similar end weight at the same time, hoop pigs displayed more variation in growth rate and fat/muscle deposition rate during the finishing period. Confinement pigs in both seasons grew at a more constant rate. Environmental and seasonal variation may impact growth, and fat and muscle deposition more for pigs finished in hoop buildings compared to pigs finished in confinement buildings. Also, different social structure and number of feeder spaces in relation to pig group size may influence appetite and feeding time causing more variation in weights due to gut fill. Further research could be conducted to reduce the variation in pig growth and development caused by the variable environment in hoop buildings. Modifying diets, providing supplemental heat during the first 30 days pigs are placed in hoop buildings, and/or placing pigs into hoop buildings at heavier weights are all possible solutions that could be investigated.