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Alternative Winter Farrowing Demonstration Project: Two-Year Summary

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Abstract
There is growing demand in Iowa for pigs raised outdoors or in a deep-bedded system without the use of antibiotics, growth promotants, or animal by-products. Currently, most producers selling naturally raised pork market their animals to a company that requires adherence to the Animal Welfare Institute's (AWI) Animal Welfare Standards. One of the key components of these standards is the prohibition of farrowing crates. While a pasture farrowing system is effective during spring, summer, and fall, an alternative system is needed to farrow pigs in the winter for the naturally raised pork market.

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Introduction

There is growing demand in Iowa for pigs raised outdoors or in a deep-bedded system without the use of antibiotics, growth promotants, or animal by-products. Currently, most producers selling naturally raised pork market their animals to a company that requires adherence to the Animal Welfare Institute's (AWI) Animal Welfare Standards. One of the key components of these standards is the prohibition of farrowing crates. While a pasture farrowing system is effective during spring, summer, and fall, an alternative system is needed to farrow pigs in the winter for the naturally raised pork market.

There are a variety of farrowing systems currently being used during cold weather to farrow pigs for the natural pork market. In general, all rely upon a primary heat source capable of maintaining a room temperature of at least 50º F and auxiliary heat sources (heat lamps, bedding pack, hovers) to create a warmer microclimate for the young pigs. The use of adequate bedding and a design in harmony with the natural instincts of the pigs is key to the success of the example systems. A final critical consideration is a breeding program that ensures sows in a particular room farrow within a short time frame (7 days or less) of one another to facilitate subsequent group lactation.

Development of systems enabling producers to capture premiums offered by niche markets is of great interest to many Iowa farmers. Of key concern is a winter farrowing system that is both economical to operate and meets the criteria of natural pork buyers. This report details the results from the alternative winter farrowing system demonstrated at the ISU Allee Demonstration Farm near Newell, IA, during the winters of 2002–2003 and 2003–2004.

Materials and Methods

In 2002, a 62-ft-long 150,000 Btu/hr radiant heater tube was purchased for $2,306. The heater was installed in an existing 30 × 80 ft lean-to of a pole barn on the Allee Demonstration Farm near Newell, IA. The lean-to has a concrete floor and 10-ft insulated hinged doors on both ends. The lean-to is on the north side of the 80 × 60 ft pole barn that is oriented east to west. The only insulation in the farrowing room is one inch of foam board along the roof and exterior walls of the building. The highest point of the lean-to ceiling is at the southern end and measures 14 ft from floor to ceiling. It then slopes downward to a height of 9 ft at the northern end. The radiant heater runs east-west parallel to the south wall of the lean-to. It is set approximately 4.5 ft from the southern wall, and 2.5 ft from the ceiling, in accordance with the manufacturer's specifications. Deflector shields attached to the tube protect the wooden rafters of the lean-to and direct the heat towards the floor.

Twenty 6 × 7 ft, plywood, modified A-frame farrowing huts designed for outdoor farrowing are set up in a double row down the center of the lean-to. Huts are set side by side in groups of five. The backs of one group of five are then set parallel to the backs of another group of five with a 3-ft creep area between the two rows. The lower part of the backs of the huts is removed and half of the total creep area is sectioned for each hut. In addition to the radiant tube heater, 250-watt heat lamps are placed over the creep areas to create a warmer microclimate

for the young pigs. As piglets reach 10–14 days of age, the partitions in the creep area are removed and a creep feeder is added. 6-in. tall wooden barriers are added across the doorway of the huts and are used until piglets reached 7–10 days of age. Piglets are processed in the 3-ft-wide creep area. Two pens, consisting of ten farrowing huts each, fit into the building space, allowing for adequate alleyways. Sows are floor-fed once a day by hand with free access to heated automatic nipple waterers in an unheated but enclosed area in the main shed adjoining the farrowing room. All huts and creep areas are bedded with wood chips as needed. Dunging generally occurs in the alleys as the sows move from the warm huts to the cooler alleys. Alleys are scraped daily to minimize manure buildup. Piglets are weaned at 5 weeks by removing the sows. Young pigs then remain in the farrowing room for an additional 1–3 weeks before being moved to deep-bedded hoop barns for finishing. Huts are removed from the building with the young pigs. The building is then cleaned using a skid loader. Approximately 21 hours/group is spent removing huts, cleaning the barn, and resetting the huts and creep areas.

Results and Discussion

With the radiant heat, sow and pig comfort is very satisfactory and working conditions are excellent. In the winter of 2002–2003, 36 litters were farrowed in this facility. A total of 293 pigs were weaned for an average of 8.14 pigs/litter. To maintain room temperature near 50ºF, 1,150 gallons of LP gas were used. With LP gas costs of $0.90/gallon and electrical costs at $0.08/kwh, the total energy expense for producing those 293 pigs was $4.94/pig weaned. In the winter of 2003–2004, 20 litters were farrowed and a total of 132 pigs were weaned. Weaning average for 2003–2004 was 6.6 pigs/litter with energy expenses of $7.73/pig weaned. The sows that farrowed in 2002/2003 were third-parity sows that had been raised on the farm. In 2003–2004 purchased gilts were used. Inexperience with bedded systems on the part of the gilts likely contributed to the observed differences in prewean mortality. Over the two winter farrowing periods, 425 pigs were weaned from 56 litters for an average of 7.59 pigs/litter. Average energy cost for producing those animals was $5.81/pig weaned.

The arrangement of the huts and orientation of the heat sources combine to create an appropriately warmer microclimate for the young pigs while maintaining a cooler zone for the sows. Crushing occurrence resulting from restless and uncomfortable sows is thus reduced. A warm microclimate in conjunction with protection from sow crushing is critical to the success of the system. The results of the first season of winter farrowing in this alternative system are comparable to ISU Swine Enterprise Records for the top one-third of operations, based upon profitability, for farrow-to-finish producers. For more information on this system and other alternative winter farrowing systems, contact the MidWest Plan Service, Ames, IA, and request publication AED-47.

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