

Investigating Ways to Reduce Energy Cost in Swine Barns

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Energy input is vital to every swine operation because it directly affects production performance and overall profitability. Due to the current trend of increasing energy prices, pork producers are seeking ways to significantly improve energy use efficiency in their operations in order to reduce overall cost of production. The goals of this study were to: gather benchmark information on current energy usage in swine barns, conduct energy audits to document energy use practices in various types of swine barns, and evaluate different energy-saving measures using computer simulation.

Information on energy consumption and hog production numbers over a three-year period was collected from 28 swine facilities in February 2007. Results of the survey showed that the average electricity and gas cost was \$6.50/head for farrow-to-finish barns, \$1.70/hd for grow-finish barns, \$0.59/hd for nursery and \$1.95/hd for farrow-wean barns. Within the same type of operation, a wide range in energy usage was observed, indicating that there were significant opportunities for improving energy use practices in some barns to reduce overall energy costs. The two highest and two lowest energy-consuming barns (per head basis) were selected for energy audits. Measurement of actual energy use and environmental parameters were done in these four barns under summer conditions. Management practices in each barn that involved the use of energy were also closely documented. Results showed that the average daily electricity consumption was 2.61 kWh/hd for farrowing rooms, 0.12 kWh/hd for nursery rooms, 0.12 kWh/hd for grow-finish rooms, and 0.43 kWh/hd for gestation rooms. Winter measurements starting January 2008 will include measurement of gas consumption. This data will be used in computer simulation software that will be employed to evaluate potential energy-saving measures that can be applied in swine barns.

Implications: The outcome of this project is expected to help pork producers manage the use of energy in their operations more efficiently, thereby reducing overall energy costs. Additionally, the reduction of total energy use across the industry would contribute to the reduction in greenhouse gas emissions associated with energy generation.