Establishing and Comparing the Water Balance of Grower-Finisher Rooms Using Dry and Wet/Dry Feeders

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Intensive swine operations require large amounts of water and any wasted water increases demand on the water source, manure storage requirement and handling costs. The objective of this study was to establish and compare the water balance between two grower-finisher rooms, one room using dry feeders and the other wet/dry feeders. To determine the significant sources and sinks of water, a model depicting the water balance of a grower-finisher room was established. The sources of water identified in this study include water disappearance from the drinker, feed moisture, metabolic water produced by the pig, water content of the pig and moisture of the incoming ventilation air. The sinks of water include the manure water content, water content of the pig and moisture in the outgoing ventilation air. Two rooms with identical features were used with feeder type as the variable (one room with dry feeders and the other room with wet/dry feeders). Three grower and three finisher cycles were studied over an 11-month period.

Preliminary analyses indicate the major source of water is at the drinker, and the major sink of water is in the manure. Water disappearance was reduced by up to 31% for wet/dry feeders compared to dry feeders, and the manure production was lowered by up to 43% for wet/dry feeders compared to dry feeders. The average daily gain of pigs using wet/dry feeders was generally higher by 1.2 to 7.4%.

Implications

Use of wet/dry feeders as compared to dry feeders in grower-finisher rooms represents a potentially large water savings, while reducing the manure production of the pigs.