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Swine Teaching and Research Center

US swine farmers are faced with rapidly changing policies and public opinion about the way they raise their animals. Penn Vet, a pioneer in the study of sow housing, is uniquely positioned to provide producers, businesses, and consumers with relevant scientific data collected from this living laboratory.

A Model Facility

Opened in 2001, the Swine Teaching and Research Center at Penn Vet's New Bolton Center is home to 200 sows and their piglets, making it possible to test and research new ways to house gestating and lactating sows. The Center was one of the first of its kind at a US veterinary school, with a mission of applied swine research and the teaching of swine production medicine. The 16,000-square-foot building was updated in 2010 and features state-of-the-art technology, including microchips used to monitor and manage animal comfort and feeding. Instead of conventional farrowing or gestation stalls, the Penn Vet swine housing model features open pens that allow sows more freedom of movement. With the assistance of the Penn Vet swine center team, over 50 farms throughout Pennsylvania and across the country have adopted this housing model. In fact, over 100,000 (almost two percent) of the nation's sows live in "Penn" gestation housing.

Microchip Technology and Natural Behavior

The barn design allows pregnant sows to live together in open pens that accommodate about 60 or more animals. Each sow has a microchip in her ear. Using the microchip, a computerized feeding system identifies the sow as it enters an electronic feed station. Each sow receives a precise amount of food, based on her individual needs as they change during different stages of pregnancy. The electronic identification also allows farmers to automatically sort or mark the animals. Both the feed and labor saving features of the electronic sow feeder translate into reduced costs for farmers.

The sows, which weigh between 400 and 600 pounds, are free to wander the pen, or to rest in bays along the walls. Research shows that the same animals lie in the same area every day and raise a ruckus if a sow that does not belong to the clique tries to squeeze in.

Farrowing Rooms

Thomas Parsons, VMD, PhD, Associate Professor of Swine Production Medicine and Director of the Swine Teaching and Research Center, implemented two models of new housing for lactating sows. The models are based on his studies of European farms, where customer demands have required the development of alternative husbandry practices.

In the original model put into place when the Center opened, a lactating sow spent one week in a modified farrowing crate, which protected her newborn babies from inadvertently being crushed. After one week, the crate was opened, allowing the mother to have unfettered access to her babies inside a 50-square-foot pen.

The new model, which was added during a 2010 renovation and expansion of the Center, allows sows more freedom of movement. These farrowing rooms, where the sows give birth, no longer have crates. The farrowing pens have designated areas for piglet sleeping, piglet nursing, and a place for sows to lie down, as well as a separate area for sow waste. The sleeping areas are bedded and the sows can use their snouts to open a door to an outside "loafing" area. These changes provide opportunities to research the need for bedding, outdoor access, and other alternatives to the farrowing crate.

The nearly 4,000 piglets born at the facility each year are sold to independent businesses that feature antibiotic-free and welfare-friendly products, such as Whole Foods Markets and Niman Ranch. Each spring, several piglets are sold to children who participate in local 4-H swine clubs.

Impacts of an Alternative System

New research projects at the swine center are focused on how to best manage these new alternative housing systems, and how to determine the right animal to be reared in these open pens. Ongoing projects are supported by Pig Improvement Company, National Pork Board, American Society for the Prevention of Cruelty to Animals, Pennsylvania Pork Producers Council, Pennsylvania Soybean Board, American Humane Association, New York Farmers, and the Swiss Village Farm Foundation.

A Learning Center

A 1,000-square-foot classroom with large windows allows for observation of the animals while still maintaining a high level of biosecurity. Video cameras throughout the barn improve the research capacity, as well as the ability of visitors to learn more about the swine center. In addition, the facility meets 10 to 12 percent of its energy requirements through solar power.