



United States  
Department of  
Agriculture

Animal and  
Plant Health  
Inspection  
Service

Veterinary  
Services

# Total Confinement Farrowing Facilities

## National Swine Survey

Disease. Sometimes swine producers know it's lurking. Other times, it attacks without warning. But, when disease attacks, it's costly.

To gain insight into the effectiveness of facility construction as a barrier to infectious disease and the effectiveness of hygiene, overall sanitation and environmental regulation on swine health, the National Animal Health Monitoring System recently surveyed producers from 18 States about farrowing facilities and management. These producers represented 95 percent of the U.S. swine population during 1990.

### Facility Characteristics

In the National population represented by the NAHMS study, 81 percent of the swine farms had at least one total confinement facility. Other types were an open building and a hut or no building.

Sixteen percent of the farms with at least one open building had access to dirt or concrete. Just 4 percent had an open building with no outside access and less than 1 percent had access to pasture.

### Total Confinement Characteristics and Management

Eighty-six percent of the farms with one or more total confinement facilities had farrowing crates. All-metal crates dominated the type used (78 percent). Next most common were wood and metal crates (7.1 percent), followed by wood crates (1.8 percent) and other types (1.3 percent).

Plus, 26.5 percent employed special guardrails or bars in addition to those normally present in the crate structure to keep the sows from crushing piglets.

"Equipment and the environment of the sow and her baby pigs are instrumental in keeping baby pigs alive," Dr. Tim Loula of St. Peter, Minnesota, explains. "Yes, definitely the number of pigs kept alive varies with facilities. And ditto for the production of pigs.

"With inadequate facilities, you see a higher death loss and lower weaning weights."

When it came to facility flooring (or footing), wire or metal flooring proved most common with over half of the producers using this type. Other producers maintained concrete (29.6 percent), wood (10.4 percent), slats-concrete (4.1 percent), and other types (10.0 percent) of flooring.

Bedding materials, which vary in their ability to support pathogens, were also part of the NAHMS study. The study revealed that more than 19 percent of swine producers used straw, corn stalks, or hay as bedding. Wood shavings and sawdust were another bedding source, used on about one in 20 farms.

"Swine producers should take a look at their flooring and bedding," Loula adds. "The type of flooring and bedding could be the source of a producer's scours problem." Using the data collected during the National Swine Survey, NAHMS will conduct further analyses to examine this relationship.

Although numerous farms relied on more than one water source, more than half the swine producers provided cups as their swine's No. 1 source and more than one-third had nipples. Still others depended on a one-sow trough (15.7 percent) and multiple-sow troughs (1.7 percent) in at least one facility.

## Environmental Control

Swine producers relied on three types of ventilation systems: wall or ceiling fans, pit fans, and natural air circulation. More than three-fourths of the farms used wall or ceiling fans in at least one farrowing facility. The next most common air-circulating system was nature. Nearly one-third of the farms had a facility that used natural means of ventilation. And 15.5 percent utilized pit fans.

Supplemental heat was available in at least one farrowing facility on most confinement farms (92 percent). Breakdown of heating systems -- heat lamp (66.7 percent), room heating (65.8 percent), heat pad (22.9 percent), radiant heater (10.9), heated floor (3.4 percent), and other (3.1 percent).

On the other side, cooling systems were not utilized as often as heating systems. Only 46.5 percent of the confinement farms used supplemental cooling. Sources of cooling -- drip coolers for individuals (27.1 percent), forced-air fans (19.4 percent), mist or spray coolers for groups (2.5 percent), evaporative room coolers (2.3 percent), head cooling (1.1 percent), and other types (1.0 percent).

## Sanitation

To help investigators identify factors relating to bacterial contamination, the NAHMS study looked into types of waste management used by swine producers.

This study revealed that less than one-half of all confinement swine producers hand cleaned (41.6 percent) and less than one-third used a pit-holding system (29.2 percent) in at least one facility. Other types of waste management used by swine producers included mechanical scraper or tractor (12.1 percent), flush-under slats using fresh water (13.4 percent), flush-open gutter using fresh water (6.8 percent), and other methods (5.8 percent).

"Within the swine industry, you'll see trade-offs," Loula states. "Some producers put less costs into facilities, and they end up with less performance and less pigs. On the other hand, they save on the costs not invested in facilities."

To eliminate contaminants, three out of four producers cleaned facilities after each group farrowed. Pressure cleaning between farrowings was the No. 1 choice of more than 65 percent of the producers. Disinfectants were used by just over 50 percent, and some 25 percent washed with water.

The study also found that 12 percent of the producers did not clean the total confinement facility.

Almost two-thirds of the swine producers indicated they left facilities idle between farrowings. Time spans included one to two days (13.2 percent), three to five days (14.7 percent), one week (16.1 percent), two weeks (10.3 percent), and one month or more (7.1 percent).

---

The National Swine Survey was a cooperative effort of State agricultural departments; universities; and the following USDA agencies: Extension Service (ES), National Agricultural Statistics Service (NASS), and Animal and Plant Health Inspection Service (APHIS). The study of swine health and productivity was conducted from December 1989 through January 1991. The objectives were to provide information on the production and health levels of the United States' swine herd, and to suggest factors that may affect preweaning morbidity and mortality.

A statistical sample of producers from 18 States was selected to provide inferences about the nation's hog population. The resulting estimates represent 95 percent of the United States' swine population.

The National Agricultural Statistics Service (NASS) selected the sample and collected retrospective data on

swine health and management practices from 1,661 farms.

Seven hundred and twelve (712) producers agreed to continue providing data to State and federal Veterinary Medical Officers (VMO's). Each farm was visited a total of four times over a 90- to 120-day period. Data collection instruments such as diary cards were implemented to collect prospective data on the farrowing to weaning stage of swine production. The producers recorded observations of clinical signs associated with illness and death in sows, gilts, and preweaning piglets.

**National Animal Health Monitoring System**  
**USDA:APHIS:VS**  
**555 South Howes, Suite 200**  
**Fort Collins, Colorado 80521**  
**(303) 490-7800**

N97.0192