Conversion of gestation stalls Continued

Lessons learned from a decade of transitioning sow farms from stalls to pens

According to Dr. Thomas Parsons from the University of Pennsylvania, if you plan on building a new sow facility or upgrading an existing facility, you will likely have to choose between gestation stalls and group housing systems. Is there a single formula for transitioning a sow farm from sow stalls to group housing? The answer, he says is "no". There are several viable alternatives for producers to consider, and each system has its strengths and weaknesses, he notes. Assessing all options that best match your needs is a prerequisite to this transition process. Dr. Parsons shared a few alternatives and important management practices to consider when transitioning to group housing. First of all, he advises, consider which group housed sow system will meet your basic needs for maintaining or improving your herd productivity. Economic considerations are also an important aspect, including the cost of the technology and feed utilization, he believes.

Understanding pen gestation

Dr. Parsons defined some terms used when considering group sow housing systems:

Group size: Small group size systems (from 5 to 20 sows) house sows of similar size and age that have comparable feed requirements. Normal group size systems (from 50 to 70 sows) usually correspond to a specific breeding group or the capacity of a particular feeding unit. Large group size systems (greater than 100 sows) are meant to prevent, minimize or eliminate the development and enforcement of a rigid social hierarchy.

Group structure: Group structure can be static. An "all in, all out" system, left intact for the duration of gestation, is designed to stabilize the social hierarchy of the group, but drop-outs will reduce the efficiency of space utilization. A dynamic group consists of a 'continuous flow' system which works best with a large group of sows. Replacing 10-20% of the animals in the group on a weekly or bi-weekly basis interrupts the social

order if it was strongly established. Consequently, this type of group requires some alterations to management protocols since the breeding group holds multiple stages of gestation.

Timing for group formation: Sows bred in stalls and released into the group as soon as they are out of standing heat (pre-implantation) eliminates the potential for injury from riding each other while in heat. This system works well with a large group as the social hierarchy in the group is minimal; despite that, Dr. Parsons mentioned that skirmishes should not have a negative impact on the free floating embryos prior to implantation. Another approach is maintaining the sows in stalls until they are confirmed pregnant (approximately 35 days) and the implantation is completed before mixing sows to reduce the risk of negative impact on their reproductive performance. More than 1/3 of the animals are housed in stalls at any one time.

Alternative systems

Some group-housed sow feeding systems can create competition between animals. Floor feeding and trickle feeding are two of them. With floor feeding, as the name suggests, the animals eat on the floor, though in some systems short stalls or stanchions can be provided to decrease aggression. This type of feeding works best in small groups of sows (6 or less). Some inconsistencies can be seen in body condition as a result of individual feeding not being an option and conflict related to social hierarchy issues. Social hierarchy issues can be managed by feeding many times per day. Sows need to be grouped according to their nutritional requirements. This system can result in greater feed usage on a per sow basis; however, cost of equipment, space requirement and maintenance are similar to a stall facility.

Segregation of gilts from older sows is an important consideration in ESF systems

Trickle feeding decreases the risk of aggression between sows because feed is dispensed at a rate slower than the slowest sow can eat. Individual feeding is also absent in this system and animals must be grouped according to size. Housing sows in small groups has been the most successful for this system.

The non-competitive feeding systems include the following: Cafeteria-style feeding stalls, free access stalls and electronic sow feeders. In the cafeteria style system, sows are moved once a day to a specialized area in the barn and locked into crates where feed is dropped. All sows remain in their crates until the last sow finishes eating. Individual feeding is limited but can be achieved manually. This system is considered inexpensive to implement as the feeding equipment is limited to one area of the barn. It is also very labour-intensive as sows must be moved one pen at a time.

Conversion of gestation stalls Continued

The free access stall system allows animals to move freely in an open area and access feeding stalls at will. The system allows the sow to lock and unlock the stall as she enters and leaves it. There is also the option to individually feed animals as they tend to go back to the same stall. This option is more expensive than other systems as up to 30 additional square feet per sow is needed; the stalls also have a lot of moving parts which increase the maintenance cost. Electronic sow feeding (ESF) allows for computer-controlled individual feeding and management. All animals are identified with a microchip electronic tag which allows precise control of daily feed intake and decreases feed wastage. Reliable and durable feeding stations are essential for the success of this system.

"Electronic sow feeding (ESF) allows for computer-controlled individual feeding and management"

Experience with electronic feeding

Dr. Parsons provided additional information on ESF from his experience over the last decade at Penn Vet Swine Teaching and Research Center (PVSTRC) feeding over 70,000 sows with ESF on 40 farms in 11 different states, on farms ranging from 100 to 10,000 sows. He mentioned that the ESF is "the crate alternative with the greatest upside potential for productivity and profitability" despite the fact that it requires the most changes in standard operating procedures to fully realize its potential.

He underlined in his presentation a number of key considerations when working towards conversion. The first aspect is parity segregation; making sure that gilts are kept separate from higher parity sows. Segregating smaller parity 1 sows with gilts can also be performed to reduce stress and competition.

The second consideration is group structure. According to his experience, group structure will depend on farm size. Dynamic groups are used for herds of 1200 sows or less and static groups for herds of 2800 or more. Herds with sizes in between these can use some combination of static and dynamic groups to optimize animal flow and productivity.

The third aspect is type of group formation. He mentioned that both pre-implantation and post-implantation systems can maintain good production. One of the PVSTRC best ESF herds achieves 28 to 30 pigs weaned per sow per year using a pre-implantation system.

Pen design is the fourth element, as ESF systems also require the management of social hierarchy in the gestation pen. Many factors need to be considered: Space allowance, feeder capacity, pen size, pen shape, pen dividers, solid laying areas and water placement. The PVSTRC - designed pens have 18 to 20 sq ft per sow with approximately 75 sows per feed station. They also favour pens with 2 to 3 feeders or 150 to 225 sows per pen. The PVSTRC believe that in a pen containing 100 sows or more the social hierarchy is not well defined and maintained, which makes introduction of new animals easier. Rectangular pen shapes were also preferred. This shape assures an adequate flight distance for a sow to escape her aggressor. The feeder is positioned on the long wall to accommodate automated sorting of animals from the pen. The amount of perimeter is increased with this shape of pen and allows sows to lie along the perimeter as they like to lie against something. By adding a pen divider along the back wall to create 'bedrooms' it also increases the perimeter of the pen which promotes lying patterns and the development of sub-populations. The PVSTRC also recommend the lying area flooring to be solid. They prefer the water to be placed close to the entrance and exit of the feeders to discourage animals from sleeping in these areas and creating congestion around the feeders.

Training of pigs is also an important aspect, but training of people is the most important, Dr. Parsons concludes. People make the most difference; staff need to be enthusiastic and committed to the project and must take ownership of the ESF and the individual animals being fed. ■