



Making ESF Work

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[Dale Miller](#)

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Field studies at the University of Pennsylvania track application and performance of electronic sow feeders (ESF).

Consulting veterinarian Tom Parsons told those attending the Sow Housing Forum in June that managing electronic sow feeding systems is not more difficult than managing sows in gestation stalls - the challenges are just different.

The University of Pennsylvania School of Veterinary Medicine researcher cited field studies involving more than 5,000 sows on six farms fitted with the Schauer Compident electronic sow feeding (ESF) system.

Whether producers view the technology optimistically or pessimistically can make a big difference, explains Parsons.

“The question you must ask yourself is - are you willing to position yourself to capture the opportunity for improvement?” he continues.

With an underlying prejudice that ESF is a better way to feed sows, Parsons admits there is a cost associated with getting those advantages.

Quantitative data from the field studies, now in its third year, is still limited, so Parsons offered his personal observations.

“Most alternatives to gestation stalls actually work pretty well with gilts. The more critical test of a system comes when we get into a more mature parity distribution within a herd, where you're trying to feed multiparous sows with a variety of body conditions.”

Typically, the test farms are running between 22-25 pigs weaned/sow/year (PW/S/Y), but there's potential for improvement, he says.

“I'd remind everyone that when we started in crates 35 years ago, we were not at 27 PW/S/Y, nor are we all at that level today. Certainly, the Europeans in non-crated systems are pushing 30 PW/S/Y, particularly with ESF. So, I don't think there is an inherent limitation in the technology.”

Commercial Farm Focus

Parsons focused on six commercial operations that were up and running with ESF systems between 2005 and 2007; half were new facilities, half were renovated; three different commercially available genetic lines were represented; five of the six were startup units; half of the farms were trying to capture a niche market

premium, half marketed to traditional packers. The herds varied in size from 500 to 1,400 sows.

The basic system used was the Schauer electronic sow feeder, with pre-implantation (gestation) stalls. Sows are weaned into stalls, artificially inseminated and moved shortly after breeding to large, dynamic pens, which typically hold 140-210 sows/pen (roughly 20 sq. ft./sow) and require 2-3 feeding stations/pen. Gilts flow into the pens separately with an 18 sq. ft. allowance.

“A lot of people initially are challenged by the dynamic group concept as a breeding group is distributed across multiple pens. The idea is to minimize the impact of animal flow on the pen's constitution, so we change only 10-20% of the sows in a pen at any given time,” he explains. “Typically, we try to match the size and age of the animals in a given pen.

“To date, we haven't seen any difference across genetic lines, which came as a surprise,” he admits. “Not only did we not see any difference in production, but we really haven't seen any difference in behavior. Most people who have not had much experience with sows in these systems are always a little bit surprised about how docile they are.”

New Skills Required

Parsons says choosing the feeding system is the easy part because the different ESF systems are typically effective and reliable at feeding sows, with differences between feeders arising from ease of use, durability and added functionality. However, the real challenge is in managing the systems.

“There are a host of new skills that you may have to learn to deal with when working in the pen environment, but they're not that different from what you must learn to manage a conventional barn,” he says. “ESF offers an opportunity to let the computer work for you, but you have to be able to work with the computer to capture these benefits.”

Parsons says many of the skills required to manage gestation stalls also apply to ESF systems. Basically, those skills include individual sow nutrition and individual animal care. However, what is new to most is managing the unfavorable effects of social hierarchy.

He reviews each skill more extensively:

Individual animal nutrition — “ESF is a better and easier way to feed sows than in crates, and it's clearly amazing how little effort it takes to maintain a uniform body condition across the herd,” he says. “When you walk a crated barn, you will find a skinny sow next to a fat sow. Why is that? Often it's because the fat sow steals from the skinny sow. If you open up the feed box of the skinny sow, all you do is make the fat sow fatter. With ESF, they truly eat as individuals.”

If you plug in a breeding date, a feeding curve can be established based on a sow's body condition score and/or day of gestation.

Individual animal care — “In groups, you still have the conventional tasks such as pregnancy checking, vaccinations, and moving sows to farrowing. Because the animals are electronically identified, they can either be marked automatically when they come through the feeding station, or they can be automatically sorted out to a holding area for individual attention,” he says.

Social hierarchy — “The reality is most people in this country have very little experience with managing the social hierarchy and aggression aspects of pen gestation. They're the biggest issues you will face with ESF,” he warns.

“A hierarchy will develop within the group; there's no doubt about that. There is a preferred feeding order. Day in and day out, the dominant sows tend to eat earlier in the day. In the dynamic system, it appears that the longer a sow is in the system, the higher her social status tends to rise. Sows ready to farrow come up earlier in the day. Sows ready for vaccination or preg-checking are more likely to come through the feeder later in the day.

“Another aspect of the hierarchy is that sows form groups within the bigger group. They form little clicks that tend to move around within the pen,” he explains. “They typically find an area where they prefer to lay, which makes it easier to find groups of sows.

“Finally, you will have conflicts, and you need to manage that or there could be potential for injury,” he says. “Design the system so you can mitigate the social conflict and minimize the effects when it happens.”

Parsons uses the mantra — “think like a pig” — which he borrowed from a producer who had formerly managed a 500-sow, stall gestation farm. When asked how it was going, the producer replied: “Initially it was really hard. But once I started to think like a pig, it got a lot easier.”

“We need to get people to think again about stockmanship,” Parsons declares. “I firmly believe that working with sows in pens makes us better stockmen because we have a lot more to work with than we do in gestation stalls.”

The Big Picture

Key things that must be managed to make an ESF system work include:

- Space allowances;
- Pen design — size, shape, improvements such as dividers to facilitate the sows forming their subgroups;
- Flooring;
- Parity distribution — flow the gilts separately;
- Animal flow. “If you use pre-implantation crates where you're breeding sows and moving them before implantation, you have to be diligent to make sure you move the sows within the appropriate window. We recommend sows be moved at least twice a week to avoid a drag on conception rate,” he says.
- Evolution of the system. “As the sows get older and learn to use the feeding stations better, they often get into the feeder faster. This causes conflicts and vulva biting,” he explains. “The solution is to have the doors close quicker.”
- A reliable, well-built feeder that's well supported;
- Develop an operating plan. Workers must understand the animal flow issues and how they will be able to achieve the important management tasks;
- Develop a mechanism to foster continuous improvement because the management staff probably will not be able to capture all of the advantages of the system immediately; push them to get the most out of the system.

Confidence in ESF

“I feel confident that ESF can work; I think it provides a way to improve sow nutrition; some European studies suggest that you can reduce feed costs by reducing feed wastage,” Parsons notes.

“Our experience is that we have observed reduced sow mortality. It also appears we are seeing less labor requirements and improved working conditions. Once you break that connection between the sow's perception of you being related to feeding — all the screaming and noise and stuff goes away,” he says.

“Most of our experience has been in what many would call ‘small’ farms, run by family labor. The open question is how our ESF systems apply to larger units with hired labor. However, we have not observed anything in our work to date that would preclude such use of ESF.

“Clearly, in a crated barn, we have very well developed standard operating procedures (SOP) and descriptions of what everyone does. I think it's just a matter of remapping what the SOPs are going to be in light of what needs to be done with the ESF system,” he concludes.

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