Electronic Sow Feeder: A Preliminary Report

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Introduction

One of the more controversial aspects of pig production is the housing of gestating sows. Gestation stalls have been identified as one of the three most restrictive practices, along with battery cages for hens and crates for veal calves, throughout the history of the modern animal welfare movement. As a result, there is considerable interest in group housing systems for gestating sows. There are at least four major group housing systems, with several management options within each, that are available to the industry. We have selected the electronic sow feeder (ESF) system as a group system for PSC Elstow Research Farm, and are examining a number of management options within that system.

Experimental Procedures

Approximately half of the 600-sow herd is now on electronic sow feeders in which each animal passes through a feeding station to obtain her daily feed allottment. Our system currently operates on partially slatted floors without bedding. We are studying social management of the groups in order to identify and correct problems with specific age classes. We have housed gilts with older sows even though we recognize this may result in some problems. However, our belief is that a combined gilt/sow program would be easier for producers if we can resolve the problems. Similarly, we recognize that first parity animals may also be at risk in groups. We are comparing:

1. The productivity and behaviour of gilts and sows of different parities.
2. The relative benefits of grouping animals shortly after breeding (pre-implantation) or after implantation (at 7 weeks; 'add-in'), and its interaction with parity.
3. The management of animals in static (45 sows) and large (135 sows) dynamic groups.
4. All electronic sow feeder groups are compared with animals managed in conventional stalls.

The results of the first three reproductive cycles (60 weeks of breedings) have been summarized and presented in table 1. The values presented represent live piglets born per 100 animals bred. This is a combination of farrowing rate and live litter size. The 'Adjusted' values represent a herd comprised of 25% gilts, 25% 1st parity, and 50% older sows. These results are only preliminary as they represent a limited number of animals in each category.

Table 1. Productivity (live piglets/100 females bred) of gilts and sows in Stalls and various management programs within an Electronic Sow Feeder system.

	Stall	Static	Dynamic	Add-in-Static	Add-in-Dynamic
Gilt	771	633	739	762	776
1st Parity	930	872	794	967	942
Mature	983	932	907	1,059	998
Adjusted[1]	917	842	837	962	929

[1]Based on a herd comprised of 25% gilts, 25% 1st parity, and 50% mature sows.

Productivity increased from gilts to 1st parity to older sows as expected in both ESF and stall systems. However, the younger animals tended to perform better in stalls, and the older sows better in ESF. There was considerable variation in performance of age groups in the different electronic sow feeder management systems.

The 'add-in' or post-implantation animals performed better (945) than those grouped shortly after breeding (840). Somewhat surprisingly, all parity groups performed much better as add-ins than when re-grouped early.

The Static program (combined pre and post-implant, 902) outperformed the Dynamic (883). However, gilts did relatively poorly in the Static system (698) but fairly well in Dynamic (758). The older animals (including 'add-ins') did better in the Static program.

Overall, the stall system (917) outperformed the electronic sow feeder system (892), but this was not the case for all electronic sow feeder management programs. The Add-In (945) animals in electronic sow feeders (both programs combined) produced more piglets than did the Stall animals (917). The post-implant static program for electronic sow feeders outperformed the stalls by 5%. The 'add-in' static gilts performed about as well as those in stalls, but the 1st parity animals and sows exceeded those in stalls by 4% and 8%, respectively.

As we continue this study we will be including behavioural and physiological observations. We are also collecting data on injuries, lesions, and mortality throughout the six cycles.

Implications

The electronic sow feeder system can