

# RESEARCH AND INNOVATION

## Managing feeding to reduce feed wastage in lactation

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Feed is the single largest cost associated with producing pork, ranging from 50-70 per cent of the total cost of production. When looking to save money in their feeding programs, producers typically consider the finishing herd as it represents approximately two-thirds of the total feed cost. One area that can be easily overlooked is lactation feeding strategies and delivery.

Traditionally, most producers feed lactating sows manually, feeding sows up to three times per day in order to maximize feed intake and optimize litter performance. However, providing large quantities of feed may result in increased feed wastage or spoilage. Technologies pork producers have utilized to maximize lactation performance are electronic feeding systems for sows during lactation. These systems have multiple advantages over manual feed delivery including collection of feed intake data, controlled delivery of fresh feed, reduced feed wastage, and lower labour costs. However, these feed systems can be costly to install and maintain.

A project at Prairie Swine Centre set out to develop a modified feeding system that provides the advantage of the delivery of fresh feed to the sow without

**Table 1: Sow characteristics and performance**

	Feeder			SEM	P-VALUE
	MANUAL (n=15)	ELECTRONIC (n=15)	MODIFIED (n=14)		
<b>Body weight (kg)</b>					
Initial	286.7	272.9	288.3	10.3	0.49
Final	263.7	241.3	257.3	10.8	0.31
Change	23.0	31.6	31.0	4.2	0.26
<b>Body condition score (1-5)</b>					
Initial	3.1	3.3	3.2	0.12	0.71
Final	2.7	2.7	2.8	0.14	0.80
Change	0.47	0.53	0.44	0.17	0.92
<b>Backfat (mm)</b>					
Initial	16.8	17.0	16.9	0.39	0.90
Final	15.4	14.7	15.5	0.57	0.54
Change	1.39	2.33	2.05	0.54	0.41
<b>Liveborn</b>					
	14.8	13.0	13.3	0.8	0.21
<b>ADFI (kg/d)</b>					
Week 1	5.13 <sup>a</sup>	3.46 <sup>b</sup>	2.68 <sup>b</sup>	0.32	<0.001
Week 2	6.80 <sup>a</sup>	5.55 <sup>b</sup>	5.12 <sup>b</sup>	0.35	<0.01
Week 3	5.95	5.36	5.87	0.32	0.41
<b>Total</b>	5.69 <sup>a</sup>	4.80 <sup>b</sup>	4.49 <sup>b</sup>	0.29	0.01

the expense of the electronic feeding system. A simple feeding system was developed consisting of a feed drop tube that extends to approximately one inch above the base of the feeder, which required the sow to manipulate the tube to release small quantities of feed.

A total of 45 sows and litters were randomly assigned to one of three feeding systems – manual feeding, a commercially available electronic sow feeder, or the modified system. Each sow's body weight, back fat, and body condition score was recorded when moved into

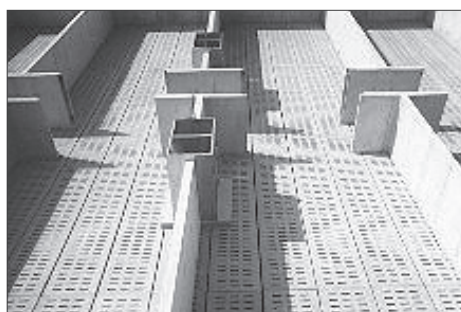


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**Table 2: Litter growth performance**

	Feeder			SEM	P-VALUE
	MANUAL (n=15)	ELECTRONIC (n=15)	MODIFIED (n=14)		
<b>Litter size</b>					
Day 0	12.6	12.6	12.4	0.2	0.71
Day 7	11.8	12.2	12.0	0.2	0.53
Day 14	11.6	11.9	11.5	0.3	0.64
Day 21	11.6	11.9	11.4	0.3	0.46
<b>Litter weight (kg)</b>					
Day 0	18.1	17.9	17.4	1.02	0.87
Day 7	32.1	30.7	29.8	1.74	0.63
Day 14	54.6	52.0	52.8	2.75	0.78
Day 21	72.2	70.1	67.6	3.56	0.65
<b>Litter weight (kg/pig)</b>					
Day 0	1.46	1.42	1.40	0.08	0.87
Day 7	2.74	2.51	2.49	0.12	0.26
Day 14	4.73	4.44	4.50	0.16	0.39
Day 21	6.51	5.91	5.91	0.24	0.12
<b>ADG (g/pig/d)</b>					
Week 1	170.0	149.7	148.6	12.3	0.37
Week 2	277.5	266.0	274.1	11.2	0.74
Week 3	292.8 <sup>a</sup>	253.6 <sup>b</sup>	260.5 <sup>ab</sup>	12.2	0.05
<b>ADG (kg/d)</b>					
	2.79	2.63	2.59	0.14	0.56

the farrowing room and at weaning, 21 days post-farrowing. Sow feed intake was recorded daily with any spoiled feed being removed, weighed, and feed intake adjusted. Litter growth performance was measured weekly over the three-week lactation period.

**What did we find?**

The type of feeding system used had no effect on sow body weight, body condition score, or back fat. There was a slight

decrease in litter average daily gain in the third week post-farrowing with the electronic feeding system when compared to manual feeding, however, this did not result in a difference in overall litter weight. Sow feed intake was significantly higher with manual feeding when compared to the other two feeding systems in the first two weeks of lactation, but this difference was no longer evident in the third week.



**For pork producers, what's the most important impact?**

This study demonstrated that manual feeding of sows during lactation can result in higher feed usage with no corresponding increase in sow or litter productivity. At today's feed prices, the reduction in feed intake associated with the electronic or modified feeding system would save producers an estimated \$8.50 per lactation when compared to manual feeding. Therefore, the electronic and modified feeding systems should be considered to minimize feed wastage and maximize returns. While both systems would reduce feed usage and labour costs associated with feeding, higher costs associated with the electronic feeding system needs to be weighed against additional benefits, such as automatic recording of feed intake when considering which system to implement in their facility.

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