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STRATEGY TO CUT SOW FEED COSTS

This on-farm demonstration examined the use of parity-segregated phase feeding for group-housed sows.

National Pork Board and the Pork Checkoff, Des Moines, Iowa photo



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By 2024, hog producers will have to renovate or build new barns to accommodate group sow housing, Canada's Code of Practice for the Care and Handling of Pigs says. Making these improvements presents an opportunity for producers to evaluate which equipment and technology they can implement to have a positive economic effect on their operations and ensure long-term sustainability.

For example, can you consider a phase feeding program for your gestating sows?

To learn more about phase feeding, read below about the results of a recent on-farm demonstration project that evaluated the concept of parity-

segregated phase feeding for group-housed sows.

Based on research conducted by Dr. Ron Ball, a retired researcher at the University of Alberta, parity-segregated phase feeding would more precisely meet the amino acids and energy requirements of the gestating sow. Possible benefits include reduced

feed costs, improved sow body condition at farrowing, better re-breeding success and prolonged, productive lives of sows.

The savings in feed costs depend on price relationships but, in general, are greater for older sows when wide price gaps between corn and soybean meal exist.

Table 1: Cost reductions of using parity-segregated phase feeding when compared to conventional feeding for the gestation period.

Criteria on a yearly basis		Conventional	Phase feeding	Difference
Average feed price (2017)	\$/mt	302.70	293.60	-9.10
Feeding cost	\$/sow	188.73	183.04	-5.69

Table 2: Difference (\$) between the feeding cost of the parity-segregated phase feeding strategy and conventional feeding under different combinations of corn and soybean meal prices.

		Soybean meal prices (\$/metric ton)							
		350	400	450	500	550	600	650	700
Corn prices (\$/metric ton)	175	-\$3.53	-\$4.46	-\$5.40	-\$6.33	-\$7.26	-\$8.20	-\$9.13	-\$10.06
	200	-\$3.30	-\$4.23	-\$5.16	-\$6.10	-\$7.03	-\$7.96	-\$8.90	-\$9.83
	225	-\$3.06	-\$4.00	-\$4.93	-\$5.86	-\$6.80	-\$7.73	-\$8.66	-\$9.60
	250	-\$2.83	-\$3.76	-\$4.70	-\$5.63	-\$6.56	-\$7.50	-\$8.43	-\$9.36
	275	-\$2.60	-\$3.53	-\$4.46	-\$5.40	-\$6.33	-\$7.26	-\$8.20	-\$9.13
	300	-\$2.36	-\$3.30	-\$4.23	-\$5.16	-\$6.10	-\$7.03	-\$7.96	-\$8.90
	325	-\$2.13	-\$3.06	-\$4.00	-\$4.93	-\$5.86	-\$6.80	-\$7.73	-\$8.66
	350	-\$1.90	-\$2.83	-\$3.76	-\$4.70	-\$5.63	-\$6.56	-\$7.50	-\$8.43
	375	-\$1.66	-\$2.60	-\$3.53	-\$4.46	-\$5.40	-\$6.33	-\$7.26	-\$8.20

Using 2017 Quebec grain prices, parity-segregated phase feeding would result in annual savings of \$5.69 per sow compared to conventional feeding programs. Based on 2013 to 2017 prices, savings could vary from \$1.66 to \$10.06 per sow depending on the feed price scenario.

What is parity-segregated phase feeding for group-housed sows?

Typically, gestating sows are fed a single diet, where the nutritional composition is constant for the entire gestation period.

Parity-segregated phase feeding involves the use of two diets to meet the needs of sows at different stages of gestation and parity. The objective of this on-farm demonstration project was to evaluate the effect of parity-segregated phase feeding for gestating sows on feed costs.

More specifically, researchers compared the following feeding strategies

- conventional feeding which involved the use of a single diet (Diet A) for the entire gestation period for all sows
- parity-segregated phase feeding which consisted of using two diets for parity 3 sows and above. From day 0 to 85 (day 0 being the first day of gestation), researchers gave sows Diet B, a diet with lower SID (standardized ileal digestibility) lysine content. Then, from day 86 to the end of gestation, scientists fed sows Diet A, which was the same as conventional feed. Meanwhile, researchers fed parity

1 and 2 sows Diet A throughout their entire gestation period.

In short, it was the diet of parity 3 sows and above during their first 85 days of gestation that differed from the conventional feeding strategy. Parities 1 and 2 received the same diet in both strategies. So, this demonstra-

tion was a simplified application of parity-segregated phase feeding.

Using phase feeding for gestating sows housed in groups typically involves the use of an electronic sow feeder (ESF) or a free-access ESF system with two feed lines, allowing for two diets to be fed simultaneously.



The installation of two feeding lines allowed Hog Tied Farms to use two different feeds simultaneously.

SCIENTISTS PARTNER WITH FARMERS

This demonstration was part of the Canadian-wide project entitled “From innovation to adoption: on-farm demonstrations of swine research,” led by Swine Innovation Porc. The study aimed to increase the pace of adoption of new technologies and management strategies.

To achieve this goal, we partnered with several hog producers and organizations operating in the sector across Canada. These producers and organizations have agreed to implement new technologies and management strategies, and thus become demonstration sites for these innovations.

“We regularly collect information to better understand the process and challenges of adopting and using new technologies and strategies on these demonstration sites,” says Geneviève Berthiaume, senior manager of management and economics at the Centre de développement du porc du Québec inc. **BP**



National Pork Board and the Pork Checkoff, Des Moines, Iowa photo

The period of application of this feeding strategy covers the gestation period, spanning from day 0 (when the sows are inseminated), to the transfer of the sows to the farrowing unit (around the 115th day of gestation).

Effects on feeding costs

Combining both diets (A and B) for parity 3 sows and above allows the parity-segregated phase feeding strategy to achieve a lower feed cost than a conventional feeding strategy. (See Table 1 on page 76.)

Based on 2017 average Quebec feed prices, using a parity-segregated phase feeding strategy would result in a savings of \$5.69/sow/year compared to a conventional feeding program.

Price fluctuations?

As feed prices fluctuate over time, researchers conducted a sensitivity analysis to assess the variation related to corn and soybean meal prices. Considering the minimum and maximum Quebec prices (\$/metric ton) observed between January 2013 and December 2017, the parity-segregated phase feeding strategy has an economic advantage over conventional feeding. Annual savings ranged from \$1.66 to \$10.06 per sow. (See Table 2 on page 77.)

Producer's comments

The team demonstrated this project with the assistance of John Van Engelen, who owns and operates Thedford, Ont.-based Hog Tied Farms.

“I already had the intention of installing a second feeding line further down the road, but this project has made that happen faster than expected,” Van Engelen says. “I did not observe any nutritional deficiencies in my sows while applying the parity-segregated phase feeding strategy.

“However, the demonstration only took place over a

short period of time (10 months). I do not think the test was long enough to observe changes in sow body condition and performance.”

Van Engelen also mentioned wanting to learn more about phase feeding strategies and even precision feeding to decide on the best program for his herd.

Overall, he had a positive experience and reduced his sow diet cost.

Partners

Swine Innovation Porc funded this project within the Swine Cluster 2: Driving Results Through Innovation research program. Agriculture and Agri-Food Canada provided funding through the AgriInnovation Program, as did provincial producer organizations and industry partners.

We would also like to thank John Van Engelen from Hog Tied Farms in Ontario for participating in the project.

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CDPQ supports the Quebec swine industry to help meet the demands of both markets and consumers, and ensure the sector's sustainable development.