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# Impact of reduced frequency of gilt introductions

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## Introduction

Seaboard Farms, Inc live production system located in southwestern Kansas has been challenged with multiple strains of PRRS virus along with *Haemophilus parasuis*, swine influenza virus and *Mycoplasma hyopneumoniae* over the past 7 years. Eradicating these diseases does not appear to be a sustainable or profitable option based on the experiences we have had with this specific portion of Seaboard's production system. Therefore, Seaboard has focused on implementing management practices that mitigate the impact these diseases have on performance rather than focusing on disease eradication. One of these management practices that has been implemented is reducing the number of gilt introductions into the commercial sow units. With this change, other challenges with space utilization were created that caused Seaboard to make decisions that were driven by predicted performance and economics. The cascade of events and decisions that have taken place as a result of reduced gilt introductions from 2002 to 2005 will be reviewed.

## Effect of reducing gilt introductions

Seaboard has ten, 5000 sow commercial units within a 17 mile radius that have the ability to receive an adequate flow of replacement weaned gilts from two gilt multiplier farms (Table 1). The standard protocol was for the commercial sow units to receive a batch of 3 to 8 week old gilts every 6 weeks. To mitigate the effect of PRRS and other diseases, gilt introductions were changed from every 6 weeks to a target of every 27 weeks. Performance was improved after the frequency of gilt introduction into the farm was reduced (Tables 2 & 3). Note that the data in Table 2 & 3 is likely confounded with other management changes that were made over the past 3 years and the data should not be interpreted as a controlled study.

Based on these performance changes, cost of production for this production system improved by 3.5% when comparing performance before and after the change in frequency of gilt introductions was made.

## Efficiency of space utilization with reduced gilt introductions

A result of reducing the frequency of gilt introductions into the commercial sow units was a reduction in both nursery and finishing space utilization (Table 4). Finishing spaces were removed from the commercial flow to grow gilts up to 27 weeks of age. To handle this increased demand for isolated gilt development space, the gilt multiplication by-product (genetic barrows and non-select gilts) needed to be finished in commercial nurseries and finishers. The standard number of pigs per site in this system is 11,000 for nurseries and 10,600 to 21,200 for finishing. Based on the inefficiencies of converting commercial sites into isolated gilt by-product flows and the apparent similarities in health status of the gilt multiplication and commercial farm's health status, a decision was made to flow the gilt multiplication by-product into sites housing the commercial pigs. All sites were treated as all-in/all-out and only one source of pigs was allowed in each barn.

## Impact of gilt by-product performance in commercial system

Performance of gilt multiplication by-product pigs housed on isolated sites with the developing gilts and on commercial sites were compared (Table 5). Despite the apparent similarities in health status and single sourcing by barns, the gilt multiplication by-product pigs had increased costs of production of 12.6% when housed on sites with commercial pigs.

Table 1: SW Kansas Production System

Farm type	Sows/site	# sites	Replacements, gilts/week	By-product or commercial, pigs/week
Gilt multiplication	2800	2	800	1500
Commercial production	5000	10	0	22,00

Table 2: Sow farm performance.

Parameter	Target frequency of gilt introductions, weeks	
	6	27
Gilt introduction frequency, weeks	6	20.6
Years of data	02 – 03 (2)	04 – 05 (1.5)
Total pigs	2,708,645	2,131,775
Abortions/week	-	-16%
Weeks > 2.8% abortions	-	-55%
Litters farrowed	-	+5%
Farrowing rate	-	+1.6%
Total born/litter	-	+0.01
Born alive/litter	-	+0.23
Mummies/litter	-	-7%
Stillborn/litter	-	-22%
Wean age, days	18.3	18.5
Pre-wean mortalities	-	+5.2%
Pigs Weaned	-	+4.6%
Sow Death Loss	-	+13%
Performance based cost/weaned pigs	-	-\$4.5%

Table 3: Commercial nursery and finisher performance.

Parameter	Target frequency of gilt introductions, weeks	
	6	27
<i>Nursery</i>		
Start weight	11.96	11.78
ADG	+1.3%	
F:G	-	-
Total loss	-	-44.6%
Ending weight	49.12	48.86
<i>Finisher</i>		
Start weight	48.68	48.50
ADG	-	+0.31%
F:G	-	+1.06%
Total loss	-	-31.1%
Ending weight	278.9	270.9
Cost/CWT of live gain	-	-\$3.5%

Table 4: Required pig spaces for gilt development.

	Interval of gilt introductions, weeks	
	6	27
Nursery spaces <sup>A</sup>	4000	5600
Finisher spaces <sup>A</sup>	0	16,000

<sup>A</sup>Does not include the spaces used on the commercial sow units for gilt development.

Table 5: Gilt multiplication by-product performance.

Parameter	Type of nursery and finisher	
	Genetic	Commercial
Number of sow sources/site	1 & 2	6
Head Marketed	312,351	34,612
<i>Nursery</i>		
Start weight	11.51	12.91
ADG	-	-14.81%
F:G	-	-8.34%
Total loss	-	+10.1%
Ending weight	61.11	48.81
<i>Finisher</i>		
Start weight	66.79	48.82
ADG	-	-11.21%
F:G	-	+5.89%
Total loss	-	+280.5%
Ending weight	285.15	270.17
Cost/CWT of live gain	-	+\$12.6%

## Isolating pig flows

Based on the magnitude of the economic losses suffered when mixing gilt multiplication by-product pigs with commercial pigs, the following changes were justified: (1) modify a conventional finishing unit to a wean to finish site for gilt development (2) at weaning, move developing gilts directly to the wean to finish gilt development site, (3) allow multiplier by-product to utilize isolated nurseries that only house this source of pigs (4) convert a 21,200 finishing site into a continuous flow finishing site for the multiplier by-product pigs. Data is currently being collected on the results of these changes.

## Summary

Reducing the frequency of gilt introductions into a PRRS positive system with PRRS positive gilts appears to improve the performance of the system. Housing gilt multiplication by-product pigs with commercial pigs was not feasible. Given the magnitude of the differences in performance in the above scenarios, Seaboard will continue to explore opportunities to reduce gilt introductions into commercial sow farms and reduce the number of sources of pigs on nursery and finisher sites.

