

Managing the Gilt to Fit the Producer

Daryl Possberg

Manager, Big Sky Farms Inc., Box 610, Humboldt, SK S0K 2A0

Email: dpossberg@bigsky.sk.ca

■ Introduction

The beginning of the 5600 sow breeder/finisher barn brought some unique opportunities to specialize areas of the production unit previously not possible. The major opportunity in the design of the two newest Big Sky Farms systems is a space dedicated to operate a more selective gilt program based on some of the ideas of the Big Sky Farms management team. The objective of this paper is to assess the performance of the gilt programs being used, and to make a cost benefit analysis of the conceptual program versus the program currently being used.

■ The Intended Program

The intended program was designed to include a gilt pool with twice the number of gilts relative to the number of replacements needed by the unit. The gilts were to be:

- Taken into the unit at 150 days.
- Given sterile boar servicing on estrus (E) one and E2.
- Given service scores.
- Given a spaced allowance of 15 sq ft/animal.
- Given physical stature scores.
- Culled at a rate of 50% to use only optimum gilts in our breeding program.

This gilt program was expected to result in higher subsequent fertility rates for the gilts throughout their productive lifetimes, affecting both pigs/sow/year and annual replacement rates.

■ Conceptual Constraints

- Royalty on replacement gilts not renegotiated. Effectively, replacement costs would double under the gilt program suggested.
- Labour costs would increase. Currently the 5600 sow breeder barn is run with 7 full-time employees and roughly 15-20 part time hours per week. The conceptual program would require an extra employee.
- Non-productive days of gilts would increase
- Opportunity Cost of Space: Is there an opportunity cost of the space allocated for executing the gilt program?
- Does it make financial sense? What is the cost of this program compared to a less intense program? Do the potential benefits of the sterile mating outweigh the labour and opportunity cost savings of a different system.

■ Reality Check

We have had three different programs for our gilts since we started up. They have been trimmed down to make the most out of our scarce resources: labour and space. The first program was implemented when we filled the barn, the second gilt program was implemented shortly after as females reached first parity status, and the last program is currently used.

1. Initial Gilt Program (During the fill stage)

- Gilts initially put into group pens, stocked at approximately 9 ft²/animal
- Gilt age at entry was 175-177 days.
- 12 hour/day boar exposure.
- When vulval swelling first noticed, gilts were marked and moved into a breeding crate. Heat checks were done twice a day and all gilts were bred in crates.

Gilt performance¹ (5024 farrowings)

- Entry to service: 19.4 days
- Average 10.9 total born
- 10.4 born alive.
- 8.6% repeat services
- 84.6% farrowing rate.
- 9.8% culling rate for anoestrus.

¹ All data taken from PigCHAMP™

2. Post-Fill Program (During first parity period)

- Gilts initially put into group pens, stocked at approximately 12.5 ft²/animal.
- Gilt age at entry was 175-177 days.
- 5 hour/day boar exposure.
- Goals were to mark swelling date, standing heat date, and vasectomized boar service date.
- Gilts moved into breeding crates at 21 days after arrival and bred as soon as standing heat observed.

Gilt Performance (688 farrowings)

- Entry to service: 36.5 days.
- 11.6 total pigs born
- 11.0 born alive
- 12.3% repeat services.
- 80.8% farrowing rate.
- 13.5% culling rate for anoestrus

Constraints

- *Weekends operate with a skeleton crew.* Doing gilt program on weekends means bringing in part time labour that is skilled (difficult to find and train).
- *Observing all V-boar matings:* Boars are with gilts over coffee/lunch breaks and there is the possibility that some gilts being bred unobserved and therefore unmarked. Integrity of data is therefore questionable.

3. Current Program

- Gilts brought in at 175-177 days.
- Gilts given boar exposure for 5 hours/day.
- Gilts stocked at 15 ft²/animal.
- Gilts in group housing for 21 days and then moved into breeding crates.
- Gilts bred as soon as standing heat is detected in breeding crates.

Gilt Performance (1113 farrowings)

- Entry to service: 34.7 days
- 11.5 total pigs born.
- 10.9 born alive
- 9.0% repeat services.
- 85.8% farrowing rate.
- 4.5% culling rate for anoestrus.

Benefits

Lowest maintenance program, easy for staff to work with.

Table 1. Performance summary for 3 gilt programs.¹

| | Initial Program | Post Fill Program | Current Program |
|-------------------------|------------------------|--------------------------|------------------------|
| # Farrowings | 5024 | 688 | 1113 |
| Farrowing rate, % | 84.6 | 80.8 | 85.8 |
| ESI ² , days | 19.4 | 36.5 | 34.7 |
| Repeat services, % | 8.6 | 12.3 | 9.0 |
| Average litter size | 10.9 | 11.6 | 11.5 |
| Total born alive | 10.4 | 11.0 | 10.9 |
| Culled for anoestrus, % | 9.8 | 13.5 | 4.5 |

¹ All data taken from PigCHAMP™² Entry to service interval**Table 2. Cost/Benefit Summary (on a per litter basis).¹**

| | Initial Program | Post Fill Program | Current Program |
|-----------------------------------|------------------------|--------------------------|------------------------|
| Value per litter, \$ | 621.92 | 657.80 | 651.82 |
| Semen cost per litter, \$ | 18.20 | 19.06 | 17.95 |
| ESI ² cost, \$ | 19.40 | 35.50 | 34.70 |
| Normalized royalty cost, \$ | 8.92 | 9.22 | 8.49 |
| Net revenue per litter, \$ | 575.40 | 593.02 | 590.68 |

¹ All data taken from PigCHAMP™² Entry to service interval

■ The Dollars and Cents of the Conceptual vs. Actual Program

The production data from the program we are currently running we know. We do not know the production data from the conceptual program because we

have never run it. But if we know the replacement costs and the opportunity costs between the two programs we can figure out what the break-even scenario with using the conceptual program would be.

Current Program

Costs/Benefits

All costs are for a 5600 sow unit

40% replacement rate in the long term. Royalty payment varies between \$45-\$80. At average of \$65/hog, yearly royalty payment of \$145,600.

2 hours/week in running boars into pens. At \$11/hour, yearly additional labour cost of \$1,100.

Using space designed for gilt program to house gestating sows. The original design of the breeding unit had room for 310 sows/week to be bred and roughly 248 to farrow per week with an allowance for extra gilt stimulation. This allows room to farrow 248 sows with an 80% farrowing rate and do the planned gilt program. However, the unit has averaged over 90% farrowing rate. This has meant that we were able to take 100 spaces that were meant for open sows and we use that for an implantation area. We have also moved 22 group pens that were to be used for the gilt program and converted it into gestation space. This has given us another 200 spaces for gestation. The combination of spaces together with our high farrowing rate allows us room to farrow out 270 sows per week with only slight changes in weaning procedure. The utilization of this space allows us to increase our pigs weaned per year by roughly 9% or 12,000 animals. The unit uses a long-term incremental value of \$65/weaned pig. This practice results in a revenue increase of \$780,000 per year with no additional labour, capital, or higher replacement rates than what was budgeted.

Gilt performance: 11.4 pigs total born, 10.9 born alive.

Proposed Program

Costs/Benefits

All costs are for a 5600 sow unit

80% replacement rate. Royalty payment of \$291,200.

15-20 hours/week in sterile boar mating, recording, moving, selecting. At \$11/hour, results in extra \$10,000/year.

Potential benefits would have to outweigh the opportunity costs by improved performance. These benefits would be:

- Eliminating less fertile gilts.
- Breeding at second estrus (E2) ensured.
- Guarantee sterile breeding.

Table 3. Cost/Benefit Summary for Current System vs. Conceptual Program (5,600 sow unit).

| | Current | Conceptual |
|-------------------------------|-----------------|-------------------|
| Royalty Cost per year, \$ | 145,600 | 291,200 |
| Labour, \$ | 1,100 | 10,000 |
| Opportunity Cost of Space, \$ | - | 780,000 |
| Yearly Costs, \$ | 146,700 | 1,081,200 |
| Difference, \$ | -934,500 | |

■ Conclusion

We do not know specifically what the increase in production from running this high intensity gilt program would be. But we do know what the cost of running the program would be and the revenues associated with running the current program. Therefore, we can estimate what the conceptual program would have to produce in order for it to be a break-even project. Increased annual cost of proposed gilt program would be \$154,500 without including the opportunity cost of extra productive animals and \$934,500 with opportunity costs. The conceptual program would then have to produce an additional ($\$934,500/\$65/\text{hog}=\text{) } 14,369$ hogs per year. Under the proposed scenario, we would be farrowing ($248*52=\text{) } 12,896$ sows per year. This means that we would need to produce an additional 1.1 pigs weaned per sow for this program to break even. Given the fact that our F1 Landrace/Large White cross is currently producing 11.8-12.0 pigs born alive as a herd average, the probability of this genotype increasing to that performance level is highly unlikely. Therefore, this system is unlikely to pay for itself in this 5600 sow system.