

Chasing 30 Pigs Per Sow Per Year

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■ Introduction

One of the goals at Big Sky Farms is to reach 30 pigs weaned per mated female at the commercial level. The reasons behind this were to:

- Produce more pigs to be sold
- Increased pigs will reduce overhead and controllable cost per pig sold
- Personal pride and achievement

■ Background Information on the Company.

Big Sky Farms was started in 1995 with its first 3000 sow unit and has continued to build production sites since, mostly consisting of three site segregated early wean systems. The company now manages 42000 sows, which includes a very recent purchase of 12500 sows.

This article will focus on the original pyramid, which consists of:

- 1 - 600 nucleus unit (farrow to finish)
- 2 - 3000 sow multiplication units
- 1 - 700 sow commercial unit (farrow to finish)
- 1 - 3100 sow commercial unit
- 3 - 6200 sow commercial units
- 1 – 130 boar stud

The pyramid has been closed since 2000 with the only live animals coming in to the company are boars going into the boar stud

As we can see from the profile, we do have an abundance of sows at multiplication level. The reason for this is for past and future growth. (Each time a 6000 sow unit is built, it creates a demand for 6000 gilts within a three month period). And in the mean time this has enabled us to be more creative and selective with replacement gilt programs for the commercial units, and has enabled the multiplication systems to provide the best product for the profit driven commercial system

■ The 30 Pigs Group

In June 2003 a group of four managers was formed whose main objective was, and still is, to wean 30 pigs per mated female per year (ostentatiously called the 30 pigs group). The origins of the group go back to a year earlier when it was first put together to improve the performance of gilt replacements within the entire pyramid at Big Sky Farms. On the back of the success of the group which helped to improve farrowing rate, total born and gilt retention rate throughout the company, the focus changed to achieving 30 pigs.

The main focus areas of the group for the past two and a half years have been:

- Genetic improvement
- Gilt selection programs
- Quality control
- Farrowing performance
- On farm research and development
- Training workshops

Table 1. Average performance from the commercial units at the outset of the initiative, for the quarter March to May 2003

Average total born	12.2
Average born alive	11.5
Stillbirths, %	4.2
Farrowing rate, %	90.5
Pre-wean mortality, %	8.8
Litters per mated female	2.49
Pigs weaned per mated female	26.2

Nucleus unit

Genetic improvement

The focus has been on the reintroduction of individual estimated breeding value (EBV) based on a best linear unbiased prediction (BLUP) system for all purebred females. Replacement gilts are selected on EBVs for nucleus and multiplication herd replacements. EBVs are now becoming part of the criteria for culling sows out of the herd. This has also allowed match matings to be carried out at the unit between the sows and the genetic company's boar stud

Multiplication units

Genetic selection

A prolific program started in the fall of 2003. Gilts born from litters with 13 or more piglets are given priority at selection for replacement gilts for the commercial units.

We are just starting to farrow third parity sows at the commercial systems at the time of writing this article. Up to date we have sufficient data to show a consistent 0.2 increase in total born and born alive from all gilts and second parity sows that have farrowed. The surprising part is that the "prolific gilts" are actually showing a 3.5% increase in farrowing rate over the "non-prolific gilts". (*Editor's note: see abstract A18, "Gilts with small litters tend to always have small litters"*)

Physical selection

Emphasis has been put onto selection of replacement gilts with a minimum weight requirement of 115 Kg at entry into the commercial units and possessing good quality physical traits. Strong relationships and good communication have been encouraged between staff at the gilt units and the breeding units. The gilt units are rewarded or penalized on gilt quality in the form of monthly bonuses.

Genetic improvement

A prolific "C" line was introduced at the multiplication level via semen in February 2005. At present this line is accounting for approximately half the services per week. A consistent 0.7 increase in total born has been recorded and an amazing increase in farrowing rate of 8%. These increases are purely from the "boar effect" of the prolific line.

The progeny from the sows bred with the 'C' line will be available for selection in November of this year and will be performance tested on the commercial

units. We hope that we will see an increase of 2 pigs per year from the commercial “C” crosses.

■ **Training Workshops**

Farrowing performance

Farrowing more live piglets and increased piglet survival have played a large part in the groups activities over the last two years. We have held regular training workshops with the main focus on the following areas:

Stillbirths

October 2004 - Data was analyzed from all the units, a survey of farrowing supervision practices was done, and a “stillbirths workshop” was held at one of the production units for relevant managers and production staff. Performance for the last quarter – July – September gave average stillbirths for all commercial units of 3.9%

Pre-weaning mortality

July 2004 – A fostering workshop was held at one of the production units with the emphasis on piglet survival. These sessions are mandatory for managers and relevant technicians. Pre-weaning mortality for the last quarter stands at 8.2% for the commercial units.

Lactation intake

Lactation intake is regularly measured on all the production units and there is a recorded relationship between lactation intake and subsequent numbers born. A “Lactation intake” workshop was held at a central location in January 2005, presentations were given and discussions were held with the focus on attaining maximum feed intake during lactation.

Fertility rates

A “fertility” workshop was held for unit managers and breeding staff where the focus was on “maximizing fertility rates” and on “minimizing embryonic losses”. There are standard operating procedures for all reproduction areas and these are regularly reviewed and updated with a view on standardizing best practices.

Research and Development

Of the research trials that have been carried out, the more notable and extensive ones have been:

- Delayed mating program,
- P.G. 600 on entry for replacement gilts.

Delayed mating

The current practice at Big Sky Farms has been to heat check twice per day and to breed sows as soon as good standing heat is detected. It was decided to run a trial on a delayed mating procedure, which would measure performance on total born, and farrowing rate against the current mating regime. Semen costs would also be evaluated between the treatment and control programs.

700 sows were mated on each program at one of the 6000 sow units. Results from the trial are currently being analyzed and should be available in November 2005.

P.G. 600

A trial was conducted to measure the performance of gilts on entry given a one shot dose of P.G. 600 with a view to improve breeding performance and synchronization over a three month period on one of the 6000 sow units.

Results showed very similar performance for both the treatment and control groups (**Table 2**). It was the opinion of the 30 pigs group not to use P.G.600 on a continuing basis, especially as one of the main objectives of the group is to improve performance and meet the goal of 30 pigs per sow without the use of performance aids.

Table 2. Performance of gilts given one shot dose of PG 600

	Treatment	Control
Entry/service/interval	32.6	33.1
Anoestrus rate, %	4.6	5.1
Gilt retention rate, %	94	95
Farrowing rate, %	89.5	89.5
Total born	11.06	11.01

Average commercial herd performance for the most recent quarter period of July-September 2005 shows positive increases in the main production areas; these amount to an annual increase of 33,750 pigs over the period from March to May, 2003 (**Table 3**).

Table 3. Average commercial herd performance, Big Sky Farms Inc

	March-May 2003	July-Sept 2005
Average total born	12.2	12.65
Average born alive	11.5	11.9
Stillbirths, %	4.2	3.9 %
Farrowing rate, %	90.5	91.5%
Pre-wean mortality, %	8.8	8.2 %
Litter per mated female	2.49	2.55
Pigs weaned per mated female	26.2	27.9

■ Summary

The goal of 30 pigs per sow per year is still quite a long way from fruition but with gains of 1.5 pigs per sow per year, which has been made in just over two years, it will be only a question of time before it becomes reality. It is also felt that the biggest gains are yet to come, with the injection of prolific genes into the multiplication units.

The 30 pigs group, and its activities, are Big Sky Farms' approach to attaining its goal. This group is one of several within the company, which focus on different areas seeking new opportunities within the pig industry.