

Practical Control of Sow Feed Costs

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■ Introduction

Feed efficiency is the sum of a many variables that include but are not exhausted by such areas as feed ingredients used, formulation of ingredients, genetics and management practices. It is beyond the scope of this short paper to discuss all and every aspect of the management/feed cost interaction therefore, the purpose of this paper is to look at the practical management of the gilt and sow on farm and specifically those management practices that can and do have an impact on feed efficiency. The information contained herein is a collection both of experiences, and public and PIC in-house research.

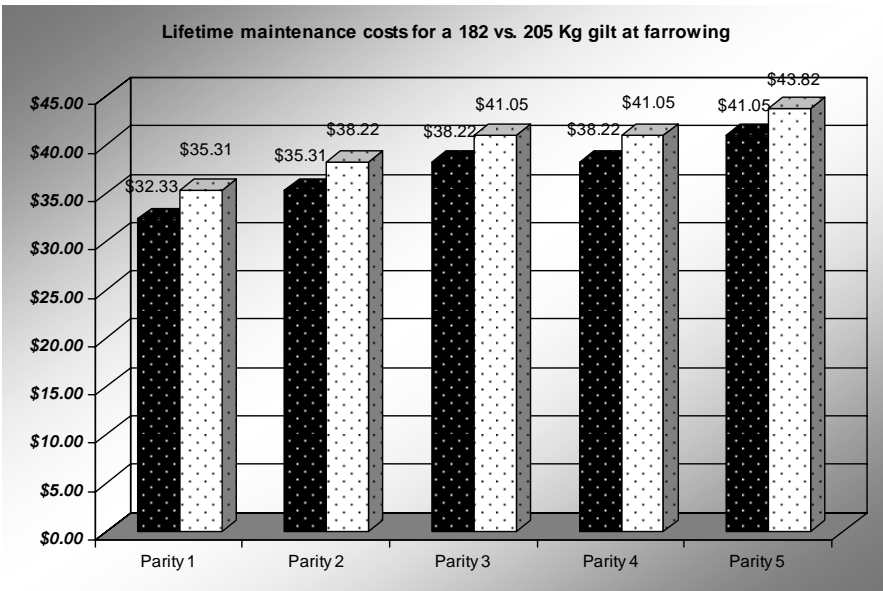
■ Gilt Development

Preparing the gilt for first service is critical to her lifetime performance, there are many studies that have looked into this and provide us with guidance in terms of targets for age, weight & back-fat at first service. (e.g. Kummer 2008) From a feed usage perspective we can calculate the cost of not hitting these targets in respect to days on farm pre first service. These costs go straight to the bottom line, for example first service at 240 rather than 210 days of age requires 30 days more feed which can cost easily \$24 a gilt (feed price of \$266/tonne & 3Kg/day consumption) or (with 55 piglets per sow lifetime) \$0.43 a piglet just in straight feed costs. So it is important to know what your breeding company recommends, to know what you are achieving and to minimize the potential empty days. We have to consider isolation & acclimatization of incoming gilts all in the context of growth rate and hitting those first breed target windows.

■ Weight at first Mating

We also need to consider the impact of service weight on lifetime feed costs per sow, getting gilts too heavy can impact feed usage for the rest of her life. It is estimated that for each 23Kg of extra weight at first breeding an additional 0.15Kg of feed is needed per day in gestation (**Figure 1**). On a lifetime basis of 6 gestations and \$266/tonne of feed that's an additional \$27.77 per sow or \$0.50 per piglet produced at 55 piglets per sow lifetime.

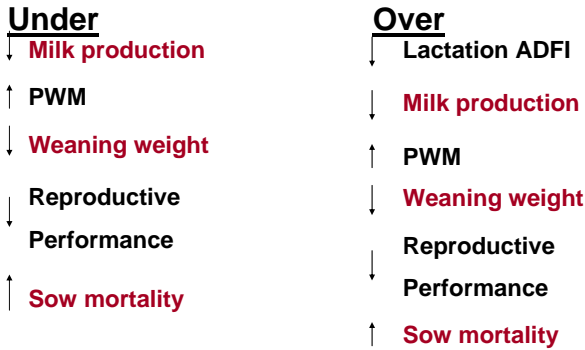
Figure 1. Lifetime maintenance costs for a 182 vs. 205 kg gilt at farrowing



■ Gestation Feed Usage

In many farms I visit, gestation feed management is a neglected task and is one that, when it is done, is often done in a haphazard way. Over and under feeding the sow in gestation can have many implications (**Figure 2**) getting it right is a MUST DO if we are to manage feed intake and good productivity.

Figure 2. Problems with under vs. over feeding in gestation



We know that back-fat at farrowing influences both lactation feed intake and subsequent total born (Young et al., 2004) such that we can aim at some specific targets for a sow about to farrow. The objectives of gestation feed management are to help us achieve those farrowing goals at the lowest possible use of feed in gestation. We might consider the following;

A) The goal of an effective gestation feeding program is to have 85%-90% of the gestating sows in “normal” condition by week 5 of gestation. Normal needs to be defined to some extent by genotype but your breeding stock supplier should know the targets for their stock. Let us assume here that normal is a body score of 2.5-3.5 and between 14 and 16mm of P2 back-fat.

B) We need to avoid fat sows because of the impact on intake in lactation

C) We should be able to set a goal for annual gestation diet usage depending on the lactation length of the farm and nutritional content of the diet. This will provide us a whole farm feed budget.

We then need to set ourselves a process that allows us to manage the individual sows to our targets. Body condition scoring is still the most widely used method but taping, weighing and/or back-fat measurements can also be used. Whatever the system, it needs to be easy, reliable and clearly defined. Starting seven days post service, the body condition should be reviewed about every five weeks and feed levels altered where necessary to a structured program designed with diet specification and genotype in mind. We can work with individual sow cards to monitor individual feed intake and the changes applied at condition scoring plus we can also use total usage of gestation feed and lactation feed as an indication of correct usage. Take for example the following feed budget (**Table 1**) consider checking lactation feed use as a percentage of gestation use and compare this to the budget on a monthly basis. A lactation percentage disappearance less than budget could

mean overfeeding in gestation. Consider that 50g per day over feeding in gestation equates to about 5.8Kg of over feeding per sow per gestation at \$266 per tonne that's about \$3.70 per sow per year for each 50g over fed.

Table 1. Gestation and lactation diet usage

Avg Lactation Length	15	17	19	21	23
Days before farrowing	3	3	3	3	3
Lactation days per cycle	18	20	22	24	26
Litters per sow per year	2.5	2.5	2.5	2.5	2.5
Total days lactation/sow/year	45	50	55	60	65
Days on gestation diet	320	315	310	305	300
Total gestation usage kg/sow/year	698	687	676	665	654
Total days lactation/sow/year	45	50	55	60	65
Total lactation usage, kg/each lactation	88	108	131	154	180
Total lactation usage kg/sow/year	264	318	379	441	508
True lactation intake, kg	80	108	123	146	172
Avg daily intake, kg/day	5	5.55	6.14	6.64	7.18

We need to ask - Are we feeding what we think we are feeding? What is the density of the ration fed and are our feed boxes calibrated such that we know what weight/quantity of feed we are placing in front of the sows?

Feed boxes are designed to work at a particular angle. If they are no longer set at that correct angle a small change can impact feed levels by easily 10% per feed drop. (J.D Schneider et al.; 2006) This means that on a 1.8Kg drop the inaccuracy can be as much as 180g per drop. We have already suggested that 50g of over feeding can cost about \$3.70 a sow per year. A 180g over feed would be costing \$13.32 per sow! On a sow lifetime that's about \$33 or approximately \$0.60 a piglet produced.

We also need to consider the impact of changes to our sow ration that affect the density of the ration. Drop boxes assume a volume to weight relationship. We need to check that a setting of 'x' equals the weight we think that it corresponds to. We should do this as regularly as possible and practical and make whatever adjustments to feed levels are necessary for the results we obtain.

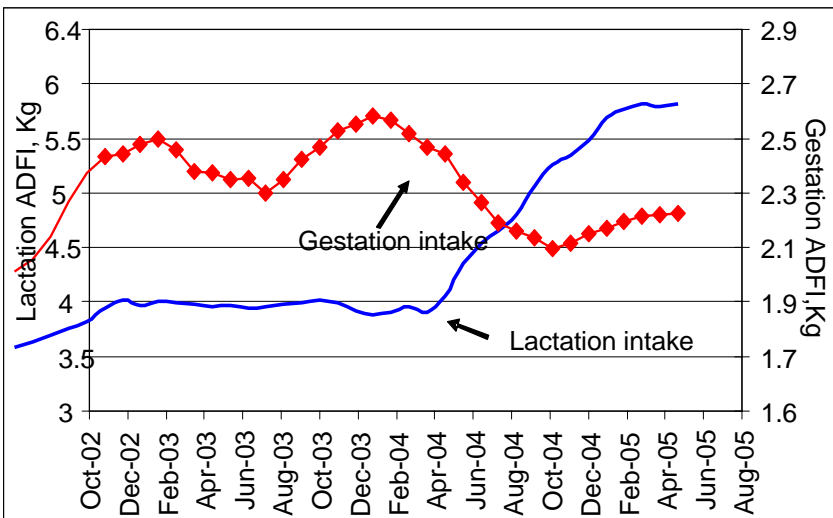
■ Lactation Feeding

We know that maximizing feed intake in lactation has major impacts on productivity (Dial 1997) (**Table 2**) and we know that gestation feeding can have a direct impact on lactation feed intake (**Figure 3**) So our first priority has been to get gestation feeding right so we can maximize lactation feed intake.

Table 2. Effects of lactation feed intake on sow productivity (Dial, 1997)

Feed intake, kg/d	Wean to estrus, d	Litter weaning wt, kg	Subsequent litter size
3	6.7	50	10.85
4	6.4	51	10.850
5	6.1	52	11.00
6	5.9	53	11.03
>6	5.9	54	11.17

Figure 3. Tracking gestation and lactation feed intake (6 month rolling average)



Our objective now is to maximize piglet weaning weight whilst at the same time minimizing sow weight loss during lactation. Sows that lose body mass in lactation are less likely to rebreed and have lower number born in subsequent litters. The difference between 0 and 10% weight loss can be as much as 0.12 of a piglet born in the next litter and over 2 days in wean to estrus interval.

Many other impacts on feed intake need to be considered during lactation such as temperature, ventilation, water, feed micron size. But if we have failed in gestation these factors become compounding elements to the overall problem.

■ In Summary

- Watch body condition closely
- Avoid fat and thin sows
- Calibrate feed boxes
- Maximize feed intake in lactation
- Don't forget about the environment.

■ Acknowledgements

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