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## Editorial

The Northern Ireland pig industry, like most pig industries throughout the world, often receives negative press. I suppose a certain amount of negative press is expected when you consider there are over two billion pigs in the world. However, in reality most pig industries worldwide are modern, capital intensive, efficient industries that make a valuable contribution to the economy. This is indeed the case in Northern Ireland, where in 2009 the farmgate value of pigs was £95m, accounting for seven percent of gross agricultural output. In the same year the value of pigmeat exports was almost £113m with product exported throughout Europe and further afield including, Hong Kong, United States and even China. In terms of employment approximately 2000 people are employed on pig farms or in businesses directly associated with pig production. This includes pigmeat processing, feed manufacture, haulage and service provision. The industry also creates employment for people in others sectors of the economy such as builders, agricultural contractors, electricians, accountants, and financial institutions.

The industry is also responsible for producing a valuable by product in the form of pig manure. Approximately 3000t of nitrogen are produced annually by the industry. This sought after fertilizer is also high in phosphorus, one of the more expensive nutrients. Not only does the use of pig manure by local farmers reduce their fertilizer bills it also reduces Northern Ireland's requirement for imported fertilizers.

Last but by no means least pigs produce the world's most popular meat. Average annual consumption of pigmeat in the UK is 24kg per head, almost 5.5kg more than beef and 18.5kg more than lamb!

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## Wee pigs – poor or good performers?

Every pig farmer knows how variable the birth weight of pigs can be. A common perception is that runt pigs at birth are runt pigs at weaning and finish. At AFBI Hillsborough the birth and weaning weight of every pig born is recorded and this information from 13,158 pigs weaned from 1,344 sows across 96 batches of sows that farrowed (January 2003 to April 2008) was analysed in a student project funded by Devenish Nutrition Ltd. All pigs were weaned at 28 days of age (+/- two days) and managed the same. The growth rate of pigs between birth and weaning was found to be highly variable. This variability in growth was reflected in the finding that 28% of pigs born with a birth weight less than 1kg had a weaning weight over 8kg and 12% of them had a weaning weight over 9kg. On the other hand, it was found that 6%

of pigs with a birth weight over 2kg had a weaning weight under 8kg. These statistics challenge the perception that a runt pig is always a runt pig. Within this study it is unknown why 28% of the light birth weight pigs performed so well and additional investigations are required. It could be that these light pigs were reared in small litters or that their mother had good milking ability. However, whatever the reason, these results demonstrate that many lightweight pigs have the potential to grow well pre - weaning and can achieve acceptable weaning weights. It is planned that future work will focus on the reason why these lightweight pigs performed well and on how all lightweight pigs could be managed to achieve acceptable weaning weights.

## Can you play with the big boys?

The performance of the Northern Ireland sow herd is improving rapidly. Benchmarking figures have shown an increase of 1.5 pigs sold per sow per year over the last two years, with the top 25% of benchmarkers achieving over 24 pigs sold per sow per year. Individual herd recording also shows average numbers born alive per litter to be almost 11.5 pigs. This improved performance is due to a range of factors including strategic control of disease, improved housing and management and undoubtedly a greater use of 'dam line' genetics.

### We're good but they're better!

However there is no room for complacency. Our European competitors are also reporting significant improvements in performance and achieving levels beyond those on Northern Ireland units. Indeed the Danish pig industry has reported average numbers born alive to be over 14 pigs per litter for the 2009 year. Although pre-weaning mortality was higher, they still achieved an average of almost 27.5 pigs weaned per sow per year.

### Can you cope?

Undoubtedly our performance will continue to improve. But can we handle this? Managing high performance gilts and sows is much more challenging and requires all areas of management to be re-assessed including:

- **Selection pressure** - whether home reared or purchased, only 'better than herd average' gilts can be introduced if continuous improvement is to be achieved.



- **Age at selection** - 'patience is a virtue' and being able to wait until gilts have reached optimum weight before service will pay dividends on first litter size and life time performance. To achieve this, units must have a large gilt pool to allow for unforeseen culling of sows and gilts.
- **Nutrition** - feeding for results is critical. Specific gilt rations along with high performance dry and lactating sow rations are essential. Sow condition and feed intake must be monitored regularly, in both the dry and farrowing houses, to ensure good body condition at weaning, increasing the chances of maximum litter size.
- **Accurate records** - accurate individual sow recording must be in place to identify prolific sows which may be used to provide replacement gilts. Equally it will allow you to 'weed out the passengers'.

It is an exciting time to be involved in pig production with sow performance set to rise further. Although 'we're not Denmark, we're Northern Ireland', we have the dedication and determination to achieve excellent performance to play on the world stage.

# What is the best way of changing the diet for your pigs?

Throughout its lifetime, a pig is offered several different diets which differ in terms of ingredient composition and nutritive value. For instance, a post weaned pig is offered a diet high in milk products, protein and energy but as it gets older, it is offered diets high in cereals and lower in protein and energy. Information on the optimum method of changing to these different diets is lacking; with some researchers suggesting that phasing the change in, offering the different diets in a choice manner or changing the diet in an abrupt manner may result in differences in pig health and performance. The aim of this study was to investigate the effect of changing diet in an abrupt, phased or free-choice manner on the performance of pigs from wean to finish.



A total of 480 pigs were used in this trial and offered four diets throughout their lifetime (Starter 1, Starter 2, Grower and Finisher). For the abrupt treatment, pigs underwent an immediate change from diet to diet. For the phased treatment, the new diet was introduced gradually five days prior to the change over in increasing proportions mixed with the previous diet. For the free-choice treatment, feeders were divided and the new and previous diet offered simultaneously for five days. Feed intake, liveweight gain and feed conversion ratio were determined from wean to seven and 10 weeks of age and from 10 weeks of age to finish.

The method of changing the diet had no significant effect on pig performance at any stage of production except for feed efficiency from 10 weeks of age until finish (Table 1). Pigs undergoing the abrupt change of diet were more efficient than those on the other regimes.

**Table 1 Effect of method of changing diet on pig performance**

	Abrupt change	Phased change	Free choice
<b>Wean to 7 weeks</b>			
Average daily gain (g/d)	340	349	338
Feed intake (g/d)	416	422	405
Feed conversion ratio	1.24	1.22	1.21
<b>7 to 10 weeks</b>			
Average daily gain (g/d)	710	695	676
Feed intake (g/d)	1159	1106	1097
Feed conversion ratio	1.63	1.60	1.63
<b>10 weeks to finish</b>			
Average daily gain (g/d)	848	848	823
Feed intake (g/d)	2107	2169	2110
Feed conversion ratio*	2.49	2.56	2.57

\* Statistically different

In conclusion, changing the diet in an abrupt manner improves feed efficiency in the finishing stage which may be attributed to reduced feed wastage in comparison to the phased and free-choice regimes. It is likely that the phased and free-choice regimes encourage pigs to play with the diet resulting in increased wastage. From a management perspective, changing the diet in an abrupt manner is less labour intensive than offering the diet in a phased or free-choice manner. Therefore, the findings of this research will not only save you money but will also save you time!

## Will ropes or sawdust dispensers eliminate tail biting?

Recent DARD-funded research at AFBI Hillsborough investigated whether the use of natural fibre ropes or sawdust dispensers eliminated tail biting behaviour in pigs. This study also assessed the effect of number of litters per group on aggression and productivity.

Groups of 20 pigs were assigned to the following treatments:

- Group formed from two litters (sawdust dispenser and ropes)
- Group formed from three litters (sawdust dispenser and ropes)
- Group formed from four litters (sawdust dispenser and ropes)
- Group formed from five litters (sawdust dispenser and ropes)
- Group formed from five litters (ropes)



The experiment lasted from weaning at four weeks of age until slaughter at 21 weeks. The sawdust dispenser consisted of a four-space dry feeder filled with sawdust. Two natural fibre ropes (manila, 50mm diameter) were suspended at pig nose height from chains in each pen. Cable ties were secured approximately 10cm from the bottom of the ropes to stop excessive

fraying. The study was replicated seven times using approximately 700 pigs.

Increasing the number of litters per group led to an increase in aggression related injuries to the body, but did not affect production performance. There was no effect of regrouping regime or type of enrichment on the proportion of pigs with tail injuries. On average, 20% of pigs had a severe tail injury, where at least the tip of the tail had been bitten off. This is despite the fact that pigs in all treatments spent a large percentage of time (11% in the growing period and 5% in the finishing period) investigating the ropes. In fact, pigs consumed such large quantities of rope that it led to problems emptying slurry tanks in finishing accommodation. They appeared less interested in sawdust dispensers, spending only about 4% of time investigating them.

These results show that increasing the number of litters per group (even in relatively large groups) leads to increased levels of fighting and therefore reduced welfare. In addition, the study showed that levels of tail biting remain high in undocked pigs even when sawdust dispensers and/or natural fibre ropes are provided. This suggests that alternative methods of enrichment must be used in order to eliminate the need to tail dock. However, the exact nature of these alternatives is still unclear. A recent pilot trial at Hillsborough showed that mixing feed pellets with substrates such as sawdust led to significant reductions in tail biting. This will be investigated in full in autumn 2010.

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