Pig Development Department

Teagasc Pig Farmers' Conference, 2023

Conference Proceedings

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Moorepark weighs in on farrowing room feeding

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Productivity on Irish pig farms is constantly improving, with data from the Teagasc Profit Monitor (PM) recording system showing a 36% increase in average born alive between 2000 and 2022 (10.85 to 14.81). The Teagasc Pig Research Facility at Moorepark is seeing similar gains to those on commercial farms (Table 1) and we thought it was worth focusing in on some practices within the farrowing house to see how we can help sustain and hopefully enhance these production improvements. The data represented in Table 1 is based on production values in Moorepark obtained over a two year timeframe, and highlights the increased production currently being achieved in that relatively short time span.

Table 1. *Comparative production figures in the Moorepark unit and the Teagasc PM system.*

	Moorepark		Teagasc PM system	
	2021	2022	2021	2022
Number Born alive per litter	15.5	15.8	14.69	14.81
Average piglet birth weight (kg)	1.3	1.5		
Average weaning weight (kg)	8.1	8.7	7.1	7.2

As outlined in table 1 our average piglet birth weight increased by 15%, and our average piglet weaning weight by 7.4% in the space of a year. Cleary there are many factors at play with regard to these increases namely genetics, weaning age, sow diet, management, creep intake etc. For this paper we will mainly focus on sow feeding and creep feeding within the farrowing room in the Moorepark Pig Research Facility.

Sow Feeding

Pregnant sows in Moorepark enter the farrowing room on day 108 of gestation and remain on the dry sow diet until the day after farrowing. The dry sow diet is composed mainly of barley, soya and soya hulls. These ingredients contribute to a diet high in fibre (CF =8.5%), as feeding a fibrous diet during gestation can help to increase intake during lactation. The digestible energy of the diet is 13.2MJ/kg (N.E.=9MJ/kg). The sows progress well on the feed curve when they start getting the lactation diet, which can be seen in Figure 1. It is composed mainly of wheat, barley, soya and soya oil. A lot of the energy and fat in the diet is derived from a high inclusion of soya oil (4.9%). It has a digestible energy is 15MJ/kg (N.E.=10.8MJ/kg), with a fat content at 6.4% and total lysine content of 1.15%.

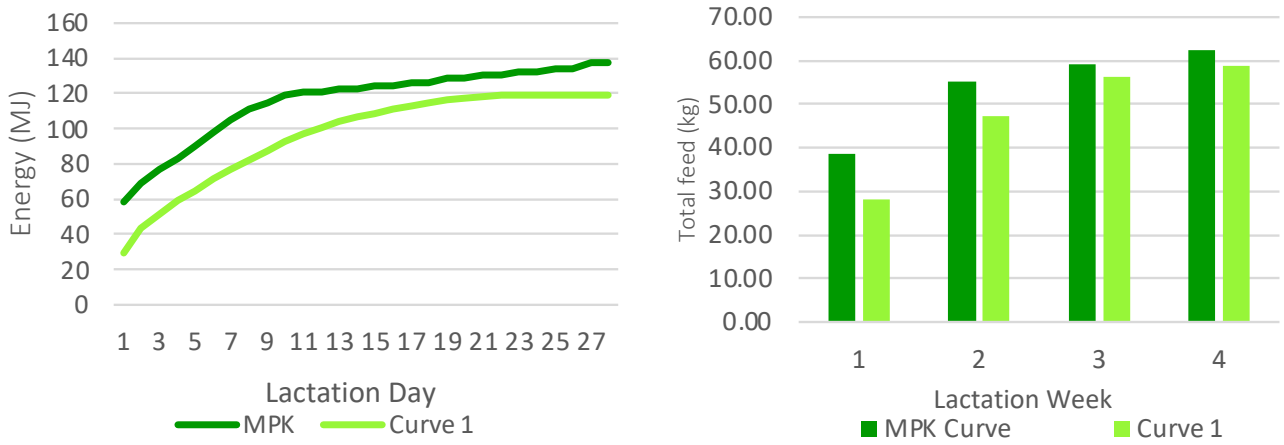

Figure 1. *Comparison of energy and amount of feed offered between Moorepark lactation curve (MPK) and typical lactation curve (curve 1). Note: Moorepark curve based on D.E. of 15Mj/kg & Curve 1 @ 14.2Mj/kg.*

Figure 1 demonstrates the difference between the Moorepark lactation curve and a typical lactation curve. The Moorepark lactating sow curve increases quickly and the sows are eating over 8kg per day from day 11. This feed is delivered in dry form through three equal portions over the normal working day to ensure sows are getting up and to check trough state prior to feeding. Our goal is to get as much energy into the sows as they need to provide enough for their litter without having to draw too much on their own body reserves. We increase and decrease the sows feed as needed based on trough inspections and

review their feed curve regularly. Given that both the energy level of the diet and our curve are quite high, the sows in Moorepark don't tend to lose much bodyweight during lactation. Excessive bodyweight loss during lactation can adversely affect subsequent reproductive performance such as follicle development for instance. This is important as this early follicle development is a major factor in determining the viability and size of the sow's subsequent litter.

Creep Feeding

In Moorepark we give the piglets access to creep feed from day 13 up until weaning at 28 days of age. We treat the first week as an introductory phase, allowing the pigs to investigate their new diet by playing, chewing and understanding its form, function etc. Creep diet is given out by hand into creep feeders, approx. 75-100 grams at a time, about 2-3 times per day for the first few days. Through this method we see the average consumption of creep per litter in the first week to be in the region of 500 grams, although we estimated that an additional 200 grams of feed is also wasted during this phase. By day 20 from birth the creep amount being given out has increased to approximately 1 kg per litter in divisions of 200grams about 4/5 times per day. By day 23, we found that some litters were eating such high volumes of creep that we could not keep up to demand with our regular feeders. We started introducing larger creep feeders from day 21 for those litters eating higher volumes, to avoid inadvertently limiting their ability to consume creep in this peak phase of intake. This feeder helps maintain the freshness of the creep while also providing it on an ad-lib basis.

The Moorepark creep diet is high in energy, protein and fat. It has a DE of 16.2MJ/kg (N.E.=10.8MJ/kg), crude protein of 19.9%, total lysine content of 1.6% and fat is 11.4%.The energy and fat in the diet is mainly derived from soya oil and full fat soya. There is a high skimmed milk and whey powder content, hence most of the protein in the diet is coming from milk products. Having a high milk powder content in creep can increase intake on both a piglet and per litter basis, by increasing the number of eaters within that litter. Piglets find it easier to digest proteins from milk than from other sources such as soya or fishmeal. In fact the digestibility and absorption of milk protein in piglets at 24 days is around 93%, which is at the peak of pre-weaning creep intake. Conversely for diets relying on soya for protein content, its digestibility is only 78% at the same age. Milk proteins have also been shown to have a better effect than soya proteins on gut morphology in young pigs, which has a positive impact post weaning.

From a manufacturing viewpoint however the levels of milk and fat within the diet do come with certain drawbacks– flowability of the diet in meal form can be quite poor and the durability of the resulting pellets is quite low. When these factors are managed correctly this can create a nice soft palatable pellet which is easy for small piglets to consume.

Creep intake data

We looked at data taken from a sample population of 248 litters from Moorepark (trial and non-trial) and analysed their creep intake and weights, so that we could estimate the impact that creep intake has on performance (Figure 2). The data was broken down based on the average amount of creep eaten per litter and divided into groups. Within this data 40 litters (16%) were denied creep access pre-weaning due to the experimental design of the trial they were on. As is evident from Figure 2. The largest proportion of litters (38%) were found to be within the 4kg – 8kg creep intake group, with the average creep intake per litter for this group being 5.7kg. Similarly the overall average creep intake across all groups, was 5.6kg based on 12.5 pigs at weaning. Prior to analysing the data we were reasonably confident that a high proportion of litters were able to outperform the rest in creep intake but we were surprised by the figures that emerged. From the 8 kg – 12kg creep intake group almost 20% of the litters observed consumed on average 10.4kg of creep. Based on the above results, if we were to provide all of our litters in Moorepark with only the average amount of feed, we would be limiting 88 litters on an annual basis by up to 50% of their intake ability. Multiplying this up to a typical 700 sow unit, this would correspond to almost 300 litters per year being restricted in their creep provision.

Following on from this we took the same data as discussed above and super imposed the average piglet birth and weaned weights to each of the creep intake groups (Figure 3). We saw the average weaning weight increased across the groups as creep intake increased, ranging from 8-8.4kg. Although this

difference across the groups is minimal, (ranging from 2.5% - 5%), we know the amount of creep eaten pre-weaning has a positive long-term effect on pig growth and lifetime performance.

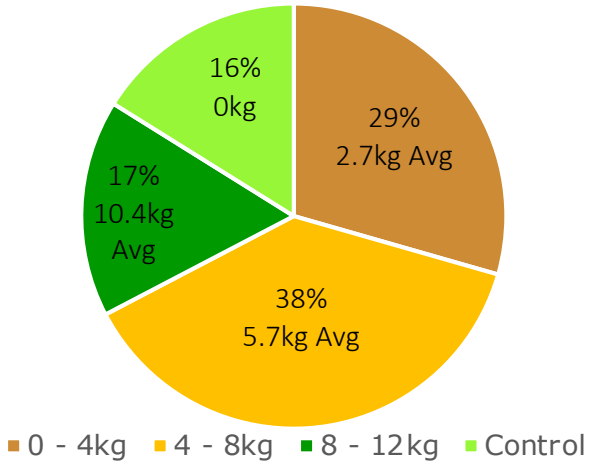

Figure 2. *Creep intake per litter from sample population of litters in Moorepark unit.*

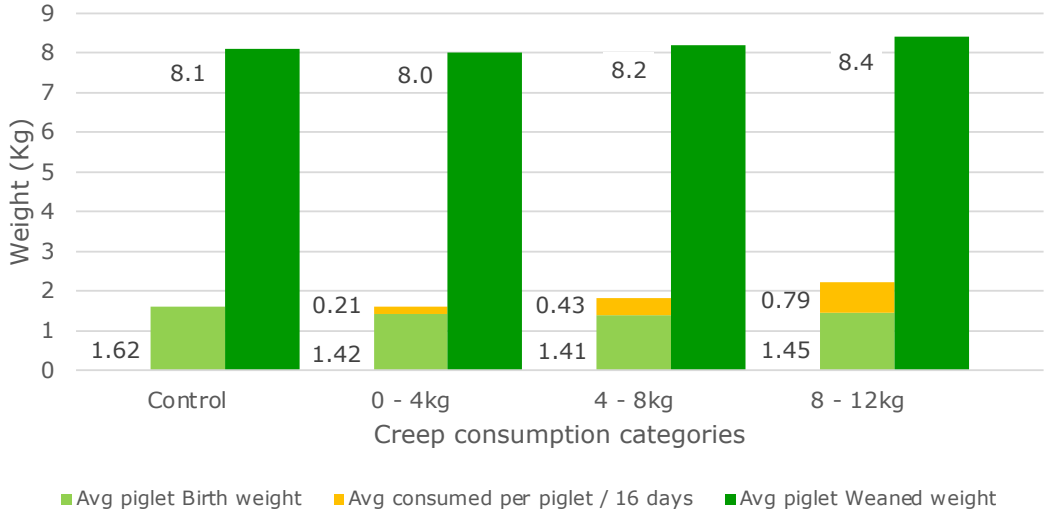

Figure 3. *Average birthweight, weaning weight and creep consumed per group.*

We see in Moorepark that our litters perform quite well in the post weaning phase. We are lucky to often be able to wean our litters intact and this helps greatly in reducing the lag effect in the initial post weaning period. We know by reducing this lag effect at this stage we are increasing our pig's growth performance in the early weaner stage and throughout its life. Our pigs are eating approximately 1400-1500 grams of creep diet within the first week post weaning, with a similar level of growth attained. Our average daily gain (ADG) in our weaner for 2022 was 570 grams/day (47 days).

Conclusion

In summary to highlight the important points discussed above:

- Have you reviewed your lactating sow diet and curve recently? Could your sows eat more during their lactation?
- Are you happy with your creep recipe as it stands? Should you look to include more milk to help intake?
- Have you reviewed your creep feeding strategies recently?
- Are you happy with the amount of creep available to your pigs in the farrowing rooms? Taking the average creep eaten in Moorepark to be 5.6kg, as discussed above, do you think your unit could be similar?

- Bigger piglets have the ability to eat more, are you allowing that to occur?
- The highest percentage of creep is eaten in the last few days pre weaning and there should be a big focus on how to maximise that intake, (provided the groundwork in the previous days has been put in first), maybe looking at a larger creep feeder.
- Are you using the same creep diet pre and post weaning, limiting stressors on the pig at this time?

Measures to minimise increasing costs: How companies are dealing with current challenges

Francesc Illas, Grup Batallé

Raising pigs is not a business based on marginality, it is a business totally related to cost. Thus, regardless of the challenges that we have for the future, pig producers have to continue reducing €/kg pork to survive.

As in any business, we must know exactly the cost distribution. Only then we can attack directly the main costs which are affecting our system. Figure 1 shows how the feed of our pigs represents 72% of the costs and the rest of the costs, are just 28%. In these 28%, the most important cost is the investment on facilities (16%, rentings in pink, depreciation and renovations in blue). Less than 6% is invested on salaries in site 1 and 2, a small part of the investment that has a big impact in the performance of the fatteners. The cost of vaccines and medication is only 2%, but curiously, it is the cost where farmers typically try to cut costs, somtimes, with disastrous results in terms of performance.

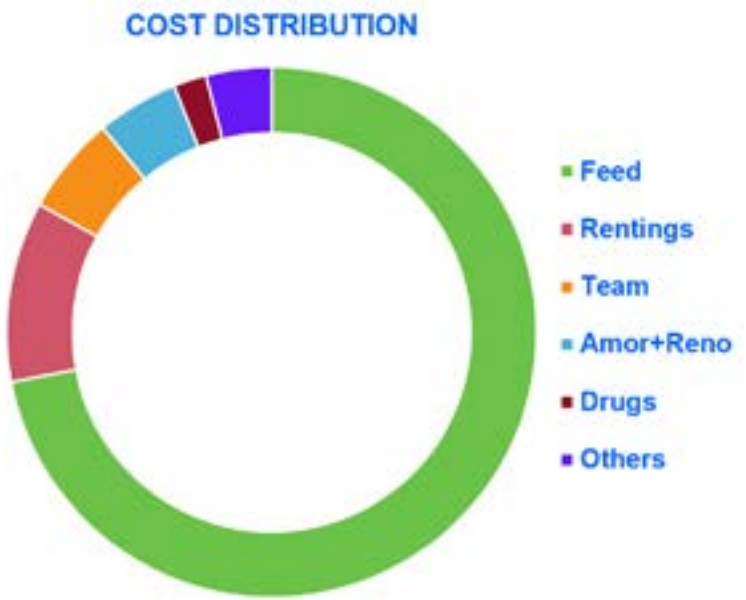

Figure 1. *Distribution of cost in a typical pig farm.*

It is clear that if we want fast results, the next step is to look at the investment in feed in detail. 5% of the feed cost are represented by the feed offered to the piglets, and our target with this investment is to achieve good daily weight gain (DWG), more important than FCR in site 2, because more weight means better results in fattening. Sow feed represents around 15% of the total feed costs, and our objective must be weaned piglets, total born, born alive and parturition index, being the total weaned piglets per sow the most important parameter. Then the biggest percentage is the feed for fatteners, 80% of the investment in feed and 53% of the total cost related (figure.2).

Figure 2. *Distribution of feed cost in a typical pig farm.*

It's a good to identify a cost that represents 53% of the total. Just managing it a little bit better, we can easily improve our financial results. However, pigs eat an absolute value of feed, not a percentage, and we have to consider the feeding, not just the feed, including density, feeders, drinkers, environment conditions... You must know how much feed your fatteners eat in a week to know the total amount of nutrients that has to be include in the feed.

It is important to remember that we are feeding a population that has a lot of variability. In the same batch we have big, medium and small pigs, and it's common to need different batches to fill the fattening facilities, so it's difficult to design a feed for all pigs that we have in a fattening farm. We should not penalise the small pigs, and we need to adapt our strategy to the number of light, medium or heavy animals. Unfortunately, it's not common to have information on weight variability that could help us to differentiate populations with the same mean (Figure 3).

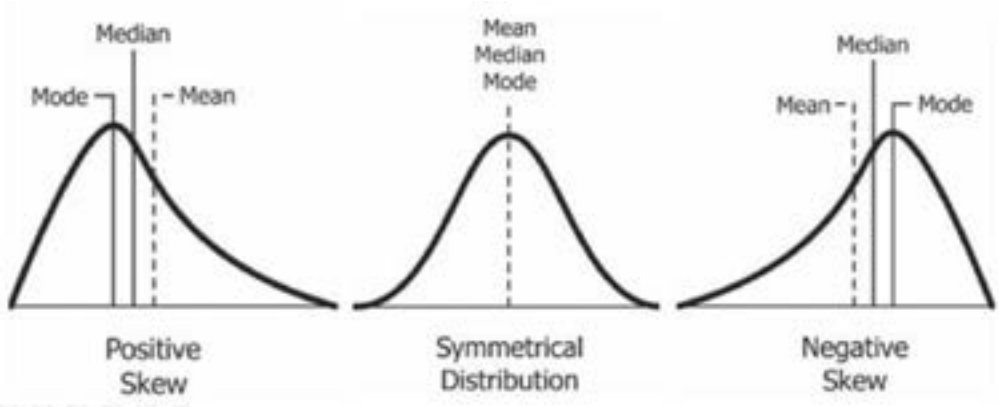

Figure 3. *Example of different weight dispersion in a pig population.*

This becomes very important at slaughter. We must fast pigs before sending them to the slaughterhouse to avoid carcass contamination. However, we should fast just the animals that go to the slaughterhouse, not those that will remain in the facilities. In Figure 4 we can see the kg of carcass lost in different fasting duration.

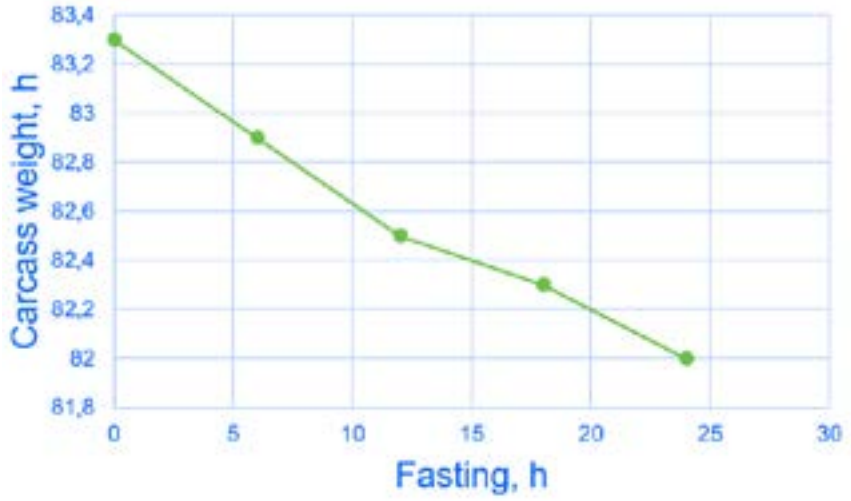

Figure 4. *Loses of carcass weight depending on the fasting time.*

In countries like Spain, with pork market price reaching 2.02 €/kg live weight in summer, fasting pigs for 18h could cost 2.66 €/pig, and to recover this amount of meat, around 2€ extra in terms of feed and time.

If we achieve a pig population with very low weight variability in the fattening phase, our fasting unit will be higher, and our benefits too. The bigger the batches are, the more grouping per weight we can do. If we don't have enough sows to achieve this working in continuous flow, we can organize our farm in 5 weeks management system or similar. This system was initially thought for small farms, but in Spain, for disease reasons, some companies started to use this method in farms with 3,500 sows. They observed big benefits in terms of fattener management which reduced the cost related with FCR, DWG and fasting, just because the batch of pigs is big enough to reduce the weight variability according to the capacity of the fattening unit. For example, a fattening unit for 3,000 pigs seems too big, but if you wean 10,000 pigs/batch, you can fill the fattening with 3,000 animals with a weight variability around 10%.

A 5 WBMS also has benefits in terms of staff. This system is much more efficient. Instead of doing insemination, weaning and farrowing every week you just do one of these tasks per week, and all your specialized workers can be there supervising the others, so less skilled/qualified workers are needed. And of course, if you have more than one sow farm or other business, you can move the team from one farm to the other synchronizing the farms and reducing close to 20% of the workers needed, 6 times the extra hours payed and providing more extra days per year (Figure.5).

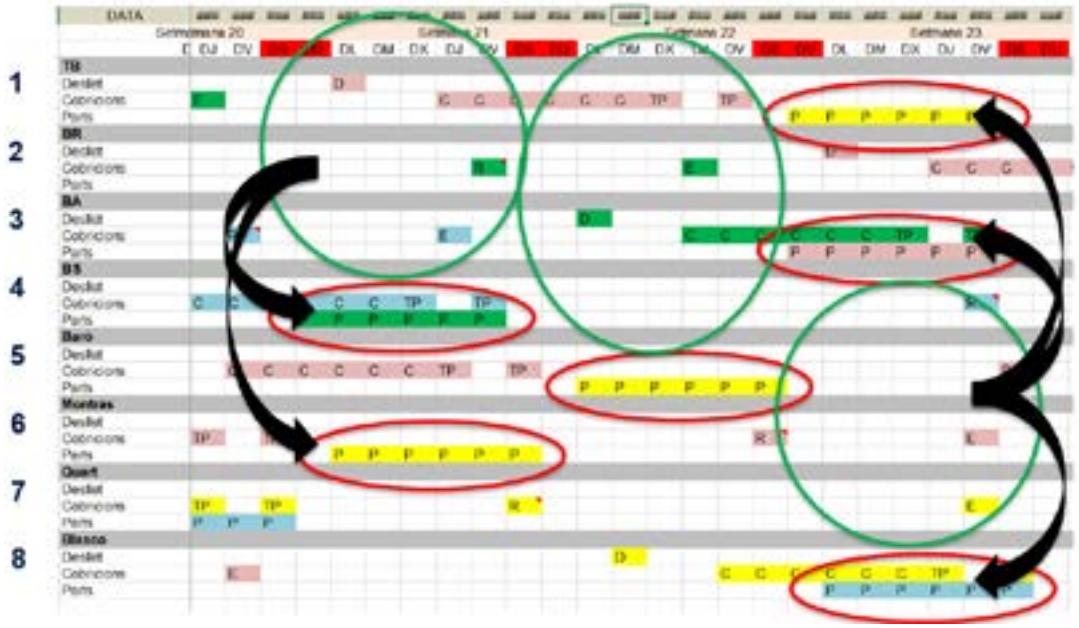

Figure 5. *Example of workers mobility in an 8 sows farm in 5WBMS synchronized. (P: farrowing, C: insemintacion, D: weaning).*

Optimising post-weaning feed intake: Effective management and nutritional strategies

Peadar Lawlor & Louise Clarke, Teagasc

Introduction

Weaning is a critical period in the pig's life. Piglets are confronted with abrupt changes to their physical and social environment, as well as management and nutritional changes, at a time when their immune system is not fully developed. All of these changes/stresses lead to a reduction in post-weaning feed intake and weight gain, which is commonly referred to as a post-weaning 'growth check'. Management and nutritional strategies can be employed during the suckling period to equip piglets to deal with the major stressors encountered at weaning. In each case the objective is to improve intestinal health, reduce latency to the first feed post-weaning, and increase early post-weaning feed intake and growth. Correctly implementing these strategies will not only increase post-weaning growth and reduce mortality, but also maximize lifetime growth in pigs.

Pre-weaning Factors

Weaning age: Over the last decade, the national average weaning age recorded on the Teagasc Profit Monitor (PM) has increased from 28 days in 2010 to 31 days in 2022. However, in reality, the age at weaning ranges from 24 days right up to 34 days. Housing, feeding and management must be impeccable for earlier weaned pigs if problems with post-weaning thrive and health are to be minimised or avoided. Younger weaned pigs have a less well developed gut with poorer intake, and lower and more inconsistent daily live-weight gain. Research has shown far fewer problems when pigs are weaned at 28 days compared with 21 days, as the older pigs show better post weaning adaptation, have higher feed intakes, lower removal rates and are more feed efficient during the next four weeks. There may also be a place for increasing weaning age to 35 days on some units to improve post-weaning feed intake and growth (Table 1). If increasing weaning age is not an option, then every effort should be made to increase the weaning weight of piglets. The following have been found to be effective in this regard.

Table 1. *The effect of weaning age on growth performance to 10 weeks of age.*

	Weaning age (wks)		
	3	4	5
Post weaning mortality (%)	14a	1b	4ab
Weaning wt. (kg)	6.5a	7.8b	10.0c
Day 14 pw wt. (kg)	9.5a	11.6b	15.5c
70 days of age (kg)	24.4	24.7	26.7
ADFI wean to 14 days (g/day)	220a	271b	388c
ADFI birth to 70 days (g/day)	560a	621b	680c

Hygiene in the farrowing room: Measures taken to increase internal biosecurity in pig production have been shown to increase pig growth, reduce mortality and reduce antibiotic usage. Our work shows that implementing an effective hygiene routine (optimised cleaning and disinfection) in farrowing accommodation reduced the number of clinical cases of disease recorded per litter, leading to a reduction in the volume of antibiotics and anti-inflammatories that needed to be administered to piglets up to weaning. As a consequence of this, average piglet weight at weaning was also significantly increased (Figure 1).

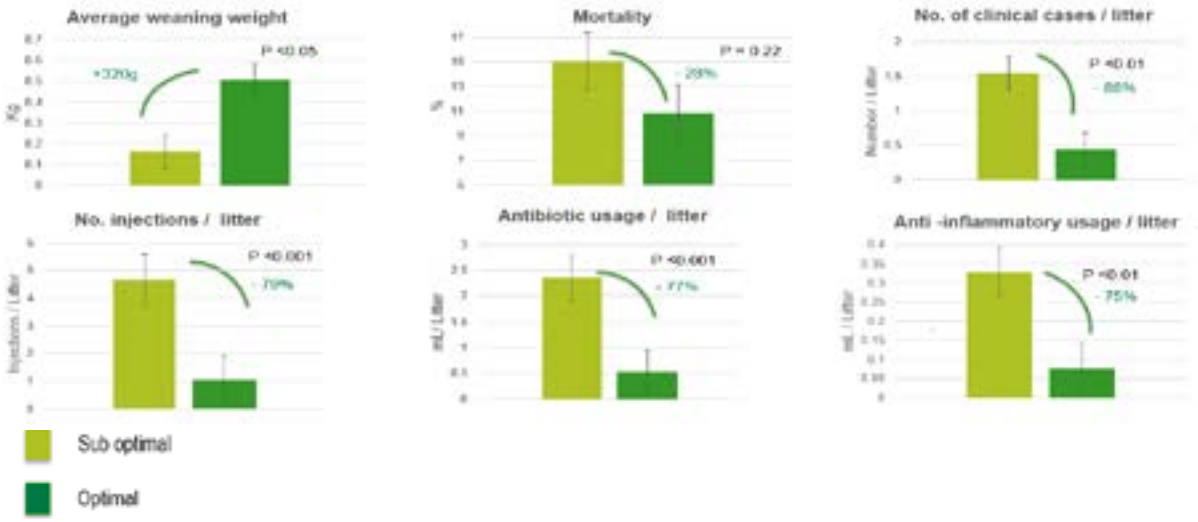

Figure 1. *Pre-weaning pig growth and therapeutic treatments in response to hygiene.*

Pain relief for sows: We are all very conscious that litter size in sows has increased dramatically in the past decade. This brings with it serious challenges for the producer. For instance colostrum yield per sow has not increased, so it is more difficult to ensure that each pig gets sufficient colostrum intake from the limited pool of colostrum available. We believe that ensuring adequate colostrum and milk intake to all pigs will help increase pre-weaning growth but will also reduce the need to treat suckling pigs with anti-inflammatories and antibiotics. One strategy to investigate this involved administering Meloxicam (Loxicom® Injection, Norbrook, Ireland) to sows as soon as possible after the placenta was delivered. The idea here was that administration of pain relief to the sow would facilitate greater suckling by the pigs. From this work we can conclude that the practice increases colostrum intake and weaning weight in piglets. Equally important, it will also reduce the number of clinical cases of disease in piglets thereby reducing the need to use injectable antibiotics and anti-inflammatories.

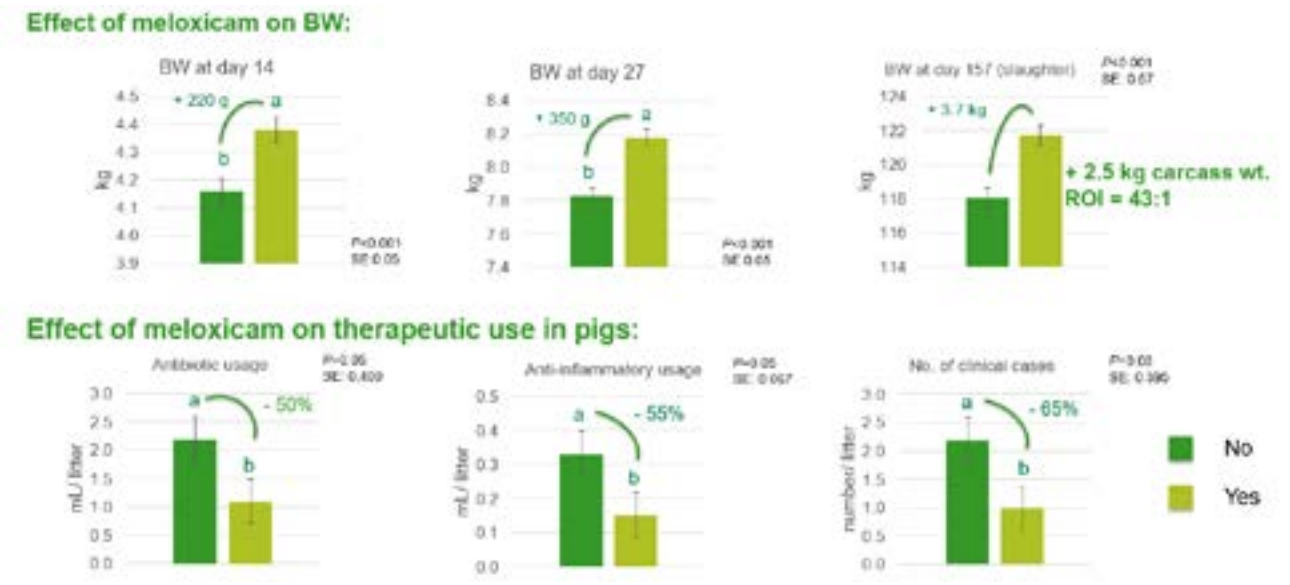

Figure 2. *Pre-weaning pig growth and therapeutic treatments in response to pain relief administered to sows.*

Creep feeding

Creep feeding is a strategy used to increase piglet energy and nutrient intake and familiarize them with solid food prior to weaning. Creep feed is typically composed of highly digestible ingredients and will benefit suckling piglets in several ways, including:

- Supplementing sows' milk in late lactation to meet the pig's energy and protein requirements
- Stimulate gut and digestive enzyme development
- Increase piglet weaning weight

- Stimulate earlier feed exploration by newly weaned pig – this mitigates some of the adverse effects of weaning stress
- Reduce the 'growth lag' normally observed in pigs after weaning
- Increased post-weaning and lifetime growth performance in pigs

It is important for farmers to find ways to increase creep-feed consumption in the farrowing rooms. This will help get piglets off to a better start at weaning. Steps such as feeding a good quality starter diet with a high milk powder content for at least 14 days prior to weaning, feeding on a "little and often" basis making sure feed is always fresh and available, and always using a feeder for feeding creep feed will all help to encourage feed intake for piglets. It is also important that the pellets used are not too hard, and there is some evidence to suggest that feeding larger rather than smaller pellets will help to increase creep feed intake. Liquid creep feeding will also promote increased feed intake.

Post weaning factors

Promote water intake

It is vitally important to encourage piglets to maintain fluid intake post-weaning. It can take more than a week after weaning for the pig to restore its daily fluid intake to the equivalent of that on the day prior to weaning. According to Fowler and Gill (1989) a suckling pig has equivalent water consumption prior to weaning of ~680ml; however, water intake is only ~290ml in the first day post-weaning and averages ~442ml in the first week after weaning. It is only in the second week post-weaning that water intake averages ~770ml/pig. Encouraging water intake will promote feed intake. Appropriate sizing, number, positioning and hygiene of water drinkers is essential to ensure adequate hydration and feed intake. Equally important is ensuring the chemical and microbiological quality of the water supply used.

Diet Acidification

Early weaned pigs produce insufficient levels of gastric acid which can result in a high stomach pH. As a result, the digestion of nutrients, especially protein is reduced. Moreover, high pH is favourable for the proliferation of diarrhoea-causing micro-organisms in the weaned pig. The use of organic acids has been suggested as a means of lowering gastric pH in weaned pigs and has been reported to improve growth performance. Feed intake in one experiment was increased by ~32% in week 1 and by 11% over the first 3 weeks after weaning due to the dietary addition of fumaric acid. However, the response to diet acidification is not always consistent and is likely to be higher at times of greater microbial challenge. An alternative strategy to diet acidification, to achieve similar results, is to feed a diet with a low acid binding capacity.

Reduced crude protein diets

Reducing crude protein (CP) in the diet prevents an excess of undigested protein reaching the large intestine, where it contributes to the growth of pathogenic bacteria, such as *E. Coli* and the production of harmful compounds. The practice can reduce the incidence of diarrhoea in pigs. The requirements of weaned pigs for amino acids are high for growth but also to counteract health challenges, and therefore low CP diets must be supplemented with synthetic amino acids. Bellego and Noblet (2002) showed that reducing CP in post-weaning diets from 20.4 to 16.9% with adequate synthetic amino acid supplementation was an effective approach to limit diarrhoea in pigs weaned at 28 days, without affecting weight gain and protein deposition.

Feeding liquid milk replacer post weaning

Recent research in Moorepark has shown that post-weaning liquid milk supplementation increased feed intake and growth in the immediate post-weaning period which will likely benefit light and vulnerable pigs at weaning. Since milk supplementation greatly increased early post-weaning feed intake, the practice could be particularly useful for delivering bio-active compounds to the pig gut during the critical post-weaning window. Providing liquid milk replacer in addition to dry pelleted starter diet, improved the intestinal structure of newly weaned piglets. The results suggest that the period of liquid milk supplementation should be for between 4 and 10 days post-weaning. However, on a dry matter basis, milk replacer is almost three times the price of a starter diet and for this reason should be used sparingly.

Summary

We have listed management and nutritional strategies to increase post-weaning feed intake in pigs and thereby improve post-weaning piglet growth and feed efficiency. All these strategies will help reduce the growth check pigs experience after weaning. This is particularly important in an era of reduced antimicrobial usage and the ban on use of therapeutic levels of zinc oxide in feed. Increasing feed intake in the first few days post-weaning will not only increase post-weaning piglet growth but is also strongly associated with lifetime pig growth, making it a goal worth achieving.

Project funding

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References available on request.

Insights from the Finnish pig industry

Johannes Vugts, Senior adviser, HKScan Finland Oy

Tail docking is totally forbidden in the Finnish pork production since 2003. This means that the Finnish producers already have more than 20 years experience with keeping undocked pigs.

The Finnish production is mainly for the local market. The health status of the herds is good since all farms are free of PRRS and Mycoplasma Hyopneumoniae. The nursery piglets are housed in 2-climate nurseries where most of the piglets are fed liquid feed in a long trough. The finishers are kept typically in pens with 10-14 finishers. Almost all the finishers get liquid from a long trough. The nursery piglets often get 6 times / day and the finishers 4 times / day feed. It is Important that all pigs can eat enough so they all will be satisfied. There should be a little bit feed left after feeding.

Welfare in the Finnish pork production is stimulated and regulated by the Finnish government. To stimulate pig producers to invest in animal welfare, subsidies are given. Welfare improving investments are generally subsidized with 30%. Subsidies are also given to support the production. Two important ones are the free farrowing subsidy of 250 € / sow / year and the intact tail subsidy of 21 / finisher place / year. This last subsidy is given when less than 5% of the finishers have tail wounds at slaughter.

The subsidy for free farrowing has stimulated the HKScan producers to invest in free farrowing. During the last 6 years the number of sows farrowing in a free farrowing pen, has increased to nearly 40% of the sows. The Finnish rules allow fixation from 2 days before till 3 days after farrowing. Fixation in the first days after farrowing is often practiced because it reduces the mortality.

To get a better understanding of the tail damage at slaughter, HKScan did a trial together with the Helsinki University. From all the pigs slaughtered in 1 week, the tails were measured and the tip was scored. The results showed a very clear link between the tail damage and the number of abscesses found. It also showed that there is a huge variation in the number of damaged tails between the farms.

In 2020, we received more and more feedback of producers that the pigs were nervous and that tail biting became an increasing problem. This made my colleagues and me wonder what was going on. While the tail biting increased, the amount of too fat pigs also increased. This made us wonder if there was a connection between the feeding and the behaviour. After discussions with the genetic suppliers, we decided to do a trial with higher amino acid levels and different fibre sources.

By using 2 concentrates, the feed could be made optimal for each stage of the finisher period. The sid lysine level in the starter diet was increased to 1,06 g / MJ NE and the amount of wet distillery grain was decreased. The fiber level of the finisher diet was increased by the inclusion oats, wheatbran and beetpulp. The results of the trial were above expectation; the meat % improved and the animals were much calmer. This resulted in less tail damage at slaughter.

The trial from 2019 showed that most of the damaged tails were healed when the pigs were slaughtered. This indicates that the biting happened in the first half of the finisher period or during the nursery

period. Based on 20-year experience, we came to the conclusion that most of the tail biting occurs in the nursery. One of the main triggers for tail biting is weaning diarrhoea. In farms where there are issues with weaning diarrhoea, you often see that the piglets start to bite tails. The biting typically starts 1-2 weeks after the feed has changed from weaner to piglet diet.

During the last years we have seen a big increase in the number of born alive piglets / litter. On farms with a high born alive, we see that up to 50% of the sows have 18 or more born alive / litter. These so called XL litters have often a negative impact on the quality of the weaned piglets. The birth weights are lower, colostrum intake is problematic and a lot of foster sows have to be made. This results in more variation in weaning weight and weaning age. Young weaned piglets and piglets who did not got enough colostrum are extra sensitive after weaning. A trial done in the past showed that piglets who are weaned at 3 weeks of age grow 111 g/ day slower in the nursery than piglets weaned at 4 weeks.

Experience has shown that certain genetics is less sensitive for tail biting than others. Since duroc seems to be more sensitive for weaning diarrhoea and thus tail biting, we decided to test the Tempo. To get a good impression of how the tempo performs under Finnish conditions, 7 producers agreed to change to tempo (5000 sows). The first finishers have been slaughtered in the beginning of September. The feedback we have received from the producers is that the tempo's are less sensitive for diarrhoea and that tail biting has reduced a lot. The first slaughtered batches confirmed that the tempo finishers had less tail damage at slaughter.

If you want to start to keep undocked pigs, you need to first make sure that your docked pigs are doing well. If you see cannibalism in docked pigs, you can be sure that there will be serious issues with tail biting if you stop docking. Giving the pigs sufficient space is also a must. Finnish nursery piglets have 0,4 m^2 and the finishers 1,0 m^2 with 2/3 solid (max 10% open) floor. The solid floor makes it possible to give roughage on the floor which is the best way to give it.

If you want to succeed in keeping the tails of your pigs intact, you need to change your management from low cost to low risk focussed. This brings us to the point that raising pigs with long tails will increase the cost price of your pigs. This is why producers need to be rewarded for delivering pigs with intact (enough) tails to the slaughterhouse.

Hopefully some of the Finnish experiences will be useful for the Irish pig producers.

Elevating gestating sow welfare: a win-win for sow & piglet performance

Laura Boyle & Keelin O'Driscoll, Teagasc

Introduction

Since the 2013 ban on individual housing for pregnant sows after 28 days of pregnancy, the focus on pig welfare in the EU switched to implementing the ban on tail docking. Most producers concede that they would never go back to individual housing and getting sows out of stalls undoubtedly led to many welfare improvements. However, our group housing systems are far from perfect and they still present numerous challenges for sows relating to aspects of the physical and social environment. For example, sows are kept at relatively small space allowances on slatted floors where they are exposed to aggression at mixing and often at feeding. As a result, they suffer from fear, skin lesions, injury and lameness associated with pain and acute/chronic stress. In spite of this, most sows perform remarkably well reproductively in Irish systems of group housing. Nevertheless, increasing sow mortality and replacement (currently 60% in Ireland as per Interpig, 2022) rates, as well as the poor state of cull sows at slaughter is the main evidence of the toll the system takes on these animals.

Chronic stress in pregnant sows exposes their piglets to stress hormones in utero, mainly cortisol. This 'pre-natal stress' has negative effects on pigs ability to cope with stress in life and also has a detrimental impact on their immune function and resilience to disease. Large litter sizes exacerbates these effects. Not only are piglets born smaller and more vulnerable but they are also more crowded in the farrowing house in the weeks prior to weaning. The need to raise pigs without medications and increasing societal expectations for high standards of welfare in pig production warrants a renewed focus on sow welfare during pregnancy.

The SowWeanWel project aimed to wean resilient and healthy pigs from sows that experienced better welfare during pregnancy. During the project, we collaborated with researchers in the University of Padua in Italy who also had a renewed interest in the welfare of sows during pregnancy, particularly early pregnancy. Current EU legislation permits the keeping of sows in stalls during this period. This partnership was timely as it coincided with the European Food Safety Authority's (EFSA) plans to revise the Scientific Opinion on Pig Welfare with particular focus on the welfare of sows during the first 28 days of pregnancy. This report was published in 2022 and underpinned an EU commitment to phase out and eventually prohibit the use of cages for farm animals by 2027. In recent weeks, there are signs that the EU may reverse this commitment because of fears of higher food prices when consumers are experiencing a cost of living crisis.

Detrimental effects of aggression on reproductive performance

Aggression and the associated fear and injury, mainly in the form of skin lesions but also lameness, are among the main welfare problems for sows housed in groups on commercial farms. We are all aware of the detrimental effects of aggression at mixing but we rarely consider the impact of prolonged aggression. In the first study (performed on a commercial farm in Ireland), we counted skin lesions on sows 1 day (acute stress indicator) and 3 weeks (chronic stress indicator) post-mixing (after 28 days spent in stalls post service) into a fully slatted group housing system with free access stalls. Counts of skin lesions 3 weeks post-mixing were associated with both the number of mummified piglets, and Intra Uterine Growth Retardation (IUGR) scores – indicating that when sows experienced chronic aggression, they delivered more mummified piglets and piglets were less developed at birth. In another study on the same farm, we provided six groups of 20 sows with straw in three racks in the loose area and with ropes in each of the free-access stalls (Improved). We compared them with another six groups that had only one chain and a piece of wood between the 20 sows in the group (Control). We found less aggression overall in the improved groups particularly 21 days post-mixing – this is important as this was the time when we found the association between skin lesions caused by aggression and poorer reproductive performance in the previous study. Therefore, improving the quality of environmental enrichment provided to sows reduced aggression in the long term. The high quality enrichment had little effect on the amount of fighting by sows at mixing – this is not surprising. Sows have to fight at mixing to form a dominance hierarchy (DH).

This is evolutionarily very important to group stability so it is very difficult to distract sows from fighting at mixing.

Stage of mixing

Aggression at mixing is inevitable, but as outlined in the Pig Welfare Scientific Opinion, (EFSA, 2022) we can mitigate the consequences by giving sows enough space, places to hide and by mixing them on solid flooring. Certainly, group-housing systems with free access stalls provide a place for sows to escape to and hide from aggressors at mixing but it raises the question as to how long it takes to establish the DH in such systems. Some sows may 'hide' in the stalls and thereby take longer to secure their place in the 'pecking order'. We believe this might explain why sows mixed into this group housing system two days post-service had a numerically lower pregnancy (83%) and farrowing (80%) rates compared to sows mixed into the same system 28 days post-service (94 and 88% respectively). Normally the DH settles 24 to 48 hours post-mixing but in this housing system, we found relatively high counts of fresh skin lesions in both treatments 8 days after mixing indicating ongoing fighting. For sows mixed two days post-service this was getting close to the period of implantation where stress arising from aggression is detrimental to the success of the pregnancy. Numbers of sows (144) on the trial were low but this trend merits further investigation for this housing system if the EU prohibits keeping sows in stalls for 28 days post-service. One solution would be to close the stalls off from the sows when they are introduced to the pen to ensure rapid establishment of the DH but this would likely result in severe aggression (and therefore stress, injury and lameness) in the first 24 hours. In a similar study conducted on an Italian farm where sows were mixed into pens (floor feeding/100% solid concrete/no free access stalls) of 21 sows 4 or 28 days post-service there were no effects of day of mixing on sow welfare or reproductive performance (pregnancy rate: 85% at 4 days and 88% at 28 days; farrowing rate: 81% at 4 days and 84% at 28 days). This is consistent with conclusions reached by the expert panel working with EFSA on the Scientific Opinion on Pig Welfare that stage of pregnancy at mixing has little impact on sow reproductive performance (EFSA, 2022).

Better sow welfare has consequences for pre-natal stress

We already showed how providing sows with good environmental enrichment reduces aggression in group housing systems (although sows are possessive of the straw and sometimes threaten other sows trying to access it). Rubber mats in the free access stalls also conferred comfort benefits to sows in the improved environment. Unsurprisingly then we saw a general reduction in indicators of chronic stress including less stereotypies, lower tearstain scores and lower levels of inflammatory markers. As predicted under the pre-natal stress hypothesis, these welfare benefits to the sows conferred advantages to their piglets. Sows who were in improved pens during pregnancy gave birth to fewer mummified piglets, and their piglets had fewer indications of IUGR. More importantly, piglets born to sows from improved pens had less diarrhoea during the suckling period (farrowing pens were scored for dirtiness, i.e. scour, on a weekly basis from birth to weaning).

At Moorepark, we worked in detail with pregnant gilts having intrinsically different health and stress profiles (manifested in different locomotory abilities, levels of sham chewing/stereotypies, patterns of ESF use and skin lesion scores). We found that their piglets differed accordingly in terms of the severity of IUGR and in their reactivity to stress. It is also worth mentioning briefly that even though none of these gilts were ever clinically lame during pregnancy even slightly impaired locomotion in early pregnancy was associated with higher levels of cortisol and more piglets born dead. This emphasises yet again the underappreciated impact that lameness has on welfare, performance and therefore farm profitability.

How to detect lameness

Locomotion scoring is the best way to detect lameness early. For gilts in particular, this could save them from exiting the herd before earning a return on investment. Detecting subtle changes in a gilts walking ability requires a sensitive method so we developed a 'visual analogue scale' scoring system (available on the Teagasc website).

Take home points

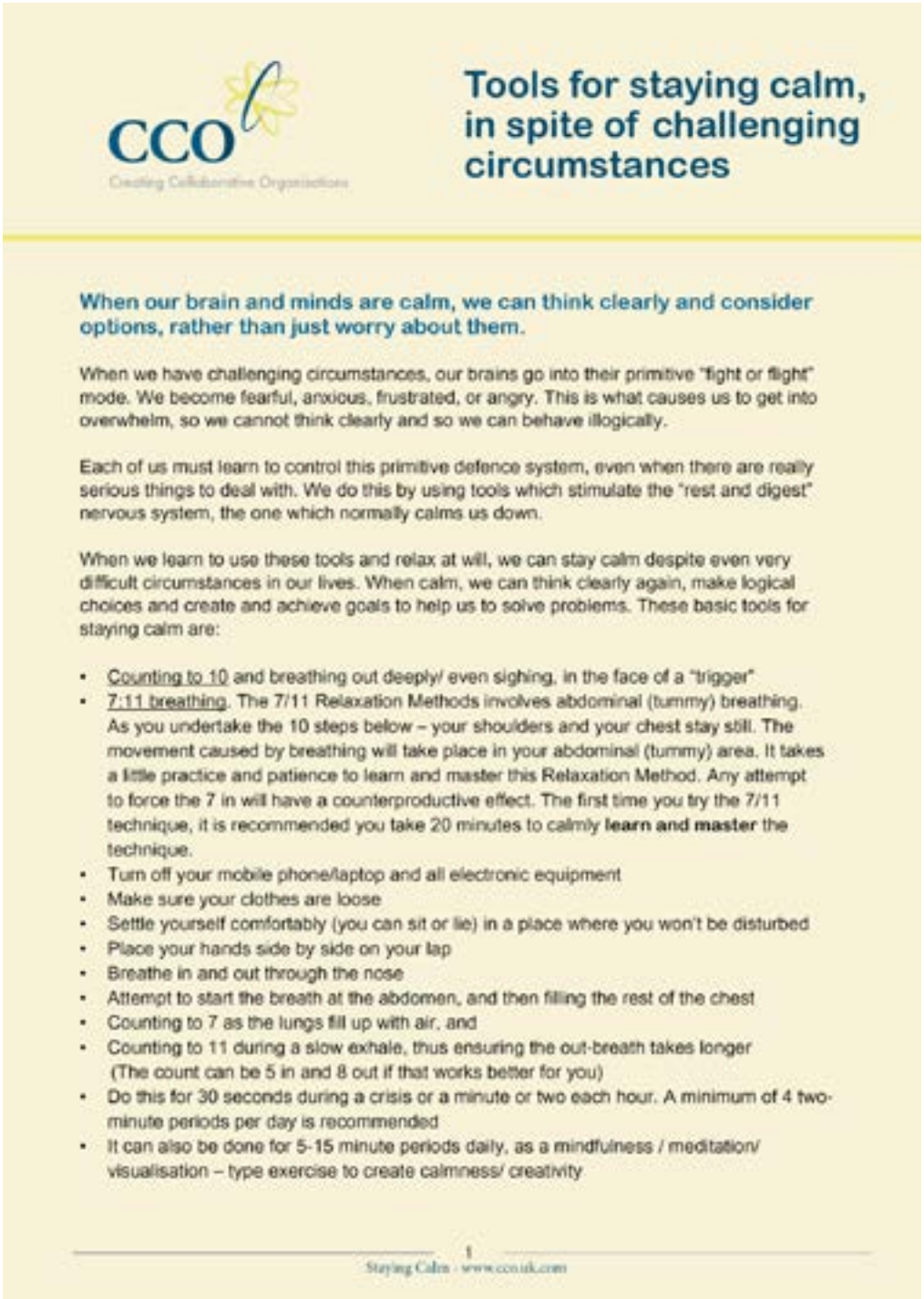
- Chronic aggression in sows has detrimental effects on reproductive performance
- Providing sows with good enrichment and comfort during pregnancy not only reduces aggression but also improves welfare in general and reduces chronic stress
- In most group housing systems there are few differences in welfare or reproductive performance of mixing sows 2 versus 28 days post-service
- There are indications that mixing sows 2 days post-service into group housing systems with free-access stalls could interfere with reproductive performance
- Improving sow welfare has important advantages for piglet health and resilience at birth, during the suckling period and likely throughout its life
- Locomotion scoring is crucial for the early detection and treatment of lameness

References available on request.

Staying calm in spite of very difficult circumstances

Des Rice, Creating Collaborative Organisations (CCO)

We can be upset daily in our complex modern world, by issues relating to our business, our livestock, our suppliers, legislation, staff, personal or family issues, social media overload, etc. These cumulative upsets to our sympathetic, "fight or flight", nervous system can lead to what can be called "Adrenalin toxicity". Consequently, many of us have a sense of worry, overwhelm, nausea, palpitations, and muscle tension. Our brains become "foggy" so we cannot think clearly or make decisions. This can progress to anxiety and panic attacks. The associated disturbed sleep and dreaming can lead to depression. This in-turn can lead to addiction and/or self-harm. It doesn't have to be this way! There are many tools available to help us to stay calm, in spite of complex circumstances, to think clearly, and even to enjoy life. If used, these tools stimulate the parasympathetic / "rest and digest" nervous system, counteracting the adrenalin toxicity. However, we often do not use these routinely, even though they are the foundations for a joyful, fulfilled life. I will discuss and demonstrate these tools; explain how and why they work and why persistent practice is required.



CCO
Creating Collaborative Organisations

Tools for staying calm, in spite of challenging circumstances

When our brain and minds are calm, we can think clearly and consider options, rather than just worry about them.

When we have challenging circumstances, our brains go into their primitive "fight or flight" mode. We become fearful, anxious, frustrated, or angry. This is what causes us to get into overwhelm, so we cannot think clearly and so we can behave illogically.

Each of us must learn to control this primitive defence system, even when there are really serious things to deal with. We do this by using tools which stimulate the "rest and digest" nervous system, the one which normally calms us down.

When we learn to use these tools and relax at will, we can stay calm despite even very difficult circumstances in our lives. When calm, we can think clearly again, make logical choices and create and achieve goals to help us to solve problems. These basic tools for staying calm are:

- Counting to 10 and breathing out deeply/ even sighing, in the face of a "trigger"
- 7:11 breathing. The 7/11 Relaxation Methods involves abdominal (tummy) breathing. As you undertake the 10 steps below – your shoulders and your chest stay still. The movement caused by breathing will take place in your abdominal (tummy) area. It takes a little practice and patience to learn and master this Relaxation Method. Any attempt to force the 7 in will have a counterproductive effect. The first time you try the 7/11 technique, it is recommended you take 20 minutes to calmly **learn and master** the technique.
- Turn off your mobile phone/laptop and all electronic equipment
- Make sure your clothes are loose
- Settle yourself comfortably (you can sit or lie) in a place where you won't be disturbed
- Place your hands side by side on your lap
- Breathe in and out through the nose
- Attempt to start the breath at the abdomen, and then filling the rest of the chest
- Counting to 7 as the lungs fill up with air, and
- Counting to 11 during a slow exhale, thus ensuring the out-breath takes longer (The count can be 5 in and 8 out if that works better for you)
- Do this for 30 seconds during a crisis or a minute or two each hour. A minimum of 4 two-minute periods per day is recommended
- It can also be done for 5-15 minute periods daily, as a mindfulness / meditation/ visualisation – type exercise to create calmness/ creativity

1
Staying Calm - www.cco.uk.com

CCO
Creating Collaborative Organizations

Tools for staying calm, in spite of challenging circumstances

This YouTube video gives a good visual demonstration of 7/11 breathing

Aerobic exercise

This is essential! It must be done for 2.5 to 3 hours per week, ideally over several different days. This can be fast walking, running, cycling, swimming , or doing it indoors with online video support; basically anything that increases the heart rate substantially. Such exercise raises our blood serotonin (the happiness hormone) level as high as any antidepressant.

Muscle relaxation exercises

When our muscles are relaxed and our outbreaths longer than our inbreaths, we stimulate the "rest and digest" nervous system and our brain must calm down. It has no other choice!

1. Tensing and shaking out

First, one tenses the muscles by standing on tip-toes, stretching to the ceiling, holding every muscle as tight as possible for 30 seconds. Then, vigorously shaking out the muscles (arms, legs and torso), on the spot for 30 seconds, until the body feels like a limp ragdoll. This is repeated 2-3 times per session. This calms the brain and gives a sense of energy flowing.

2. Sitting tensing and relaxing

Some people find it more beneficial to sit and tense their muscles, then let them relax. This is done by tensing the muscles in sequence: hands, arms, shoulders, neck, face, chest, tummy buttocks, hips, thighs calves and feet. One holds that for 30 seconds while breathing, then gently relaxing the muscles in the reverse order and noticing the relaxation.
Both, or either of these to be done several times per day.

Hobbies

It is important to find the time to do things that we enjoy doing, such as, singing, tennis, dancing, photography, cooking, gardening, walking. Often in the busyness and overwhelm of life, we give up on these. But it is important to find time to do them.

Finding the time

People often say that the above is impossible because they already don't have enough time each day. That they are already too busy. It is imperative to find the time. Sometimes it means getting up half an hour earlier, or walking for 20 minutes each day at lunchtime etc. When we create a daily routine of these practices, we become more efficient, and so gain time.

Important to become masterful

It does not work to use these tools just when one feels tense. Remember, the adrenalin release happens in 1/50 second. So, as with a sport skill, we must practice methodically before we need to use it. The aerobic exercise must be done weekly and the breathing and relaxation exercises daily, even when things are normal. This way one becomes masterful at managing stress.

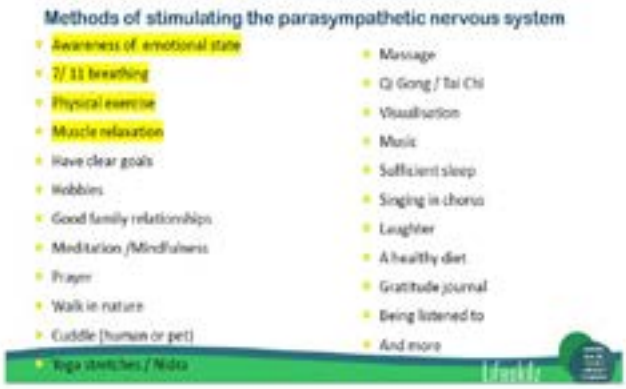

Social Media
DEBT
Can lead to cumulative increase in stress and emotional overload
Plan B
Global warming
War Ukraine


Like oversensitive smoke alarm
Real or imaginary stimulus – same response
Amygdala reacts to "trigger"
Fear/Anger – Fight/Flight 1/50 sec
Surge of adrenalin + cortisol
We are in survival mode
Massive impact on our mental and physical health
Both short-term and long-term impact


Impact of persistent, fear, anger, worry on our lives
Impact on our ability to think clearly
We cannot think straight / are illogical
Higher cortex
low level of emotion
amygdala
Amygdala Hijack
High level of emotion
We feel angry, or anxious, irritable - can be in overwhelm
Children cannot learn / have exam /study stress
Low emotion
High emotion


Additional symptoms of arousal of the "Fight/ flight" response
Severe
Self- Harm / Suicide
Depression, PTSD, Phobias, OCD
Panic attacks, Agoraphobia
Generalised anxiety, social anxiety etc,
Overwhelm, worry, catastrophising, blame
Palpitations, sweating
Headaches, shoulder /muscle tightness
Dry mouth, butterflies in tummy, nausea
Mild
Can't think clearly, study, decide
All due to our brain / mind being in "Survival Mode"
Producing Adrenalin & Cortisol for Fight or Flight
My personal experience


Increasing your effectiveness
by keeping your emotions under control
Sympathetic Nervous System
Parasympathetic Nervous System
This one dominates
We must learn to activate this system
And stay calm in spite of circumstances
Fight or Flight
Rest and Digest


Methods of stimulating the parasympathetic nervous system
Awareness of emotional state
7/ 11 breathing
Physical exercise
Muscle relaxation
Have clear goals
Hobbies
Good family relationships
Meditation /Mindfulness
Prayer
Walk in nature
Cuddle (human or pet)
Yoga stretches / Nidra
Massage
Qi Gong / Tai Chi
Visualisation
Music
Sufficient sleep
Singing in chorus
Laughter
A healthy diet
Gratitude journal
Being listened to
And more

Increasing your effectiveness by keeping your emotions under control

- It is just adrenalin toxicity- you are not going crazy
- You are not anxious, angry, frustrated, depressed etc.
  No, the emotion is "on you"
- Do 2 ½ - 3 hours aerobic exercise /week

- Do 2 ½ - 3 hours aerobic exercise /week
  - Creates emotional and mental balance
  - Manages serotonin (the happiness hormone) as well as antidepressants
  - Raises endorphins and dopamine "Runners High"
  - Uses adrenalin for movement

I don't have time!

- If you are not already doing this
  - What exercise could you do? (power walking, jogging, running, cycling etc)
  - When could you do it - morning, lunchtime, evening?
  - Would you do 20 minutes per day?
  - Do you have the right gear

Make time. You will be more efficient

Increasing your effectiveness by keeping your emotions under control

- It is just adrenalin toxicity- you are not going crazy
- You are not anxious, angry, frustrated, depressed etc.
  No, the emotion is "on you"
- Do 2 ½ - 3 hours aerobic exercise /week
- Become the observer of your symptoms, they will disappear
- Relaxing muscles
  - Shakeouts and Stretching while standing
  - Sitting and tightening muscles then relaxing
- 7:11 breathing; at least 3 - 4 times per day

Conclusions: 7: 11 breathing is a simple but very potent practice

- Benefits are supported by a lot of scientific evidence
- Needs to become a daily practice
  - 3-5 times per day minimum
  - Can be used before bedtime or during night to get back to sleep
- It won't work if you only do it in a crisis!
- Helps control overwhelm, anxiety, depression, anger, addiction and self harm

Other breathing techniques?
If you have one that works – keep using it!
If not, stick to this one for 3 months. Establish a routine and habit

Summary - Increasing your effectiveness

Mastery of skills: practice, practice, practice

- It is just adrenalin toxicity- you are not going crazy
- You are not anxious, depressed etc. The emotion is "on you"
- Become the observer of the symptoms – they will disappear
- Do 2 ½ - 3 hours aerobic exercise /week
- 7:11 breathing;
- Relaxing muscles: Shakeouts , Tensing / relaxing

At least 4 times /day for 2 minutes makes you relaxed and focused

These are essential foundation "tools" for controlling your Fear, Anger, Sadness, Guilt

Benefits of using the tools

- Doesn't get rid of all the issues in your life!
- However, gives you ability to stay calm and think clearly
- Use your imagination to create and achieve goals and so solve problems
- Sleep better and dream less - feel rested and alert
- A fitter immune system
- Less muscle tension, headaches, chest tightness, breathlessness
- Control over overwhelm, anxiety, anger, panic, depression and self harm

Feeding for higher profit

Emer McCrum, Michael McKeon & Gerard McCutcheon, Teagasc

As a country with a relatively low percentage of its land base utilised for tillage (12%), by necessity our pig sector has to import a significant amount of feed ingredients. Due to importation costs unfortunately these ingredients costs will be higher than most of our European neighbours. Therefore there is a high emphasis on maximising the growth rates and optimising feed conversion efficiency (FCE) arising from our pig diets.

Feed conversion efficiency & growth rate improvement

Over the past 20 to 25 years the emphasis on these two Key Performance Indicators (KPIs) have delivered considerable improvements due to better feed quality, housing standards and genetic improvement. The growth rate has steadily increased from 585g / day in 2000 to 736g /day on 2022, a 26% improvement. The FCE improvement journey has not been as steady. It started at 2.35 (year 2000) and deteriorated from 2010 to 2014 due to herd health issues before improving again from 2015 onwards. There was a small deterioration in the trend in 2022 as a result of the sectors economic difficulties. While the FCE in numerical terms may not appear to have improved, it must be noted that the finisher pig live sale weight increased by 28 kilograms (90 to 118 kg) over this 23 year period. Therefore maintaining a relatively steady FCE during this timeframe is a significant gain in real terms.

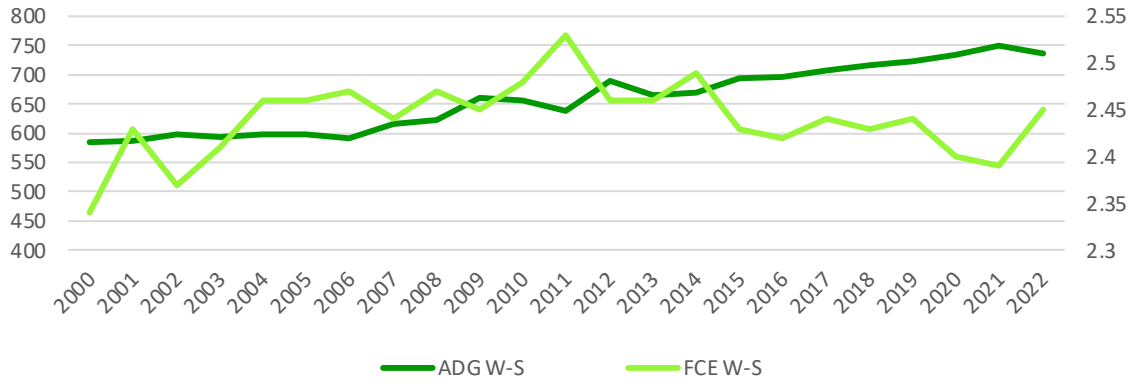


Figure 1. *Growth rate and FCE trends from 2000-2022. Source: Teagasc Pig development Department.*

The increase in growth rates has also been largely responsible for the substantial increase in pigmeat output per sow per year. Over the 23 year period the output per sow has increased by 68% (1,471kg to 2,482kg).

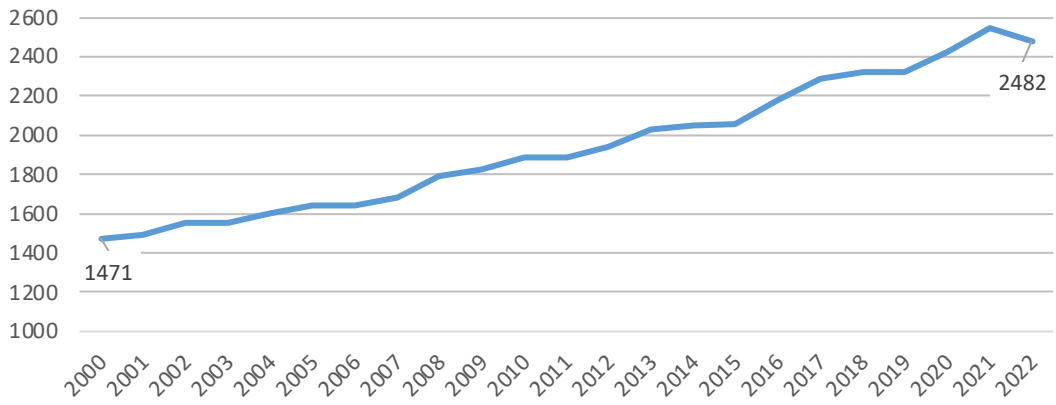


Figure 2. *Pigmeat output per sow per year from 2000 – 2022 (kg per sow). Source: Teagasc Pig development Department.*

This increased output per sow is very important as it has helped to defray / dilute some of the substantial non-feed cost increases over the 23 year period e.g. labour, energy, healthcare, repairs, etc. If our sale

weight and pigs produced per sow had not increased since 2000 then our non-feed costs would be 17 cent higher per kilogram dead weight, equivalent to an increase of 33%.

Is this the correct road?

While our focus on growth rates and feed conversion has undoubtedly delivered improvements over this time period, are they the correct KPI'S to chase after? Would achieving more moderate growth and FCE performance on a 'per kilogram of pigmeat produced' basis, have delivered better profitability? This more moderate performance approach is being taken by some other European countries through the use of different genetic breeds or through lower feed specifications. Spain and the Netherlands both target a moderated growth performance approach to achieve lower feed costs.

Spain

The Spanish system uses the Pietrain breed to achieve lower feed costs. The Pietrain cross slaughter progeny have lower feed intakes, a slower growth rate and therefore take longer to reach sale weight. The advantages of this breed is that they convert feed extremely efficiently and have a very high meat content / kill-out percentage (Table 1).

Table 1. *Comparison of Irish & Spanish Performance.*

Production standards	Spain	Ireland
No.Pigs per sow per year	23.6	27.4
Weaning WT kg	6	7.2
Weaning age days	23	31
Transfer wt to finisher kg	18.4	38.4
Age at transfer to finisher days	70	91
Weaning - sale ADG g/day	633	736
Weaning - sale fce	2.34	2.46
Finisher sale weight (dead)kg	87.5	90.6
Feed costs c/kg dwt	145	148

A number of important differences can be observed between the two data sets. The Spanish weaning age (23 days), age at transfer to finishers (70 days), transfer weight (18 kg) and sale weight (88kg) are much lower. However their FCE is substantially better, even allowing for their lower sale weight.

While this system works for the Spanish industry, it would have two major drawbacks for the Irish sector if implemented here. The first issue is that the significantly slower growth rates would lead to lower sale weights which would increase our production cost. While we could build additional finisher housing on our pig units to maintain the sale weight, the older age of the male pigs could cause boar taint issues. The second obstacle with this system is that we export a relatively small but lucrative percentage of our pigmeat to Japan. Pork from a very lean Pietrain-cross slaughter pig would not be appreciated by the Japanese consumer and could lead to the loss of this market.

However maybe a 'halfway house' would be a better match? Could we moderately reduce our feed specification, which may lower our growth rates but may also lower our feed costs?

The Netherlands

The Netherlands have similar genetics, pig buildings and industry structure as ourselves. They have a small agricultural land-base, like ourselves and import most of their pig feed ingredients. The Dutch-Irish Interpig figures demonstrate a very similar feed cost on a 'cost per tonne' basis but on a 'feed cost per kg deadweight sold' the Dutch are substantially lower (14.7 cent). This feed cost differential can be attributed to two important factors; they have a higher number of pigs produced per sow and they have a different philosophy on feeding weaner-finisher pigs.

Table 2. *Feed cost comparison c/kg. Source: Interpig*

	Netherlands	Ireland	Difference
Feed cost /kg pig meat c/kg	134	148	14

Pigs produced per sow: The higher number of pigs sold per sow when compared to Ireland, means that the cost of the sow feed usage is diluted across the extra pigs sold (see Table 3). This reduces the overall feed cost by 4.7c/kg dead weight (dwt) sold.

Table 3. *Effect of Sow output on feed cost. Source: Interpig*

	Netherlands	Ireland	Difference
Pigs Produced/Sow/Year	31.0	27.4	
Sow Feed Per Sow Per Year	1.34	1.38	
Cost of sow feed per Pig €	17.38	20.65	
Cost of sow feed / kg dwt sold c/kg	18.1	22.8	4.7

Weaner - finisher feed philosophy: The Dutch philosophy for feeding pigs in the weaner and finisher stage is to avoid 'overloading' the young pigs digestive system thereby getting better gut health (less scour), which in-turn generates better feed conversion in the finisher stage. As pigs consume approximately 65% of the total feed in the finisher stage, a good FCE in this stage will have the biggest overall effect on feed cost/kg.

To achieve this philosophy they start feeding pigs on lower specification creep-link diets and move them onto the subsequent diets faster than we do.

Weaners are moved at a much lighter weight on to finisher feed (26 kg) when compared to our transfer weight (38kg). This automatically lowers the specification and the cost of the diet faster than in our system. Moving pigs onto finisher feed faster reduced the overall feed cost by 1.7c/kg dwt sold.

Table 4. *Effect of a lower transfer weight to finisher stage on feed cost. Source: Interpig*

	Netherlands	Ireland	Diff
Transfer weight to finisher	25.9	38.4	12.5
Extra kg feed used (12.5kg * 2.1 FCE)	-	26.25	
Cost differential (weaner vs finisher feed) / pig	-	€1.58	4.7
Cost differential per kg dwt sold c/kg	-	-	1.7

The Dutch finisher FCE is significantly better than ours, especially when one considers their higher sale weight and that they produce a significant percentage of castrates. To estimate the effect of their superior finisher FCE it is necessary to estimate the weaner and finisher feed usage/cost together and then subtract the financial saving (1.74c/kg) from transferring earlier onto the finisher diet (Table 4). The total saving arising from the superior Dutch finisher FCE is 8c/kg dwt sold.

Table 5. *Effect of superior Dutch finisher FCE on Total feed cost. Source: Interpig*

	Netherlands	Ireland	Diff
Weaner Feed cost c/kg dwt	16.5	33.2	16.7
Finisher Feed cost c/kg dwt	99.5	92.5	-7*
Total weaner-finisher cost c/kg dwt	116	125.7	9.7
Effect of superior finisher FCE on total feed cost (9.7 – 1.74) c/kg			8

* *Irish finisher feed cost is lower due to our higher finisher start weight and lower sale weight.*

Conclusion

Using a feeding strategy to chase maximum performance may not generate the greatest profit. Alternatively, a higher sow output and a change in our feeding philosophy by lower feed specifications in early life to benefit finisher stage FCE later, could reduce our feed cost by up to 14c/kg dwt sold and thereby make the Irish pig sector more cost competitive.

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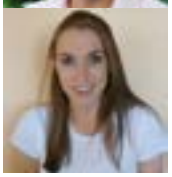

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