

Editor: Ciarán Carroll

Welcome to September's Newsletter

Ciarán Carroll



Welcome to the September edition of our monthly newsletter. Pig prices and margins remain under pressure, but at least there was some positive news with the recent 4cent/kg dead weight rise in pig price and the hope of more to come. Thankfully feed prices have steadied some bit. The Pig Development Department (PDD) had a very busy month which started with a series of Cost Reduction Pig Seminars at Ballyhaise, Portlaoise and Moorepark. The seminars were well attended and PDD provided plenty of food for thought on how producers should focus inside the farm gate to help reduce production costs.

Next up was the National Ploughing Championships at Scraggan in Tullamore, with PDD well represented at the Teagasc marquee each day. The stand was busy throughout the three days and once again we were delighted to have President Michael D. Higgins and his wife, Sabina visit us to get an update on production performance.

We finished the month with the start of the new Pig Farm Managers Course at Portlaoise. With 20 students enrolled the first two days of the course proved very informative and the feedback from those attending has been very positive. We look forward to working with this group over the next 12 months.

Finally, our annual Pig Farmers' Conference is just around the corner (23rd October at Cavan and 24th October at Horse & Jockey). This year our guest speakers are Dr. Chantal Farmer, a research scientist in sow lactation biology with Agriculture and Agri-Food Canada at Sherbrooke Research & Development Centre in Quebec, Canada and Carlos Piñeiro, PigChamp-Pro-Europa who will look at selection and management of sows based on data analysis.

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- **Factors Affecting Piglet Growth & Behaviour**
- **All-in/All-out – what am I really doing?**

Shining a Light on Autumn Infertility

Michael McKeon

The occurrence of autumn infertility for breeding pigs is well documented. The effect of reducing autumn daylight hours is registered in the pineal gland within the pig's brain and this controls the release of the melatonin hormone. Increasing hours of darkness (as winter approaches) increases the production of melatonin which reduces fertility especially farrowing rate, by up to 10%. The aim of your lighting programme therefore is to inhibit/reduce melatonin production.

Some things you may not know!

1. In trials a 12hour light : 12 hour dark lighting regime increased melatonin production (not good) in 75% of sows, some by 300-500%. Whereas a 16 hour light : 8 hour dark did not increase melatonin (good!)
2. If the light intensity is 80 lux or below then the sow can't distinguish that its light and melatonin increases. Humans require a minimum of 200-500 lux to register sufficient light and pigs are similar, therefore lighting in female pig housing should be at 300 lux.
3. The effective lux from pig lighting can reduce by 50% if light covers are not cleaned regularly (every 6 months).



4. The timing of first light in the morning is as important as the lux level and light duration. Research

in humans has shown that the light intensity when we wake-up indicates on-set of winter and re-sets our circadian rhythm. It is important that pig house lighting begins at 5.30am each morning to ensure a set first light.

5. Farrowing houses must be on full lighting for 16 hours/day. This will reduce infertility and also increase udder stimulation by piglets thereby increasing milk yield by 10-15%.

6. Females in housing with windows and skylights have a much higher risk of autumn infertility so a good lighting regime in these houses is essential.

7. Don't forget about lighting in your maiden gilt housing. Insufficient gilt lighting causes higher anoestrus (not cycling) levels or delayed first heat by 7 – 10days.

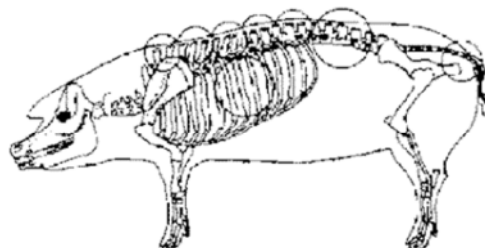


In conclusion it's worth shining a light on your lighting programme! Get timers for service, dry sow, farrowing and gilt housing. Set lighting for 16 hour duration, beginning at 5:30 am. Clean light covers to help achieve 300 lux light intensity. Get your Teagasc Pig Specialist adviser to check your lighting lux level.

Body Condition – Know the Score


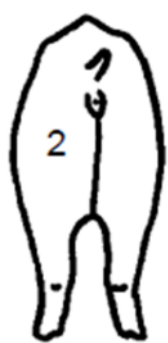


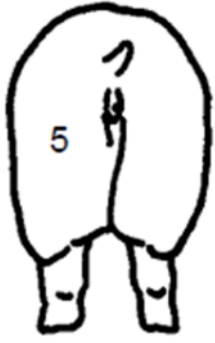
Emer McCrum

Body Condition Scoring is a simple yet effective management tool which can contribute significantly to the accurate management of sows in each stage of production. A critical aspect of successful swine reproduction is managing sows to ensure they don't gain or lose too much weight or body condition between parities. Underfeeding or overfeeding sows can lead to fluctuations in body condition which in turn can negatively impact upon farrowing performance, rebreeding potential, culling rates and sow welfare. In addition, the economic impact on annual feed costs of poorly managed sow feed usage can be substantial. For example, feeding dry sows an additional 200g per day on a 500 sow unit will increase the annual feed bill by over €7,500. Accurate sow feeding and maintaining optimum body condition of the breeding herd will give you a better handle on annual feed budgets and ultimately a more consistent lifetime reproductive performance.



Source: QDL Dept. Agriculture and Fisheries

Body Condition Scoring is an easy technique to learn, it requires a minimum amount of time and doesn't involve the use of any specialised equipment. The system is both an estimation of the fat stores of the sow and an indication of the animals overall muscularity and so requires a combination of both visual appraisal and feel.

				
Emaciated	Thin	Ideal	Fat	Over fat
Individual ribs, hips and backbone are visually apparent	Ribs, hips and backbone are quite easily felt when pressure is applied	Ribs, hips and backbone can only be felt when pressure is applied	Ribs, hip and backbone cannot be felt even when the pressure is applied	Ribs, hips and backbone are heavily covered and fat deposits are clearly visible

Scoring 'by eye' alone is not sufficient as handling the animal is essential in order to get an accurate assessment of condition. For this reason, it is often more convenient to combine condition scoring with other routine activities such as breeding and vaccination to save time.

The sow is scored on a scale from 1 (emaciated) to 5 (over fat) using a visual assessment and hand pressure at key points on the sow's body. The points on the animal's body palpated during condition scoring are areas where the only tissue between the skin and the bones is fat tissue. These areas include the ribs, back bone and pin bones and it is important to check more than one of these areas to get a good overall assessment of body condition.

A score of 1 to 5 is then assigned to each sow based on the ease or difficulty of detecting bones under the skin at the various pressure points listed above. The table below details the physical appearance of sows and describes the ease or difficulty of detecting bones at the key points for each score.

Sows should be scored at key times throughout the reproductive cycle such as breeding, mid-way through gestation and pre farrowing. Producers should aim for an average body condition of 3 throughout the herd with the majority of sows falling into the middle scoring range. To cover this range sufficiently, half scores may be used (1.5 to 3.5). In practice, very few extreme scores (1 or 5) will be found on well managed herds. As a rule of thumb, sows should enter the farrowing room with a score of 3 to 3.5 and complete

a four week lactation with a score of 3 to 2.5 as a minimum. Aim for sows to attain a score of 3 by mid to late gestation and maintain this until farrowing. Sows with a condition score of 3 at farrowing have adequate reserves to withstand a heavy lactation, but not so over-conditioned that they will experience farrowing difficulties or reduced feed intake. Sows with a score of 3 on entry into the farrowing room should milk well, eat well and have a score of 2.5 at a minimum at weaning which will lead onto a prompt return to oestrus.

A sows' body condition is a critical factor affecting her lifetime productivity, longevity, health and welfare. Body Condition Scoring is an effective management tool to ensure appropriate nutrition is provided to each sow for growth, maintenance, reproduction and lactation. Aim to achieve an average score of 3 throughout your breeding herd and minimise any variation within scores. An optimum and steady herd body condition has many advantages in productivity and profitability over time.



Score 1



Score 3



Score 5

Investigating factors that affect piglet growth and behaviour

Keelin O'Driscoll, Jen-Yun Chou and Dominique Grocott

Management and sow factors during lactation can have a long term effect on the performance and behaviour of piglets. This year, we carried out some detailed work in the farrowing rooms to try and identify factors that affect piglet growth and behaviour pre-weaning, and can thus affect weaning weight.

This experiment was carried out in the Moorepark unit between March and July of 2018. Twenty-four sows and litters, which farrowed in two batches (12 sows per batch) were used. At 7 days of age piglets were weighed, and litters were then randomly allocated to one of two treatments: 1) Control (n = 10 pens) and 2) Enriched (n = 14 pens). The Control treatment was not provided with any further enrichment other than rope for the sow. Piglets in the Enriched treatment were provided with four additional types of enrichment which were introduced to back of the farrowing pens at weekly intervals; at d7 a hessian sack and coconut basket were provided, at d14 a rubber chew toy was introduced and at d21 a stick of bamboo was added. Three focal piglets were selected per litter based on their location on the udder; the front, middle or back teats for detailed behaviour observations. To identify preferred teats, each sow was observed nursing her piglets four times, twice in the morning, and twice in the afternoon.

Measurements

Piglets were weighed once a week on day 7, 14, 21 and 28 of lactation. Focal piglets were scored

for body lesions just before and after weaning. The frequency of cuts counted for the front (face, snout, ears, front legs and shoulder), middle (back and sides) and hind regions (hips, legs, hind and rump). Their behaviour was recorded on days

14, 15, 19, 20 and 21, by observing them for five minutes twice on each day for biting, nosing,

play, rooting and aggressive behaviours. As well as this, 8 times a day the number of piglets in each area of the pen (wide creep area, narrow creep area, sow area, enrichment area) and whether they were active or inactive were counted. Sows were video recorded during weeks 2 and 3, and 16 hours per sow watched to investigate nursing behaviour.

Results

Effect of piglet position on the udder

When it came to average daily gain (ADG) we found that piglets from smaller litters did significantly better than the larger ones. As well as that, piglets from the front of the udder had a greater ADG than the ones at the back or the middle. As expected, body lesion scores were much higher after weaning than before, especially the front of the body, due to fighting. However, we also found that piglets at the front of the udder had higher lesions than those at the back, with the middle piglets in between, and the ones at the front also performed more tail biting behaviour than the others. This suggests that these piglets might be able to maintain their position at the front through a combination of

negative behaviours and a bigger body size. These piglets also tended to spend more time nursing in total, whereas piglets in the back position tended to nurse more often than those in the middle or front. It's possible that the hind teats, if they are less productive, could be less rewarding than the ones at the front.

Effect of enrichment

PIGS

Harmful behaviours (tail and ear biting and belly nosing) tended to be performed more in the barren pens than the enriched ones, whereas positive behaviours (play, interacting with enrichment) were performed much more often in the enriched pens than the barren. Piglets in the enriched pens spent more time overall, and more time active, in the enriched area, and less time in the creep areas than ones in the barren pens. In general piglets were in the sow area mostly when they were nursing or resting after nursing

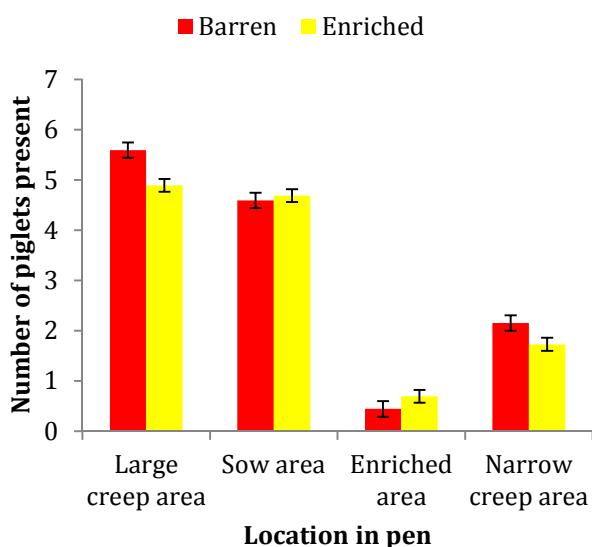


Figure 1. Location of the piglets in the enriched and barren pens

Effect of the sow

We found that for some sows the piglets had to nose at the udder for significantly longer before milk let down started. The amount of nosing behaviour was higher in litters with more piglets and sows of lower parities. When there are more piglets at the udder it might take them longer to get into the correct position at the start of nursing, thus extending the nosing time. A higher ADG was associated with less time nosing the udder prior to let down. This could be because the piglets had to spend less energy on nosing at the udder.

Take home message

- Average daily gain was improved in smaller litters, in piglets at the front of the udder, and in sows that let down milk more quickly. A faster milk let down was also seen in sows with fewer piglets. Litter size should be managed so that the number of piglets does not exceed teats
- Piglets at the back of the udder appeared to be slightly disadvantaged in their growth, but had less fight marks and performed less tail biting than those at the front, indicating that other aspects of their welfare was good.
- Provision of enrichment will help to reduce negative behaviours, increase positive ones, and distribute piglets more evenly throughout the pen.

Dominique Grocott carried out this research as part of her MSc in Applied Animal Behaviour and Animal Welfare with University of Edinburgh. Dr. Rick D'Eath (SRUC) co-supervised the MSc.

All-in/all-out or continuous flow - what am I really doing on my farm?

Julia A. Calderón Díaz

In the recent BIOCHECK survey that we conducted in 79 Irish pig farms, 87.3% and 84.8% of farms claimed to practice a strict All-In/All-Out (AIAO) management in each pen of the weaner and finisher facilities, respectively. However, in 33.3% and 20% of these farms older pigs are sometimes mixed with younger pigs during the nursery and finisher stage, respectively. These results suggest that in fact a strict AIAO management policy is not truly applied in Irish farms. AIAO production has several advantages for pig production systems such as reduced disease transmission and improved management and growth performance. There are several reasons preventing farmers to adhere to a strict AIAO management such as the lack of specific facilities to house slow growing pigs, lack of rooms and/or pens identification (i.e. age group, weaning date, date on arrival to that particular stage, etc.) and the re-introduction of animal coming from the hospital back into the normal production flow. Thus, the production system follow more resembles a continuous flow rather than an AIAO management system. It is also possible that the concept of a true AIAO management is not fully understood. Therefore, it is valid to ask what is an AIAO management system? How does it differ from a continuous flow? And, what I am really following in my farm!? A summary of both management systems is presented in Table 1.

AIAO

In a true AIAO system, groups are matched by age, weight, production stage and health status in a way that pigs from different **groups never mix**. Each group is **moved into** the next production stage **together** and **moved out** of that production stage also as a group according to a **set production schedule** so that the facility is **completely emptied** before the next group arrives. In an AIAO system, slow growing pigs should only be allowed to accumulate off-site.



Figure 1. In AIAO systems, pigs move together through the production stages.

In the farrowing house, AIAO contributes to the prevention and treatment of diseases in piglets such as diarrhoea. Additionally, as pigs are of similar age, their immune system is similar. In the weaner stage, AIAO facilities better control of the pigs' environment; for example, room temperature can be set up to meet their needs. Disease control is also improved during the weaner stages by following an AIAO by allowing facilities to be cleaned and disinfected contributing to the reduction or elimination of contaminants from the previous group. During the production stage, AIAO systems improve feed efficiency and average and daily

gain and body weight at sale specifications can be met by the whole group. Additionally, it reduces the occurrence of respiratory diseases by preventing nose-to-nose contact and the sharing of air space between pigs of different age groups.

Continuous flow

In a continuous flow pigs are **moved as individuals**, they are not matched by age although some farmers would try to closely match them by size/body weight. Additionally, the facility is never completely emptied because pigs are always moving through it. Therefore, animals from **different age groups are mixed**.

them in and out of the different stages as a group and completely emptying the rooms before the next group arrives **you are not doing AIAO** in your farm.

Table 1. Comparison between different characteristics of all-in-all-out and continuous flow management systems

	All-in-all-out	Continuous flow
Groups matched by age/weight	✓	✗
Pigs move as group	✓	✗
Pigs move as individual	✗	✓
Facilities completely empty before next group arrives	✓	✗

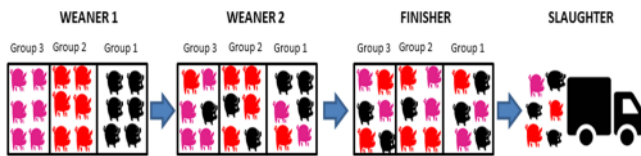


Figure 2. In continuous flow systems, pigs move as individuals through the production stages.

In the farrowing house and throughout the subsequent production stages, continuous flow often facilitates the spreading of diseases and it serves as pathogens reservoir as pigs’ immune systems are different. Additionally, as animals are housed in mixed age groups, feed efficiency and average daily gain are reduced as the nutritional requirements of all pigs cannot be met. This leads to some pigs having to remain extra time in the different production stages to meet the body weight at sale specifications to go to slaughter increasing production costs.

In conclusion, if you are not matching groups of pigs by age, avoiding mixing different age groups, moving

VIPs at the National Ploughing Championships



President Michael D. Higgins and his wife Sabina (photograph above with Peadar Lawlor, Moorepark and Emer McCrum, Ballyhaise) visited our stand at the National Ploughing Championships again this year to get an update on pig herd performance in Ireland.

Pig Farm Managers Course

The new Teagasc Pig Farm Managers Course commenced last week in Portlaoise, with 20 students enrolled. A very successful two days started the course and we look forward to working with this group over the next 12 months.



Pig Farmers' Conference 2018

Our annual Pig Farmers' Conference 2018 takes place on 23rd October at Cavan and 24th October at Horse & Jockey. We have two guest speakers this year. First up

is Dr. Chantal Farmer, a research scientist in sow lactation biology with Agriculture and Agri-Food Canada at Sherbrooke Research & Development Centre in Quebec, Canada. Dr. Farmer will discuss milk production and mammary development in pigs. Our second guest speaker is Dr. Carlos Piñeiro, PigChamp-Pro-Europa who will talk about the "super sow" looking at selection and management of sows based on data analysis. Put the dates in your diary now!

African Swine Fever

Following on from my article in last month's newsletter, there have been further worrying developments, with confirmation of ASF in wild boar in Belgium. This highlights the importance of vigilance and being ultra-careful with our biosecurity, both at an external level and within our farms. Check the following link for updates on ASF: <https://www.agriculture.gov.ie/animalhealthwelfare/>

Student Success

Congrats to our Walsh Fellow Student, Alberto Torres Pitarch, who has successfully finished his PhD project at the Pig Development Department. Alberto investigated feed enzymes as means of improving feed efficiency in pigs. We wish him well in his new position with Trouw Nutrition back in Spain.

Slurry Spreading Deadline

The deadline date for spreading slurry has been extended by two weeks to the 30th of October in the hope that grass growth will extend later in into the Autumn/Winter after the very dry summer conditions.



For more information

This newsletter was edited by Ciaran Carroll, Teagasc, Moorepark, Fermoy, Co. Cork. For more information on any of the newsletter content please contact Ciaran at ciaran.carroll@teagasc.ie or 025-42458.

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