

Editor: Ciarán Carroll

## Welcome to the May Newsletter

Ciarán Carroll



Welcome to the May edition of our monthly newsletter. What a difference a month makes!! Last month I led with the line that *“It’s hard to credit that it’s taken so long to finally see a price rise, but the recent 4 cent/kg is very welcome*

*indeed and comes with an expectation of more.....”* Thankfully more came, and it looks like there’s still more to come. From October 2018 to March 2019 the Teagasc Pig & Feed price monitor showed a static €1.40 cent/kg deadweight. This rose to €1.51 in April and €1.69 in May. Currently prices are in the high €1.70s but there’s an 8-10 cent/kg variation in price being paid so make sure you’re getting the best deal possible when you talk to your processor.

Obviously the ASF crisis in China is a major contributor to the price rise but it’s also being helped by the drop in Irish pig supply, which has fallen by 4,000 – 5,000 pigs per week (ROI & NI). The situation in China is difficult to verify for certain but the latest forecasts indicate a 25% - 35% decrease in sow numbers there, down 9.25 million sows (there’s only 12 million sows in the EU). EU exports to China have doubled in the last two months, aided by the ongoing trade war between China and the US, with the pork tariff gone from 12% to 60% on US pig meat imports into China.

This change in our fortunes has come on the back of Chinese misfortune with ASF, so never has it been more important for us to be vigilant with regards to biosecurity as we strive to make sure that we keep ASF out of Ireland. Minister Michael Creed issued a welcome press release giving advice to the public about ASF and what Irish people and visitors to Ireland can do to prevent the introduction of this very serious disease into the Country. He summed it up well when he said that *“while we have some advantages in that we are an island, there is no room for complacency here”*. We must continue to emphasise biosecurity on our farms at all times.

### In this issue:

- Empty Days – a real Cost!
- Research Update: pre-weaning mortality in free-farrowing pens
- EU PIG Ambassadors 2019
- Seasonal Advice

## Empty Days - a real cost!

Louise Clarke, Ballyhaise

### Empty day-what are they?

Empty days or non-productive days (NPDs) can biologically be defined as “any day a sow or gilt of breeding age is present in the herd and is not either gestating or lactating”. Non-productive days should be considered as one of the most important influences on breeding herd efficiency as they can directly affect unit profitability due to their influence on the number of pigs sold. If overall output is reduced, the number of sales will decrease and therefore the overhead cost per pig will increase. Therefore it is imperative to pay particular attention to NPDs. One factor that affects NPDs is “NIPs”, meaning sows and gilts that are assumed pregnant but actually are not in pig.

### Common cause of NIPs

Some of the common causes of a high level of NIPs are repeats and abortions.

Repeats- Ideally less than 10-12 % of sows/gilts served should be repeats, with less than 5% being due to failure in detection. A high level of repeats may be associated with urogenital tract infection in sows seen as discharge about 2 week after service. Problems with a high level of repeats should be considered in conjunction with the assessment of sow condition at different stages but especially at weaning. Repeats can come in two forms: regular and irregular

#### **Regular repeats**

- Occurs 19-23, 40-44 days after service and should account for 2/3 of total repeats. Some of the factors associated with regular repeats are boar infertility, damaged or dead semen used for A.I., single service timed incorrectly and unsupervised services.

#### **Irregular repeats**

- Occurs outside of 19-23, 40-44 days after service and are usually associated with sow failure i.e. embryonic mortality. Irregular repeats should not exceed one third of total repeats.

Abortions – There are numerous reasons why a sow may abort but some of the most common are disease, injury and environmental stress. Lameness and pain, particularly from abscesses in the feet or leg weakness can also cause abortions due to stress. Sow mortality in late pregnancy has major implications on empty days as the entirety of her pregnancy will be classed as empty days because no litter was produced.



### Cost associated with increase in empty days?

Many people believe that a good farrowing rate alone indicates good productivity and sow performance. However a sow herd can have a good farrowing rate but still be inefficient especially if ‘repeats’ (NIPs) are occurring late in pregnancy. Below are tables which show the opportunity cost of not identifying NIPs early while still having a good farrowing rate. If we analyse a single week of services through to farrowing on two 600 sow units; unit A has a poor/high number of empty days and unit B has a good/low number of empty days. On both units 30 sows were served and if we assume that they will have a gestation length of 115 days, a lactation period of 28 days and a weaning to service interval of 6 days, this gives a total of 149 days in a sow’s cycle. On both units 27 of the 30 served sows farrowed giving a 90% farrowing rate.

## PIGS

POOR HERD – UNIT A						
Number of Sows	Gestation days/ sow	Lactation days/ sow	Return to service days/ sow	Other empty days/ sow	Total days/ sow/ litter	Farrowed
27	115	28	6	-	149	Yes
3*	115	28	6	80	229	No
Average/sow	115	28	6	8 (240/30)	157	-
<b>Average Litters /sow/year</b>					<b>2.32 (365/157)</b>	

\*NIPS at 80 days

GOOD HERD – UNIT B						
Number of Sows	Gestation days/ sow	Lactation days/ sow	Return to service days/ sow	Other empty days/ sow	Total days/ sow/ litter	Farrowed
27	115	28	6	-	149	Yes
3*	115	28	6	21	170	No
Average/sow	115	28	6	2.1 (63/30)	151.1	-
<b>Average Litters /sow/year</b>					<b>2.42 (365/151)</b>	

\*regular repeats at 21 days

This results in litter per sow per year of 2.32 and 2.42 respectively even though both herds have an excellent farrowing rate of 90%. So what will be the cost of this difference?

If we assume the average weaned/litter is 12.2 and each unit had a combined post weaning mortality of 4% then:

- **Net alive per litter:** 12.2 weaned – 4% mortality = 11.71 pigs sold per litter
- **Pigs sold / year @ 2.42 litter/sow/yr:**  
2.42\*11.71\*600 sows = 17,002 pigs / year sold
- **Pigs sold / year @ 2.32 litter/sow/yr:**  
2.32\*11.71\*600 sows = 16,300 pigs / year sold
- **Difference in pigs sold per year = 702 pigs**

If these missing pigs had been brought to slaughter (88kg dwt. @ €1.80/kg), then this equates to €111,197 in lost sales revenue in a year.

### What can you do?

There are many causes of NIPs as highlighted above however good management plays a vital role in reducing the number of NIPs in your herd. Some

aspects to consider in terms of management are the following:

- **Accurate record keeping:** Accurate individual identification of sows and sow groups allows you to concentrate on these pens at 21 and 42 days post service. Some of the information you need to record on your service record card includes; Sow no., date weaned, date served, expected farrow date. Any other observations (e.g. bleeding, previous abortions, etc.)
- **Observation throughout gestation:** Attention to service must include ensuring that mating is successful and occurs at the correct time, that semen quality is adequate and that no post-mating discharges occur. Careful observation of sows from day 14-15 after service for signs of slight discharge or sticky mucus and identify or highlight any sows in which this is seen as they are likely to return. Walk a teaser boar through the dry sow house daily to check for served females on-heat/repeating concentrating in particular on served gilt pens and groups three and six weeks post service.

- **Pregnancy testing:** One opportunity to reduce NIPs is by pregnancy testing. Early and accurate identification of pregnant and non-pregnant sows and gilts in combination with accurate individual sow recording can allow earlier identification of repeats or abortions which will help to improve reproductive efficiency in your herd.



- **Lighting:** Low lighting will trigger higher level of repeats and abortions at any time but especially in the autumn as the pineal gland (light sensor) within the sow's brain has an effect on the progesterone hormone. Lighting in female pig housing should be at 300 lux. To maintain a viable pregnancy requires constant daylight length. Ideally this should be 12-16 hours per day, beginning at 6am. It is important that the covers of the lights are regularly cleaned (every 6 months) as dirty covers can reduce the effective light intensity by 50%.



- **Temperature:** Wet, damp environments or high air movement cause chilling and increase demands for energy. Ensure that the service house is dry and warm (21-22°C). Use a max/min thermometer to assess the room temperature at night. Remembering that if the tank is deep and empty which may cause under slat air drafts this will not be picked up by min/max thermometer. On a windy day do a smoke test over some of the slats to see if there is upward draft from tank.

- **Aggression:** Aggression between unfamiliar pigs is a natural behaviour and will establish and maintain dominance in relationships. However, during the formation of the new social groups aggression can be intense and may result in stress and injuries (lameness). High levels of aggression may occur when mixing your sows in the dry sow house and can negatively affect your NIPs. Only move sows and gilts within 2 days or after 28 days post-service. Ensuring that the sows have feed in the trough on entry into the dry sow house may reduce the level of aggression. To help identify if aggression after mixing is having a negative impact pregnancy scan to assess the effect of fighting/mixing – ideally at feeding time to make the job easier.

In conclusion, a high level of NIPs will significantly increase your number of empty days even when you have a high farrowing rate. While the days involved in gestation and lactation are effectively fixed, the key to increasing your efficiency is to improve your NPDs and management plays a vital role in doing this. Therefore monitoring and minimising NPDs is one of the most important aspects of sow management after breeding.

## Research Update: What affects pre-weaning mortality in Free-Farrowing pens?

Keelin O'Driscoll & Orla Kinane

There is growing interest both in Ireland and internationally in managing lactating sows and piglets in pens that allow them more freedom of movement than the traditional crate. In fact, in Denmark, the plan is to have 10% of the national herd in free-farrowing crates by 2021, and there has been a recent large scale study investigating 10 different loose pen designs. However, although the idea of providing more freedom of movement, and space, is a nice one for the pigs, and could be important when considering consumers and the market for high quality pig meat, unless loose pens are well designed and managed, there can be significant problems with piglet mortality. Irish pig farmers perform extremely well internationally when it comes to keeping pre-weaning mortality figures low; the 2017 PigSys figures showed an average of 10.7%, with the top 10% of farms having a figure as low as 9%. This compares extremely well to the 2017 figures from Denmark (13.6%), Germany (14.9%), Spain (13.7%), the Netherlands (13.4%) and France (14.4%). Maintaining these low levels will be extremely important to remain competitive, so investigation on how to do this in a free farrowing system is something that we have been looking into in Moorepark.

Since last September, 30 sows have gone through the free-farrowing crates which we installed in the new unit, and we matched these with 30 similar sows (parity number, previous born alive, locomotion score, weight and back-fat) in the standard ones. In the free-farrowing pens, there was a crate so there was the option to keep the sow confined. To protect the piglets, we used this

day and night from when she started producing milk, until three days after farrowing. We also used it only at night after the sows had been in the pens for about 4 days, to gradually get them used to being confined. One of the main aims of the study was to see how the two different systems affected the amount, timing, and cause of mortality.

### Overall mortality and piglets weaned

We can report that there was no significant difference in the % of piglets weaned from the free-farrowing pens, compared to the control (Table 1). Nevertheless, the overall percentage mortality across both treatments was quite a bit higher than the national average, at 16.1%.

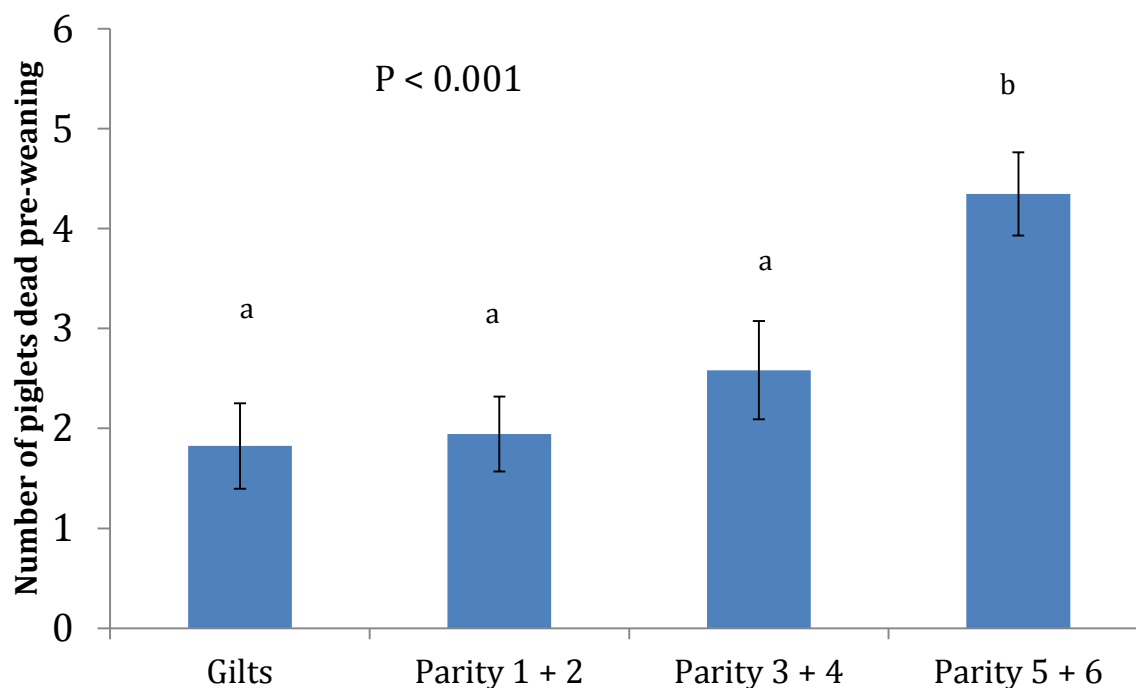
Table 1. Litter size, and % piglets weaned from the two treatments in the experiment.

	Free-farrowing	Control
Litter_size (after cross-fostering)	14.2 ± 2.0	14.5 ± 1.8
% weaned	82.8 ± 2.0	84.8 ± 2.0

To see if we could determine the reasons for the deaths, we delved a bit deeper into the data. The sows on the trial ranged from gilts to parity 6 and we noticed that there appeared to be a pattern whereby mortality increased with parity number. We condensed the animals into four groups – gilts (14), parity 1 and 2 (17), parity 3 and 4 (11) and parities 5 and 6 (17). When we compared the number of piglets that died pre-weaning, we found that indeed, parity had a significant effect.

Sows of parity 5 and 6 had significantly more piglets die before weaning than lower parities.

**Figure 1.** The number of piglets which died pre-weaning broken down by sow parity.



#### Age, and cause of death

In total, 147 piglets either died, or were removed from the trial due to hunger/failure to thrive. Out of these, we knew the day, and cause of death (categorised as Crushing, Hunger or Euthanised for low-viability or injury) for 114 of them. Figure 2 shows how this broke down between the treatments. In summary, when it came to crushing, in the control treatment there were fewer piglets crushed from day 4 onwards, as is to be expected. However, in the free-farrowing pens, the number of piglets crushed increased after the crates were opened on day 3. Nevertheless, when it came to other causes of death, these were lower in the free farrowing treatment, with the opposite pattern ( $P = 0.1$ ). This indicates that for the piglets which don't get crushed, there were likely fewer health and welfare problems during the lactation period in the free farrowing treatment than the standard crate. This was particularly

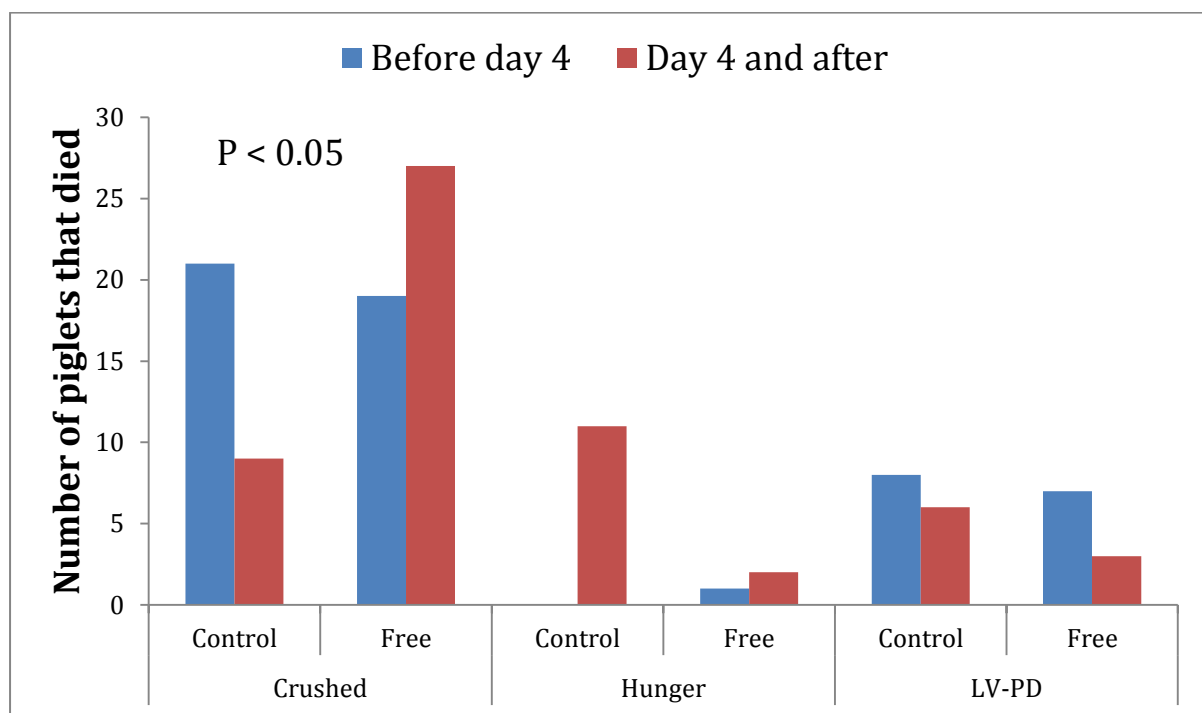
evident when considering mortality due to hunger. Although the numbers were too low to analyse statistically, mortality due to hunger was evidently more prevalent both before and after day 4 in the control treatment. This data ties in with piglet weight data we collected during the trial (presented at the 2019 Research Dissemination Day), where we found that piglets in the free-farrowing treatment had a greater average daily gain, and weaned a kilo heavier, than piglets in the control treatment. These data suggest that sows in the free-farrowing treatment are better equipped to feed their piglets.

Although our study was extremely small compared to most in the literature, where 100's of sows are often used to gain reliable data, the patterns of greater mortality as parity number increases, and more crushing but fewer other causes of death in free-

farrowing systems, are in agreement with previously published work. Thus if crushing can be controlled, it appears that free-farrowing systems could have benefits for the pigs and producer. There is evidence from other research that sows that have experience of rearing piglets in free-farrowing systems from the first litter crush fewer piglets than sows which have previous experience of a

crate, so it is possible that the gilts in this experiment will perform better in the free-crates in the future, than the sows which we used. Overall, during the past 8 months in the Moorepark unit sows in our free-farrowing crates have performed as well as the traditional crates. We will continue to monitor them during the coming years.

**Figure 2.** Causes of mortality in both treatments before day 4 (when crates were closed in both treatments) and after day 4 (when crates were open in the free-farrowing treatment).



## The Back Page



### 2019 EU PiG Ambassadors

Zinc alternatives, using big data and community management are among the winning best practices of the 2019 EU PiG Innovation Group (EU PiG) Grand Prix. Eight pig producers from across Europe have been awarded the title of EU PiG Ambassador to recognise their innovation in pig production. For the second time in three years we are happy to report an Irish winner. Congrats to Shane McAuliffe, pig producer in Kerry who won a best practice award in the “Opening Farms to Engage with the Public” challenge.

The Grand Prix is an annual competition which aims to identify and share innovative practices in pig production throughout the European network of pig producers, and beyond. The EU PiG project has received funding from the European Union’s Horizon 2020 research and innovation programme.

EU PiG coordinator Ben Williams, of AHDB in the UK, said: “Congratulations to the 2019 EU PiG Ambassadors. The full details about how each of the ambassador’s innovations work in practice will soon be provided on the website.”

“Fundamentally, this competition is about connecting pig producers, creating a European network where new information and experience can be shared

directly. This aims to ensure an ever more efficient and competitive industry.”

“Using the EU PiG platform, producers are able to learn about the ideas and techniques used effectively across Europe to help improve the efficiency and sustainability of their own farm.”

### Seasonal Advice

With the warmer months of summer approaching (hopefully!!) it is an apt time to give your ventilation system an overhaul as a ‘stitch in time, saves nine’. Dirty fans reduce their effectiveness and can increase energy usage by up to 25%. In addition due to low/no profitability over the last two years routine repair and maintenance ‘slipped’ on many pig farms. Faulty ventilation controllers, broken winches and stretched inlet flap cords will all reduce the ability to maintain steady temperatures in houses. Increased in-house temperatures will significantly reduce feed intake. As a ‘rule of thumb’ one degree celsius above the optimum temperature will reduce heavy finisher intake by 150g/day. Therefore a finisher house running at 26C (+5c) will reduce daily feed intake by 750g/day, on a FCE of 3:1 this would equate to reduced growth of 250g/day or 1.7 kg’s growth per week. On a 600 sow unit this would equate to €980 in reduced income per week. So it’s well worth doing some ‘stitching’ now!



## For more information

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