

Editor: Amy Quinn

Welcome to June's Newsletter

Amy Quinn



the horizon.

As mentioned last month the Teagasc Pig Sector Survey is now live. This survey will gather basic information on all Irish units in order to keep us up-to-date with herd size and management practices on farms. A link to the survey and further details can be found later in the newsletter. If you have yet to complete the survey please do so at your earliest convenience or alternatively please contact your Specialised Pig Advisor and they would be happy to complete it for you.

Let's talk pigs, Teagasc's new pig webinar series will launch on June 26th at 1pm. This fortnightly webinar series has been scheduled to best facilitate producers and staff on their lunch break. The first episode is with Richard Keegan,

Lean expert, with a presentation on "Becoming Lean – A Guide for Pig Farmers". Further information on how to register and the webinar schedule can be found later in the newsletter.

Our Podcast series, "The Pig Edge" has now released 6 episodes to date, with many more topics and speakers lined up. The series has been well received by the industry. All episodes are available on our website, the iTunes store and Spotify, and a new episode is released fortnightly.

If producers require an urgent advisory visit please contact your Specialised Pig Advisor and they will be more than happy to oblige.

In this issue:

- Weaning to service interval
- African Swine Fever update
- Sow feed additive to increase progeny carcass weight

A focus on weaning to service interval

Emer McCrum

Litters per sow per year (LSY) is a calculated figure denoting the number of times, on average, the sows in a herd farrow each year. This economically important Key Performance Indicator (KPI), which may also be referred to as the farrowing index, is an evaluation of the reproductive performance of sows in a herd. LSY is determined by the length of pregnancy, length of lactation, weaning to service interval and the number of non-productive or empty days. As there is little we can do to change the first two components, there is an opportunity to improve LSY by focusing on the weaning to service interval.

Weaning to service to interval (WSI) is defined as the number of days between the point of weaning and the first service after this weaning. WSI and empty days are closely related as any sow not successfully mated during the first oestrus after weaning will accumulate a number of empty days over the course of the subsequent oestrus cycle, typically 21 days, before she can be mated again. On average the figure for WSI is 6 days so for each sow there will be 6 empty or nonproductive days per full reproductive cycle. The maximum LSY that can be achieved for units with a 28-day weaning age therefore is as follows:

$$115 \text{ (gestation)} + 28 \text{ (lactation)} + 6 \text{ (weaning to service)} = 149 \text{ days}$$

$$365 \text{ days} \div 149 \text{ days} = 2.45$$

This calculation however assumes a conception and farrowing rate of 100% and so is not a realistic target. Repeats and abortions are to be expected to a certain degree on any unit and these factors also contribute to the total number of empty days which in turn will reduce the LSY. Instead, a realistic target of 2.38 LSY allows for a 28-day lactation period, a farrowing rate of 88% and an average of 10 empty days per sow. While repeats and abortions are very important considerations, there are a number of factors that can affect the WSI which are worthy of attention.

Several factors can affect how soon a sow will cycle after weaning including the number of pigs weaned, weaning age, sow body condition post weaning, parity, feed and water intake during lactation, temperature of farrowing room and feed intake from weaning to first service. Good management and attention to detail on each of these points is critical in the WSI and there are a number of additional aspects you should consider.

'Silent heats' in the farrowing house

Also called a lactation oestrus, this occurs when a sow cycles in the farrowing house, most commonly in the last week, and will therefore not be ready for service post weaning instead coming onto heat two weeks afterwards. If you are noticing a lot of 'layer backs' in the service area it would be worth investigating if this is a factor.

Silent heats are brought on as a consequence of a drop in demand for sow's milk which causes an energy surge in the sow and subsequently triggers a heat. A drop in demand for milk can be caused by the over provision of milk supplements or substitutes to the point where piglets reduce intake of sow milk, snatch weaning more than two piglets from an established litter, cross-fostering late in lactation, incorrect vaccination of piglets, mortality of a number of piglets from the same litter and multi-suckling scenarios where a sow is not pulling her weight. Prolonged lactation and the use of a sow at the point of weaning to nurse very young piglets can also trigger silent heats.

The seasonal effect

Seasonal infertility, particularly at this time of year, causes disruption to the reproductive cycle and one common consequence of this is an extended WSI. Essential management factors worth paying close attention to from mid-Summer into early Autumn include the provision of 300 lux of lighting for 16 hours per day beginning at 5:30am in the farrowing house, dry sow and service area and gilt accommodation, accurate record keeping and regular assessment of sow body condition at entry to the farrowing house and at weaning. Ciarán Carroll recently discussed seasonal infertility in detail on The Pig Edge Podcast with plenty of useful information and management tips on the topic that is available on the Teagasc website and podcast platforms.

Lactation intakes

Higher environmental temperatures in the summer months can cause problems with lactation feed intakes which in turn can impact on

the WSI. This problem can start in the dry sow house as warmer temperatures here during the summer months reduce the demand for heat production which can cause sows to put on additional weight and become over conditioned. Sows in strong condition at entry to the farrowing house have a greater risk of complications during farrowing and most notably will have a suppressed lactation feed intake overall as the sow essentially has a lagging jacket of fat making it almost impossible to effectively cool down and be comfortable. A body condition of 3-3.5 at entry to the farrowing house and maintaining the room temperature at 20°C once the youngest piglet in the house is at least 48 hours old will help to promote feed intakes. It is very important to eliminate draughts at piglet level and ensure all heatpads are functioning correctly before lowering the temperature in the farrowing house.

Management of the service area:

Post weaned sows should be fed a high quality ration *ad-lib* until entry to the dry sow house. Dextrose sugar can be top dressed at a rate of 200g per day to sows in the service area and this is particularly beneficial for animals that have lost condition in the farrowing house. While the sugar alone will not improve condition, this readily available form of glucose will boost the blood sugar levels which in turn will help with ovulation rates and reduce 'layer backs'. Hygiene is very important in the service area with regular power hosing and disinfecting recommended. Additionally, slats should be scraped down daily and the area behind the sow kept clean and free from a buildup of dung. As mentioned previously, lighting is extremely important and regular cleaning of the lights will help ensure the sows receive full lighting while whitewashing the walls

of the service area will reflect this light and ensure the space is clean and bright. The WSI is a very important component of the total LSY and any improvement in this area can increase the LSY which will have a positive impact on the output and profitability of the farm. As an example, based on Teagasc National Herd Performance Report 2019, the average LSY in

Ireland was 2.28 producing 26.8 pigs per sow. An improvement in LSY to 2.38 on the same figures would generate 28 pigs per sow which is worth an additional €4,100 per annum to a 500 sow unit for the same period, plus the savings associated with a reduction in the number of empty days. Careful management and attention to detail on the weaning to service interval can pay dividends.

African Swine Fever update

Gerard McCutcheon

The first outbreak of African Swine Fever was reported in India on 21st of May, 2020. It has occurred in a region in the north east of India that borders China. It is estimated that over 60% of the world's pig population is in Asia and the Pacific region. This outbreak brings the total number of countries with ASF to fourteen.

Closer to home in Europe, Belgium has reported ASF in wild boars but not in any domestic pig herds. Outbreaks of ASF have been reported in wild boar and domestic herds in Romania and Bulgaria. More worrying is the 2,487 positive ASF wild boar events recorded from January and May this year and the ASF outbreaks in two domestic pig herds in Poland during this time also. Germany is preparing to erect a solid chain link fence along its border with ASF infected areas of Poland.

Ireland is free of ASF and it is most important as an exporting nation to keep it that way. The ASF virus can survive for months or even years in pork or pork meat products such as ham, sausages or salami. If pigs eat food waste that contains

infected meat it will cause an outbreak of the disease.

It is illegal to feed food waste containing meat to farm animals as it can spread ASF as well as other diseases such as Foot and Mouth disease. Be vigilant in making sure that nobody brings meat products onto Irish pig farms. Always use a secure bin to dispose of waste food so that it cannot be accessed by farm animals, wild animals or wild birds. Keep staff canteens clean at all times and make sure that all rubbish is properly disposed.

For further biosecurity advice, ASF videos, posters and disease updates you should visit the DAFM website at: www.agriculture.gov.ie.



Hard copies (A4 or A3) of the poster developed by Teagasc, the Irish Pig Health Society (IPHS) and Cargill on reducing the threat of ASF are available from your Specialised Pig Advisor and online at:

<https://www.teagasc.ie/media/website/publications/2019/Reduce-the-threat-of-ASF.pdf>

Sow feed additive to increase progeny carcass weight

Peadar Lawlor & Gillian Gardiner (WIT)

In commercial pig production, feed contributes up to 70% of total production costs. Such costs can be further compounded by poor feed conversion caused by sub-optimal nutrition, infection, stress and sub-optimal weight gain. This very often necessitates costly dietary supplementation on a per animal basis. Furthermore, the EU prohibition of routine in-feed antibiotic use and supplementation with pharmacological levels of zinc oxide necessitates the development of alternative sustainable treatments and strategies to support development of a healthy piglet intestinal microbiota and optimal gut health. The availability of a clean-label sow feed additive that promotes robust and durable piglet growth would mean a significant increase in the output and value of saleable meat for commercial pig producers. This is the subject of the ProSwine project which is funded by the Enterprise Ireland Commercialisation Fund (co-funded by the European Regional Development Fund under Ireland's European Structural and Investment Funds Programme 2014-2020).

Technology Description

Research undertaken by Waterford Institute of Technology (WIT) and Teagasc, Moorepark has demonstrated that a microbial strain, which when fed to transition and lactating sows, significantly increased offspring carcass weight.

A feed supplementation trial involving 24 pregnant sows and 144 of their offspring compared the effects of this microbial feed additive on progeny growth when administered



Figure.1 Duodenal histology

daily to the sow over a 6-week period (last 14 days of gestation and the 28 days of lactation) against a control treatment (standard lactation/gestation diet without the additive). Sows and offspring from both groups were continuously monitored, with faecal, blood, colostrum and milk samples collected from sows, and faecal,

gut digesta, gut tissue and blood samples collected from offspring at intervals from birth to slaughter. It was found that supplemented sows produced colostrum with a higher protein content. Piglets born to sows fed the microbial additive demonstrated faecal shedding of the strain while suckling, thereby demonstrating transfer of the microbial additive from sow to offspring. Offspring from supplemented sows also exhibited the following benefits:

- Increased villous height in the small intestine at day 7-8 post-weaning (Fig. 1)
- Better feed conversion ratio (FCR) for the first 14 days post-weaning.
- Increased pig live-weight at day 105 and 127 post-weaning.
- A numerical reduction in pre-weaning mortality (from 15.6 to 10.1%).

Most notably, the improvement in live-weight at the end of the finishing period resulted in an

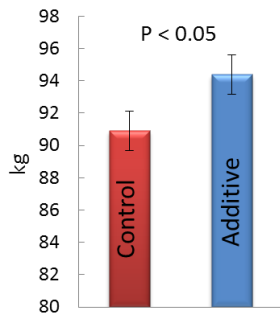


Figure.2 Carcass weight

increased carcass weight, with offspring from supplemented sows being 3.5 kg heavier than offspring from untreated sows (Fig 2).

Opportunity

Sow treatment with this feed additive improved FCR of offspring by 0.17 of an FCR unit during the first 14 days post-weaning. This is a good indicator of improved gut health at this critical period that has been shown to correlate with increased lifetime growth. The 3.5 kg heavier carcass weight, at the same slaughter age, achieved by pigs from the maternally supplemented sows represents a financial gain of €5.39 per pig using a 5-year average pig meat price of €1.54/kg carcass. Based on the fact that a sow produces an average of 26.9 piglets/year this amounts to €144.99 increase in the output value per sow per year. For a typical 500 sow unit, this equates to an economic benefit of €72,495 a year.

Commercial Opportunity

These data suggest that considerable savings can be made when this microbial strain is fed to sows for 6 weeks (2 weeks prior to farrowing and 4 weeks post-farrowing). Competing products are supplemented to sows for the full reproductive cycle. Based on the cost of competing products if adopting a 6 week administration period, for every €1 spent on the supplement, a farmer could expect a return of between €53 and €177 and if fed for the full reproductive cycle, the return would be €21 to €69 for each €1 spent on the supplement.

Further Work

These data provide sound evidence of an improved FCR in the early post-weaning period and increased carcass weight at target slaughter age in offspring from sows fed this microbial supplement. Possible mechanisms of action are improved colostrum quality in sows and increased small intestinal absorptive capacity/gut health in offspring early post-weaning. The second stage of this development program involves determination of mechanism of action and product development. The third stage will necessarily focus on commercial scale efficacy evaluation and scale-up of the manufacturing process coupled with product stability and shelf-life studies in line with market, business and regulatory requirements. It is desirable that such development work be conducted in conjunction with a commercial partner. To this end, we are now inviting expressions of interest from commercial feed additive producers at this stage.

Intellectual Property Status

The intellectual property outlined above is the subject of a patent application (filing no. EP20162860.9) filed on 12/03/2020. Further prosecution of this patent or alternative IP protection strategies will be considered in the context of commercial licensee requirements.

Contact

For further information relating to this technology, please contact; Dr. James O' Sullivan, Technology Transfer Office, WIT, Cork Road, Waterford. (Tel: +353 (0)51 845591; Email: research@wit.ie) or Dr. Karen Dawson, Technology Transfer Office, Teagasc, Oak Park, Co. Carlow (Tel: +353(0)76 11111005; Email: karen.dawson@teagasc.ie;))

“Let’s Talk Pigs” webinar series

Let’s Talk Pigs, Teagasc’s new pig webinar series will launch on **June 26th at 1pm**. The initial 6 webinars will be dedicated to aspects of the Lean Project 2020, funded by DAFM. This project is a collaboration between Teagasc, DAFM and Bord Bia. In the first webinar Richard Keegan, Lean expert, will cover the topic of “Becoming Lean – A Guide for Pig Farmers”. Make sure to register for this webinar at:

<https://www.teagasc.ie/corporate-events/lets-talk-pigs/>.

Each webinar will feature a presentation by a panel of international experts covering the following topics:

- Becoming Lean - A Guide for Pig Farmers
- Biosecurity - the first step to excellent health and performance
- Nutrition of the weaned pig
- Rearing pigs with intact tails
- Antibiotic use and reduction
- Supplementary milk in the farrowing room

The webinars have been scheduled at 1pm fortnightly so we encourage all producers and farm staff to tune in. The webinars will be interactive so all attendees are welcome to put questions and comments to our speakers. Further information, including registration details, webinar schedule and speaker details are available at <https://www.teagasc.ie/corporate-events/lets-talk-pigs/>.

Teagasc pig sector survey

The PDD is carrying out a pig sector survey to gather basic information on all Irish units in order to keep us up-to-date with herd size and management practices on farms. All information



gathered is fully confidential and will not be shared with third parties.

This pig sector survey is available at: <https://www.surveymonkey.com/r/N3Y5NBZ> and we ask that **all farm owners complete a survey for each farm in your control**. Where a farm has a number of finisher sites associated with a breeding site we ask that the associated sites (rented or contract finishing) be included to show that farm as an Integrated herd.

If you have any questions or require any clarification or assistance please contact your Specialised Pig Advisor.

Welcome

The PDD are delighted to welcome two new staff to the Teagasc Pig Research Facility. Aisling Holmes has joined us as a Research Technician. Aisling is a graduate of UCC where she completed a degree in Biochemistry. Following this she returned to college to become a veterinary nurse and has been working in Gilabbey veterinary hospital for several years.



John Condon has joined our farm staff taking over control of the breeding herd and weaner pigs. John is a passionate wildlife biologist who has graduated from IT Tralee. Originally from Mitchelstown with strong farming roots and with over 10 years of experience in the pig industry, he is always eager to gain more knowledge and experience.

For more information:

Please visit our webpage at:
<https://www.teagasc.ie/animals/pigs/>

For any further information on newsletter content please contact the editor, Amy Quinn at: amy.quinn@teagasc.ie or +353 87 3779015