PIGS

October 2021

Edited by Amy Quinn

Welcome to the October edition of our monthly newsletter. October was a very busy month for the Teagasc Pig Development Department (PDD) team with Virtual Pig Week 2021 taking place from October 19th to 22nd from 1-2pm each day. A different topic was discussed over the four days on our virtual conference platform.

On day one, we focused the Teagasc Pig Research Facility (TPRF). Farm Manager, Tomás Ryan and Research Technician, Aisling Holmes joined host Amy Quinn as they brought us to through the management factors on the unit that contribute to the high farrowing rate and weaning weights, as well as highlighting how they utilise the vast amount of data they collect in making decisions.

On day two, we discussed wet feeding systems. Gerard McCutcheon, hosted Joost Leijten, an independent consultant on wet feed systems. More details from this discussion can be found in the article below.

On day three, Louise Clarke, hosted a focus on milk supplementation systems. She was joined by Teagasc PDD researcher Peadar Lawlor and Research Technician Kieran Keane, who shared their knowledge on the evolution of milk supplementation, ongoing research and some of the key technicalities around their use. We also heard from, two pig farmers; Colm Ryan, Co. Clare and Leanne Lynch, Co. Donegal, who shared their experiences with milk supplementation systems.

On the final Day, Ciarán Carroll, hosted a live panel discussion on topical issues facing the pig sector. We heard from Edgar Garcia Manzanilla (Teagasc), Peter Dugan (Bord Bia), Cormac Healy (MII) and Roy Gallie (Pig Producer & IFA). They discussed the fast approaching ban on Zinc Oxide, labour availability, processing capacity, market opportunities, indistry outlook and more.

Recordings from each of the four days can be found on the Teagasc YouTube channel at: https://www.youtube.com/user/teagascmedia

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Agriculture and Food Development Authority

Wet feeding systems

Gerard McCutcheon

In the recent Teagasc Virtual Pig Week there was a webinar on the management of wet feeding systems for pigs. The guest speaker was Joost Leijten an Independent Liquid Feed Specialist from the Netherlands. Joost has 30 years of practical experience in managing Liquid Feed systems in a large number of countries and had a number of very practical messages to impart. He was very careful to state that he is not a nutritionist. His main role is to see if your wet feeding system is doing what it is supposed to do in delivering the various diets to your pigs.

On the area of sedimentation (separation of liquid and feed) he spoke about a maximum of 20% water on the top of a feed sample as being the correct mix (after the sample was left to settle for an hour). He spoke of the factors that can influence this and suggested that a mixing time (5 minutes) followed by a soaking time (4 to 5 minutes) and a final mixing time (5 minutes) to reduce the separation /sedimentation of the feed ingredients. Of course a number of other factors are involved (such as grist size of raw materials, ingredient types etc.) which may need to be investigated also. On the issue of water to meal ratio in the Netherlands they usually talk about the dry matter of the diets. A diet of 24% dry matter is generally what they feed their finisher pigs. If we took a 2.7:1 water to meal ratio we have 0.88kg in 3.7 kg of feed mix – so this is 0.88/3.7 multiplied by 100 = 23.8% dry matter. He recommended a 24% dry matter for finisher diets to achieve the optimum feed efficiency and growth rate.

Joost had a huge level of good detail about yeast and the losses that it could cost in a feed line. There has been a lot of work on this but good management of the feed system by cleaning the mixing tank and feed lines will greatly reduce the biofilm and yeasts that can reduce the nutritional value of the feed for pigs. He also spoke about good hygiene procedures for wet feeding systems. The recording of this event may be viewed at the following link: https://www.youtube.com/watch?v=t1dq2zZAsP4.

Cleaning procedures for weaner pens

Keelin O'Driscoll & Shilpi Misra

Water use by livestock is of environmental concern because water resources are limited and the livestock sector contributes about 33% to global water abstractions. In pork production, water is required for both on-farm (drinking and cleaning) and off-farm (feed production) purposes. The Teagasc WaterWorks project has been ongoing for just under four years, and aims

to determine the water footprint of Irish pork production, as well as investigating ways to optimise and reduce the current footprint.

Washing of facilities and equipment on pig farms is essential for biosecurity, to avoid disease outbreaks and optimise animal welfare. Washing of pens between batches of pigs is particularly important for young, newly weaned pigs as they are vulnerable to infectious diseases. This is particularly pertinent given the upcoming changes with regard to zinc oxide and antimicrobial use. However, there is a lack of data regarding both the quantity of water used and the effectiveness in reducing bacterial load of different cleaning and disinfection strategies for younger age categories of pigs, as most tend to focus on older pigs, or on the lairage area. For newly weaned pigs, we thought it would be useful to see if different washing methods affect the levels of *Enterobacteriaceae* in the pens after cleaning, because this is an important cause of a wide range of diseases, but especially post weaning diarrhoea. *Staphylococcus* spp. (species) should also be investigated as they are responsible for exudative epidermidis, abscesses and other conditions. Thus, the aim of this study was to quantify the effect of three different washing treatments on water use, bacterial levels and cleaning time when washing weaner pig pens.

Washing and disinfection treatments

We evaluated three washing and disinfection treatments: 1) power washing and disinfection (WASH), 2) pre-soaking followed by power washing and disinfection (SOAK), and 3) pre-soaking followed by detergent, power washing and disinfection (SOAK+DETER). Sprinklers were used for pre-soaking and all the pens were washed from top to bottom. After the power washing, rooms were left to dry for 24h before applying disinfectant, and after application of disinfectant the rooms were left to dry for 48h.

What we measured

A water meter was installed on the power washing water supply line to record the volume of water used using each method. The time taken to wash each pen was also recorded, as was the time for which sprinklers were operating for the treatments including pre-soaking. To determine the effectiveness of the different cleaning treatments, swab samples were collected from the floor, feeder and wall of each experimental pen both before washing, and after washing and drying. Microbiological analysis was done on the swab samples to calculate Total Bacterial Count (TBC), and levels of *Enterobacteriaceae* and *Staphylococcus.*

Results- water use, bacterial counts and washing time

There was no effect of washing treatment on the amount of water used. However, there was an overall effect of treatment on the time taken to wash a pen; with SOAK and SOAK+DETER reducing the washing time per pen by 2.3 minutes (14%) and 4.2 minutes (27%) compared to WASH. Thus, both pre-soaking and use of detergent reduced the time taken for pen washing. None of the treatments had any effect on any of the bacterial count measurements (Figure 1). Overall, the time of sampling (before or after wash) had an effect on both TBC and *Staphylococcus* counts but not on *Enterobacteriaceae* counts.

Table 1. Effect of cleaning treatments on time taken for washing and the volume of water used.

	WASH	SOAK	SOAK+DETER	*p*-value
Time/pen (min)	15.7 ± 0.5[a]	13.4 ± 0.5[b]	11.5 ± 0.5[c]	0.001
Total water use/pen (L)[2]	196.4 ± 18.8	226.6 ± 18.2	215.4 ± 27.9	ns

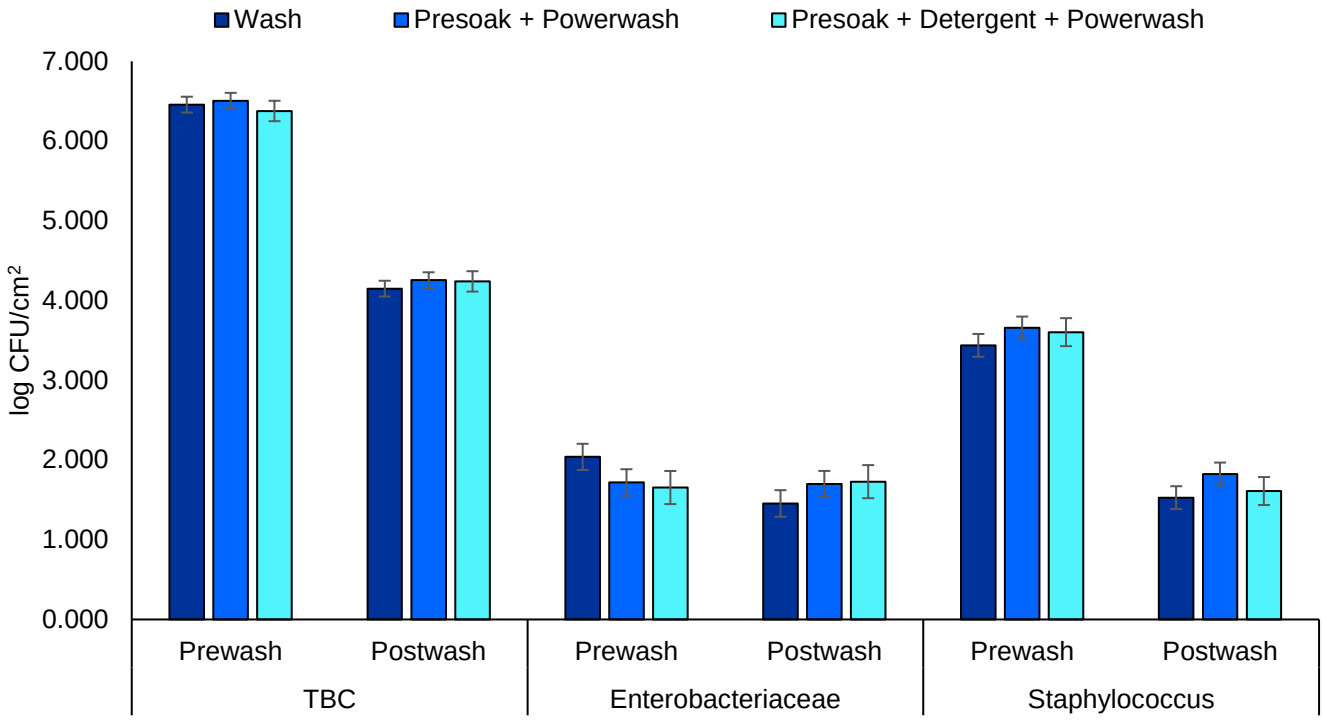

Figure 1. Effect of the different cleaning treatments on TBC (total bacterial count), Enterobacteriaceae counts and Staphylococcus counts in empty weaner pens before and after the washing treatments.

What does this mean for you?

Since there was no difference in both water use and bacterial load using any of the washing treatments, power-washing alone seemed to be the simplest method. However, pre-soaking and detergent use saves washing time, and thus the amount of labour needed. Thus these methods have benefits for staff time management, and could reduce your labour cost.

Acknowledgements

The authors thank Teagasc farm staff and visiting students for their assistance. Amy Quinn, John Upton, Kieran Jordan, Corina van Midelaar, and Imke de Boer are also collaborators on this project. For any further questions on the WaterWorks project you can contact Shilpi by email at shilpi.misra@teagasc.ie, or Keelin at keelin.odriscoll@teagasc.ie

Welcome Molly

Molly Harrison has joined the PDD to complete her MPhil with Queens University. Molly graduated from Bristol University this year with a degree in Veterinary Science, and will continue her studies by investigating the feasibility of a pig welfare assurance scheme in Ireland. This will include an analysis of retailers and consumers expectations, attitudes and understanding within the domestic and key UK export market. Welcome Molly!

AHI Salmonella Webinar

The National Salmonella Control Programme is being reviewed and Animal Health Ireland together with their stakeholders including Teagasc and the IFA are jointly holding an information webinar to raise awareness about controlling Salmonella on Tuesday 9th of November at 7.00pm.

The programme will provide a background to the reasons why controlling Salmonella is so important for the pig industry and some of the initiatives to help farmers control it.

For more details and to register click on the following link:
https://zoom.us/webinar/register/WN_cgI0thZ3TcaUGYHwct1eGA

Teagasc Pig Welfare Workshops

The PDD will be running a number of certified pig welfare workshops on the 16th (Cork), 17th (Portlaoise) and 18th (Cavan) of November across the country. We will be contacting all those that have expressed interest in attending over the coming days to register people and assign them to a location. If you have not already registered your interest with your Advisor please do so by Monday November 1st. Please note, this event will be run in line with the current government COVID-19 guidelines in place at the time of the event and details regarding this will be sent to all registered attendees prior to the event. Subject to demand we will be running a further certified welfare workshop in the new year.

Tail Biting Workshop

On the afternoon of November 24th (14:00-16:00) the Teagasc PDD will host a workshop on the subject of tail biting, for stakeholders in the Irish pig industry. As you all know, tail biting causes both significant animal welfare problems and economic losses. It is hugely difficult to prevent and control because the causes are multifactorial. The most effective method of reducing the risk of tail biting is tail docking, but this does not address the underlying causes of biting behaviour, or entirely prevent it. Thus the process of terminating tail docking as a preventive measure is extremely challenging.

The workshop will include presentations from DAFM, Teagasc and AHI, to update participants on the current status in Ireland with regard to both tail docking and biting. We will also introduce new research to be carried out in Teagasc on the use of precision livestock farming technology to address the tail biting challenge. Participants will be divided into breakout rooms to discuss barriers and opportunities to use of technology to address the topic of tail biting. The workshop will be recorded as part of data collection for research into use of PLF to detect biting behaviour. To register, please click on the following link: https://tinyurl.com/TheJourneyToTheLongTail

For more information:

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

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