

PIGS

February 2023

**Edited by Ciarán Carroll
and Orla Kinane**



Welcome to the February edition of our monthly newsletter.

Finally, after recent drops, we welcome a rise in pig prices with 4 cent per kg dead weight given this past week. It's a small rise compared to some of the increases we've seen across Europe, but it's a move in the right direction and hopefully we'll see many more of these over the next few weeks.

In this month's newsletter, Shiv Vasa & Peadar Lawlor share results from the MonoGutHealth project, which tested strategies to increase early post-weaning feed intake. They found that supplementing milk replacer to newly weaned pigs along with a dry pelleted starter diet for 11 days post-weaning increased feed intake and growth during the early post-weaning period, read the full article for more details.

Keelin O'Driscoll tells us about a new project which aims to provide a means to capture value associated with intrinsic and extrinsic quality of the whole pork carcass from a sustainable pork system, supporting successful diversification of the pork chain.

Ciarán Carroll & Marcella Phelan tell us about the five new Apprenticeship Programmes currently being developed by Teagasc, two of which directly relate to pig production, more information later in the newsletter.

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Supplemental milk and liquid feed for newly weaned pigs

Shiv Vasa & Peadar Lawlor

The abrupt change from a highly digestible liquid diet (sow's milk) at weaning to a pelleted solid diet with a different texture, smell and composition leads to severe nutritional stress in newly weaned piglets. Due to this, voluntary feed intake of piglets is low in the early post-weaning period resulting in shortening of intestinal villi which reduces nutrient absorptive capacity and further reduces growth.

As part of the MonoGutHealth project, we tested strategies to increase early post-weaning feed intake. Weaned piglets were provided with supplemental milk or liquid starter diet for either

4 or 11 days post-weaning. This was in addition to *ad-libitum* access to a dry pelleted starter diet. The five dietary treatments tested were: 1) Dry pelleted starter diet (DPS); 2) DPS + liquid starter diet for 4 days; 3) DPS + liquid milk replacer for 4 days; 4) DPS + liquid starter diet for 11 days and 5) DPS + liquid milk replacer for 11 days. The liquid milk and liquid starter diet was provided via a Schauer Babyfeed automated delivery system. The supplemental milk used was Opticare from Swinco. Milk replacer powder and starter diet were mixed in hot water to prepare the liquid milk replacer and the liquid starter diet, respectively.

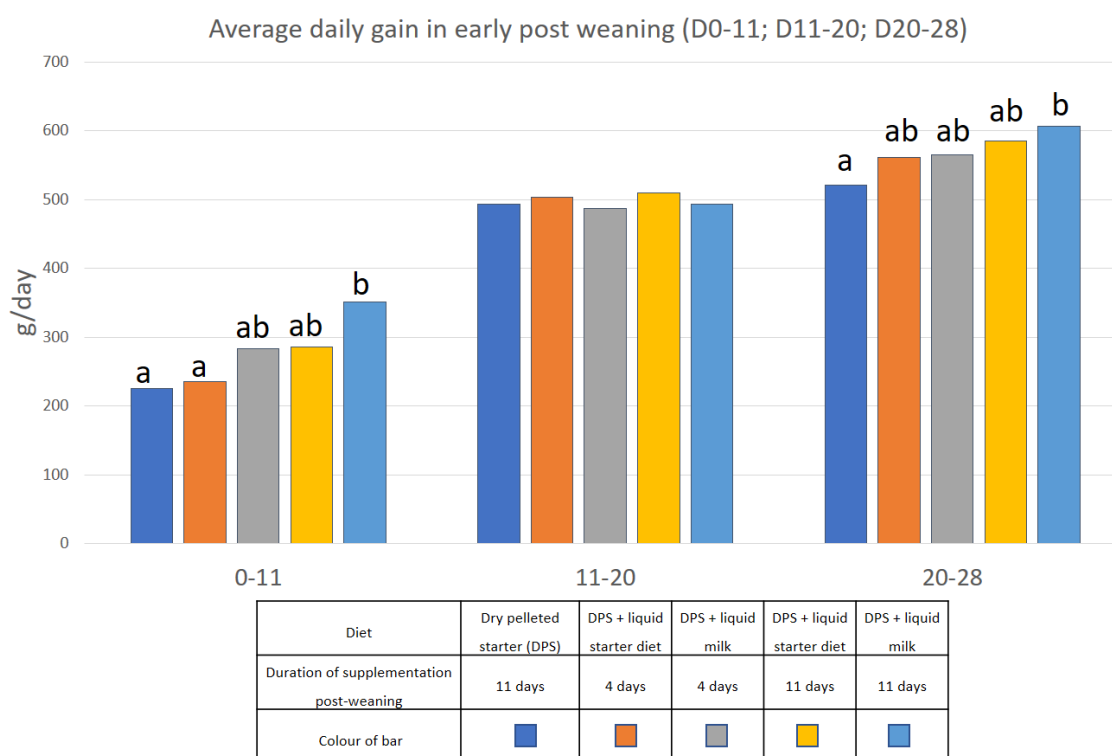


Figure 1: Average daily gain of piglets in early post weaning period

Between day 0 to 11 post-weaning, pigs fed milk replacer for 11 days had 54-57% higher growth rate (Figure 1) and 38-48% higher feed intake (Figure 2) compared to piglets fed liquid starter diet for 4 days and piglets fed DPS alone. All other treatments had growth rates, during this period, that were not significantly different from piglets fed DPS alone or those fed milk replacer for 11 days post-weaning. The benefit in growth rate from feeding piglets milk replacer for 11 days post-

weaning was still evident up to day 28 post-weaning. After this time the growth rate advantage associated with feeding milk replacer for 11 days post-weaning was lost. At day 7 post-weaning we collected intestinal tissues from the piglets to study their intestinal structure and function. We observed that piglets fed milk replacer for 11 days post-weaning had 37% higher jejunal villus height than piglets fed DPS and piglets fed liquid starter diet for 11 days had 28%

higher ileal villus height than piglets fed liquid starter diet for 4 days. Additionally, piglets fed milk replacer for 11 days had up to 150% higher ileal sucrase activity compared to those fed milk replacer for 4 days and piglets fed liquid starter diet for either 4 or 11 days and 180% higher ileal

maltase activity compared to piglets fed liquid starter diet for 4 days (Figure 3). No effect of the nutritional strategies on the occurrence of post-weaning diarrhoea, medicinal usage, slaughter weight and carcass quality parameters were observed.

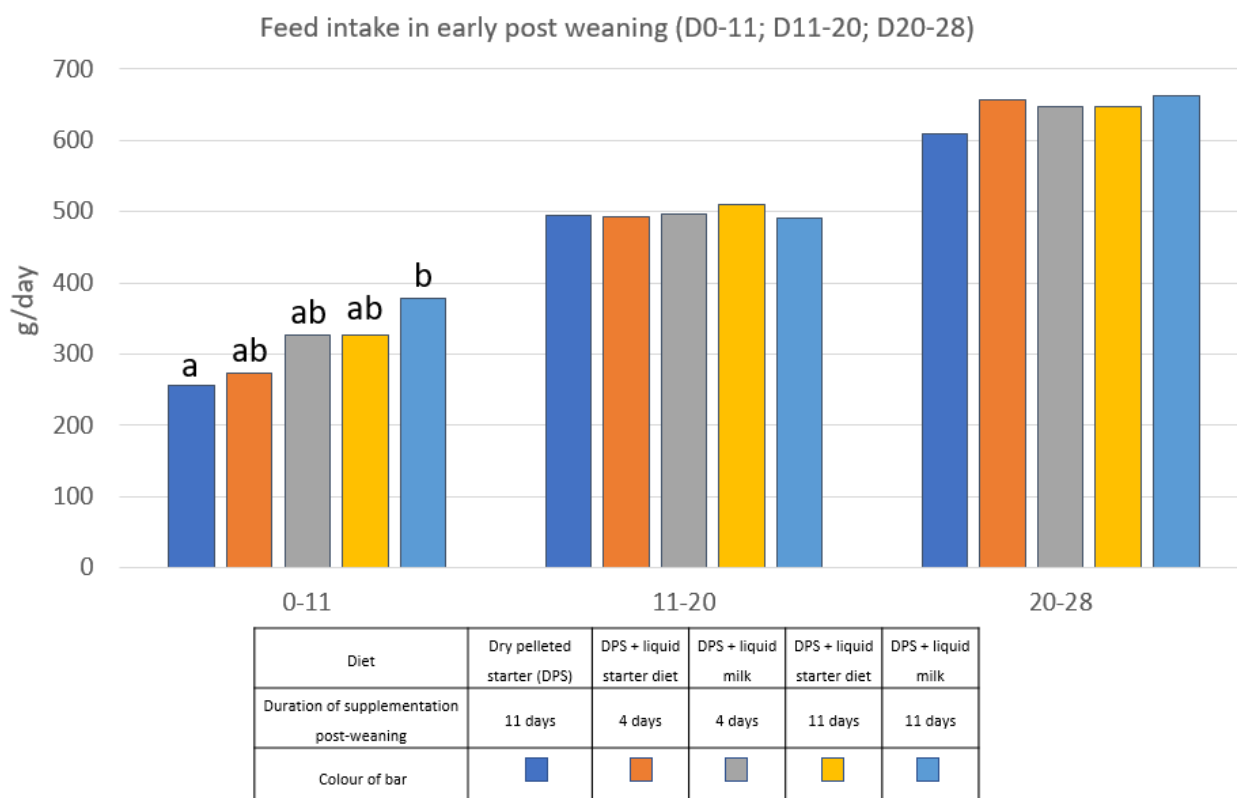


Figure 2: Feed intake of piglets in early post weaning period

In conclusion, supplementing milk replacer to newly weaned pigs along with a dry pelleted starter diet for 11 days post-weaning increased feed intake and growth during the early post-weaning period. Moreover, supplementing weaned pigs with milk replacer and liquid starter

diet for more than 4 days post-weaning improved intestinal structure and increased intestinal enzyme activity in pigs at day 7 post-weaning. The latter indicates that these pigs were more equipped to deal with the nutritional challenges associated with weaning.

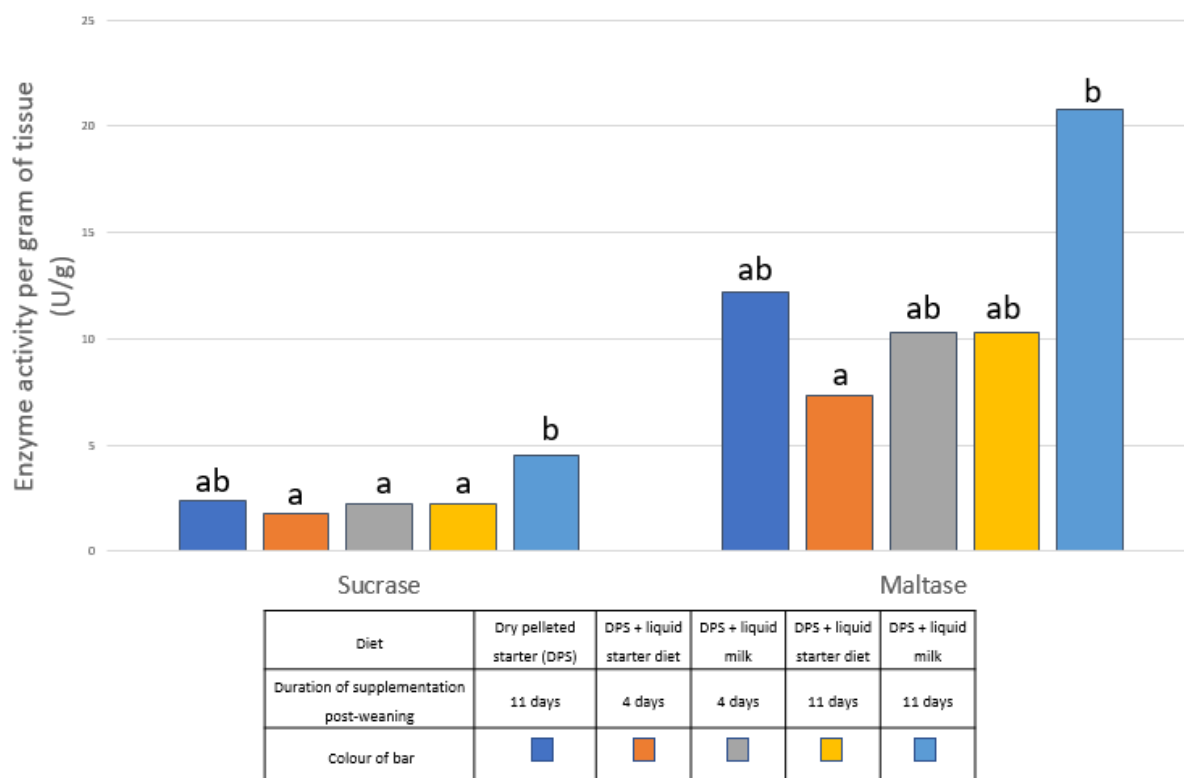


Figure 3: Digestive enzyme activities of intestinal mucosa of piglets on day 7 post-weaning

Implications:

Post-weaning liquid milk supplementation increased feed intake and growth in the immediate post-weaning period and 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 starter diet in liquid form 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 between 4

and 10 days post-weaning to observe a growth benefit early post-weaning. The occurrence of post-weaning diarrhoea was low during the trial. Therefore it was no surprise that no treatment effect on medication usage and diarrhoea incidence was observed.

Acknowledgements:

The study is supported by the project MonoGutHealth, which has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 955374.

Adding Value to Pigmeat

Keelin O'Driscoll

During the past couple of years it has become increasingly apparent that the pig industry is teetering upon the edge of becoming unsustainable economically. Layered over this, is the increasing concern of policy makers, and consumers, about the environment, and particularly the environmental impact of livestock production; thus the pillars of environmental and

social sustainability are also worthy of concern at the moment.

One of the reasons that Irish pig farming is vulnerable to poor profitability is due to dependency upon imported feed ingredients, an issue that has been under the spotlight during the past year. Besides the costs, importing feed

from other countries results in a low level of feed security as there is a high dependence upon international trade routes, has a carbon footprint that includes the impact of transport, and depending upon the feed ingredients that are used, could lead to food-feed competition in various regions of the world (i.e. feed for animals is grown on land that could be used to grow human food). 'Circular food systems' are an alternative promising pathway to ensure a sustainable food future. A key principle states that monogastric farm animals should convert agri-food production streams inedible for humans into valuable food products, recycling biomass and nutrients back into the food system. This project will be the first to assess the feasibility of integrating these sources into Irish pig diets, from quantification of potential ingredients and impact on production, to the effect upon the final product quality.

To meet these aims the Teagasc pig and food departments have joined forces to investigate ways that we can both lower the input costs (economic, environmental, societal) and add value to the pigmeat that is produced. Approximately 30% of food is lost between harvest, retail and consumer levels. Incorporation of a portion of this loss into pig diets would support a circular economy, whereby a use is found for what is currently considered a waste stream. In fact, a previous study carried out in the Teagasc pig department identified that diets that incorporate a high proportion of this type of ingredient, (termed 'circular feed ingredients (CFIs)') have a lower water footprint, and result in less food-feed competition, than ingredients that are typically incorporated into Irish pig diets. At the moment these are under-utilised in Irish pig diets, due to a lack of knowledge of available streams. Our first task will be to carry out a detailed exercise to identify current or potential new waste streams that could be incorporated into diets. This will impact not only the pig industry, but plant-based food processors who could attain an outlet for waste.

Following this, we will select the most promising CFIs and incorporate them into pig diets so that we can test them to account for potential increased variability in nutrient quality and density, which

could impact animal performance and welfare, and also ensure that the sensory and technological quality of the meat produced is of a high standard. Once we have data on animal performance, we will then apply a Circular Food Systems model to the Irish pig industry, to predict the volume of pork that could be produced with incorporation of circular feed ingredients (CFIs) arising at different stages of the Irish Agri-food chain.

There are also missed opportunities in the market when it comes to differentiation of high-quality premium pork products. Both fresh and processed Irish pork products are a source of high quality protein. However, the Irish pork portfolio needs examination, and new opportunities to add value identified; the premium paid for value-add is significantly higher than commodity pork (43% value in export returns, v's 19% export volume). The Teagasc food centre in Ashtown will provide underpinning science to support processing of sustainably produced pork (including lesser value cuts) into value-added products, taking cognisance of market review and focus groups. Thus, we will investigate multiple means to capture additional value in pigmeat through developing products that return significantly more than commodity, and addressing sustainability issues that are likely to become increasingly important.

Thus this project will address several key challenges from production to final product in adding value to the pork chain. It will provide a means to capture value associated with intrinsic and extrinsic quality of the whole pork carcass from a sustainable pork system, supporting successful diversification of the pork chain. Improving the environmental sustainability of pork production will also improve acceptability of pork production to the consumer, thereby adding extrinsic value to meat. The project is due to start this year, with a PhD student starting work in the autumn. Further details of the project and it's aims can be heard in last October's pig edge podcast, or by contacting Keelin.odriscoll@teagasc.ie

New Farm Apprenticeship Courses

Ciarán Carroll & Marcella Phelan

Five new Land-based Apprenticeship Programmes are currently being developed by Teagasc. Two of these directly relate to pig production, namely:

- Farm Technician (Higher Certificate Level 6)
- Farm Manager (Ordinary Degree Level 7)

It is planned that these apprenticeships will be launched and ready to go this year, 2023. The roll out of these is subject to a change in legislation (an Industrial Training Order is required) which has prohibited statutory apprenticeships in the area of agriculture, horticulture, or fishing.

Teagasc has submitted documentation for the programmes to QQI for validation. QQI (Quality & Qualifications Ireland) is the state agency responsible for promoting the quality, integrity and reputation of Ireland's further and higher education system). Once the legislation is passed and validation by QQI complete the programmes will be officially launched.

The minimum education entry requirements for each of the proposed apprenticeship programmes will be published subject to QQI validation approval. It is proposed that the minimum education requirements proposed Farm Technician (Higher Level 6) is the Leaving Certificate and the minimum education entry requirement for the proposed Farm Manager (Ordinary Degree Level 7) is the Advanced Level 6 Certificate in Agriculture or the Farm Technician Apprenticeship (Higher Level 6).

Subject to QQI validation approval of the apprenticeship programmes and upon successful completion, each apprenticeship will be recognised by the Department of Agriculture, Food & the Marine for access to schemes, services and grants provided by the government.

Further details of the programmes, including locations where training is available, will be published once the validation process is finalised and the programmes are launched.

We are currently taking expression of interest from potential employers so we will have details of their enterprise, potential apprentices, etc. to assist with the approval process to become an apprenticeship employer.

You can express your interest to be a potential apprenticeship employer on the following link:

<https://forms.gle/YHMoaVEEWbNhB7xn8>

It takes 20-40 minutes to complete.

We are also collecting expression of interest from potential apprentices on the following link:

<https://forms.gle/pW2H6QL7uuiUCcFY7>

If you have any specific queries, contact your local Specialist Pig Advisor or Marcella Phelan, Education Specialist in the Teagasc Curriculum Development and Standards Unit at marcella.phelan@teagasc.ie



Pig seminars in Tipperary and Cavan on March 28th and 30th

Dr Peadar Lawlor, Professor John O Doherty and Professor Patrick Wall will present at the upcoming Pig seminars hosted by Adesco in Tipperary and Cavan on March 28th and 30th, respectively. The presentations will focus on the gut microbiome and opportunities to replace both Zinc Oxide and soybean meal in the pig diet.

Reserve your spot in [Tipperary](#) or [Cavan](#)

Welcome Ruth!



Dr. Ruth Rattigan has just commenced working with us in the Pig Development Department. She will work alongside Peadar Lawlor on the ExcludeMRSA project. Ruth did her PhD on pig nutrition in UCD and has since worked in SETU (Waterford) where she worked on the proSWINE project which was a joint Teagasc and SETU project. Ruth brings with her some great and very relevant experience and we welcome her to the team.

Minister McConalogue announces opening of the Targeted Agricultural Modernisation Scheme (TAMS 3)

€370m TAMS to run to 2027 with higher grant rates for environmental investments including organics, farm safety and young farmers. TAMS provides funding for capital investments on farms and will be in place for five years with a budget of €370m. Tranche 1 of the scheme will open next Wednesday 22 February with solar panels on farms the first available investment. The other investments will become available on a phased basis during Tranche 1 which will close on 16 June.

There are a range of new improvements to the TAMS scheme including increased grant aid rates, investment ceilings, new investments, and new support categories. This includes enhanced grant-rate of 60% compared to a lower rate of 40% in TAMS II in respect of investments under the Low Emission Slurry Spreading Equipment, Organic Capital Investments and Farm Safety Investments. In order to encourage the purchase of solar investments reducing dependence on fossil energy by farmers, the solar scheme will be ring fenced with its own investment ceiling of €90,000 and will be grant aided at the enhanced rate of 60%.

The full range of investments and the Reference Cost Documents are available [here](#).



For more information visit our website
www.teagasc.ie/animals/pigs

This newsletter was edited by Ciarán Carroll
 Teagasc, Moorepark, Fermoy, Co. Cork.

For more information on any of the content
 contact Ciarán at ciaran.carroll@teagasc.ie