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Newsletter
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Technical Update:

Eight Dimensions of Feed Intake

Most articles on feed intake in Nurseries and Grow-Finish phases analyse the effects of individual factors, such as water availability, feeder space, energy diet or stocking density on average daily gain (ADG) and feed conversion (FCR). However, it is important that pig producers and related people understand how different factors that affect feed intake interact with each other and how they can be handled at the pig level with a goal of improving pig performance. The objective of this article is to review eight factors that impact feed intake in Nurseries and Grow-Finish facilities and how these can be managed.

1 - Feeder Space

Although many feeders have some type of feeder space division, they may not accurately reflect the true space requirements. Both pig weight and shoulder width determine the appropriate feeder space. Below is a table developed by Dr. Mike Brumm that describes the relationship between pig weight, shoulder width and individual feeder space requirements. Individual feeder space should be enough to allow a pig to freely eat but also be sufficient for other pigs to eat in their space at the same time. For example, if the feeder has 3 feeder spaces, ensure that three pigs can eat there at the same time. PIC recommends 38 cm for each single feeder space. The same thought needs to be considered when using liquid feeding systems; Pigs in the same pen need to be able consume the meal at the same time, therefore they need to have enough individual feeder space. Several systems are struggling to get all pigs to the feeder at the same time since the number of pigs produced per sow per year and their weights have been increasing significantly across the years. Under this situation there are lots of limitations for increasing the trough space within the pens across the G-F buildings.

2 and 3 - Linear Feeder Space and Stocking Density

The linear feeder space establishes how many pigs can be fed by a specific feeder. This measurement corresponds to the available centimeters of linear feeder space divided by the number of pigs per pen. In 2013, PIC conducted a study to understand the relationship between linear feeder space and stocking density. It was observed that

the impact of linear feeder space on ADG and FCR was more important with higher stocking densities (0.59 m²/pig) compared to pens with lower stocking densities (0.75 m²/pig). However, in both cases the ADG and FCR were benefited by increasing feeder space. On nursery sites PIC recommends 2.5 cm/pig of feeder linear space. On G-F sites PIC recommends 8 pigs/dry feeder space (4.8 - 5.1 cm/pig) and 12 pigs/conventional wet-dry feeder space (3.2 cm/pig). In Europe regulation exists about the stocking density which should be considered when linear feeder space is evaluated. Tube feeders (wet/dry) aren't considered in these recommendations.

4 - Feeder Adjustment

There is a clear relationship between feeder adjustment, ADG and FCR. The more the feeder is adjusted towards the closed position, the FCR improves but ADG is reduced. This indicator defines how long a pig will use the feeder space. For example, if it is decided to work with 40% pan coverage and due to specific market reasons, if there is a need to increase stocking density or market weight, each feeder will have higher feed demand therefore it could be of great help to increase pan coverage to reduce feeder competition.

5 - Water Availability

Feed intake depends on water intake, so ensuring good water access is a critical factor.

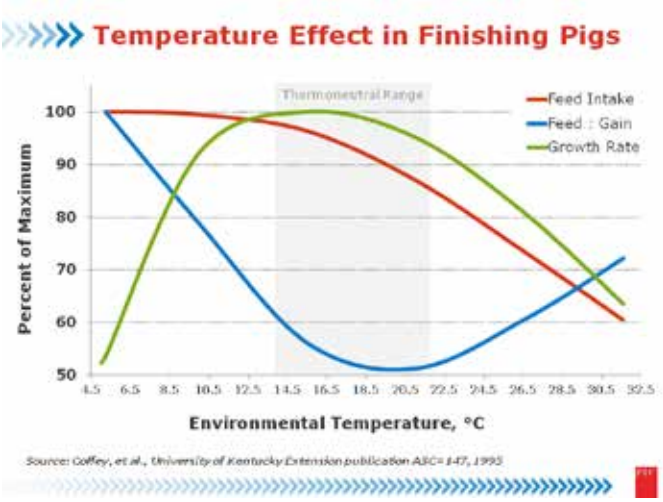
Four important points to consider (PIC recommendations):

1. Pigs per drinker (10 pigs/drinker)
2. Water flow (1 L/min in W-to-F buildings)
3. Drinker height (nipples should be at shoulder level)
4. Water pressure (15-40 PSI | 1,034 - 2,758 bar).

It is important to consider the additional water demands incurred when stocking density or market weights are increased or the energy level of the diet is reduced. In the case of conventional wet-dry feeders, it is recommended to use auxiliary drinkers when room temperatures are above 29 °C and pig weight is above 82 kg to reduce the competition for water in the feeder. Depending on design, tube feeders tends to be considered like dry feeders, most of them have 7.6 - 17.8 cm) of linear water space in between feeder pan with high ratio of pigs/feeder therefore auxiliary drinkers should be considered.

6 - Energy Level of the Diet

It is well known that diet energy level can affect the amount of feed intake in pigs. Therefore, it is important to keep the farm team updated because feeder management can easily be modified to adjust to those energy changes. For example, feeder pan coverage should be increased when there is a reduction in diet energy level due to



New addition to the European Technical Service Team: Angela Bononat joined as Performance Validation Manager

As a significant part of our commitment to the Technical Services development process we are pleased to announce that Angela Bononat joined PIC Europe as Performance Validation Manager for PIC Europe. She will be located in our Spanish office.

Angela's main responsibilities will be to assist the European business in all aspects of Performance Validation trials, work with the sales team on customer trials and value propositions, and support the Applied Meat Science team with activities related to helping our customers to realise genetic potential of PIC animals through the pork supply chain.

Angela has a degree in Veterinary Medicine from the University Cardenal Herrera of Valencia. Before accepting PIC's offer, Angela was responsible for clinical trials as the Regional Swine Clinical Manager for the Virbac Group based in Ho Chi Minh City, Vietnam. Prior to that Angela worked in the U.K. with ACMC as a company veterinarian, Cranswick Country Foods and Vion Food Group as Official Veterinarian, and at Bramall Foods as a Meat Hygiene Inspector.

pigs increasing their feed intake demands and corresponding feeder usage time. Often farms operate at the maximum drinker/pig ratio (to reduce waste of water) and a change in the energy level can cause problems by increasing demand for water and not having enough access to drinkers.

7 - Genetics

Different genetic lines have different feed intake habits. Such habits are characterised by:

- amount of feed consumed per day
- number of feeder visits per day and
- feed consumption time per visit.

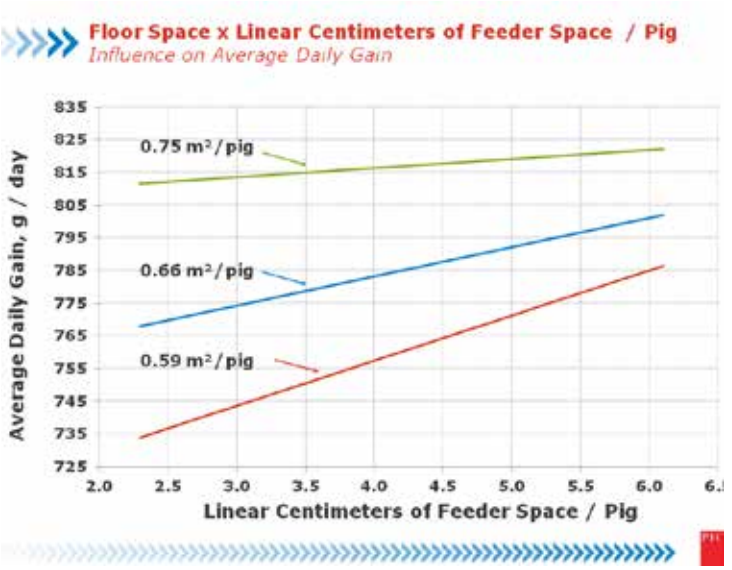
For example, when we compare genetic lines with high ADG versus low ADG we see that there are differences in their feed intake and eating behaviour. Low intake lines generally make more frequent visits to the feeder and consume smaller amounts per feeder visit. So, it is good to understand the feed intake of your genetic lines so you can manage the feeder settings accordingly. Feeder settings can be adjusted more tightly for low intake lines whereas higher intake lines need more liberal feeder setting adjustments to give them more access to feed in the trough. Piétrain lines are widely used in Europe and they are genetic lines with low feed intake behavior when they are compared with Duroc lines, therefore they should have different managements of these 8 dimensions in feed intake.

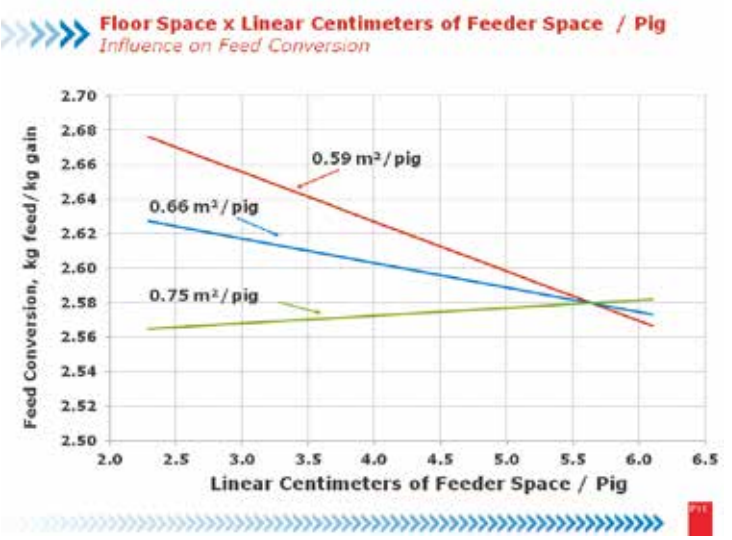
8 - Temperature and Ventilation System

The impact of environmental temperature on pig performance is well known. Increases in temperature will negatively impact ADG, due to reduced feed intake. Conversely, lower temperatures will produce an energy loss due to pigs trying to maintain body heat. In this situation, pigs will have a good feed intake but will not have the expected weight gain. Room temperature depends on facility design, weight of pigs and if there is a comfort zone for weaned piglets during the first weeks from post weaning. Then heater/s (achieving 35 °C below heaters in the center of the lying area and each pig has 0.04 m² of lying area). The PIC Wean to Finish manual has various references about temperature curves under different production scenarios. Changes in stocking density or market weight can affect the ventilation needs in buildings and if the ventilation equipment is not set to maintain adequate air exchange rates, production losses will occur, therefore changes in marketing strategies can be

Table 1: Estimated Pig Shoulder Width and Required Feeder Space Width

Pig Weight, kg	Shoulder Width, cm	Feeder Space Width, cm
20	17.3	19.1
40	21.6	23.6
60	24.6	27.2
80	27.2	30.0
100	29.2	32.3
125	31.5	34.5
136	32.5	35.6
145 (estimated)	33.8	38.1





helpful in this situation. But special attention is needed on late nursery since pigs are transferred together to the G-F sites. Larger groups weaned recently due to the increased PSY across the systems could be addressed as one of the main causes of poorer nursery performance due the ventilation system limitation, among others. The graph "Temperature Effect in Finishing Pigs" is a good example on how environmental temperature affects ADG, FCR and Feed Intake (Coffey et al., 1995).

PIC Aquires Hermitage Genetics - An Update

We are pleased to share that on March 31st, PIC completed the acquisition of the genetic rights and intellectual property of Hermitage. Hermitage and PIC also entered into a strategic partnership in which Hermitage AI Ltd. will manage and distribute PIC semen throughout the UK.

Hermitage
PIC Genetics Distributor

This includes managing the staff, boars, and semen collection and distribution from Gene Transfer Centres' Warren, West, and East in addition to Hermitage's existing studs in Devon and Cambridge. We are excited about this new partnership which will give UK customers the best combination of PIC genetics and Hermitage's operational excellence and service quality.

PIC and Hermitage are focused on a seamless transition for customers. In the coming months, business continues as usual. You may see changes in the labeling. However, the GTC you source from and your contact at PIC or Hermitage will continue to be the same. In the long run you can expect two benefits. PIC and Hermitage will work together to further strengthen the supply base to continuously improve quality and customer service. In addition, the increased genetic diversity of the combined gene pool will help us accelerate genetic gain.

We will keep customers informed on any developments as we implement the partnership.

As always, continue to contact Kathy at the PIC Order Line 0800 917 7302 with your orders and questions.

If you have additional questions, please contact your sales account manager.

SAVE THE DATE: June 6th & 7th - PIGS 2022

PIC UK is pleased to support the International Outlook Conference "PIGS 2022 - The Opportunities". This conference will take place at The St Johns Hotel in Solihull. Over two days the conference will examine and discuss where the industry might be heading in five years' time and steps we may need to take to remain competitive.

Day One will be dedicated to the International Outlook Conference, looking very much at the global picture, with invited guests from all over the world.

Day Two, the Innovation Conference is provided free of charge to all levy payers by AHDB Pork. The innovation conference will address some of the big issues facing the industry – antibiotics, BREXIT, health and welfare and the changing consumer. The focus of the conference is the innovation required to remain competitive.

PIC welcomes you at Day Two at the Industry Exhibitor Area directly connected to the Innovation Conference.

For more information
please visit www.pigs2022.com

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