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# PIC Europe
# Nutrition Seminar 2021

Questions & Answers

30.06.2021 – Online

 

# How often PIC is going to update the Nutrition Manual?

The manual will be dynamic, based on the future findings from continuous nutrition researches.

The version of the manual can be found at the footer of each page in the manual. When there is a significant update, the team will provide a webinar.

# How am I going to be aware/notified of the updates in the manual?

The latest version of the manual can be found at the footer of each page in the manual. User may visit the PIC website (pic.com → Resources)



 

# Sow Feeding

# Feeding in early gestation: Reduced embryo survivability when increasing feed intake

## How to handle that?

### Nutrition and feeding during gestation

Early Gestation

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Descriptive summary of different early gestation feeding levels on embryo survivability and hormone secretion of gilts and sows

| REFERENCE | SAMPLE SIZE | STAGE | GESTATION DAYS | WEIGHT AT BREEDING, kg | $ME_m$, Mcal/d | DIETARY ME, Mcal/kg | FEEDING LEVEL,kg/d | | % OF $ME_m$ | | RESPONSE CRITERIA | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | CON. | TRT. | CON. | TRT. | EMBRYO SURVIVABILITY | PLASMA PROGESTERONE | TOTAL BORN |
| Jindal et al., 1996 | 48 | Gilt | 1 – 15 | 116 | 3.52 | 2.71 | 1.9 | 2.6 | 146% | 200% | -22% | -57% | - |
| De et al., 2008 | 36 | Gilt | 1 – 35 | - | - | 2.91 | - | - | 120% | 200% | -20% | -14% | - |
| Athorn et al., 2013 | 18 or 19 | Gilt | 0 – 10 | 126 | 3.76 | 2.89 | 1.5 | 2.8 | 115% | 215% | 19% | 26% | - |
| Langendijk et al., 2015 | 21 | Gilt | 10 – 11 | 103 | 3.22 | 2.87 | 0.0 | 2.5 | 0% | 223% | - | -8% | 24% |
| Virolainen et al., 2005 | 12 | Sow | 1 – 35 | 252 | 6.32 | 2.83 | 2.0 | 4.0 | 89% | 179% | -35% | -25% | - |
| Hoving, 2012 | 37 | Sow | 3 – 35 | 170 | 4.71 | 3.11 | 2.5 | 3.3 | 165% | 215% | 2% | ns | |
| Mallmann et al, 2020 | 244 | Sow | 6 – 30 | 197 | 5.26 | 3.15 | 1.8 | 2.5 | 108% | 150% | - | - | 0% |
| Mallmann et al, 2020 | 239 | Sow | 6 – 30 | 197 | 5.26 | 3.15 | 1.8 | 3.2 | 108% | 192% | - | - | -8% |
| **Weighted Average** | - | - | - | **185** | **5.00** | **3.08** | **1.8** | **2.9** | **111%** | **180%** | **-12%** | **-24%** | **-2%** |
| PIC Base Level (Gilt/Sow) | | | | 150/200 | 4.18/5.32 | 3.23 | 1.8 | | 141%/111% | | | | |
| PIC Thin Level (Sow) | | | | 190 | 5.12 | 3.23 | 2.5 | | 157% | | | | |

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In fact, the table shows negative impact of feeding in early gestation on embryo survivability.

In some old papers and more recent in Mallmann et al., 2020, found that feeding close to 2x maintenance during first 30 days of gestation results in negative impact on total born index (calculate by TB and FR combined).

We are still investigating…

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Answer by: Uislei Orlando

# Recommendations for fibre level in gestation and lactation diets

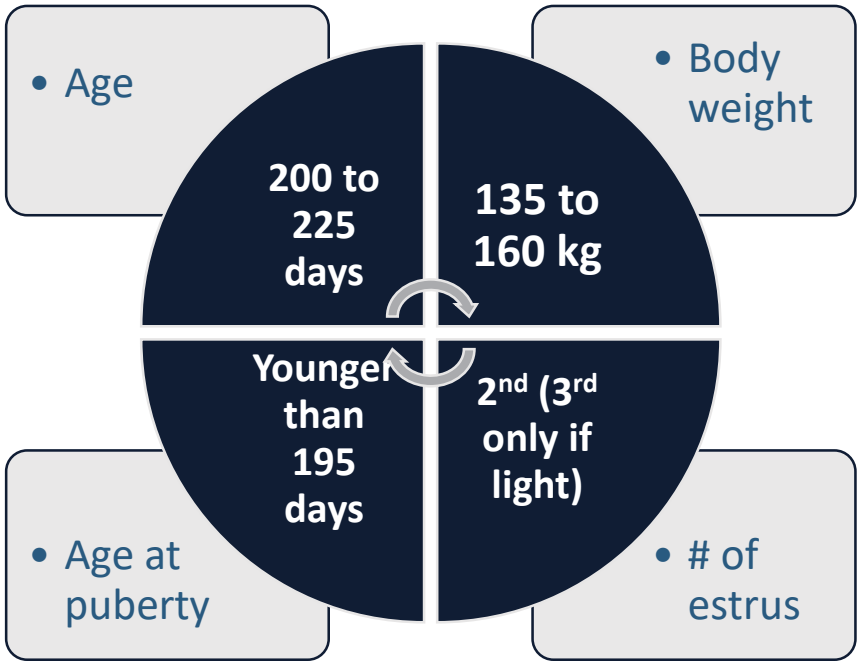
Currently we do not have fixed recommendations in relation to fibre levels in lactating and gestating sow diets.

We wish to do further research in the area of fibre levels pre-farrowing to see if it has any effect on still born rate.



# Gilt Development:
# Which is the most important one out of the targets?




We consider all the 4 factors important.

Answer by: Isaac Huerta

# Gestation: Is the feeding recommendation different for sows housed in stalls and pens?

Recommendation is still the same. However, for grouped house sows, we recommend considering increasing feed allocation per gilts/sows (maximum of 3 kg/d for no longer than 5 days).



# Gestation:
# What is the lysine to energy ratio for sows?

For gilts and sows in good condition we recommend a fixed level of energy intake of 5,9 MCAL ME per day and 11 gram SID Lysine per day. For thin sows we recommend 8 MCAL ME per day until we get them back in an ideal condition.

# Peripartum: What are the advantages of splitting the meal during peripartum?

Splitting the meal during peripartum impacts (reduces) stillborn when farrowing attendance is limited.



# Lactation:
# How can I improve the lactation feed intake?

Good body condition at farrowing promotes better lactation feed intake.

Among others: ensure good environmental temperature (21°C – 23°C) and increasing frequency of feeding.



# Wean-to-estrus interval: Can I feed less than 2,7 kg/d?

Our base allocation is 8,7 Mcal ME/d is enough to maximize subsequent reproduction. We do not recommend skipping meal as it may shut off reproduction.

Answer by: Ronan Casserly

# Explanation for the 80% reduction in removal and mortality in pigs …

from 29 to 129kg, as a result of increasing the SID Lysine level in 23% (from 8,4% to 1,7%)

**Amino acids**

**Effects of SID Lys levels on performance of 29 to 129 kg pigs sired by high index boars**

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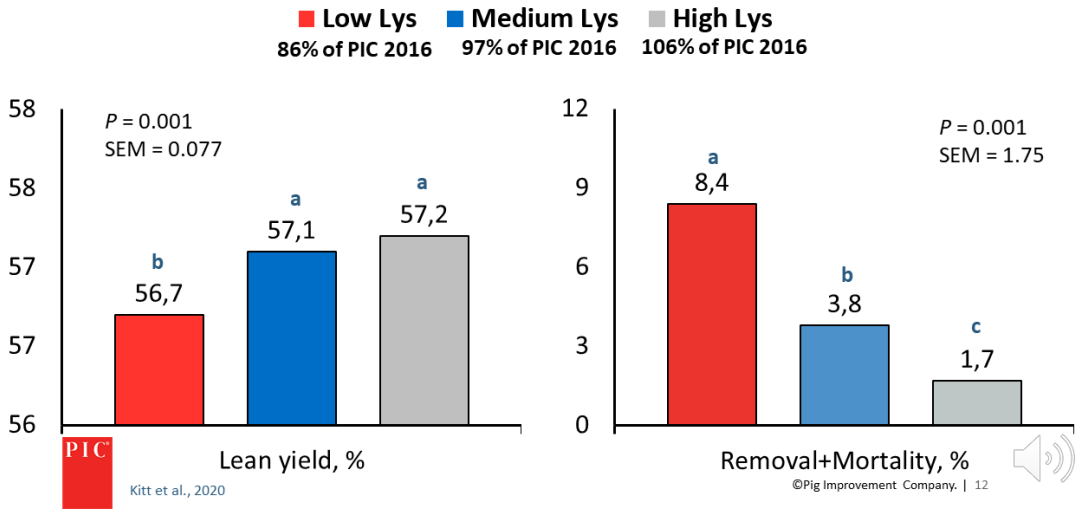



Yes, we also found the trend in this data very interesting. These results have been what has encouraged PIC to invest in a range of behaviour and nutrition trials.

We currently have two trials going on where we are looking at the effect of amino levels in nursery and grow-finish on behaviour.

Answer by: Ronan Casserly

# Is it useful to use a transition diet during peripartum (specific feed)?

Practically speaking this can be difficult to implement and we do not have strong evidence that it results in better results.

However, for peripartum we suggest giving multiple feeds where possible as there is some evidence this can result in reduced still births.



# Do you have experience with emulsifier in lactation feed to improve feed intake in summer?

Sorry, we do not have experience with trials using emulsifier in lactation diets.

Answer by: Ronan Casserly

# Is it not suitable to reduce the feeding intake to mobilize calcium and avoid problems in postpartum?

There is a high demand for nutrients during this period, we recommend feeding the same quantity of feed pre-farrowing as we did in gestation house before loading into the crates.



# ESF and body condition after training

ESF conditions after training could take a big loss on Body Condition. Some persons recommend 1 week of recovery after this. Is any possible to give them better condition during training?

Is it inhibiting making the appropriate age and weight categories? We recommend that training occurs > 17 d prior to breeding and that daily monitoring occurs so gilts do not go more than 1 d without feed intake. Good example of missing a meal will shut down reproduction.

In order to give better condition is possible, but mostly management strategies will e considered.

1. Density per ESF machine
2. Worker hours per training day spend per gilt
3. Hours per day where machines is opened and more important time that aditional animal will be allowed to enter after the first entrance.
4. Age/ weight at training, normally younger animals tend to have less problems to adapt to the system.

Every ESF system has its limitations, some strengths and some weaknesses, we need to understand very well the system to extract the maximum genetic potential.



# Please explain your approach regarding gilts mineral nutrition and their skeletal development

From at least 60 kg forward we recommend feeding a specific GDU diet with specific levels of vitamins and minerals to meet the requirement of the developing gilt.

Our colleague Carine Vier did a range of trials in her PhD study in Kansas State looking at phosphorous and calcium requirements for growth and maximum bone mineralization, based on this we recommend STTD phosphorous for gilts which is 108% of commercial pigs and analysed calcium to analysed phosphorous ratio of 1,25 – 1,50 : 1.



# What do you consider a "normal" weight loss (%) during lactation in gilts and sows?

Our target is a maximum weight loss of 10%.

However, we do recognise that parity one animals in particular with low feed intake can have significant body weight loss.

Our main recommendation in terms of reducing body weight loss is to ensure gilts and sows are in the correct condition entering the farrowing barn. Fat/Heavy animals eat less and tend to mobilise much greater level of body reserves.



# Sows are moved to farrowing barns around 5 days prior to farrowing. Feeding of gestation feed often not possible.

What is your recommendation?

Our current information indicates that it is fine to feed lactation feed for 5 days before farrowing. We recommend giving the same kgs of feed for those 5 days pre-farrowing as the quantity which was given the days before loading into the crates.

# What is the impact to feed the sow with humid or with dry feed?

In terms of nutritional requirements we expect that sows fed wet feed will have a higher feed intake, it is common practise in Europe, but we need to be aware spoilage can be an issue if we administer to much feed.

In terms of management, we see specially in summer times less body condition losses on the farms with humid/wet feeding, although is not the only way to achieve good feed intakes during lactation but helps. Also helps the water intake depending on the humid system used.

# How can we increase piglet vitality and birth weight by nutrition …

… if we may not increase the feeding level and the end of gestation

We continue to investigate this point, but it is difficult to influence piglet birth weight by nutritional interventions as the gilt/sow prioritizes the piglet gain during late gestation.

At PIC through our genetic selection program we continue to improve piglet birth weight even at the same time as born alive increases.



# Wean-to-Finish Feeding

# What about the sodium recommendations for piglets?

Our recommendation from 5,5 to 7,5 kg is 0,4% and from 7,5 – 11,5 kg is 0,35% Sodium.

There is good research available showing the positive effect of sodium on growth rate and feed intake in piglets which justifies our recommendations.



# Ratio of Nitrogen from essential AA & Nitrogen from non-essential AA and ADG

Any data available?

Our recommendation now is to control Nitrogen for non-essential AA by ensuring to keep the amino ratio as per PIC recommendations.

For finishing pigs, we have trials to indicate that going below 13% CP has detrimental effect on performance so we do not recommend going below 13% CP in any finishing pig diets.

For nursery pigs Ratiff et al. 2015 recommended a total lysine to crude protein ratio of 7,1



# Isoleucine and Leucine levels in diets, how we can achieve and what is a good source?

Yes, it is important to focus on the amino acid balance.

Soybean meal is a good source of both Isoleucine and Leucine and we can generally meet these requirements with soybean meal.

Maize byproducts are high in Leucine and be aware if diet is high in Leucine we will need to make adjustments in branch chain amino acid levels.



# Did you see any vices in the low lysine treatments?

Numerically, pigs fed diet with low Lys level showed higher removal + mortality rate.



# What about to change wheat bran with sugar beets and alfalfa pellets?

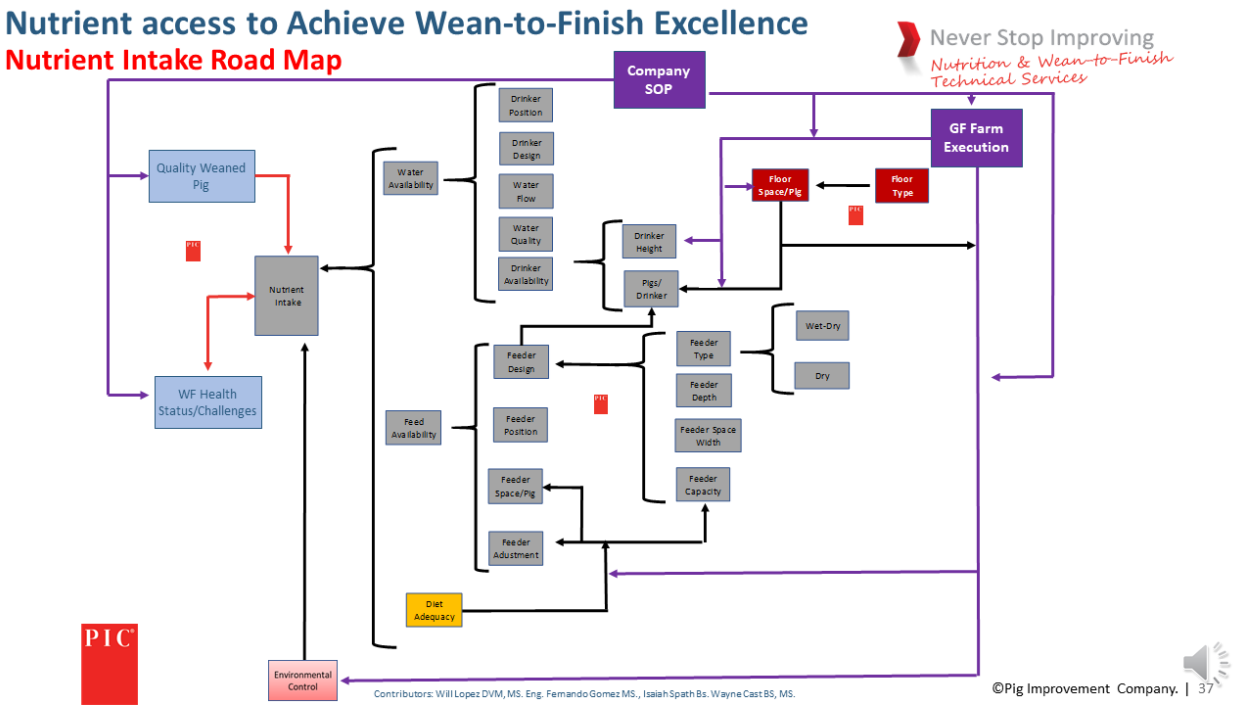
cause of mycotoxins

Yes, it is possible to use sugar beet as a fibre source in pig diets.



# What are the 3 most key boxes of the Road Map in Nutrient Intake part?




The 3 most important boxes would be

- Diet Adequacy,
- Feed Availability,
- Water Availability.

Each one of these boxes has many other factors impacting them.

Answer by: Ilia Zubtsov

# How does the interaction between environment and nutrition impacts on vices?

When there are different limitations in environment (e.g. too cold or too hot meaning that the pigs have either cold or hot stress) and the feed is not adjusted to these limitations pigs can become “hangry” (Hungry + Angry) and express vices.



# Other

# Off-topic: Can we use rapeseed granulated ?

Yes, we can use rapeseed but varieties which are low in glucosinolates should be used.

Also, when using rapeseed, we need to consider the NDF element and also the amino acid balance in the diet.



# *Thank you for your attention!*

Please submit any additional questions to

**PIC.Europe.Events@genusplc.com**

We will come back to you directly!

*The PIC Nutrition Team*