

Swine Nutrition Questions from 2020 KSU Swine Day – Day 1

#	Question	Answer(s)
1	Does transition period mean to have TWO different rations?	It could mean 2 different rations, but we tried to conduct our trials by utilizing feed that was already existing in the barns in order to be easier to implement in the farms.
2	The clue is to have an increase in feed consumption at start of lactation period. This also involves calcium Ca consumption besides energy and lysine. Can you imply more information?	There have been a number of trials evaluating different nutrient and ingredient strategies during transition in addition to only protein and energy. We did not have enough time to go through everything today, but they would be available through a literature search if you are interested.
3	Does Ad Libitum also means lots of FLIES around the pen? and all the bothering and sanitation	I think your question really addresses management in the barns. Ad libitum does not have to mean lots of excess and wasted feed. If the people in the barns manage it correctly and utilize the right feeders, there should not be excess wastage leading to flies.
4	Was there an average weight where you began to see more live births?	Diane, we did not notice in our trials where birth weight was associated with live births, but we do know that increased birth weight will be associated with livability after birth.
5	The DAIRY guys leads research on this transition diets. We may check papers on them.	Yes, the dairy industry has considered transition cow feeding for decades. The growing calf constricting rumen capacity tends to reduce ADFI to a greater extent and for a longer period of time than what we deal with. We have considered strategies utilized in the dairy industry, but I am sure there is much more to learn.
6	Jason, you mentioned the transition diet had the greatest benefits with gilts. How about other young sows or thin sows?	Unfortunately, we did not separate out other parities or evaluate the treatment impact based on BCS, but I agree that those areas would probably have the greatest opportunity for benefit.
7	In your trial where you increased both lysine and energy, do you think you should also look at if you only increase lysine or energy? Do we understand well if it is the requirement in amino acid or energy that change and which could have a greater benefit for further performance?	Yes this is a good question. We were not able to separate the lysine from the energy response in this trial, but could be a valuable topic for future research. We chose to utilize increased amounts of lactation diet as the way to create the treatments to make it easier to apply on the farms without needing to create a new diet.
8	When sows are fed ad libitum what is the meal frequency and meal size per eating bout. How does ME impact that and do we see impacts on feedback hormones such as insulin?	Most of the systems would have automatic feeding systems that allow sows access to the feed throughout the entire day. Not sure I have seen any data on meal size per eating bout, but I imagine it varies greatly based on parity or body weight of the sow as well as litter size driving milk demand. Yes, meal size and frequency would impact circulating insulin, but I am unfamiliar with any data that would help characterize it.
9	Hello i want to ask to the first speaker. What we are looking in the farms, is that the new sows after farrowing have some effects like fever milk or also sub clinic ketosis. What do	We did not observe any incidence of milk fever or other ketosis in our trials.

	you think we can do in our feed to avoid this clinic signs. Thanks	
10	Concerning the Creep feed, should it be different than the feed that is given to the Sows? Wondering if there is a Creep feed made specifically for helping with development?	This is a great question. The data isn't entirely conclusive. We have data that demonstrates that you need to use a high quality creep feed to maximize the percentage of pigs in the litter that will eat feed; however, I am aware of some field research that shows a good response to lactation feed. I would still recommend using a high quality creep, but limit wastage and total usage of the product to maximize the value.
11	There was a time in the 70's when sows milked for 40 days and level farrowing crates so weak that a few could have broken bones by jumping out of crates. Then the milking period switched to 16 days to have more sow's farrow per year 2.5 times. Now research suggests to return to the 21 day lactation period. WHAT LENGTH OF LACTATION DO YOU SUGGEST? 21-28 or please give your best call.	The answer depends highly on the health status of the pigs. If health status is high, the value of increasing weaning age on downstream performance is lower and economics will point towards a younger weaning age. If the system has more health challenges, it appears that weaning at 24 to 26 days of age provides the value of reduction in mortality without greatly reducing litters per sow per year. It also depends on whether you can add farrowing crates to not lower the number of pigs produced or not. Thus, the answer will depend on the production system and individual farm.
12	Thanks for the interesting presentation regarding the peri-partum period. Do you think that the effect of meal frequency and size prior parturition might depend on the litter size at birth? Can we expect same results in hyperprolificacy context? Thanks	Good question and I do believe the value of transition sow feeding strategies increases as litter size increases. The trials I showed were all with litters sizes of 14.5+ pigs born alive.
13	Which kind of water enrichment do you recommend? Which nutrients or additives?	There is limited published research on this area. Both nutrients and additives have opportunities for value. Anybody that has done any work in this area knows that you have to know what you are doing to provide nutrients through water lines though as you can have a big mess if done wrong. Rehydration and basal energy supplementation via water are done by some production systems.
14	Thanks for the presentation! What you would expect regarding light weight pigs having the delayed feeding versus medium and heavy pigs?	Good question. I don't think we know enough about the delayed feeding concept yet to know whether the response would be different for different weight ranges. We will try to look at that in our studies.
15	What is your opinion of estimating water consumption by using organic acid in the water during first 12h and delaying the feeding offer only 12hrs?	Organic acids are a tricky one. Sometimes we see reductions in water consumption with the use of some acids, so you need to be careful on the amount and source of acidifier. The appropriateness or need for acidifier in the water will be influenced by the pH of the water source and diarrhea issues that you may be experiencing. Just be careful to assume that acidification will increase water consumption. This doesn't always happen.
16	Regarding the presentation around post-weaning strategy to improve PW performances. Delaying the distribution of feed	This is what we are worried about with this approach and why it needs more work. It goes against the thought of maintaining continuous nutrient intake; however, the concept of

	right after the weaning seems to promote greater feed intake over the whole PW period. But what about the impact of this delaying strategy on gut integrity? Lot of papers report the benefits of making piglets eating as fast as possible after weaning on gut health. Thanks	stimulating all of the pigs to eat at the same time makes sense. We need to know just how long is too long to interrupt feed intake. Is the 18 h too long or not? More research will tell us.
17	What's the mode of action of delayed feed postweaning? will delayed feeding impair gut health?	Similar to my answer to a similar question. This is what we are worried about with this approach and why it needs more work. It goes against the thought of maintaining continuous nutrient intake; however, the concept of stimulating all of the pigs to eat at the same time makes sense. We need to know just how long is too long to interrupt feed intake. Is the 18 h too long or not? More research will tell us.
18	The use of MAT feeding after weaning was used only for 3 days as a reception feeding period. Do you suggest to increase these days up to 10 on mat feeding? Regardless of lots of wasting creep feeding FEED?	The length of time to use mats after weaning depends on barn temperature, health status, weaning age, etc. When you leave the mats too long, we have lost the benefit in some studies because they can become too soiled and not be used by the pigs. Thus, increasing the time to 10 d does make sense in some situations, but not in others.
19	Do you think it would be interesting using water enrichment in case of delaying feeding access after weaning like as showed in the last trial you presented, so piglets can have access to some nutrients in this meanwhile?	I think it depends on how long this period would be. We are not talking about an extended period, but more research really needs to be done before we know if the delayed feeding even makes sense for us. I just wanted to make people aware of the study.
20	Regarding the "Zinc", the speaker mentioned that feeding Iron excess in iron should be avoided... Is he talking about iron supplied before weaning, around birth? Or about the iron level of the starter feed? Thanks	Regarding the iron level, the comment is focused on the dietary iron level after the time of weaning...not directed towards iron shortly after birth which has been clearly defined as being critical to supply.
21	Most of the beneficial effect of copper and Zinc in the feed is as a residual of the minerals in the feces. reduces moisture environment bacterial and fungus growth. THEN A GROWTH piglet improvement. It is an environmental effect rather than nutritional metabolic improvement. Can you correct these facts?	Yes...much of the benefit associated with zinc oxide is at the gut lumen level and not through absorption in the GI tract and metabolic impacts.
22	how to ensure the supply of non-essential amino acids in low CP diets? How the ration lys:ME changes in these diets?	Within the formulation strategy for many of these studies at KSU, the energy content of the diets was similar across dietary treatments so the reduction in SID lysine % results in reducing lysine:calorie ratio as the dietary CP was reduced. Additional information regarding the diets and formulation can be found in the swine day papers available at the www.ksuswine.org website. Thank you.
23	Is there an upper limit to the inclusion rate of crystalline Lys?	There are no clear guidelines regarding the inclusion rate of feed-grade Lysine and it can be highly dependent upon the ingredients used, but one formulation strategy would be to set a maximum SID lysine:CP ratio of 6.35%.

24	what % Fecal DM would constitute scours, looseness, and firm stools?	Good question...and I don't think there would be clear guidelines regarding what would define "scours" or "looseness". It would depend some on how the reader would interpret the information within their production and health objectives so there could be some variability in how different people would interpret these values.
25	Do you think that if water consumption is dramatically enhanced postweaning, will there be less diarrhea problems and less need for Zn oxide?	Good question and interesting thought. Increasing water consumption could result in more rapid GI transit times which could help "flush" pathogenic bacteria. From the appearance of the feces in the barn, there still may be some looseness as I would expect the water content of the feces to remain more liquid which still could give the appearance of diarrhea.
26	We should also closely look at the ABC-4 of the early wean diet and look at mean to reduce it. Lower added lime level and/or replacement partially by product like ca formate. We can also feed lower Ca in the first early wean diet. Need to also understand that as we used more Zn Ox we are increase the diet ABC-4.	Great point. I know you have done work in this area and we have a graduate student working in the Ca area immediately after weaning too. I do think we need to watch ABC-4 closely. Our normal diets are very high, even when we remove the ZnO. This is an area that our North American diets would need a big shift if we remove ZnO.
27	What ratio between SID Lys/CP did you use as maximum, was it 6.35? Do you have any studies supporting this ratio?	Yes, the 6.35% SID Lys:CP ratio was derived from work by Millet in Belgium.
28	Regarding Zn strategies, most of the data showed negative effects of reduction of CP during early nursery (5-11 kg). Did you guys checked the overall performance during nursery? Can pigs recover after that period of "restriction"?	Yes, many of the studies included growth performance through the nursery phase on a common diet after the treatment diets were fed. To summarize, there are variable results with some evidence of compensation, but to varying degrees. Still not sure the effect if the pigs are followed to market, but something which should be investigated further.
29	Effect of excess iron in drinking water on nursery pigs?	Yes, it is a concern which should be considered, especially if the use of ZnO is limited. Excess iron allows for bacterial proliferation and proliferation of pathogenic bacteria can clearly have detrimental impacts on health and performance.
30	Do you have any evidence at KSU that wheat bran can interact with the GI bacteria? This could explain the benefits of wheat bran diets.	That is a good point, and we have not yet looked at the impact of any GI bacteria thus far. Something to consider further, however.
31	Did the co-mingling/nursing/creep feeding at the Schwartz farm have any affect on the wean to estrus distribution of the sows?	Great question. They haven't done enough sows through the system in controlled studies to know for sure. We discussed the potential for issues with Mark Schwartz. They are also weaning at 26 d of age in this system currently. We were worried about sows coming into estrus before weaning. He indicated that it has not been a problem, but that many sows come into estrus immediately after weaning, earlier than their conventional system. There is more nursing pressure on the sows, but his thinking is that all mammary glands are more fully used than on a normal system. I think the early mixing may provide some value in this area.

32	Going back to the effect of the protein reduction in PW diets? Why reducing in the same time the lysine content? Reducing CP content without lowering lysine content is possible by only withdrawing the synthetic lysine? Is the interest of reducing both lysine and CP related to a balance between CP and lysine (as introduced in the Ideal Protein concept)?	Yes, reducing both the lysine along with the CP of the diets is aimed to consider the ratio of other amino acids to SID lysine consistent with the ideal protein concept.
33	How is "diet complexity" defined?	A combination of more or less specialty proteins, lactose and feed budgets
34	Can you give an economical value for a farrow to finish farm if you improve CV from 10 to 9 at slaughter age. So how much does a farm earn extra at an improvement of CV?	That data was showing actual lb, not the CV. Some weaned pig contracts state a no or lesser value for pigs under a certain wean weight such as 8 lb. thus it can be a difference of a full value, lesser value or no value weaned pig for that sow farm
35	Feeder space data was with dry feeders?	I need to pull that paper and I will let you know, I will send that to you Jon.
36	Joel, it is well recognized that gilts grow slower than males and gilts are less profitable for both production and processing, but is the CV and SD difference between the genders?	Shull 2013 had multiple studies on this - barrows were higher CV then gilts at weaning and for up to week 10 post-weaning. but at marketing, no difference was present.
37	On Julie Holen's research , in the colostrum research , are you looking at IgG levels . If so , with Elisa kits or digital refractometers ?	Yes, we will use the Elisa kits for IgG analysis.
38	Was their any behavioural issues (tail biting, etc.) associated with low lysine/trypt diet and only corn diet application?	No, there was nothing out of the ordinary observed