This is an important study, well designed, implemented, analysed and written. I have a few minor points, detailed line by line below. The main points I think need addressing are more clarity on how the data was prepared and analysed, which will make the results, mainly the behavioural results clearer, as they are currently a little confusing (e.g. % obs vs % sows). It would be really useful to includes photos and/or a schematic diagram of the pen set up including enrichment placement. I’d also like to see the common barriers to enrichment use; biosecurity and manure handling referred back to in the discussion after mentioning only once in the summary. Since this has great practical application, these details are useful and important.

Simple Summary

L22 – suggest adding what the associate stimulus is in brackets so its clear here to the reader, e.g. (bell or whistle).

Abstract

L35 – as above add what the stimulus is, as a reader, I was curious to know here, e.g. (bell or whistle).

L37 – is that 12 days for each enrichment treatment?

L39 – if word count allows, suggest adding: for 8h (between 8am and 4pm) and 4 days/treatment (d 1, 8, 10 and 12).

L44-46 – after this line, I’d like to see a similar concluding statement to the simple summary, e.g. that enrichment is valued, therefore important and the right amount of is needed to avoid competition over access.

Introduction

L62 – “and oral stereotypies” could be added.

L63-68 – mention the manure system as a barrier, but what about the biosecurity mentioned in the summary? This is really a ‘false objection’ in my mind, but worth mentioning the rationale behind it.

L88 – perhaps expand a little on the properties of enrichment that make it appealing to pigs, e.g. chewable, deformable, destructible, edible (especially for feed restricted sows who benefit from additional sources of fibre).

Methods

L106-113 – would benefit from a little more information on the two pen designs, including the total pen dimensions (length x width), did the pens have partitioned ‘bed room’ areas, the location(s) and of the ESF and the number and location of water point(s). If easier, could add a photo or schematic of the designs and indicate locations of the enrichments too. Also, useful to know the sow genetics. These aspects can influence sow aggression, so useful for the reader to know.

L126-136 – excellent description of the detail of enrichment provision! A photo and/or schematic as mentioned above would really help too.

L150 – ‘was’ to ‘were’.

L169 – ‘datasheet’ to datasheets’.

Figure 2 – really picky so feel free to ignore, but the image is a boar, a sow might be better 😊!!
L201-207 – happy not to see great detail of the process, as it’s likely the kit instructions were followed. Would be useful to know whether exact instructions were followed or any adaptations to the process were made? Also missing a couple of things to enable replication of the experiment, including: were the samples analysed in duplicate or triplicate, 20 standards were run in total, but not clear how many plates and how many standards per 96-well plate?

L219 – ‘Model fitness’ to ‘Model fit’.

L211-230 – why not include day of gestation? If this was balanced, then perhaps mention that is why it was not included in the model, or is this accounted for in the sow group replicate in the random model? Also where is Sub/Dom in the behaviour model and day of observation? A bit more detail on the stats is needed to make clearer.

Having read and been confused by the results, suggest renaming the ‘Statistical Analysis’ section ‘Data Manipulation and Analysis’ with each paragraph containing more detail on how the different data types were prepared and then analysed. This way, all the detail is in one place before reading the results.

Results

Table 2 – this is a little confusing? The title mentions sows in contact and close to enrichment, but also includes greater than 1m in the table. I can’t quite follow why the time for >1m can be close to or 100% when the % for close or in contact are high?

Figure 3 – Why not have 2 bars for each with stimulus and rotate so the reader can see they are similar?

Table 3-6 – again, confusing why these don’t add up to 100%? It could be clearer if the stats methods included details of the data manipulation on how the % of obs and % of sows was calculated. I genuinely can’t work it out at the moment.

I’d like to know the parities of the Sub and Dom sows somewhere?

Discussion

L353-361 - It’s worth mentioning whether the straw posed biosecurity or manure handling issues in this study as referred to in the simple summary and manure handling only in the introduction. This was a concern for many European producers, who found it not to be as big an issue as anticipated, by ensuring good quality straw and/or chopped straw, also whether the sows mostly ate it (rather than it falling down the slats) and the benefits of additional fibre for sows potentially outweighing these issues.

L448-462 – for the cortisol results, it could be a difference in feeding time, given sows here are fed with ESF. For Sub sows who may feed at different times to Dom sows (e.g. less preferred times), they could have a slightly different diurnal pattern of cortisol and this could be contributing to the difference since saliva was only sampled at one time point.

L431-447 – On aggression, the simple summary and abstract concludes on this point, but in the results and discussion, it’s clear that lesions scoring were pretty low (if summed for 22 body regions the score could be a total of 66 but results show between 2 and 6l). If I were reading just these summary/abstract I would focus on aggression being an issue in relation to enrichment. But, given how much the sows used it, particularly the straw and rotation of enrichments, I would conclude
that the value of enrichments would outweigh any potential added aggression over them, which could be easily minimised with appropriate volume and placement of enrichment items.