

Stimulating exploratory behaviour in piglets: Effects on pre-weaning creep consumption.

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Background

Stress at weaning results from the abrupt change from a liquid to a solid diet, and a change in the environment and pig grouping, and leads to a reduced feed intake for two days following weaning, and the potential for increased disease susceptibility and mortality. Familiarising pigs with a solid diet prior to weaning through provision of creep aims to help piglets transition to solid feed, to decrease the time spent non-eating, and prevent weight loss in the period post weaning. In addition, the provision of creep can help to familiarise the gut with solid food gradually. However, observations have shown less than 50% of piglets in a litter will actually consume the creep. In the wild, piglets learn to consume appropriate feedstuffs while foraging in groups, imitating

the behaviour of the dam and the littermates. In contrast, the intensive environment is relatively barren and uniform, and combined with the restriction of the sow in a crate, provides little opportunity for sow piglet interaction or exploration. However, if the pigs' natural exploratory drive could be stimulated in the farrowing pen, this may stimulate interest and exploration of the creep feed between the littermates, and help them more readily accept solid feed post weaning. This study investigated whether providing environmental enrichment, or increasing the opportunity for social feeding, could stimulate exploratory behaviour and result in greater creep consumption and improved growth performance before and after weaning. The research questions were:

- Can stimulating exploratory behaviour increase pre-weaning creep feed consumption in piglets?

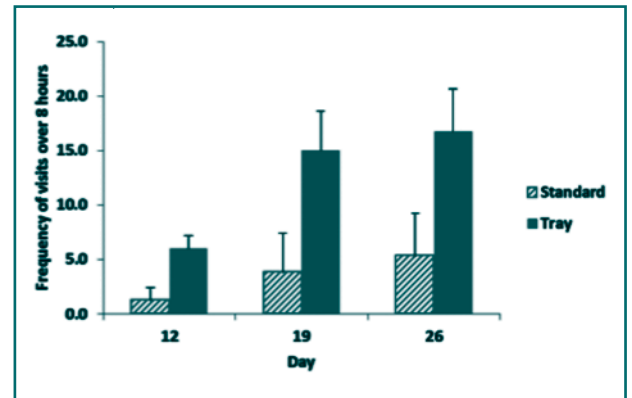


Figure 2: Frequency of piglet visits to standard and tray feeders.

- Is exploratory behaviour best stimulated by provision of: a) pen enrichment (E: suspended ropes); or b) a shallow tray feeder that facilitates synchronized feeding, stimulating group foraging?
- Does this result in increased growth performance before or after weaning?




Figure 1: The four treatment types a) T1: Standard Feeder (SF), b) T2: Standard feeder with enrichment (SF&E), c) T3: Tray feeder (TF), d) T4: Tray feeder with enrichment (TF&E).

Study Design

Twenty-eight litters were studied over four treatments (seven litters per treatment), with creep feed provided to all litters from 10 to 28 days of age (weaning). Treatments consisted of creep offered in one of two feeder designs (a standard commercial feeder, or a low edge baking tray), with or without enrichment provision, as follows: T1) creep provided in a standard feeder (SF), T2) creep provided in a standard feeder with enrichment (SF&E), T3) creep provided in a tray feeder (TF), and T4) creep provided in a tray feeder with enrichment (TF&E) (Figure 1). Enrichment treatments received strips of cotton rope suspended in the pen from day 5 until weaning. Piglet weights and creep consumption were recorded weekly, from birth up until six weeks of age, including an additional weight at day 1 post weaning. Piglet behaviour was recorded from 8am – 4pm, on days 12, 19, and 26 of age, and on days 1, 7 and 14 post-weaning. Footage was scanned at five minute intervals to determine the number of piglets interacting with the feeder (head in feeder), and the number of piglets interacting with the enrichment.

The Bottom Line

Provision of a large tray feeder encouraged social feeding and foraging by piglets and was more effective at attracting piglets to the creep than a standard feeder, or the provision of rope enrichment. This may be because the tray feeder provided a greater opportunity for group foraging and rooting behaviour. Provision of the tray feeder before weaning led to a positive effect on piglet growth immediately after weaning. These growth benefits may have arisen from piglets more readily taking to solid feed post weaning, having had increased exploration of solid feed pre-weaning. The greater feed disappearance from the tray feeder may have been due to increased feed wastage. However, if increasing the foraging behaviour is enough to encourage feed intake immediately post-weaning then providing expensive creep feed in the tray may not be necessary – and rather any material that the piglets can forage and ingest would do, such as beet pulp. This is an area for further research. Analysis of the post-weaning data is ongoing, and results will help determine if the effects of the tray feeder pre-weaning has lasting positive effects post weaning. 

(Feeding Mycotoxin...Continued from 7)

Table 2. Legislated maximums, regulatory guidelines and recommended maximums for different mycotoxins into swine diets (adapted from Charmley and Trenholm, 2012)*

Mycotoxin	Commodity	Levels
Deoxynivalenol ¹	Diets for swine	1 ppm
Aflatoxins ²	Animal feeding stuffs	20 ppb
T-2 toxin ³	Swine diets	< 1 ppm
Zearalenone ³	Gilt diets	< 1-3 ppm
Swine diets	< 0.25-5 ppm	
Ochratoxin A ³	Swine diets (kidney damage)	0.2 ppm
	Swine diets (reduced weight gain)	2 ppm
Ergot Alkaloids ³	Swine diets	4-6 ppm
Fumonisin ³	Swine diets	10 ppm

*ppm is parts per million (mg/kg) and ppb is parts per billion.

¹ Regulatory guidelines (Worldwide regulations for mycotoxins. FAO Food and Nutrition Paper 64, 1997)

² Legislated maximum tolerated level (Worldwide regulations for mycotoxins. FAO Food and Nutrition Paper 64, 1997)

³ Recommended tolerance levels in Canada and the United States

For Further Information:

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