103 Effect of Floor Feeding Creep Feed on the Growth Performance and Morbidity and Mortality of Pigs After Weaning.

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Abstract: A total of 264 litters corresponding to 2,497 nursery pigs were used in a 40-d trial to determine the effect of floor feeding pelleted creep feed or lactation feed on the growth performance and morbidity and mortality of pigs after weaning. Treatments were applied in the farrowing house for 4-d prior to weaning and consisted of a control (no creep), standard (0.32 cm) creep pellet, large (1.27 cm) creep pellet, or sow lactation feed in meal form. For each treatment, approximately 227 g of creep feed per day equally divided into 2 feedings was provided on the mat in farrowing stalls. At weaning, pigs were transported to the nursery facility and randomized to pen within creep feeding treatment. A total of 96 pens (48 feeders) were used, with one barrow pen and one gilt pen per feeder. Thus, feeder (2 pens) was the experimental unit. There were 26 pigs per pen and 12 replications per treatment. During week 1 postweaning, pigs fed standard or large pellet creep feed had increased ($P < 0.001$) ADG compared with pigs fed sow lactation feed or no creep feed. This was not driven by improved ADFI but rather G:F ($P < 0.001$). No differences in growth performance were observed throughout the remainder of the nursery period. Overall, on a per pig placed basis, pigs fed large pellet creep feed had increased ADG ($P < 0.05$) and improved G:F ($P < 0.05$) compared with pigs fed sow lactation feed, with the other 2 treatments intermediate. This response was a direct reflection of decreased ($P < 0.05$) total mortality and removals for pigs fed large pellet creep feed. In summary, floor feeding large pellet creep feed starting 4-d preweaning improved nursery pig growth performance and fallout rates compared with creep feeding sow lactation feed, with standard pellet creep feed or no creep feed having an intermediate effect.

Table 1. Effect of creep feeding on post-weaning growth performance on per pig placed basis, d 0 to 36

	Treatment					
Item	No creep feed	Standard pellet	Large pellet	Lactation feed	SEM	*P* =
Body weight, kg						
d 0	5.1	5.1	5.1	5.0	0.05	0.457
d 36	14.1	14.3	14.4	13.8	0.17	0.066
ADG, g	205[a,b]	211[a,b]	218[a]	185[b]	7.7	0.027
ADFI, g	321	324	328	302	7.4	0.083
G:F	0.64[a,b]	0.65[a,b]	0.66[a]	0.61[b]	0.012	0.026
Mortality/removal analysis, %						
Total mortality	3.2	3.0	2.9	4.5	0.83	0.398
Total mortality and removals	12.0[a,b]	11.1[a,b]	9.8[b]	14.9[a]	1.43	0.050

Keywords: creep feeding, pig, weaning

104 Effect of Mat Feeding on the Growth Performance and Morbidity and Mortality of Pigs After Weaning.

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Abstract: Three experiments were conducted using 9,403 pigs to determine the effect of mat feeding on growth performance and morbidity and mortality of pigs after weaning. At weaning, pigs were randomized to 96 pens (48 feeders) with 30 to 35 pigs/pen. Feeder (2 pens) was the experimental unit. For each experiment, mat feed was provided 3 times daily for 10 d and was included in calculation of post-weaning ADFI and G:F. In Exp. 1, treatments consisted of mat verses no mat feeding. Overall, mat fed pigs tended to have decreased ($P = 0.056$) ADG compared with the control, which resulted in decreased ($P < 0.026$) final body weights. No differences were observed in ADFI or G:F. However, mat fed pigs had reduced total mortality and removals ($P = 0.019$). In Exp. 2, treatments were arranged in a 2×2 factorial with main effects of diet form (pellet or crumble) and mat feeding (without or with). Overall, no interactions between diet form and mat feeding were observed. No differences were observed in growth performance by mat feeding. However, pigs receiving pelleted feed had decreased overall ADFI ($P = 0.013$) and increased G:F ($P < 0.001$). Differences in total mortality and removals were not significant. In Exp. 3, treatments consisted of mat feeding small (0.32 cm) or large (1.27 cm) pellets, or no mat feeding. No differences were observed in overall ADG or G:F; however, mat fed pigs had increased ADFI ($P < 0.05$), regardless of pellet size. Differences in total mortality and removals were not significant. When combining removal and mortality data for the 3 experiments, mat fed pigs had fewer total removals ($P = 0.025$) compared with the control. In summary, mat feeding has limited effects on growth performance of pigs after weaning; however, mat feeding may encourage earlier feed intake reducing the fall out rate of pigs as indicated by the decreased removals.

Table 1. Effect of mat feeding on post-weaning removal and mortality rates[1]

	Treatment			
	Control	Mat	SEM	*P* =
Exp. 1				
Removals, %	5.6	3.8	1.93	0.026
Mortality, %	1.1	0.8	0.27	0.588
Total mortality and removals, %	6.7	4.7	2.12	0.019
Exp. 2				
Removals, %	7.2	6.6	1.47	0.527
Mortality, %	0.5	0.6	0.21	0.731
Total mortality and removals, %	7.8	7.3	1.35	0.571
Exp. 3				
Removals, %	14.1	12.4	2.22	0.186
Mortality, %	0.09	0.23	0.105	0.407
Total mortality and removals, %	14.2	12.7	2.19	0.227
Exp. 1, 2, and 3 Combined				
Removals, %	8.6	7.3	2.52	0.022
Mortality, %	0.5	0.5	0.25	0.840
Total mortality and removals, %	9.3	8.0	2.32	0.025

[1] For each experiment, pens of pigs assigned to the mat feeding treatment group were provided 318 g of pelleted feed (Exp. 1), 318 g of pelleted or 372 g of crumble feed (Exp. 2), or 726 g of pelleted feed (Exp. 3) provided on a 46 × 61 cm piece of DuraTuff solid flooring three times daily (morning chores – before walking pens, morning chores – after walking pens, and afternoon chores) for 10 d post-placement.

Keywords: mat feeding, pig, weaning

108 Quantifying the Presence of Viral Material in Feed Delivered in Iowa. Trey A. Kellner[1], Josh Ellingson[2], Paul Thomas[2], Nick V. Serao[3], *[1]AMVC Nutritional Services, [2]AMVC Management Services, [3]Iowa State University*

Abstract: Experimental models have shown that viral genetic material can be found in feedstuffs for over 150 d and experimental viral contamination of feed can cause viral diseases in pigs. However, the actual risk of feed being a fomite for viruses that cause PRRS, PED, PDCoV, and TGE in everyday pork production has yet to be determined. Thus, our objective was to quantify the viral presence in 224 feed samples delivered throughout Iowa in 2 periods of the year. The first period was from November 29th, 2020 through February 20th, 2021, during the period of suspected seasonally elevated virus pressure. The second period was from June 6th through July 3rd, 2021, during the period of suspected decreased virus pressure. We hypothesized that fewer than 2 of the 224 feed samples would result in a positive PCR test. To test our hypothesis and accomplish our experimental objective, 1 feed sample was collected per feed mill (14) for each of 16 weeks (12 in the winter collection period and 4 in the summer collection period; [n = 224]). Each feed sample was collected at the mill during the loading of the feed truck before delivery. Post collection each feed sample was identified and then shipped to the Veterinary Diagnostic Laboratory at Iowa State University. All collected feed samples were tested via PRRSV PCR and PEDV/PDCoV/TGEV multiplex PCR. The Veterinary Diagnostic Laboratory at Iowa State University declared Ct values >37 a negative (-) result for PRRSV and >36 a negative (-) result for PEDV, PDCoV, and TGEV. Of the 224 collected feed samples, 0 tested positive for PRRSV. Of the 224 collected feed samples, 0 tested positive for PEDV, PDCoV, and TGEV. These results do not disprove that feed can be a fomite of domestic and foreign animal diseases. These results just provide a data point for pork producers to evaluate the actual risk of feed being a fomite of PRRSV, PEDV, PDCoV, and TGEV.

Keywords: biosecurity, feed, swine