PSIII-35 The effects of cold pelleting and separation of fine corn particles on growth performance of nursery pigs. Caitlin E. Evans[1], Marut Saensukjaroenphon[1], Haley Wecker[1], Jason C. Woodworth[1], Cassandra K. Jones[1], Joel M. DeRouchey[1], Mike D. Tokach[1], Robert D. Goodband[1], Chad B. Paulk[1], Charles R. Stark[1], [1]*Kansas State University*

A total of 320 pigs (DNA 241×600; initially 10.2 kg BW) were utilized in a 21-d experiment to determine the effects of corn fractionation and pelleting technique on nursery pig growth performance. There were 5 pigs per pen, 8 pens per treatment and 8 dietary treatments in a randomized complete block design. Treatments 1–3 contained 400 µm ground corn and were fed as either mash, pelleted using a steam conditioner plus traditional vertical ring die (steam pellet) or pelleted with hot water plus a horizontal die (cold pellet). Treatments 4–6 contained corn ground to 400 µm with fines < 150 um removed and were fed as either mash, steam pellet or cold pellet. Treatments 7 and 8 contained ground corn with only fines < 150 um steam or cold pelleted prior to dietary inclusion without complete diet pelleting. Overall, pigs fed mash diets had improved ($P < 0.05$) ADG and d 21 BW compared to those fed steam pelleted diets with those fed cold pelleted diets being intermediate. There was no difference in G:F between pigs fed mash, steam pellet and cold pellet diets; however, pigs fed diets containing pelleted fines had decreased ($P < 0.05$) G:F due to an observed increased feed wastage and sorting. There was no difference in growth performance between pigs fed diets with fines removed or not. Cold pelleting was a viable option to steam pelleting in the current experiment; however, pelleting diets reduced pig performance compared to pigs fed mash diets, which was unexpected. Further research is needed to validate the response to cold pelleting when the expected response to pelleting using steam conditioning is achieved.

Table 1. Effects of cold pelleting and separation of fine corn particles on growth performance of nursery pigs

Corn	Ground corn[1]			Ground corn with fines removed[2]			Ground corn with fines pelleted[3]	
Feed Form	Mash	Steam pellet	Cold pellet	Mash	Steam pellet	Cold pellet	Mash with fines steam pelleted	Mash with fines cold pelleted
BW, kg								
d 0	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2
d 21	22.2[a]	19.5[c]	20.8[abc]	22.1[a]	19.6[c]	21.2[ab]	19.4[c]	20.5[bc]
d 0 to 21								
ADG, kg	0.56[a]	0.44[c]	0.50[b]	0.57[a]	0.44[c]	0.52[ab]	0.44[c]	0.49[bc]
ADFI, kg	0.81[c]	0.67[d]	0.71[d]	0.83[c]	0.68[d]	0.76[dc]	1.05[a]	0.95[b]
G:F	0.68[a]	0.65[a]	0.70[a]	0.68[a]	0.66[a]	0.69[a]	0.43[c]	0.53[b]

[1] Ground corn particle size of 400 microns.
[2] Ground corn with fines (<150 microns) removed via sifting, remaining fraction particle size of 600 microns.
[3] Ground corn with fines (<150 microns) removed via sifting followed by pelleting prior to being proportionally added back.
[a-d] Means within row are statistically different ($P \leq 0.05$) based on treatment.

Keywords: corn fraction, cold pelleting, thermal processing

PSIII-21 Effect of active, dry yeast Saccharomyces cerevisiae (ActiSaf HR+®) on postweaning performance, diarrhea and immune parameters of nursery pigs in cleaned or dirty environmental conditions. Claudia Tellman[1], Thomas Esselburn[2], Joseph Loughmiller[2], Sheila Jacobi[1], [1]*Ohio State University,* [2]*Phileo, Lesaffre Animal Care*

Weaning imposes multiple stressors that reduce feed intake and impair intestinal integrity. Furthermore, poor environmental management could compound the high stress period increasing morbidity and mortality of postweaning piglets. The objective of this research was to investigate the effect of supplemental Saccharomyces cerevisiae (ActiSaf HR+®) on postweaning growth performance, fecal scores and immune parameters in a clean or dirty nursery environment. The experiment was a 2 X 2 factorial design with 2 dietary treatments fed in a sanitized (following barn SOP) and un-sanitized (pits flushed, feeders and pens scraped) nursery environment. Weaned piglets (n = 260 and 5pigs/pen; 14.7±1.5lbs wt., 20.8d of age) were allotted to the following dietary treatments: 1) control or 2) ActiSaf HR+® (0.1% in phase 1 and 2 and 0.05% phase 3 diets) for 5-wks postweaning. On days 3, 7, 14, 21 and 35 fecal scores/pen and blood samples were collected for monitoring diarrhea and measurement of cytokines. Overall, pigs fed ActiSaf tended towards greater ADG compared to control fed pigs regardless of environment ($P = 0.09$; 379 vs. 357 g/d, ActiSaf vs control, respectively). Final pen weights at d35 were greater in ActiSaf vs. control fed pigs (101 vs. 97 kg/pen; $P < 0.05$). Pigs reared in the dirty vs clean environment had reduced overall ADG (352 vs 384 g/d, respectively; $P = 0.01$), and pigs in the dirty environment tended towards higher overall feed:gain compared to pigs in clean environments; 1.87 vs. 1.76 g/g ($P = 0.09$). Diarrhea scores were increased in the dirty environment compared to the clean environment on days 3 and 7 ($P < 0.01$). Serum TNF-a concentrations were not significantly affected by diet or environment. In conclusion, nursery pigs raised in clean environments had higher ADG and improved feed conversion than pigs reared in a dirty environment. Pigs fed diets containing ActiSaf HR+® tended towards increased ADG regardless of environment.

Keywords: Probiotic, environment, performance