134 Evaluation of a medium chain fatty acid-based feed additive for nursery pigs. Lori L. Thomas[1], Hayden E. Williams[1], Jason C. Woodworth[1], Mike D. Tokach[1], Robert D. Goodband[1], Steve S. Dritz[1], Joel M. DeRouchey[1], Dillon Mellick[2], *[1]Kansas State University, [2]Kemin Industries*

A total of 350 pigs (DNA 400×200, initial BW=6.3 kg) were used in a 34-d growth trial to evaluate the effects of a medium chain fatty acid (MCFA)-based feed additive in nursery pig diets. Following arrival to the nursery facility, pigs were randomized to pens (5 pigs per pen) and allowed a 4-d acclimation period. Thereafter, pens of pigs were blocked by BW and randomized to 1 of 5 dietary treatments (14 pens per treatment). Treatments were a dose response of 0, 0.5, 1.0, or 2.0% MCFA-based additive (CaptiSURE, Kemin Industries, Inc.; Des Moines, IA) as well as a treatment including 1.0% MCFA from a 1:1:1 blend of C6, C8, and C10 (Sigma Aldrich, St. Louis, MO). Treatment diets were formulated and manufactured in two dietary phases (d 0 to 13 and 13 to 34). Data were analyzed as a randomized complete block design with pen serving as the experimental unit. Overall (d 0 to 34), increasing CaptiSURE increased (linear, $P \leq 0.014$) ADG and ADFI. Feed efficiency improved (quadratic, $P = 0.002$) with increasing CaptiSURE up to 1% of the diet with no benefit thereafter. As a result of the linear improvement in ADG, pigs fed 2.0% CaptiSURE were 1.8 kg heavier ($P = 0.05$) than pigs fed diets without MCFA at d 34. There was no evidence for differences between pigs fed 1.0% CaptiSURE and pigs fed the 1.0% MCFA blend of C6, C8, and C10 in phase 1, phase 2 or in overall performance. In summary, the addition of up to 2% of this MCFA-based additive in nursery pig diets resulted in linear improvements in ADG and ADFI. The MCFA-based feed additive also resulted in a similar improvement in growth performance as the C6, C8, and C10 MCFA blend when both were added at 1% of the diet.

Table 1. Effect of medium chain fatty acid-based additives on nursery pig growth performance[1]

	Added MCFA, %							
	CaptiSURE[2]				C6:C8:C10[3]		Probability, <	
Item	0	0.5	1.0	2.0	1.0	SEM	Linear[4]	Quadratic[4]
BW, kg								
d 0	6.3	6.3	6.3	6.3	6.3	0.05	0.778	0.927
d 13	9.9	10.2	10.4	10.4	10.2	0.14	0.002	0.062
d 34	21.8	22.8	23.2	23.6	23.1	0.33	0.001	0.089
d 0 to 13								
ADG, kg	0.28	0.30	0.31	0.32	0.30	0.009	0.001	0.063
ADFI, kg	0.34	0.36	0.35	0.36	0.35	0.010	0.149	0.211
G:F	0.82	0.83	0.89	0.89	0.86	0.013	0.001	0.104
d 13 to 34								
ADG, kg	0.57	0.60	0.60	0.63	0.62	0.011	0.001	0.273
ADFI, kg	0.82	0.84	0.84	0.87	0.85	0.015	0.013	0.974
G:F	0.69	0.72	0.72	0.72	0.72	0.006	<0.001	0.013
d 0 to 34								
ADG, kg	0.46	0.49	0.49	0.51	0.50	0.009	0.001	0.127
ADFI, kg	0.63	0.66	0.65	0.67	0.66	0.012	0.014	0.693
G:F	0.72	0.74	0.76	0.76	0.75	0.005	<0.001	0.002

[1]A total of 350 pigs (DNA 400 × 200; initial BW = 6.3 kg) were used in a 34-d experiment with 5 pigs per pen and 14 pens per treatment.
[2]Kemin Industries, Inc (Des Moines, IA).
[3]A 1:1:1 blend of C6, C8, and C10 (Sigma Aldrich, St. Louis, MO).
[4]Linear and quadratic contrast statements include treatments with CaptiSURE (Kemin Industries, Inc, Des Moines, IA) MCFA.

Key words: nursery pig, medium chain fatty acid, growth

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