

138 Evaluation of different combinations of medium chain fatty acids and monolaurin as a dietary additive for nursery pigs.

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A total of 360 pigs (DNA 400×200, initial BW=6.8 kg) were used a 35-d trial to evaluate the effects of adding MCFA and monolaurin blends to the diet on growth performance of nursery pigs. Pens of pigs were blocked by BW and randomized to 1 of 6 dietary treatments (12 pens per treatment). Treatments consisted of a basal diet containing no MCFA (control), the control diet with 1.0% added MCFA (a 1:1:1 blend of C6, C8, and C10; Sigma Aldrich, St. Louis, MO), or a 1.0% inclusion of 4 different blends of MCFA, lactic acid, and monolaurin (1, 2, 3, and 4). The 4 blends consisted of 50% C6, 20% lactic acid and increasing levels of monolaurin (0, 10, 20, and 30%) at the expense of C12 (30, 20, 10, and 0%). Data were analyzed as a randomized complete block design with pen as the experimental unit. From d 0 to 14, pigs fed the 1.0% 1:1:1 MCFA blend had increased ($P = 0.037$) ADG compared to the control group. Pigs fed the 1.0% 1:1:1 MCFA blend and the mean of the 4 blends of MCFA, lactic acid, and monolaurin had improved ($P < 0.037$) G:F compared with pigs fed the control diet. From d 14 to 35, ADFI and subsequently ADG increased ($P < 0.057$) for pigs fed the 1.0% 1:1:1 MCFA blend compared with the control group. Overall, pigs fed the 1.0% 1:1:1 MCFA blend had increased ($P < 0.034$) ADFI and ADG, resulting in 0.9 kg greater final BW ($P = 0.014$) compared with the control group. There was no evidence for differences between the mean of pigs fed blends of MCFA, lactic acid, and monolaurin compared with the control. In summary, the addition of a 1.0% 1:1:1 MCFA blend resulted in improved ADG, ADFI, and G:F compared with pigs fed a control diet.

Table 1. Effect of medium chain fatty acids (MCFA) on nursery pig growth performance¹

Item	1% MCFA ²		1% MCFA, lactic acid and monolaurin blends ³				SEM	Probability, $P <$ Control vs. 1% C6:C8:C10
	Control	C6:C8:C10	1	2	3	4		
BW, kg								
d 0	6.8	6.8	6.8	6.8	6.8	6.8	0.05	0.918
d 14	9.9	10.4	10.1	10.2	10.2	10.3	0.17	0.042
d 35	21.6	22.5	21.8	22.0	22.1	22.2	0.28	0.014
d 0 to 14								
ADG, kg	0.23	0.26	0.24	0.24	0.25	0.25	0.011	0.037
ADFI, kg	0.29	0.31	0.28	0.28	0.29	0.30	0.011	0.223
G:F ⁴	0.79 ^b	0.85 ^{ab}	0.85 ^{ab}	0.85 ^{ab}	0.85 ^a	0.84 ^{ab}	0.016	0.013
d 14 to 35								
ADG, kg	0.55	0.58	0.55	0.56	0.56	0.57	0.009	0.057
ADFI, kg	0.77	0.82	0.78	0.79	0.79	0.79	0.014	0.015
G:F	0.72	0.71	0.71	0.71	0.71	0.71	0.008	0.229
d 0 to 35								
ADG, kg	0.42	0.45	0.43	0.44	0.44	0.44	0.008	0.014
ADFI, kg	0.58	0.61	0.58	0.59	0.59	0.60	0.012	0.034
G:F	0.73	0.73	0.74	0.74	0.74	0.74	0.007	0.932

¹A total of 360 pigs (DNA 400 × 200; initial BW = 6.8 kg) were used in a 35-d experiment with 5 pigs per pen and 12 pens per treatment.

²A 1:1:1 blend of C6, C8, and C10 (Sigma Aldrich, St. Louis, MO).

³Blend of C6, C12, lactic acid, and monolaurin (Tech Mix, LLC, Stewart, MN). The 4 blends consisted of 50% C6, 20% lactic acid and increasing levels of monolaurin (0, 10, 20, and 30%) at the expense of C12 (30, 20, 10, and 0%). Monolaurin addition increased from product 1 through 4 replacing C12.

⁴Control vs. Blends $P < 0.001$.

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