Table 300.

Item	Treat			Pooled SEM	*P*-Value
	LCa	MCa	HCa		
BW d7, Kg	8.43[a]	8.33[ab]	8.21[b]	0.06	0.041
BW d14, kg	10.72[a]	10.6[a]	10.16[b]	0.08	0.0001
ADG 0–7d, g/d	106.94[a]	91.25[ab]	74.62[b]	8.37	0.044
ADFI 0–7d, g/d	162.51	148.45	149.69	8.05	0.411
G:F 0–7d	0.654[a]	0.616[a]	0.481[b]	0.04	0.014
ADG 0–14d, g/d	219.19[a]	207.25[a]	176.76[b]	5.72	0.0002
ADFI 0–14d, g/d	342.35	323.01	314.64	9.04	0.113
G:F 0–14d	0.640[a]	0.645[a]	0.561[b]	0.01	0.0003

300 Low calcium levels improve growth in piglets after weaning.
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Piglets have a low acidification capacity that may promote digestive disorders and diarrhea. The inclusion of $CaCO_3$ and ZnO with high acid-binding capacity in weanling diets diets can aggravate the problem. It was hypothesized that reducing the levels of Ca from 0.95% to 0.35% (no addition of $CaCO_3$) may improve the growth of piglets after weaning. A total of 240 piglets were distributed into 3 treatments during the pre-starter phase (0 to 14 d postweaning; 8 replicates per treatment). Treatments were based on 3 different Calcium levels: High (HCa) with 0.95% of Ca (1.55% $CaCO_3$), Medium (MCa) with 0.65% of Ca (0.78% $CaCO_3$) and Low (LCa) with 0.35% of Ca (0% $CaCO_3$). The diets contained 2520 Kcal NE/kg, 19.7% CP, and 1.39 Lys. Feed Intake and individual BW were registered on d 0, 7, and 14. The initial BW was 7.69 ± 0.01 kg for each treatment. Piglets fed HCa showed lower BW, ADG and G:F ratio than piglets with LCa and MCa (Table 300). These results show that feeding piglets low inclusion or no $CaCO_3$ increased growth, suggesting that the reduction of $CaCO_3$allow a better digestion of feed during the pre-starter phase.

Key Words: calcium, pigs, weaning

301 Effects of increasing zinc from zinc sulfate or zinc hydroxychloride on finishing pig growth performance and carcass characteristics.
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A variety of zinc sources are available for use in swine trace mineral premixes. However, more research is needed to compare zinc sources and dietary levels in growing and finishing pigs in a commercial environment. A total of 1008 pigs [TR4 × (Fast Large White × L02 PIC); initially 32.1 kg BW)] were used in a 103-d growth study to determine the effects of Zn source and level on finishing pig growth performance and carcass characteristics. The 6 dietary treatments were arranged as a 2 × 3 factorial with main effects of Zn source ($ZnSO_4$ Agrium Advance Technology, Loveland, CO or Zn Hydroxychloride; IntelliBond Z®; Micronutrients, Indianapolis, IN) or level (50, 100, or 150 ppm added Zn). There was no additional Zn provided from the trace mineral premix. There were 21 pigs per pen and 8 pens per treatment. Overall, there were no Zn source × level interactions observed for ADG or ADFI, however G:F tended (linear, $P = 0.069$) to be poorer when pigs were fed increasing levels of Zn from $ZnSO_4$. Overall, there were no Zn source effects for growth performance observed. For Zn level main effects, ADG was maximized (quadratic, $P = 0.007$) and ending BW was heaviest (quadratic, $P = 0.011$) when diets contained 100 ppm of Zn. Feed efficiency was poorer (linear, $P = 0.006$) when pigs were fed increasing levels of Zn. For carcass characteristics, pigs fed diets with Zn Hydroxychloride had heavier ($P = 0.041$) HCW than those fed $ZnSO_4$. Also carcass yield increased (linear, $P = 0.027$) when pigs were fed increasing levels of Zn and HCW was maximized (quadratic, $P = 0.006$) when diets contained 100 ppm of Zn. These results suggest that a total of 100 ppm added Zn is enough to maximize ending BW, ADG and HCW, but G:F worsened as Zn level increased. Zn source did not impact growth performance; however, pigs fed Zn Hydroxychloride had increased HCW compared to those fed $ZnSO_4$.

Key Words: finishing pig, zinc sulfate, zinc hydroxychloride

Table 301.

Item[1]	$ZnSO_4$, ppm			Zn Hydroxychloride, ppm			Zn source	***P* <** Level	
	50	100	150	50	100	150		Linear	Quadratic
ADG, kg	0.94	0.96	0.94	0.95	0.97	0.94	0.555	0.951	0.007
ADFI, kg	2.46	2.50	2.49	2.47	2.56	2.53	0.163	0.168	0.126
G/F[2]	0.382	0.385	0.380	0.386	0.381	0.374	0.318	0.006	0.270
Yield, %	73.63	74.08	74.53	74.03	74.68	74.36	0.240	0.027	0.329
HCW, kg	92.65	95.04	93.66	94.35	96.90	94.51	0.041	0.494	0.006

[1]SEM: ADG = 0.009, ADFI = 0.032, G:F = 0.0026, Yield = 0.003, HCW = 0.883
[2]Zn source × level interaction (linear; $P = 0.069$)