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Effect of low-level calcium and phosphorus diets supplemented with calcium pidolate on broiler body weight and rate of culled birds

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Introduction

Decreasing dietary Ca may improve phosphorous (P) utilization, while an excess of Ca may aggravate a P deficiency. Therefore, different researchers have shown that a moderate reduction in dietary Ca had no deleterious effects on broiler performance. Besides, calcium pidolate (PCa) is known as an ingredient directly promoting the absorption of calcium and indirectly phosphorus.

Objective

The aim of this study was to evaluate the effect of low-level Ca-P diets with PCa supplementation on broiler body weight and rate of culled birds.

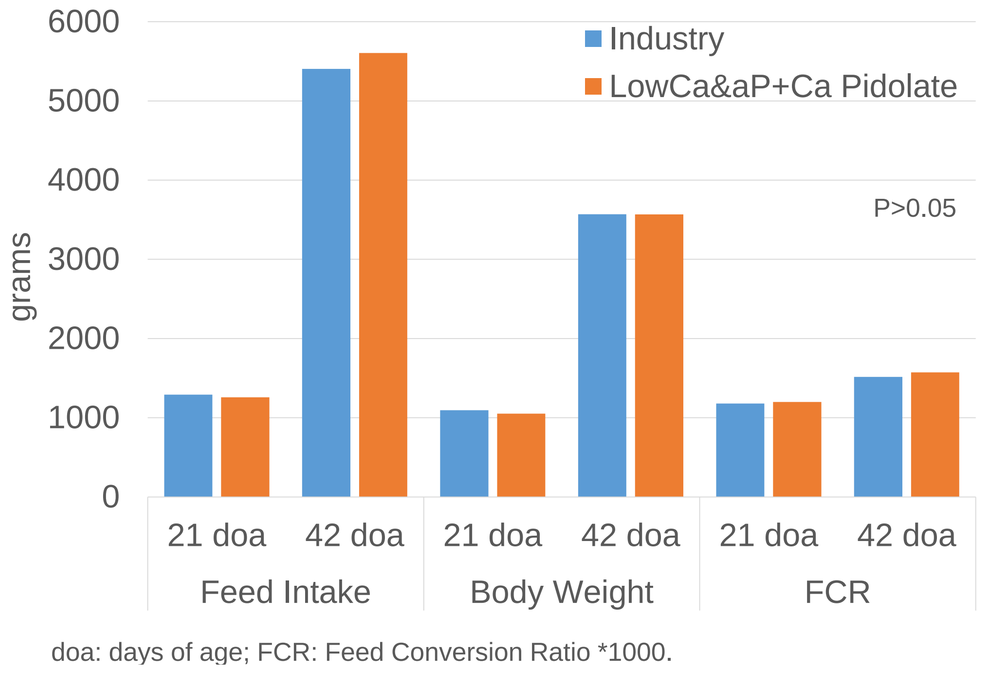
Material & Methods

A total of 342 day-old male broilers chicks (Cobb-500) were allocated in floor pens in a completely randomized block design (9 replicates/treatment). Pre-starter (1-7 d), starter (8-21 d), grower (22-35 d) and finisher (36-42 d) diets were used for dietary treatments. Control diets (CTRL) were formulated according to requirements used by the industry in South America and Low Ca and P diets (LCP) were formulated according to Table 1. PCa (PIDOLin PCa, Dietaxion) was included on-top between 0-21 d at 300 ppm in the LCP diets. Birds were weighed weekly, mortality and culled birds were also recorded. Data were analyzed using ANOVA and Chi-square Test.

Table 1. Calcium and available phosphorus levels in the different treatments and phases

	Pre-starter		Starter		Grower		Finisher	
Treatments	Ca	aP	Ca	aP	Ca	aP	Ca	aP
Industry	0.94	0.49	0.87	0.44	0.79	0.39	0.63	0.32
LCP	0.75	0.37	0.60	0.31	0.50	0.26	0.50	0.26

Results



doa: days of age; FCR: Feed Conversion Ratio *1000.

Figure 1. Resume of zootechnical parameters at 21 and 42 days of age.

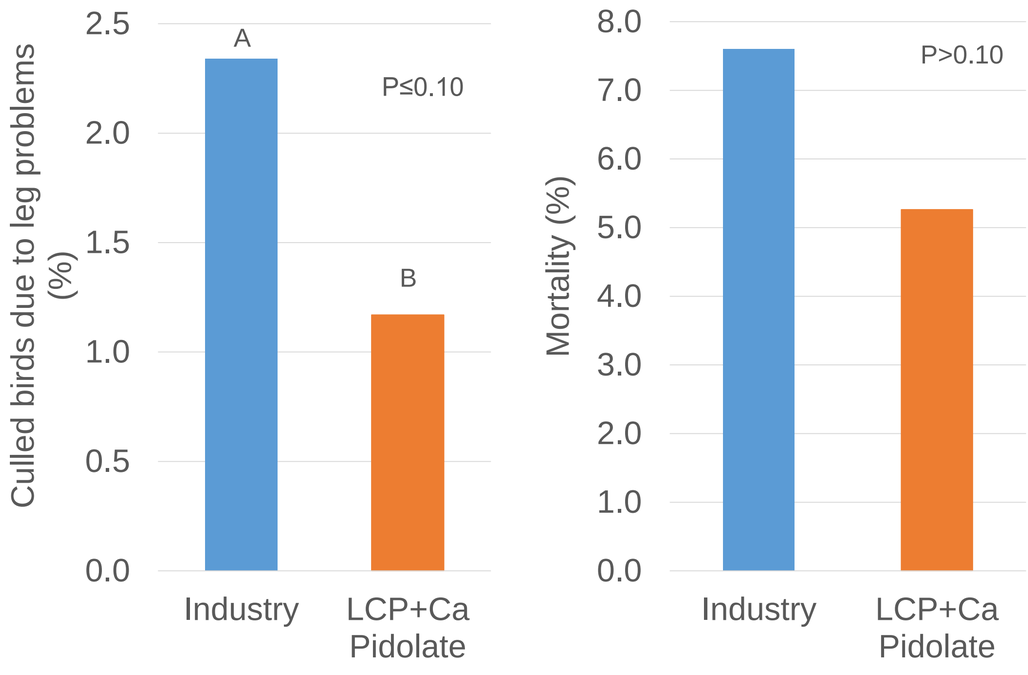


Figure 2. Culled birds due to leg problems and mortality.

Conclusions

Total Ca and available P concentrations can be reduced by 20-36% in broiler diets supplemented with calcium pidolate to obtain similar body weight and viability results. The use of Pca during 0-21 d could explain the tendency to improve the rate of culled birds due to leg problems.

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