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This is the author's manuscript

Original Citation:

Availability:

This version is available <http://hdl.handle.net/2318/152562> since

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Interaction between dietary β -alanine and valine supplemented to broilers diet

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The objective of the present study was to evaluate the interaction between dietary β -alanine and valine supplemented to broilers diet. A total of 504 one day old female broilers (Ross 708, 37.3 ± 0.1 g) were randomly assigned to 42 pens (12 chicks/pen). Six blocks of seven pens were made in a randomized 3×2 block design. Each block received a starter (days 1-21) and finisher (days 22-42) diet with one out of three valine levels (NV: 0.85%, HV: 0.89%, VHV: 0.93% digestible valine) and no (CON) or 500mg/kg β -alanine (B-ALA). At pen level average daily feed intake (ADFI) and average daily gain (ADG) was calculated. At day 42 broilers were weighed and slaughtered. Statistical analyses (SPSS 22.0) was performed using a general linear model with valine (NV, HV, VHV) and β -alanine (CON, B-ALA) as fixed factors and initial pen weight as covariate. During the finisher phase, ADFI tended to be higher for B-ALA (CON 131.8 ± 5.9 , B-ALA 136.0 ± 7.6 , $P=0.083$) and ADG tended to be lower for HV-B-ALA in comparison to the other groups ($P=0.078$). Chilled carcass weight of B-ALA (1520 ± 155) was significantly higher than for CON carcasses (1492 ± 156 , $P=0.036$). Slaughter yield was higher for NV-B-ALA ($70.8 \pm 0.1\%$) compared to the other groups ($P=0.003$). Results indicate that β -alanine supplementation improved slaughter performance of broilers. Limited interaction with excess valine was observed, but it would be worthwhile to test the effect of β -alanine in valine deficient diets.