

Topic:**3 FEED ADDITIVES****Authors:**

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Title :

Effect of plant extract blends in two rearing densities on growth performances of broiler chickens according to their growth potential

Abstract:

In order to understand the action mechanism of non-antibiotic growth promoters on the growth performance of birds and to improve their use, the origin of individual variability response must be determined.

For this purpose, the performance of chicken fed with or without plant extract blends were studied according to their growth potential estimated by their body weight at d10. A plant extract blend (EXVa) with an antimicrobial effect was used alone or preceded by another blend (EXVb) whose main effects were antioxidant and immunomodulator. Three experimental dietary treatments were performed (control, Exp1 and Exp2). In the control one, birds were fed on a diet with no growth promoter, in the Exp 1 the control diet was supplemented up to d22 with EXVa and in the Exp2, the control diet was supplemented with EXVb from d0 to d10 and then with EXVa

This study was performed at two stocking densities, in 3m² floor pens, either 12 birds/m² (normal density) or 17 birds/m² (high density). Body weight was recorded until broilers were 39 days old.

Data were subjected to analysis of variance with two factors (dietary treatment, stocking density) and the body weight at d10 as co-variate.

This analysis showing a significant effect on body weight at d10, three groups, with similar number, were defined according to d10 weight (Light, Medium, and Heavy). For each groups, growth data were subjected to analysis of variance with 2 factors (dietary treatment, stocking density). Significant differences between treatments were determined by Student-Newman-Keuls test ($p \leq 0.05$). Non significant differences showing biological differences were also specified ($p < 0.10$).

The effect of the 2 dietary treatments at the 2 stocking densities was different according to bird weight group. At the normal density, Exp1 led, compared to control treatment, to a significant increase of daily weight gain (DWG) from d24 to d39 for Light (+15%) and Medium (+9%) and was ineffective for Heavy. In contrast, Exp2 was effective on all groups (Light: +9%, Medium: +11%, Heavy: +5%). However its effect on Light was lower than that of Exp1. At the high density, Exp1 enhanced DWG of Light, although not significantly (+5%), and Exp2 enhanced significantly DWG of Medium and Heavy (+6%).

In conclusion, dietary effect depends on rearing environment, but also on the growth potential of bird. Indeed, EXVa blend alone is most beneficial for animals with low growth potential reared at normal stocking density whereas sequence of the two blends is required for animals with high growth potential whatever the density.