



Fayoum University

Faculty of Agriculture

**EFFECT OF DIETARY LEVELS OF SODIUM
BICARBONATE AND ASCORBIC ACID ON
PERFORMANCE OF GROWING RABBITS
UNDER HOT CLIMATE CONDITIONS**

By

AHMED MOHAMED EMAM ABDEL-ALEEM
B.Sc. in Agriculture Sciences (Poultry Production)

Fac., Agric., Fayoum, Cairo University, 2004.

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Faculty of Agriculture

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ABSTRACT

A total of 150 weaned V- Line rabbits with nearly similar age and weight were used in this study to investigate the effect of sodium bicarbonate (SB) and ascorbic acid (AA) to alleviate the adverse effect of summer heat stress on the productive performance, blood constituent, carcass traits and economical efficiency of growing rabbit. Rabbits were randomly distributed into five groups of 30 rabbits each group. One basal diet was formulated for both AA (300 or 600 mg/kg) or NaHCO₃ (0.5% or 1%) and one unsupplemented diet was used as a control. The basal diet was formulated to ensure adequate supply of all nutrients recommended by NRC (1977) for growing rabbits.

At the end of the experimental period, rabbits fed 600mg AA supplemented diet had the highest live body weight (2028.33g) and live body weight gain (1304.50g) while control group had significantly lower live body weight and live body weight gain. Supplementation with AA in the diet, significantly improved the growth rate and performance index compared with control diet. Rabbits fed 600mg AA/kg diet had higher feed intake (3638.11g), whereas those fed 300mg AA/kg diet had better feed conversion, crude protein conversion and energy conversion ratios during the period from 35-70 days of age. Males had higher live body weight and live body weight gain compared with females during the whole period of this study estimate 2004.67 and 1268.75 vs. 1952.56 and 1230.22g respectively. Males had lower feed intake, feed conversion, crude protein conversion and energy conversion ratio compared with females during all studied periods.

Rabbits fed 600mg AA/kg diet had higher RBCs, lymphocytes % and urea concentration in plasma whereas the same treatment had lower MCV, segment % and plasma cholesterol. While those fed 300mg AA/kg diet had lower WBCs and RBCs, but it had higher MCV compared with the control group which had higher WBCs and plasma cholesterol whereas urea concentration in plasma were lower than other treated groups. As the level of supplementation with SB increased from 0.5 to 1.0%, segment % was increased whereas lymphocytes % and plasma cholesterol concentration were significantly decreased. Females had significantly higher WBCs than males (138.30 vs. 129.56 X 10³ cells/cm³). Treatment insignificantly influenced all carcass traits except rear %. Rabbits fed 600mg AA/kg diet had significantly higher rear %, while those fed 300mg AA/kg diet had lower rear %. Front meat%, middle meat%, rear meat%, total meat% and Chemical composition of meat were insignificantly affected by treatments. Males significantly had higher Ash% in front meat and C.P% of middle meat compared with females. Except these, sex had no effect on the other studied carcass traits.

From the economic point of view, rabbits fed 300mg AA/kg containing diet had the highest Eef and REef % being 2.55 and 109.8%, while rabbits fed SB 0.5% diet had lower Eef and REef % of 2.31 and 99.36%, respectively. Males had better feed cost, net return, Eef and REef % than females which recorded 6.636 L.E, 17.47 L.E, 2.63 and 113.34% vs. 7.320 L.E, 16.06 L.E, 2.20 and 94.50% respectively.

Key words: Growing rabbits, heat stress, ascorbic acid, sodium bicarbonate, growth, blood constituents, carcass traits and economic efficiency.