

**EFFECTS OF STRAIN, STOCKING DENSITY AND LIMITED-TIME FEEDING ON  
GROWTH PERFORMANCE AND CARCASS CHARACTERISTICS OF BROILER  
CHICKENS**

**BY**

**LIGARABA TSHILOLO JOYCE**

**Student number : 9507463**

**A mini-dissertation submitted in partial fulfillment of the requirements for  
the degree of Masters of Science in Agriculture**

**Department of Animal Science**

**School of Agriculture**

**University of Venda**

**SOUTH AFRICA**

**April 2015**

**UNIVEN LIBRARY**

**Library Item : 20152412**



**Supervisor : Dr. K. Benyi**

**Co-Supervisor : Dr. J.J. Baloyi**

## ABSTRACT

The effects of strain, stocking density and limited- time feeding on the growth performance and carcass characteristics of broiler chickens were investigated over a 49-day study period. Ross 308 and Cobb Avian48 birds were raised at the stocking densities of 30 and 40 kg body weight per meter squares (BW/ m<sup>2</sup>) and assigned to ad *libitum*, 10 h and 12 h daily feed withdrawal programs with three replicates each. Overall, Ross 308 was superior to Cobb Avian48 in body weight gain, market weight and percent drumstick weight (P<0.01) and consumed more feed (P<0.05), but did not differ in percent carcass, back, breast, wing, gizzard, neck, liver and heart weights as well as abdominal fat (P>0.05). Ross 308 also had insignificant lower mortality rate than Cobb Avian48. The birds raised at the lower stocking density (30 kg BW/m<sup>2</sup>) performed better in weight gain and final body weight (P<0.05) than those raised at the higher (40 kg BW/ m<sup>2</sup>) stocking density and consumed similar quantities of feed (P>0.05), but did not show any influence on carcass traits (P>0.05). Neither strain nor stocking density had influence on feed conversion ratio and mortality rate, but there were significant strain x stocking density interaction effects on feed consumption during grower and on mortality rate during starter and entire study periods (P<0.05). The ad *libitum*-fed birds outperformed the feed-restricted ones in weight gain, final body weight, percent breast weight (P<0.01), neck and heart weights (P<0.05) and consumed more feed (P<0.05). Feed restriction also had significant effect on mortality rate (P<0.05), but feed conversion ratio and other carcass traits (percent carcass, breast, back, drumstick, neck, wing, gizzard, heart and liver weights as well as abdominal fat) were not statistically affected (P>0.05). The 10 h daily feed-restricted birds were insignificantly heavier (69 grams) than those on 12 h daily feed withdrawal regime, but consumed less (7 grams) feed. It is suggested that for profitable production in the subtropics, Ross 308 be reared at the stocking density of 30 kg BW/m<sup>2</sup> and feed restricted for 10 hours daily.

**Key words:** Broiler chickens. Strain. Feed restriction. Stocking density. Growth performance. Carcass characteristics.