DECLARATION

I declare that a mini-dissertation hereby submitted by me for the degree of Master of Science in Agriculture (Animal Production) at the University of Limpopo is my own independent work and has not previously been submitted by me to another University or faculty. It is my own work in design and execution, and that all material contained therein has been duly acknowledged.

Thamaga Marupine Windy Date……..

ACKNOWLEGEMENT

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DEDICATION

I dedicate this work to my lovely husband, Thamaga Rapula Richard, my mother Lepulana Kgaudi Linah, my brother Lepulana Mosoro Michael and Lastly my lovely two children, Thamaga Ofentse Ducius and Thamaga Tebogo Cacius, who were always at my side to motivate me.

ABSTRACT

An experiment was conducted to determine the effect of egg weight on hatchability, hatch-weight and subsequent productivity of Venda chickens. A total of 360 Venda chicken eggs based on their weights were collected within one week and assigned to four treatments with five replicates of 18 eggs per replicate. A randomized design was used. The four treatment weights were below 49 g, between 50 and 59 g, between 60 and 69 g and above 70 g. the eggs were incubated for 21 days. The chicks were raised up to 13 weeks based on their treatments but fed a similar diet. Egg weight was positively and strongly correlated (r^2 = 0.727) with hatchability. Similarly, egg weight was positively and strongly correlated (r^2 = 0.0.953) with chick hatch-weight.

Between one and seven weeks old, Venda chicks hatched from heavier eggs ate less (P< 0.05) than those hatched from lighter eggs. Heavier eggs hatched chicks with better (P< 0.05) feed conversion ratio. However, chicks hatched from heavier eggs tended to have higher (P< 0.05) live weight at seven weeks old than those hatched from lighter eggs. Heavier eggs tended to hatch chicks that had higher (P< 0.05) mortality rates. However, metabolisable energy and nitrogen retention of the chicks aged seven weeks was not (P> 0.05) affected by egg weight. Growth rate and live weight of the chicks aged between one and seven weeks were optimized at different Venda chicken egg weights of 56 (r^2 = 0.514) and 60 (r^2 = 0.870) g, respectively. Egg weight had no (P> 0.05) effect on metabolisable energy, feed conversion ratio, growth rate, live weight, carcass weight and carcass parts of Venda chickens aged between eight and 13 weeks except fat pad weight. Venda chickens hatched from lighter eggs had lower (P< 0.05) fat pad weights than those hatched from heavier eggs. Meat samples of chickens hatched from lighter eggs had higher (P< 0.05) nitrogen contents.

It is concluded that Venda chicken egg weight affects (P< 0.05) egg hatchability, chick hatch-weight, growth rate, live weight and carcass characteristics of the chicken.

However, these variables are optimized at different egg weights. This has implications on selecting eggs for incubation.

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