

DECLARATION

I declare that this dissertation hereby submitted to the University of Limpopo for the degree of Master of Science in Agriculture (Animal Nutrition) is the result of my own work and has not been presented elsewhere for a higher degree. All sources of information have been acknowledged by references.

Name: Dionísio Justino Novele

Signature

Date

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I wish to express my sincere thanks to my classmates, friends and other members of the Department of Animal Production who directly or indirectly helped me during the study.

Above all, I am most sincerely thankful to the Almighty God, for His strength, comfort and wisdom. Glory be to the Father, the Son and the Holy Spirit, Amen.

DEDICATION

This dissertation is dedicated to my lovely mother Maria Languelo Suande, my father Justino Macalanhane Novele, my brother Alcino, my sisters Lígia and her husband Samuel, Elsa, Otília, Hajeé, and to my nephew Ailton.

ABSTRACT

Two experiments were carried out to evaluate the effects of feed restriction during the starter stage and lysine supplementation during realimentation on productivity and carcass characteristics of Ross 308 broiler chickens. In the first experiment, the effects of level and period of feed restriction during the starter period on subsequent productivity were evaluated. A 2 (male and female chickens) x 3 (feeding levels, *ad libitum* and 75% and 50% of *ad libitum*) x 3 (restriction periods of 5, 7 and 9 days), factorial arrangement in a Completely Randomized Design was used. The effects interactions were not included in the results because earlier analyses including all the interactions showed that they were not important. Level and period of feed restriction during the starter stage had an effect ($P < 0.05$) on live weight of the chickens at 21 days of age. However, female and male chickens had similar live weights at 21 days of age. Chickens on 75% *ad libitum* feeding attained complete live weight compensation at the age of 42 days. However, chickens on 50% *ad libitum* feeding did not 'catch-up' with those on *ad libitum* feeding. Differences due to the period of feed restriction during the starter stage were maintained up to the age of 42 days. Male chickens had higher ($P < 0.05$) live weights at 42 days of age. Abdominal fat pad was not affected ($P > 0.05$) by level and period of feed restriction and sex of chickens at 42 days of age.

The second experiment evaluated the effects of feed restriction during the starter stage (14 to 21 days) and levels of lysine supplementation during realimentation (21 to 42 days) on productivity and carcass characteristics of male and female chickens. Feed

restriction affected ($P < 0.05$) live weight of chickens at the age of 21 days and males were heavier ($P < 0.05$) than females at the same age. Chickens on 75% *ad libitum* feeding attained complete compensation in live weight while those on 50% *ad libitum* feeding did not. Lysine supplementation during realimentation had no effects ($P > 0.05$) on live weight and carcass characteristics of the chickens at 42 days of age. Male chickens attained higher ($P < 0.05$) live weights than female chickens at 42 days of age.

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