

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.

TABLE OF CONTENTS

Contents	Page
Declaration	i
Acknowledgement	ii
Dedication	iii
Abstract	iv
Table of contents	vi
List of tables	x
List of figures	xiii
List of appendices	xiv
Chapter 1	
1.0 Introduction	2
1.1 Background	2
1.2 Motivation	2
1.3 Aim and objectives	3
1.3.1 Aim	3
1.3.2 Objectives	3
Chapter 2	
2.0 Literature review	4
2.1 Introduction	5
2.2 Methods of feed restriction	6
2.2.1 Physical feed restriction	6
2.2.2 Skip-a-day feeding	7
2.2.3 Lighting	8

2.2.4 Diet dilution	9
2.2.5 Chemical methods	10
2.2.6 Use of low protein or low energy diets	10
2.2.7 Feed textures	12
2.3 Mechanisms in compensatory growth	12
2.4 Types of compensatory responses	14
2.5 Factors that influence compensatory growth in the broiler chicken	17
2.5.1 Severity and duration of undernutrition	17
2.5.2 Quality of the realimentation diet	18
2.5.3 Sex of the bird	19
2.5.4 Genetics	20
2.5.5 Age of the bird	20
2.5 Conclusion	21
Chapter 3	
3.0 Material and Methods	22
3.1 Study area	23
3.2 Preparation of the house	23
3.3 Acquisition of materials and birds	23
3.3.1 Nutrient composition of the experimental feeds	24
3.4 Experimental procedure, treatments and design	24
3.4.1 Experiment 1. Effect of level and period of feed restriction during the starter period on subsequent productivity and carcass characteristics of Ross 308 broiler chickens	24

3.4.2 Experiment 2. Effect of feed restriction during the starter period and level of lysine supplementation during realimentation on productivity and carcass characteristics of Ross 308 broiler chickens	26
3.5 Data collection	27
3.5.1 Feed intake	27
3.5.2 Live weight	28
3.5.3 Feed conversion ratio	28
3.5.4 Mortality rate	28
3.5.5 Apparent digestibility	28
3.5.6 Carcass characteristics	29
3.6 Chemical analysis	29
3.7 Statistical analysis	29
Chapter 4	
4.0 Results	
4.1 Experiment 1. Effect of level and period of feed restriction during the starter period on subsequent productivity and carcass characteristics of Ross 308 broiler chickens	31
4.2 Experiment 2. Effect of feed restriction during the starter period and level of lysine supplementation during realimentation on productivity and carcass characteristics of Ross 308 broiler chickens	41

Chapter 5

5.0 Discussion

5.1 Experiment 1 49

5.2 Experiment 2 53

Chapter 6

6.0 Conclusion and recommendations

6.1 Conclusion 58

6.2 Recommendations 58

Chapter 7

7.0 References 60

Chapter 8

8.0 Appendix

8.1 Vaccination programme 81

LIST OF TABLES

Table	Title	Page
3.1.	Nutrient composition of the experimental diets	24
4.1.1	Effects of level and period of feed restriction on live weight and intake at 21 days of age, feed conversion ratio (FCR) and mortality (%) of male and female Ross 308 broiler chickens between 12 and 21 days of age.	32
4.1.2.	Effects of level and period of feed restriction on live weight, dressing percentage and carcass characteristics of male and female Ross 308 broiler chickens at 21 days of age.	34
4.1.3	Effects of level and period of feed restriction on feed intake (g DM/bird/day), growth rate (g/bird/day), intake as percentage of live weight, feed conversion ratio (FCR) (g feed/g live weight gain) and mortality (%) of male and female Ross 308 broiler chickens between 22 and 42 days of age.	35
4.1.4	Effects of level and period of feed restriction on dry matter digestibility, nitrogen digestibility (decimal), nitrogen retention (g/bird/day) and metabolisable energy (MJ/kg DM) of male and female Ross 308 broiler chickens between 40 and 42 days of age.	36
4.1.5	Effects of level and period of feed restriction on live weight, dressing	

- percentage, carcass parts, and intestine length of male and female Ross 308 broiler chickens at 42 days of age. 38
- 4.1.6 Effects of level and period of feed restriction on parts when expressed as percentage of carcass weight of male and female Ross 308 broiler chickens at 42 days of age. 39
- 4.1.7 Effects of level and period of feed restriction on nitrogen content (g/kg DM) of breast meat samples of male and female Ross 308 broiler chickens at 42 days of age. 40
- 4.2.1 Effects of level of feed restriction on feed intake (g DM/bird/day), live weight (g/bird/day) and mortality (%) of male and female Ross 308 broiler chickens at 21 days of age. 41
- 4.2.2 Effects of level of feed restriction and lysine supplementation on feed intake (g DM/bird/day), intake as percentage of live weight, growth rate (g/bird/day), feed conversion ratio (FCR) (g feed/ g live weight gain) and mortality (%) of male and female Ross 308 broiler chickens between 21 and 42 days of age. 43
- 4.2.3 Effects of level of feed restriction and lysine supplementation on diet Dry matter and nitrogen digestibilities (decimal), nitrogen retention

(g/bird/day) and metabolisable energy (MJ/kg DM) of male and female Ross 308 broiler chickens between 40 and 42 days of age.	44
4.2.4 Effects of level of feed restriction and lysine supplementation on performance, carcass characteristics and dressing percentage of male and female Ross 308 broiler chickens at 42 days of age.	45
4.2.5 Effects of level of feed restriction and lysine supplementation on parts when expressed as percentage of carcass weight of male and female Ross 308 broiler chickens at 42 days of age.	46
4.2.6 Effects of level of feed restriction and lysine supplementation on nitrogen content (g/kg DM) of male and female Ross 308 broiler chickens breast meat samples at 42 days of age	47

LIST OF FIGURES

Figure	Title	Page
--------	-------	------

2.1	Schematic representation of growth curves of ad libitum (Ad Lib) and feed restricted-refed (Res) heifers showing complete compensation (adapted from Yambayamba et al.1996)	15
2.2	Schematic representation of growth curves of ad libitum (Ad Lib) and feed restricted-refed (Res) steers showing partial complete compensation (adapted from Hornick et al., 1998).	16
2.3	Schematic representation of growth curves of ad libitum (Ad Lib) and feed restricted-refed (Res) cattle showing no compensation (adapted from Tudor and O'Rurke, 1980)	17

LIST OF APPENDIX

Appendices	Title	Page
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6.1 Vaccination programme

63