

**EFFECTS OF SEASON AND RESTRICTED FEEDING DURING REARING
AND LAYING ON PRODUCTIVE AND REPRODUCTIVE PERFORMANCE OF
KOEKOEK CHICKENS IN LESOTHO**

By

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TABLE OF CONTENTS

ABSTRACT	v
ACKNOWLEDGEMENTS	vi
DECLARATION	vii
LIST OF TABLES	viii
LIST OF FIGURES	xii
CHAPTER 1	1
INTRODUCTION AND LITERATURE REVIEW	1
1.1 Introduction	
1.1.1 Background	1
1.1.2 Justification	2
1.1.3 Objectives	3
1.3.1 Overall objective	3
1.3.2 Specific objectives	3
1.1.4 Impact of expected results	3
1.2 Literature Review	4
1.2.1 Introduction	4
1.2.1.1 Restricted feeding versus unrestricted in chickens	4
1.2.1.2 Seasonal effects on the performance of chickens	5
1.2.1.3 Description of Koekoek chickens	6
1.2.2 Growth performance of poultry	7
1.2.2.1 Effect of restricted feeding on the body weight performance	7
1.2.2.2 Effect of season on the body weight performance	9
1.2.3 Egg production	10
1.2.3.1 Effect of restricted feeding on egg production	10
1.2.3.2 Effect of season on egg production	12
1.2.4 Egg quality and weight	13
1.2.4.1 Effect of restricted feeding on the egg quality and weight	13
1.2.4.2 Effect of season on the egg quality and weight	14
1.2.5 Feed intake and efficiency	15
1.2.5.1 Effect of restricted feeding on feed intake and efficiency	15
1.2.5.2 Effect of season on feed intake and efficiency	16
1.2.6 Reproductive organs and secondary sex characteristics	17
1.2.6.1 Effect of restricted feeding on the oviduct, ovarian, comb and wattle characteristics	17
1.2.6.2 Effect of season on the oviduct, ovarian, comb and wattle characteristics	17
1.2.7 Carcass characteristics	19
1.2.7.1 Effect of restricted feeding on the carcass characteristics	19
1.2.7.2 Effect of season on the carcass characteristics	21
1.2.8 Abdominal fat pad	23
1.2.8.1 Effect of restricted feeding on abdominal fat pad weight	23
1.2.8.2 Effect of season on abdominal fat pad weight	24
1.2.9 Carcass composition	25

1.2.9.1 Effect of restricted feeding on the carcass composition	25
1.2.9.2 Effect of season on the carcass composition	26
1.2.10 Fertility and hatchability	27
1.10.1 Effect of restricted feeding on egg fertility and hatchability	27
1.10.2 Effect season on egg fertility and hatchability	28
1.2.11 Embryonic mortality	28
1.3 References	30
CHAPTER 2	40
EFFECT OF RESTRICTED FEEDING AND SEASON ON THE GROWTH PERFORMANCE OF KOEKOEK CHICKENS	40
Abstract	40
2.1 Introduction	41
2.2 Materials and Methods	42
2.3 Results and Discussion	46
2.4 Conclusion	77
2.5 Recommendations	77
2.6 References	78
CHAPTER 3	83
EFFECT OF RESTRICTED FEEDING AND SEASON ON THE CARCASS CHARACTERISTICS OF KOEKOEK CHICKENS	83
Abstract	83
3.1 Introduction	84
3.2 Methods and Materials	85
3.3 Results and Discussion	86
3.4 Conclusion	124
3.5 Recommendations	124
3.6 References	125
CHAPTER 4	128
EFFECT OF RESTRICTED FEEDING AND SEASON ON THE CARCASS CHEMICAL COMPOSITION OF KOEKOEK CHICKENS	128
Abstract	128
4.1 Introduction	128
4.2 Materials and Methods	129
4.3 Results and Discussion	132
4.4 Conclusion	140
4.5 Recommendations	140
5.6 References	141
CHAPTER 5	143
EFFECT OF RESTRICTED FEEDING AND SEASON ON REPRODUCTIVE PERFORMANCE OF KOEKOEK CHICKENS	143
Abstract	143
5.1 Introduction	144



5.2 Materials and methods	145
5.3 Results and Discussion	147
5.4 Conclusion	189
5.5 Recommendations	189
5.6 References	190
CHAPTER 6	194
SUMMARY AND GENERAL CONCLUSION	194
6.1 Summary	194
6.2 General Conclusion	200

ABSTRACT

This research project consisted of five experiments. The main objective of this study was to determine the effects of restricted feeding and season on growth, carcass characteristics, meat chemical composition, reproduction and egg laying performance of Koekoek chickens. Feed restriction lowered the body weight, weight gain, feed intake and improved the feed conversion efficiency during the rearing phase. During the laying phase, chickens that were in the RA treatment had higher body weights, weight gains and lower FCR. Chickens that were reared in summer had a higher body weight, weight gain and FCR, while total feed intake and mortality rates were high in winter. Feed restriction reduced the slaughter weight, defeathered weight, dressed weight, skin weight, breast muscle weight, shank width, chest width and heart girth during the rearing phase. The intestine, liver and abdominal fat pad weights were higher in chickens that were fed *ad libitum*. Chickens that were reared in summer had higher shank width, slaughter weight, defeathered weight, chest width, heart girth, breast muscle weight, skin weight, abdominal fat pad weight, intestine weight, liver weight and the relative skin percentage at the age of 18 weeks. During the laying phase, abdominal fat pad weight, abdominal fat pad percentage, intestine percentage, liver weight, gizzard weight and gizzard percentage were higher in the *ad libitum* fed chickens. Unrestricted feeding during the rearing phase increased the development of combs, wattles, pubic bones, ovaries and oviducts more than restricted feeding while at the age of 32 weeks, enhanced growth of the reproductive organs was seen in chickens that were fed *ad libitum* only during the laying phase (RA). The cold winter conditions hindered the growth of the combs, wattles, pubic bones, oviducts and ovaries. Restricted feeding during the laying phase reduced the laying percentage, egg weights and improved the hatching percentage. *Ad libitum* feeding during the rearing phase resulted in the attainment of puberty at an earlier age in chickens. Chickens that were produced in summer reached puberty first as well as 20%, 50% and 80% egg production, and had a higher average laying percentage and egg weights.

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DECLARATION

I, Setsumi Motšoene Molapo do hereby declare that this thesis submitted for the degree of Doctor of Philosophy is the result of my original work. The authors cited in this thesis have been acknowledged. This work has not been submitted to the University of Pretoria or any academic institution of higher learning for the award of the degree. The views expressed are mine.

S.M. Molapo

Date: -----

LIST OF TABLES

Table 2.1: Experimental design of the research project	43
Table 2.2: Temperature ($^{\circ}\text{C}$) conditions at Roma location from September 2008 to August 2009	43
Table 2.3: The feeding program of Koekoek chickens that were under restricted feeding	44
Table 2.4: Nutrient feed composition of grower mash and layer mash that were fed Koekoek chickens	45
Table 2.5: Analysed nutrient composition of grower mash and layer mash	45
Table 2.6: Effects of restricted feeding on weight for age of Koekoek chickens	47
Table 2.7: Weight (g) for age of Koekoek chickens reared either in summer or winter during both rearing and laying phases	50
Table 2.8: Effect of feeding level and season interaction on the weight for age of Koekoek chickens	52
Table 2.9: Body weight gain (g/d) of Koekoek chickens that were subjected to different feeding level treatments	53
Table 2.10: Body weight gain (g/d) of Koekoek chickens that were reared in either summer or winter during both rearing and laying phases	56
Table 2.11: Effect of the feeding level and season interaction on weight gain (g/d) of Koekoek chickens	59
Table 2.12: Feed intake per day (g/d) of Koekoek chickens that were subjected to different levels of feeding treatments	60
Table 2.13: Feed intake per day (g/d) of Koekoek chickens reared in either summer or winter during both rearing and laying phases	64
Table 2.14: Effect of feeding level and season interaction on feed intake per day (g/d) of Koekoek chickens	66
Table 2.15: Feed conversion ratio of Koekoek chickens that were subjected to different feeding level treatments	67
Table 2.16: Feed conversion ratio of Koekoek chickens reared either in summer or winter season during both rearing and laying phases	69

Table 2.17: Effect of feeding level and season interaction on feed conversion ratio of Koekoek chickens	72
Table 2.18: Mortality (%) of Koekoek chickens that were subjected to different feeding level treatments	73
Table 2.19: Mortality (%) of Koekoek chickens that were either reared in summer or winter season during both rearing and laying phases	74
Table 2.20: Effect of feeding level and season interaction on the mortality (%) of Koekoek chickens	76
Table 3.1: Description of different feeding levels in Koekoek chickens during the rearing and laying phases	85
Table 3.2: Carcass characteristics of Koekoek chickens that were subjected to different feeding level treatments	87
Table 3.3: Carcass characteristics of Koekoek chickens reared either in summer or winter season	88
Table 3.4: Correlations between carcass characteristics of Koekoek chickens at the age of 18 weeks	106
Table 3.5: Correlations between carcass characteristics of Koekoek chickens at the age of 32 weeks	108
Table 3.6: Effect of feeding level and season interaction on carcass characteristics of Koekoek chickens	110
Table 3.7: Organs and abdominal fat performance of Koekoek chickens that were subjected to different feeding level treatments	112
Table 3.8: Organs and abdominal fat characteristics in Koekoek chickens that were reared either in summer or winter season	122
Table 3.9: Feeding level and season interaction on organs and abdominal fat characteristics of Koekoek chickens	123
Table 4.1: Dry matter, ash, crude fat and crude protein percentages of meat from Koekoek chickens that were subjected to different level of treatments	133
Table 4.2: Dry matter, ash, crude fat and crude protein percentages of meat from Koekoek chickens that were reared either in summer or winter	138

Table 4.3: Effect of feeding level and season interaction on the chemical composition of meat from Koekoek chickens	139
Table 5.1: Comb lengths (mm) of Koekoek chickens that were subjected to different levels of feeding from 18 to 32 weeks	147
Table 5.2: Comb lengths (mm) of Koekoek chickens that were reared either in summer or winter season from 18 to 32 weeks of age	149
Table 5.3: Effect of feeding level and season interaction on the comb length (mm) of Koekoek chickens	151
Table 5.4: Wattle lengths (mm) of Koekoek chickens that were subjected to different feeding levels	152
Table 5.5: Wattle lengths (mm) of Koekoek chickens that were reared in either summer or winter from 18 to 32 weeks of age	153
Table 5.6: Effect of feeding level and season interaction on the wattle lengths (mm) of Koekoek chickens	155
Table 5.7: Pubic bones, ova and oviducts performance of Koekoek chickens that were subjected to different levels of feeding treatments	157
Table 5.8: Pubic bones, ova and oviducts performance of Koekoek chickens that were reared either in summer or winter	161
Table 5.9: Effect of feeding level and season interaction on ova, oviduct and pubic bones of Koekoek chickens	162
Table 5.10: Correlations between reproductive characteristics of Koekoek chickens at 18 and 32 weeks of age	163
Table 5.11: The laying percentage of Koekoek chickens that were subjected to different feeding level treatments	164
Table 5.12: The laying percentage of Koekoek chickens that were reared either in summer or winter season during both rearing and laying phases	167
Table 5.13: Effect of feeding level and season interaction on the laying percentage of Koekoek chickens	170
Table 5.14: Egg weights of Koekoek chickens that were subjected to different feeding level treatments	171

Table 5.15: Egg weights of Koekoek chickens that were reared either in summer or winter season during both rearing and laying phases	173
Table 5.16: Effect of feeding level and season interaction on egg weights of Koekoek chickens	175
Table 5.17: The number of days taken by Koekoek chickens to reach first oviposition, 20%, 50% and $\geq 80\%$ egg laying production	176
Table 5.18: Seasonal effect on the number of days to first oviposition, 20%, 50% and $\geq 80\%$ egg production in Koekoek chickens	177
Table 5.19: Effect of feeding level and season interaction on the number of days to reach first oviposition, 20%, 50% and 80% egg production in Koekoek chickens	179
Table 5.20: The percentage of abnormal eggs (cracks, soft shells, shellless, and double yolked) in Koekoek chickens that were subjected to different levels of feeding treatments	180
Table 5.21: The percentage of abnormal eggs (cracks, soft shells, shellless, and double yolked) in Koekoek chickens that were reared either in summer or winter during both rearing and laying phases	182
Table 5.22: Effect of feeding level and season interaction on the production of abnormal eggs in Koekoek chickens	183
Table 5.23: Egg hatching percentage of Koekoek chickens that were subjected to different feeding level treatments	184
Table 5.24: Egg hatching percentage of Koekoek chickens that were reared either in summer or winter	187
Table 5.25: Correlations between egg weights and hatching percentages of Koekoek chickens at 18 and 32 weeks of age	187
Table 5.26: Effect of the interaction between feeding level and season on egg hatching percentage of Koekoek chickens	188

LIST OF FIGURES

Figure 1.1: The example of Koekoek chickens as used in the study	6
Figure 2.1: Growth curve of Koekoek chickens raised under different feeding levels	48
Figure 2.2: Body weight gain of Koekoek chickens subjected to different feeding levels from 10 to 18 weeks	54
Figure 2.3: Body weight gain of Koekoek chickens subjected to different feeding levels from 20 to 32 weeks	55
Figure 3.1: The carcass dressing percentage of Koekoek chickens subjected to different feeding levels	91
Figure 3.2: The relative skin weights of Koekoek chickens that were subjected to different feeding levels	91
Figure 3.3: The relative breast muscle percentage of Koekoek chickens subjected to different feeding levels	100
Figure 3.4: The relative intestine percentage of Koekoek chickens subjected to different feeding levels	114
Figure 3.5: The relative gizzard percentage of Koekoek chickens subjected to different feeding levels	118
Figure 3.6: The relative abdominal fat percentage of Koekoek chickens that were subjected to different feeding levels	120
Figure 5.1: Comb lengths of Koekoek chickens reared under different seasons	149
Figure 5.2: The laying percentage of Koekoek chickens subjected to different feeding levels	166
Figure 5.3: The laying percentage of Koekoek chickens that were subjected to different seasons	168
Figure 5.4: The egg hatching percentage of Koekoek chickens that were subjected to different feeding levels	185