

**EVALUATION OF COMMERCIAL AMINO ACID MINERAL VITAMIN
SUPPLEMENTS IN BROILERS FED MAIZE-SOYBEAN BASED DIETS.**

By

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**A thesis submitted to the University of Zambia in partial fulfillment of the
requirements for the award of the degree of Master of Science in Animal
Nutrition.**

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DECLARATION

I, **NGOSA MATHEWS**, hereby declare that the thesis submitted for the award of the degree of Master of Science in Animal Nutrition by the University of Zambia is my own original work and has not previously been submitted to any other institution of higher education. I declare that all sources cited or quoted are indicated and acknowledged by means of a comprehensive list of references.

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CERTIFICATE OF APPROVAL

This dissertation of **NGOSA MATHEWS** is approved as fulfilling part of the requirements for the award of the degree of Master of Science in Animal Nutrition by the University of Zambia.

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ABSTRACT

Two experiments were conducted to investigate the efficacy of different nutritional supplements on productive performance of broilers. Parameters considered included growth rate, feed consumption, feed efficiency, mortality and the economic feasibility of using the commercial supplements. Supplements tested included Chick-A-min, Vita Flash Amino, Vitamino Trace Oral and Amino Vitasol (CM, VFA, VTO and AV) in maize-soybean diets under production. A deficient diet was employed in experiment 1 to determine the efficacy of the supplements in sustaining good performance. In both experiments, the treatment diets consisted of a Control and Diets supplemented with CM, VFA, VTO and AV.

Birds fed commercial supplements in the deficient diet had higher live weights, lower mortality, higher carcass and organ weights (expressed as % of live weight), high feed consumption and FCR ($P \leq 0.05$) compared with the control. Supplementation of a basal nutrient low diet was beneficial as it improved the overall performance of broilers and their livability.

On a standard diet, there were no significant differences in mortality among the supplements and the control. No significant differences in intake were observed among the supplements at 28 days of age, but supplements differed significantly from the control ($P \leq 0.05$). CM and AV showed better support for good growth and health than other supplements at 42 days of age. CM and AV had higher final weights for organs and carcass weights and were significantly different in terms of cost effectiveness with VFA, VTO and the control ($P \leq 0.05$).

The better performance of birds and net returns on CM and AV reveals the important influence of composition and quality of nutritional supplements on

broiler performance and profitability which parameters are essential to small scale broiler production.

The results of this study revealed that supplements of amino acids, minerals and vitamins had a positive effect on the live weight and feed utilisation efficiency in comparison to standard diets therefore the use of quality commercial amino acid-mineral-vitamin supplements on maize soybean diets should be encouraged to become a phenomenon for maintenance of normal growth and health in broiler chickens and ultimately improved profitability of the broiler business.

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DEDICATION

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TABLE OF CONTENTS	PAGE
DECLARATION	i
CERTIFICATE OF APPROVAL	ii
ABSTRACT	iii
ACKNOWLEDGEMENTS	iv
DEDICATION	v
TABLE OF CONTENTS	vi
LIST OF TABLES	vii
LIST OF FIGURES	viii
LIST OF ABBREVIATIONS AND ACRONYMS	ix
CHAPTER 1	1
1.0 Introduction	1
1.1 Background	1
1.2 Statement of the problem	4
1.3 Main Objective	4
1.4 Specific Objectives	5
1.5 Research Justification	5
CHAPTER 2	7
2.0 Literature Review	7
2.1 Need for nutrient supplements in poultry diets	7
2.2 Requirements for amino acids	7
2.3 Vitamins	8
2.3.1 Vitamin A	9

2.3.2 Vitamin D	11
2.3.3 Vitamin E	14
2.3.4 Vitamin K	16
2.3.5 Vitamin B ₂ (Riboflavin)	17
2.3.6 Vitamin B ₁₂	18
2.3.7 Pantothenic Acid	20
2.3.8 Pyridoxine	21
2.3.9 Folic Acid	22
2.3.10 Choline	23
2.3.11 Niacin	24
2.3.12 Biotin	25
2.4 Trace Minerals	26
2.4.1 Zinc	28
2.4.2 Manganese	30
2.4.3 Copper	32
2.4.4 Iodine	34
2.4.5 Iron	35
2.5 Protein	36
CHAPTER 3	41
3.0 Materials and Methods	41
3.1 Vitamino Trace Oral	41
3.2 Amino Vitasol	42
3.3 Chick-A-min	42
3.4 Vita Flash Amino	43
3.5 Location of Experiments	44
3.5.1 Experiment 1	45
3.5.2 Birds	45
3.5.3 Housing	45
3.5.4 Diets	45

3.5.5 Allotment of Treatments and Experimental Design	47
3.5.6 Feeding	47
3.5.7 General Management	47
3.5.8 Chemical Analysis	48
3.5.9 Data Collection	48
3.5.10 Statistical Analysis	49
3.6 Experiment 2	49
3.6.1 Birds	49
3.6.2 Housing	49
3.6.3 Diets	49
3.6.4 Allotment of Treatments and Experimental Design	51
3.6.5 Feeding	51
3.6.6 General Management	52
3.6.7 Chemical Analysis	53
3.6.8 Data Collection	53
3.6.9 Statistical Analysis	53
3.6.10 Cost Analysis	54
CHAPTER 4	55
4.0 Results and Discussions	55
4.1 Experiment 1	55
4.1.1 Feed Intake	55
4.1.2 Live weights	55
4.1.3 Feed Conversion Ratio	57
4.1.4 Mortality	58
4.1.5 Carcass weight and Organ weights	59
4.1.5.1 Carcass weights	59
4.1.5.2 Organ weight s	60
4.2 Experiment 2	61
4.2.1 Feed Intake	63

4.2.2 Live weights	64
4.2.3 Feed Conversion Ratio	66
4.2.4 Mortality	66
4.2.5 Carcass weight and Organ weights	68
4.2.5.1 Carcass weights	69
4.2.5.2 Organ weight s	70
4.2.6 Cost Analysis	71
CHAPTER 5	74
5.0 Conclusion and Recommendations	74
C HAPTER 6	76
6.0 References	76
Appendix	91

List of Tables

Table 1. Nutrient requirements of broilers as percentage or milligrams or units Per Kilogram diet.	39
Table 2. Comparative composition of different supplements	43
Table 3. Composition and nutrient content of the trace mineral and vitamin deficient diet	46
Table 4. Composition and nutrient content of standard diets	50
Table 5. Feed Intake, Live weight, feed Conversion Ratio and mortality of broilers fed a trace mineral and vitamin deficient diet to 28 days of age.	57
Table 6. Carcass and organ weights of broilers fed a trace mineral and vitamin deficient diet to 28 days of age	60
Table 7. Feed Intake, Live weight, feed Conversion Ratio and Mortality of broilers fed standard diets supplemented trace mineral and vitamin to 28 days of age.	62
Table 8. Feed Intake, Live weight, feed Conversion Ratio and Mortality of broilers fed standard diets supplemented trace mineral and vitamins to 42 days of age.	62
Table 9. Carcass weight, organ weight and cost analysis of broilers fed standard diets supplemented trace mineral and vitamins to 28 days of age.	68
Table 10. Carcass weight, organ weight and cost analysis of broiler fed standard diets supplemented trace minerals and vitamins to 42 days of age.	68

List of Figures

Figure1. Diagrammatic presentation of the role of vitamin A (Retinol) in the visual Cycle	10
Figure2. Metabolic pathway showing production of hormonally active Form of vitamin D	13
Figure3. Pantothenic Acid chemical structure	20
Figure4. Choline Chemical structure	23

ABBREVIATIONS AND ACRONMYS

AV – Amino Vitasol

AMV – Amino Mineral Vitamins

AOAC - Official Methods of Analysis of the Association of Official Analytical Chemists.

BV – Biological Value

CBP – Calcium Binding Protein

CM – Chick-A-min

CRD – Complete Randomised Design

EAA – Essential Amino Acids

FBD – Finisher Basal Diet

FCR – Feed Conversion Ratio

FLKS - Fatty Liver and Kidney Syndrome

IBD – Infectious Bursal Disease

MSD – Maize-Soybean Diet

NRC – National Research Council

NSP – Non Starch Polysaccharides

PAZ – Poultry Association of Zambia

PP – Pyridoxal Phosphate

RBC – Red Blood Cells

SBD – Starter Basal Diet

SBM – Soybean Meal

TD – Tibia Dyschondroplasia

VFA – Vita Flash Amino

VTO – Vitamino Trace Oral

WSP – Wettable Soluble Powder

