## SUITABILITY OF REPLACEMENT OF IMPORTED FISHMEAL WITH LOCAL

FISHMEAL(Amblypharyngodon melettinus(Valenciennes, 1844)) IN BROILER RATION.

BY

M.F.MOHAMED RAFEE

A RESEARCH REPORT
SUBMITTED IN PARTIAL FULFILMENT OF THE ADVANCED
COURSE

IN

ANIMAL SCIENCE

FOR THE AWARD OF THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURE

EASTERN UNIVERSITY SRI LANKA

**DECEMBER 2002** 

The state of the s



APPROVED BY

49642

Dr (Miss) J. Sinniah Supervisor, Department of Animal Science, Faculty of Agriculture, Eastern University, Sri Lanka.

Date 31.12/02.

S. J. valtur

Dr (Miss) J. Sinniah
Head/ Animal Science,
Department of Animal Science,
Faculty of Agriculture,
Eastern University,
Sri Lanka.

Date. 31/12/02

## **ABSTRACT**

In broiler production, the feed cost comprises 70-80% of total cost of production. At present the feed mills use imported fishmeal as the major source of animal protein.

The potentiality of using local fishmeal as a major source of protein has not been studied in detail. The use of fishmeal as a major source of animal protein will bring down the cost of production of broilers. Hence, a study was conducted to study the suitability of replacing imported fishmeal with locally prepared fishmeal in broiler ration.

The experiment was conducted at the Livestock Farm of Department of Animal Science, Eastern University Sri Lanka, for a period of 45 days beginning from 27<sup>th</sup> September to 11<sup>th</sup> November 2002.

Local fishmeal was prepared from Mundan (*Amblypharyngodon melettinus*) fish caught from Unnichchi tank. The nutrient composition of fishmeal was determined by proximate analysis. The crude protein, ether extract, ash and salt content on dry matter basis were 58.6,11.56, 4.79 and 0.175% respectively.

The experiment consisted of five treatments including a control ration (100% imported fishmeal) and four experimental rations. In the experimental ration imported fishmeal was replaced by local fishmeal on weight basis at the proportions of 25, 50 75 and 100%. Each treatment consisted of two replicates (10 chicks were allotted to each replicate).

Records were maintained for feed intake and weight of birds, starting from the week two of the experimental period. Data were collected at weekly interval.

The effects of treatments and weeks on feed consumption, weight gain, feed conversion efficiency, cost, income and profit per kg of carcass weight were studied.

## CONTENTS

Title of page	1
Abstract	ii
Acknowledgment	iv
Table of content	V
List of Tables	viii
List of Figures	xi
CHAPTER 01	
1. 0 Introduction	1
1.1.Broiler production un Sri Lanka	6
1.2.Objective of the study	8
CHAPTER 02	
2. 0 Review of Literature	
2.1. What exactly is Fishmeal?	9
2.2. How are the fish processed?	10
2.3. Chemical composition of Fishmeal	11
2.4. Understanding why Fishmeal is so valuable in poultry Diets	16
2.4.1. Protein	17
2.4.2. Minerals	19
2.4.3. Energy	19
2.4.4. Fatty acids	20
2.5. The use of Fishmeal in poultry ration	21
2.5.1. Contribution to protein nutrition	22
2.5.2. Contribution to essential fatty acid intake	22
2.6. Six reasons to use Fishmeal	23

2.7.	Benefits of Fishmeal in poultry feeding	24
2.8.	Feeding of chicks 2.8.1. Energy requirements	25 25
	2.8.2. The protein requirements for poultry	25
2.9.	Growth	26
2.10	Use of protein and amino acids	28
2.11.	Factors influencing the protein needs of poultry	28
2.12.	Voluntary feed intake	29
2.13.	Factors which influencing voluntary feed intake	30
2.14.	Criteria of broiler performance	32
	2.14.1. Mean live weight	32
	2.14.2. Mortality and liveability	32
	2.14.3. Feed conversion ratio	33
	2.14.4. Feed cost per Kg live weight	33
CHAPTER 03		
3. 0 Method	ds and Materials	
3.1.	Location	34
3.2.	Allocation of chicks	34
3.3.	Maintenance of chicks in brooder house	34
3,4.	Local Fishmeal preparation	35
	3.4.1. Preparation procedure	35
	3.4.2. Proximate analysis of Local Fishmeal	36
3.5.	Treatments	36
	3.5.1. Starter ration	36
	3.5.2. Finisher ration	37

3.6. Feeding of chicks	38
3.7. Biology of local Fishmeal	39
3.8. Sri Lanka country information	40
3.9. Measurements and Records	40
3.10. Statistical analysis	40
CHAPTER 04	
4. 0 Results and Discussion	
4.1. Effect of week and treatment on feed consumption of broiler	41
4.1.1. Effect of treatment	42
4.1.2. Effect of week	43
4.2. Effect of week and Treatment on weight gain of broilers	44
4.2.1. Effect of treatment on weight gain	45
4.2.2. Effect of week on weight gain	46
4.3. Effect of Treatment on FCE of broilers	47
4.3.1. Effect of treatment	47
4.3.2. Effect of week	49
4.4. Effects of treatment on Total cost of production, net profit and total income	50
4.4.1. Effects of treatment on total cost of production	51
4.4.2. Effects of total income	52
4.4.3. Effects of mean profit	52
CHAPTER 05 5 .0 Conclusion	EA
J. W Conclusion	54
5.1.Suggestions	55
References Appendix	56 60