# STUDY ON NUTRIENT CONTENT OF AVAILABLE FORAGES IN THE EASTERN UNIVERSITY PREMISES



BY

# SAMSUDEEN AMANULLAH NAWAS



# FACULTY OF AGRICULTURE EASTERN UNIVERSITY SRI LANKA 2009

### ABSTRACT

A study was conducted to evaluate the nutrient content of forages available in the university premises. Studied forage samples were, fodder and pasture grasses, legumes, tree leaves and crop residues.

The nutrient composition of forages was analyzed (proximate analyzed, fibre analyzed) at the laboratory of Department of Animal Science, Eastern University of Sri Lanka for period of 18<sup>th</sup> August to 20<sup>th</sup> December 2008. The analyzed nutrient composition were Crude protein (CP), Crude fibre (CF), and Ether extract (EE), Ash, Dry matter (DM), Neutral detergent fraction (NDF), acid detergent fraction (ADF), and acid detergent lignin (ADL) respectively.

From the study area, 70%, 10%, 15%, 30%, 30%, 80% of forage sample contained Dry matter, ash, Crude protein, neutral detergent fraction, Acid detergent fraction, and Acid detergent lignin respectively.

The study revealed that most of (80%) studied forage samples were better sources of acid detergent fraction (ADF) and crude protein content was low. but *Erithrina* and *Centro* samples crude protein content was high. crude fat content was very low in almost all forages at the study area.

In Sri Lanka context, dry season (May to September) is in severe shortage of grazing feed, which demands heavy use of crop residue and crop by-products. So, studied

# TABLE OF CONTENTS

ABSTRACT	i
ACKNOWLEDGEMENT	iii
TABLE OF CONTENTS	iv
LIST OF TABLES	vii
LIST OF FIGURES	viii
CHAPTER 1	1
INTRODUCTION	1
1.1. Objectives of the study	3
CHAPT ER 02	10
REVIEW OF LITERATURE	4
2.1 Feedstuff and Animal Production in Sri Lanka	4
2.2 Nutrient content of feed stuff (forage)	4
2.2.1 Dry Matter	
2.2.2 Moisture Content and Total Solids (Ash)	5
2.2.3 Crude Protein	6
2.2.4 Crude fibre conțent	6
2.2.5 Crude fat	7
2.2.6 Acid Detergent Lignin (ADL)	8
2.2.7 Minerals	8
2.2.7.1 Calcium and Phosphorus	8
2.2.7.2 Magnesium and Potassium	8
2.2.7.3 Manganese, Copper and Zinc	

2.2.8 Energy requirement for livestock
2.3 Feed balance and availability for livestock production
2.4 Feed balance (live stock production) in the Asian reagent
2.5 Feed balance (live stock production) in Sri Lanka
2.6 Pasture and Grass land Resources of Sri Lanka
2.7. Grassland types of Sri Lanka 11
2.8 Green forages
2.8.1 Improved forages in Sri Lanka
2.9 Fodder grass & legumes and Tree leaves in relation to animal nutrition
2.10 Importance and present position of forage crops in animal nutrition
2.11 Nutritional strategies
2.11.1 Increased Utilization of Crop Residues and Agro- Industrial By-Products20
2.11.2 Increased Forage Cultivation
2.11.3 Increasing the Use of Dietary Nitrogen Sources
2.12 Factor affecting Nutrient contents of green forages
2.12.1 Soil type affecting Nutrient contents of green forages
2.12.2 Soil fertility affecting Nutrient contents of green forages24
2.12.3 Soil moisture affecting Nutrient contents of green forages25
2.12.4 Irrigation and rainfall affecting Nutrient contents of green forages
2.12.5 Insect Pest affecting Nutrient contents of green forages
2.12.6 Manure and Fertilizer affecting Nutrient contents of green forages28
2.12.7 Stage of Growth affecting Nutrient contents of green forages
2.12.8 Frequency of Cutting affecting Nutrient contents of green forages29
CHAPTER-0330

MATERIAL AND METHODS	30
3.1 Sample collection	30
3.2 Sample analysis	31
3.3 Data analysis	31
CHAPTER - 04	32
RESULTS AND DISCUSSION	32
4.1 Forage distribution	32
4.2 Forage analysis	34
4.2.1 Nutrient content of forages	34
4.2.1.1 Dry Matter of forage	35
4.2.1.2 Ash content of forage	36
4.2.1.3 Protein content of forage	36
4.2.2 Fibre component of forage samples	38
4.2.2.1 Neutral Detergent Fiber content	39
4.2,2.2 Acid Detergent Fiber content	40
4. 2.2.3 Acid Detergent Lignin content	41
4.2.3 Categories of forages	42
CHAPTER 05	44
CONCLUSION AND SUGGESTIONS	44
CONCLUSION	44
SUGGESTIONS	45
RERFERENCES	46
LIST OF A DDD EVIATIONS	10