

1. INTRODUCTION

In Egypt, the quantities of locally produced feeds are not sufficient to cover the nutritional requirements of the existing livestock population.

The quantities available of concentrates are limited and the quantities of roughages are not enough to cover the bulk required by animal population, moreover, their prices are increasing high.

Crop residues, including straws, which are commonly known as poor quality roughages, are characterised by low crude protein (CP), high lignin and low digestible and metabolizable energy contents, which limits their use in ruminant rations.

Large amount of rice straw and hulls are derived as a by-products of rice culture in Egypt. Annual production amounts to 1.691 million Tons for rice straw and 0.500 million Tons for hulls (El-Nouby and Desouky 1990). Rice straw is known to contain much cellulose and hemicellulose which might be utilized as energy nutrients in ruminant animals. The digestibilities of rice straw and hull, however, are quite low, since these nutrients in natural states combine tightly with lignin to make a chemically and physiologically stable form. Various methods of treatment have been developed to improve the nutritive value of ligneous material.

Early studies indicated that the feeding value of straws for ruminants may be improved by the addition of NaOH or NH_3 (anhydrous ammonia).

The use of non-protein nitrogenous (NPN) compounds especially ammonia as a source of nitrogen in ruminant rations has been the subject of extensive research over the last years and many reviews on this subject are now available.

Klopfenstein (1973) in USA, Sundstol et al., (1978) in Norway and Creek et al., (1983) in Egypt, has demonstrated that ammoniation of fibrous crop residues has improved their quality in terms of CP content, digestibility, energy content and daily intake. The ammoniation technique has another advantages as it does not require dehydration of the straw after treatment and can be car-

ried out under farm conditions and no toxicity problems has been encountered by feeding the ammoniated roughages . Wang et al., (1964) reported that NH_3 breaks bonds that cement cell walls resulting in swelling and increasing flexibility of the fibre .

Intake of low quality forages (less than 7% CP is apparently limited by insufficient level of N (Minson, 1967). Consequently, N supplements are often fed to animals consuming such forages to improve N status of the animals and to increase voluntary intake of forages (McDonald, et al., 1977). Energy supplements often serve as a carrier for N compounds and may also improve utilization of low quality forages.

Poultry manure is a proven valuable feed component and is considered a rich source of nitrogen and minerals (Bhattacharya and Fontenot, 1965 and 1966; Anthony, 1967 and Gihad, 1976). It causes no disease (Anthony, 1967) and it is available at relatively low cost.

The purpose of the present study was to investigate the effects of feeding levels of rations containing unammoniated or ammoniated rice straw with anhydrous NH_3 supplemented with hay and barley or co-op mixture and barley or co-op mixture and poultry litter during early pregnancy, late pregnancy and lactation period, on ewe body weight, ruminal liquor characteristics, blood content, wool yield and qualities and milk components . In addition, the performance of growing lambs till weaning was also studied.