

MANAGEMENT PRACTICES TO IMPROVE THE YIELD AND NUTRITIVE
VALUE OF UNFERTILIZED Panicum maximum (ecotype A)
IN MID COUNTRY WET ZONE OF SRI LANKA

BY

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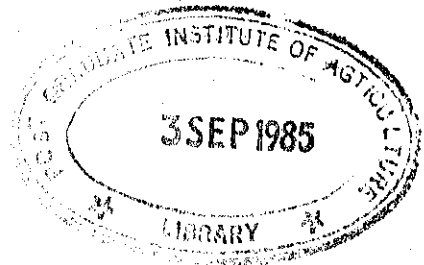
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ABSTRACT

This thesis comprises of six chapters.

General characteristics of Panicum maximum Jacq. are reviewed in Chapter 1. This includes the agroecological adaptation such as distribution, botany, flowering and reproduction, seed production and germination and diseases of Panicum maximum species. Association with legumes, herbage yields and effect of grazing on pasture with special emphasis on Panicum maximum were discussed under management practices. The effect of defoliation on the yield, and nutritive value and animal performance were also discussed in this chapter.

Chapter 2 presents the experimental work on the effect of defoliation on the yield, chemical composition and digestibility of unfertilized Guinea A. The frequencies of defoliation studied were 2, 3, 4, 5, 6, 7, 8, 9, 10 and 12 weeks. Results indicated that the dry matter and fibre increased with increasing maturity, but the crude protein and in vitro organic matter digestibility showed the reverse to that of dry matter and fibre. Results indicated the drop in cell soluble carbohydrates, digestibility and crude protein start from the third week onwards. Although the difference between dry matter yield at 3 and 9 weeks was high (4.6 MT/ha) the digestible organic matter yield difference at the above two cutting frequencies were not significantly different (1.2 MT/ha). Therefore, these results indicated that the optimum time of defoliation seems to be around 3 to 4 weeks.

Chapter 3 indicates the effect of height of cutting and frequency of defoliation on the yield and nutritive value of unfertilized Guinea A. Cutting heights were restricted to 7.5, 12 and 17.5 cm above ground level. The frequencies involved were 3, 6 and 9 weeks. Results show that the DM yield increased with the increasing cutting height and maturity. Digestibility and crude protein remained constant with increasing cutting height within the same frequency.

Chapter 4 reports the effect of defoliation on the leaf:stem ratios and their nutritive value of unfertilized Guinea A. Frequencies involved in this experiment were 3, 6 and 9 weeks. Results indicate that the leaf:stem ratio dropped with increasing maturity. At 3 week this ratio was 1:0.16 and at 9 week the ratio of leaf:stem was 1:2.03. According to the results the crude protein and IVOMD was higher in leaves but lower in leaf sheath, but the crude protein and IVOMD of stem was higher than leaf sheath.

Chapter 5 is an immediate followup of the work reported in the preceding chapters. It consists of a comparative study of the intake and digestibility of young and matured Guinea A and urea supplemented rice straw. The experimental feeds were 3 to 4 week Guinea A, chopped and unchopped mature Guinea A urea sprayed rice straw. Digestibility of 3 to 4 week Guinea A was significantly higher than other experimental diets. Dry matter intake of chopped Guinea A was significantly superior to other diets.

Conclusion that could be made from this study is that the optimum time of defoliation of unfertilized Guinea A seems to be around 3 to 4 week. As regards intensity of cutting, lax cutting system has a great advantage over close cutting in respect to yield. Feeding matured Guinea A seems to be better quality feed than 2% urea supplemented rice straw. The dry matter intake of matured Guinea A can be improved by chopping. Thereby feed wastage can be minimized.

