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An overview of current status and future prospects of grassland resource in Sri Lanka

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Introduction

In Sri Lanka, nearly 12,000 $km^2$of the total land area is under grass (Pemadasa, 1990). Use of grassland for livestock through traditional way goes back a number of centuries. Almost 20% of the countryside of the earth is covered by grass-dominated flora, which includes numerous communities (Pemadasa, 1990).The cohesiveness of traditional societies and social groups in livestock rearing led to complete approaches that resulted in appropriate, environmentally sound sustainable technologies in sustainable grassland management. However, due to growing population and mismanagement, Sri Lankan grasslands are deteriorating. Moreover grasslands play key role in livestock production and environment stability. There is a continuing need to maintain a broad spectrum of production and conservation interests in order to ensure the effective and suitable management of the grassland resource (Premaratne *et al*., 2003). The local grass species have high diversity and environmental adaptability indicating their potential utilization in future improvement programs especially under changing climate. Therefore, the objective of this paper is to review status of local grassland/species with respect to climate, topography and soil types and its improvement potential.

Materials and Methods

The physical properties of major soil groups *viz*; Reddish Brown Earths, Red Yellow Podzolic, Red and Yellow Latosols, Reddish Brown Latasolic are favourable for wide-ranging agricultural purposes. Three topographic zones, central highlands, the plains, and the coastal belt are distinguished by elevation. The south-central part (Central Highlands) is the heart of the country and the core of this area is a high plateau, running north-south for approximately 65 km. On the east, the Uva Basin consists of rolling, grass-covered hills, traversed by some deep valleys and gorges. The land descends from the Central Highlands to a series of escarpments and ledges at 400 to 500 m before sloping down to the coastal plains.

Most of the island's surface consists of plains between 30 and 200 m above sea level. In the south-west, ridges and valleys rise gradually to merge with the central highlands, giving a dissected appearance to the plain. The coastal belt, about 30 m above sea level, surrounds the island. Rivers in Sri Lanka start in the central highlands and flow in a radial pattern toward the sea. The climate is tropical with high humidity and temperature which vary with altitude due to its situation of north-equatorial tropical zone. Seasons are not determined by change of temperature, but by the rainfall distribution influenced by convectional precipitation and two monsoons. The northeast monsoon in November – February is locally called "Maha season" and the south-west monsoon from May – September "Yala season".

Topography plays a major role in the pattern of rainfall distribution. While the northeast monsoon rains are island wide, the mountains intercept the southwest monsoon. Thus the country can be divided into three climatic zones: "wet zone, dry zone and intermediate zone". By considering land use, forestry, rainfall and soils, these three major climatic zones were divided into 24 agro-ecological regions.

Results and Discussion

Sri Lanka's grasslands have been categorized in many ways, based on their origin and evolution, geographical distribution and floristic composition. However, natural grasslands in Sri Lanka can be recognized as plant communities in which dominant species are perennial grasses with very few or no shrubs and trees (Moore, 1964). Stability of grasslands often depends on the direct or indirect influences of man (Moore, 1964). Pemadasa (1983) has carried out a comprehensive survey of natural grassland resources in the country and the major and sub grassland types based on this survey.

Sri Lankan grasslands are likely to play an economically vital role because they have a potential as feed for livestock. The economic viability of grasslands as grazing grounds depends partly on their productivity and quality of constituent forage species (Pemadasa, 1990). Further, grassland productivity depends on many factors, including annual rainfall and its

seasonal variations, soil fertility, species composition, stocking rates and, anthropogenic and other biotic pressures (Murphy, 1975). Although little is known of the productivity of the grasslands of Sri Lanka, the general view is that most are of low productivity. This is probably due to a deficiency of nutrients, particularly nitrogen, phosphorus and potassium (Pemadasa, 1981).

Conclusion

Most grass species are C_4 and there is a high potential to improve them through introducing selection, screening and proper management strategies. By introducing management policies coupled with other functional policies such as economic, socio economic, land use and wildlife management and networking involvement of governmental and private organizations in participatory approach would enhance the current status. Implementation of well organized research on crop improvement, productivity, soil properties, and existing forage species and their nutritional quality and, persistence of improved forage species under particular grassland ecosystem are timely requirements to improve grassland resources in Sri Lanka.

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