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## IMPACT OF GRAZING ON BOTANICAL COMPOSITION OF NATURAL HERBAGE AND SOIL CHARACTERISTICS

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A long term (6 year) grazing experiment was conducted in a coconut plantation at Hakmana, a farming village in the southern Sri Lanka, to observe the impact of grazing on botanical composition of natural herbage and soil characteristics. The treatments were ungrazed coconut land (UG), continuous grazing of natural herbage under coconut with out straw (G), G + rice straw *adlibitum* (GS) and GS + supplements (GSS), with a density of 3 animals/ha in all the treatments.

The changes in botanical composition at the end of the six-year period indicated that herbs were dominant in the UG treatment, with an increase of the production of herbage with time, *Eupatorium odoratum*, *Veronica cinera* and *Cyperus kyllingia* were the most dominant species. The highest decrease in herbage production were seen in animals that were not given straw (G) and the decline worsened with time indicating overgrazing and soil erosion. In contrast the initial decline in herbage yields gradually increased in GSS indicating a possibility of a stocking rate greater than 3 animals/ha, considering the subjective observations of the ground cover in paddocks as well. Due to the changes in grazing pressure, the percentage of prostrate grass species (*Axonopus compressus*, *axoopus affinis* etc.) and leguminous species (*Desmodium* spp.) improved the ground cover in GS through GSS. Hence straw and more significantly supplemented straw feeding improved botanical composition and animal production per unit area while increasing the potential for soil conservation.

Treatments had no significant effect on the soil bulk density up to the end of 6 years and the water holding capacity up to the end of 3 years. By the end of 6 years grazing cattle significantly increased the water holding capacity of the soil from G through GS to GSS. Low inputs of resources available to farmers have thus produced increasing benefits with the passage of time and demonstrated the potentials for the sustainability of a crop livestock integrated system.