

SESSION VII: SUSTAINABLE AGRICULTURAL PRACTICES

**EFFECT OF GRAZING ON SOME PHYSIOLOGICAL PROPERTIES
IN INTEGRATED FARMING SOILS.**

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The objective of this study was to investigate the effect of grazing on some soil properties; bulk density (BD), true density, porosity, moisture content (MC) and pH. The effect of long term grazing (>20 yrs) was examined in a coconut - pasture - cattle integrated farming system in Kamburupitiya area. Short term grazing effect was compared with an adjoining coconut plantation permitting 18 buffaloes to graze for 6 months. Another adjoining ungrazed coconut farm soil was considered as control. Soil samples were taken from the topsoil using a core sampler ($v = 98.21 \text{ cm}^2$). Four replicate samples were taken three times with 30 days interval and analyzed in triplicates. Data were statistically analyzed using SAS.

Soils collected from the long term integrated farming site had a significantly higher ($p < 0.05$) average pH (5.58) than that of non-integrated sites (4.65). Reduction of acidity may be due to the improvement of soil nutrients via dung, urine and accumulation of litter. It was observed that the soil in integrated sites were comparatively dark in color. BD of integrated soil (1.15g/cm^3) was significantly lower than that of non-integrated soil (21.26%) due to the better ground cover by dominant prostrate type herbage compared to ungrazed soils where erect type herbage were prominent. Soil porosity also improved due to integration (47.76%) with that of non-integrated soil (43.76%). There was no significant difference observed under the effect of short term grazing. A considerable time period may be required to change to improved soil properties.

It is concluded that long term crop-livestock integration could improve the soil physiochemical properties.