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Biomass production and soil carbon in the grazing lands of Eastern Ghats , Tamil Nadu

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Introduction The productivity of grazing land is an important factor to maintain soil organic carbon . Soil carbon is an important determinant of site fertility due to its role in maintaining soil physical and chemical properties (Reves , 1997) . Biomass production indicates land productivity and declining soil organic carbon indicates land degradation (Ramachandran *et al .* , 2007) . Land use and soil management practice can influence soil organic carbon dynamics . Thus , the present investigation is focused on soil organic carbon , rainfall and productivity of grazing lands in the Eastern Ghats of Tamil Nadu(TN) .

Materials and methods The present study was carried out at Yercaud , Sirumalai , Hogenakal and Thoppur . Biomass and productivity studies followed the methods of Singh and Yadava , (1974) . Organic carbon was estimated by the method of Walkley-Black (1934) .

Result and discussion Maximum productivity was observed at Yercaud (1890) and minimum at Thoppur (1348) . This may be due to the vegetation and rainfall condition of that area , similar observations were reported by Singh and Yadava (1974) . Organic carbon was higher at the 0-10 cm soil depth in all study areas similar to the findings of Ramachandran *et al .* , (2007) at Kolli Hills . Organic carbon variation at different location may be due to the variation in productivity of these study areas (Table1) . The content of organic carbon was higher during winter due to high litter fall in that season . Present investigation reveals that higher rainfall increases the biomass productivity and soil organic carbon in the Eastern Ghats of Tamil Nadu .

Table 1 Grazing land biomass productivity and soil organic carbon in the Eastern Ghats of TN .

Location Dominant grassland species(rain fall)	Biomass Productivity g/m ² /yr	Organic carbon (%)					
		Soil Depth (cm)			Seasons		
		0—10	10—20	20—30	Winter	Summer	Monsoon
Yercaud <i>Themeda triandra</i> Forsk . (1958mm)	1890	4 .08	3 .42	2 .85	4 .31	3 .40	3 .04
Hogenakal <i>Heteropogon contortus</i> Linn . (710mm)	1680	1 .55	1 .18	0 .99	1 .52	1 .42	1 .25
Sirumalai <i>Themeda triandra</i> Forsk (780mm)	1751	1 .73	1 .39	1 .20	2 .82	1 .50	1 .29
Thoppur <i>Heteropogon contortus</i> Linn . (754mm)	1348	1 .33	1 .20	1 .03	1 .36	1 .15	1 .06

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