basic intake rate was calculated to be 12 cms/hour for the purpose of irrigation.

1001. Sikka, A.K., Samra, J.S., Sharda, V.N., Samraj, P. and Lakshmanan, V. 1998. Hydrological Implications of Converting Natural Grasslands into Bluegum Plantation in Nilgiris (Ed. R.P. Singh). Bulletin No. T-38/O-5, CSWCRTI, Research Centre, Udhagamandalam 643004: 65 p.

The hydrological behaviour of two small identical watersheds; one with natural grassland and "shola" forest and the other with Eucalyptus *globulus (bluegum)* plantation was studied from 1968 to 1992 following the paired watershed technique in the Nilgiris in Western Ghats of South India. Following the calibration period from 1968-1971, bluegum plantation was raised in 59 per cent area of a watershed above the frost line during 1972 and it was felled after first rotation of the coppiced bluegum. Regression and double mass curve techniques were employed to analyze streamflow data to determine changes in water yields. Flow duration curves and Low Flow Index (LFI) were used to quantify the effect of bluegum on low flow regime. Effect of bluegum on high flows was investigated using simple ratios, regression analysis, cumulative frequency plots and probability analysis. Growth parameters of grassland and bluegum plantation were also studied. Conversion of natural grassland into bluegum plantation reduced seasonal and annual water yields, decreased low flow as well as decreased peak flows and increased soil moisture losses. These effects were more pronounced during the second rotation, i.e. first coppiced growth as compared to the first rotation.