Vol. 44, No. 3, pp 297-301, 2016
Indian Journal of Soil Conservation
Online URL:http://indianjournals.com/ijor.aspx?target=ijor:ijsc&type=home

Influence of conservation practices on soil moisture and growth performance of new tea [*Camellia sinensis* (*L.*)] plantation in Nilgiris

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ARTICLE INFO

Article history :
Received : January, 2015
Revised : March, 2016
Accepted : April, 2016

Key words:
Conservation practices,
Contour staggered trenches,
Cover crop,
Double hedge,
Vegetative barrier

ABSTRACT

An experiment under rainfed condition was conducted in the farmer's field in the Nilgiris, the North-Western part of Tamil Nadu for evaluating the influence of conservation practices on soil moisture and plant growth under new tea plantation. One year old B-6 tea clones were planted at double hedge spacing (135 x 75 x 75 cm) in two slopes (8-12 and 30-35%) with treatments *viz.*, contour staggered trenches (CST) in the walking rows (space between pairs of tea rows), vegetative barrier (VB) of geranium in walking rows, CST and VB of geranium in alternate walking rows, CST with cover crop of beans as well as in control condition. Minimum runoff in CST with cover crop followed by CST and CST with VB in both the slopes proved the cause of CST either alone or in combination in reducing runoff. Runoff retention in the trenches attributed to higher soil moisture in CST (25.6%) and CST with cover crop (24.8%) followed by CST with VB (22.8%) in 8-12% slope with similar trend as well in 30-35% slope during non-monsoon period. Tea canopy followed a similar trend to that of soil moisture content with maximum (39.5%) in the CST with cover crop followed by CST (38.4%) and minimum in control just before the first harvest in 8-12% slope. The maximum plant height obtained in CST with cover crop followed by CST may be due to similar reason as in canopy development. Higher yield from all the conservation practices over control (3.8 t ha^{-1}) with maximum in CST with cover crop (4.7 t ha^{-1}) followed by CST (4.4 t ha^{-1}) in 8-12% slope was due to better growth resulting from higher soil moisture.