AJES
ASIAN JOURNAL OF ENVIRONMENTAL SCIENCE ■ VOLUME 9 | ISSUE 1 | JUNE, 2014 | 6-10
| e ISSN-0976-8947 | Open Access : *www.researchjournal.co.in*

RESEARCH ARTICLE

Study of productivity, runoff, soil and nutrient loss in cotton under contour cultivation practices

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Article Chronicle :
***Received* :**
11.03.2014;
***Revised* :**
03.05.2014;
***Accepted* :**
17.05.2014

SUMMARY : The study was undertaken at Agro-ecology and Environment Farm, Dr. PDKV, Akola to find the impact of contour cultivation practices on runoff, soil and nutrient loss and physio-chemical properties of soil. The study area was divided into three plots (T_1, T_2 and T_3) under cotton (AKA - 07). The experiments were designed in Randomized Block Design (RBD) with 4 replications. The land slope was maintained at 1.6 per cent in shallow soil. Each plot was treated with different cultivation practices *viz.*, T_1- Along the slope cultivation with opening of the tide, T_2 – contour cultivation with opening of alternate furrows and T_3 – contour cultivation with opening of furrows (R and F). Runoff was measured by H'flume with automatic stage level recorder installed at outlet of each plot. Amount of soil in runoff samples was determined by oven dry method. The analysis of soil samples was done to find out the nutrient losses (N, P and K) in the soil. Moisture content at 20, 40, 80 DAS and at harvest upto the depth of 60 cm was recorded. Changes in physio-chemical properties of soil were studied during the crop period. Cotton was sown on 2nd July 2012 and harvested by four picking (duration of crop – 152 days). The results of the study showed that the runoff, soil and nutrient loss was found lowest (0.79%) in T_3 followed by T_2 (4.09 %) and T_1 (30.70 %). The moisture levels were also found to be better in T_3 followed by T_2 and T_1. The bulk density was found to be improved in T_3 (1.35) followed by T_2 (1.41) and T_1 (1.54). Field capacity was also found to be increased under T_3 compared to other treatments. While, organic carbon and soil resistance were found to be reduced in T_3 followed by T_2 and T_1. From the study, it was revealed that the treatment T_3 - contour cultivation with opening of furrows (R and F) was effective in controlling runoff, soil and nutrient loss and improving physio-chemical properties of soil compared to other treatments.

Key Words :
Contour, Nutrient loss, Runoff, Soil, Soil properties

HOW TO CITE THIS ARTICLE : Taley, S.M., Vilhekar, S.C. and Pongde, S.M. (2014). Study of productivity, runoff, soil and nutrient loss in cotton under contour cultivation practices. *Asian J. Environ. Sci.*, **9**(1): 6-10.

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