

Research Paper :

## Effect of soil and water conservation measures on cropping pattern and crop productivity

A.P. DESHMUKH AND A.S. KADALE

Accepted : May, 2010

See end of the article for authors' affiliations

Correspondence to:

**A.P. DESHMUKH**  
Department of Soil and Water  
Conservation Engineering,  
College of Agricultural  
Engineering and Technology,  
Marathwada Agricultural  
University, PARBHANI  
(M.S.) INDIA

### ABSTRACT

Evaluation of watershed development programme implemented in Attharwadi watershed was carried during 2007-08 to study effect of soil and water conservation measures on cropping pattern and crop productivity. Different soil and water conservation measures adopted in Attharwadi watershed were continuous contour trenches, loose boulder structures, earthen nala bund and farm pond etc. Socio-economic survey was conducted to study the effect of soil and water conservation measures on parameters such as cropping pattern, crop productivity, education level and farm mechanization.

**Key words :** Soil and water conservation measures, Crop productivity, Cropping pattern

Rainfed agriculture in Maharashtra is characterized namely by low productivity, degraded natural resources and wide spread poverty. The factors, which are responsible for the low level of productivity in the state, are obviously soil erosion and low irrigation coverage. Limited irrigation facilities, erratic behavior of monsoon, constant threat of drought to nearly half of the gross cropped area are the basic factors inhibiting progress of agriculture in the state. A review of Maharashtra's agricultural production for the last four decades reveals that there is large degree of fluctuations in the production of rainfed crops. It has been recognized that only through a holistic development like the watershed development programme, economic condition of people living in rainfed areas, can be improved. Watershed management is the integration of technologies within natural boundaries of a drainage area for optimum development of land, water and plant resources to meet the basic requirements of people and animals in a sustainable manner. Properly formulated watershed development programme based on a study of climate, soil, water and plant resources on the other hand, offers ample scope for evolving sustained livelihood support system in that land. In India, watershed management for rainfed area is an integrated area development approach to promote mixed farming systems under complex, diverse and risk prone environment by adopting suitable combination of crops, and forestry components in consonance with carrying capacities of soils. Reduction in runoff and soil loss and improvement

in production have been achieved through proper land use, selection of suitable crops and varieties, crop rotation and cultural practices. (Ranade *et al.*, 1995). The adoption of dryland conservation technologies can increase productivity and profitability of watershed area. Hence impact evaluation of dryland technologies is essential to know an overall effect of soil and water conservation measures on crop productivity and cropping pattern. Evaluation of watershed management programmes in 10 major agro-ecological regions of India indicated that the various interventions reduced soil loss by 10-80%, runoff by 2-42% and increased the productivity of arable lands by 4.2 to 15.4 q/ha (Ram babu *et al.*, 1997). Keeping in view, the importance of post project evaluation, a study was undertaken to evaluate the impact of soil and water conservation measures on crop productivity and cropping pattern in Attharwadi watershed area during 2007-08.

### METHODOLOGY

Attharwadi watershed is located in Hingoli district of Marathwada region, Maharashtra. It is located between 9<sup>0</sup>0' E longitude and 19<sup>0</sup>48' latitude. It is 30 km away from Hingoli city. The total geographical area of the watershed is 550 ha with undulating topography. The general slope of cultivable land in the watershed ranges from 1 to 5 per cent. However, at some locations maximum slope of 8 per cent is observed. In non-cultivated area at hilly and elevated degraded lands maximum slope of 15 - 20 per cent is observed. Attharwadi watershed receives