

ชื่อเรื่อง

**Effect of Vetiver Hedge on Runoff, Soil Loss, Soil Moisture and Yield of Rainfed Crops in Alfisol Watersheds of Southern India**

ชื่อผู้วิจัย

C. Nagender Rao, M. Singa Rao, A. Padma Raju and R. Prabhu Prasadini

ชื่อหน่วยงาน

Division of Soil Science, Andhra Pradesh Agricultural University, INDIA

ปีที่ดำเนินการ

ปีที่พิมพ์รายงาน

**Abstract**

Runoff and soil loss are the twin problems threatening the security and sustainability of crop production in the Deccan plateau of Peninsular India. Low cost and easily adaptable technologies need to be developed for conservation of natural resources. Experiments were conducted on shallow gravelly *Alfisol* having 2.5% slope during 1990-95 to study the effect of vetiver (*Vetiveria zizanioides*) hedge on soil and water conservation and yield of rainfed crops, sorghum+redgram and castor. Vetiver hedge on contour reduced the runoff and soil loss by 65.75 and 75.59% (1993-94) and 66.65 and 76.98% (1994-95), respectively over contour cultivation alone. Vetiver+dead furrows (deep furrows) at 3.6 m interval reduced runoff and soil loss by 56.33 and 70.48% (1993-94) and 58.33 and 70.77% (1994-95), respectively over dead furrows alone. Vetiver hedge on contours increased mean soil moisture (upto 45 cm depth) by 5.13 to 8.55% over contour cultivation alone. The increase in soil moisture content with vetiver+dead furrows was 6.96 to 10.85% over dead furrows alone. The average soil moisture content 2 m above vetiver hedge was higher by 8.61 to 16.25%, compared to the soil moisture below (2 m) Vetiver hedge. The percent increase crop yields due to vetiver hedge ranged from 7.04 to 22.37 over that of contour cultivation. Vetiver+dead furrows recorded 3.79 to 8.29% increased yields over dead furrows alone. The crop yield above vetiver hedge was higher by 15.55 to 17.98% over that below, vetiver hedge.

Growing of vetiver hedges on contours and adopting conservation tillage practices between them can thus be an effective method to reduce runoff and soil loss, and increase *In situ* moisture thereby obtain higher crop yields in rainfed Alfisols of the central parts of Southern India.