



Vol. 41, No. 2, pp 163-169, 2013

## Indian Journal of Soil Conservation

Online URL: <http://indianjournals.com/ijor.aspx?target=ijor:ijsc&type=home>



# Winter sorghum productivity as influenced by resource conservation and nutrient management-A farmer participatory approach

S.K.N. Math and S.L. Patil<sup>1</sup>

Central Soil & Water Conservation Research & Training Institute, Research Centre, Bellary 583 104, Karnataka State, India.

<sup>1</sup>E-mail: [slpatil64@gmail.com](mailto:slpatil64@gmail.com)

### ARTICLE INFO

#### Article history:

Received : October, 2012

Revised : April, 2013

Accepted : May, 2013

### ABSTRACT

Greater and sustainable winter sorghum productivity in Vertisols of Semi-Arid Tropics in south India in farmers' fields can be achieved through rainwater conservation, nutrient management and cultivation of an improved variety. In view of this situation, a study was conducted on farmers' fields to assess the effect of *in-situ* moisture conservation practices, integrated nutrient management and cultivation of improved winter sorghum cultivars on sorghum productivity in Vertisols of south India. Compartmental bunding along with integrated nutrient management and improved sorghum cultivars potentially stabilized the winter sorghum productivity in the rainfed Vertisols. Lay out of farmer fields with compartmental bunding increased sorghum grain and straw yields by 13% to 14% and 14% to 26% over no compartmental bunding in Bellary district of Karnataka and Kurnool district of Andhra Pradesh states, respectively in India. Integrated nutrient management at 60 kg N with 3 t FYM ha<sup>-1</sup> and *Azospirillum* seed treatment increased sorghum grain yield from 24% to 27% and straw yields from 23% to 39% compared to farmers practice of nutrient application at 10 kg N + 3 t FYM ha<sup>-1</sup> in both Bellary and Kurnool districts, respectively. Sorghum cultivar "CSV-216R" produced 8% to 10% higher grain yields over local "M35-1" cultivar in Karnataka and Andhra Pradesh states, respectively. Cultivation of "CSV-216R" cultivar of winter sorghum with formation of compartmental bunding during June and application of 60 kg N ha<sup>-1</sup> + 3 t FYM ha<sup>-1</sup> with *Azospirillum* seed treatment produced greater net returns of ₹ 21418 ha<sup>-1</sup> and ₹ 21058 ha<sup>-1</sup> with higher B:C ratio of 2.29 and 2.31 compared to lower net returns of ₹ 11754 ha<sup>-1</sup> and ₹ 11152 ha<sup>-1</sup> with B:C ratio of 1.84 and 1.81 with farmers cultivation practices observed in Bellary and Kurnool districts, respectively.

#### Key words :

Integrated nutrient management,  
Moisture conservation practices,  
Sorghum,  
Winter season