



## Evaluation of different grasses for their soil binding and soil aggregation properties

G.L. CHUNALE, D.D. PARDHE\* AND R.D. BANSOD

Zonal Agricultural Research Station, Sub-montane Zone, KOLHAPUR (M.S.) INDIA

**Abstract :** The study deals with the quantitative evaluation of ten different grass species for their soil binding characteristics, soil aggregation properties, survival performance and fodder potential under sub-montane zone situation of Maharashtra. The study was conducted during 1994 to 1997 in research watershed at Zonal Agricultural Research Station, Shenda Park farm, Kolhapur. The area of watershed represents the typical situation of sub-montane zone condition *i.e.* undulating topography covered with shallow and lighter types of soils on hill slopes from 5 to 15 per cent and medium to deep soils at foot hills. The soils are lateritic in nature. *Pennisetum hohenackeri* was ranking first among the ten grass species for having the highest value of soil binding factor 516.51 kg/cm<sup>2</sup> *i.e.* it has comparatively better soil binding abilities as compared to other grass species. It survived better (76.5 %) on sloppy marginal soils and its root system developed better water stable aggregation (48.14 % up to >0.25 mm and M.W.D. 0.616 mm). It was followed by *Themeda triandra*, *Dichanthium annulatum* and *Panicum maximum*, which were not only found better in soil binding ability, survival performance and water stable aggregation, but also found promising for green fodder yield to the extent of 26.0 to 28.0 t/ha. *Pennisetum hohenackeri* has no fodder potential, but it has better soil binding abilities. Its roots can provide natural reinforcement to the mechanical structures like gully control, runoff disposal and stream bank control etc. and can give better stabilization and effective protection. This grass can be adopted on vulnerable places in combination with mechanical structures for soil and water conservation, where the site protection is the sole object rather than fodder. The other grass species such as *Dichanthium annulatum*, *Panicum maximum* and *Themeda triandra* can be used for vegetative bunds, farm bunds, grass water and riser bunds of terraces etc. for soil and water conservation as well as they can also be used for green fodder.

**Key Words :** Binding factor, Structural stability, Water stable aggregation

**View Point Article :** Chunale, G.L., Pardhe, D.D. and Bansod, R.D. (2013). Evaluation of different grasses for their soil binding and soil aggregation properties. *Internat. J. agric. Sci.*, 9(2): 625-628.

**Article History :** Received : 01.12.2012; Revised : 16.03.2013; Accepted : 17.04.2013