

Physical properties of the soil as influenced by different soil and water conservation measures and sources of nutrients in cashew

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■ **ABSTRACT** : The experiment plants were seven year old (during first year of study) cashew grafts of Ullal-1 variety with row and intra row space of 8m x6m. Application of recommended dose of chemical fertilizers recorded significantly high bulk density, less soil moisture content and low water holding capacity. Combined application of recommended dose of inorganic nutrients along with organic nutrient sources recorded low bulk density, high soil moisture content and water holding capacity than inorganic source alone.

■ **KEY WORDS** : Water conservation efficiency, Soil conservation efficiency, Soil moisture content, Bulk density, Water holding capacity

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Cashew (*Anacardium occidentale* L.) belonging to the family Anacardiaceae, is one of the most important commercial plantation and foreign exchange earning crop of the country. It is believed to be the native of lower Amazon region of Northeastern Brazil. Most of the farmers are cultivating this crop under low fertile soils and they are very rarely applying fertilizers and farmyard manures to cashew garden. In recent days cashew is grown under organic farming system with partial utilization of naturally decomposed cut weed biomass and cashew leaf litter deposited in the garden thereby productivity is very low (Yadukumar, 2001). The study was conducted to test the effect of soil and water conservation techniques coupled with organic and inorganic manures in cashew on physical properties of the soil.

■ METHODOLOGY

The study was conducted in Ariyapu village which is situated in the coastal zone (Zone No-10) with an operational area of Taluk Puttur of Dakshina Kannada, District. The experiment was laid out in split plot design with three replications having 108 plants in interaction between soil and water conservation measures and nutrient levels were imposed in normal planting in 2009 and 2010. The experiment plants were seven year old (during first year of study) cashew grafts

of Ullal-1 variety with row and intra row space of 8mx6m. During study period improved growth, yield parameters, nutrient losses, soil loss and runoff losses observations were recorded and data were statistically analyzed by following Fisher method of analysis of variance.

■ Main plot: Soil and water conservation measures (M) :

- M₁ = Individual tree terracing with crescent bund (Terrace of 2.0 m radius around the plant with crescent shaped bund of size 6.0 m length, 0.5 m height and 1.0 m width at base).
- M₂ = Trenches across the slope in between two rows (Trenches of size 2.0 m length, 0.45 m width and 0.45 m depth in between two rows).
- M₃ = Trenches across the slope on four sides (Trenches of size 2.0 m length, 0.45 m width and 0.30 m depth at 2.0 m radius around the tree).
- M₄ = Preparation of basin around the tree (Trenches of size 2.0 m radius around the plant with catch pit of size (0.45 m depth x 0.3 m width around the tree).
- M₅ = Mulching of basin around the tree (Mulching of waste green manure and cashew dry leaves are incorporated in 2.0 m radius around the plant).
- M₆ = Control plot (Without any soil and water conservation practices).