

Effect of different soil and water conservation measures and sources of nutrients on growth and yield of 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 8x6 m. All soil and water conservation measures significantly increased the growth parameters as well as nut and total yield in treatment of trenches across the slope on four sides followed by preparation of basin around the tree and mulching basin around the tree when compared to control plot (without soil and water conservation measures). Among sub plot treatments, the application of organic and inorganic nutrient fertilizers along with soil and water conservation measures significantly helped in increasing the nut yield(kg/tree) and total yield (q/ha).

■ **KEY WORDS** : Water conservation efficiency, Soil conservation efficiency, Soil moisture content, Nut yield, Total yield

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In India cashew is grown in an area of 9.23 lakh ha with 6.65 lakh tons production (Anonymous,2011). India is largest producer, processor and consumer and second largest exporter of cashew in the world. The share of India in raw nut production is about 20.7 per cent of the world production. Though there is a substantial increase in cashew area over the year, the production and productivity (710 kg/ ha) of the crop is remaining consistently low as compared to world average (838 kg/ha) (Hubballi, 2009). Similarly, Karnataka is one of the major cashew growing states in the country having an area of 1, 02,000 ha with an annual production of 60,000 tons (Hubballi, 2009). Dakshina Kannada, Uttara Kannada, Belgaum, Shimoga, Kolar and Udupi are the major cashew growing districts in Karnataka. Hence, the present study was conducted to know the effect of different soil and water conservation measures and sources of nutrients on growth and yield of cashew.

■ 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 8x6 m. 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