

Research Paper :

Effect of fertilization and root feeding of coconut tonic on the yield of coconut and soil properties

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ABSTRACT

Experiments were conducted in five farmers holdings at Puthalam village consecutively from 2006-07 to study the effect of root feeding of coconut tonic on nutrient concentration and yield of coconut. The soil was sandy loam in texture. The soil had a pH range of 7.7 to 8.0, EC of 0.41 to 0.90 dS m⁻¹, organic C 0.2 to 0.3 %, available N 78 to 88 kg/ha, available P 7.0 to 8.0 kg/ha, and available K 108 to 130 kg/ha. The treatments were: T₁: Control (Co fertilizers), T₂: Recommended chemical fertilizers (1.3 kg urea, 2.0 kg SSP and 2.0 kg muriate of potash), T₃: Root feeding of TNAU tonic without soil application of recommended chemical fertilizers, T₄: root feeding of coconut tonic and soil application of recommended chemical fertilizers. The palm west coast tall was tested. In each treatment 35 palms were tested and mean yield/tree/harvest was recorded. The soil application of recommended N, P,K and root feeding of coconut tonic resulted in highest K content (1.42 to 1.48%) compared to the other treatments. produced significantly more number of nuts (71.2 and 73.5 nuts/palm/year) compared to other treatments during 2007 and 2008, respectively. This was followed by the root feeding of TNAU coconut tonic alone (64.1 and 66.6 nuts/palm/year). The lowest yield was recorded in the control (48 and 48.2 nuts/palm/year, respectively).

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In Kanyakumari district coconut is the major crop occupies an area of 25,000 ha in which more than 75 per cent of the holdings are below one ha. The average yield is 50-nuts/palm/year, which is only half of what is realized in experimental fields. The income and employment derived from such small holdings is quite insufficient to sustain the dependant families. Despite its importance and wide spread cultivation, the crop is not quite profitable, due to inefficient farming practices. In a situation where the coconut industries threatened with recurring uncertainties the need for the farm practice, timely and sustained transfer of technologies and extend of field adoption of the recommended practices that augments the coconut farming as a profitable venture becomes very essential and most urgent.

MATERIALS AND METHODS

Experiments were conducted in five farmers holdings at Puthalam village consecutively from 2006-07 to study the effect of root feeding of coconut tonic on nutrient concentration and yield of coconut. The soil was sandy loam in texture. The soil had a pH range of 7.7 to 8.0, EC of 0.41 to 0.90 dS m⁻¹, organic C 0.2 to 0.3 %, available N 78 to 88 kg/ha, available P 7.0 to 8.0 kg/ha, and available K 108 to 130 kg/ha. The treatments were: T₁: Control (Co fertilizers), T₂: Recommended chemical fertilizers (1.3 kg urea, 2.0 kg SSP and 2.0 kg muriate of potash),

T₃: Root feeding of TNAU tonic without soil application of recommended chemical fertilizers, T₄: root feeding of coconut tonic and soil application of recommended chemical fertilizers. The palm west coast tall was tested. In each treatment 35 palms were tested and mean yield/tree /harvest was recorded.

The N, P and K were applied in the form of urea, single superphosphate and muriate of potash, respectively, in two splits *viz.*, one half (50%) in May – June (beginning of south-west monsoon) and rest half in Sep. – Oct. (beginning of north-east monsoon). The fertilizers were applied by broadcast in circular basin of 1.8m around the palm and mixed with soil thoroughly. Root feeding of TNAU tonic was done at 4 to 5 months interval. The tonic consisted of all the essential nutrients except Ca and P. It also consists of growth regulators *viz.*, auxin and salicylic acid.

The yield data was recorded regularly from all the palms and annual yield/palm was computed. Pre-treatment and post-treatment soil and leaf samples were collected from three palms in each treatment plot. Soil samples were drawn from the circular basin 1.0m away from the bole, at 0-25 cm depth using spade. The soil samples were air dried in shade, ground to pass through 2mm sieve and analysed for available N, P and K status by adopting standard procedures (Jackson, 1973). The leaf samples were collected from index leaf (14th leaf) of the