

INTEGRATED NUTRIENT MANAGEMENT IN GROUNDNUT BASED CROPPING SYSTEM IN SEMI-ARID REGION

Increased use of chemical fertilizer as source of major nutrients, combined with the declining use of organic sources of nutrients over time, has led to deficiency of micronutrients in soils, and reduction in beneficial microbes resulting in poor soil fertility. Nutrients such as boron and zinc are important to plant growth and yield of groundnut and maize respectively. Under the scheme of NWDPRA sponsored by Ministry of Agriculture, demonstrations on integrated nutrient management were demonstrated in Ayalur Model Watershed, Erode district, Tamil Nadu by the Central Soil and Water Conservation Research & Training Institute, Research Centre, Udthagamandalam. Cultivation of groundnut and maize is the major land based activity in the watershed. Traditional cultivation practices, coupled with poor quality seeds and varieties resulted in low crop yields. The pod yield of *rainfed* groundnut ranges from 850 - 900 kg/ha. Based on the nutritional deficiency identified in the fields in watersheds, farmers evaluated the response to integrated nutrient management. For groundnut, along with the recommended dose of chemical fertilizer, improved and recently released varieties viz., VRI-2 CO 6 were purchased from the Department of Oil Seeds, Tamil Nadu Agricultural University, Coimbatore and used in the farmer's field. Bio fertilizers (*Rhizobium* and *Phosphobacteria* each 2kg ha⁻¹), gypsum 200kg ha⁻¹ and boron 5 kg ha⁻¹ were used in the demonstration fields.. In case of maize, along with the recommended dose of chemical fertilizer, bio fertilizer (*Rhizobium* and *Phosphobacteria* each 2kg ha⁻¹), and zinc sulphate 25 kg ha⁻¹ was applied. In order to utilize the rainfall effectively, long duration (180- days) red gram was intercropped with groundnut in 10: 1 ratio. In ground nut, 73 % higher yield with additional net income of Rs. 21732 ha⁻¹ was obtained. Due to the inter cropping, higher groundnut equivalent yield with increased rainwater use efficiency (3.98 kg ha⁻¹-mm) was achieved. In case of maize, an additional yield of 1000 kg ha⁻¹ with additional net benefit of Rs 5253 was achieved. Farmers in the watershed are continuing the technologies for the third year.



Improved management practices in groundnut in dryland



Groundnut + redgram for increasing productivity and rain water use efficiency in dry land



Macro benefit from micro nutrient in maize