



Soil test based fertilizer requirement for specific yield targets of sesame in *Vertic Ustocrepts*

K.B. POLARA , J.J. VAGHANI, P.K. CHOVIATIA , B.V. THUMAR AND N.B. BABARIYA

ABSTRACT

A field experiment was conducted on sesame var. G-Til-2 in medium black calcareous soils (*Typic Ustocrepts*) using fertility gradient approach and fertilizer prescription equations were calculated. The results of follow up trials conducted at different locations showed that yield targets were achieved below ± 10 per cent variation but adjusted fertilizer prescription equation were fitted only at yields targets of 8 to 10 qha⁻¹ seed yields of sesame in the study. The income/cost ratios for the additional produce obtained over recommended dose were 30.66 and 11.40 for sesame seed yield at targets of 10 and 12 qha⁻¹, respectively.

Polara, K.B., Vaghani, J.J., Chovatia, P.K., Thumar, B.V. and Babariaya, N.B. (2010). Soil test based fertilizer requirement for specific yield targets of sesame in *Vertic Ustocrepts*. *Asian J. Soil Sci.*, 5(2): 304-307

Key words : Target yield, Sesame, Fertilizer prescription equation

INTRODUCTION

With increase in the cost of fertilizer, it is imperative to reduced the quantity of fertilizer and increase their efficiency by way of getting higher yields per unit production. In this regard, targeted yield approach (Ramamoorthy *et al.*, 1967) provided a basis for such approach which takes into account available nutrient in the soils and crops needs. In the present philosophy of targeted yield approach, it is now possible to make fertilizer recommendation to the farmers considering their financial conditions and for the targeted yield of a crop. Sesame is an important economical oil seed crop for Nation and Gujarat. India is the highest producer of sesame in the world which occupies an area of 17.60 lakh ha with a production of 7.85 lakh tones with productivity of 446 kg ha⁻¹. The cultivated area of sesame in Gujarat is about 3.00 lakh ha and production 1.41 lakh tones with average productivity of 470 kg ha⁻¹ (Anonymous, 2009). No information are available on soil test crop response on sesame particularly in medium black calcareous soils of

Saurashtra region (Gujarat) and hence, the present investigation was conducted.

MATERIALS AND METHODS

A field experiment was conducted on sesame in *Kharif* 2007-08 at Agricultural Research Farm, Junagadh Agricultural University, Amreli using fertility gradient approach (Ramamoorthy *et al.*, 1967). A field was divided into three equal strip and three soil fertility gradients were prepared artificially by applying graded level of N, K and S fertilizer so as to get large variation in one and the same field to evaluate the real relationship between yield of a crop and the soil fertility. An exhaust sorghum crop was grown for fodder to stabilize the nutrient levels. After harvest of exhaust crop, each strip with fertility gradient was divided into 27 equal plots and sesame as test crop was sown, about 27 treatment combinations of three levels each of N (0, 50 and 100 kg ha⁻¹), K (0, 40, and 80 Kg K₂O ha⁻¹) and S (0, 20 and 40 kg S ha⁻¹) and three absolute control were tried. Full dose of K and S and half dose of

Correspondence to :

J. J. VAGHANI, Agricultural Research Station, Junagadh Agricultural University, Amreli, JUNAGADH (GUJARAT) INDIA

Authors' affiliations:

K.B. POLARA , B.V. THUMAR AND N.B. BABARIYA, Department of Agricultural Chemistry and Soil Science, College of Agriculture, Junagadh Agricultural University, JUNAGADH (GUJARAT) INDIA

P.K. CHOVIATIA, Department of Agronomy, College of Agriculture, Junagadh Agricultural University, JUNAGADH (GUJARAT) INDIA