

Research Article

Soil test based fertilizer recommendation for onion (*Allium cepa* L.) in Saurashtra region of Gujarat

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Summary

A field experiment was conducted on onion var. GWO-1 in medium black calcareous soils (*Typic Ustocrepts*) using fertility gradient approach and fertilizer prescription equation were calculated. The results of follow up trails indicated that the yields targets were achieved below ± 10 per cent variation but adjusted fertilizer prescription equation were fitted only at yields targeted of 175 to 225 qha⁻¹ yield of onion. The income/cost ratio for the additional produce obtained over recommended dose 19.5 and 17.2 for onion bulb yield at targeted of 200 and 225 qha⁻¹, respectively.

Key words : Medium black calcareous soils, Nutrient requirements, Yield target, Onion

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Introduction

Fertilizer recommendation based on the available nutrient status of the soil is best approach to obtain better crop yield through balance fertilization. There are generalized recommendation and considered the large scale variation from field to field. This lacuna is corrected by the development of prescription based fertilizer recommendation for a given soil crop fertilizer situation (Rammamurthy *et al.*, 1967). This approach take care of the soil fertility status as well as crop needs and is thus based on balanced nutrition of crop. Onion is an important vegetable crop commercially grown over a large area in Gujarat State. The average area, production and productivity of onion crop is 52,400 ha, 15.15 lakh tones and 28128 kg ha⁻¹, respectively in Gujarat state from last seven year (2004-2010). In general, onion crop removes 100 kg N, 20 kg P₂O₅ and 50 kg K₂O/ha. So nutrient imbalance and depletions is become common. In addition, the cost of fertilizers has been increased by about three times during the last ten years. Fertilizers efficiency is also low. Similarly, the soils of Gujarat are low in available N and

P. Therefore, fertilizers should be used judiciously and efficiently. Several workers reported beneficial effect of application of N and K (Dudhat *et al.*, 2010), N, phosphorus and K (Singh *et al.*, 2000) on bulb yields of onion. Kadam and Sonar (2006) reported that onion crop required 1.314 kg N, 1.172 kg P₂O₅ and 2.04 kg K₂O per tones production. They also noted that the efficiency of soil nutrients was 11.25, 55.75 and 7.37 per cent of N, P₂O₅ and K₂O, while that of fertilizer N, P₂O₅ and K₂O were 21.01, 29.35 and 66.18 per cent, respectively. It will be worth wild to select it as a target crop. To investigate the above contention, a field trial was conducted

Resources and Research Methods

A field experiment was conducted on onion in *Kharif* 2008-09 at Agronomy Farm, College of Agriculture, Junagadh Agricultural University, Junagadh, 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,