



## Research Article

# Soil test based fertilizer recommendation for targeted yields of garlic crop

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### Summary

A field experiment was conducted on garlic var. GG-3 in medium black calcareous soils (*Typic Ustocrepts*) using fertility gradient approach and fertilizer prescription equation were calculated. The results of follow up trails conducted at different locations showed that yields targeted were achieved below  $\pm 10$  per cent variation but adjusted fertilizer prescription equation were fitted only at yields targeted of 60 to 70 qha<sup>-1</sup> yield of garlic in the study. The income/cost ratio for the additional produce obtained over recommended dose 14.8 and 15.1 for garlic bulb yield at targets of 60 and 70 qha<sup>-1</sup>, respectively.

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

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## Introduction

Fertilizer recommendation based on the available nutrient status of a soil. There are generalized recommendation and do take into account the large scale variation from field to field. This lacuna is corrected by the development of prescription based fertilizer recommendations for a given soil crop fertilizer situation (Rammamurthy *et al.*, 1967). This approach takes care of the soil fertility status as well as crop needs and is thus based on balanced nutrition of crop. Garlic (*Allium Sativum* L) is most important spices or condiment crop cultivated as cash crop that is cultivated in 20.2 million hectare with production of 105.7 million tones in India. In India, Gujarat state stands first in area (20 %), production (27 %) with productivity of 6.97 tones ha<sup>-1</sup> (NHRDF 2010-11). The nutrient requirement specifically depends on crop and variety, stage of crop, soil type and moisture availability. Several workers reported beneficial effect of application of N and K (Mohd abbas *et al.*, 1994), N, phosphorus and K (Verma *et al.*, 1996) to garlic on the bulb yields. However, the cost of fertilizers

has been increased by about three times during the last decade. Fertilizer use efficiency is also low. Similarly, the soils of Gujarat are low in available N and P. Therefore, fertilizers should be used judiciously and efficiently. The present investigation on soil test crop response on garlic particularly in medium black calcareous soils of Saurashtra region of Gujarat was conducted.

## Resources and Research Methods

A field experiment was conducted on garlic in *Rabi* 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, phosphorus and K 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 exhaustive