



Integrated nutrient management in groundnut (*Arachis hypogaea* L.) for higher production during rainy season

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Abstract : A study was carried out for two consecutive years during rainy season of 2002 and 2003 at Zonal Agricultural Research Station, Mainpuri, C.S. Azad University of Agriculture and Technology, Kanpur. The main objective was to find out the suitable dose of sulphur + calcium for integration with recommended dose of 20 kg N + 30 kg P_2O_5 + 45 kg K_2O ha⁻¹ and 10 t FYM ha⁻¹ to revive groundnut production on nutrient deficient soils during rainy season. The summarized results of two years experiment indicate that groundnut responded to the application of 20 kg N + 30 kg P_2O_5 + 45 kg K_2O + 52.5 kg S + 70 kg Ca + 10 t FYM ha⁻¹, which registered significantly higher pod yield (30.60 q ha⁻¹) over lower installments of sulphur and calcium in the integration of RDF + 10 t FYM ha⁻¹. Application of highest tested dose of 60 kg S + 80 kg Ca ha⁻¹ with RDF + 10 t FYM ha⁻¹ confined the pod yield of groundnut (30.74 q ha⁻¹) compared to RDF + 10 t FYM + 52.5 kg S + 70 kg Ca ha⁻¹. The growth and yield traits noted in groundnut under different integrated doses of nutrients were concordant to the pod yield of groundnut.

Key Words : Sulphur, Calcium, Gynophores, Pops, Black heart, Integrated nutrients management, Groundnut

View Point Article : Singh, R.A., Singh, P.V., Singh, Jitendra, Singh, D.P. and Khan, Khalil (2012). Integrated nutrient management in groundnut (*Arachis hypogaea* L.) for higher production during rainy season. *Internat. J. agric. Sci.*, 8(1): 37-40.

Article History : Received : 24.03.2011; Revised : 20.07.2011; Accepted : 05.10.2011

INTRODUCTION

Groundnut (*Arachis hypogaea*) is an important *Kharif* season oilseed crop of Uttar Pradesh, India. The riverine alluvial soil of Uttar Pradesh having loamy sand, sandy loam and light loam texture is famous for rainy season groundnut cultivation but area and production of groundnut are declining in U.P. Efforts to arrest decline in area and production did not succeed due to biotic and abiotic reasons. The biotic, abiotic and economic reasons drastically interrupted the area of groundnut. Among the abiotic reasons imbalance use of fertilizers, mild deficiency of P, S, Ca and Fe and severe deficiency of Zn in the soil are major factors, which are directly responsible for the low production of groundnut during rainy season.

Groundnut is an exhaustive crop and depending upon the yield, it removes large amount of macro and micro nutrients. An average groundnut crop, with 20 to 25 q ha⁻¹ of economic

yield, requires, 160-180 kg N, 20-25kg P, 80-100 kg K, 60-80 kg Ca, 15-20 kg S, 30-45 kg Mg, 3-4 kg Fe, 300-400g Mn, 150-200 g Zn, 140-180 g B, 30-40 g Cu and 8-10 g Mo (Singh, 1999). The Ca, K, P and S between macro nutrients and Fe and B between micro nutrients are involved in the kernel filling and oil synthesis and, hence, are required in higher quantity. Thus, a strong need was felt to develop a suitable nutrient management technology for groundnut cultivation with available resources to revive groundnut production in the state, is the subject matter of this paper.

MATERIALS AND METHODS

A field trial was carried out for two consecutive years during rainy season of 2002 and 2003 at Zonal Agricultural Research Station, Mainpuri, C.S. Azad university of Agriculture and Technology, Kanpur. The soil of experimental site was sandy loam having pH 8.5, organic carbon 0.45 per cent, total

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