

## Effect of nitrogen and sulphur on yield and yield attributes of mustard under the loamy sand soil of North Gujarat

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### ABSTRACT

A field experiment was conducted at Agronomy Farm of C.P.College of Agriculture, Sardar Dantiwada Agricultural University (SDAU), Sardar Krushinagar in a Randomized Block Design (factorial) to study the response of mustard to nitrogen and sulphur application under loamy sand soil of north Gujarat. Three levels each of N (50, 75 and 100 kg N ha<sup>-1</sup>) and four levels of S (control, 15, 30 and 45 kg S ha<sup>-1</sup>) were tried. Total twelve treatment combinations were replicated four times. The results revealed that the application of nitrogen at the rate of 100 kg N ha<sup>-1</sup> significantly increased test weight, number of branches, seed yield, and stover yield over other rate of application. Further, the application of sulphur at the of 45 kg ha<sup>-1</sup> significantly increased number of branches, test weight and seed yield over 15 and 30 kg S ha<sup>-1</sup>. While in interaction effect, the treatment combination N<sub>3</sub>S<sub>4</sub> (100 kg N ha<sup>-1</sup> and 45 kg S ha<sup>-1</sup>) also affected significantly the number of branches, seed yield, stover yield. The treatment combination gave maximum values to test weight but they were not significantly different from other combination.

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**Key words :** Nitrogen, Sulphur, Mustard, Loamy sand and yield

### INTRODUCTION

Oil seed crops occupy important place in the Indian diet. Mustard oil is edible and it is used as cooking oil and also condiments, medicine, varnishes, hair oils, grease, vegetable ghee etc. Among different oil seed crops mustard is the second most important edible oil seed crop. Mustard crop occupies second position in area and production next to groundnut. It is contributing nearly 27.8 % of the total oil seed production in the country. In Gujarat state, it is mostly cultivated under irrigated condition of sandy loam to sandy soils in Northern to Central parts of the state as well as on medium black soils of Saurashtra. Soil with continuous cropping without any additions of nutrition through manures of fertilizers are seldom able to furnish all the nutrients that crop requires macro and micronutrient. Major element nitrogen is required for proper growth and development of crop. Nitrogen is found insufficient in most of the Indian soils. In recent decades over 50 per cent increase in food production has been credited to fertilizer use in which nitrogen has played a

major role. On an average crop absorb as much S as they absorb P, sulphur can be rightly called as the 'fourth major elements' in plant nutrition after nitrogen, phosphorous and potash (Goswami, 1986). Sulphur deficiencies are wide spread and have been reported from over 70 countries, including India. Wide spread 'S' deficiency is prevailing ranging from 15 to 56 per cent (Average 37 per cent) in different types of soils of Gujarat (Meisheri and Patel, 1996). Sadarasanina (1992) also reported that 'S' deficiency is as high as 81 per cent in the light textured soil of North, North-West zones of Gujarat state.

Balanced crop nutrition is essential for maximizing yield and maintaining soil fertility. This balancing is based on nutrient interactions occurring in a given soil crop agro-climatic environment. Two or more nutrients are said to interact when their individual influence is modified by the presence of the other nutrients. Therefore, with these objectives the present investigation was carried out to study the effect of nitrogen and sulphur on yield and yield

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