DEPARTMENT OF SOIL SCIENCE
N.D. University of Agriculture & Technology, Narendra Nagar, (Kumarganj), Faizabad (U.P.)

Topic: Effect of sulphur and zinc on growth, yield, nutrient uptake and quality of chickpea (*Cicer arietinum* L.) in salt affected soil.

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ABSTRACT

The experiment was conducted at the Instructional Farm of N.D. University of Agriculture & Technology, Narendra Nagar (Kumarganj), Faizabad (U.P.), during rabi season of 2003-04 and 2004-05 in R.B.D. (factorial) and was replicated three times. The sowing was done on October 26, 2003-04 and October 26, 2004-05. The treatments were comprised with four levels of sulphur (0, 20, 40 and 60 kg S ha$^{-1}$) and four levels of zinc (0, 3, 6 and 9 kg Zn ha$^{-1}$). The chickpea variety 'Avarodhi' was used for experiment. Application of 60 kg S ha$^{-1}$ and 9 kg Zn ha$^{-1}$, produced significantly higher plant height, dry weight and primary branches per plant and chlorophyll content, number of pods per plant, grain and straw yields, test weight and protein content in grain over control. The optimum dose of S (i.e. 32.31 and 32.28 kg ha$^{-1}$) and Zn (i.e. 6.53 and 6.6 kg ha$^{-1}$) were recorded during both the years, respectively.

The maximum N, P, S and Zn uptake was recorded with the application of 60 kg S ha$^{-1}$, during both the years, except Zn uptake in the second year, which was significantly superior over control. Maximum N and Zn uptake were recorded with 9 kg Zn ha$^{-1}$ and maximum P uptake was recorded with 3 kg Zn ha$^{-1}$, which was significantly superior over control. Application of 60 kg S ha$^{-1}$, significantly increased the availability of N, P K and S of soil after harvest of the crop over control. Application of sulphur had no significant effect on availability of Zn during both the years. Maximum Zn availability was recorded with 9 kg Zn ha$^{-1}$, which was significantly superior over control followed by 3 kg Zn ha$^{-1}$. Application of zinc was found no significant effect on the availability of sulphur during both the years.

Interaction effect between S and Zn on various parameters of chickpea was recorded non-significant effect during both the years.

The highest net income was obtained with 40 kg S ha$^{-1}$ during both the years. Amongst various Zn levels, 6 kg Zn ha$^{-1}$ was found profitable over 3 kg Zn ha$^{-1}$ during both the years.

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