


## Effect Of Zinc And Iron Biofortification On Profitability And Productivity Of Chickpea (*Cicer Arietinum* L.) Varieties

**Rekha Kharra, Ph.D. SCHOLAR, MPUAT, Udaipur**

Introduction		Results
<p>Zinc is one of the 8<sup>th</sup> essential trace elements required for growth and reproduction of plants. Zinc enriched finger proteins are required in signal transduction, regulation and transcription of deoxyribonucleic acid (DNA)/ribonucleic acid (RNA) or other proteins in the plant. Zinc involved in the root nodulation of the plants and enables to the pulse crops to fix inert in the root nodule. It is also participating in the signal transduction during stress condition in the plant system. Iron plays an important role in chlorophyll synthesis and act as structural component of hemes, hematin and leghemoglobin involved in the nitrogen fixation in pulses catalyzed by an enzyme called 'nitrogenase' (Larson <i>et al.</i>, 2018). Moreover, iron is the most essential micronutrient for plant growth especially for chickpea grown on saline and alkaline soils</p>		<p>The improvements in zinc and iron contents in seed (3.56 and 3.41%) and stover (1.38 and 1.37%) of chickpea were recorded under the application of ZnSO<sub>4</sub> @ 25 kg/ha (SA) + 0.5% ZnSO<sub>4</sub> (FA) and ZnSO<sub>4</sub> @ 25 kg/ha (SA) + 0.5% FeSO<sub>4</sub> (FA) significantly improved and fortified zinc contents in seed (37.46 and 36.19 mg/kg) and stover (22.95 and 22.31 mg/kg) of chickpea, respectively as compared to control and sole application of FeSO<sub>4</sub> @ 25 kg/ha (SA), ZnSO<sub>4</sub> @ 25 kg/ha (SA) as well as combined mode of application of micronutrients viz. FeSO<sub>4</sub> @ 25 kg/ha (SA) + 0.5% FeSO<sub>4</sub> (FA)</p>
Methodology		Conclusion
<p>A field experiment was comprised with two varieties namely GNG-1581 and RSG-974 in main-plots and seven fortification treatments included various doses and modes of application of zinc (Zn) and iron (Fe) were assigned to sub-plots. The experiment had fourteen treatment combinations and replicated three times in Factorial Randomized Block Design (FRBD) that makes forty two plots in total. The treatments were allocated randomly to different plots by using the random number.</p>		<p>The improvements in zinc and iron contents in seed (3.56 and 3.41%) and stover (1.38 and 1.37%) of chickpea were recorded under the application of ZnSO<sub>4</sub> @ 25 kg/ha (SA) + 0.5% ZnSO<sub>4</sub> (FA) and ZnSO<sub>4</sub> @ 25 kg/ha (SA) + 0.5% FeSO<sub>4</sub> (FA) significantly recorded higher zinc contents in seed (37.46 and 36.19 mg/kg) and stover (22.95 and 22.31 mg/kg).</p>