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Effect of customized fertilizers on yield and micronutrients contents of okra *(Abelmoschus esculentus* L.) grown on *Typic Ustochrepts* soils of Anand

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ABSTRACT

A field experiment was conducted on *Typic Ustochrepts* soils of College Agronomy Farm, BACA, Anand Agricultural University, Anand durihg the period 2000-03 to study the efficacy of customized fertilizers in improving crop production of okra. The fruit okra increased significantly due to foliar treatment *i.e.* micronutrient mixture grade-IV (for Fe and Zn deficiency), soil application of mixture Grade -V and also due to soil application of FeSO4 @ 15 kg/ha and $ZnSO_4$ @ 8 kg/ha as per soil test value (STV). The soil application of multi-micronutrients mixture grade-V was found beneficial and economical in increasing okra yield.

Key words : Multimicronutrient, Okra, Yield.

Wide spread deficiencies of micronutrients are frequently reported in soils of Gujarat (Patel *et al.*, 1998). Zinc, Fe and B deficiency is one of the most frequently encountered micronutrient deficiencies in vegetables. Reports indicated that Zn and Fe deficiency causes remarkable losses in yields of vegetables and these deficiencies warrants the need for research on Zn and Fe especially on their usage individually and in mixtures as foliar/soil application. Hence, the present investigation was undertaken to study the effect of different multi-micronutrient mixtures on yield and micronutrients content and uptake by okra.

MATERIALS AND METHODS

A field experiment was conducted at College Agronomy Farm, BACA, Anand during 2000-2003 for studying the effect of customized multi-micronutrient mixture in improving crop production of okra (cv. PARBHANI KRANTI). The treatments consisted of T_1 - Control (only NPK); Foliar spray treatments: T_2 -mixture Grade-I (General); T_3 - Grade-II (For Zn deficiency); T_4 - Grade-III (For Fe deficiency); T_5 - Grade-IV (For Zn and Fe deficiency) and soil application treatments: T_6 - mixture Grade-V (Soil application) and T_7 - Soil application of micronutrients as per Soil Test Value (STV). The multimicronutrient mixture grades having composition shown as under were prepared in the laboratory. The mixture grades were prepared for supplementation of the micronutrients on the basis of average removal by crops (Grades I and V) and for the areas of Zn or Fe or Zn and Fe deficiencies in soils of Gujarat (Grade II, III and IV, respectively), keeping in view the balanced ratio of micronutrients in the mixture.

Rate of application of T_2, T_3, T_4 and T_5 - Foliar spray @ 1% and Soil application T_6 - @ 20 kg/ha and T_7 (STV) - $FeSO_4$ @ 15 kg ha^{-1} and $ZnSO_4$ @ 8 kg ha^{-1}. Foliar application was made as: 1st spray - 15 DAS; 2nd spray - 30 DAS; 3rd spray - 45 DAS; 4th spray- 60 DAS (Days After Sowing).

The treatments were repeated thrice in randomized block design. The soil of the experimental field was *Typic Ustochrepts,* loamy sand in texture and had pH - 7.8,

Sr. No.	Multimicronutrient mixture grades	Content (%)				
		Fe	Mn	Zn	Cu	B
	For foliar spray					
1.	Mixture Grade I (General)	2.0	0.5	4.0	0.3	0.5
2.	Mixture Grade II (for Zn deficiency)	2.0	0.5	8.0	0.5	0.5
3.	Mixture Grade III (for Fe deficiency)	6.0	1.0	4.0	0.3	0.5
4.	Mixture Grade IV (for Zn and Fe defi.) For Soil application	4.0	1.0	6.0	0.5	0.5
5.	Mixture Grade V (Soil application)	2.0	0.5	5.0	0.2	0.5