

Research Article

Effect of different methods of zinc application on growth and yield of maize (*Zea mays* L.)

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Summary

A field experiment was conducted on a Typic Haplustalf with sandy loam texture to study the effect of different methods of zinc application on growth and yield of maize. Results indicated that different methods of zinc application significantly increased the grain yield and stover yield of maize compared to control except the treatment which received seed priming with one per cent zinc solution for 8 hour. However, the treatment which received soil application of zinc sulphate @ 10 kg ha⁻¹ recorded maximum yield of 7.52 t ha⁻¹ and 6.96 t ha⁻¹ of stover and grain, respectively.

Key words : Maize, Zinc, Yield, Yield attributes

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Introduction

In soils, micronutrients are present as a part of mineral complex or in soil solution and their optimum availability is must for better growth and development of crops. Though the micronutrients requirement to plants are in small quantities as compared to macronutrients, but their role in getting good plant growth, yield and quality produce is appreciable. Zinc plays an important role in regulating plant metabolic functions, such as formation of hormones (IAA), tryptophan and auxins. It is a component of several enzymes and plays an important role in nucleic acid, ribosomes and protein synthesis in cells. In addition it helps in seed formation, promotes water absorption and translocation of carbohydrates in plants. Recently, intensive cultivation involving adoption of high yielding varieties (HYV), together with continuous use of high analysis fertilizers which are free from secondary and micronutrients and decline in the use of organics may lead to the faster depletion of secondary and micronutrients reserves in soils. About 74 per cent of cultivated soils in Karnataka

showed the deficiency of zinc (Singh, 2001). Therefore, it is very clear that among the micronutrients, zinc deficiency is considered to be one of the most important limiting factors for crop production in Karnataka. Zinc stress in plants due to deficiency can be overcome by supply of zinc through different methods of application such as soil application, foliar application, root dipping and seed priming or soaking of seeds for some time in zinc solution. Among these methods, soil application is easy but the quantity of fertilizers to be applied will be more compared to other methods.

Resources and Research Methods

A field experiment was conducted on a Typic Haplustalf with sandy loam texture at Zonal Agriculture Research Station, Navile, Shimoga. The treatments consisted of control (recommended dose of NPK fertilizers (RDF) and RDF plus zinc through different methods of application. These treatments were triplicated and tried in Completely Randomized Block Design. Five plants from each plot were randomly