



Original Research Article

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Effect of Zinc Application on Yield Attributes and Yield of Maize and Wheat in Maize-Wheat Cropping System

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ABSTRACT

An experiment was conducted during 2009-10 and 2010-11 at research farm of division of Agronomy, IARI, New Delhi, to study the effect of various doses and methods of zinc application on maize and wheat. The treatment consisted of control, 12.5 kg ZnSO₄ ha⁻¹, 25 kg ZnSO₄ ha⁻¹ and foliar spray of 0.5 % ZnSO₄ and two wheat Varieties 'DBW 17' and 'PBW 343'. The grain, stover and biological yield of maize were significantly influenced by application of zinc during first year and the maximum yields were recorded with the application of 25 kg ZnSO₄ ha⁻¹ during both the year. During first year application of 25 kg ZnSO₄, 12.5 kg ZnSO₄ ha⁻¹ and foliar spray of 0.5 % ZnSO₄ increased grain yield by 22.81, 18.63 and 8.36 percent respectively over control, while 4.10, 2.41 and 1.69% increase in grain yield was recorded during second year. In wheat, application of 25 kg ZnSO₄ ha⁻¹ significantly increased 1000 grain weight during both the years while during second year effective tiller m⁻², grain spike¹ and grain diameter; as compared to the remaining treatment. This treatment increased the number of effective tillers by 6, 10 and 11 percent over the application of 12.5 kg ZnSO₄ ha⁻¹, foliar spray and control, respectively, during second year. Direct application of zinc to wheat varieties i.e. 'DBW 17' and 'PBW 343' showed significant variation in grain, straw and biological yield and harvest index during both the years. The yield advantage of 0.35, 0.26 and 0.28 and 0.43, 0.13 and 0.29 t ha⁻¹ was recorded with the application of 25 kg ZnSO₄ ha⁻¹ over control, 12.5 kg ZnSO₄ ha⁻¹ and foliar spray, respectively. Highest straw and total biological yields were obtained with the application of 25 kg ZnSO₄ ha⁻¹.

Keywords

Zinc, Harvest index, Yield, Maize-wheat cropping system

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Introduction

Maize and wheat is the main source of world's food energy and also contains significant amounts of proteins, minerals and vitamins

which are highly essential nutrients for human health. Wheat is a major important crop along with other cereals supplies the bulk of calories and nutrients in the diets of a large proportion of population (Water *et al.*, 2009; Chatzav *et*