

EFFECT OF WHEAT STRAW INCORPORATION ON THE AVAILABILITY OF ZINC IN RICE-WHEAT SYSTEM

F. Hussain¹, M. Sharif Zia¹, M. Aslam¹ and Ashraf Ali¹

ABSTRACT

Pot culture study was conducted on Missa Soil series to investigate the effect of wheat straw incorporation on the availability of applied zinc in rice-wheat system. Zinc was applied @ 0, 2, 4, 8, 16 and 32 mg kg⁻¹ soil with and without straw incorporation. Straw was incorporated @ 2% of the potted soil before rice transplanting. KS-282 rice was used as a test variety. Crop was grown upto 75 days. After the harvest of rice, wheat (Pak 81) was grown under the same set of treatments to see the residual effect of zinc. Results revealed that the application of zinc increased the rice dry matter yield (DMY) significantly. The differences in DMY due to 2 and 4 mg Zn Kg⁻¹ soil were non-significant but further increase in zinc application did not increase the DMY. Application of zinc increased the concentration of zinc in rice tissues. Dry matter yield was significantly reduced in the treatments where 2% straw was incorporated. Incorporation of straw decreased the zinc concentration and uptake significantly. Wheat grain and straw yields were also affected due to zinc applied to rice. Maximum grain and straw yields were obtained at 8 mg Zn kg⁻¹ soil where straw was not incorporated. But incorporation of straw before rice transplanting significantly increased the wheat grain yield. Zinc uptake of wheat grain and straw was increased with the increase in zinc level up to 8-mg kg⁻¹.