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# Effect of ferrous and zinc nutrient management practices on rice under aerobic condition

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**ABSTRACT:** A field experiment was conducted in medium black soil with slightly alkaline in reaction in 2011, 2012 and 2013 at Upland Paddy Research Scheme, Research Farm, Vasantnao Naik Marathwada Krishi Vidyapeeth, Parbhani (M.S.). Rice variety 'Parag' was sown with 30 cm row spacing and 60 kg seed rate/ha. Experiment was laid out in Randomized Block Design with three replications. Ten treatments were tested viz., N-P-K only 80-50-50 kg/ha (recommended dose of fertilizer-RDF) (N<sub>1</sub>), NPK (RDF)+ ZnSO<sub>4</sub> @ 10 kg/ha through soil (N<sub>2</sub>), NPK (RDF)+ ZnSO<sub>4</sub> @ 10 kg/ha + FeSO<sub>4</sub> @ 10 kg/ha thorough soil (N<sub>3</sub>), farm yard manure (FYM) @ 5 t/ha + NPK (RDF) (N<sub>4</sub>), FYM @ 5 t/ha + NPK (RDF) + ZnSO<sub>4</sub> @ 10 kg/ha thorough soil (N<sub>5</sub>), FYM @ 5 t/ha + NPK (RDF) + ZnSO<sub>4</sub> @ 10 kg/ha + FeSO<sub>4</sub> @ 10 kg/ha thorough soil (N<sub>6</sub>), NPK (RDF) + two foliar sprays of ZnSO<sub>4</sub> @ 0.5 per cent at 20 and 45 DAS (N<sub>7</sub>), NPK (RDF) + two foliar sprays of ZnSO<sub>4</sub> @ 0.5 per cent + FeSO<sub>4</sub> @ 0.5 per cent at 20 and 45 DAS (N<sub>8</sub>), FYM @ 5 t/ha + NPK (RDF)+ two foliar sprays of ZnSO<sub>4</sub> @ 0.5 per cent at 20 and 45 DAS (N<sub>9</sub>) and FYM @ 5 t/ha + NPK (RDF) + two foliar sprays of ZnSO<sub>4</sub> @ 0.5 per cent + FeSO<sub>4</sub> @ 0.5 per cent at 20 and 45 DAS (N<sub>10</sub>). Soil was low in nitrogen, ferrous and zinc; medium in phosphorous and rich in potash. Rainfall during experimental period was 636 mm, 678 mm, 1134 mm in cropping season during 2011, 2012 and 2013, respectively. In pooled analysis the significantly highest rice seed yield was obtained when recommended dose of N-P-K (80 - 50 - 50 kg/ha) and farm yard manure @ 5 t/ha with soil application of both the micronutrients i.e. FeSO<sub>4</sub> and ZnSO<sub>4</sub> @ 10 kg/ha (N<sub>6</sub>) was used, however, it was at par with recommended dose of fertilizer and farm yard manure with two foliar applications of both the micronutrients i.e. FeSO<sub>4</sub> and ZnSO<sub>4</sub> at 20 and 45 DAS (N<sub>10</sub>) and use of recommended dose of fertilizer and soil application of both the micronutrients i.e. FeSO<sub>4</sub> and ZnSO<sub>4</sub> @ 10 kg/ha (N<sub>3</sub>). However, significantly highest net monetary returns were obtained with the application of N-P-K @ 80-50-50 kg/ha, respectively, with FeSO<sub>4</sub> and ZnSO<sub>4</sub> through soil @ 10 kg/ha than rest of the nutrient management treatments in 2011, 12 and 13.

**Key Words :** Drilled/direct seeded upland rice, Fe and Zn management in rice, INM in upland drilled rice

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