



Effect of fresh and composted Azolla on grain yield and N. P. K uptake by rice

T. Razavipour¹

1. Rice Research Institute of Iran (RRII)

To identify a suitable dosage of composted Azolla as a bio-fertilizer for popularly grown rice variety 'Hashemi' with and without use of supplementary chemical fertilizers, an experiment was laid out in a factorial completely randomized block design with three replications in silty clay soils (pH7.4) of Guilan province, Iran. The four treatments were T3, T4, T6 and T7 included 3, 5, 7, and 12 tons of composted Azolla respectively, T5 treatment was 5 tons of composted azolla with Urea=120 kg given in two equal splits at basal and one month after transplanting and T6 treatment was 6 tons of fresh Azolla. T8 was a treatment only with 6 tons fresh. These treatments were effectively compared with the T1 treatment as control (without any chemical fertilizer, compost and fresh azolla). T2 was a treatment with recommended dosage of chemical fertilizer i.e. N (Urea=120 kg given in two equal splits at basal and one month after transplanting); P (Triple super phosphate=100 kg basal); K (Potassium Sulphate=100 kg basal) for grain yield, N.P.K. uptake in grain and rice straw. ANOVA results clearly revealed that the bio-fertilizer treatments differed significantly only for grain yield however for other traits it did not show any significant differences. The highest grain yield was observed in T5 treatment with 5 tons of composted Azolla + Urea=120 kg given in two equal splits at basal and one month after transplanting. However, the composted Azolla treatments with 5, 7, 12 tons gave significantly higher grain yields as compared to control (without any chemical fertilizer and Azolla). Interestingly, 6 tons of fresh Azolla (floating) was observed to be detrimental to grain yield in Iranian conditions as its yields were significantly lower than the control. Nutritional sources to the plant from soil (in-situ) or chemical or bio-fertilizers had no significant effect on grain quality i.e. K uptake by grain was significantly different for the treatments with 12 tons of composted Azolla while any significant differences between treatments were not observed for K uptake by straw. We recommend applying 5 tons of composted Azolla with Urea=120 kg given in two equal splits at basal and one month after transplanting under Iranian conditions to save P and K and other micronutrients compared to the recommended N.P.K levels.

Keywords: Azolla, Rice straw, Compost, Paddy, Nutrient uptake

¹ Corresponding author

Email: Razavi46@Yahoo.com