

POTASSIUM SPLIT APPLICATION IN IRRIGATED RICE ON RICE STRAW ADDED RED YELLOW PODZOLIC SOILS

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An experiment was conducted at the Rice Research and Development Institute, Batalagoda to evaluate the dynamics of potassium in soil under irrigated conditions. The experiment was comprised with six treatments namely: N, P, Zn fertilizer (T1); N, P, Zn with Rice Straw (T2); N, P, Zn, 15 kg of K (at Basal) + 20 kg of K (at PI) with Rice Straw (T3); N, P, Zn, 15 kg of K (at Basal) with Rice Straw (T4); N, P, Zn, 20 kg of K (at PI) with Rice Straw (T5); N, P, Zn, 15 kg of K (at Basal) with 20 kg of K (at PI) (T6). It was conducted using Randomized Complete Block Design with four replicates. Soil samples were analyzed for Exchangeable K and Non-Exchangeable K and plant samples were analyzed for total K content. At Harvesting, yield and yield components were recorded.

There was no significant difference between potassium added and straw added fertilizer treated and straw treated plots. Shoot dry matter yield, yield components and grain yield were also not significantly different among treatments. Significant differences in plant K and the soil Non-exchangeable K content were observed. At harvesting, Non exchangeable K content in rice straw treated plots were over 100 mg/kg while it was below 100mg/kg in others.

Results suggest that application of rice straw maintains K content in paddy soils. Application of Potassium can reduce by half when rice straw is added to paddy fields without affecting soil K content or the grain. Measurement of non exchangeable K of soil is a better indicator to estimate the rice straw application on K dynamics in soil, yield and yield components compared to the exchangeable K.

Key words: Chemical fertilizer, Irrigated rice, Potassium, Red Yellow Podzolic, Rice straw