POTASSIUM AVAILABILITY IN IRRIGATED RICE ON RICE STRAW ADDED RED YELLOW PODZOLIC SOILS

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An experiment was conducted at Rice Research and Development Institute, Batalagoda in Low Country Intermediate zone of Sri Lanka in 2009/2010 *Maha* season to evaluate the potassium availability under irrigated conditions as influenced by rice straw addition. An experiment with four treatments namely, N and P fertilizer (B1), N, P and K fertilizer (B2), N, P, K fertilizer with rice straw (B3) and N, P fertilizer with rice straw (B4), was conducted using Randomized Block Design with three replicates. Rice straw was incorporated at rates of 5 mt/ha two weeks before sowing. Soil samples and plant samples were taken once a week and two weeksinterval respectively until maturity. Shoot and root dry weights were measured and analyzed for exchangeable and total K. At harvest, yield and yield components were recorded.

Soil K content in B1 was significantly low throughout the growing season in comparison to B2, B3 and B4 as soil K increased with application of K fertilizer and rice straw. There was no significant difference in soil K between fertilizer treated and straw treated plots. Significant difference in shoot dry matter, yield components and grain yield were not observed, but significant difference in K concentration of plants parts was observed. The highest K removal (100 kg/ha) was recorded in B2 and B3 treatments while K removal in B1 and B4 treatments was 50 kg/ha. Differences in K removal in K treated and non treated plots resulted in comparable soil K contents in K treated and non treated soils at harvesting.

Results suggested that rice straw is a good source of K to maintain exchangeable K in rice growing soils in Low Country Intermediate Zone. Since K concentration in rice plant as well as K removal from paddy fields is low after straw treatment, long term results are needed to conclude how much K fertilizer is needed when rice straw is added to paddy fields at the rate of 5t/ha.

Key words: Potassium, Rice straw, Paddy cultivation