

PhD projects at Institute of Organic Agriculture

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Rice production in the Kilombero flood plain, Ifakara, TZ: Effect of water regime and cropping intensity on grain yield and nutrients flows

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The Republic of Tanzania is the largest producer of paddy rice in East Africa covering an area of appr. 930.000 ha in 2013 (FAO-Stat) . Most of this rice is grown by smallholders under rainfed conditions who cultivate 74% of the planted area. Many of these farms are hardly profitable in a commercial sense. Declining soil fertility is considered to be one of the most important constraints to rice production in the area. This study investigates the effect of integrated nutrient management on rice productivity comparing with the farmer's traditional methods. A one-factorial field trial with 10 treatments and four replications was carried out up from December 2014 in three hydrological zones of the Kilombero flood plain. Treatments include no bunding, bunding, cow manure and or green manure application (*Lablab purpureus*), and inorganic fertilizer application at the rate of either 60kg N or NPK at 120:60:60. *Lablab* was planted at spacing of 40 x 40 cm (Fig. 2) and incorporated into the soil 40 days after sowing, 3 weeks before transplanting. Rice variety SARO 5 (TXD 306) was planted in March 2015 at 20 x 20 cm spacing. Parameters of crop growth and yield including nutrient uptake will be assessed and submitted to ANOVA. Its expected that; Evaluation of agronomic performance, nutrient uptake and utilization efficiency, assessment of the environmental and economic impact of the different nitrogen fertilizer sources and identification of a sustainable fertilizer sources or an integrated approach to help increase rice yields in smallholder farms will be done in the course of the study.



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1 st Supervisor	Prof. Dr. Ulrich Köpke
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