# CROP ROTATION BASED GRAIN LEGUMES AS A SOIL FERTILITY MANAGEMENT STRATEGY IN LOWLAND RICE-BASED CROPPING SYSTEMS IN CENTRE OF BENIN


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**Abstract**

Most of lowland observed in Benin, is located in the Centre (32%) and Dassa-Zoume district is ranking the second largest region in rice production in the country. Unfortunately, many constraints making serious threats to the intensification of rice cultivation in lowland in this area. In order to enhance the productivity of lowland rice in Benin, a field agronomic evaluation of farmer's practices of soil fertility management was conducted using two lowland rice varieties (Nerica-L 19 and Wita 4). The results show that rice-cowpea rotation gave the best agronomic performance (15.45 fertile tillers per plant and 4.8 t/ha of paddy). The two studied varieties are improved varieties (high harvest index) and agronomic performance significantly different. Wita 4 is more productive (16 fertile tillers per plant and 5.1 t/ha of rice paddy) than Nerica-L 19 (14.8 fertile tillers per plant and 4.4 t/ha of rice paddy). The yield of paddy rice lowland is correlated with biomass, harvest index and with the tiller. Tillering is correlated with harvest index. The harvest index and biomass account for 97,5% of productivity in paddy rice for Wita 4 variety. Rice yield = 65.17 HI + 0.79 Biomass –2982.28. As for the variety NERICA-L 19, the harvest index, tillering and biomass account for 98.5% of the productivity of rice paddy. Rice yield = 88.64 HI + 0.67 Biomass + 75.61 Tillers – 4318.73.