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Category	: International Rice Research Conference
Select Theme	: Sustainable and equitable farming systems
Endorsement email	:
Keyword 1	: Yield gaps
Keyword 2	: Nutrient management
Keyword 3	: Sustainable management practices
Title of Entry	: Yield gap analysis of lowland and upland rice production systems in central highlands of Madagascar
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Select only one type of presentation	: 15 minute oral presentation
Abstract	: Large yield gaps between maximum yields and average yields obtained in farmers' fields have been documented across rice producing countries in Sub-Saharan Africa including Madagascar, and imply a possibility to lift overall yield level. However, there is limited information on factors causing such variation in Madagascar. The objective of this study was to identify agricultural practices affecting on-farm yield variation in highlands of Madagascar. For this purpose, Classification and Regression Tree (CART) analysis was performed using dataset from two-season field survey. The dataset consists of 64 and 41

farmer-year observations in lowland (Ambohibary) and upland (Ankazomiriotra) rice production systems. Rice yields ranged from 1.1 to 7.5 t/ha and from 0.4 to 4.7 t/ha in the lowland and upland rice production systems, respectively with average yields of 4.1 and 2.2 t/ha. CART analysis identified that six agricultural practices could explain 61 and 50% of yield variation in lowlands and uplands, respectively. For lowlands, the primary and secondary factors were access to irrigation canal and frequency of weeding by hands and tools. Higher yields were observed in fields having access to irrigation canal and weeded more frequently. For uplands, the first two identified factors were rice straw management practice and application of inorganic N fertilizer. Incorporating straw into soils and higher N application resulted in higher yields. These results indicate that water, nutrient and weed management options are major determinants of yields in the rice production systems in the central highlands of Madagascar. Based on the finding, we are currently evaluating improved management options with focus on nutrient management in the frameworks of SATREPS project and CGIAR Research Program on Rice Agri-Food Systems. We will present preliminary result obtained in the 2017-2018 season.

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