INVITATION TO A Ph.D. RESEARCH PROPOSAL SEMINAR PRESENTATION

DATE: 11-1-2023, TIME 10:00 AM, VENUE: Crop science laboratory 2

TITLE: GENOMIC-ASSISTED BREEDING FOR IMPROVEMENT OF FLOODING TOLERANCE IN TANZANIAN RICE CULTIVARS

CANDIDATE: VICTORIA BIKOGWA BULEGEYA

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Abstract
Flooding is one of the detrimental natural phenomena affecting rice production in rainfall lowland growing areas of Tanzania comprising 70% of the cultivated ecology. Frequency and intensity of flooding is currently unpredictable due to prevailing climate change causing fluctuation in rainfall pattern worldwide. Most rice farmers in flood-prone regions such as Morogoro and Pwani are vulnerable to flooding effects because of using local landraces that are susceptible to flooding stress enduring crop loss and facing food insecurities. This study aims to improve rice productivity in flood-affected areas of Tanzania by developing rice genotypes with tolerance to complete submergence and stagnant flooding. The objective will be achieved by identifying cultivars with tolerance to flooding stresses, identify qualitative trait loci (QTL) for tolerance, perform candidate genes analysis and develop a mapping population using tolerant cultivars. Phenotypic screenings and genome wide association study (GWAS) will be done to identify genotypes with tolerance QTL. Identified genotypes will be analyzed for expression of candidate genes using RNA sequencing. Tolerant genotypes will be used to develop a mapping population for fine-mapping identified QTL in elite cultivars background. Study results will reveal Tanzanian genotypes with tolerance to complete submergence and stagnant flooding, identify available QTL in tolerance cultivars and fine map identified QTL in the established mapping population. The output will be a contribution towards developing flood tolerant rice varieties which will be used by rice farmers in flood-affected regions of Tanzania. The study will be implemented in 4 years with a budget of 51,832,000/= Tanzanian shillings.