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MODELING MULTIPLE PESTS FOR AGROECOLOGICAL PROTECTION OF RICE IN CAMBODIA

DIONISI Mathilde. (1,2), AUBERTOT Jean-Noël. (2), SESTER Mathilde. (1), ADAM Myriam. (1)

(1) CIRAD, Montpellier , FRANCE; (2) INRAE, Toulouse, FRANCE

Text

Damages caused by various pathogens, animal pests, and weeds in rice crops can result in important yield losses (Oerke, 2006). In order to limit these damages, farmers use large amounts of pesticides, especially in Cambodia (Flor et al., 2019). This leads to high health and ecological risks. Two major challenges must be completed to support farmers in the agroecological transition, and to limit the use of pesticides on rice crops: i) to link pest populations and pest injuries with the associated risks of crop losses (yield and/or quality) in a given production situation and for given cropping practices; ii) to understand which agroecological levers can prevent pest development and damages. We calibrated the Decision Support System DSSAT using the CERES-Rice model to simulate the impact of different cropping systems (e.g. number of cycles per year, cultivars, fertilization practices) representing various farming systems (e.g. conservation agriculture) on rice growth and yield in Cambodia. The simulated growth dynamics represent potential crop growths in the considered agro-environmental conditions. The impacts of multiple pests are then integrated using coupling points and damage functions. This presentation introduces the structure, parameterization, model's goodness of fit, and potential use of the model to help adapt crop management strategies in different environments.

P6.1-050

RETHINKING STRATEGIES FOR MONITORING PLANT PATHOGENS VIRULENCE DIVERSITY AND THEIR CORRESPONDING SOURCES OF RESISTANCE TO MOVE TOWARDS A MORE EFFECTIVE DISEASE CONTROL

KATO Fred. (1), PAPARU Pamela. (2), MUKANKUSI Clare. (1), MOSQUERA Gloria. (3)

(1) Alliance of Bioversity Int. and CIAT, Kampala, UGANDA; (2) National Crops Resources Research Institute - National Agricultural Research Organization, Namulonge , Kampala, UGANDA; (3) Alliance of Bioversity Int. and CIAT, Palmira, COLOMBIA

Text

Diseases are still a major constraint to crop production despite the great efforts made by multiple stakeholders interested in sustainable food production. Specialists in breeding, pathology, agronomy, plant genetics, among others, are working towards the same goal of improved varieties for effective on-farm disease management. This effort could advance faster if a strategy involving multiple actors in the same production chain is designed. Currently, under the new research scheme in the CG centers, we have defined a work plan that integrates researchers not only from the system but also strategic partners from national programs in the regions where diseases are limiting production. Here we present our strategy that will enable us to 1) know the diversity of races of Anthracnose and Angular Leaf