

SECURE

Soil ECological function REstoration to enhance agrosystem services in rainfed rice cropping systems in agroecological transition

ABSTRACT

In the context of global change, agriculture is rapidly changing. A great importance is now given to ecological processes occurring within agrosystems. Little attention is given to soil ecological processes (i.e. soil functions) and the belowground biodiversity in agricultural practices despite their recognized high potential to enhance ecosystem service delivery and promote multiple ecosystem functions simultaneously.

Year : 2016

Project number : 1605-007

Type of funding : AAP

Project type : AAP OS

Research units in the network : AGAP AIDA INNOVATION SELMET

Start date : 2017-06-01

End date : 2019-12-31

Flagship project : no

Project leader : Eric Blanchart

Project leader's institution : IRD

Project leader's RU : ECO&SOLS

Budget allocated : 237000 €

Total budget allocated (including co-financing) : 237000 €

Funding : Labex

GOAL

The importance of soil ecological processes and functions for plant growth and other ecosystem services makes soil an essential component of sustainable agroecological systems. Soil (ecological) Function Restoration, i.e. the intensification of these ecological processes, during agroecological transition, is the core of our project. The overall objective of the SECuRE project is to provide Soil Function Restoration (SFR) practices based on local and scientific knowledge, in order to increase both agronomic, socio-economic and ecological performances of agroecological agrosystems in a tropical context.

ACTION

SFR aims to optimize current farmer's practices and propose innovative practices that will promote soil habitat in order to intensify associated soil and plant functions.

We aim to (i) assess local knowledge and farmers' interventions on SFR, (ii) improve our scientific knowledge of SFR on diverse plant functions, (iii) test at field level various SFR practices, (iv) evaluate the impact of SFR practices in terms of agronomic, socio-economic and ecological performances, and (v) disseminate our results.

RESULTS

Different outputs will be provided by our project:

Update information on farmers' practices and knowledge on soil function restoration

Update knowledge on the soil-plant interactions following different restoration practices;

Characterize the joint agronomic and ecological performances of agrosystems and more specifically on SFR practices;

Disseminate the 'best' restoration practices, 'best' meaning the ones improving both agronomic and ecological performances;

Organize annual farmer visits of field trials;

Publish in peer-reviewed journals;

E-learning and training of Master and PhD students.

PERSPECTIVES

A better inclusion of SFR practices based on traditional and scientific knowledge in tropical agroecological systems will likely improve agronomic performances and the provision of agrosystem services ensuring Human well-being such as nutrient cycling, carbon sequestration, farmer's livelihood, and food security.