SECuRE

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

Context :

Agriculture is changing rapidly as a result of global changes. With agroecology, a great importance is now given to ecological processes present in agrosystems. In designing sustainable agricultural practices, little attention has so far been given to the ecological processes that take place within soils and that are provided by underground biodiversity, despite their recognized potential to increase ecosystem services.

Objectives :

The intensification of these ecological processes and functions is at the heart of the SECuRE project. Its objective is to propose practices for restoring soil functions based on both local and scientific knowledge, so as to increase the agronomic, socio-economic and ecological performance of agroecological systems, in a tropical context. The main objectives are to gain a better understanding of farmers' practices in terms of fertilization, to describe the ecological functioning of cultivated soils and the role of different soil organisms and to co-construct more sustainable practices in rainfed agriculture.

Project leader:
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Planned / completed actions:

The project aims to optimize the practices of farmers and to propose innovative practices that promote soil habitat in order to intensify the associated functions of the plant and the soil, and based on soil biodiversity. The objectives are to: (i) assess the local knowledge and restoration practices of farmers, (ii) improve the scientific knowledge of these restoration practices on the response of the plant, (iii) test different innovative practices in the field, (iv) assess the impact of these practices in agronomic, ecological and socio-economic terms and (v) disseminate the results

Expected / achieved results:

-The project described the situation of family farms in the Highlands and proposed alternatives for agroecological intensification;
-The management of soil fertility can be done from organic resources, assemblages of materials (organic and mineral) and biofertilization;
-There is a need to intensify the functions performed by soil organisms to increase sustainability;
-Earthworms have a particularly important role in the growth of rice and its resistance to disease;
-The farmers were made aware of the results during workshops and the exchanges with scientists were constructive;
-Numerous articles, reports, fact sheets and booklets were produced by the consortium.

Partner (s):

- IRD (Eco&Sols)
- CIRAD (AIDA)
- CIRAD (Selmet)
- CIRAD (Innovation)
- CIRAD (AGAP)

- Antananarivo University (LRI)
- FOFIFA

- IITA

Duration: June 1st 2017 – March 31st 2021

Funding: 237,000 €

Outlook:

Better integration of soil function restoration practices into agroecological agrosystems is likely to increase agronomic performance and the provision of ecosystem services ensuring human well-being such as nutrient recycling, carbon sequestration, farmers' livelihood and food security. Actions towards users will continue as part of a DeSIRA Dinaamicc (EU) project.

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