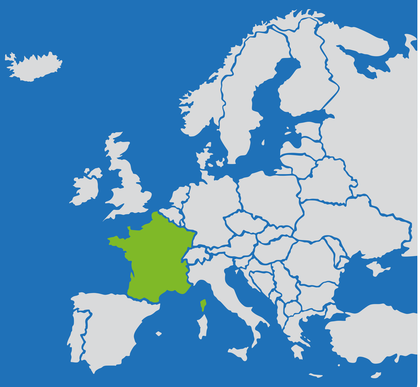
Plant nutrition



AGRI Innovation summit 2019

Other Thematic Network

Optimisation of organic waste product insertion in crop succession to increase soil ecosystem services on a territory scale

Optimisation de l'insertion des produits résiduaires organiques dans les systèmes de culture à l'échelle des territoires

Calendar

Start:01/01/2018
End: 01/01/2020

Budget

Total amount:
€1,212,913

Practical problem

In a territory, organic waste recycling provides ecosystem services and must be managed considering all concerned stakeholders

Partners

INRA, IRSTEA, CIRAD, CNRS: research institutes; Veolia: industry; Chamber of Agriculture, ELISOL: Company; 4 territories

Objectives of the project

The objectives are:
– to optimize organic waste product recycling as part of sustainability of agricultural cropping systems in a territory, through the contribution to ecosystem services provides by cropped soils;
– to determine how public policy tools could favor the recycling through the monetarisation of ecosystem services.

Main activities

The main activities are:
– to characterize the studied territories: soil, climate, cropping systems, farmers' practices and decision rules, available organic waste resources;
– to develop a multicriteria evaluation tool within a spatialized platform to assess most interesting effects related with organic waste recycling;
– to monetize ecosystem services; (iv) to develop sustainable cropping systems using the multicriteria evaluation and maximizing the benefits related with recycling;
– to analyze the genericity of the results through the analysis of the results obtained in the different territories.

Expected results

The expected results will be:
– a multicriteria tool integrated within a spatialised platform simulating cropping systems, their evolution based on farmers practices and considering the effects of organic waste recycling as fertilizing practice;
– to propose new cropping systems and fertilizing practices based on recycling to maximize the benefits and minimizing the impacts;
– to determine if monetization of the ecosystem services would help to increase the recycling of the organic wastes within a territory;
– to elaborate a generic scheme of the optimization of cropping systems including organic waste recycling through the of results obtained in the different territories.

Results so far/first lessons

The territories have been characterized with a focus on the farmers' practices for fertilization and on the available organic waste products. The benefits and potential impacts related with repeated applications of organic waste products within the fertilizing practices have been assessed in long term experiments available within each territories. The multicriteria evaluation tool has been elaborated within the spatial simulation platform MAELIA. Based on the experimental data obtained within the long-term experiments, the evaluation tool will be parameterized and used to evaluate future scenarios of practices elaborated with the farmers on each territories.

Who will benefit

The farmers will benefit from the new proposed scenarios of cropping systems and fertilizing practices. Their evaluation with the multicriteria tool will make possible the optimization of the practices. Other stakeholders such as territorial communities could also benefit from the project since we will propose strategies for optimization of the recycling of organic residues in agriculture within their territories, including scenario of biological treatment of the available organic wastes to favor the recycling. Finally, if monetization of the ecosystem services succeeds, the results could also be used to propose potential public policies to foster recycling.

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