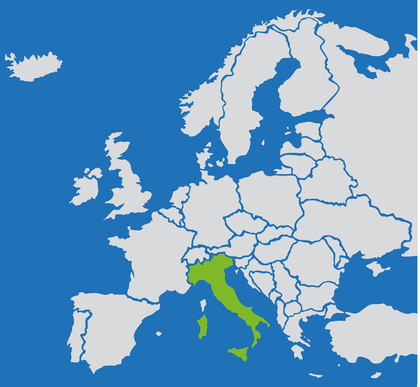
Soil: fertility, biological life and fighting against erosion



AGRI Innovation summit 2019

Cover agroecologiche

Operational Group

Agroecological Cover - Cover crops to increase soil organic matter and reduce weeds

Cover Agroecologiche - Colture di copertura per l'incremento della sostanza organica del suolo e il contenimento delle malerbe

Practical problem

Significant decrease in soil organic matter and increasing occurrence of weeds are addressed by an agro-ecological approach.

Calendar

Start: 01/01/2016
End: 01/01/2019

Budget

Total amount:
€166,146

Partners

Fondazione CRPA Studi Ricerche, CRPA SpA, Università Cattolica Sacro Cuore, Università di Parma – research. Ciato farm, Caussade Semences, EmmeEmme.

Objectives of the project

To develop innovative conservation tillage systems for farms in the Po river Valley, based on the use of cover crops. Their use should allow to take advantage of the principles of agroecology to get a wide range of agronomic and environmental benefits. Spring-summer crops are cultivated for productive purposes, alternated with autumn-winter cover crops that are kept on the soil surface (not harvested). In addition, the effects on soil quality (organic matter, structural stability, earthworms and microarthropods, nitrogen dynamics, etc.), economic sustainability and carbon footprint are evaluated.

Main activities

Selection of different cover crops (also mixtures of seeds). Cultivation of cover crops and control of their development, termination of cover crops. Cultivation of maize and soya, as main crops alternating with cover crops. Evaluation of the yields of the main crops and their quality characteristics. Evaluation of the effects on the soil quality due to cultivation systems with cover crops. Evaluation of the economic and environmental sustainability (Carbon Footprint) of the proposed innovative systems. Training activities, technical-scientific and didactic dissemination, also through the EIP-AGRI network.

Expected results

1. Reverse both the soil organic matter reduction trend and the increase in weeds.
2. Define the most suitable cover crops for use in the soil and climate conditions of the Emilia-Romagna region, and the best agronomic management methods for these.
3. Evaluate the agronomic effects, environmental and economic sustainability of the innovative farming practices, with the aim to promote a conscious transfer to farms.

Results so far/first lessons

The cultivation of spring-summer crops such as maize and soya, alternating with autumn-winter cover crops, appears to be feasible, although with some technical difficulties linked in particular to the termination of the cover crops and the operation of sod seeding. The productions that were obtained in the first two years were on average with those of the area for the same crops. Overall, the soil quality appears to be increasing from year to year. The simultaneous cultivation of different species in a mixture may maximize the positive effects of cover crops with complementary characteristics.

Who will benefit

First of all, farmers who are in the transition phase from conventional farming to conservation tillage or who are planning to do so. But also researchers and technicians who are working on the agro-ecological transition topics. The proposed agronomic paths are absolutely "pioneering" in our environments, while in other European countries (such as France, for example) cropping systems that are founded on the principles of agro-ecology are getting gradually more widespread.

Supported by:
Programma di Sviluppo Rurale dell'Emilia-Romagna 2014-2020
UNIONE EUROPEA – Fondo Europeo Agricolo per lo Sviluppo Rurale – Regione Emilia-Romagna
L'Europa investe nelle zone rurali

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