

Activities

Combinations of agronomical techniques and use of renewable fertilisers were tested in the three partner farms:

- no-tillage, fertigation with ammonium sulphate derived from stripping, distributed through sub-surface drip irrigation;
- minimum tillage, fertigation with microfiltered digestate distributed through sub-surface drip irrigation;
- conventional tillage, fertigation with microfiltered digestate distributed through a ranger irrigation system.

Further details

€ **Total budget:** € 372.047,32
Total financed: € 330.042,59
Main funding source: Rural development 2014-2020 for Operational Groups
Rural Development Programme: 2014IT06RDRP003 Italy - Rural Development Programme (Regional) - Emilia-Romagna

🕒 **Ended, 2020 - 2023**

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SOS_AQUAE

Sustainable farming techniques and renewable fertilizers to combine agriculture, water and environment

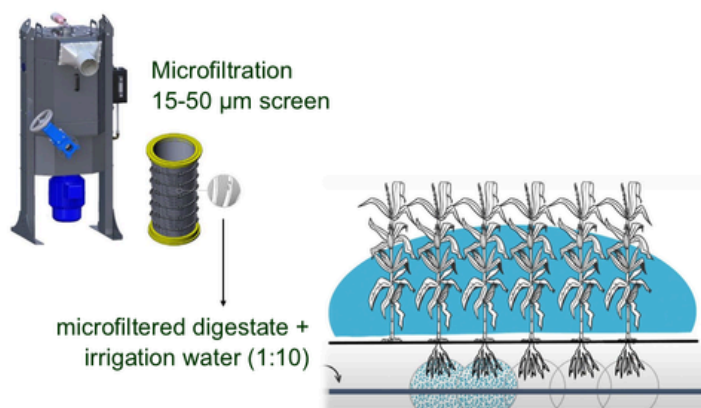


Objectives

The wide objective of the SOS_AQUAE Operational Group was to promote a sustainable intensification of agricultural systems, both productivity and the environmental sustainability, reducing nutrient losses to water.

To this aim, innovative and sustainable farming-techniques were combined with the use of 'renewable' fertilizers derived from livestock manure and digestate, to optimize the use efficiency of nutrients and reduce the use of mineral fertilizers.

The use of microfiltered digestate by means of subsurface drip irrigation in conservation tillage agricultural systems



Results

The SOS_AQUAE Operational Group has demonstrated the technical feasibility of applying a series of sustainable farming techniques that together allow to increase the circularity of nutrients already available in farm by-products, optimising their efficiency of use.

These are the **conservation tillage practices**, up to direct seeding, and the **permanent coverage of the soil** with two crops per year, which have been combined with **fertigation with the use of renewable fertilizers** derived for example from digestate, such as its microfiltered fraction and stripping ammonium sulphate.

Fertigation can be carried out using both sprinkler irrigation systems, such as rainger and pivot, or dripline systems.

Following the examples proposed by the project it is possible to save water, energy and synthetic fertilizers, combining agricultural productivity with the protection of environmental resources.

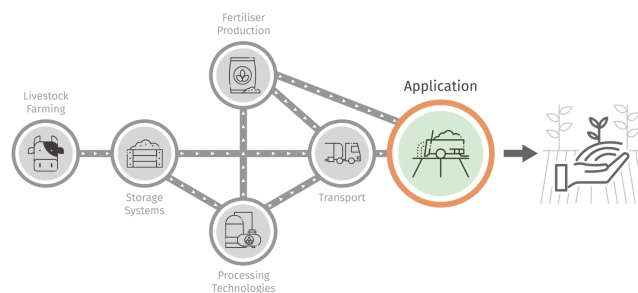
Context

Unsustainable soil and crop management practices lead to progressive soil fertility decline, with increased use of mineral fertilisers to sustain production.

The intensification of agricultural and livestock production has also led to imbalances in fertiliser inputs, with nutrient surpluses in some areas and deficiencies in others.

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Location in the Nutri-Know value chain



However, given the growing trend in world population and food consumption, since arable land is limited, most of the additional production will have to come from sustainable intensification of agriculture, reducing inputs of non-renewable materials and energy. The watchword is 'Doing More with Less'.

The challenge for the agricultural sector, taken up by the farms participating in the Operational Group, is to increase production yields in a sustainable and resilient agricultural model, which not only impacts as little as possible on the environment (water, air and soil), but can also contribute to a reduction in greenhouse gas emissions, through increased carbon sequestration in the soil, while having greater potential to adapt to climate change.



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