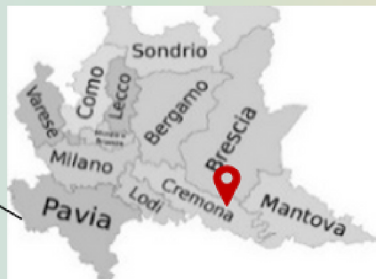


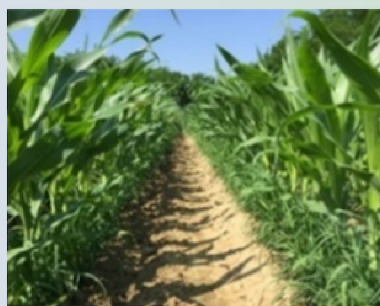
Case Study 2: Lombardia region, Italy

BOOSTING ORGANIC FARMING VIA REGENERATIVE AGRICULTURE

Context and background



Lombardia is a region in North-West Italy with an area of 23,864 km² and a population of about 10 million. It is a leading agricultural producer in Italy, contributing significantly to the country's milk, rice, and pig products. Despite the region's efforts through EU Rural Development Policy to promote organic farming systems, there are challenges such as reduced soil quality, nutrient availability, and weed control, leading to lower yields and farmer incomes.



Objectives

This case study aims to address the limitations of current organic farming systems by implementing regenerative agriculture practices to improve soil health, enhance nutrient cycling, and increase crop resilience, thereby boosting yields and supporting farmer incomes sustainably.

Experimental design

The research is carried out at a commercial farm in Gabbioneta-Binanuova, near Cremona. The site experiences a temperate climate with an average annual temperature of 13.3°C and annual rainfall of 851 mm. The soil is loam-textured, comprising sand (410 g/kg), silt (430 g/kg), and clay (160 g/kg).

1. **Agronomical practices:** Utilizing cover crops, particularly legumes, to enhance nutrient cycling and soil fertility.
2. **Bioeconomy approaches:** Implementing practices to recycle and valorize waste biomasses, thereby restoring soil organic matter and providing bio-stimulant properties.



Key innovations

This case study also focuses on two pillars of regenerative agriculture:

- 1) **Agronomical practices:** Enhancing soil quality and fertility through the use of cover crops and sustainable farming techniques.
- 2) **Bioeconomy approaches:** Recycling organic waste materials to improve soil health and reduce dependency on chemical fertilizers.

By addressing the challenges faced by organic farmers and implementing these regenerative practices, the study aims to create a more sustainable and profitable agricultural system in Lombardia.

Preliminary results

The preliminary results on the potential of cover crops to provide nutrients to the following main crop (i.e., maize) show that hairy vetch may provide a substantial amount of nitrogen (around 200 kg N/ha). Additionally, mixtures including hairy vetch and other non-legume species such as rye and radish may also provide a fair amount of nitrogen. This positively impacted maize yield (cropped under organic farming), increasing it by an average of 21% compared to bare soil.

