



# ***LIFE farming***

## Topic "Soil": **LIFE HelpSoil**

***Stefano Brenna (ERSAF)***



Helping enhanced soil functions and adaptation to climate change  
by sustainable conservation agriculture techniques

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**LIFE International networking conference**  
**LIFE farming – environmentally sustainable agriculture**

**Slovenia, 8<sup>th</sup> – 9<sup>th</sup> May 2018**



## ***SUMMARY***

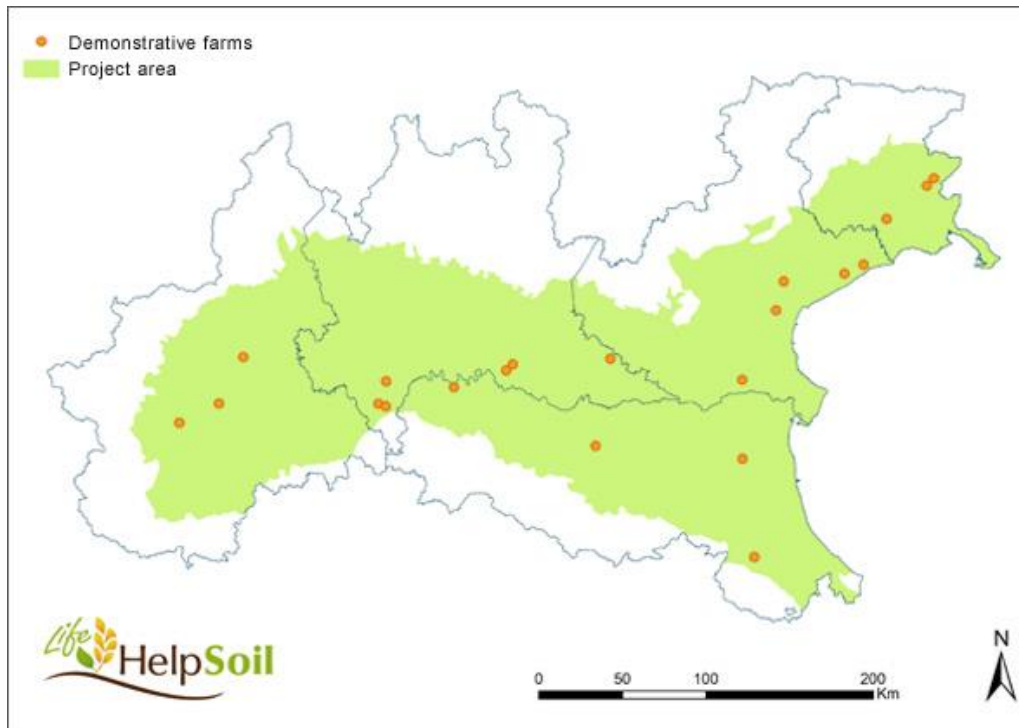
- **INTRODUCTION TO THE PROJECT**
- **MAIN ACHIEVED RESULTS**
- **OUTCOME AND LESSON LEARNT**
- **LOOKING AT AFTER LIFE**

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# Life HelpSoil - Helping soil functions and adaptation to climate change by sustainable conservation agriculture techniques



- 5 Administrative Regions involved (the whole Po plain)
- 20 demonstrative farms
- **Conservation Agriculture vs Conventional Agriculture**
- Monitoring of agronomic and environmental indicators

*Life HelpSoil project area and location of demonstrative farms*

coordinating beneficiary



Regione Lombardia

associate beneficiary



## PARTNERS



sponsor



with the contribution of the European Commission



# Soil management practices compared

## CONSERVATION AGRICULTURE (CA)

- Intensified and diversified Crop Rotations (more species, intercropping, ...)
- Permanent soil cover (crop residues management, cover crops)
- Reduced tillage (direct seeding, minimum tillage)

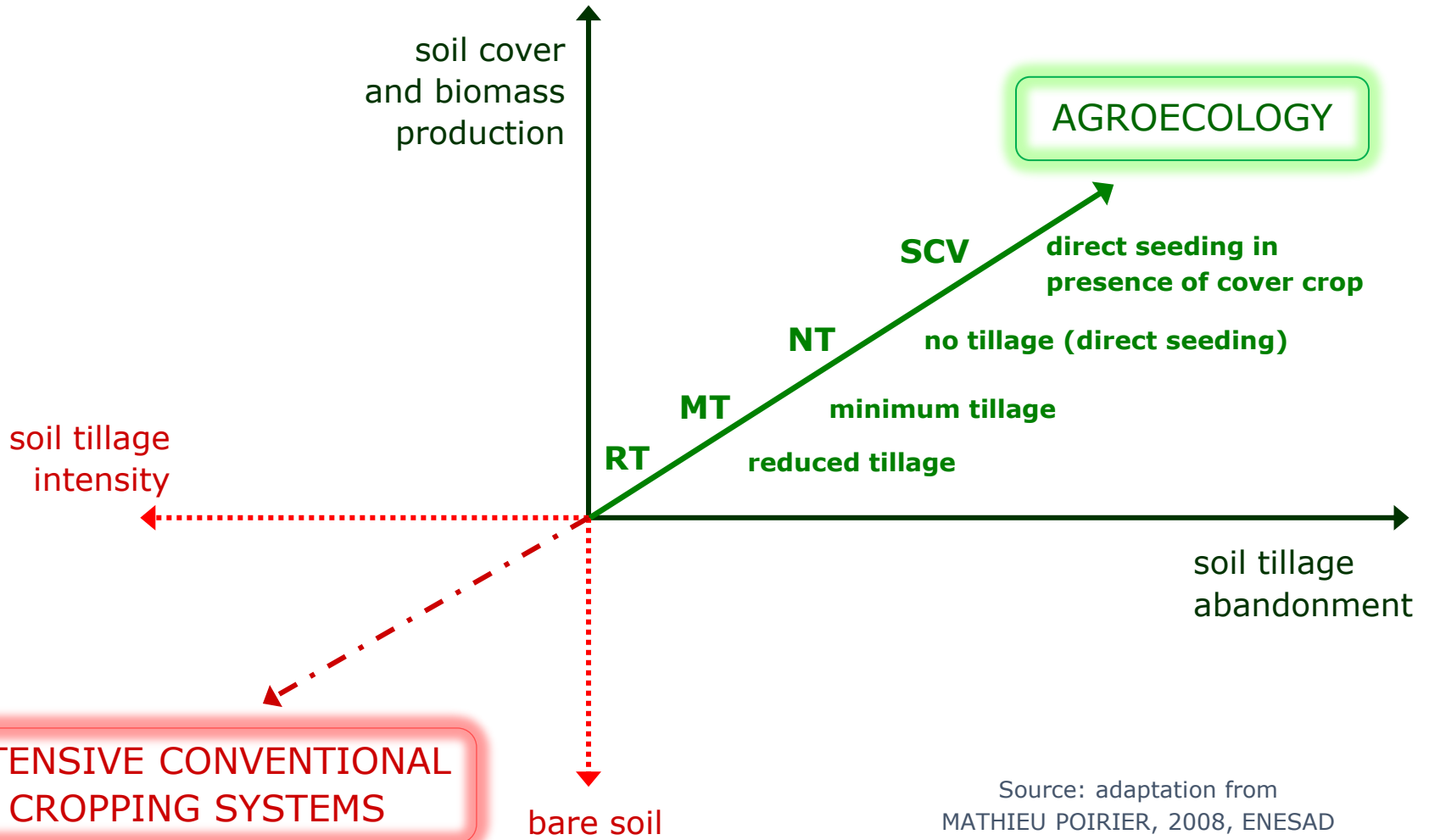


## CONVENTIONAL AGRICULTURE (CV)

- Poor Crop Rotations (2-3 crops)
- No management of crop residues, no use of cover crops and intercropping
- Plough + secondary tillage to prepare seed bed



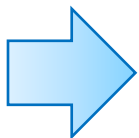
# VISION OF CONSERVATION AGRICULTURE



Source: adaptation from  
MATHIEU POIRIER, 2008, ENESAD

## **With Conservation Agriculture (CA)...**

- **SOC sequestration rate till to 0.4 t/ha/year (NO TILL + COVER CROPS)  
SOC decrease under CV practices  
[ARMOSA model, University of Milan - ERSAF]**
- **Higher SOC stock (after transition period has passed)**
- **Lower Carbon footprint (LCA methodology)**
- **Fossil fuel consumption reduced by 41 % on average (indirect CO<sub>2</sub> emission also decreased, due to reduced mechanization)**
- **Similar crops yield**

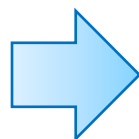


**TOWARDS A NET ZERO-NEGATIVE EMISSIONS AGRICULTURE**



## **With Conservation Agriculture (CA)...**

- **Improved soil erosion control in sloping land**
- **Reduced losses of N compounds (cover crops)**
- **Enhanced AGRO-BIODIVERSITY:**
  - **improved crop rotations (more species cultivated)**
  - **land cover with living plants up to 90 % over the year**
  - **increased abundance of earthworms ( from 2 to 3 times)  
and microarthropods (30% more abundant - QBS/ar index)**
- **Higher efficiency in the use of water and technical inputs**



**MORE SUSTAINABLE AND RESILIENT FARMING SYSTEMS**

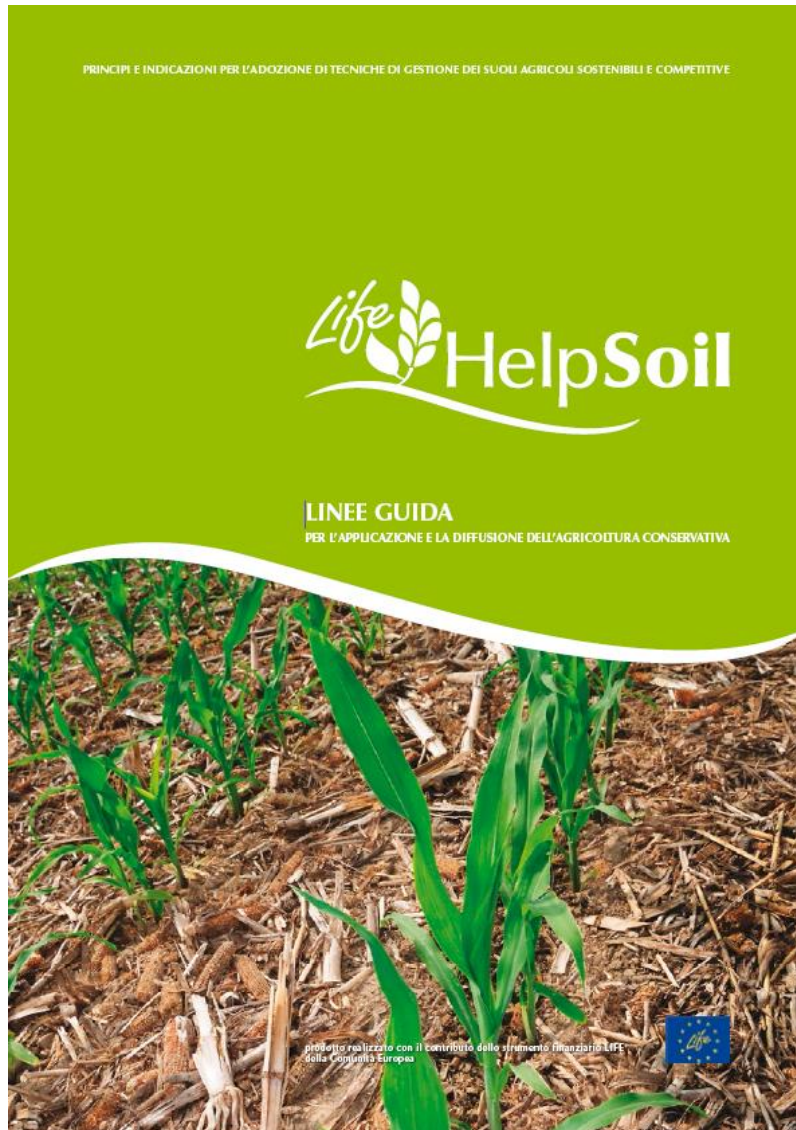


- **shared experiences** between researchers, advisors and farmers;
- **“Guidelines”** for the application of Conservation Agriculture practices;
- **20 “field days”** in the project demo-farms;
- Students of **21 technical schools** involved in training initiatives;
- **2 study visits** with farmers and advisors - France and south Italy -;
- Participation in more than **30 seminars, workshops, fairs and training courses** and in **7 international conferences**;
- **networking** with many other projects (LIFE projects and not);
- more than **70.000 visits** on the project web site, more than **20.000 contacts** in Facebook, almost **600** signed up for the project Newsletter, more than **250 News** published, **29 videos** uploaded on YouTube.



**INCREASED AWARENESS OF SUSTAINABLE SOIL MANAGEMENT IMPORTANCE**





## GUIDELINES

for application and spread of  
Conservation Agriculture

PRINCIPLES AND ADDRESSES  
FOR ADOPTING SUSTAINABLE AND  
COMPETITIVE FARMLAND  
MANAGEMENT TECHNIQUES



# CONTRIBUTION OF CONSERVATION AGRICULTURE TO CLIMATE ACTION

## HELPSOIL – OUTCOME AND LESSON LEARNT

- Conservation Agriculture is a suitable solution for all farms (conventional, organic, ...)
- Conservation Agriculture improves soil functionality and agro-ecosystem services, but change should not be limited to the reduction of tillage operations, instead including wide adoption of cover crops and diversification of crop rotations
- Adaptation to the specific local conditions, resetting overall farm strategies and technical assistance are needed; often results are not immediate, but in the long term positive agronomic/economic and environmental feedbacks occur
- Providing opportunities for peer-to-peer exchange and sharing know-how between farmers plays a key role
- Policy measures to support sustainable soil management practices should consider the achieved results and not only the formal respect of specific commitments
- Environmental and agronomic indicators relatively easy to detect also at farm level should become part of regional soil quality monitoring programmes



# CONTRIBUTION OF CONSERVATION AGRICULTURE TO CLIMATE ACTION HELPSOIL – LOOKING AT AFTER LIFE

- Support for FARMERS PROGRESS ON CLIMATE-SMART PRODUCTION METHODS (open issues: needs of subsidies, technical assistance, improved skills, good examples, sharing experiences)
- Support for the IMPLEMENTATION OF CLIMATE COMMITMENTS AND RURAL DEVELOPMENT PLANS (Guidelines → RDP 2021-2028)



- ENHANCING RESILIENCE TO CLIMATE CHANGE IMPACT WHILE MAINTAINING CROP YIELDS IN THE LONG TERM (produce more with less – towards a low-zero-negative carbon agriculture)
- SHIFTING FROM “AGRICULTURE BUSINESS AS USUAL” TO “AGRICULTURE SUSTAINABLE AS USUAL” (more incisive policy action)



# Thanks for attention!

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[www.lifehelpsoil.eu](http://www.lifehelpsoil.eu)

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Food and agricultural production are strongly joint to **soil conservation, protection of soil health** and enhancement of **sustainable soil management**