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# Neorurale

## Environment Producer

***From an existing real application to open innovation***

# Neorurale at a glance

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Neorurale comes from the legacy of **Giulio Natta, Nobel price for chemistry**.

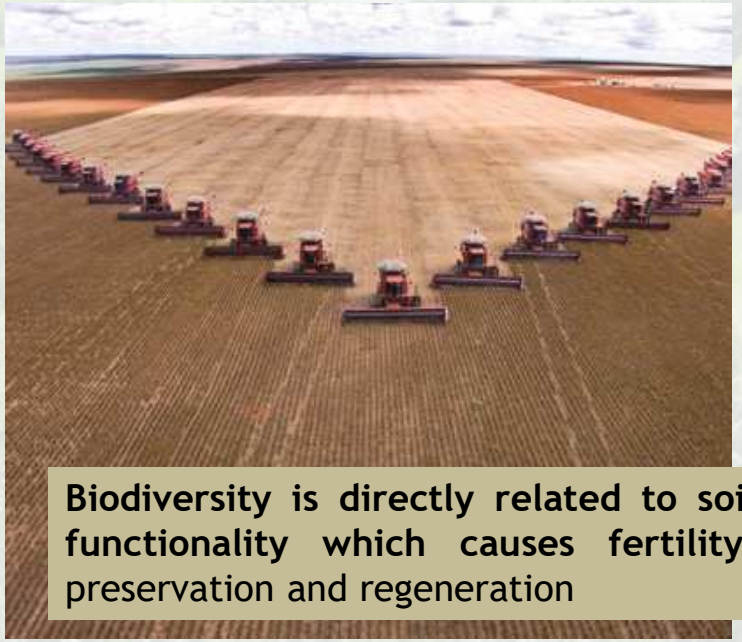
Since the 80's Neorurale promotes **new approaches for approaching Circular economy**
In the 90's, new technologies were developed and applications are present in Italy, UK, Spain and Greece.

**Neorurale today has developed a new economic and social paradigm for sustainability,**
based on natural resources saving, recovery and management with international application

# Food security: the millennium challenge

2015 International Year of Soils

**Third millennium challenge is to fight against poverty, in order to reach zero hunger and zero food insecurity.**



**Biodiversity is directly related to soil functionality which causes fertility,** preservation and regeneration

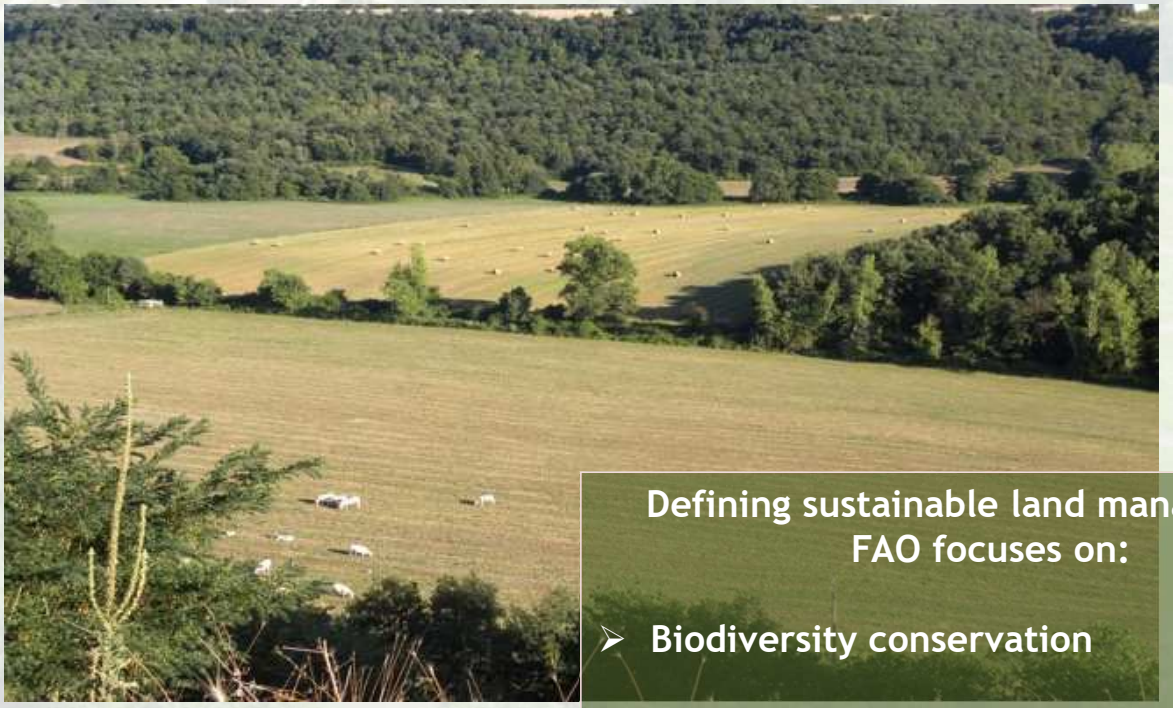
**Agricultural production needs to increase by +60% within 2050 to feed world's population.**

**About 33% of soils is already mid-to-highly degraded due to erosion, loss of nutrients, acidification, salinization, compaction and chemical pollution.**

# It would be feasible …

Agricultural production will have to increase by 60% within 2050 to feed world's population …

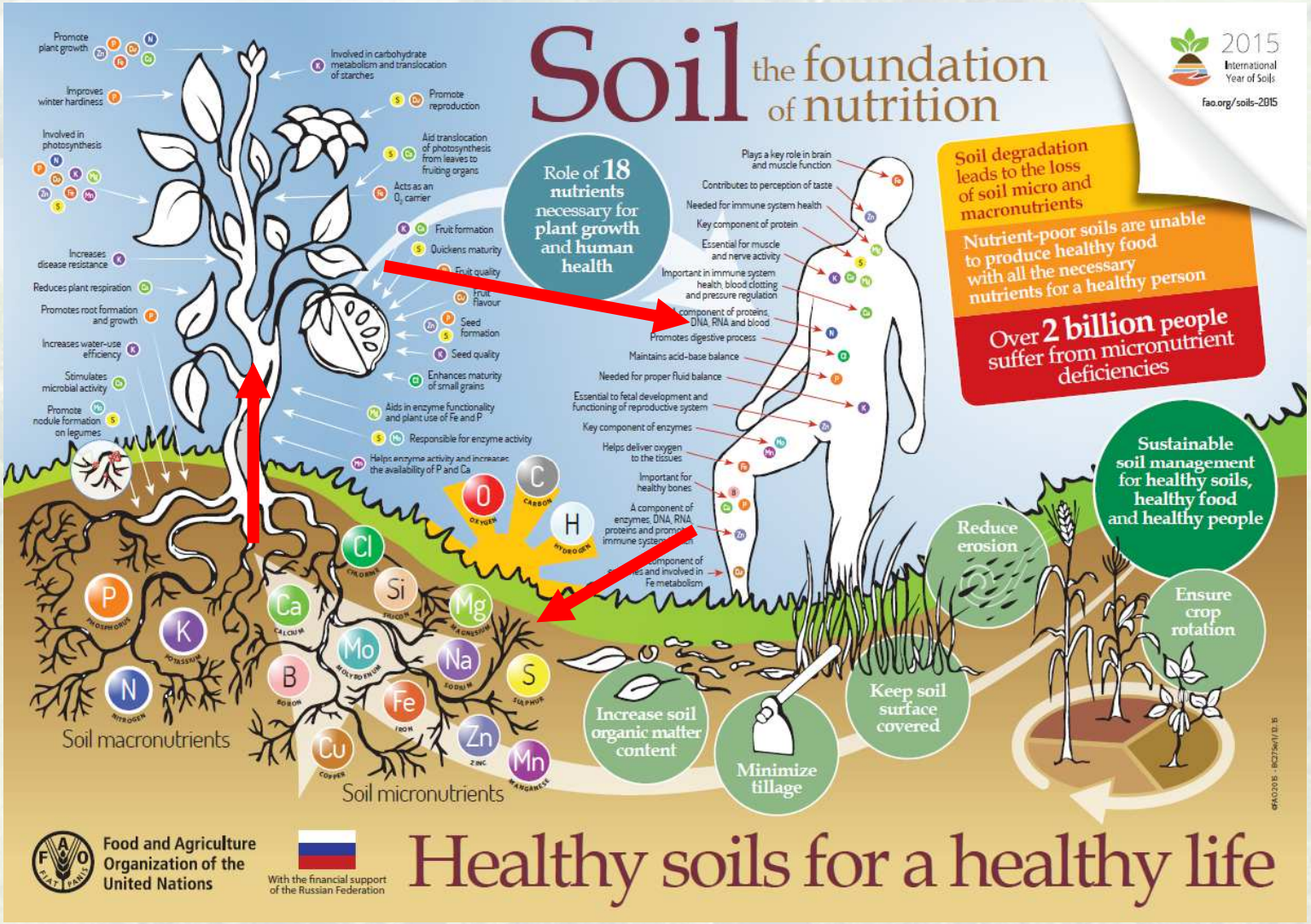
*A sustainable land use could grant agricultural production to grow by more than 58%*



Defining sustainable land management, FAO focuses on:

- Biodiversity conservation
- Water quality
- Air quality

# Natural cycle was sustainable !




**Soil is at the center of quality and sustainability.**

**Nature developed a sustainable cycle where resources circularity is granted**

# Pianura padana - foto aerea 2006

**La coltivazione intensiva del riso su 230.000 ettari ha ridotto la qualità del paesaggio e la biodiversità al minimo storico. Il paesaggio viene definito da alcuni «Deserto agricolo»**

# ... and Neorurale already did it ... it's REAL !

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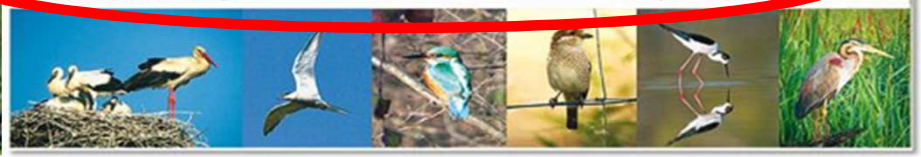
**500 hectares redesigned according to prehistoric Po river valley**

***LA CASSINAZZA***

**EVOLUTION OF BIODIVERSITY AND SOIL FERTILITY IN 20 YEARS**

| n° of species | 1996 | 2016 | variation |
|---|---|---|---|
| n° Birds | 80 | 217 | +171% |
| n° Nesting Birds | 25 | 65 | +160% |
| n° Mammals | 16 | 29 | + 81% |
| n° Butterflies | 21 | 45 | +114% |
| n° Dragonflies | 13 | 32 | +146% |
| n° Grasshoppers | 10 | 19 | + 90% |
| n° Mushrooms | 5 | 14 | +180% |
| n° Plants and Flowers | | 255 | % |
| **Soil fertility** | | | |
| C.E.C. meq/100g | 7 | 17,7 | +153% |



# We are back to year 1.000 AD, certified in terms of biodiversity

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Produzione di ambiente  alla Cascinazza : 10.000 uccelli acquatici e 20.000 colombacci svernati , 5 specie di rapaci diurni nidificanti e 65 coppie di cavalieri d'Italia e tutte le specie di aironi europei sono presenti a 18 Km. dal centro di Milano.

# How we did it?
# Neorurale at the end of 90's introduces the concept of Land Manager

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The Land Managers (Agricoltori e Proprietari) had teh opportunity to cultivate environment without loosing the european contribution for farming (PAC): so the environment production became profitable and is an add on to the traditional farming activity

This concept put in evidence the Land Manager economic efficiency if properly remunerated, in the environment production activities, with the increase of environment quality and biodiversity ( «third generation farming» )

# Environment production doesn't create new costs for Europe

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Each european citizen, spend a significant part of EU income to support the rural population.
Only a small portion of that, if dedicated to environment production, is enough to produce the wondering results reached in Neorurale.
The value to improve the landscape and the environment, being a concrete request for EU citizens, is non more a transfer, but a real acquisition of real added new production of a big value if compared with crops production.

# Neorurale : a new economic and social paradigm

THE MOST OF EUROPEAN TERRITORY IS RURAL, OCCUPIED BY LAND OWNER AND LAND MANAGERS .

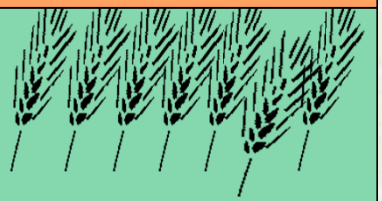
THEY PRODUCE FOOD BUT THEY CAN EFFICIENTLY PRODUCE ENVIRONMENT AND BIODIVERSITY

FIRST GENERATION AGRICULTURE

1 t/HA

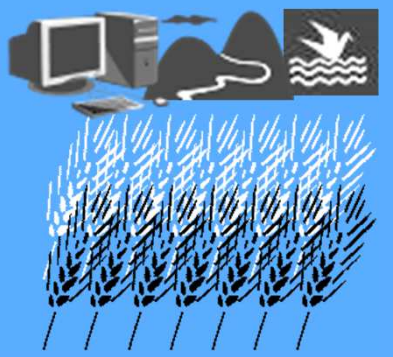
SECOND GENERATION AGRICULTURE

7 t/HA



THIRD GENERATION AGRICULTURE

Creation of a new environment of high quality, where population live, work and like to have free time.
The synergies between agricultural and environmental product and services are integrated and the value of this combination has a huge value especially if compared with the value of crops production.



The abandoned buildings of rural population can host immaterial production activities of Technological Companies

This can represent a new model of horizontal development of big towns and cities in periurban rural territories

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# We integrate Nature, farming and advanced human technologies ...

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**Environment protection is brought from agriculture to industrial and civil industries through innovative solutions developed by Neorurale**

**Innovation Center Giulio Natta:**
**a place for open innovation, co-working, co-housing.**

**Energy and water efficiency together with renewable energy production to save natural resources**

# Farming Open Innovation: Just 15% for the -Environment Field Margin- by Neorurale

# Investing on sustainable and ethical innovations: The SAFE WAY to circular economy

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- SAFE AND CONTROLLED FERTILISATION
- THIXOTROPIC: AVAILABLE FOR PLANTS WHEN THEY REALLY NEED IT
- STIMULATION OF SOIL FERTILITY
- FIGHT AGAINST DESERTIFICATION
- FIGHT AGAINST CLIMATE CHANGE
- MAKE NATURE ABSORBING CO2
- RENEWABLE ENERGY

## Nutrients Recovery Center by Neorurale for circular economy

**NRC ensures the production of SAFE and STABLE fertilizer**

**NRC helps to fight against CLIMATE CHANGE**

**NRC can treat ANY kind of organic matters**

# Natural Resources Savings along the agrifood industry

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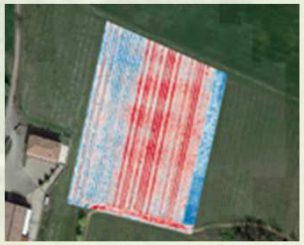
**HEAT & POWER GENERATION**

**WATER SAVING - AGRICULTURE**



**iTOWER - WATER SAVING FOR INDUSTRIES**

**MACHINE LEARNING & PREDICTIVE MAINTENANCE – ADAM & EVA**

**EFFICIENCY AND RECOVERY: HEAT, COOL, MANAGEMENT**

**iCHILLER - ENERGY SAVINGS FOR INDUSTRIES**

**Energy: Demand/Production Management for saving**

**iSWIM – EFFICIENT WATER MANAGEMENT**

# Investing on sustainable and ethical innovations

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**Neorurale and Youfarmer.bio launched a partnership to develop and implement the first co-farming platform in the world**

**It is is intended to bring into direct contact citizens of big cities with the best farms nearby, offering personalized and individual biological and biodynamic vegetable gardens**

YOU FARMER
VIVI IL TUO ORTO BIO

**Enhancing gastronomic excellences produced by local farms where people can meet and experience nature**

**It represents a unique opportunity to develop a sustainable tourism, with focus on food, nature, sustainability, biodiversity and local tradition, together with innovation**

# From space to field: integrating all data sources to improve agriculture and land control

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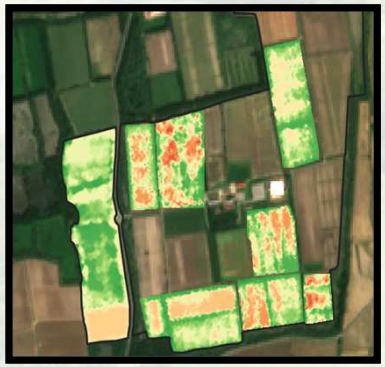
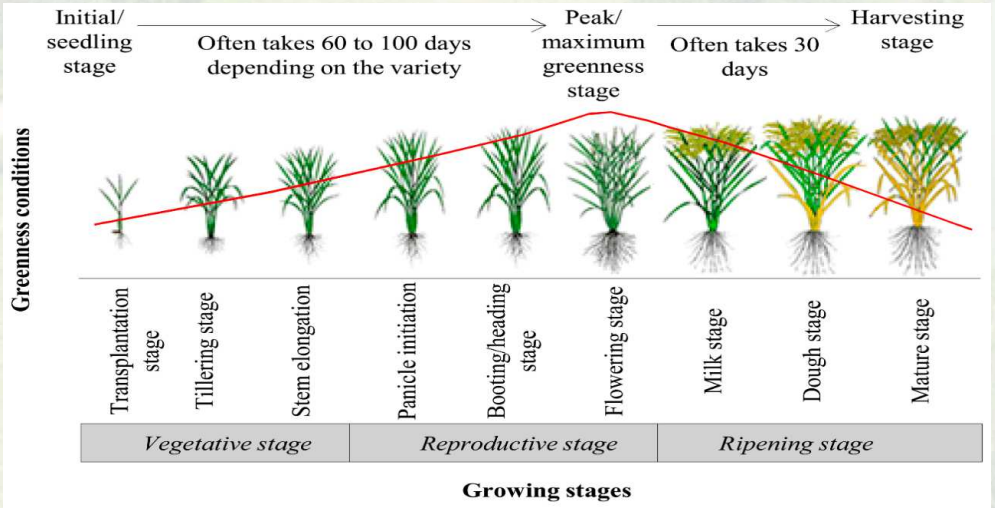
## AGRICULTURE

**Before seeding**
June

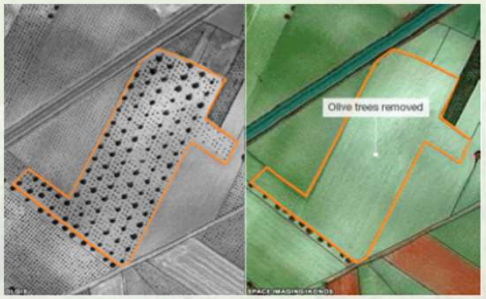


**Monitoring growth**
August




## ENVIRONMENT

- High definition imaging to monitor and control on-field activities along the entire agricultural-cycle
- Optimizing on-field activities and resource consumption
- Full integration of several data sources and indexes (satellites, drones, on site, etc.)
- Land monitoring and control



# Knowing the system leads to efficiency use of natural resources

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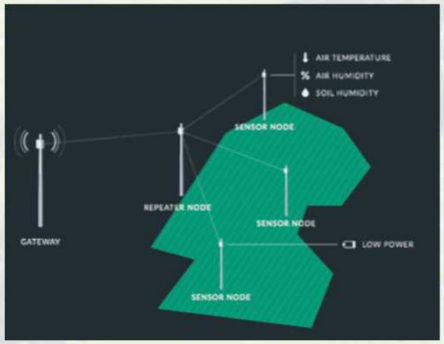


**Integration of IoT platform and devices to optimize water consumption and on-field activities.**

**Early detection of anomalies, trend analysis, weather forecast supporting decision making to reduce cost, improve quality and mitigate environment impact.**

# Going up: in-house agriculture

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**TRENDS:**

**World population growing and food production needs to follow (+60% by 2050);**

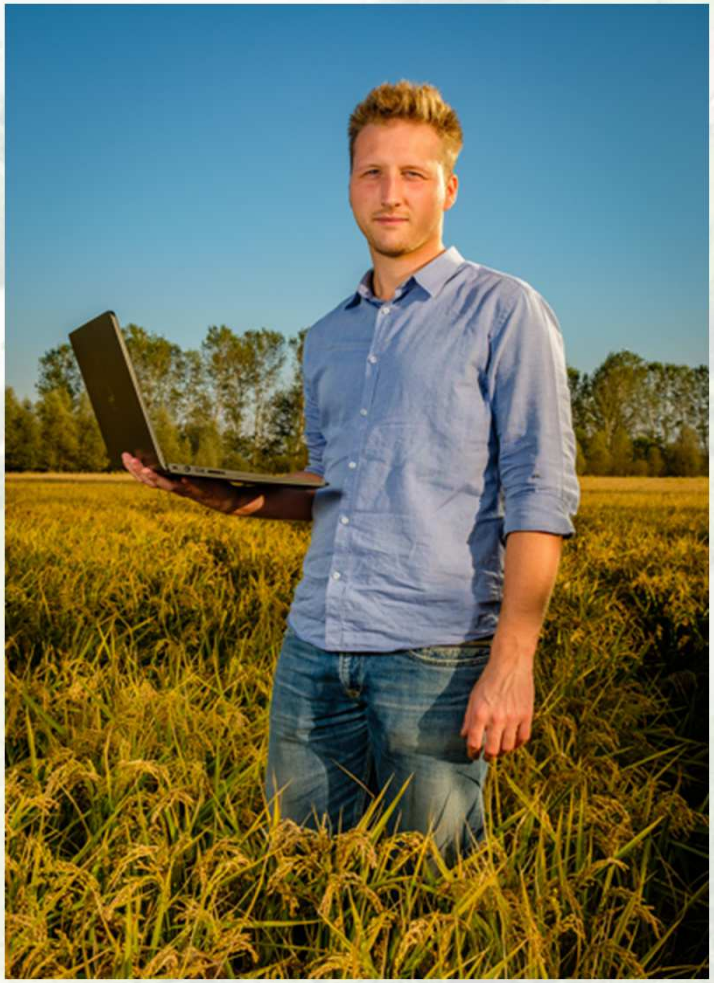
**Cities are getting bigger and bigger, with higher density and complex logistic;**

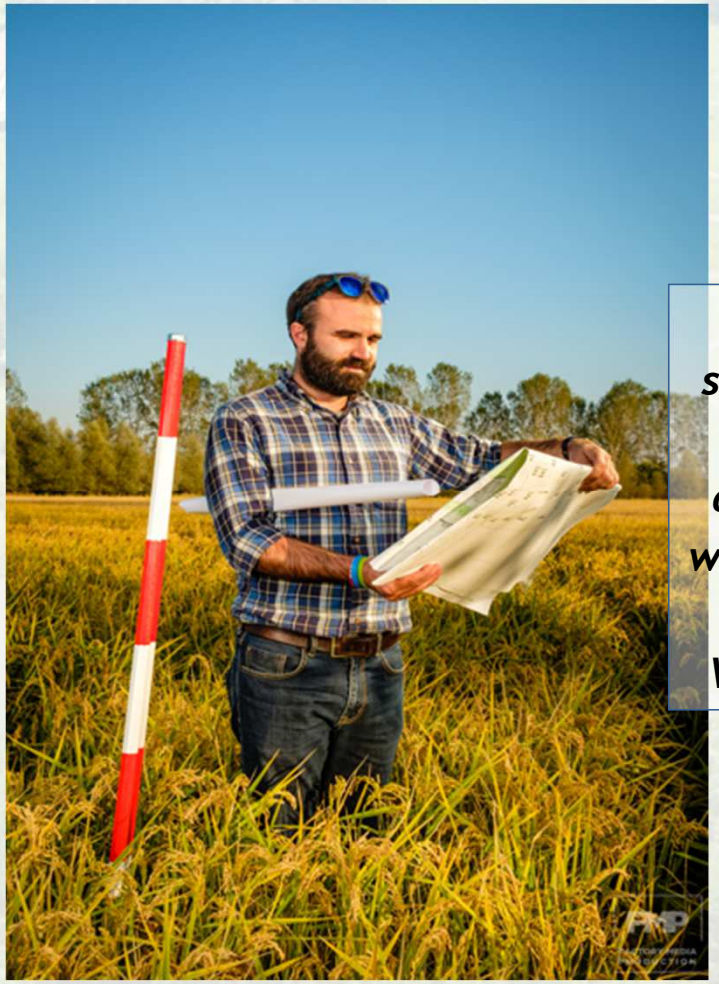
**Consumers require better quality foods, all year round, locally produced and with a sustainable approach;**

**Cliamate change makes agriculture more difficult as climate gets instable;**

**Bio needs to be industrialized…**

# … creating new professionals …





***Circular economy and sustainability lead to an increasing need of advanced professionals with cross competences …***

***We are preparing them!***

# Neorurale System: the birth of Sharing Environment Economy

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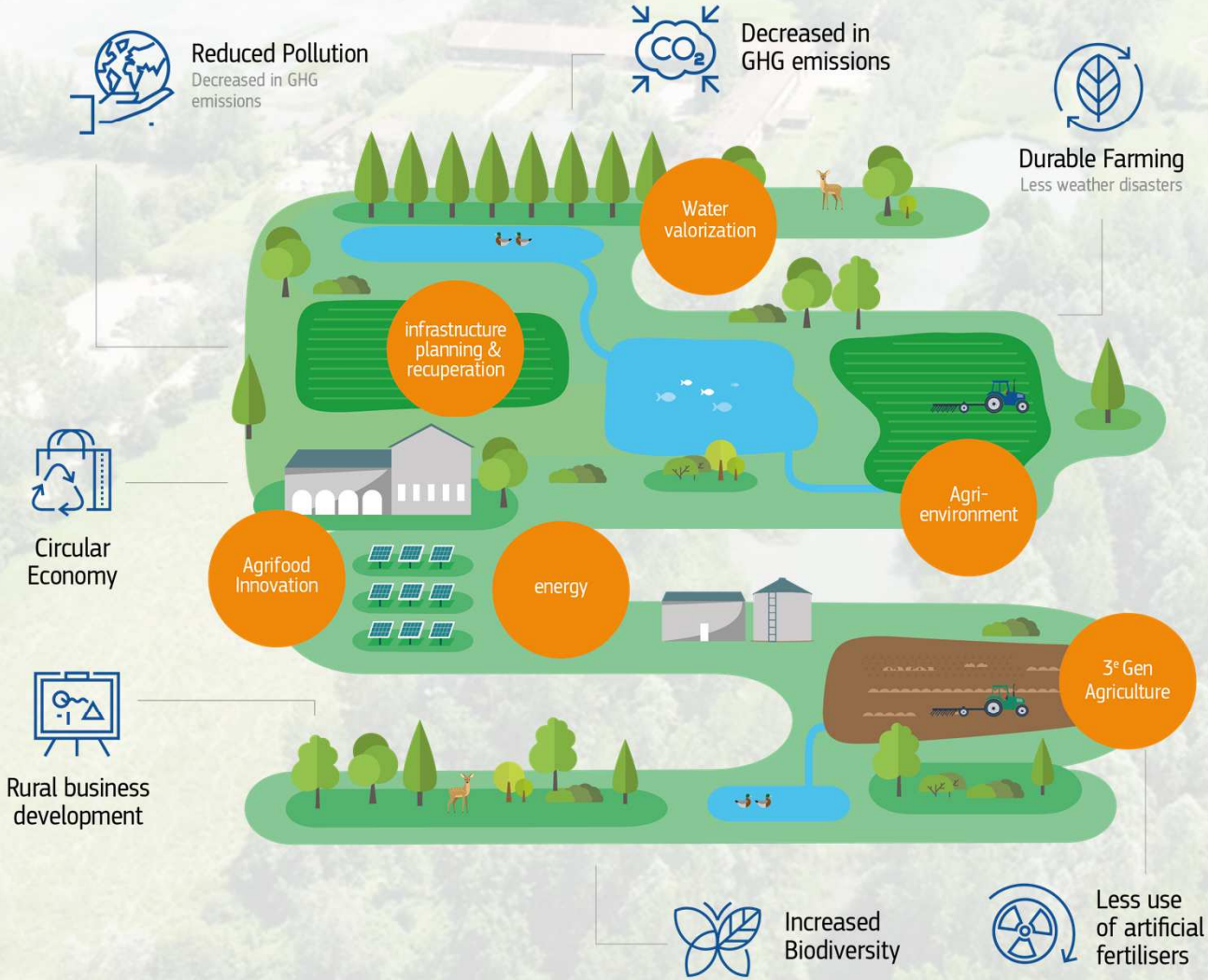


## Soil recovery

by reusing the nutrients from household and commercial waste

**The development model** followed by Neorurale is the result of a cultural innovation of rural areas in its entirety. A change of perspective that does not foresee the development of new technologies, but uses the existing ones creatively, according to the principles of the exaptation.