

# HARVESTING INNOVATION: OPEN&DIGITAL INNOVATION FOR SUSTAINABLE AGRICULTURE AND FOOD SYSTEMS

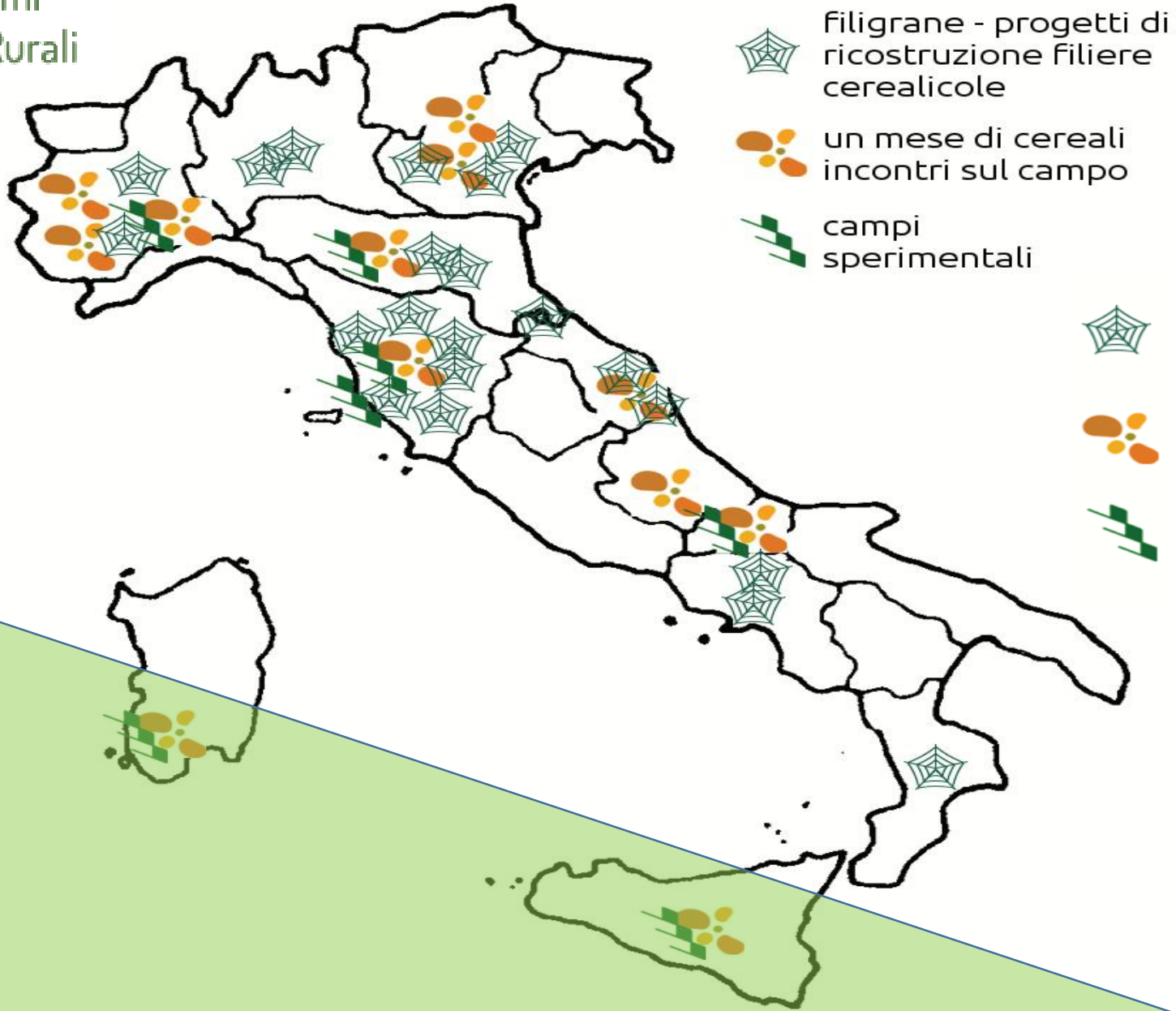
Milan 8 may 2018 - Acquario Civico



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**Managing Crop Varieties  
data: an app for on farm  
data collection**

Rete  
Semi  
Rurali



- filigrane - progetti di ricostruzione filiere cerealicole
- un mese di cereali incontri sul campo
- campi sperimentali

Networks to promote agricultural diversity

Events: month of cereals

Experimental fields

Since 2010, Rete Semi Rurali is carrying on in Italy an experimental process for varieties, mix and populations of wheat, both durum and soft, in farmers fields with direct farmers participation.

Today 3 experimental designs are in place in the Rete Semi Rurali System:

SOFT WHEAT WITH  
UNCOMPLETE  
RANDOMIZED BLOCKS  
first year in 13 regions

SOFT WHEAT WITH  
REPEATED RANDOMIZED  
BLOCKS  
Third year in 4 regions

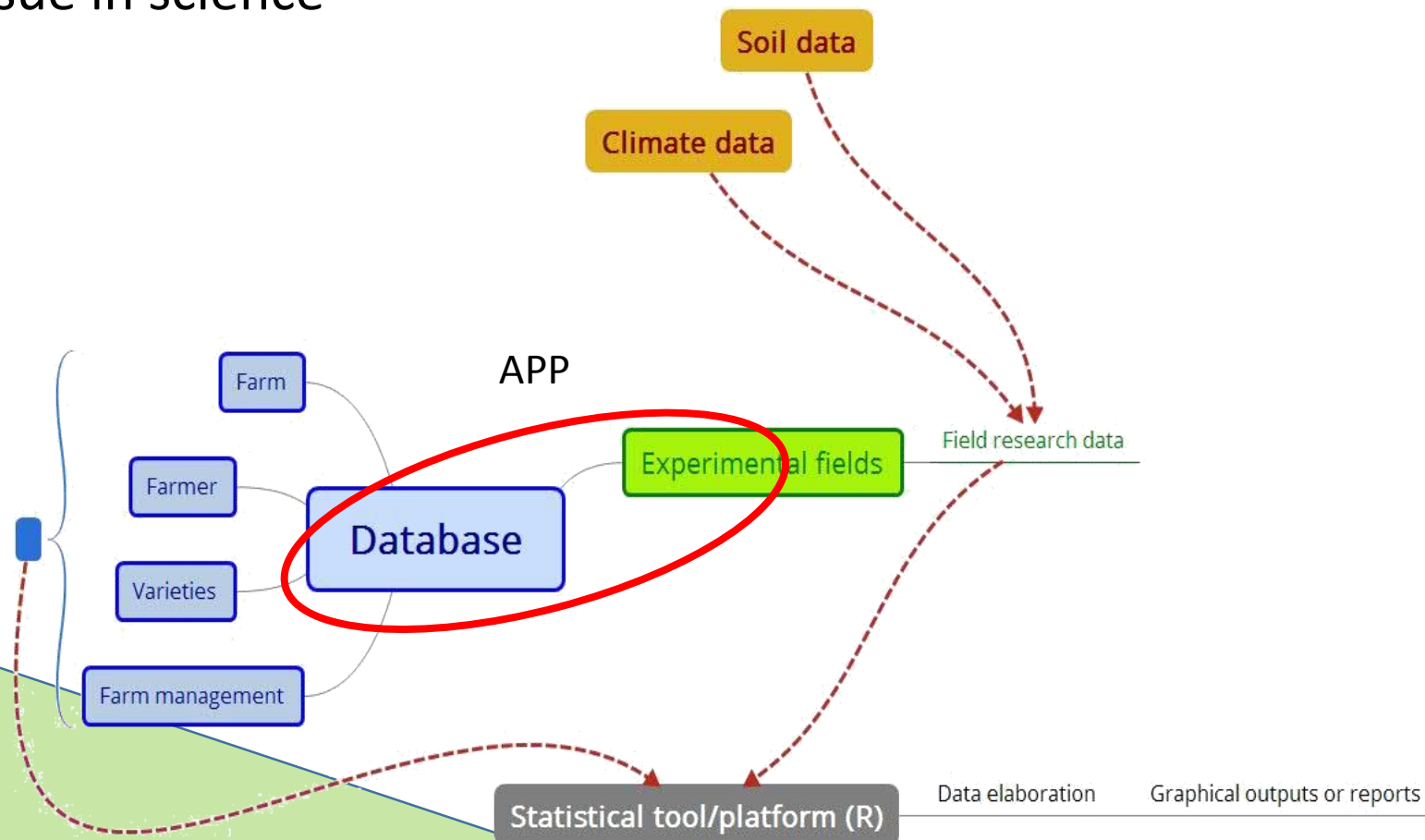
DURUM WHEAT WITH  
REPEATED RANDOMIZED  
BLOCKS  
Second year in 2 regions

Each experiment involve different farmers. Farmers collect data during different phenological phases that contribute to generate important information for the collective experiment on which they are involved.

# Data management app

Data availability is often an issue in science

The App developed within CAPSELLA will help RSR to improve **efficiency of data entry** in a context that involves several people in several locations at the same time, reducing the risk of errors and facilitating the management and the analysis of data.





# THE CO-DESIGN / USER CENTERED APPROACH TO ICT

CO-DESIGN  
USER CENTERED  
APPROACH

CO-INNOVATION  
PARTICIPATORY  
RESEARCH

Digital innovation fit within the agroecological concept if they are properly designed using a real mutual learning process between actors.

OPPORTUNITY FOR SYNERGIES  
BETWEEN PROCESSES  
TO COMBINE ICT TOOLS WITH COMMUNICATION NEEDS

The CAPSELLA Seed App experimented this process of interaction between ICT company and RSR researchers.



## THE USER'S NEEDS

Making the farmer/technician autonomous in collecting experimental data on farm

There is no need for the individual farmer collecting data to know the experimental design

## THE BACKGROUND KNOWLEDGE

The aim of the process was to digitalize a document developed by RSR in many years of experience in carrying on experiments with participatory research.

## THE INTERACTION WITH THE ICT EXPERTS

Different languages did not understand each others since the beginning and used an approach more similar to **client/service**.

The interaction changed in the last year of the project and a more **collaborative approach** from both sides lead to the development of the app prototype

2 levels of users

## **Administrator:**

Is the one who design and manage the whole experiment, combining field in different farms.

It can be a Seed network, as in the case of RSR, but it can also be a University, a Research Centre and other institutions that are promoting the involvement of farmers in scientific experiments

## **User:**

Is the individual farmer or local technicians, who is following the experimental activities in a specific farm with more plots and is collecting data that can be relevant for the farm itself to compare data from one year to another but also for the experiment as a whole to be integrated with other farms data.

Different crops:  
WHEAT, BARLEY,  
MAIZE

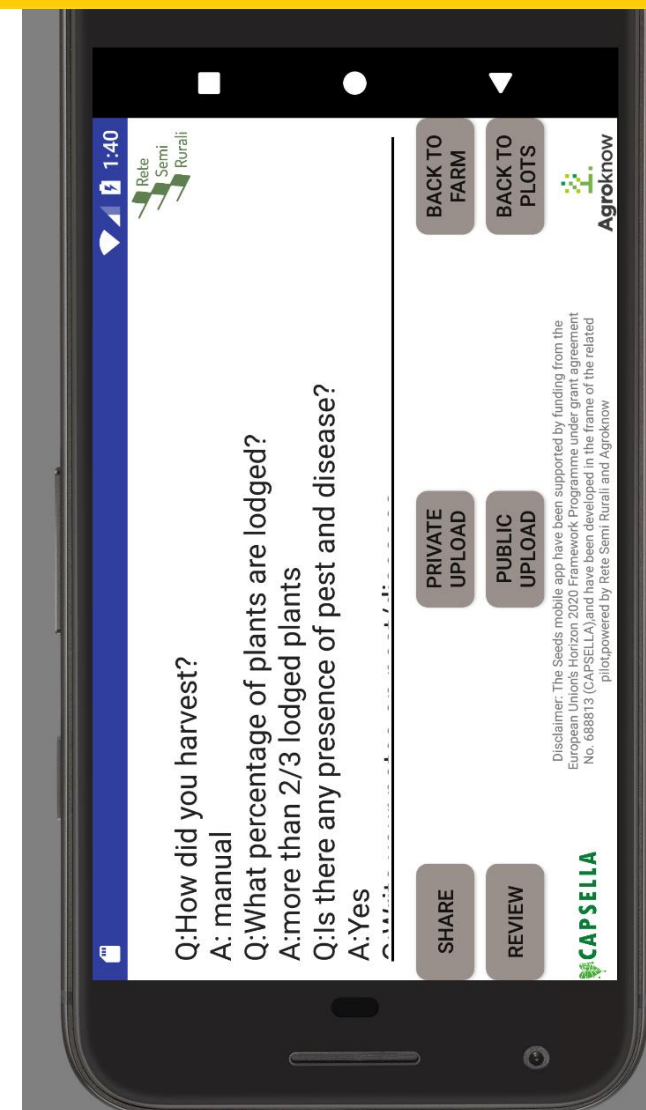
Possibility to:

- Upload photos,
- Answer specific and clear questions, few for each field data collection.
- Share results with other users

Different Phenological  
Phases:

SOWING  
TILLERING  
FLOWERING  
HARVESTING

Which appear on the  
screen depending on  
the data collection  
date.





**1. THE ENLARGE OF THE NETWORK:** The app can allow to increase the number of farmers that will be involved in field experiments of Rete Semi Rurali and other EU seed networks. It will be possible to reach a larger number of farmers in different location through the app. T

**2. OPPORTUNITY TO THINK ABOUT THE POSSIBLE INTEGRATION OF ICT IN FARMERS EXPERIMENTAL ACTIVITIES:** The process of interaction between the seed networks community and the ICT communities has been complex, but the building of the CAPSELLA Seed App has been an important experience to make something tangible in the hand of farmers and technicians from the seed networks.

**3. SHARE METHODOLOGIES:** With the Seed App RSR made digital a tool developed from 10 years of experience in participatory plant breeding and on farm experiments. The app will allow to share the data collection procedures developed with a larger community.

**4. THE PRIVACY ISSUE:** The development of the app allows the community to decide where the data are stored (in the CAPSELLA Platform) and under which conditions they are shared with other actors thanks to an agreement with Athena as platform management.

# BARRIERS

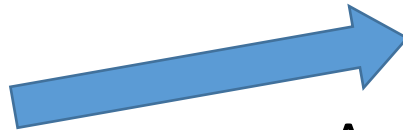
1. **COMPLEXITY:** Complexity in the Interaction of two worlds that speaks completely different languages and focus on different issues.
2. **DIFFERENT APPROACH TO PRIVACY:** The issues of data privacy was the main obstacle for the two worlds to understand each other as the privacy of data is a key issue in the Seed Networks as Farmers are particularly concern about it. Farmers' rights and Intellectual Property Rights in Genetic Resource Management are a key issue also in the International debate. The Treaty on Plant Genetic Resources (ITPGRFA) focus on the specific issue (Art.9). *A need to discuss open data policy with farmers' communities exists.*
3. **IT IS WORTH DOING IT? :** Practical difficulties in translating a tool that is born in a complete different format into a digital tool. This process required a huge effort of abstraction with is not common in farm communities and a key question is: how much is worth doing it?



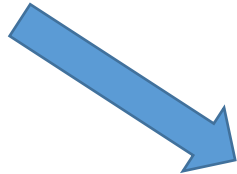
# Potentiality of integrating ICT in Agroecology



The design of an app like the one developed by Rete Semi Rurali and AgroKnow in CAPSELLA is making available data on Agroecology collected in real farms, from farmers



Promote knowledge exchange among Farmers, researchers and technicians  
As they can comment within the app the data collected.



Such data are key to measure the real impact of Agroecology



Advocacy

Digital innovations can play a role in the assessment of agroecology

DATA MANAGEMENT APP HAVE A TWOFOLD ROLE:

- COLLECT DATA: How are then data used? Where are they stored? Which will be the incentive for farmers to collect data with the app?
- PROVIDE DATA: how are they selected? This is also a question of power in knowledge management.

