



Scuola Superiore Sant'Anna



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DEGLI STUDI
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ECONOMIE AGRARIE E
ECONOMICHE



Organic long term experiments: Sharing French and Italian Experience

OUTCOMES

of the workshop held on 22nd -23rd of June, Pisa and Firenze

1. Workshop aims and expectations

This workshop was organized with the objective of sharing experience and knowledge gained from Italian and French organic Long-Term Experiments (LTE). Indeed, LTEs are particularly interesting experimental devices in order to monitor long term processes on which organic cropping and farming systems relies. Nevertheless, they require specific management and their outcomes are not always easy to valorise (from an academic point of view).

The first objective of the workshop was to get to mutually better know the French and Italian organic LTE thanks to a presentation session. Each LTE was quickly described thanks to a poster or presentation. Then we organized a parallel workshop session and each participant chose the topic she/he wants to discuss: (i) stakeholder inclusion, (ii) decision making rules and system redesign or (iii) Fundraising, project opportunities and network (see below for detailed information). Two visits of Tuscan organic LTEs were also organized: the MASCOT and MOLTE trials.

The program of the day and the list of participants are available at the end of this document (section 3.) and all presentations and posters of the French and Italian LTEs could be uploaded [there](#).

2. Outcomes

2.1 Stakeholder inclusion (Parallel session 1)

Facilitator: Marion Casagrande

Participants: Laurie Castel, Tommaso Gaifani, Pascale Métais, Francesco Riva, Giancarlo Rocuzzo, Margherita Santoni,

The participants agreed that to involve stakeholders in the design of LTEs there should be a shared analysis of the situation. Indeed, consumers, farmers and researchers should share a problem or dissatisfaction towards the current dominant cropping systems. In that case, they could work together to design new cropping system(s) that will meet the need of each type of stakeholder, providing thus coupled innovation (*i.e.* from farm to fork). This shared vision of the problem and the collective design will lead for people to take ownership of the project. The LTEs should become the places of exchange and discussion among stakeholders, either on a formal or informal basis.

The participants also agreed on the need to improve communication. Improving the involvement of the stakeholders is also a key process to improve communication on the LTEs. First, this is an opportunity for the different type of stakeholders to share the same “language” and a common final scope. Secondly, stakeholders could then relay the information, results and outcomes of the LTEs. Communication could also be improved, using videos, websites, social media, summer school with farmers ... and should not be limited to scientific publications.

Finally, in order to globally improve stakeholder inclusion and communication on the LTEs, the participants suggested to combine the LTEs with trials on satellite farms. Those farm trials would then be dedicated to tests and demonstrations, involving local farmers and taking into account their constraints. The trials will help applying the results and outcomes of the LTE's and contribute to their dissemination. Nevertheless, this satellite farms would require additional budget to set the trials.

2.2. Decision making rules and system redesign (Parallel session 2)

Facilitator: Daniele Antichi

Participants: Stefano Carlesi, Thierry Quirin, François Boissinot, Bruno Lorentz, Angelica Galieni, Gabriele Campanelli, Lorenzo Ferretti, Marcello Guiducci, Giacomo Tosti, Francesco Montemurro, Gaëlle Forest,

At the very beginning, the group focused on the definition of long term experiments (LTEs) and on the experimental approach behind. It was agreed that a LTE could be identified as such not in function of the number of years that it has been/is being carried out but as regards to the aim of the experiment. For instance, an experiment aimed to study the evolution of soil fertility, and especially organic matter, by definition is a LTE.

The experimental approach followed by the LTE's responsible scientists could be classified in two main categories (according to Lechenet et al., 2017):

- Fixed approach: during the LTE's lifetime the same factors and treatment combinations are repeatedly applied and compared to each other, irrespectively of changed milieu or raising of new research demands or troubles in application of the original protocol -> easier to get the results published by a scientific journal (crucial for the career of many scientists) but far from farmers' mental attitude (limited dissemination of the results);
- Iterative approach: part of the system (i.e. different treatment combinations within a given factor, small adjustments to the technical protocol of the original treatments) is periodically revised and changed accordingly -> more close to farmers' attitude (better results, higher appeal for stakeholders), and also to cultural, law and environmental (e.g. climate change) changes (higher impact), less scientific rigor and more difficult to get results published in scientific journals.

It was agreed that there is not a unique way of thinking and that both approaches are valuable depending on the context and, above all, on the objective of the trial. If reductionist, then a fixed approach would be better to highlight long-term trends of the low number of variables that are investigated (with special focus on STABILITY OF RESULTS in the long run and FLEXIBILITY of the systems tested in a changing environment). If systemic, then the iterative approach would allow the experiment to evolve unraveling some complex mechanisms behind the behavior of the different systems (with focus on which system owns the highest ADAPTABILITY and which could be considered as the most VIABLE in the long run). In this case, fixing precise decision making rules when applying a change in the protocol is the only way to preserve the scientific sound of the LTE.

The choice of one approach or the other has to be definitively made according to each specific context, but it is very important to have a reference from outside the experiment in order to get merged all the different point of views and come up with solid arguments for the changes that have to be made in the experimental protocol. Also taking into account the issues of demonstration and not only the needs of experimentation was told to be very important in this process.

Concerning statistical methods for analyzing results from long term experiments, it was agreed that, generally speaking, the choice would strongly depend on the type of approach followed in the management of the LTE. If iterative, then classical statistics (e.g. ANOVA for clearly defined experimental designs) would not be useful, especially if compared to multivariate analysis (e.g. by using mixed models), which has the strength to take into account simultaneously both spatial and temporal sources of variability. In some cropping systems, especially if conducted at field scale, it could be extremely useful also to use georeferenced data in order to let variability tell experimenters hidden or complex information.

2.3. Fundraising, project opportunities and network (Parallel session 3)

Facilitator: Stefano Canali

Participants: Paolo Barbéri, Paolo Benincasa, Florian Celette, Laurence Fontaine, Olga Grasselli, Emanuele Radicetti

LTEs are funded exclusively with public funds and no private funding has been mentioned by the participants. Case by case, these public funds were provided by European, National and Regional research funding agencies in a different extent and combination in the frame of research/innovation projects in which LTEs are included as facilities to reach the project goals.

It was also mentioned that, in particular circumstances, when funding shortage is experienced, Universities running LTEs have directly provided limited budget, generally finalised to the basic maintenance the LTE (i.e. no funding for measurements).

The need to support and to promote LTEs as pre-condition to empower the potential of the organic farming research/innovation communities was acknowledged by the RETIBIO project, funded in Italy by the Organic Farming Office of the Ministry of Agriculture (MipAAF) and coordinated by the Italian Research Council for Agriculture (CREA).

It was shared among the participants that LTEs are powerful facilities for project/funding attraction. Examples of the involvement of the LTEs in European (i.e. H2020 or FP7 programs), National and Regional project have been presented. It was also acknowledged that research groups who run/manage LTEs have often more opportunity to be selected and included in national, transnational and international research project *consortia*.

In the most of the cases, the main aims/objectives set at starting of the LTEs were considered still valid despite often identified many years ago. These aims were mainly related to the comparison between conventional and organic, soil fertility and weed management and yield assessment. Some of the LTEs were also designed to assess the comprehensive evaluation of agro-environmental sustainability.

In some cases, the re-design or the modification of the LTE (i.e. changing of the rotation length, inclusion of new crops, application of different inputs) have been considered and/or are under consideration and these changes implementation is discussed in the light of capturing the emerging research trajectories.

Almost all the LTEs presented at the workshop implement organic stockless production systems. However, the opportunity of re-designing to deal with different system strategies (i.e. combining plant and animal productions, agro-forestry and agro-zoo forestry) was discussed among the participants.

The driving forces with generally orient the decisions making process have been discussed and the 'farmer's needs', the 'outcomes of the practical management' and the 'scientific curiosity' of the researchers involved in the LTE management have been identified as the most relevant ones. Also the needs of the society (i.e. ecological services, climate change issue) have been acknowledged as driving forces which could orient the research trajectories and set the research objectives in the LTEs.

The promotion of a network of organic LTEs at international level was discussed and all the participants agreed that the implementation of such a network should be considered as a priority by the national and international funding agencies involved in organic farming research. It was also proposed to seek for funding schemes already available which could be used to support networking activities (the Twinning programme and the European Cost action were mentioned as example). Moreover, organisational issues and methodologies to network were preliminary discusses. Periodical meeting, exchange programs for researchers involved in LTE management, dedicated newsletter, use of social media have been acknowledged to be potential, feasible tools to get the aim.

3. Appendices

3.1. List of participants

3.1.1. French participants

Names of participants	Contacts	LTE's name	Organization
Boissinot François & FOREST Gaëlle	francois.boissinot@pl.chambagri.fr; Gaelle.FOREST@pl.chambagri.fr	ROTALEG	CRA PDL
Castel Laurie	laurie.castel@drome.chambagri.fr	TAB Platform	CA 26
Celette Florian	fcelette@isara.fr	Corbas	ISARA-Lyon
Lorentz Bruno	bruno.lorentz@inra.fr	Mauguio	INRA
Metais Pascale	p.metais@arvalisinstitutduvegetal.fr	Boigneville	Arvalis
Quirin Thierry	thierry.quirin@vienne.chambagri.fr	Archigny	CA 86
Casagrande Marion	marion.casagrande@itab.asso.fr	Network coordinator	ITAB
Fontaine Laurence	laurence.fontaine@itab.asso.fr	Network coordinator	ITAB

3.1.2. Italian participants

Names of participants	Contacts	Site	Organisme
Gabriele Campanelli & Stefano Canali	stefano.canali@crea.gov.it; gabriele.campanelli@crea.gov.it	MOVE	CREA
Giancarlo Rocuzzo	giancarlo.rocuzzo@crea.gov.it	PALAP9	CREA
Francesco Montemurro	francesco.montemurro@crea.gov.it	MITIORG	CREA
Corrado Ciaccia & Giancarlo Rocuzzo	corrado.ciaccia@crea.gov.it; giancarlo.rocuzzo@crea.gov.it	MAIOR	CREA
Margherita Santoni, Lorenzo Ferretti & Tommaso Gaifami Concetta Vazzana & Cesare Pacini	lorenzo.ferretti@unifi.it; margherita.santoni@unifi.it concetta.vazzana@unifi.it; gaiocesare.pacini@unifi.it	MOLTE	University of Florence
Daniele Antichi, Marco Mazzoncini, Paolo Bàrberi & Stefano Carlesi	daniele.antichi@unipi.it; marco.mazzoncini@unipi.it; paolo.barberi@santannapisa.it; elkappe@gmail.com	MASCOT	University of Pisa (CiRAA), Scuola Superiore Sant'Anna di Pisa (ISV)
Marcello Guiducci, Paolo Benincasa & Giacomo Tosti	marcello.guiducci@unipg.it; giacomo.tosti@gmail.com; paolo.benincasa@unipg.it	BIOSYST	University of Perugia
Emanuele Radicetti	radicetti@unitus.it	BIOCONV	University of Tuscia
Francesco Riva	f.riva@mpaaf.gov.it		Ministère de l'agriculture
Olga Grasselli	olga.grasselli@crea.gov.it		CREA

3.2. Pictures



3.3. Workshop agenda



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Organic long term experiments: Sharing French and Italian Experience

AGENDA

22nd -23rd of June, Pisa and Firenze

List of Participants

France (RotAB)

The [RotAB network](#) is a set of French experimental sites working together on organic crop systems (see [here](#) video in English). 6 experimental sites out of the 12 French organic arable long-term experiments will join the 2 days event. Each experimental site assesses different cropping systems based on long-term monitoring. Through the network, the partners share their experiences about the methods, discuss the results of tested innovations and communicate together.

Name of participants	Experimental site	Organization
Boissinot François	ROTALEG	CRA PDL
FOREST Gaëlle	ROTALEG	CRA PDL (intern)
Castel Laurie	TAB Platform	CA 26
Celette Florian	Corbas	ISARA-Lyon
Lorentz Bruno	Mauguio	INRA
Metais Pascale	Boigneville	Arvalis
Quirin Thierry	Archigny	CA 86
Casagrande Marion	Network coordinator	ITAB
Fontaine Laurence	Network coordinator	ITAB

Italy

In Italy the **RetiBio program**, promoted by the *Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria* (CREA) and funded by the Organic Food and Farming Office of the Italian Ministry of Agriculture (MIPAAF) has been contributing to support seven existing Italian organic long term field experiments representative of a range of Mediterranean cropping systems (arable, vegetable and fruit crops) and managed by the CREA itself, other Italian research Institutions and Universities involved in this research topic.

Besides the RetiBio program, other Universities in Italy are carrying out long-term field experiments under organic farming conditions, most of them were previously financially supported by the MIPAAF under the **SIMBIOVEG** research program or other regional

, national and international funding schemes.

Name of participants	Experimental site	Organization
Gabriele Campanelli & Stefano Canali	MOVE	CREA
Giancarlo Rocuzzo	PALAP9	CREA
Francesco Montemurro	MITIORG	CREA
Corrado Ciaccia & Giancarlo Rocuzzo	MAIOR	CREA

Margherita Santoni, Lorenzo Ferretti & Tommaso Gaifami	MOLTE	University of Florence
Daniele Antichi, Marco Mazzoncini, Paolo Bàrberi & Stefano Carlesi	MASCOT	University of Pisa (CiRAA), Scuola Superiore Sant'Anna di Pisa (ISV)
Marcello Guiducci, Paolo Benincasa & Giacomo Tosti	BIOSYST	University of Perugia
Emanuele Radicetti	BIOCONV	University of Tuscia

To be prepared before

Each experimental¹ site should prepare a document to present the experimental site. This could be either a poster presenting the experimental design and/or some results or a slide that give some basic information (pedo-climatic characteristics, cropping systems, treatments and experimental design, starting year, objective, the layout can be uploaded [here](#)).

Each participant should choose the topic she/he wants to discuss during the parallel session: (i) stakeholder inclusion, (ii) decision making rules and system redesign or (iii) Fundraising, project opportunities and network (see below for detailed information).

General Program

	Wednesday 21 st of June	Thursday 22 nd of June	Friday 23 rd of June
Morning		Presenting French and Italian long-term experiments and sharing experience	Presentation and visit of the MOLTE trial
Lunch		Restaurant close to MASCOT	
Afternoon	Travelling to Italy	Wrap up of the morning session Presentation and visit of the MASCOT trial	Travelling back to France
Evening	Dinner in Pisa	Dinner in Firenze	

Detailed Program

Thursday 22nd of June: Presenting French and Italian long-term experiments, sharing experience and visiting the MASCOT trial

Location Meeting room "Benvenuti", CiRAA, San Piero a Grado, Pisa

	Program	Who ?	Additional information
9.00-9.30	Welcoming the participants		Coffee, installing the posters
9.30-9.45	Introduction of the day	D Antichi & M Casagrande	
9.45-11.00	Brief presentation of the RotAB network and of each long-term experiment	All	5 min/experiment, based on a poster or a slide, see "to be prepared before" section
11.00-12.30	Workshop session	All	3 sessions in parallel (with one facilitator per group): - Stakeholder inclusion (M Casagrande) - Decision making rules and system redesign (D. Antichi) - Fundraising, project opportunities and network (S. Canali)
12.30-14.00	<i>Lunch time</i>		
14.00-15.00	Plenary session	Facilitator of	Sharing and discussion the parallel sessions

¹ The RotAB network will be shortly presented with a few slides.

		each group	findings
15.00-16.00	Focus on the MASCOT trial	D Antichi, M Mazzoncini & P Bàrberi	Presenting the MASCOT trial and its recent redesign
16.00-17.30	Visit of the MASCOT trial	D Antichi, M Mazzoncini & P Bàrberi	Possible to visit also the SMOCA trial (organic conservative field vegetables)

Content of the parallel sessions

Please find below the question that are going to be addressed on the content of the parallel sessions.

Stakeholder inclusion

- Are you implementing a participatory approach in the management of the trial?
- If yes, is it structured (e.g. there are regular meetings of the LTE steering committee, precision decision rules...) or flexible?
- Who is your key stakeholder?
- How many stakeholders are involved in the management of the trial (directly/indirectly)?
- Which type of stakeholders are not fully involved in the LTE in your opinion?
- Do you organise regular field visits/meetings? Mean nr. of attendees? Type of organization of social events? Involvement of farmers?
- Difficulties and drawbacks of stakeholder inclusion?

Decision making rules and system redesign

- Fixed/iterative approach? (Have you changed part of the protocol during the LTE lifetime? Is it your LTE management/performance improving over time?...)
- Did you ever fully redesign one or several cropping systems in your experiment?
- Which elements of the cropping systems are kept fixed, which can be changed occasionally
- Who is involved in decision making processes? Experimenters or even external experts?
- Statistical analyses performed: classical (e.g., ANOVA, regression...) or more complex (e.g. GLM, multivariate...)
- Intensity and regularity of assessments

Fundraising, project opportunities and network

- Sources of funding for the LTE: typology, size
- Did the LTE itself help in getting funding?
- What happens if no specific funds are available?
- State here which orientation and/or research trajectories you will consider in the next years;
- If yes, which are, according to your opinion, the driving forces for it?

Friday 23rd of June : Presenting and visiting the MOLTE trial

Location : Department of Agrifood Production and Environmental Sciences, University of Florence, UNIFI-DISPAA, Piazzale delle Cascine 18, Firenze; UNIFI Montepaldi experimental farm, San Casciano Valdipesa, Firenze)

	Program	Who ?	Additional information
8.30-9.30	Presentation of the MOLTE experiment	C Pacini and C Vanazza	Presentation of historic data and presentation of collected indicators
9.30-10.00	<i>Transfer to experimental farm</i>		
10.00-11.30	Visit of the MOLTE trial	C Pacini, M Santoni and T Gaifami	Focus on some data collection for innovative indicators
11.30-12.00	<i>Transfer to lunch place</i>		
12.00-13.00	<i>Lunch time</i>		

Organizing Committee

Marion Casagrande & Laurence Fontaine

ITAB (coordinators of the RotAB Network)

Daniele Antichi

Dipartimento di Scienze Agrarie, Alimentari ed Agro-Ambientali (DISAAA-a) -Università di Pisa

Cesare Pacini

Dipartimento di Scienze Produzioni Agroalimentari e dell'Ambiente (DISPAA) - Università di Firenze

Stefano Canali

Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria (CREA), Centro di ricerca Agricoltura Ambiente (AA)