



# Forum Proceedings

Including programme, abstracts  
& workshop outputs of the 2<sup>nd</sup>  
Agroecology Europe Forum



HELLENIC  
MEDITERRANEAN  
UNIVERSITY



Αγροοικολογικό Δίκτυο Ελλάδας  
Agroecology Greece



Natural  
History  
Museum  
of Crete



HELLENIC REPUBLIC  
REGION OF CRETE



Fondation  
de  
France

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# FORUM PROGRAMME



## # Thursday, 26 September 2019

10:30 – 13:30 Registration

13:30 – 17:00 Welcome & keynote speeches

 Break

17:30 – 19:30 World Café

 Buffet diner

Live Music

## # Friday, 27 September 2019


09:00 – 10:30 Session 1. **Fostering the transition**

Workshop 1. **Education & training**

Workshop 2. **Genetic diversity in Mediterranean Agroecosystems**


Workshop 3. **Repeasantization**

Workshop 4. **Research aspects**

 Break

10:45 – 12:30 General Assembly

12:30 – 13:15 Poster session

 Buffet lunch

15:00

Field trips (optional / meal included):

# Field trip 1. **“Melitakes” Coop & Farm**

# Field trip 2. **“Apo Kinou” Coop & community**

# Field trip 3. **Projects “Life IGIC” & “Ecobreed”**



## # Saturday, 28 September 2019

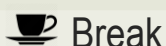
09:00 – 10:30

Session 2. **Species diversity in action**

Session 3. **Food systems**

Workshop 5. **Public image of farmers**

Workshop 6. **Scaling out**



Break

11:00 – 12:30

Session 4. **Knowledge & practice**

Session 5. **Certification issues & CSA systems**

Workshop 7. **Political agroecology**

Workshop 8. **Breaking the barriers**

Workshop 9. **Youth networks & opportunities**



Buffet lunch

14:30 – 16:00

Session 6. **Innovative Farming Practices**

Workshop 10. **Ecosystem diversity**

Workshop 11. **Sustainability in the Mediterranean**

Workshop 12. **Mapping Agroecology**

16:00 – 17:00

Concluding session – End of the Forum

### Side events (during lunch time / registration will be required):

#### • Friday, 27 Sept. 2019

1. Open meeting on “**Agroecological approaches for olive production in the Mediterranean**” (Organiser: Emmanouil Kabourakis - Hellenic Mediterranean University, Greece)
2. Open meeting of **Working Group on Education & Training within AEEU** (related to Workshop 1) (Organiser: Paola Migliorini – AEEU)

#### • Saturday, 28 Sept. 2019

3. Open meeting (in Greek): “**Συνάντηση για την εξέλιξη της Αγροοικολογίας στην Ελλάδα**” (Organiser: Vasileios Gkisakis – Agroecology Greece)

## SESSIONS

- **Session 1. Fostering the transition**

The presentations of Session 1 can be found [here](#)

### **Local Agroecological Dynamization: a methodological approach for scaling territorialised agroecological transitions**

**Daniel Lopez-Garcia**

Entretantos Foundation, Spain

The Local Agroecological Dynamization approach has been developed and adjusted along 5 years of a postgraduate diploma at Universitat Autònoma de Barcelona, several doctoral theses, and diverse consultancy projects in cooperation with local administrations in Spain. It has been developed as a methodological proposal, based on PAR, for scaling agroecological transitions in post-industrial and de-agrarianized territories as Europe. Following this experiences, it is possible to give some insights on how to adapt the general framework to different contexts; how to address the complex and mobile balances among top-down/bottom-up political processes or niche/regime actors; or which contradictions are to be faced regarding to scaling agroecological transitions in the European food systems.

### **Agroecological transitions between determinist and open-ended visions**

**Claire Lamine<sup>1</sup> Danièle Magda<sup>2</sup>**

<sup>1</sup>INRA-SAD, France

<sup>2</sup>INRA-SAD, UMR AGIR, France

Different visions of agroecological transitions coexist, based on different perspectives of change. This diversity is intimately linked to both different approaches of agroecology and

different attitudes to uncertainties and complexity. Based on the analysis of recent research on agroecological transitions and in echo to sustainable transitions debates, these visions can be characterized by two perspectives in the building and analysis of agroecological transition processes, that we may call determinist and open-ended perspectives.

The determinist perspective is based, for a great part, on the predetermination of the target to reach, the pathway or the trajectory of change. In this determinist perspective, the uncertainties and controversies are often considered as risks. On the other hand, the open-ended perspective focuses less on defining precise targets or goals to reach, considering them unrealistic or ineffective, given the complexity of the transition processes. Uncertainties and diversity of actors visions are integrated as dimensions operating in the process and creating innovations.

The objective of the presentation is to show that clarifying the determinist and open-ended perspectives that are adopted in the different visions of transitions could inform the debates about how to design and support agroecological transition. First, we will develop how these two contrasted perspectives relate to different paradigms in the way to consider dimensions, objects, levers and mechanism of changes and argue our hypothesis that a priori open-ended visions are more appropriate to address the multilevel and systemic changes and paradigms ruptures involved in agroecological transitions. In a second part, we show, through concrete examples (i.e., transitions of agrifood systems and policy instruments aimed at favouring them) how these perspectives can coexist in tension or becombined in order to address the complexity and context-dependency of agroecological transition.

This line of argumentation is structuring a collective work in process, aimed at exploring what these tensions and articulations between these two perspectives on change perform and produce. This will lead to a collective book whose different chapters, from various disciplinary or interdisciplinary perspectives, will show how these two perspectives operate at different dimensions, objects and levels (from farm to food systems) of the agroecological transitions.

## **Current adoption of agroecological practices in European farms: insights from the EcoStack project**

**Marzia Ranaldo<sup>1</sup>, James Henty Williams<sup>2</sup>, Alexander Wezel<sup>2</sup>**

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<sup>2</sup> Aarhus University, Grenåvej 14, 8410 Rønde, Denmark

The major challenge facing European farmers today is how best to sustainably produce food in a globally competitive market. Europe's farmers are under pressure to maintain the economic viability of their farms, whilst the negative impacts of farming on the environment are increasingly under scrutiny. One avenue opens for Europe's farmers, that can benefit the environment and support thriving and viable farming communities, it is to adopt

agroecological farming practices. Agroecology, is in its infancy in Europe and we carried out a series of interviews to gain a better understanding of its status. We set out to establish a preliminary inventory of agroecological practices, their current usage, how they are perceived as well as potential for adoption in the future. Our study was carried out in the Spring of 2019, it involved 13 European countries and covered various farming and cropping systems. In each country at least 15 farmers (10 conventional and 5 organic) were interviewed. Interviewed farmers were questioned about general practices carried out to control weeds, pests and diseases, and any agroecological farming practices they currently implement or might in the future. Farmers were also asked about their motivations and about any advantages or disadvantages related to their implementation.

Our results show that herbicides and pesticides are still popular means to control weeds, pests, and diseases. Nevertheless, crop rotations and cover crops were the most prevalent agroecological practices mentioned by our interviewed farmers, together with no-till. The use of local varieties is also popular, while intercropping, cultivar mixtures, grass and flower strips, and semi-natural landscape elements management are less widely practiced.

Furthermore, our result suggests the rationale for adopting of the most popular agroecological practices (crop rotation, cover crops, no-till, and local varieties) can be linked to: i) traditions, i.e. these are practices familiar to farmers, and they anticipate benefits based on similar past experiences; ii) diversification for farming system resilience; iii) legacy and sustainability for the future of their farms.

The motivation to adopt of agroecological practices is mainly driven by personal beliefs (i.e. what a farmer thinks is best for their farm and for the environment). However, we found there are conflicts within individual farmers, between what they believe is "good" for the environment and the reality of the farming practices that they actually carry out - or not carry out. Even if farmers have an overall positive opinion of agroecological practices, constraints such as high labour, high costs, yield loss, and lack of knowledge still need to be addressed to foster the wide-scale adoption of agroecological practices by European farmers. The work was carried out in the frame of the EcoStack project (stacking of ecosystem services: mechanisms and interactions for optimal crop protection, pollination enhancement, and productivity - [www.ecostack-h2020.eu](http://www.ecostack-h2020.eu)), which aims to ensure profitability and sustainability of farming systems by maximizing ecosystem services provisioning while minimizing the use of pesticides. Multiple actors, such as farmers, agricultural advisors, processors, retailers, policy-makers, and scientists are actively engaged in the co-creation and sharing of knowledge, but also in the implementation of innovative agroecological practices and bio-inspired tools derived in EcoStack.

## **Low-Input Farming and Territories – Integrating knowledge for improving ecosystem based farming – LIFT: The Greek case study**

**Tzouramani, E.<sup>1</sup>, Kabourakis, E.<sup>2</sup>, Vasilina Konstatidelli<sup>1</sup>, Ragkos, A.<sup>1\*</sup>, Sintori, A.<sup>1</sup>, Solomou, A.<sup>3</sup>, and Iliopoulos, C.<sup>1</sup>.**

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Agro-ecological approaches to farming practices have gained significant interest in recent years across Europe. It is interesting to understand and assess the potential contributions of these practices to farmers, rural environment, rural development, and rural societies. The overall goal of LIFT research program under H2020 is to identify the potential benefits of the adoption of ecological farming in the European Union (EU) and to understand how socio-economic and policy factors impact the adoption, performance, and sustainability of ecological farming at various scales, from the level of the single farm to that of a territory. LIFT will assess the determinants of adoption of ecological approaches, and evaluate the performance and overall sustainability of these approaches in comparison to more conventional agriculture. LIFT will also develop new policy instruments that could improve the adoption and subsequent performance and sustainability of the rural nexus. For this, LIFT will suggest an innovative framework for multi-scale sustainability assessment aimed at identifying critical paths toward the adoption of ecological approaches to enhance public goods and ecosystem services delivery.

In Greece, the research will focus on Crete and particularly in the regions of Heraklion and Lasithi. More specifically through a large farmer survey will try to identify local practices, drives of farmers' uptake agroecological approaches, performance and level of sustainability across the supply chain. The survey will focus on specialist olive farms and vegetables. The main goal is to determine the level of adoption of agroecological practices covering all the spectrum from agroecology to conventional farming practices. On the basis of these findings, it would determine the motives and barriers that farmers' face. Moreover, the contribution of stakeholders will shed light to reveal the necessary judgments to support the transition toward agroecological practices. Finally, the results will inform and support EU priorities relating to agriculture and the environment.

Acknowledgment: With the contribution of the H2020-SFS-2016-2017 financial instrument of the European Union (Grant agreement number: 770747).

## **Strategies and approaches for the adoption of agroecological practices in European farming systems.**

**Jens Dauber**

Thünen-Institute of Biodiversity, Germany

Intensive agriculture is considered to be a major cause of the decline of insect diversity and biomass in rural Germany. Within the frame of the national action programme for the conservation of insects, the "FInAL" project will therefore establish Landscape Laboratories in representative agricultural landscapes of Germany where we will develop, demonstrate and evaluate innovative measures for facilitating insects through integrated cultivation of renewable resources in a landscape context.

The aim of FInAL is to demonstrate how diversity, biomass and functionality of insects can be enhanced in agricultural landscapes, especially through integration of renewable resources. We consistently adopt a landscape approach based on regionalised guiding principles ("Leitbilder") that encompasses both agricultural land and non-cultivated areas and involves the participation of stakeholders. The Landscape Laboratories, i.e. the landscape sections where measures for facilitating insects will be established, will be investigated with respect to their initial state (base line), land-use options, and the effects of the measures on different features, primarily in relation to incidence and functionality (e.g. in integrated pest management) of various groups of insects.

The term Landscape Laboratory denotes a section of an agricultural landscape in which innovative measures for facilitating insects in cultivation systems are conducted. This involves a spatially extensive approach, i.e. the whole area of the Landscape Laboratory constitutes the object of study and, consequently, is treated with specific measures in its entirety. Therefore, a Landscape Laboratory is comprised of cropland and grassland as well as those areas that are not used agriculturally. The size of a Landscape Laboratory is fixed at approximately 3 x 3 km in order to prove the effectiveness of the established measures with respect to the occurrence of the insects on a landscape scale. The selection of the Landscape Laboratories will particularly consider landscape types with high importance within the diversity of agricultural landscapes in Germany.

In this project, the choice and implementation of suitable measures will be based on a co-design process involving farmers, other land users, local authorities, NGOs and scientists as relevant stakeholders. Prior to the implementation in the Laboratories, the measures will be pre-evaluated at test sites ("Maßnahmenwerkstätten"), if necessary. The results from the Landscape Laboratories will be summarised and assessed in an integrative way with respect to the effectiveness of measures, acceptance by practitioners, transferability to other agricultural landscapes and the potential to provide frameworks for agricultural policies.

- **Session 2. Species diversity in action**

The presentations of Session 2 can be found [here](#)

### **Multispecies cropping for forage production**

#### **Branco Tomislav Cupina**

University of Novi Sad, Serbia

Multispecies cropping or intercropping may often be considered a practical application of ecological principles based on biodiversity, plant interactions and other natural regulation mechanisms. This is a result of differences in competitive ability for growth factors between intercrop components which thereby tend to use resources in a complementary way and then more efficiently than sole crops. In particular, legume based intercropping are often mentioned as resulting in higher yields than monocultures. Because of their ability to biological nitrogen fixation, legumes are largely involved in N facilitation and N dynamic in the plant community and in agrosystems. In addition, companion cropping could reduce soil erosion on sites prone to either wind or water erosion with is of particular interest for both conventional

and low inputs systems. This contribution comprises use of annual legumes as cover crops for establishing perennial forage legumes and mutual intercropping of annual legumes in temperate regions.

### **The social function of mycorrhizal network on weed management in organic winter-cereal cropping systems**

#### **Alessandra Trinchera**

CREA-AA, Italy

The recent “fungal fast lane” theory conferred an important role to mycorrhizal mycelial network at ecological level, as a long-distance communication between plants fighting for the conquest of space and resources, through the connection of their mycorrhizal roots (Barto et al., 2011). This agroecological “social” approach may be profitably applied to diversified cropping systems, where agro-ecological service crops (i.e. cover crops) are introduced for managing weed through allelopathic and competitive interactions among coexisting plant species.

Our research aimed at verifying if the introduction of a winter-cereal cover crop in a horticultural organic rotation for containing weeds could promote the mycorrhizal network development in the agroecosystem, influencing weeds emergence, selection and density, resulting from the belowground interference between cover crop-weeds. In a two-years field

experiment at MOVELTE (CREA-OF, AP, Italy), rye and spelt were used as cover crops to contain weeds, compared to an unweeded system. The specific density and mycorrhizal colonization intensity of cover crops and weeds were determined, and scanning electron microscopy (SEM) of mycorrhized roots collected in field was performed to observe the AMF external hyphal network. In vitro tests were used for evaluating allelopathic effect due to cover crops.

Root mycorrhization was an elective strategy used by cover crops to contain weeds, while weeds utilized the radical mycorrhization to advantageously compete with cover crops. Even if both the rye and the spelt were able to contain weeds, the first one dominated crop-weed interference mainly through allelopathic interaction and reduction of weeds mycorrhization, while the second one used the competition for resources as "driving force", promoting the mycorrhization of some weed species and, thus, the mycorrhizal network of the whole agroecosystem (Trincherà et al., 2019).

## **Backing research data with farm-level agronomic measurements. A quantification of agro-ecosystem services provided by legume-based cropping systems.**

**Fernando Pellegrini**

Scuola Superiore Sant'Anna, Italy

There is increasing interest in the role that legumes can have in providing ecosystem services (ES). Legumes have been demonstrated to have a great potential to provide some ES, but it still results very hard to get a quantification of this potential. In order to do that, data coming from experimental trials should be combined with data collected on-farm. Within the framework of the Horizon2020 LegValue project, we set up 22 on-farm networks (OFNs) with the scope of exploring the potential for quantifying the ES provision. We first defined a list of agro-ecosystem services/disservices linked to the cultivation of legume crops, we restricted the list to some of the most relevant ones, and we added some that could be of more interest at the farm level. We included both benefits to and from agricultural ecosystems. We then defined a list of possible indicators that could effectively quantify the provision of such services. Data from OFNs came from ad-hoc farm trials, or collected from past farm trials/experiments. We obtained a preliminary set of quantified services, mostly related to soil structure and fertility, and nutrient cycling, and we performed some descriptive statistics. We found that legume crops can have a positive effect on the yield of the following crop, on N and protein dynamics. Legume crops can have. We found that the level of variability in terms of service studied, type of farm management, data collection protocols, is rather high. This might often compromise the obtainment of a well-defined quantification of such services, and also to obtain a common quantification across very different agro-ecosystems across Europe. Yet we consider this database a good supporting tool to back up



scientific projects, e.g. literature review and/or meta-analysis, and we encourage researchers to combine this type of data collection with experimental data.

## **Practicing polycultures - citizen researchers advancing agroecology**

**Naomi K van der Velden**

Permaculture Association, UK

Despite their potential to enhance ecosystems without compromising productivity, there has been relatively little research into combinations of three or more crops grown together in temperate polycultures. Much of the research that exists targets larger-scale mechanised farming, despite the fact that the majority of the world's food producers operate at scales of 2 ha or less.

We enlisted citizen researchers from across Europe to participate in a comparative trial of three crops grown in polyculture compared to the same crops grown in monoculture. Citizens were trained in both the measurements needed and in how to design and conduct research through free massive open online courses (MOOCs), thus going beyond traditional citizen science approaches. Trials were conducted in participants' growing spaces which tended to be home and community gardens and allotments. Another novel feature was hypothesis-testing in citizen science with participants able to gain a clear outcome for their own sites as well as contributing to the overall knowledge.

The crops compared were climbing beans (*Phaseolus vulgaris*), spinach (*Spinacia oleracea*) and radish (*Raphanus sativus*) in 2018 and beans, Swiss chard (*Beta vulgaris subsp. cicla var. flavescens*) and radish in 2019. Polyculture plots were 1 square metre and the monoculture plantings were of the same number of seeds and relative densities.

Results in 2018 showed significantly greater productivity in the polyculture plots, and over 70% of individual participants also had higher yields from the polyculture. There was no distinct spatial pattern in total yields, but sites in southern Europe tended to produce earlier crops, and those in northern Europe were more productive in the autumn. Initial 2019 results will be presented at this conference.

In conclusion, it is clear that collaboration between scientists and growers through hypothesis-led citizen research in agroecology has the potential to offer insights into real-world growing conditions for smaller growers. So far in these trials, we are showing evidence that these crops are more productively grown in polycultures. This field would benefit research into appropriate mixes for different ecoregions or bioclimatic zones.

## **Participatory design of lentils' cultivar mixtures, a PhD project within LEGVALUE H2020**

**Elisa Lorenzetti, Fernando Pellegrini, Paolo Barberi**

Scuola Superiore Sant'Anna, Italy

The increase of biodiversity will be a crucial step to achieve higher sustainability and resilience in the future agricultural systems. More specifically, genetic diversity within crop species (e.g. cultivar mixtures) has been often demonstrated as a powerful means to increase crop stability in the face of increasing environmental variability.

Generally speaking, conventional breeding methodologies tend to select homogeneous and standard stands, in order to comply with seeds norms and high-inputs farming systems. But some alternative methods are available for valorizing genetic diversity. Participatory Plant Breeding (PPB), entailing a close collaboration between farmers, researchers and other actors, has been developed as an alternative breeding approach to adapt to the local conditions and to the need of marginalized farmers.

Such breeding approaches have been so far applied mainly to cereals, but very rarely to legume crops.

Legume cultivation has recently gained importance within the European farming research community: they represent an optimal complement for cereals not only in terms of crop rotation and nutrition, but also in terms of farm income. Despite the recent success, grain legumes constitute a minor crop in Europe (1.5% of the arable land), therefore, legume selection has not been a priority of breeders and the crop is subjected to strong yield fluctuations and infestations.

On the base of these considerations, a PhD project at Scuola Superiore Sant'Anna (Pisa, IT) was set up involving a group of organic legumes' farmers in central Italy (Tuscany). During a preliminary interview, one of such farmers had declared its interest in locally adapted legumes varieties: it was the catalyst for the design of the whole project.

The research approach that was utilized belongs to the tradition of Participatory Action Research (PAR), as intended by Baum et al. (2006) "PAR is [...] collective, self-reflective inquiry that researchers and participants undertake [...] The reflective process is directly linked to action, influenced by understanding of history, culture, and local context...". In PAR, researchers interact with (and not only observe) the studies system, to which they may belong according to the definition of the system boundaries.

Lentil was chosen as a target crop due to scientific reasons, then a first meeting with 5 local lentil growers and two researchers have been organized in order to understand today's challenges of lentils' production.

Three field trials have been settled with the aim of investigating the role of lentils diversity in view of farmers' needs. Two of the trials regard lentils mixtures, while another one is intended to explore the current biodiversity of Italian lentils genotype.

After the establishment of the field trials, farmers and scientists joined a workshop aiming to define the most suited research questions and sampling procedure according to their interests. The topic of the discussion ranged from the identification of lentils traits to be improved and monitored within the cultivar mixtures, to the evaluation of the mixtures' potentials in view to their adoption by Tuscan farmers. Alongside, an ideotyping discourse has been initiated with the aim of selecting promising accession for future mixtures and breeding.

Additional collaborative occasions to reflect on the research process are planned in the near future, following the tradition of experiential learning (Kolb 1984), where knowledge construction is intended as the outcome of consecutive cycles of planning, action, observation and reflection.

#### ABSTRACT RECAP

Cultivar mixtures are a powerful and easy tool to increase crop stability in the face of rising environmental variability. Crop stability and adaptation to local condition can be further refined through a strong collaboration with local actors, as taught by Participatory Plant Breeding (PPB) approaches.

Legume breeding in Europe was neglected in the past decades in favour of cereals breeding, but at date most farming systems are unbalanced due to a strong dependency to external Nitrogen (N) inputs, that could instead be provided by legumes through N-fixation. In addition, increasing legumes share in human diets would yield positive outcomes on health and environmental sustainability.

A group of local legumes farmers was involved in such discourse and decided to participate in a research on lentil mixtures as a way to answer to today challenges of lentil production. The process, carried out within the research Group of Agroecology at Sant'Anna School of Advanced Studies (Pisa, IT), was managed according to Participatory Action Research (PAR) methods. Subsequent workshops were organized between farmers and scientists aiming at defining a multitude of topics such as lentils traits to be improved and monitored within the cultivar mixtures, or the evaluation of the mixtures' potentials in view to their adoption by Tuscan farmers.

### **Species diversity in action: on farm optimization of wheat - lentil intercropping in Central Italy**

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In this contribution, we present the on-farm research experience with La Viola (agrilaviola.com), a small organic arable farm located in Torre San Patrizio, Marche (Italy). The farm is characterized by sloped fields with loamy to clay soils. Peculiarity of La Viola is the large use of the intercropping practice. In particular, different species of winter cereals and pulses are cultivated together since some years in this farm. The intercropping is performed between a cereal that can be durum and bread wheat (with the use of mixtures and landraces), rye, barley or oat and a grain legume such as chickpea, indian pea, lentil and roveja (an edible cultivar of *Pisum sativum ssp. arvense*). All crops are broadcast sown with a self-made sowing machine composed by two hoppers, one for the cereal and the other for the legume seeds, which allows the farmer to sow two crops simultaneously, each at the desired seeding rate.

The two crops are combine-harvested together and separated subsequently in the farm's processing laboratory. The seed types are divided using sifters on the base on the different grain size and/or density. Among the grain legumes, lentil is a predominant crop at La Viola because it is particularly appreciated by the consumers and it has a good price on the market. For La Viola the intercropping with a winter cereal is the best way to grow this legume in the farm. Lentil is very susceptible to lodging and this, often, makes it impossible to use the combine-harvester. The lentil and wheat intercropping reduces significantly the legume stem lodging because the cereal culms act as a mechanical support for the companion crop. Bread wheat (a mixture of landraces) is used in intercropping with lentil (a mixture of one commercial cultivar with one landrace). The intercropping of wheat and lentil ensures, in comparison with the local production level, a sufficient production of wheat (1.8 t/ha in average), good production of lentil (0.35 t/ha in average) and supports weed control.

Although ensuring an acceptable level of production, the intercropping can be optimized by studying which lentil density can maximise yield and weed control. From this consideration started the collaboration between La Viola and the Group of Agroecology at Scuola Superiore Sant'Anna (Pisa). An on-farm trial dedicated to optimize wheat-lentil intercropping in the local conditions of La Viola cropland was planned together. In this experiment we are testing 4 seeding rates of lentil (75, 100, 125, 150 kg/ha) associated with a fixed seeding rate of wheat (185 kg/ha). Additionally, lentil and wheat are grown as sole crop with the standard seeding rate applied by the farmer (185 kg/ha for wheat and 100 kg/ha for lentil), in order to evaluate the Land Equivalent Ratio (LER). The experiment is organised in a randomised complete block design, with three replicates for each lentil seeding rate. The plot area is 500 m<sup>2</sup> (6 x 80 m). Randomization and block orientation were performed taking into account the maximum gradient of variability in the experimental field which is the slope.

After seedbed preparation wheat and lentil were broadcast sowed using La Viola seeding machine. During the current growing season we are collecting data on: (i) Lentil and wheat emergence and yield; (ii) weed germination and biomass.

This research has received funding by the H2020 project IWM PRAISE (Grant Agreement N.727321).

- **Session 3. Food systems**

The presentations of Session 3 can be found [here](#)

**Agroecological-oriented Local Food Systems: A strategy for scaling up Agroecology**

**Manuel González de Molina**

University Pablo de Olavide, Spain

Upscaling agroecological experiences needs the cooperation between the different links in the alternative food chains, in such a way as to break with the isolation and fragmentation of experiences. To achieve this, various instruments of social mobilization and innovation already available in the agroecological movement itself and even in co-produced public policies must be brought together to create food systems at a territorial or local level which, on the one hand, operate a leap of scale of agroecological experiences and, on the other, expand the areas of resistance to the corporate food regime (CFR), challenging its hegemony. We propose, therefore, as the main strategic objective or as a road map of the agroecological movement the construction of Agroecological-oriented Local Food Systems (ALOFOODs). What do these systems consist in? In the creation and consolidation of a new food regime, an alternative to the dominant one, covering the largest possible ground, gaining hegemony with respect to the CFR and supported by both the power of social movements and their socioeconomic viability, thereby generating broad areas of food sovereignty and sustainable production, i.e. territories free from the hegemony of the CFR.

The question is finding synergies stemming from cooperation to produce, distribute and consume based on agroecological experiences and the organized incorporation of new ones. The main objective of the ALOFOODs is to expand and supply the local consumption of healthy food, cultivated sustainably within the territory, applying fair work pay and making consumption accessible in terms of price and physical location. These systems are on the opposite side of local or territorialized food systems formulated by conventional economists. The latter systems concentrate around one or more fresh or processed quality foods for which territories have a comparative advantage and which compete in national or international markets. This approach, which underlies the differentiated quality approach and protected geographical denominations, is instrumental to the CFR; it facilitates homogenizing local products, subordinates local production integration to vertical networks and long channels and does not guarantee an improvement to value added retention (Bowen & Demaster 2011, López-Moreno, 2014). From an environmental viewpoint, it does not bring about any notable improvement, since it does not contribute to reducing the metabolic or production profile, nor the distribution or the reorientation of consumption (Edwards-Jones

et al., 2008; Darnhofer, 2014). Conversely, the ALOFOODs are shaped to address local demand to the fullest extent possible, generating food sovereignty and placing the process at the heart of a self-centered local development strategy, generating a greater amount of added value and employment.

In this sense, ALOFOODs follow a double strategy of downstream and upstream cooperation, bringing all the links of the food chain into play and functioning on the basis of the territory and productive capacity of local agroecosystems. The ALOFOODs thus emerge from the convergence of two ideas: on the one hand, the approach of Local Agrifood Systems that articulate the potential of social and ecological sustainability with the capacity of the territory (Marsden et al., 2000; Ventura et al., 2008; Goodman, 2009; Bowen, 2010; Bowen & De Master, 2011), and on the other hand, the articulation of the different agents involved in the local food chain in a common project based on their cooperation and own territory (Marsden & Sonnino, 2008; Darnhofer, 2015; Bui et al., 2016).

## **Agreecology-oriented local food policies in Spain**

**Daniel Lopez-Garcia**

Fundacion Entretantos, Spain

The Spanish network of Red de Ciudades por la Agreecología began its process of creation in 2017, and in 2019 it has been joined by 14 municipalities, most of them province or region capitals. It was created as a tool to exchange doubts, experiences and resources among cities, with the support of local civic organizations. In this year, the network could also open paths and spaces for agroecology oriented innovation in public policies, especially developing alliances: food policies and feminism; food policies and social inclusion policies; urban-rural linkages.

## **Parma Bio-district for Territory development: a Stakeholder Analysis**

**Juan Pablo Sciurano**

Parma University, Italy

Bio- Districts or Eco-Regions represent a growing and innovative model of rural development in different European countries. Their goal is promoting sustainable development involving organic farmers' associations, local governments and other local stakeholders. Parma, the capital of the "Food Valley", has been officially nominated a UNESCO "Creative City for gastronomy" is home to the largest organic cultivated area in Emilia Romagna. Big food companies (e.g. Barilla, Parmalat, Mutti), small producers and food markets, rural festivals, and Solidarity Purchasing Groups all co-exist in the area representing different agricultural models. On one hand, there is an intensive export-oriented agricultural model, and on the

other, small farms oriented to preserve biodiversity and a direct relationship with consumers. The Bio-distretto of Parma has been in existence and developing since 2018. It aims at increasing organic and agroecological food production, sustainable farming practices, strengthening the value chains and a direct relationship between producers and consumers within the Province. The University of Parma was invited to participate in this process thanks to its expertise and skills in all areas of the food sector, it plays the role of facilitator, creating a dialogue among heterogeneous actors. This allowed the creation of a networking platform to exchange ideas and problems and find common solutions to increase organic agricultural model. The aim of this paper is to identify the tradeoff among different actors' interests involved in Parma bio-district, using the methodology of stakeholder Analysis. A large number of stakeholders have been interviewed and involved in the project, from different categories: production (producers and processing firms), distribution (the Agri-food and logistic Center of Parma, retailers, Solidarity Purchasing Groups, local markets, restaurants), services/research and technology transfer (University of Parma, Podere Stuard, the experimental Station for the Food Preserving Industry –SSICA), and institutions and local associations including both producer and consumer associations. Research Team: Marianna Guareschi Andrea Pronti Michele Maccari Juan Pablo Sciarano

## **Agroecological terroir: empowering the local food system**

**Srdjan I. Šeremešić**

University of Novi Sad, Serbia

This abstract seeks to contribute discussion about food quality in promotion of the agroecology. Term terroir gain much attention related with viticulture and has been extensively used in describing the sense of place that involves complex interaction of climate, soil, geomorphology and variety. It is associated with some specific practices, not usually ecological, that configures the final product and distinguishes it from others. Recently terroir has been recognized in production of olives, winter wheat and cheese. This term coincides with the agroecology and could foster synergies under framework of agroecology, however no simple relation can be established. While terroir units can differ in scale and vary in size they represent clearly defined physical environment recognized though enhanced food quality. On the other hand, agroecology is more focused to maintain the production resources and aim at application of practices that improve agroecosystem as whole that is eventually beneficial for the food system. Therefore, combination of agroecology and terroir could give a sense of enhanced food quality while maintaining the resources. It is particularly interesting that terroir indicate the taste and span the idea from "seed to stomach". In another other context, it could help encompasses the local food systems and make it more visible and recognizable. Continuous augmentation of the resources by agroecological practices can give environmental benefits and may result with improved food quality. While environmental

condition is easy to quantify, the effects on food system can be difficult to measure and explain. Thereby, integration of terroir and agroecology could add specific nutritional experience to agricultural product and help scaling up agroecology. Consequently, benefit from terroir recognition under the framework of agroecological practices could be more appealing for consumers and may represent the strategic option in promotion of the different agricultural regions.

- **Session 4. Knowledge & practice**

The presentations of Session 4 can be found [here](#)

### **Agroecological system development: challenges and performances**

#### **Alain Peeters**

RHEA, Belgium

The 'Agroecological Alternative' is an action research program developing agroecological systems in real farms in a holistic and participatory way. During the last seven years, eight farms were involved in the project. This allowed to develop a methodology for the transition period and the mature phase of these systems. The methodology includes several steps and conditions that have been designed to take up the challenge of producing acceptable yields from the first year of the transition on soils whose fertility is ruined after many years of intensive soil cultivation and the use of soluble nitrogen.

The paper explains these steps and the practices involved. It describes the environmental, social and economic performances of the system.

### **Diversification as a key to analyse French farms in Organic Farming and as a basis for a national typology**

#### **Marc Benoit**

INRA, France

Farms in organic farming (OF) are constrained by specifications, but their technical success on the long term can depend on their ability to implement the principles of agroecology. Among these, the complexity of the farming system through the diversification of productions and their interactions is a major lever. While conventional farms are first defined by their type of specialization (see The Farm Accountancy Data Network - FADN at European level for example), we propose the construction of a typology of farms in OF taking into account the types of combinations of production implemented. This typology is based on all farms certified in AB in France in 2017 (n=36000). For this purpose, we have at our disposal the definition of the enterprises present in each farm in terms of surface areas per production



and animal numbers per type of species and production. In addition to the national typology, we propose a typological analysis by French region in order to identify regional specificities, trying to relate them to the pedoclimatic conditions of production, the proximity of consumption basins, etc. For this work, we use two specific statistical methods: variable clustering (R package ClustOfVar) and a hierarchical clustering with spatial constraints (R package ClustGeo).

## **Sewing territories through organic. Initiatives in two Italian biodistricts**

**Luca Colombo and Luca Rossetto**

FIBRAB, Italy

### *Introduction*

The spread of agroecological farming in Europe requires a broad transition based on innovation and dissemination of knowledge that solicit the technical-productive as well as the socio-economic and institutional spheres. As part of the agroecological realm and as a prominent alternative farming system in the marketplace, organic agriculture has already embraced such transition (Eyknorn et al, 2019) and it is now undertaking new challenges to enlarge its operative domain beyond the farm boundaries.

Networking organic farmers and processors, thus strengthening communitarian dynamics, encourages the co-creation and sharing of know-how that accelerate the sectors' scaling out process in a context where learning-by-doing still remains a common feature (Delate et al., 2016).

Organic districts (biodistretti, in Italian; biodistricts, in globish), associations aimed at strengthening a multi-stakeholder engagement that involves organic farmers, civil society actors, economic operators and institutions, represent an interesting means to mobilise such transition and scalability processes towards a greater territorial sustainability and an extended citizens consensus.

Organic districts have similarities respect to agricultural, food and rural districts (Toccacelli, 2015). However, the organic is not restricted to farm practices and the food supply chain, but it is extended to overall society living the district.

Here we discuss the achievements obtained in two recently established organic districts in Veneto Region (North Eastern Italy) through the activities carried out in the Territori Bio (Italian acronym for Terroirs and Rural Networks for Technological and Organizational Innovations addressed to Organic Farms) innovation project.

### *Evidence*

Funded by the Rural Development Plan (RDP) of the Veneto Region and launched in early 2018, the Territori Bio innovation project pools together two biodistretti (BioVenezia e Colli Euganei), a cooperative winery, a number of organic farms, a land reclamation and drainage consortium, the Local Action Group (LAG) and two research institutions (Padua University

and the Italian Foundation for Research in Organic and Biodynamic Agriculture - FIRAB). The project fosters organic farmers' technical and organisational capacity within the area of the two organic districts, aiming to induce the overall organic acreage increase, to reduce the pesticides pressure on the territory, to trigger the local ecosystem integrity and to qualify productions both at agronomic and marketing level.

Identifying the biodistrict concept as a strategic tool, the project aims at favouring the conversion to organic agriculture as well as to give assistance in solving technical, economic and organisational problems by directly promoting agroecologically-sound farming approaches. Special priority is given to the establishment of an operational hub capable of coordinating solutions among farmers, which revolves around the establishment of an innovative model called COPA (Italian acronym for Guidance, Propulsion and Coaching Center). The Guidance activity is dedicated to conventional farmers and other stakeholders interested in exploring the enabling conditions to convert conventional into organic agriculture (certification options, including group certification; agro-technical advisory; exploration of market opportunities and strategies). The Coaching dimension is instead addressed to organic and in-transition farms located in the biodistretti areas, which are technically supported in their productive endeavour through a specialised advisory service displayed by the project.

Accordingly, the Territori Bio project has set up a network of technical advisers specialised in organic farming which operates in each organic district. The arrangement of a local advisory system in organic is meant to increase and improve the overall technical capacity the producers may benefit of. The two biodistretti individually selected the technical team tasked of delivering technical support; though, to coordinate efforts, the two groups share the same operative electronic platform in the form of a dedicated e-ticketing device aimed at matching extension needs & offers in real time. Moreover, the two groups of advisors meet regularly to share technical and organisational matters and to discuss results of the project's field experiments (e.g. on cupric applications reduction and related alternatives in grapevines).

The delivery of technical expertise and the implementation of farmer-to-farmer exchange (6 are scheduled along the whole project duration to share specific challenges and farm innovations), are strengthened through a manual on agroecology ([https://www.territoribio.it/wp-content/uploads/2019/01/TerritoriBIO-Agroecologia\\_web-def.pdf](https://www.territoribio.it/wp-content/uploads/2019/01/TerritoriBIO-Agroecologia_web-def.pdf)) that provides both conceptual and hands-on information to practice 'good organic', and a number of technical sheets, in the form of practice abstracts, that support technical training activities aimed at developing farmers' capacities on organic agriculture (483 hours of technical training over the whole project duration).

Socio-economic feature explorations are also a substantial part of the entire collaborative innovation system implemented throughout the project: this is carried out, inter alia, through the evaluation of the territory and environmental value embedded in organic local products and in their placement in the reference markets.

### *Final considerations*

The organic districts constitution presupposes the adoption of a participatory approach to the governance of the territory. The Colli Euganei and BioVenezia biodistricts, involved in the Territori Bio project, are not only dissimilar in physical area, landscape and agricultural productivity, but also have a different sedimentation of historical and cultural values and farming knowledge. Consequently, the two organic districts are facing different fundamentals and challenges, as a farm size pattern, agro-food chains and socio-economic features or distinct wild animals and pest pressure. Yet, the definition of a territory inherent to the concept of organic districts becomes a unifying factor giving birth to new "extended governance" opportunities (Brunori et al., 2016) where organic producers, other economic actors (food processors, tourist operators, Horeca businesses), public institutions and civil society organisations concur to conservation and promotion activities.

## **Restoring natural grasslands: co-building farmers' knowledge**

### **Jean-Luc Campagne**

Geyser Association, France

Since 2017, the Saint-Flour Community (which includes several municipalities in a small region in the heart of the Massif Central) is carrying out, as part of its agricultural and rural intervention program, an experimentation project for the harvesting and sowing of local natural grassland seeds, in partnership with the Agricultural School Louis Mallet of Saint-Flour - Volzac, the National Botanical Conservatory of the Massif Central (CBN), the Conservatory of natural areas of Auvergne (CEN), the Geyser association, and the National Institute of Agronomic Research (INRA).

The purpose of the project is to maintain and to find a grassland flora typical of the various conditions present on the community of commune, the farmers being confronted in recent years with problems of degradation of the grasslands, due to the multiplication of the episodes of drought, to the phenomena of overgrowth of the ground vole, and sometimes also to management practices that weaken the ability to renew the flora. It is therefore a question of responding to farmers' need to restore natural grasslands thanks to seeds derived from indigenous flora, by relying on their own experiments so that they become progressively autonomous in production and the use of these seeds.

The project has an experimental dimension and a collective dimension. The role of the Geyser association is at the same time: i) to collect, share and develop more widely in the territory the knowledge in construction for the harvest and use of local grassland seeds; ii) to support the farmers' collective to gradually create the conditions for an autonomous dynamic.

Our first hypothesis is as follows: individual and collective experiments mobilize knowledge related to the management of natural grasslands, whether they are that they are still news, unused, or endangered; they also generate new ones on how to proceed with seed harvest

and use, or how to organize within the collective. Compared to "traditional approach" collection of knowledge (which is in the context of the normal activity of the actors), we take into account the specificity of the experimental approach by questioning activity as and measure of its progress. Our proposal is to grasp this knowledge building process and to characterize them by questioning the actors of the process in each of these steps: choosing the harvest block, timing of harvest, implementation harvesting, sorting and storage of seeds, use of seeds, monitoring and management of the planted plot. We are particularly interested in the following aspects: i) the requirements (« what is important to take into account from your point of view? »), ii) the points of attention in the implementation of the different steps (« what are you paying attention to in implementing this step? »), iii) evaluation, analysis of implementation (« how do you perceive the outcome ? »; « there a meaning or a particular implication of your point of view ? »).

It is also about creating the conditions for the confrontation and sharing of this knowledge through exchanges between farmers, with project partners and more widely through their dissemination.

This leads us to our second hypothesis: the dialogue of knowledge progressively consolidates a common culture which constitutes the base of a collective dynamic that we hope to perpetuate. This common culture is forged in a process of interactions that allows different looks to cross and enrich each other.

Finally, there is also the issue of sustainability and therefore the organization and empowerment of the farmers' collective. This aspect of the approach bases our third hypothesis: the durability of a community, a collective mobilized around agroecological issues depends on its ability to mobilize, build and collectively appropriate organizational knowledges. This essential step is therefore based both on what experimentation shows in the way it works and how it works and how the group of farmers and project partners project collective dynamics.

### **A participative process to develop a multi-criteria tool for evaluating the sustainability of Italian organic farming systems characterized by durum wheat-based crop rotations**

**Ileana Iocola<sup>1</sup>, Massimo Palumbo<sup>2</sup>, Nino Virzi<sup>2</sup>, Giovanni Dara Guccione<sup>3</sup>, Pasquale De Vita<sup>2</sup>, Luca Colombo<sup>4</sup>, Stefano Canali<sup>1</sup>**

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### *Background*

The agriculture sustainability assessment is considered a difficult issue for the complexity and multidimensionality of sustainability performances and the presence of conflicting and opposing objectives. The environmental, economic and social pillars need to be simultaneously considered in an evaluation framework in order to properly take into account potential synergies and trade-offs of the agricultural processes and to identify more sustainable and suitable production systems.

Among several assessment methods, tools based on multi-criteria analysis (MCA) are becoming increasingly relevant in agriculture as they can evaluate simultaneously the three sustainability dimensions, assess contrasting and conflicting criteria, and analyze complex decisional problems decomposing them into easier to be solved and comprehensible elements (Carpani et al. 2012). Moreover, MCA tools able to manage qualitative information are considered more effective in dealing with the multi-dimensional constraints of sustainability due to the incomparability and incommensurability of data arising from different dimensions (Sadok et al. 2008).

The aim of this work is to present the process designed and implemented within the BioDurum project (financed by the Italian Ministry of Agriculture - MiPAAFT and coordinated by the Council for Agricultural Research and Economics - CREA) to develop a new qualitative MCA tool for the sustainability assessment of organic farms located in southern Italy and characterized by durum wheat-based crop rotations. According to several authors (Colomb et al. 2013; Goma et al. 2001), to increase impact and relevance, it is important to involve potential users of an assessment model from the beginning, by their engagement in the process design. This allows to increase the confidence in the output results, to facilitate the acceptance and the utilization of the model, and to create a learning environment through which people can acquire and improve the ability to change their ways of thinking embracing a holistic approach needed for the sustainable development.

### *Implemented methodology*

The MCA tool is being developed using the open-source DEXi software (Bohanec, 2013) that have demonstrated to be particularly suitable for creating qualitative multi-criterial hierarchic models. DEXi is a software that supports the creation of decisional tree models based on the aggregation of qualitative criteria that are organized hierarchically. The basic criteria (tree leaves) generally refer to elementary concerns of sustainability. Each criterion is quantified by proper indicators. The basic criteria are aggregated by "if-then" decision-rules or utility functions (Bohanec, 2013) according to their weights to allow the qualitative assessment of the different sustainability pillars (tree branches) and the overall system sustainability (tree root). The process of the development of the BioDurum sustainability assessment tool through stakeholder involvement was structured on the following steps according to Craheix

et al. (2015): 1. Initial analysis and planning - to clarify issues, procedures and to define actors to involve in the two representative areas of BioDurum project (one in Sicily and the other across the Basilicata and Puglia regions); 2. Selection and hierarchy of the sustainability criteria - with the aim to collect through participatory workshops the stakeholder point of views on aspects, issues, and concepts considered relevant for the sustainability assessment. These issues have to be clustered and translated into criteria to be included in the hierarchic model; 3. Selection and building of the indicators- for the identification of suitable indicators and threshold values to quantify each criterion; 4. Model parameterization - to reach agreed decision rules and weights based on stakeholder consensus; 5. Validation - to perform sensitivity analysis, evaluating the model outputs, and collect further feedbacks from end-users (participating or not in the design process) to improve the model prototype; 6. Model transfer - to release the final version of the model (scheduled for June 2019).

The evaluation tool will provide suitable decision making frameworks for both farmers and policy-makers interested in the identification of agricultural practices that mostly affect or concur to sustainability.

## **Development of Sustainable Plant Protection Programs Through Multi-actor Co-innovation: an 8-year Case Study in Swedish Apple Production**

**Marco Tasin, Weronika Swiergiel, Sanja Manduric, Birgitta Rämert and Mario Porcel**

Swedish University of Agricultural Science

This presentation assesses the multi-actor co-innovation research that was carried out between 2010-2018 by researchers and apple production actors in Southern Sweden. The aim was to develop sustainable integrated pest management methods that, with the help of an agroecological whole system approach, would be implemented in practice. Whilst a novel pest management strategy based on semiochemicals arrived at and was adopted by farmers, the enhancement of biological control through functional biodiversity required long-term learning. This is explained by substantial differences in the perception of the economic risk and the necessary knowledge behind the adoption of each method. The knowledge gap due to the reduced number of extension advisors and the conflict between the cost incurred when implementing low-impact pest control methods and reduced profitability of apple crops were pointed out as major contradictions by the actors. We suggest that strengthened regional agroecological infrastructure support along with the expansion of public extension service personnel would reduce the farmer economic risk and share the responsibility for a safer environment and healthier food. Similarly, relevant authorities should be provided with resources to allow for safety assessments of candidate low-risk plant protection products at the regional scale. As a conclusion, we recognized that in our region sustainable

agroecosystem management through feasible and desirable plant protection strategies could not be developed solely by focussing on the efficiency of the tools because the cost-effectiveness and thus the implementation of such tools depended greatly on the simultaneous co-innovation of the socio-technical system. Local stakeholders need to harmonise their vision and standpoints to engender long term socially and environmentally sound objectives providing a base to promote, finance and extensively adopt innovative plant protection strategies within the Skåne region.

- **Session 5. Certification and Community Supported Agriculture systems**

The presentations of Session 5 can be found [here](#)

### **Results of the project EATingCRAFT**

#### **Federica Varini**

IFOAM – Organics International

The Education Towards the Creation of Alternative Food Networks project (EATingCRAFT) aims to design an innovative and high-quality training program focusing on up-skilling adult learners interested in building alternative food networks. The project will promote the adoption of Participatory Guarantee Systems and of Community Supported Agriculture in the Czech Republic, Hungary, and Greece.

Funded by the Erasmus+ programme of the European Union, the project is built on a strategic partnership between seven European organisations involved in sustainable food production and consumption. The partners are IFOAM – Organics International (Germany), Nature et Progrès (link is external) (France), the Association of Conscious Consumers – ACC-TVE (link is external) (Hungary) PRO-BIO Liga (link is external) (Czech Republic), MIRAMAP (link is external) (France), Agroecopolis (link is external) (Greece) and the International CSA Network URGENCI (link is external) (based in France).

Around the globe, organic farmers, consumers and facilitating organizations have been developing different innovations aiming at building local food systems based on solidarity and participation such as PGS and Community Supported Agriculture (CSA) initiatives. PGS and CSA are similar in their overall objectives of improving livelihoods of organic producers and increased access to safe and nutritious food for consumers.

The 2-year project was launched in October 2017 and will end in November 2019. By then it will produce a training program articulated in 4 modules and a trainer toolkit that will be accessible online. Each module will be tested in three European countries: Check Republic, Hungary, and Greece. The ultimate objective is that by the end of the project, these countries

will have built the tools and the capacity necessary to set up pilot PGS initiatives if local stakeholders believe that this might be a relevant approach in their local context.

Through this presentation we would like to present the output of the project, future steps in PGS implementation in the target countries and lessons learned.

## **Presenting Local Solidarity Partnerships for Agroecology (LSPA) and Social Solidarity Economy (SSE) as climate change mitigators**

**Jenny Gkiougki**

Agroecopolis, Greece & Urgenci

We would like to present the work we are doing as MEdNet for LSPA -Local solidarity partnerships for agroecology. Linking LSPA with solidarity economy as a way to address climate change.

## **Spanish PGS. Conforming a national network of unofficial guarantee systems**

**Mammen Cuellar-Padilla**

University of Cordoba, Spain

The project, developing since summer 2018, is supporting the conformation of a national network of Participatory guarantee systems. We are also conducting a social research with the 8 PGS involved, to establish the shared vision about what Agroecology is, as well as the common procedures for confidence building that they have established.

## **Certifying agroecology: tracing organic boundaries**

**Allison Marie Loconto<sup>1</sup>, Francisco Garrido-Garza<sup>1</sup>, Ivan Dufeu<sup>2</sup>, and Claire Cerdan<sup>3</sup>**

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The histories of agroecology and organic are both long and intertwined (Bellon et al., 2011). The specific terminology "agroecology" has had different uses and trajectories in scholarly literature, policies and social movements (Bellon and Ollivier, 2018; Ollivier and Bellon, 2013), where each offer up their own specific visions of the concept. These range from a science, to a set of ecology informed agronomic practices, through socio-economic values,



to political platforms (Wezel et al., 2009). Over the past ten years, the term agroecology has gained traction in research and higher education (Nicot et al., 2018), in farmers' practices, in international expert discussions, and within specific national politics; thus legitimating it as a means to achieve sustainable agriculture (Loconto and Fouilleux, 2019). One element of agroecology that has received less attention is the market for agroecological products and the institutions that are required to ensure that an 'agroecological' quality is recognized and valued in market exchanges (Loconto et al., 2018). While organic agriculture has built up a set of institutions that enable producers to know which practices deliver 'organic' quality and permit consumers to recognize this through on-package labelling (Fouilleux and Loconto, 2017), the landscape for agroecological products is rather fluid and diversified. Often, products are traded directly between producers and consumers and quality is transmitted verbally. However, there has been a general increase in the use of private labels to claim that the products are agroecological or 'beyond organic' (Poméon et al., 2019). This paper interrogates this recent movement by asking: what quality attributes are claimed through on-package labels for agroecology and how are the institutions constructed to guarantee these claims?

To answer this question, data on labels that claim they are 'agroecological' and their corresponding guarantee systems were collected through internet research, market surveillance and semi-structured interviews in Argentina, Brazil and France. This three-country comparison offers interesting insights into the overlaps and boundaries between agroecology and organic in terms of the markets that are created for their products. We explore in this research the range of claims used to characterize on-package labels. We then develop a typology of agroecological products that captures the variety of attributes and enables us to see where and how boundaries are created between agroecology and organic in three markets, where organic labels are highly regulated.

- **Session 6. Innovative Farming Practices**

The presentations of Session 6 can be found [here](#)

## **Perspectives and future research needs for no-till roller crimper in European organic vegetable systems**

**David Navarro-Miró, José M. Blanco-Moreno, Jorge Alvaro-Fuentes, Donatienne Arlotti, Martina Bavec, Ingrid Bender, Giovanni Burgio, Corrado Ciaccia, Lieven Delanote, Stefaan De Neve, Laura De Palo, Mariangela Diacono, Claudia Di Bene, Roberta Farina, Margita Hefner, Ileana Iocola, Inga Jansone, Liga Lepse, Hanne L. Kristensen, Francesco Montemurro, Alessandro Persiani, Kalvi Tamm, Elena Testani, Mesfin Tsegaye Gebremikael, Helene Vedie, Koen Willikens, F. Xavier Sans, Stefano Canali.**

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Agroecological service crops (ASC) are introduced before cash crops in order to promote agroecosystem services (Canali et al. 2015). Among European organic farmers, ASC management usually consists on mowing-chopping the ASCs and incorporating the plant material into the soil by tillage (green manure) (Peigné et al. 2016). Tillage is one of the most energy demanding operations, thus the adoption of less perturbing soil-management techniques could improve the energy performance of the cropping systems (Alluvione et al. 2011). Moreover, the reduction of the tillage intensity can enhance the physical and biological quality of the soil (Sapkota et al. 2012). Nonetheless, no-till practices are very limited in European commercial productions (Peigné et al. 2016).

Recently, no-till roller crimper (NT RC) is attracting the interest of European organic farmers and researchers (Casagrande et al. 2016), because it allows to terminate the ASC by flattening, without tillage, and thus creates a dense layer of plant residues on the soil surface (i.e., mulch). Several studies have shown the benefits of managing the ASC with NT-RC to control weeds, decrease soil erosion, and reduce the use of labor and fossil energy consumption (Altieri et al. 2011; Canali et al. 2013). Nevertheless, few studies have analyzed the effects of this technology in Europe, and most of them have been focused only in Italy (Canali et al. 2013; Ciaccia et al. 2015, 2016).

In order to fill this knowledge gap and promote a wider adoption of this technology among European farmers, the SoilVeg project (ERA-Net CORE Organic Plus), which involved 14 institutions from nine countries, aimed to study the effectiveness of NT-RC under different crops, soils and climatic conditions across Europe. Overall, the SoilVeg project results showed that NT RC dramatically reduced weed abundance at early stages of crop growth in different vegetable systems, soils and climatic conditions, which can help to enhance weed control in organic systems across Europe. From an energetic point of view, NT RC increased the potential energy that can be recycled within the cropping system, and therefore enhancing its environmental performance. However, the results also noticed lower marketable yield (i.e., 25-35% lower in NT RC) and cash crop quality under NT RC compared to green manure. The SoilVeg project also identified knowledge gaps and several important topics for further

research, which are clustered into four groups: i) screening ASC species with potential to produce enough biomass and have an attitude to be flattened; ii) identify optimal planting strategies and design new breeding programs tailored for NT RC; iii) improve no till machinery design; and iv) develop new indicators and assessments to evaluate NT RC which include environmental and social aspects.

## **Sustainability of farming systems: Developing an assessment Framework**

### **Christelle Ledroit**

Coventry University, UK

In 2015, the UN created 17 sustainable development goals (SDGs) for society. One of the main goals of SDGs is to promote sustainable agriculture by finding “universal, holistic and measurable” solutions. Multidisciplinary research is necessary if we are to understand and assess sustainability.

However, we lack adequate assessment tools that take a holistic approach to measuring the sustainability of agriculture. In my research, I have developed a framework that combines the three pillars of sustainability (environment, social and economic), and applied it to a model system: Cotton farming in India.

Cotton is one of the most polluting crops in the world, as it requires high inputs of both pesticides and fertilizers. Globally, India is the second highest producer of cotton, yet it is also the country with one of the lowest yields per hectare. There is a clear need to produce cotton sustainably while improving yields, and India has introduced Bt cotton in attempt to do this. Even if India is the top producer of organic cotton in the world, the movement to grow cotton organically only represent a small percentage. There is a strong need to be able to compare the impact of these farming systems, but there have been no assessments that combine the economic outputs together with the environmental impact and the societal consequences for farmers. The framework I developed, combines primary data collection from field studies and farmer interviews to deliver a holistic assessment of these different systems. The developed framework assesses the whole system from the soil to the farmers' knowledge. It is a generic system that could be applied to any crop. I will outline the process of the framework development, the methodology of collecting the primary data and how I have analyzed the data. The final goal will be to assemble the collected data together to compare the sustainability of different cotton production systems and how they can contribute to the SDGs.

## **The logics of farming practices: Mapping innovative and alternative practices with agroecological potentials in three irrigated plains in North Africa**

**Fatah Ameur, Crystele Leauthaud, Hichem Amichi**

<sup>1</sup>Cread, Algeria

In the irrigated plains of North Africa, the sustainability of productive resources is subject to several threats linked to the productivist model of irrigated agriculture. These threats prompt farmers to mobilize depleting productive resources. In order to reduce vulnerabilities and sustain their farming systems, farmers can update their adaptive strategies by setting-up innovative, alternative, farming practices that in conjunction enable them to sustain farm profitability. This study aims at mapping and analyzing such existing local farming practices with agroecological potentials. Our approach is based on direct observations combined with interviews with farmers in three irrigated plains in the Maghreb: the Merguellil, Upper Cheliff and Saiss plains, respectively in Tunisia, Algeria and Morocco.

This study shows that, while intensive agricultural practices do characterize most farming systems, there co-exists, at the same time, a wide range of alternative practices that valorize ecological processes in some way or another. The most common practices are developed to improve soil fertility management (production of diluted liquid manure, organic fertilization, integration of leguminous plants into the rotation), to enhance land use efficiency (crop rotation, intercropping, relay intercropping, agroforestry) or to provide multiple ecosystem services (diversification, livestock integration). For example, and in the sense of "hitting two targets with one shot", farmers combine two or more crops on the same plot in order to (1) increase land-use efficiency to face land fragmentation linked to inheritance issues; (2) diversify their cropping strategy and spread out market-related risks; (3) reduce expensive production costs related to irrigation, chemical fertilization, etc. Our analysis of farmers' logics shows that economic reasons undoubtedly take precedence overall environmental concerns. This is why these innovative practices are considered as (1) access to low-input and low-cost strategies for small farmers; (2) as a pathway to international markets for agribusiness farmers, rather than agroecological practices per se.

In plains like those of the Maghreb, intensive and conventional practices, associated with environmental threats, coexist with a wide variety of practices with agroecological potentials. Putting the farmer first and mobilizing their extensive local knowledge can contribute to the field of agroecology. Such practices may pave the way for a more sustainable agricultural development.

## How to foster innovative farming practices with agroecological potentials?

### Discussion

**C. Leauthaud<sup>1</sup>, F. Ameur<sup>2</sup>, H. Amichi<sup>3</sup>, L. Hossard<sup>4</sup>**

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Irrigated agriculture is a major feature of the Mediterranean basin, and has expanded tremendously in the past decades, through access to a previously untapped resource, i.e. groundwater. This rapid expansion is not isolated from agricultural policies that promote productivist models of agriculture, thus producing indirectly the depletion of natural resources. Within the perspective of global challenges linked to food security, poverty alleviation and natural resources' degradation in conjunction with climate change, irrigated agriculture is of vital importance to maintain viable farming systems within the Mediterranean basin, and to improve economies and livelihoods of rural populations. Yet, small-scale irrigated farming systems face vulnerabilities such as quantitative and qualitative water depletion, soil degradation, unequal access to productive resources and asymmetries in the access to markets and information, all producing (and produced by) socioeconomic inequalities.

The objectives of this session are to (i) identify and characterize existing local innovations with agroecological potential (i.e. valorising ecological processes and providing ecosystem services) developed by small-scale farmers in irrigated landscapes, and (ii) understand the context in which such practices have emerged or been adopted. We hypothesize that these capacities of adaptations and innovations, that exist locally, can mitigate different types of vulnerabilities previously cited. This session aims at stimulating discussions on bottom-up and participatory research that seeks to understand, and improve, farming practices based on existing local innovations in irrigated landscapes.

Communications can, in particular, focus on identifying one or a combination of local innovations at different scales (plots, farms, landscape) that allow to maintain productive and more environmentally sustainable low-input systems, focusing in particular on on-farm improved efficiency of input uses and water efficient cropping systems. Presentations with an action-oriented and/or participatory approach, with an emphasis on social learning e.g., through the inclusion of farmers and institutional actors, are welcome. Presentations are also invited to be transdisciplinary, with disciplines such as agronomy, water and environmental sciences, ecology, economy and political science. All these disciplines will contribute to qualifying the socio-ecological system of irrigated agriculture within an interdisciplinary cognitive framework.

# WORKSHOPS

- **Workshop 1. Education and Training**

The presentations and Output of Workshop 1 can be found [here](#)

## **Aristotle revisited – Educating the next generation of professionals for a green shift in the agrifood system (the NEXTFOOD project)**

### **Geir Hofgaard Lieblein**

Norwegian University of Life Sciences

Inherent transdisciplinarity of sustainable development introduces new challenges to educators to design a learning landscape that will prepare future professionals with competences to enable a green shift in the agrifood system. Knowledge about sustainable development is essential but not sufficient, as knowledge alone does not necessarily lead to action. Education must foster competences needed to overcome this disparity. Thus, the challenge is to design and implement an effective learning strategy that enhances both the learners' understanding of complex situations and their individual and collective skills and abilities to take responsible action.

Aristotle placed observation, the empirical domain, at the core of knowledge. Transcending the pure theoretical knowledge, he described phronesis as practical wisdom, a form of knowledge that is normative and directed towards action. As such, it involves ethics. Phronesis is a form of knowledge that cannot be acquired by reading alone. It is developed through experience, reflection and dialogue, and in being exposed to relevant contexts. Phronesis has received increased attention in education over the past years. We propose that a greater emphasis on phronesis in education can be fruitful for students to cross the gap between knowledge and action. In the H2020 NEXTFOOD project we are developing and exploring models to drive the crucial transformation to more sustainable agrifood and forestry systems. With 19 partners from 13 countries in Europe, Africa, Asia and South-America, we employ systems approaches where researchers, students, farmers and other stakeholders are involved as important co-creators of knowledge and innovation, as well as its implementation. We challenge the linear view of knowledge transfer as an ineffective process of promoting change. The core of this project is action learning and action research where knowledge and action competences are co-developed by all actors involved.

The aim of the workshop is to create a shared understanding of the green shift that we are aiming to achieve in education: 1) From asking the question: "What knowledge has to be acquired?" to "What competences should be developed?" 2) From theory to phenomenon as the starting point for the learning process that will serve as a guide to action.

## **Enhancing critical thinking in Agroecology. The role of active learning in Higher Education**

**Elisabetta Nigris<sup>1</sup>, Franco Passalacqua<sup>1</sup>, Stefano Bocchi<sup>2</sup>**

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Great emphasis has been recently placed on the development of active learning methodologies in Higher Education and in the professional development of professors (European Commission, 2014; 2017). The contribution aims to verify the validity in a Higher Education of active teaching methodologies built on Philosophical Debate (Nicolli, Cattani, 2006) and Mock Trial methodology (Bengtson, Sifferd, 2010) to facilitate the construction of agroecological concepts and the development of critical thinking (Ennis, 2011) in Agro-ecological Education.

The research was coordinated by agronomic and pedagogical scholars within the course of "Coltivazioni Erbacee", Degree in Management of Cultivated plants and Landscaping; Department of agricultural and environmental sciences, production, landscape, agro-energy at the State University of Milan) during the academic year 2018/2019. The study belongs to a more extensive research area of study in Higher Education which means to integrate Content Knowledge approach and Teaching and Learning Studies (Nigris, 2018; Nigris, Passalacqua, Balconi, 2019) and intends to further develop and deepen a previous research conducted in a.a. 2016/17 (Bocchi, Nigris & Passalacqua, 2017) which has analysed to the first phase of the "Didactic Transposition process" (Chevallard, 1985) in Agro-ecological Education. The data collected are focused on students learning outcomes regarding themes and issues that are characterized as "Questions Socialement vive" (Simonneaux & Legardez, 2010), in order to observe: a) the process of complex concepts construction in Environment Education; b) the development of a critical thinking and the application of an anti-reductionist approach to agro-ecological knowledge; c) the obstacles in developing systemic multi-scale approach during the study of cropping or farming systems (Bocchi, 2019). The case analysis involves a sample of 31 students attending the class. Two main tools were used to collect data: 1) ante and ex post questionnaire; 2) focus groups conducted following the analysis of questionnaires. Narrative materials from the focus groups were recorded, transcribed and analysed through thematic content analysis following a constructivist grounded approach (Creswell, 2013; Charmaz, 2014) and the triangulation of data (Janesick, 2000) and investigators (Breitmayer & Knafl, 1993) – both from a Pedagogical and agroecology.

Our expected outcomes will outline:

- the quality of the critical thinking approach developed by student;
- how students perceived their process of complex concept construction and their positioning towards socially acute questions in agroecology.

## **Environmental Culture in Agroecological Learning Communities of Mexico**

**María Virginia González-Santiago**

Chapingo Autonomous University, Mexico

The objective of this work is to compare the experiences of environmental education of two Agroecological Learning Communities (ALC) of the Movement of Peasant Schools of Mexico. It is argued that every culture is ecological, given that societies establish practical and symbolic relationships with the environment, relationships that affect both the health and the deterioration of ourselves and the environment. The problem faced by ALCs when training environmental educators is that trainees understand that the "environmental" culture is learned in daily life and, therefore, goes unnoticed. Participatory action research and transdisciplinary approach was carried out, the ethnographic method based on cultural ecology was used. The results show that the agroecological management of the territory affects the availability of food resources of each ALC, throughout the year, according to the type of agri-culture practice. The collective action of ALCs and environmental educators over the last five years has had an impact on the revaluation of food culture based on local natural resources and the conservation of biodiversity. It is concluded that although environmental education is an intentional process to train individuals and groups in the appropriation of knowledge, attitudes and sustainable practices; it has been trivialized and the culture has not been considered as a starting point and arrival point of the environmental education process. This trivialization has been overcome in the case of the ALCs studied.

## **Educating the next generation of professionals in the agrifood system.**

**Farmers' school, vocational training and higher education**

**Paola Migliorini**

Agroecology Europe, University of Gastronomic Sciences, Italy

Crucial transition to more sustainable and competitive agrifood and forestry systems development by designing and implementing education and training systems to prepare budding or already practicing professionals with competencies to push the agroecological shift in our rapidly changing society.

How practice-oriented research can be improved in order to achieve better collaboration between universities and society, to make more innovative agrifood and forestry systems, and to develop progressive agrifood community ready to tackle complex sustainability challenges of the 21st century.

The goal of the workshop is to confront different cases and practices and to define possible solutions for enabling education in Agroecology



- **Workshop 2. Genetic diversity in Mediterranean Agroecosystems**

The presentations and Output of Workshop 2 can be found [here](#)

**Innovative agrobiodiversity management for agroecological food systems: from community-based seed systems to socially recognised biodiverse food systems**

**Adanella Rossi**

University of Pisa and Rete Semi Rurali, Italy

Cultivated diversity and, through it, biodiverse food are a fundamental component of agroecological systems, allowing sustainability and resilience of food systems.

Seed management is basic to agrobiodiversity. Next to its importance in production, food security and rural development, seed is a key element in many debates about technology development and transfer, biodiversity, globalization and equity. The regulatory framework strongly influences how farmers access to seeds and policies have important impact on seed systems. Conservation of plant genetic resources for food and agriculture (PGRFA) in Europe was related since the '70 to the scientific community; in turn, policy in Europe has been built in a vision where conservation and agriculture are two separate domains. Agricultural policies are still fully embedded in the mainstream seed systems paradigm, where a seed system has a linear organization, where breeders (public or private) access plant genetic resources to develop new varieties that are marketed by seed companies. The role of farmers in this approach is the one of final client, not contributing in the discussion about trait selection.

Looking for genetic diversity suitable for adaptation to specific agroecological conditions asks for an innovative approach to the seed issues. The community agrobiodiversity management approach (as studied in the EU DIVERSIFOOD project) includes the usual on farm conservation of landraces but consider also participatory and decentralized innovation as part of the framework. Farmers' knowledge and experience, in interaction with all the other chain actors involved, are central here. Seed systems are complex and not linear processes, where the degree of overall progress of the system is measured by its capacity to produce innovation and quality seeds, not on its level of formality. The direct involvement of all actors in the selection process can improve its efficiency and guarantee the possibility to select the preferred traits for the specific agroecological food system.

Together with the attention paid to the enrichment and proper management of diversity in the fields, agroecological food systems requires that this diversity is properly managed along the phases of the food supply chain. Furthermore, it is crucial that final consumers are involved in the process of awareness rising and direct engagement around agrobiodiversity; their understanding and approval of values of biodiverse food is key to the creation of condition for a sustainable management of biodiverse crop systems. More in general, the

recognition of agrobiodiversity potential, through a correct view of all its components, should extend to public institutions and society at large.

## **Agroecological approach in research programs on organic tree fruits in Italy**

**Giancarlo Rocuzzo<sup>1</sup>, Corrado Ciaccia<sup>2</sup>, Elena Testani<sup>2</sup>, Danilo Ceccarelli<sup>1</sup>**

<sup>1</sup>CREA - Research Center for Olive, Citrus and Tree Fruit

<sup>2</sup>CREA - Research Centre for Agriculture and Environment

With the modernization of agriculture, farmers have lost their central role in the food system, being simply recipe implementers, with consequences on their decision-making power and opportunities. The challenge is to move away from the globally standardized and business-oriented approach of the current agriculture, toward a process of redesigning food systems, with the goal of achieving ecological, economic, and social sustainability.

We report about participatory research experiences carried out between CREA – the Council for Agricultural Research and Agricultural Economics Analysis – and organic farmers in Latium region (Central Italy) and Sicily (Southern Italy), interested and active on stone fruit and citrus production, respectively.

Farmers' priorities on research need were the identification of cultivars suitable for organic farming (100% of respondents), soil fertility management (66%), and pest control and rootstock choice (50%). Based on these preliminary data some trials are currently carried on.

The integration of Agroecological Service Crops (ASCs) into agroecosystems can provide several ecological services, such as nutrient cycling, disease and weed management. The effectiveness of substitution and redesign practices (i.e., on-farm compost and ASCs introduction) on biodiversity dynamics was verified both in experimental and in field conditions.

By acting on planned biodiversity, the ASC introduction showed a higher impact on system components than the substitution of mineral fertilizer with on-farm compost. In general, results highlighted the role of the agroecological practices towards agrobiodiversity conservation and enhancement, and the relationships among the different components of the agroecosystem.

## **Grafts of Memory. Learning from tradition to raise the future**

**Pau Agost Andreu<sup>1</sup>, David Navarro-Miró<sup>1,2</sup>, Alba Canet-Martí<sup>1</sup>, Javier Puig Ochoa<sup>1,3</sup>, Alejandro Aguilar Català<sup>1</sup>**

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The traditional plant varieties are the result of a process of selection and improvement, by generations of farmers, of those individuals who were better adapted to the edaphoclimatic and cultural conditions of their environment. This process has generated a great wealth of local varieties with great genetic diversity (Tierno et al., 2016). In recent years, many international institutions have recognized the importance of conserving the genetic diversity of cultivated species, both to maintain the security and stability of the food system and to adapt to future climate scenarios, derived from global climate change (Galián 2014; Tierno et al., 2016). However, despite their recognized importance, FAO estimates that the process of genetic erosion that has occurred over the last century has resulted in the loss of 75% of the world's agricultural diversity (FAO 2010), and this negative trend continues.

In the last decades, in the Valencian community (Spain), an important loss of diversity in horticultural and fruit trees has been observed (Iriondo et al., 2010). More recent studies point out that the loss of traditional varieties of fruit trees (hereinafter, TVFT) is alarming in the southeast of Spain, and the implementation of actions for their conservation is considered urgent (Llanes 2013; Galián 2014). The conservation of TVFT is considered a priority due to the great diversity and uniqueness of the genetic information they contain, which makes them more adaptable to climate change and susceptible to being used in genetic improvement. Its recovery and revaluation can help to diversify the crops of marginal rural areas, contributing to the development of new socioeconomic activities (Pérez 2014, Tierno et al., 2016). For these reasons, public and private initiatives are being undertaken in various regions of Spain for the prospecting, characterization and conservation of TVFT (Iriondo et al., 2010, Tierno et al., 2016). In spite of this, in the Valencian Community the majority of efforts have focused on conserving traditional varieties of horticultural crops at risk of genetic erosion, while the conservation of the genetic variability of fruit trees has focused mainly on citrus fruits (e.g. through the creation of the Citrus Germplasm Bank of the IVIA).

The natural park of the Sierra de Espadán (hereinafter, SE) (Castellón, Spain) has been the framework of numerous studies due to its environmental, cultural and historical wealth. In addition, the SE continues to preserve practices and elements of traditional agricultural systems, as well as ethnobotanical and genetic resources, which can provide tools to propose a more sustainable agriculture compatible with the conservation of the natural environment (Carrascosa and Felipe 2012; Mallach 2013). Mallach (2013) developed an important study in the SE in which some traditional varieties of legumes, vegetables and cereals were prospected and characterized. This study highlighted the dramatic situation of traditional varieties of fruit trees and urged to take action for their prospecting and recovery.

Faced with the serious threat of disappearance suffered by many traditional varieties of fruit trees in the Sierra de Espadán, the project Grafts of Memory. Learning from tradition to raise the future, promoted by the association Connecta Natura, is based on the creation of several TVFT collections in various points of the SE fields, using the tool of land stewardship. The goal of these collections will be the conservation of the varieties, their characterization and

the study of their response to the current climatic change scenario. Furthermore, the conservation of these varieties preserves both a source of valuable phylogenetic resources and the traditional knowledge associated with these crops. In addition, through the recovery and promotion of the use of the TVFT and their associated knowledge, we want to achieve the diversification of the crops of the SE, as well as the promotion of the agro-ecological transition that makes agricultural activity compatible with the conservation of the natural environment and improves the adaptability of crops to the conditions of climate change.

## **Genetic diversity for low input farming in the Mediterranean area**

### **Christina Vakali**

Aegilops, Greece

Organic production is an overall system of farm management and food production that combines best environmental and climate action practices, a high level of biodiversity, the preservation of natural resources and the application of high production standards in line with the demand of a growing number of consumers. Seeds are the foundation of farming. Therefore, organic production should start with organic seed that has been multiplied under organic conditions, using cultivars that are adapted to the organic farming system. Applying organic seed is mandatory according to the European organic regulation, but untreated conventional seed is still used to varying extent in different countries. Besides the way seed is multiplied, the right choice of cultivar is also crucial. Cultivars for organic agriculture need specific traits: tolerance or resistance against pest and diseases, a fast-growing root system to improve the uptake of nutrients, and quick ground coverage to suppress weeds. Most seed used by organic farmers was initially bred for conventional agriculture, meaning their traits are not fully adapted to organic farming. Only a few organizations invest in organic breeding programs, mainly due to the low return on investment.

In the Mediterranean area genetic diversity of cultivated plants is very high and it is crucial to focus on the specific needs of traditional and organic farmers and help them to maximize production by using appropriate seeds. Community seed banks and traditional varieties play a very important role.

It is also important to pinpoint the role of agricultural genetic diversity generally and to find aspect of functional biodiversity that could be of prompt use for the farmers.

## • **Workshop 3. Repeasantisation**

The presentations and Output of Workshop 3 can be found [here](#)

### **Reviving for Survival: New Peasants and New Networks in Campania and Sicily, Italy**

**Tara Dourian**

The American University of Rome

Though marginalized by post-World War II productivism, peasant and peasant-like farm realities persist and continue to emerge. Since the 1990s, Italy, as in Europe, has been marked by a wave of re-peasantization—a concept introduced by rural sociologist Jan Douwe van der Ploeg to designate a mode of agriculture that is distinctively more peasant-like (Ploeg, 2008, 2018). Agroecology is foundational to this framework, insofar as farmers' autonomy and the valorization of territory-based resources are deemed essential to farm subsistence. Rather than being driven by a desire to return to an idyllic rural past, repeasantization is spurred by new, third-millennium farmers seeking viable alternatives in agri-rural livelihoods, whereby innovation is often a key element in their pursuit (Orria & Luise, 2017; Ploeg, 2008; Ventura, Brunori, Milone, & Berti, 2008).

Using a qualitative, field-based, two-case design, this study explored the manifestation of the re-peasantization phenomenon in two small farms in Campania and Sicily, in the south of Italy. Data collection relied on two main methods—descriptive field observations and face-to-face interviews—though documentary information and audio-visual documentation were additionally used. Each farm's inner operational logic, especially its practices, strategies and pursued objectives, as well as its social networks, were analyzed. The first, NOTEdi, is a farm and agricultural enterprise located in Giarratana, a village in Sicily's southeastern Ragusa province that produces, processes and sells saffron and other aromatic and officinal plants. Metafarm, the second case, is a cultural association and "social food lab" located in the village of Montepertuso in Campania's Amalfi Coast, that offers a culinary-rural experience called "gastronomic trekking" (GT), where visitors are invited to forage, cook and eat wild foods, while learning about the place's agricultural heritage.

Contextual specificities, such as local governance, socio-cultural norms and geographic location, were fundamental for understanding the perceived opportunities and limitations that guide the farms' logics. Findings revealed that the two cases implement strategies strongly grounded in both the material and immaterial resources of their territories—namely the natural environment, the hybrid use of traditional and expert knowledge, and the constructed social relations. Being innovative in their network composition encouraged the diversification of market opportunities and activities (e.g.: tourism, education, product processing and sales). In distinct ways, both farms apply the "origin of food approach" to

develop and promote their initiatives, through which traditional practices and products are restored and valorized (Fonte, 2008). What fundamentally distinguishes one case from the other is that agricultural production per se is more evidently a central activity for NOTEdi than it is for Metafarm, thus challenging the notion of productivity as it is considered in the framework of re-peasantization.

While contributing to the documentation of contemporary rurality in Italy and Europe, these two distinct expressions of re-peasantization present innovative ways of farming that seek to limit economic and environmental costs, and foster autonomy. Such initiatives could however benefit from more supportive policies at the sub-regional level.

## **New peasantries in the Mediterranean mountains. Case studies from Andalusia and Sicily.**

**Carlotta Ebbreo**

University of Calabria, Italy

This presentation aims to share part of the preliminary results of my PhD thesis concerning dynamic, opportunity and limits of "repeasantization" (Van Der Ploeg, 2013, Altieri, Rosset, 2017) in the mountains territories of Southern Europe. The empiric elements of this comparative research are issued from case studies from Andalusia (Spain) and Sicily (Italy). In these contexts, I have been working with new entrants into farming (Monllor, 2011), both back to the landers (Halfacree, 2011) and the local first generation of farmers, as well as with second generations of farmers: all of them are developing experiences of small scale family farming (Van Der Ploeg, 2016).

The socio-ecological context of this research is the Mediterranean mountain. The research acknowledges the problem of social and cultural marginalization of these territories as influenced by the agrarian modernization patterns as well as by the current "food regime" (Freedman, 2005, Mcmichael, 2016). More in particular depopulation, agrarian deactivation, and the negative ecological consequences of traditional agricultural activities abandoning are dynamics that characterize these territories. The vicious circle these territories are experiencing is synthesizable as triple erosion: social, ecological and demographic. The research argues that agroecology driven by peasant agriculture (Van Der Ploeg, 2012) can be the paradigm for regenerating these territories. A territorial approach rather than a focus on agriculture dynamics is needed to watch at the future of these areas and their actors. In fact, new peasants, especially new entrants into farming, need to be supported as part of a territorial strategy watching "food as commons" (Vivero Pol, Ferrando et al., 2019). During the empiric study, in order to focus on the issues of agrarian repopulation, farmers aging and agrarian deactivation, the research has been mainly focused on young new peasantries (<40). Study cases have been different such as family farms, producers' cooperative, production and consumers' cooperatives. However, other actors' concerns have

been taken into consideration such as voices from local farmers, dealers, local politics stakeholders, activists. The following variables have been observed: subjectivity; access to resources, such as water, land, knowledge, and capitals; model of production; networks and fluxes of exchanges; local food system governance and praxis. Ethnographic diary, discursive interviews, semi-structured interviews (inspired by the OSALA survey [www.osala-agroecologia.org](http://www.osala-agroecologia.org)) have been the methods for data collection. The concepts of localization, demercification, and reproductive work have been the major frames for this analysis. The following preliminary conclusions emerged from the research: first, abandoned agricultural areas are lands where back to the landers develop rights to use natural resources alternative to private access; commons as a governance system (Ostrom, 1991) is a system of rural community building between locals and new farmers whenever they open space for negotiation between new and old inhabitants; cooperative credits are important systems of access to capitals for new entrants into farming; deep sustainability as well as moral economy are important frame for the subjective choice to start farming as well as for the decisions concerning the model of production. Moreover, two more elements result source of long term planning of new entrants into farming moving into mountain areas, first facilitation to basic services such as access to housing, education and welfare system; second, models of organization that tends to the governance of food system as commons (Vivero Pol, Ferrando et al., 2019) that focus on farming system with a frame comprehensive of both the productive and the reproductive work.

- **Workshop 4. Research aspects**

The presentations and Output of Workshop 4 can be found [here](#)

### **Research on Agroecology. Methodological and operational issues**

**George Vlahos**

Agricultural University of Athens, Greece

Research on a multifaceted concept such as agroecology is a challenge. In addition to the multiplicity of disciplines, variety of approaches, different scales and levels employed, one should consider the need for using local knowledge, the importance of social capital as well as the role of governance in the analysis. In an attempt to unravel this complex issue, we propose a workshop to discuss our experiences, the challenges we faced and the attempted approaches during the course of a multi-actor research project, UNderstanding and Improving the Sustainability of agro-ECOLOGical farming systems in the EU (UNISECO).

## **Framing agroecological farming in organic rice**

**Valentina Vaglia**

University of Milan

Organized by members of: AIDA (Agroecology Italy), University of Milan, Rete Semi Rurali.

Starting from the presentation of the case study: participatory research for innovation in organic rice farming, in North Italy. We would underline the importance of some bullet point:

- Agroecological farming, biodiversity conservation and agrobiodiversity as a lever to changeover the farming systems
- Agroecological farming: the problem of having conventional neighbours
- How to develop a multi-stakeholders participatory research
- How to create and mapping an European network of organic rice producers

The aim of the presentation is showing that multi-stakeholders participatory research can be an instrument to facilitate the transition to agroecological farming systems and to develop agronomical and social innovations. Starting from general aspects about the methodology and the process of participatory research, we would present concrete examples of how participatory research might be applied to solve practical and concrete issues.

## **Innovation in agroforestry: the HYDROUSA project**

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A major issue of concern specifically in the Mediterranean (MED) basin is water scarcity. This is becoming more important under a changing climate. In particular, the Mediterranean basin is characterized by unequal distribution of water demand to available supply, both spatially and temporally (UNEP/MAP, 2016), with water reserves less than 500 m<sup>3</sup>/capita/year, ('structural shortage') in many countries (GWP, 2012). This water shortage may be attributed to a number of factors ranging from climate change to industrialization, climate change and agriculture (Scoullou & Feggarina, 2010). Agriculture, in specific, is considered as the most water intensive activity since it consumes 72% of the total freshwater in the MED region (Masia et al., 2018). This problem is drawing more attention lately as several drought incidents raise more voices of concern and public awareness. Agroforestry, the practice of combining woody vegetation with agricultural crops and/or livestock, can play a major role in water economy and preserving natural resources. Even if it is well known that



trees provide shade and reduce evapotranspiration while protecting underlying vegetation from solar radiation, there is limited research to support this. This quest represents one of the goals of the HYDROUSA project. In specific, the HYDROUSA Horizon 2020 project aims to setup, demonstrate and optimise on-site, innovative nature based solutions (NBS) for the management of a variety of water streams, including wastewater, rainwater, groundwater, atmospheric vapour water and seawater to produce valuable resources, which can then be treated to enrich the domestic water supply and valorised to increase agricultural production and boost the economic activities of water- scarce Mediterranean areas. HYDROUSA aims at closing all water loops at local level, taking advantage of local resources, promoting the concept of decentralized on-site water, materials and energy conservation, treatment and reuse. Under the framework of the HYDROUSA project, an agroforestry plot will be established. In specific, in the Aegean island of Lesbos, the experimental plot (HYDRO 2) will be established in autumn 2019 with trees, prioritizing local species such as olives and *Quercus ithaburensis* ssp. *macrolepis* but also with some innovations tested, combined with a variety of crops including some superfood species or ancient Greek species such as Hippophaes. The agroforestry system will be irrigated with treated wastewater for fertigation while no fertilizers will be applied. The system will place emphasis on diversity creating resilient ecosystems.

## **Transdisciplinary approaches of agroecological research in Europe**

**Claudia Fernández González**

INRA, WUR Netherlands

Agroecology aims to develop scientific research grounded on farmer's knowledge, social and natural sciences by taking into consideration the local environmental, social, political and cultural context. Agroecological scientific knowledge entails diverse forms of research, for example, transdisciplinary, participatory, bottom up, top down, action-oriented and multidisciplinary, among others (Méndez et al. 2013). In principal scholars engaged in agricultural landscape transformations and food-systems aim to have an active participation of different stakeholders. However, the type of relationships between researchers from social and natural science and stakeholders, such as farmers, remain unclarified. This situation raises the question of to what extent does agroecology entails alternative research positions and methods?

This research aimed to recognize the understanding and implementation of transdisciplinary research from the scholars of agroecology in Europe. This research contributes to identifying communities of practices in agroecology at the European level and a base of concrete situations where scholars are implied. To achieve this purpose, a bibliographic review, of the compilation done by Nicot et al. (2018) and Gallardo López et al. (2018) of more than 200 articles and books published on agroecology in Europe, was done. From the literature, the methods, object of study and purpose of the research were used to recognize the

understanding and doing of transdisciplinary research. The literature review also focused on the presence, relationship and/or role of researchers, farmers and other stakeholders. This review was complemented by interviews with different researchers to understand better and map the type of interaction with the stakeholders.

As part of our results, we foresee the differences in the conception of agroecology also influence the methods and conceptions of transdisciplinary research. Despite the differences in transdisciplinarity methods, it is visible that there is a formal or semiformal partnership between researchers and stakeholders (farmers, NGO's, policymakers, among others) are occurring. There is a gradual participation of these interested parties in the investigation process; since their participation goes from being only consulted to collect information, validate the methods or hypotheses of a researcher; to being the object of research or even be the co-designers and innovators of agroecological techniques or farming systems. The degree of participation of farmers and other stakeholders, in the research process, is because they recognize that their co-interaction helps to optimize the functions of food systems or agroecosystems; they can address food sovereignty and environmental problems and the process of appropriation and innovation of new technologies.

## **The collective design of 'Agroecological Research' as an innovative driving force for sustainable development**

**Michael Tobias Löbmann<sup>1</sup>, Maaïke Happel<sup>2</sup>**

<sup>1</sup>Free University of Bozen-Bolzano, Italy

<sup>2</sup>WUR, Netherlands

Agroecology aims at enhancing sustainable food production via integration of stakeholders' perspectives and through a holistic approach including in-depth evaluation of social, economic and biological conditions. A classic agroecological approach starts with intensive interaction with stakeholders in order to analyze problem situations and to set the scope of action within social, economic and biological limitations. The second step would be to find and apply viable solutions for the defined problem situations. Practical experience and profound knowledge in many different scientific fields are necessary in order to address individual problem situations with appropriate expertise. Therefore, it is important that experts from different scientific fields work together in planning and examination of agroecological projects. In contrast to such agroecological approaches, collaboration across research disciplines is rather rare in European agricultural research. In addition, research questions are often based on previous scientific literature rather than on concrete needs, opinions and wishes of stakeholders. A basic problem for researchers is that the term 'Agroecological Research' lacks a proper definition. In addition, the definition and practice of 'multidisciplinarity' may be differently interpreted according to discipline. Another problem may be that agroecological frameworks and tools are well designed for local development

projects, but not for larger multidisciplinary research projects on a national or international scale. Ideally, a multidisciplinary and adaptive framework could be developed, in which various scientific disciplines support each other with their consecutive strengths.

- **Workshop 5. Public image of farmers**

The presentations and Output of Workshop 5 can be found [here](#)

**The public image of farmers: abusers or saviours? Finding ways to balance the portrayal of farmers.**

**James Henty Williams<sup>1</sup>, Marzia Ranaldo<sup>2</sup>, Alexander Wezel<sup>2</sup>**

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Recently there have been a number of notable articles and reports that have generated sensational headlines. These headlines are likely to have shifted public perceptions of farming and its impact on the environment. For example, "Insectageddon: farming is more catastrophic than climate breakdown" (George Monbiot, October 2017). The image that such headlines portray liken farmers to abusers of the environment, laying to waste to the land, poisoning and impoverishing our environment; creators of "wildlife deserts" and "contaminated foods". All farmers can be tainted by such images, whatever the farming system or paradigm embraced. Environmentally conscious farmers can sometimes be depicted as naïve, 'hippies' or even selfish because they do not recognise the scale of the issue to securely 'feed the world'. Headlines with coarse depictions of 'farming' and 'agriculture' ignore individuals. Individual farmers may feel personally attacked; it is their life's work and livelihoods that are implicated and assaulted by such generic headlines. These headlines and images raise many questions about how society perceives the role of farmers. Farmers can be regarded as essential food providers, custodians of our natural and cultural heritage, as well as a threat to and destroyers of the environment and public health. The purpose of this workshop is to create an opportunity to discuss among participants the many ways farming and farmers are currently viewed by society and then, collectively, envisage 'positive images' they would like to see as to how farming in the future is portrayed, and how these 'positive images' might be realized. It should provide a 'safe space' to acknowledge that criticism from society can improve agriculture, looking in the mirror to not only see farmers as victims but as culprits too (accepting culpability). It is hoped that open and frank discussions can illuminate ways as to how the Agroecology movement can help all farmers to redeem/reform their image.

The suggested format for this workshop would be to conduct it as a facilitated mini “Futures Workshop” lasting 90 minutes, with three key phases.

1) Critique phase: An opportunity to criticize and identify issues / concerns about current portrayals and perceived public images of farming, identifying dominant themes.  
2) Fantasy phase: Provide a space that allows imaginative thinking, to create ‘utopian’ images of how farmers are seen in the future. Portrayals that are positive and desirable.  
3) Realisation phase: Collectively define realistic means (channels and strategies) to convey beneficial images of farming, to help society view all farmers in fair and positive ways. These 3 phases would be preceded by an introduction to the topic and the workshop format, lasting 10-15 minutes. Each of the 3 phases could last 20 minutes, with the remaining time for a wrap-up and summary phase at the end. The workshop should bring together people from various backgrounds to discuss and outline ideas working in small groups. Participation of farmers should be particularly invited and welcomed, along with representatives from social enterprises, media channels, scientists and students.

- **Workshop 6. Scaling out**

The presentations and Output of Workshop 6 can be found [here](#)

### **Collaborating with Sustainable Community-Based Tourism Initiatives**

#### **Nikki Rose**

Crete`s Culinary Sanctuaries Educational Network, Greece

Discussion on proven initiatives supporting Agroecology through community-based tourism. Also, ways to expand and/or initiate more programs and create more global awareness of the necessity for agroecology.

### **Barriers and strategies to foster collective action in Europe, to strengthen family farming and Agroecology**

#### **Mamen Cuellar-Padilla<sup>1</sup>, Irene Iniesta-Aranda<sup>2</sup>**

<sup>1</sup>University of Cordoba, Spain

<sup>2</sup>ICTA-UAB, Spain

We have conducted a research together with 6 partners in 6 different European countries to identify the barriers for collective action, as well as some of the strategies that the agroecological organisations are developing to counter them in the different regions.

## • **Workshop 7. Political agroecology**

The presentations and Output of Workshop 7 can be found [here](#)

### **Food Populism: Building social majorities of change.**

#### **Manuel González de Molina**

University Pablo de Olavide, Spain

Scaling up agroecological experiences can only be done by mobilizing a social majority, led by peasants – whether traditional or "new" – in a global struggle for food sovereignty. Merely adding up claims of each of those damaged by the corporate food regime, fragmented and even contradictory, will not be sufficient to cement such a heterogeneous social alliance. A holistic political proposal is necessary, capable of promoting changes in production as well as in distribution and consumption. We called this proposal food populism, in accordance with other approaches. This alliance transcends the countryside-city dichotomy, that capitalism has used and that has underpinned its progression in agriculture. Food populism is the only way cooperative and solidary exchange between the two extremes of the food chain, the basis of a sustainable food system, will be possible. Despite its transversal nature, the food populism proposal has a powerful anti-capitalist element therefore also a "class" and gender component.

### **Agroecology and Feminism as a science, movement and practice**

#### **Margriet Goris**

WUR, Netherlands, Agroecology Europe, UVF, Brazil & Cultivate Collective

Like Agroecology, Feminism is a science, movement and practice. Many social studies on Agroecology build on the work of feminist scholars such as Judith Butler, Donna Haraway or e.g. Bell Hooks. In many countries worldwide the agroecology movement is connected to the feminist movement. And just as Agroecology, Feminism is about emancipation enacted in daily life, about practices that liberate people from neoliberalism and the patriarchal system.

Feminist theory contributes in different modes of thinking, such as non-dualistic thinking, thinking in imbricated processes and transnational thinking to reveal specific connectivities (Ferguson, 2017; Sato, 2013). This different modes of thinking trigger the problematizing of new categories such as the category 'human' to put in question people's domination of other species. Feminist theorists work with tools such as intersectionality, interdisciplinarity, scholar-activism to address questions on subjectivity, narrative, materiality, neoliberalism and climate change (Ferguson, 2017).

In this workshop we like to explore with the participants feminist works that allows us to understand and to strengthen the transition to agroecology, to discuss about how to connect both movements in Europe and to exchange experiences about feminism in the daily agroecological practices.

- **Workshop 8. Breaking the Barriers**

The presentations and Output of Workshop 8 can be found [here](#)

**What are the barriers for adopting of agroecological practices? A workshop that brings together science and practice to identify barriers, and break them down.**

**Marzia Ranaldo<sup>1</sup>, James Henty Williams<sup>2</sup>, Alexander Wezel<sup>1</sup>**

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The food system is facing unprecedented challenges to guarantee equal access to fairly priced and healthy food produced by practices that do not negatively affect but preserve the environment. Agroecology can be a way forward to make food systems more sustainable. Agroecology, as a science, a movement, and a practice is gaining in popularity, as well as credibility as an alternative to conventional agriculture. A substantial amount of research on agroecological practices has been carried out since the '90s. Despite the suitability of agroecology for answering today's farming challenges and the intense scientific effort to design and implement agroecological practices, agroecology is still not commonly practiced in Europe.

Barriers that hinder the adoption of agroecological practices can vary in their nature e.g. i) social barriers, i.e. farmer's visions about farming, rural societal norms, and level of solidarity among actors along the food supply chain; ii) technological barriers, i.e. knowledge gaps, lack of appropriate machinery, and development of new tools such as information technology; iii) economic barriers, for example need for investments, need to prove economic profitability of agroecological practices,; and iv) political barriers, for example lack of an institutional framework for agroecological practices, subsidies provision, and pressure of agri-businesses on policy making.

Furthermore, barriers for adopting agroecological practices can be analysed at different levels. At the field and farm level, technical and economic barriers may dominate, but social issues are also very relevant e.g. farmers' personal convictions and beliefs. At the local level, technical, social, economic, and policy barriers are all pertinent. For example: logistics, knowledge exchange patterns and extension services to farmers, market structures, and

access to land. Finally, barriers can be analysed at the global level, where social, macro-economic and political issues may have more relevance.

There are very few studies that have investigated the perceptions and decision-making of farmers about their up-take or not of agroecological practices.

To further a common understanding of the issues and barriers for adopting agroecological practices, and to collectively begin finding ways to break these down, we propose a workshop that brings together farmers, environmental and social scientists, and other stakeholders to explore these issues at various levels. Farmers would be strongly invited to participate and to provide their contribution. In fact, the objective of the workshop will be to analyse barriers that directly affect farmers' decision-making.

We would like to gather contributions from participants on which agroecological practices have been adopted successfully, which have failed or have not been taken up and identifying the reasons for the outcomes. Finally, the workshop aims at providing possible solutions and suggestions for the improvement and successful implementation of agroecological practices in the near future. This will be possible thanks to the combined efforts of science and practice.

- **Workshop 9. Youth networks and opportunities**

The presentations and Output of Workshop 9 can be found [here](#)

### **How to strengthen the youth agroecology movement by organising a summer school**

**Eva van Dijk, Maria-Franca Dekkers and Louise Vercruyse**

WUR, the Netherlands

Students and employees from the Wageningen University are organising an agroecology summer school every year. This 4-week summer school is called the Farm Experience Internship (FEI) and aims to connect students from the university with the practical realities from the farmers. Lectures, excursions and interactive sessions during the first week help students improve knowledge and understanding on agroecology as a science, a movement and a practice. In the second and third week the students continue their learning experience by walking along with a farmer in order to experience farming life and get a better inside in the practical realities of farming. The course is ended by a week of sharing experiences and evaluating together. This summer school originates from Brazil where the summer course was initiated with help of several agroecology movements for students to get a better understanding of the practical realities of the family farms in Brazil that are responsible for the production of approximately 70% of the food consumed in the country.

Students enjoy the course every year and get so much inspiration out of it that we think that this course should be given at more places, and that is why we would love to share our experiences and inspire and be inspired by other youth initiatives within the European agroecology movement. Therefore, we propose to give a workshop during the Agroecology Europe Forum 2019 to give an idea of what an agroecology summer school can do, what impact it has, how it strengthens the youth agroecology movement and how it can be organised anywhere else.

We hereby propose to give a workshop and address the following topics:

- History of the agroecology summer school
- Agroecology summer school in Wageningen, the Netherlands
- What is it about?
  - Agroecology as central theme
  - Connection to University
  - Relating theory to practical realities.
  - Interactive teaching methods
- How can you organise it?
- Impact and experiences from participants
- Invite the audience to share other youth initiatives that contribute to the agroecology movement

For more information, you can go to the website:

<https://farmexperienceinternship.wordpress.com/>

## **Interactive Workshop on Agroecological Networks: Defining Opportunities for Youth Empowerment and International Collaboration**

### **Tommaso Gaifami**

Agroecology Europe Youth Network (AEYN) & International Agroecology Action Network (IAEAN)

Introduction: The description of this workshop is very broad and general because we want to leave it very open and flexible. We aim to define and better sharp the topic in a participatory way with the rest of the members of both the two co-hosting groups (AEYN and IAEAN). Therefore, in the coming months, the structure and the topics proposed will be defined.

Co-hosted by: Agroecology Europe Youth Network (AEYN) and International Agroecology Action Network (IAEAN)

Objective: Identify challenges, lessons learned, and best practices for the identification of opportunities for youth empowerment and the development of professional networks for agroecology.

Facilitators: 2-4 Facilitators (pre-determined and pre-briefed)



Structure: the workshop will be very participative and most of the time will be dedicated to discussions, debates, and reflection with participants. Facilitators will provide inputs and questions as a starting point for discussions.

Potential themes:

Professional networks for AE: what are the key barriers, opportunities, and best practices?

Defining key knowledge and action gaps

Tools and platforms for networking

Opportunities for youth engagement and empowerment in AE: education and career development

- **Workshop 10. Ecosystem diversity**

The presentations and Output of Workshop 10 can be found [here](#)

### **Agroecological plant protection through habitat manipulation**

**Teun Dekker**

Swedish University of Agricultural Science, Sweden

### **Development of green infrastructure in agroecosystems as a mean towards sustainability.**

**Emmanouil Kabourakis**

Hellenic Mediterranean University, Greece

The workshop will analyse the development of Green or ecological infrastructure in agroecosystems based on the framework of Life IGIC project (Life+ programme). The project area, the Western Messara plain, is a former wetland in southern Crete, located on the island's largest aquifer. Surrounded by Natura 2000 sites, it is an area of great cultural, natural and agricultural value, with rich diversity in flora, fauna, geology, landforms, climate and soils. The valley area faces natural pressures mainly due to the dry climate that are expected to increase due to climate change. The widespread occurrence of shallow and/or coarse textured soils, inadequate or excessive drainage, steep slopes subject to erosion, and the annual variations in temperature and rainfall do not favour farming. In spite of this, the area's economy is based on agriculture, with intensive cultivation of a few crops and excessive use of inputs from non-renewable sources.

Land-use changes land clearing, overgrazing and agricultural intensification, along with intensive use of agrochemicals and water irrigation, have had a strong adverse impact on

the area's natural resources and ecosystem services. In particular, the intensification of farming has gradually decreased food availability and habitat quality for wildlife.

The project area can be considered a representative example of a degraded ecosystem surrounded by protected areas, where any action taken following the High Nature Value (HNV) farming concept will contribute to an improvement of the ecological coherence of the Natura 2000 network and to biodiversity conservation.

- **Workshop 11. Sustainability in the Mediterranean**

The presentations and Output of Workshop 11 can be found [here](#)

### **SustainABILITY at food systems in the Mediterranean**

#### **Charikleia Minotou & Constantinos Machairas**

IFOAM-ABM, Greece

Sustainability is a concept signifying that the activities can be done indefinitely without compromising the ability of others to also conduct their respective activities. All such activities must fit within the global capacity of the Earth to support them collectively. Sustainability encompasses ecological, social, economic, cultural and accountability dimensions. The workshop will explore concepts of Sustainability in the Mediterranean area, with regards Agroecology, agricultural biodiversity, ecosystem services, food safety and security, the food chain and certification systems. Several inputs by the IFOAM-ABM will be included in order to explore the development of the sustainability concept in the Mediterranean region.

- **Workshop 12. Mapping Agroecology**

The presentations and Output of Workshop 12 can be found [here](#)

### **AIDA (Associazione Italiana di Agroecologia –AIDA)**

#### **Stefano Bocchi<sup>1</sup>, Cesare Pacini<sup>2</sup>**

<sup>1</sup>University of Milan, Italy

<sup>2</sup>University of Firenze, Italy

The origin of Agroecology Italy

In Italy promoters of agroecological principles and practices before 2018 were scientist, farmers, citizens, students, professionalist etc alone or grouped in different associations and

organization in different regions. In order to connect people and spreading agroecological principles and practices a group of people founded AIDA (Associazione Italiana Di Agroecologia) in December 2018.

In Italy in 2017 a group of people founded OperA (Observatory of Agroecology) with the aim of contribute in the current debate about agroecology lights and shades by deepening, expanding, and disseminating practices, methods, and knowledge.

Nowadays OperA is the observatory for best practices and policies that works for AIDA.

In January 2018 Fondazione Cariplo, an Italian private institution, financed the project OperA18 which was an horizontal school that allows stakeholders to acquire the basic concepts and methodologies to understand the complexity and multifaceted nature of agroecology.

The aim of the project OperA 18 (Osservatorio per l'Agroecologia 2018) referred to creating an "agroecological school" which investigate best practices in the agro-food sector. This project built a bridge between scientific knowledge and people to implement multi-stakeholders' original learning approaches seeking to harmonize research partnerships at local levels.

Nowadays AIDA is developing OperA 19 to carry on the project and deepen aspects related to: the developments of agroecological guidelines and policy in Italy; developments of best practices for the mass-catering sector; evaluation of children health related to different diet that they consume at school.

Aims and scope of Agroecology Italy (Associazione Italiana di Agroecologia –AIDA)

AIDA is a non-profit social promotion association that proposes to carry out activities: of social utility, in favour of the associates and others in full respect of the freedom and dignity of the members.

In particular, the purpose of the Association is to share the agro-ecological vision of agricultural and food systems in synergy with other institutions operating at national and international level. The Association pursues the objectives of dissemination, protection and improvement of the key principles for agroecology. The key words and principles that we consider are for examples: diversification, biodiversity, synergy, efficiency, resilience, recycling, co-creation and sharing of knowledge, health, human and social resources, respect for animal welfare, culture and food tradition, responsible administration, solidarity and circular economy, strengthening and protection and redevelopment of the environment, territory, landscape and the water-soil-air system.

Based on a systemic, holistic, interdisciplinary and transdisciplinary approach, AIDA operates in the sectors of: agriculture, agro-silvo-pastoral, agro-food, environment, social, health education enhancing all forms of sustainable and efficient agriculture pursuing agroecological principles.

AIDA promotes: cultural and social solidarity, environmental justice, civil, social and human rights in all those sectors and enterprises that have a positive, direct or indirect effect on

ecosystem and, consequently, on the rural landscape, on the environmental and urban system.

The Association aims to support research and develop innovations, in collaboration and synergy with farmers, consultants, researchers, international cooperation bodies, free citizens, pursuing the paradigm of bottom-up innovation for both technology and production in agriculture and food systems.

AIDA believes in the transition towards disciplines and promotes participatory research blurring the barriers within the academic world. The scientific researches focus on the pillars of sustainability - social, economic, environmental and administrative (governance), in order to achieving cultural objectives and promoting the increase and sharing of knowledge, solidarity and social cohesion, improving the quality of life and well-being of people and the context in which they live.

## **Mapping agroecology in Hungary**

**Lili Sára Balogh & Katalin Rethy**

Vedegylet, Hungary

Hungary has a rich history of agricultural production, research and higher education; and there is a wide variety of alternative, sustainable agriculture and food-related initiatives. These initiatives are often fragmented in their activities while also facing barriers related to funding and an enabling policy environment. Agroecology is a term not yet widely used in Hungary and if used, it is often leading to confusion among agricultural professionals, civil society workers and policymakers alike. Agroecology has the potential to become an umbrella under which farmers, researchers, activists and consumers can gather for a common goal: to create a regenerative, socially just, healthy food system in Hungary.

The "Mapping Agroecology in Hungary" research project was initiated in 2019 by Agroecology Europe and is being carried out by Védegylet and Environmental Social Science Research Group (ESSRG) as research partners. The aim of the research is to gain a general overview of agroecological initiatives in Hungary in a historical and policy context; to highlight the main decisions or events that contributed to the establishment or downfall of these initiatives, gaining a better understanding of the actual situation, and of the main drivers and challenges that the different actors are facing nowadays. As the first research of its topic in Hungary, it is also the goal to interpret agroecological principles in the Hungarian context, providing a theoretical background for future research and cooperation.

The methodology includes mapping stakeholders from various networks related to the food systems present in Hungary extended with the snowball method. A literature and online review is performed to establish the framework in which agroecology can be interpreted historically in the Hungarian context. Qualitative, explorative interviews with key figures are being made using a pre-established frame (selection of interviewees aimed at reflecting the

reality of the situation by presenting representatives of the different constituencies). Results from research partners on 2018-2019 workshops and roundtable discussions connected to agroecology (BOND workshop prior to National Meeting on challenges to collective action, BOND National Meeting, Green Civil Society meetings).

## **OASIS, an indicator system for assessing the agroecological character of farms**

**Alain Peeters<sup>1</sup>, Tatiana Semenova, Elaman Diusheev,**

**Alexander Wezel<sup>1</sup>, Paola Migliorini<sup>1</sup>**

<sup>1</sup>AEEU

An indicator system has been designed by a team of Agroecology Europe at the request of the Food and Agriculture Organization of the United Nations in 2018. It was tested on Kirgizstan chosen by FAO as a pilot country. It is an analysis system for assessing the degree to which a farm is agroecological. It has been named OASIS (the **O**riginal **A**groecological **S**urvey and **I**ndicator **S**ystem).

The five components of Sustainable Development, the Sustainable Development Goals, and the ten Elements of Agroecology defined by FAO were important sources of inspiration for the development of the indicator system. Other indicator systems were consulted and their structures were as much as possible integrated in the OASIS indicator system. However, it has been estimated that a new, synthetic indicator system was necessary because none of the existing indicator systems sufficiently covered the range of agroecological strategies, principles and practices and none could be used at large scale with a reasonable effort.

OASIS is among the first or even the first analysis framework to be specifically designed for assessing agroecological systems at country level. The survey method has been designed in such a way that data on a farm can be collected in one and half hour interview, making large surveys possible at a country level. Investigators can be trained in three days. Selected indicators are simple and easily understandable. They are looking at farming activities from a farmer's perspective while being useful for other stakeholders such as decision makers, advisers, researchers, students, and citizens.

Two types of indicators were taken into account: description (structure) and impact (performance) indicators. Description indicators are: farm type and dominant productions, farm size, farming system and farming practices. Impact indicators are related with economic, social and environmental aspects. Most indicators are assessed in a semi-quantitative way on a scale ranging from 1 to 5. The maximum score is the reference value. It corresponds to the highest degree of agroecological practice or system. The questionnaire includes the 7 following sections:

1. Farm type and dominant productions
2. Farm size
3. Farming system

4. Economic pillar (Farming and economic practices)
  - 4.1. Dependency of the farm system to commercial inputs
  - 4.2. Adoption of agroecological techniques
  - 4.3. Production costs
    - 4.3.1. Importance of variable costs
    - 4.3.2. Importance of fixed costs (investments)
  - 4.4. Revenue importance
    - 4.4.1. Product quality
    - 4.4.2. Product processing
    - 4.4.3. Short marketing chain
    - 4.4.4. Local marketing chain
  - 4.5. Income importance
5. Social pillar (Farm viability, Quality of life, Food security)
  - 5.1. Farmer's age
  - 5.2. Farm viability
  - 5.3. Quality of life
  - 5.4. Self-consumption of food products
  - 5.5. Food security
6. Environmental pillar (Farm impact on the environment and biodiversity)
  - 6.1. Pollution
  - 6.2. Soil carbon management
  - 6.3. Wind or water erosion
  - 6.4. Soil salinization
  - 6.5. Biodiversity
7. Farm description and location

Data collected with the questionnaire are introduced in an Excel sheet that produces six radar charts relative to the following topics:

1. Adoption of agroecological practices
2. Importance of variable costs
3. Importance of fixed costs
4. Importance of revenue
5. Farm prospects
6. Farm impact on the environment

The first four charts are related with farm economic strategy. The fifth chart corresponds to the social dimension and the sixth to the environmental aspect. The radar charts are made of axes that correspond to individual indicators (figure 1). The periphery of the radar represents the maximum score that can get an agroecological system.

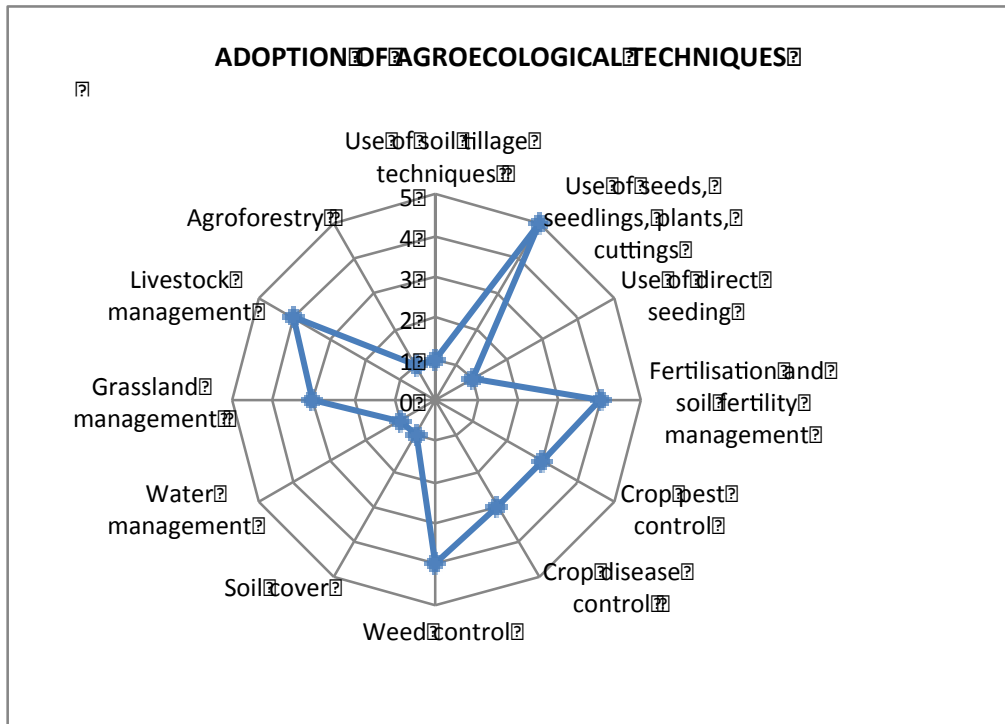


Figure 1. Example of radar chart for one farm on its 'Adoption of agroecological techniques'. Radar charts can cluster data from several farms in order to compare them, for instance data from farms belonging to the same farm type or the same farm size. They can also include data from consecutive years for the same farm in order to analyze its evolution.

**NGO Connecta Natura**  
**David Navarro Miró**

Departamento de Biología Evolutiva, Ecología i Ciències Ambientals (BEECA) Facultat de Biologia Universitat de Barcelona, Spain

Connecta Natura is a young association that works in the Valencia community for the conservation and improvement of its natural landscapes and the dynamization of its rural areas. We carry out most of our activities directly on the countryside, because we like to be close to nature and close to the people that live and work in it. Most of our activities involves the work of volunteers, which is an excellent way of planting seeds in people’s minds. We also do workshops and educative sessions from an agroecological approach, sharing our knowledge and experience. We take into account gender issues and the way we relate and communicate with each other in all of our activities,

because we need to take care of people and relationships in order to take care of our environment.

Our cornerstone is land stewardship, which we use to create long-term contracts in the areas that we work. Thanks to this tool, we can take care of a piece of land for a long time, so as to be able to implement a real project to create something with value in those areas. From this piece of land we spread to all the landscape, working with local institutions and social groups in order to give the territory a way to be self-sustainable, both economically and environmentally. Currently we are developing three projects in different landscapes:

- **Mosaics de Vida (Mosaics of life):** In Alcudia de Veo, in the heart of “Sierra de Espadan (SE)” Natural Park, we work in an orchard composed mainly of almond and olive trees. We are starting to plant and graft traditional varieties of the area, which are part of the cultural and natural heritage of the Natural Park and a tool to face the crisis of the monoculture agriculture.

Besides that, we get in touch with the agents of the SE, such as producers, rural hostels, manufacturers, local corporations... We are in the process of creating a Participatory Guarantee System (PGS), an entity which will give extra value to the local products that improve the environment and offer alternative ways to sell them.

- **Lligabosc:** We work with volunteers doing conservation tasks in order to restore a riverside forest, returning this area to its original natural state. This is an amazing place where we camp for some days, living and sharing together, and learning about the relationship between humans and nature.

- **Ofegabous:** This is the Valencian name for the *Pleurodeles waltl*, an endangered species of Iberian newt. It is the name of our project because the ofegabous is the queen of the “Mediterranean temporal ponds”, a habitat protected under the European directive 92/43/CE. The area surrounding the town of Alcublas (Valencia, Spain) was heavily affected by a massive forest fire in 2012, putting these delicate ecosystems in great danger. Moreover, Alcublas and the area are communities based on agriculture, which are under immense pressure due to the minimal benefits of the primary sector of economy.

To sum up, we try to address the breach between nature and society by creating or improving new strong networks in rural areas. We also try to create bonds between these areas and the urban and industrial areas, in order to highlight that the countryside and their inhabitants have been left behind for the sake of so-called “progress”, while we need them to be healthy if we want to achieve sustainable progress.

## **Mapping Agroecology in Europe**

### **Stéphane Bellon**

INRA, France

Agroecology in Europe is both diverse and dynamic. This participatory workshop aims at elaborating a picture of agroecology at various levels in European countries and regions.



Participants with all backgrounds are welcome to contribute to enrich the approach that will be presented and illustrated with national case studies and supportive examples of initiatives in agroecology. Among other issues, the form and the legend of candidate mapping will be discussed. This activity is part of one of the working groups of Agroecology Europe.

## POSTERS

### **Weed management in lettuce to provide biological pest control**

**Alessandra Virilli**

Scuola Superiore Sant'Anna, Pisa (SSSUP), Italy

Increasing on-farm biodiversity has become an important topic to address in light of the current EU CAP measures to promote conservation of local biodiversity, and more interestingly, functional biodiversity. At the same time, it is considered the core strategy of agroecological farming. Farming systems which operate in an agriculture-dominated landscape can benefit greatly from the introduction of non-crop plant biodiversity since this has been linked to an increase of beneficial arthropod populations which feed on crop pests and which may also be important crop pollinators. Several studies have supported the effectiveness of weeds in delivering biological pest control and have suggested spontaneous vegetation as a cost-effective alternative to commercial flower strips. Despite this, the use of weeds to deliver AES in cropping systems remains controversial. Few studies have measured the possible negative effect of weeds on crop yield or marketability in weed-mediated AES studies. This PhD project aims to study the trade-off between weed-crop competition and weed-delivered agroecosystem services.

### **An agroecological co-operative: ethnography of the organic market gardening production by analysing the "circulation of the vegetables"**

**Nicolas Loodts**

UCLouvain - Université catholique de Louvain, Belgium

The aim of this poster is to present the thesis I'm starting. The aim of my anthropological research is to highlight the realities of the production of organic vegetables in short supply chains by following, inside the production and supply chains, the fruits and vegetables offered to the market by a small Walloon agroecological co-operative, which farms, in accordance with the principles of agroecology, a 1.2 hectare plot of land in Wallonia. These chains will

be looked at with the “chaîne opératoire” approach, considered in a Latourian perspective, where vegetables will be subject to action by both human and “non-human” actants. Following the different “chaînes opératoires”, through participative, multi-sited observations, will allow the inclusion, in a comparative perspective, of different sites of production (in Wallonia, and in Sicily), different productive models (high or low levels of mechanisation) and different ways of professional organization (independent, co-operative, company), thus demonstrating the different realities of organic farming. This approach will also highlight the difficulties met by the producers and the rich diversity of the paths followed by producers, from new farmers, coming fresh to agriculture, to those already having long-standing experience. Finally, a study of the “non-human” actants, such as the climate, the environment, or techniques of cultivation, will make it possible to measure the influence of these ones on production itself, and on the life of producers. To understand these “non-human” actants, this ethnography will be interdisciplinary. The aim of the project is to contribute to the wider debate on the future of food production, highlighting the complexity, the strengths and the weaknesses of production in short supply chains, and the difficulties met by the participants themselves, in the economic, juridical, sociological, environmental and climatic contexts.

## **Cereal Network Pajottenland**

### **Lucas Van den Abeele**

Department of Agronomy, ISARA – Lyon, France

Belgium is known for its rich beer tradition, yet less than 4% of the cereals used by its breweries are actually grown on Belgian soil. In addition, only a handful of breweries use raw wheat in their process, among others lambic brewers. The lambic beer style (such as geuze, kriek etc.) are unique because of the spontaneous fermentation and natural process involving a.o. the use of wooden casks. Unfortunately, the available wheat varieties are not adapted to the specific needs of these breweries. On the other hand, farmers are suffering from fluctuating cereal prices, increasing costs and the lack of a stable collaboration with merchants. In order to overcome these issues at production and processing level, a brewery in the region of Pajottenland, Belgium, joined hands with a group of local farmers to shape a cereal network and reorganise the local food system. The objective of this network is to grow wheat and barley for the brewery, ensure a fair price to the farmers and strengthen the collaboration and the understanding between farmers and brewers. A participatory plant breeding programme has been set up in order to identify the right varieties suited both for the farmers, regarding their conditions (soil, climate, ...) and for the brewery, regarding the needed criteria and above all, to re-install original varieties in order to emphasise the notion of terroir. Of course both farmers and brewers will have to be flexible in adapting their

techniques and practices when experimenting with landraces and modern varieties. On production side, the trials are followed up by a researcher who is engaged at the brewery, coordinating the farmers and facilitating their knowledge exchange. For the latter, a farmer field school is put into place, gathering the farmers on regular basis for discussions, farm and field visits, technical meetings or demonstrations. All the farmers in the network are asked to grow under organic conditions, even though not all of them run organic farms. In this way, they get the opportunity to experiment with organic farming without having to take all the risks. Moreover, they get a fair price and can find the knowledge and the machinery they need by exchanging with their peers. Finally, another lock-in that was identified within this project is the storage of the grains. Farmers are not willing to store on-farm anymore and the brewery was not equipped for it either. Therefore, the brewery decided to buy the needed silos and storage equipment, taking away another bottleneck for the network to develop. In 2019, 3 brewing tests have been done with locally grown wheat landraces and a total of 25 tonnes of barley malt and 4 tonnes of wheat have been used. Another 25 hectares of wheat and barley have been sown among ten farmers and which are grown under organic conditions. In the future, the ambition is to open up the cereal network to other breweries, but also to involve local mills and bakeries in order to provide them with locally and sustainably produced grains, empowering the farmers and strengthening their collaboration.

## **Use of *Urtica dioica* and *Capsicum frutescens* for integrated pathogens' control: a case study for Morocco**

**Sanae Benani**

Institut National de Recherche Agronomique, INRA, Meknès, Morocco

In Morocco, *Vicia faba* is considered the most important legume for both food and feed. However, the ravages caused by pathogens remain hardly controlled. The objective of the present study is to evaluate the efficacy of *Urtica dioica* and *Capsicum frutescens*' extracts in protecting broad beans against *Bruchus rufimanus* infestation. To this end, the research was conducted at the National Institute for Agricultural Research in Meknes (INRA) during the 2015-2016 crop years. The experimentation was conducted in pots with four replicates to evaluate the efficacy of aqueous extracts of *urtica dioica* and *capsicum frutescens* on five varieties of *Vicia faba* beans. The cultures were spread with the aqueous extract of these two plants from the beginning of flowering to maturity. The results of the study showed that the aqueous extract of *c. frutescens* at 100g/l dose, decreased the rate of infestation of beans by bruchids by 9.49% while for the other treatments, no decrease was recorded. In addition, an increase in yield was notified for the aqueous extract of *u. dioica* at the dose of 50g / l with a percentage of 1.86%.

## **Establishing an olive orchard based on agroecological principles**

### **Ole Osterman**

Joint Research Centre (JRC), European Commission, Italy

In 2014 we had the opportunity to start establishing a small olive orchard based on agroecological principles in the south of France. We planted 80 small olive trees, also almonds, kiwi and others. Between the trees we had Festuca and Alfalfa sown, which is cut once a year. Years ago the land had been planted with vines, the clayey limy soil is poor in organic matter and very dry in summer. Our approach is biodiversity-based, keeping hedgerows around the field, and using old straw layer to contain herbal cover in the ranks. We are proud to host a nest of lark for the second year. A 50 m<sup>3</sup> pond adds to diversity of natural habitats since 2017, and is colonised by amphibians, reptiles and dragonflies. Until now we had to replace several olive trees every year (drought, wild boar), and production has not yet started.

## **Assessing the role of agroecology in the environmental and socio-economic redefinition of urban areas: the OpenAgri project**

### **Zanzi Ambrogio**

University of Milan (UNIMI), Italy

The importance of urban agriculture has been greatly underlined in the last years: if properly managed, it could play a central role to improve the quality of life and meet the challenges set by Agenda 2030, helping to reach 15 Sustainable Development Goals (SDG), providing food, as well as ecosystem services, thus making our cities safer, healthier and wealthier. However, although this relevance, urban agriculture has to deal with at least two main issues: i) lack of budget, that often decision-makers address to other priorities; ii) problems in planning and management phases where a systemic approach is not always followed, even if it should be a priority to maximize the provided ecosystem services and the contribution to SDG achievement. As a result, today the role of urban agriculture is still too limited, without long-term impacts and an overall strategy. Therefore, it seems urgent the need of building new examples of urban food systems, taking into consideration the growing urbanization and all the related phenomena. The creation of local food systems in our cities can lead to a more equal and right food access; an increase in food quality; a restoration of abandoned lands and in an overall socio-economic improvement.

Starting from these assumptions, the Urban Innovative Action Initiative has recently funded "OpenAgri", a first project aimed at the creation of an innovation center dedicated to urban agriculture, with the aim of improving the food system and its sustainability in the metropolitan area of Milan.

Moreover, Milan is today facing huge social changes, with the youth unemployment rate at 28,6% and the percentage of NEETs at 17,6%. Thus, OpenAgri aims at acting on different levels: on the social hand, with the motto "new skills for new jobs" the project aims at creating an hub open to startups focused on agri-food technologies, hence giving to youngster and NEET chances of employment; meanwhile, on the other hand, the project assures the restoration of abandoned areas and the conservation of agricultural environment: a first answer to the double social-environment challenge, which in the future will characterize even more urban environments.

In the ongoing project, University of Milan is in charge for developing the agricultural restoration of the area: following an agro-ecological approach, in the 35 ha area, we plan to rebuild the link between city and countryside thanks to hedges and rows, having an improvement of Biological Territorial Capacity (BTC), which is considered as the main ecological parameter in landscape bionomics, since it can precisely assess the balance and the quality of a given environment, measured in degree of the relative metabolic capacity of vegetation communities in Mcal/m<sup>2</sup>/year.

First results show an increase of BTC values – from the actual one (0.62) to a level above the urban average (0.75-0-90) – thus making OpenAgri a concrete example of agro-ecological transformation in the hearth of a growing city, balancing both socio-economic interest both food and environmental needs.

## **Monitoring of Diversity Level within Selected Wine Regions of South Moravia (Czech Republic)**

**Lucia Ragasová, Tomáš Kopta, Jan Winkler, Robert Pokluda**

Mendel University in Brno - Czech Republic

A large-scale study of landscape diversity level in selected wine regions of South Moravia and estimation of effect of higher non-crop vegetation proportion on beneficial insect abundance.

The conservation of biodiversity is crucial for nature conservation, and nevertheless for stability and sustainability of agricultural production (Carlos et al. 2012). The agricultural landscape of Czech Republic had suffered a great landscape diversity simplification due to agricultural practices of former regime (50s-80s) when a lot of non-crop vegetation was destroyed, small fields merged and large monocultures created (Hluchý et al. 2010). Melioration, extensive application of pesticides and massive use of machinery are other factors among that lead to serious problem with soil structure destruction followed by soil erosion and biodiversity loss (Rusch et al. 2010; Altieri et al. 2010). Natural and semi-natural habitats defuse negative effect of monoculture, moreover presents a shelter and overwintering space for beneficial insects thus provides higher effective pest control (Rusch et al., 2016). In many parts of Czech wine-districts same to a lot of wine producing regions

worldwide the viticulture still remains strongly monocultural. The aim of this study is assessment of diversity level by monitoring of vineyard land-use, non-crop vegetation proportion within vineyard sites, greening management in vineyards and also comparing insect abundance related to inter-row vegetation and proportion of non-crop vegetation in selected localities. Data were collected during years 2016 and 2017 from 113 vineyard sites across South Moravia covering almost 7000 ha in total. The selected wine regions include Bzenec, Strážnice, Velké Bílovice, Valtice, Mikulov and Znojmo. The results show considerable differences between vineyard sites and whole wine regions in land use and non-crop vegetation proportion. The highest proportion of non-crop vegetation was assessed in Mikulov (12 % in average) where locally within several vineyard sites of this region is proportion of non-crop vegetation reaching from 40 up to 58 %. Data from Valtice and Znojmo shows that almost a half of vineyard site's area of these regions is used as crop land that usually presents monocultural production with negative effect on landscape diversity and biodiversity in general (Ragasová et al. in press). The evaluation of inter-row vegetation composition and insect abundance in selected localities was done during 2018 and continuing in 2019. More details about diversity level assessment and preliminary results from insect abundance will be presented in a poster at the forum.

**Crop diversification in semi-arid environments. Agroecological ambitions in Sicily**  
**Luca Colombo<sup>1</sup>, Giovanni Dara Guccione, Massimo Palumbo, Nino Virzì, Francesca**  
**Varia , Ileana Iocola and Stefano Canali**

<sup>1</sup>FIBRAB, Italy

Over the last 50 years, the “progress” of agriculture relied on a process of crop specialisation, which allowed to fulfil European objectives of drastically increasing productivity (IPES-Food, 2016). Reintegrating diversity in food systems is now a priority to face burning ecological and social challenges in an uncertain world. Yet, despite its wider known benefits (e.g. reduced inputs, increased biodiversity, limited yield gaps or economic risks, more heterogeneous landscapes), crop diversification struggles to be put into practice (Meynard et al., 2018).

To unlock the system, collective action needs to be carried out jointly at different levels. This objective is at the heart of the realization of the 25 case studies envisaged by the Horizon2020 DiverIMPACTS project (<https://www.diverimpacts.net/>), which stimulate collaborative innovation paths, valuing and integrating site-specific knowledge.

In this context, the DiverIMPACTS case study on “Diversification of durum wheat cropping systems in semi-arid environment with sulla clover, hemp and chickpea” aims to identify optimal solutions for the Sicilian arable systems, both in terms of agroecological and supply chain opportunities, leading to the identification of crop diversification options to be tested.

In Sicily, as elsewhere in the Mediterranean region, going beyond usual cultivations is hampered by the semi-arid conditions typical of most areas and by several socio-technical constraints, such as inconsistent rainfall, pedological conditions, scarce irrigation facilities and water accessibility, unsuitable or non-profitable alternative markets, lack of competences and of technical assistance on agroecological solutions. The identification of suitable pathways for innovative agronomic solutions and value chain options in the Sicilian context is thus urgent.

Main problems underlying the emergence of the case study

Traditionally centred on durum wheat, the Sicilian arable cropping system is in an urgent need of diversification to make it more resilient to abiotic and biotic stresses and to generate viable economic opportunities, considering the persistently low wheat prices in recent years. Comparable patterns of diversification are carried out and assessed by the case study involving a group of farmers (conventional, organic and in-transition), which are quite similar in terms of size, entrepreneurial management and leadership in the regional agricultural scene, to see in which terms the socio-technical organization differs or follows analogous trajectories at both farm and value chain levels.

The case study implementation requires new competences, arrangements and explorative attitudes from both researcher and practitioners. As the case study operates in a co-innovation framework and stimulates new technical, organisational and product innovations, a comparative analysis of barriers to such evolution are discussed and developed.

The use of leguminous crops in rotation has often represented the most common choice to break monocultures, including in organic farming. Testing options for sulla clover or chickpea cultivations in rotation with durum wheat in Sicily was thus part of the preliminary assumptions for the case study, but recent developments at the regulatory and market levels encouraged the reintroduction of hemp as a 'retro-innovation' in the Sicilian arable systems in consideration of its potential at field and value chain scale (Baldini et al., 2018). Yet, such identification of suitable pathways for innovative agronomic solutions and value chains represents a challenging endeavour not only for the agro-climatic adverse conditions, but also for a disabling socio-political environment because of long-lasting anti-drug policies and suspect at social and institutional levels. Such barriers act at multiple levels: environmental (the semi-arid condition that constrains diversification options), economic (market rigidity and lack of policy support), legal (on THC thresholds) and cognitive (limited agronomic competence).

To address these multifaceted lock-ins, agroecological as well as market investigations are being carried out to support the innovation dynamic. Varietal suitability, sowing periods, harvesting time and hemp role in rotation are among the agronomic features analysed by the case study, including action to restore know-how on this long-neglected crop. Moreover, to address some of the envisaged barriers and to fully explore the operative boundaries for diversification, the case study is carrying out a multicriteria analysis to assess the crop diversification performance. The assessment is currently on-going.

The socioeconomic component is mostly addressed through a study focusing on the potential of value chains for hemp-based food products, and especially on food products for which Sicilian farmers have the opportunity for and are interested in managing the whole value chain: hemp oil and flour. Among the variety of uses that hemp has, hemp oil offers a high nutritional value, while integrating hemp flour in pasta making seems to be attractive for consumers. Additional opportunities exist such as blending hemp flour for bread and pastry making or using flowers to complement hop in beer.

Expected outcome

The case study exploratory phase indicated that the sociocultural lock-ins may not be insurmountable: case study actors already see promising dynamics in niche and innovative areas such as rediscovery of local/ancient grains and their blending with hemp flour, innovative value chains for local-to-European markets, and options arising from the circular economy opportunities.

Determining the effectiveness and scalability of crop diversification options in semi-arid contexts are among the desired effects of the case study plan. Working on different innovation niches and socio-technical contexts, the case study's ultimate goal is to provide viable transition pathways that regional and national stakeholders and policy makers may consider in their endeavour to achieve more sustainability in farming under severe pedoclimatic conditions.

## **Facilitating insects in agricultural landscapes through integration of renewable resources into cultivation systems – FinAL**

**Jens Dauber**

Thünen Institute of Biodiversity - Germany

Intensive agriculture is considered to be a major cause of the decline of insect diversity and biomass in rural Germany. Within the frame of the national action programme for the conservation of insects, the "FInAL" project will therefore establish Landscape Laboratories in representative agricultural landscapes of Germany where we will develop, demonstrate and evaluate innovative measures for facilitating insects through integrated cultivation of renewable resources in a landscape context.

The aim of FInAL is to demonstrate how diversity, biomass and functionality of insects can be enhanced in agricultural landscapes, especially through integration of renewable resources. We consistently adopt a landscape approach based on regionalised guiding principles ("Leitbilder") that encompasses both agricultural land and non-cultivated areas and involves the participation of stakeholders. The Landscape Laboratories, i.e. the landscape sections where measures for facilitating insects will be established, will be investigated with respect to their initial state (base line), land-use options, and the effects



of the measures on different features, primarily in relation to incidence and functionality (e.g. in integrated pest management) of various groups of insects.

The term Landscape Laboratory denotes a section of an agricultural landscape in which innovative measures for facilitating insects in cultivation systems are conducted. This involves a spatially extensive approach, i.e. the whole area of the Landscape Laboratory constitutes the object of study and, consequently, is treated with specific measures in its entirety. Therefore, a Landscape Laboratory is comprised of cropland and grassland as well as those areas that are not used agriculturally. The size of a Landscape Laboratory is fixed at approximately 3 x 3 km in order to prove the effectiveness of the established measures with respect to the occurrence of the insects on a landscape scale. The selection of the Landscape Laboratories will particularly consider landscape types with high importance within the diversity of agricultural landscapes in Germany.

In this project, the choice and implementation of suitable measures will be based on a co-design process involving farmers, other land users, local authorities, NGOs and scientists as relevant stakeholders. Prior to the implementation in the Laboratories, the measures will be pre-evaluated at test sites ("Maßnahmenwerkstätten"), if necessary. The results from the Landscape Laboratories will be summarised and assessed in an integrative way with respect to the effectiveness of measures, acceptance by practitioners, transferability to other agricultural landscapes and the potential to provide frameworks for agricultural policies.

## **Trying out new organic no-till approaches in Sweden**

### **Vidar Brodin**

Miljömatematik - Sweden

Around the world, there are several examples of how it is possible to grow grains in a perennial cover of herbs and grasses, without the need for neither tillage nor chemical inputs. By growing the annual crops in a perennial ecosystem, it is possible to access the functionality of a much more complex and productive ecosystem than what is normally available in any field production. So far, there is no adaptation of this idea available for Swedish or other northern temperate climate. For that reason, we have engaged in a project trying to put the pieces together. We will try to combine farmer knowledge from the already existing systems and research results from our region, with the prerequisites of local ecology and farming practices. Growing grains this way can have substantial effect on environmental aspects such as soil quality, biodiversity and climate impact, and also on the economic and social situation for the farmer, with reduced need for external inputs, less costly machinery and less field operations.

## **INVERSION Project: Increasing sustainability in mountain livestock farms**

**Francesco Primo Vaccari**

Institute of Biometeorology (IBIMET), National Research Council, CNR - Italy

In recent decades, mountain livestock sector has undergone major changes. The number of mountain livestock farms has decreased and their average size has increased, becoming similar to the intensive farms of the plains. INVERSION Project: "Agroecological innovations to increase the resilience and sustainability of mountain livestock farms", aims at supporting the transition to a more sustainable mountain livestock system in order to assure the provision of agroecosystem services and reverse current climate trends.

The constitution of a pool of mountain livestock farms represents a primary step towards a wider dissemination of sustainable practices at a local level. After that, agroecological innovations are implemented among farms with the collaboration of scientific and technical experts, focusing on different aspects of management.

The main goals to achieve during the three-year project are: (i) increased environmental sustainability of livestock system; (ii) improved preservation of biodiversity of meadows and pastures; (iii) higher productivity of pastures; (iv) improved soil fertility; (v) lower use of external inputs in crop production; (vi) reduced Greenhouse Gases (GHG) emissions; (vii) better animal welfare and health; (viii) enhanced socio-economical sustainability of farms.

One of most important results achieved at the end of the first year with relevant impact on land protection and emission of greenhouse gases of soil is rotation dynamic pasture. As a matter of fact, this practice allows an efficient use of pasture resources as the animals remain in each cell only for the time necessary for an optimal consumption of the grass. In a selected focus farm, the monitoring is carried out in two pastures which are managed in different ways: continuous grazing and rotational grazing. Emissions of carbon dioxide (CO<sub>2</sub>) methane (CH<sub>4</sub>) and nitrous oxide nitrogen (N<sub>2</sub>O) are measured using three soil collars in both continuously grazed (Control area) and rotationally grazed (Treatment area) pastures. From spring to autumn every 40 days these collars are closed for one hour to quantify the greenhouse gases emission concentrations released by the soil.

The analysis of experimental data shows that the rotational grazing system has a positive impact on the reduction of GHG emissions. Therefore, it is proof of how adequate agroecological innovations can reverse climate change trends.

## **Barriers and Drivers of Agro-Ecological Transitions in Intensive Agricultural Areas – a Case Study from Hungary**

**Katalin Balázs, László Podmaniczky, Alfréd Szilágyi, Péter Tóth**

Geonardo Ltd., Hungary

Context, objectives and research questions

There is an increased awareness that agro-ecological farming systems (AEFS) are fundamental for sustainable food production in the future.

The key dilemma is how to produce public goods whilst having viable production of private goods, securing economic and social sustainability at a farm level, which is not overly dependent on public funds.

The ambition of the UNISECO H2020 project is to address this key dilemma through co-constructing improved, practice-validated strategies & incentives for the promotion of AEFS in case studies in 15 European Countries. The case studies will answer the following questions:

- How can barriers and dilemma of AEFS be addressed in a specific case study context?
- What are the socio-economic and environmental implications of the transition to agro-ecological farming?
- Why were innovative strategies and incentives successful (or unsuccessful) in enhancing the joint provision of private and public goods of AEFS in a specific case study context?
- What lessons can be learnt for other cases and future policies?

The case studies cover a wide range of farming systems with different levels of agro-ecological innovations. The Hungarian case study provides an example for the analysis of what is required to initiate the transition process to agro-ecological farming in cases of highly market-oriented farming with low level of agro-ecological innovation.

Case study description

Case study area and main production systems

- Landscape mesoregion: Belső-Somogy (3000 km<sup>2</sup>) in South Transdanubia
- Intensive agricultural area with specialist crop production

Key characteristics of the case study

Sustainability issue (examples): Pressure on natural resource: soil quality and its ecological sustainability, social and economic trade-offs

Farm production type: arable systems, specialist crop production, market-oriented farming

Agro-ecological practices (examples): Extensive margins, nutrient management, reduced/no tillage, conservation management of soils

Level of Cooperation: Some farmers cooperate with industrial input supplier in environmental management (demonstrations: soil conservation, field margins management)

Sub-regional self-organizing cooperation for agri production and selling.

Involvement in the value chain: No direct involvement

Methodological approach

Case study specific dilemma:

- How to integrate agro-ecological practices on arable land in highly market-oriented arable farming systems to maintain and improve soil quality without significant negative impacts on the economic viability of farms?

Potential key barriers to be addressed:

- Lack of knowledge and openness to alternative practices and technologies, farmer attitudes towards agro-ecological farming, low social capital, lack of capital, credit and bank guarantee for investment in specific machinery, lack of specific agro-ecological advisory services, soil as natural resource with underrepresented social/institutional value in general

Conceptual framework:

- Adapted socio-ecological systems framework (Guisepelli et al. 2018)

Multi-actor approach:

- Use of participatory workshop methods and decision support tools
- Key role of stakeholder champion trusted by farmers and key actors

Expected results

- Improved understanding of barriers and drivers of transitions to AEFS in intensive agricultural areas
- Co-constructed novel and effective market mechanisms and policy instruments to improve the sustainability of intensive arable farming systems
- Enhanced evidence of the sustainability implications of different agro-ecological transition paths of arable farming systems
- Improved knowledge base of agroecological farming for use by policymakers with at EU, national and regional levels, advisors, farmers, value chain actors and consumers

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## **HortSost – The urban orchard as a tool to test the sustainable management of diversity, soil and water resources on campus**

**Alberto Jimenes**

Ecoherencia S. Coop. And. Malaga, Spain

HortSost is an interdisciplinary project developed on the campus of the University of Malaga focused on the sustainable management of diversity, soil and water through the application of Internet of Things (IoT) in the orchard. The activities completed for diversity management have been the in situ conservation of local and traditional vegetable varieties and the identification of beneficial auxiliary fauna during spring season within orchard and in other campus locations. IoT have been applied for water and soil management, the humidity and temperature of a compost pile has been monitored in continuous to propose a new

management of residues on the campus. A low-cost weather station prototype has been built and different soil sensors have been assessed to optimize the irrigation on the orchard. Finally, heavy metal analysis of cultivated soils in different university locations has been performed. These good practices have been shared designing didactic material of these three main topics for urban farmers. This project is funded by the University of Málaga.

## **Community gardens in Málaga province: resilience strategies beyond the urban**

**Maria Vela-Campoy**

Ecoherencia S. Coop. And. Malaga, Spain

Future scenarios of access to a healthy diet will be conditioned by various factors in the medium and long term. Recurrence and the severity of extreme climatic phenomena due to climate change, directly to the stability of production, to the offer of the purchase of food deserts values.

Although we do not have evidence to determine in the rural areas of Malaga there are food deserts in the strict sense, rural towns are struggling to access healthy and biodiverse food, as a result of the proliferation of monocultures, the abandonment of the rural world and the disappearance of small properties crops.

It is necessary to know and to support initiatives to favor food sovereignty and permanence in the territory, favoring adaptation to climate change. Could community gardens be a solution to this challenge?

## **Agroecology and poverty reduction - A review of the linkages**

**Raffaele D'Annolfo**

Catholic University of the Sacred Heart, Piacenza, Italy

With the aim of identifying nexus between agroecological approaches and poverty, this study presents the results about the evidence and current state of knowledge of the linkages between agroecology and poverty alleviation mechanisms on a global scale. The analysis was based on the literature available on Scopus database covering the period 2015-2019, showing the evidence provided by the scientific literature since the year of ratification of the Sustainable Development Goals by the United Nations. Results showed that agroecological approaches such as Organic Agriculture and Conservation Agriculture as well as the implementation of Combined Agroecological Practices can support the livelihood of rural farmers, in particular income, food security, resilience and soil fertility dimensions. Moreover, this review highlighted that agroecological approaches are appropriate for resource-poor farmers and smallholders in marginal environments. Therefore, agroecology is considered as a key tool for helping rural farmers in Sub-Saharan African countries. However, the lack of

common definition of the agroecological approaches is one of the main gaps emerging from this study; in addition, evidence is still poorly documented, with regard to the adoption of agroecology in urban areas and its implementation in high-income countries especially.

## **Silvopastoral systems in Greece**

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Silvopastoral systems are traditional agroforestry systems that have supported local communities through time. They are distinguished from the other systems by the co-existence of trees and livestock taking advantage of the lush vegetative understory in open, mostly, forests. In Greece these systems are commonly found under a variety of trees ranging from the typical olive trees to the most forest ones of oak trees. Under the framework of AGFORWARD project, we evaluated the contribution of these systems in local development. Our experiments ranged from eastern Greece, in the island of Kea, the Aegean sea, to the western part of the country in the Xeromero valonia oak forest. In all cases, livestock consisted mostly of sheep and less by goats. Livestock breeders produced a variety of dairy products ranging from milk to cheese and meat, organic in most cases. The farmers supported their income with other traditional products consisting of medicine plants. These systems supported the farmers financially allowing a high quality life in their area. This work also presents the different products and other ecosystem services that these systems provide.

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## **Agroforestry in the mountains of Evritania: ecological and social qualities**

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Agroforestry in the Mediterranean mountainous region for thousands of years, was a choice

of survival and self-sufficiency for the inhabitants of small but dynamic communities. For centuries, households in the mountainous villages of Evritania, in the Tymfistos mountain range, retained the characteristics that enabled them to make the most of the geophysical and hydrological data of the mountains: smallholdings of arable land on terraces, conservation of local grain varieties in cereals and pulses, vines and fruit trees, community management of water resources and forests, solidarity, and exchange economy. These principles allowed the agroforestry to flourish with the livestock production of domestic livestock (rabbits, hens, pigeons, cows, sheep, goats, horses, mines and halves) as well as pedigree livestock farming, creating a special mountainous culture. until today. Applying agroforestry to Evritania today, utilizes natural wealth, coexistence of crops with the forest, and combines agricultural and livestock production of high quality. At the same time it enjoys the results of maintaining the quality of soil, water and biodiversity (flora and fauna), living with quality at all levels.

Key words: agroforestry, sustainable water management, soil productivity, biodiversity

### **First results of the Apple Task of the LIVESEED project – a Horizon 2020 project for improving organic seeds in Europe**

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The objective of LIVESEED is to improve transparency and competitiveness of the organic seed and breeding sector and encourage greater use of organic seed. LIVESEED strive to:

- i) Foster harmonized implementation of the EU organic regulation on organic seed;
- ii) Strengthen organic seed databases in the whole EU;
- iii) Investigate socio-economic aspects related to production and use of organic seed;
- iv) Improve availability and quality of organic seed;
- v) Develop guidelines for organic cultivar testing and registration
- vi) Develop innovative breeding approaches suited to organic farming;
- vii) Widen the choice of organic cultivars meeting the demand of farmers, processors, retailers and consumers;
- viii) Research activities of LIVESEED will cover five main crop categories (legumes, vegetables, fruit trees, cereals and fodder crops) considering different farming systems and pedoclimatic zones across Europe

Since the beginning of the project in 2017 apple task has achieved by now to find best practice examples of organic apple breeding. Participants of two workshops organized came

to know different organic apple breeding methods and approaches (exploring agrobiodiversity, testing protocols, participatory breeding, material exchange for testing). Country cases were being shown: different breeding targets and their limitations in different member states. Also the topic of legislation and breeding was being examined. New organic legislation impact on apple breeding and propagation material marketing were explored with the aim to enable organic apple breeding to meet market and end users needs but also farmers needs regarding suitable varieties or rootstocks and market demands.



### Forum organising Committee:

Agroecology Europe: Vassilis Gkissakis (HMU, GR), Paolo Bàrberi (Scuola Superiore Sant'Anna, Pisa, IT), Stéphane Bellon (INRA SAD, FR), Paola Migliorini (University of Gastronomic Science, IFOAM-ABM, IT), Alain Peeters (RHEA, BE), Alexander Wezel (ISARA, FR, DE).

From other institutes & organisations: Emmanouil Kabourakis (HMU, GR), Emmanouil Nikolakakis (Natural History Museum of Crete/University of Crete, GR), Constantinos Machairas & Charikleia Minotou (IFOAM-ABM, GR), Christina Vakali (Aegilops, GR), Panayotis Papadopoulos (Agroecology Greece, GR).

### Organisers and supporters:

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