

Rennes  
France  
10-12 December  
**2018**

## Final Congress

Cultivating  
diversity and  
food quality



### What is DIVERSIFOOD?

DIVERSIFOOD is a European project aiming at enriching cultivated biodiversity, by testing, renewing and promoting underutilized or forgotten crops. Through multi-actor approaches, it supports the spread of a new food culture, based on diverse, tasty and healthy food.

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

# PROCEEDINGS



**DIVERSIFOOD Congress 2018**

**'Cultivating Diversity and Food Quality'**

**10-12 December, Rennes, France**

## Introduction

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DIVERSIFOOD is a European project aiming to enrich cultivated biodiversity by testing, renewing and promoting underutilized or forgotten crops. Through multi-actor approaches, it supports the spread of a new food culture, based on diverse, tasty and healthy food.

This event is the final congress of DIVERSIFOOD (2015-2019). DIVERSIFOOD results and key lessons will be shared, covering complementary approaches connected with crop diversity for resilient sustainable food systems:

- Underutilized/forgotten crops: multi-actor and on farm evaluation
- New approaches of plant breeding for diversified and sustainable farming systems
- Community biodiversity management
- Diversity and sustainability within food systems: new relationships among actors
- Paradigm shift for multi-actor and transdisciplinary research

This scientific Congress is opened for external oral speakers and/or poster presentations, to better connect sister projects and researches with DIVERSIFOOD outputs.

This congress will provide inputs to shape DIVERSIFOOD messages for the future, on how to better embed crop diversity for resilient sustainable food systems and move toward a real socio-ecological transition.

Diversifood final congress has been designed by the consortium as a platform to share with a large community, results, issues and perspectives. It is based on two main and associated hypotheses:

- (1) embedding cultivated diversity in the European territories is the foundation of sustainable and resilient food systems,
- (2) the ultimate goal of a resilient agricultural system is to provide high quality food.

Our food quality concept has been developed as a broad concept to enhance all forms of quality from seed to market. Thus, food quality covers a wide range of traits that are defined in the context of sustainable and healthy diets and local food culture. These traits are also covering ethical and social values, nutritional and taste characteristics, and the respect of natural processes. DIVERSIFOOD has shown that developing crop diversity in the fields cannot be dissociated from ensuring all forms of qualities in the plate.

DIVERSIFOOD final congress will reflect all project activities and methodological developments following our multi-actor research organisation as a red thread about:

- (1) Evaluation of underutilized/forgotten crops,
- (2) New approaches of plant breeding for diversified and sustainable farming systems,
- (3) Cultivated diversity management within Community Seed Banks,
- (4) Relationships among actors involved diversity and sustainability within food systems and
- (5) Research organisation for the paradigm shift toward a "life-oriented" paradigm to boost diversity at all levels within a holistic perspective.

For all these topics, crop and food system diversity have been explored considering different sources of knowledge and integrating objectives for environmental and social sustainability. During the congress, sister projects and researches will expand DIVERSIFOOD outputs to better embed crop diversity for resilient sustainable food systems and move toward a real socio-agro-ecological transition.

Thanks to the event, the DIVERSIFOOD conceptual context will be also strengthened by key-note speakers who will provide inputs to boost and complete DIVERSIFOOD messages for the future. Michel Pimbert (from Coventry University in UK) will highlight the main institutional, methodological, and policy challenges for a transformative paradigm change in the production of knowledge for diversity and sustainable food systems. He

will provide thoughts to democratize the production of transdisciplinary knowledge to expand the construction of agroecological skills for enhanced biocultural diversity in food systems.

Micaela Colley (from the Organic Seed Alliance in the USA) will examine many parallelisms that exist between the United States (US) and Europe regarding the motivations, initiatives and emerging models for organic seed systems development. Differences in governance, history, and social factors impacting progress will also be highlighted.

Philip Howard (from Michigan University in the USA) will expand the DIVERSIFOOD perspective by reminding us the most dominant trends in food and agricultural systems toward specialization and uniformity, despite a long list of negative impacts that typically result. Although counter-trends are currently quite small, some are growing very rapidly fostering decentralization, cooperation and transparency. These efforts are critical for maintaining a sufficient reservoir of knowledge, skills and plant and animal diversities to replace uniform food systems.

For the last day of the congress, you are invited to farm visits that will be followed by two parallel workshops:

- Two farmers based in the surroundings of Rennes (Brittany), involved in crop diversification and on-farm seed production will explain and demonstrate how they integrate all activities from seed to products, aiming at producing high quality produces for local markets. Both are organic farmers, one mostly arable, the other a vegetable grower.
- One workshop will associate LIVESEED partners and other H2020 teams (e.g. ReMIX) to better conceptualise how to fit organic plant breeding in the IFOAM principles. The key hypothesis to explore is that plant breeding is not only matter of efficiency, but it also entails ethical aspects such as food and seed sovereignty and food quality. This workshop aims to develop a shared vision of organic and system-based breeding as an overarching approach to integrate different breeding strategies and tools, and entrepreneurship, but also a change in attitude based on corporate responsibility, circular economy and true-cost accounting, and fair and green policies.
- A second workshop will brainstorm and explore how to boost the transition to more sustainable food systems through a multi-actor and transdisciplinary approach. This approach has a strong potential to achieve this outcome, but it cannot be funded only through short terms projects. We need to collectively develop a long term strategy and to find adapted means to implement the life-oriented paradigm. To deal with the complexity of real societies, we need a transition from the proofs-of-concept within EU projects towards a more systematic deployment. Alternative organisational and funding models need to be developed to produce effective impacts at a significantly larger scale.

We ultimately hope that this congress will consolidate a new research community closely linked to practitioners, for agroecological transition and for the revival of cultivated biodiversity. Connecting diversified knowledge and common wills will boost the embodiment of a life-oriented paradigm.

Poster in 3 min

## Seeding the Green Future – Participatory organic cotton breeding

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**Key words:** organic cotton, participatory breeding, capacity building, *Gossypium arboreum*, *Gossypium hirsutum*

### Background

There is a growing demand of consumers for organic textiles. India is the most important country for the global organic cotton production with 67% market share challenged by 95% genetically modified (GM) cotton cultivation in India. Fast action is needed to maintain non-GM cotton germplasm for organic farmers. Participatory breeding of *Gossypium hirsutum* and traditional *G. arboreum* cotton offers a great opportunity for developing locally adapted cultivars and increasing genetic diversity. Seeding the Green Future funded by Mercator foundation Switzerland and Organic Cotton Accelerator will build on achievements of Green Cotton Project phase I ([www.greencotton.org](http://www.greencotton.org), Messmer et al. 2017). The overall goal is to upscale local capacity building in breeding and seed multiplication to improve autonomy and income security of farmers. The objectives are to (i) initiate and scale up decentralized breeding efforts from crosses to final cultivar development in different States, (ii) coordinate organic cultivar testing, multi-location trials under different management and at different farmers associations, (iii) broaden the genetic diversity and encounter challenges of climate change by promotion of traditional drought tolerant *G. arboreum*, (iv) involve farmers in breeding, selection and seed multiplication, (v) intensify networking and exchange between public and private stakeholders, (vi) disseminate results among organic cotton growers, the textile industry, and the scientific community, and (vii) create awareness for benefits of organic cotton among consumers.

### Main chapter

Due to the pressing need of adapted non-GM cotton seed, an enlarged consortium with organic cotton growers and public institutes from different regions came together to join forces in 2017. During two workshops common goals were defined as well as a code of conduct for sharing genetic material. To scale up the project, different tasks were divided between partners. The more advanced organisations invest in the establishment of on-station replicated field trials on their farm, while other organisations were more interesting in testing promising material in a large range of environments using their farmer networks. A local facilitator was installed to coordinate the different activities and the timely implementation of the project. The project is outlined for two 4-year periods to achieve potential cotton candidates for cultivar release. Thirty non-GM cotton cultivars and breeding lines adapted to the Central cotton zone were collected from different States, tested for contamination with GM and for fibre quality. A core set of cotton genotypes meeting the minimum requirements were tested in replicated field trials at organic farmers' organisations at four sites in Odisha and Madhya Pradesh complemented by local cultivars. The most promising cultivars identified during the Green Cotton project were tested in on-farm trials in farmers' fields including commercial hybrids, inbred lines as well as *G. arboreum*. In order to increase genetic diversity and combine high fibre quality with agronomic performance and local adaptation new crosses were made among the *G. hirsutum* and *G. arboreum* germplasm. Segregating populations from the previous projects were advanced from F2 to F4 generations. Farmers were engaged not only in the on-farm trials but also in workshops and active selection of the on-station cultivar trials. Special focus was given to the involvement of female farmers and Indian tribes with marginal growing conditions. Opportunities and challenges of local capacity building in breeding and seed multiplication will be discussed including socio-economic aspects. The project is open to involve more farmers associations and serves as model to safeguard organic cotton seed on global scale.

### References

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