



# DYNAVERSITY

*DYNAmic seed networks for managing European diVERSITY*

Grant agreement n°: 773814

H2020 – Coordination and support action

## D5.7

### *Train the trainers module*

**Due date:** M18 (April 2019)

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**Project start date:** November 1<sup>st</sup>, 2017

**Duration:** 36 months

**Work package concerned:** WP5

**Concerned work package leader:** Formicablu

**Dissemination level:**

☒ **PU:** Public (must be available on the website)

☐ **CO:** Confidential, only for members of the consortium (including the Commission Services)

☐ **CI:** Classified, as referred to in Commission Decision 2001/844/EC

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## Foreword

Within WP5 an, more particularly under Task 5.3.2, DYNAVERSITY is developing training courses on the importance of agrobiodiversity. The Rete Semi Rurali (RSR in Italy) and the French agricultural research institute (INRAE in France) have in charge the organisation of training courses at national level as well as of the final Summer School in 2020.

This deliverable is presenting three complementary aspects related to the DYNAVERSITY training activities:

1. The work done by RSR and INRAE on training activities;
2. The module derived from these activities, which will be implemented in a week-course in Italy in February 2020;
3. The work done for organising the DYNAVERSITY summer school in August 2020.

This deliverable is based on and complying with the following reference documents:

- The GA, Annex I and Annex II (downloadable from the participant portal); and
- The Consortium Agreement (CA).

## Introduction

One of the aims of DYNAVERSITY is increasing consumers' awareness on the importance of agrobiodiversity all along the food chain and strengthening its use in farming and breeding systems. In order to reach this goal, the project have planned to organise specific training courses targeting consumers, technicians, breeders and farmers. In these activities DYNAVERSITY involved different stakeholders with different type of approaches according to the target group, e.g. on farm meetings with farmers and citizens, formal courses at the University for breeders, technicians and students.

## INRAE activities

*Figure 1 : Explanations on sourdough bread before the baking session*



INRAE participated to the organisation of a training for teachers and peasant backers. This training was three days long (May 15-17<sup>th</sup>, 2019) and is called “*Journées participatives: partage de savoirs et de connaissances sur les céréales mineures*”. The topic of the training is the diversity of cereals, as the focus is on minor cereal crops, but also on the diversity of bread and biscuits practices for baking. INRA co-organised this training with “La Bergerie Nationale”, which is in charge of agriculture trainings in France. Thanks to this partnership, the training has been recognised by the French Ministry of Agriculture which included it in its National Training Program. This training is a very good preparation for this task as we could work on a new way of addressing the agricultural diversity with professionals (such

as peasant backers, farmers...) and teachers. This training associating theoretical conferences on agricultural diversity and practical workshops on sourdough bread with minor cereals (rivet wheat, rye, and einkorn) or biscuits with millet, is a good way of innovating and of involving different competences (technical, scientific and social). Moreover, this organisation allowed us to meet a diversity of professionals that can be good partners for following trainings.

*Figure 2 : Tasting of biscuits recipes made of millet/einkorn flour and millet/rice flour.*



Following this three-days long training “*Journées participatives: partage de savoirs et de connaissances sur les céréales mineures*”, a one-year educational program on agrobiodiversity for students was built with some teachers in an agricultural school in Le Rheu (Brittany France) for the year 2019/2020. The goals are to explain the actual big issues on agrobiodiversity and also to explain the history of seeds since the green revolution. In parallel of theoretical courses in the classes, students have also planted some peasant varieties of cereals, such as oat, rivet wheat, barley, rye, or einkorn. They observe the growth of these cereals and are in charge of making some observations that they transmit to INRAE researchers. A workshop with an association organising baking session is also foreseen to teach students on sourdough bread practices and interests.

## RSR activities

RSR developed a training for technicians, farmers and teachers, that was organised in four days from October 2019 to January 2020 (see picture). This training was focused on the following aspects:

1. The new Organic Regulation and the role of population for diversification of farming systems (22 October 2019 – Riccardo Bocci);
2. Innovation models and local actors (26 November 2019 – Livia Ortolani and Bettina Bussi);
3. Conservation varieties and labeling of diverse products (10 December 2019 – Riccardo Franciolini and Massimo Tanca); and
4. Agrobiodiversity conservation in natural parks: experiences and challenges (21 January 2020 – Riccardo Bocci and Matthias Lorimer).

These activities have been organised together with Federparchi and the Lazio Agricultural Agency (ARSIAL) (see program below).

RSR also developed a 3-days training on Participatory Plant Breeding and Populations that will be held in February 2020 in Italy. The detailed program is provided as Annex I at the end of this document.

Figure 3: The training organised in Italy.



## PROMUOVERE LA DIVERSITA' PER INNOVARE I SISTEMI AGRICOLI

### Programma Seminari tecnici ARSIAL e Rete Semi Rurali nel Lazio 2019 - 2020

ARSIAL e Rete Semi Rurali vi invitano ad un ciclo di seminari indirizzati ai tecnici Arisial e Regione Lazio, aperto anche ai portatori d'interesse in materia di biodiversità agricola.

Il programma è rivolto a tutti quegli attori che si dedicano alla tutela della biodiversità, anche nell'ambito dei sistemi biologici e biodinamici, e alla transizione verso sistemi di produzione "low inputs".

**Martedì, 22 Ottobre 2019**  
10:00 - 16:00  
"Il nuovo regolamento per l'agricoltura biologica – prospettive sulle sementi."  
Riccardo Bocci, RSR

**Martedì, 26 Novembre 2019**  
10:00 - 16:00  
"Modelli di innovazione, attori locali e sistemi sociali."  
Livia Ortolani, RSR – Bettina Bussi, RSR

**Martedì, 10 Dicembre 2019**  
10:00 - 16:00  
"Lo stato dell'arte sulle varietà da conservazione e l'etichettatura dei prodotti derivati."  
Riccardo Franciolini, RSR – Massimo Tanca, RSR

**Martedì, 21 Gennaio 2020**  
10:00 - 16:00 (sede da definire)  
"Conservare la biodiversità agricola nei Parchi: esperienze e sfide a confronto"  
Riccardo Bocci, RSR – Matthias Lorimer, ECLLD e Corrado Teofili, Federparchi  
– in collaborazione con il progetto DYNAVERSITY

I seminari si terranno presso la sede ARSIAL in via Rodolfo Lanciani, n.38 Roma. Per partecipare al ciclo di seminari si richiede di iscriversi inviando una mail a [livia.ortolani@semirurali.net](mailto:livia.ortolani@semirurali.net)

L'evento è stato accreditato dall'Ordine dei Dottori Agronomi e Forestali di Roma, ad ogni giornata verranno riconosciuti 0,625 CFP.



  
  


Attività svolta nell'ambito dell'Operazione 10.2.1 del PSR Lazio 2014/2020.

  
PROGRAMMA DI SVILUPPO RURALE  
2014 - 2020

  
Agenzia Regionale  
per lo Sviluppo  
e l'Innovazione  
dell'Agricoltura del Lazio

  
Unione Europea  
Fondo Europeo Agricolo  
per lo Sviluppo Rurale





  
regione.lazio.it

## The module for training

Thanks to the work developed in Italy and France, DYNAVERSITY developed a training module of 35 hours, covering the following themes:

- Historical introduction to the issue (from D1.2), the legal framework, the new paradigm of Community Agrobiodiversity Management, the seed system approach (from WP4);
- Innovation and breeding, from participatory to evolutionary breeding; and
- The new role of populations in farming systems.

This training module will be tested at the end of February 2020 in a 4 days course at the University of Viterbo. The aim is to provide at the end of the project a new curriculum on agricultural biodiversity that partners can implement at national level in their training activities.

*Figure 4: The DYNAVERSITY training module*

		hours
12 hours	Historical introduction and policy of genetic resources management in agriculture	2
	From on farm conservation to Community Agrobiodiversity Management	2
	International agreements from Nagoya to the ITPGRFA	2
	Action-research and innovation brokers	1
	The legal system on seeds and its evolution	3
	Seed system approach	2
	Different seed systems: formal vs informal?	1
	Community seed banks	1
11 hours	Breeding for diversity: from centralised to decentralised	3
	Efficiency of breeding and the problem of wide adaptation	2
	Participatory plant breeding in the world	2
	From PPB to evolutionary plant breeding	2
	Composite cross populations: pros and cons	2
10 hours	How to make a population	1
	How to use and grow a population	2
	How to make selection within population	1
	How to deal with data	1
	Some practical examples/case studies	5
		35



## The summer school in 2020

DYNAVERSITY planned the Summer School **Participatory Plant Breeding and Resilient Seed System Development: Options for Stakeholder Engagement and Benefit Sharing**, together with LIVESEED project and Wageningen University. The Summer school will be held in Wageningen from 16 to 21 August 2020. Below the draft programme of the training, that will be finalised in the coming weeks.

The website of the Summer School is already online for registration: <https://www.pe-rc.nl/PPB-RSS>. Reduced fees are planned for DYNAVERSITY partners.

### Outline: Summer school / Postgraduate course

**Title:** Participatory Plant Breeding and Resilient Seed System Development: Options for Stakeholder Engagement and Benefit Sharing

**Credits points (ECTs):** 1.5

**Local organiser:** The Graduate School Production Ecology & Resource Conservation (PE&RC) will host the course (Claudius van de Vijver/Edith Lammerts van Bueren, Wageningen University and Research-Wageningen, NL)

**Scientific organisers:** Edith Lammerts van Bueren and Eva Weltzien (on behalf of Global Alliance of the Future of Food-GAFF), Conny Almekinders (on behalf of Roots-Tubers-Bananas-RTB), Veronique Chable and Riccardo Bocci (on behalf of DYNAVERSITY), and Monika Messmer on behalf of Liveseed.

**Venue:** Congress Centre De Werelt in Lunteren: [www.dewerelt.nl/congrescentrum/lunteren](http://www.dewerelt.nl/congrescentrum/lunteren)

**Dates:** 16 – 21 August 2020

### Preliminary program

Three speakers per morning means for each speaker 30 min ppt and 30 min discussion after each presentation.

**Day 1:** Sunday: [one keynote speaker]

- Welcome and opening: technical/logistic set up of the course (Claudius vd Vijver, PE&RC, 20 min)
- Poster carousel by all participants to introduce themselves, 2 hours
- Keynote speech: Overall introduction on all topics of this week -Salvatore Ceccarelli (RSR; DYNAVERSITY) (45 min)

**Day 2:** Monday: Technical Breeding aspects: [three speakers]

*Content: Alternative options for organising Participative Plant Breeding (PPB), taking biological concerns into consideration e.g. propagation biology, annual vs perennial, high and low multiplication ratios, intra-varietal diversity; what can be done by whom and where?*

- Veronique Chable (INRAE Rennes in FR, DYNAVERSITY) – example of PPB with brassica's (and other vegetables?) in France.

- Monica Messmer (FiBL-CH, LIVESEED) – example of PPB cotton in India (including involvement/financing by cotton industry)
- Baloua Nebie (ICRISAT-Burkina Faso/Mali) Sorghum breeding for stover and grain quality with farmer researcher network (hybrids and open pollinated varieties).

#### Reserves

- Ricardo Bocci: composite cross populations and regulation
- Fetien Abay (Mekelle University, Ethiopia) – barley breeding for injera quality
- Bettina Haussmann – example pearl millet dynamic genepool management (cross pollinated, low-input, high genetic diversity)
- Kirsten vom Brocke (CIRAD Madagascar): Rice breeding
- Isabelle Goldringer (INRA) cereal breeding PPB and evolutionary breeding in Europe.

#### **Day 3:** Tuesday: Involving actors of the value chain [3 speakers]

*Content: Multi-stakeholder science, collaborative learning, knowledge sharing and networking approaches to engage food system and value chain actors into PPB programs for enhancing resilience in seed systems.*

- Martha Willcox – (Cimmyt, Mexico; GAFF) chefs, maize, local landraces, or from the Oaxaca groups/Mexico
- Jane Rabinowics (USC, Canada; GAFF) - Community seed bank experiences with oats, wheat, maize, potatoes, beans, and many vegetable crops in Canada, and in collaboration with our partners in Asia, Africa, and Latin America
- Margret McEwan (OFSP, Africa; RTB) – example of sweet potato

#### Reserves:

- Monika Messmer (FiBL-CH/LIVESEED) – models for financing organic plant breeding? (e.g. examples of cotton in India)
- Micaela Colley (Organic Seed Alliance, USA) - breeding with chefs and vegetables in USA
- Baloua Nebie (ICRISAT-Mali) sorghum breeding for stover and grain quality with farmer researcher network
- Sidi Sanyang (Africa Rice): Example: Innovation Platforms and Rice Research collaboration – West Africa

#### **Day 4:** Wednesday morning: Creating innovative seed systems [three speakers]

*Content: Experiences with diverse seed dissemination models, underlying culture (norms and values: e.g. you don't sell seed, but share seed) and assumptions, with possibly examining financial and entrepreneurship options (cooperatives, seed savers groups, where do we need or is innovation possible, how does one integrate innovative approaches in traditional programs), getting your objectives right, understanding how seed systems work and farmers think/work.*

- Conny Almekinders (WUR, RTB Africa)– seed systems concepts and (alternative) paths for development (values and norms)
- Simon Groot, Eastwest (Asia), winner of the world food prize 2019, [https://www.worldfoodprize.org/en/laureates/2019\\_groot/](https://www.worldfoodprize.org/en/laureates/2019_groot/)
- Eva Weltzien (Mali/GAFF)

Reserves:

- Louise Sperling/Jean-Claude Rubiogo: Business models for legume seed dissemination
- Peter Gildemacher, KIT-NL, innovative seed systems
- Farmer seed cooperatives – possible examples from Ethiopia, Uganda, Mali, Burkina Faso, Benin
- Village Seed banks – USC Canada, or Mexico actors
- Paul Struik (WUR) – Seed system problems in potato – various examples from the South

Wednesday afternoon: field excursion on the example of the collaborative potato breeding model in NL (farmers, breeders, researchers and value chain)

- Edith Lammerts van Bueren (WUR/LBI/GAFF)

**Day 5:** Thursday: Policy options (three-four speakers)

*Content: Seed policy options, experiences with implementing Farmers' Rights and benefit sharing options based on the International Treaty for PRGFA; Seed systems for enhancing genetic Diversity in Farmers' Fields; intellectual property rights and ownership issues.*

- Bert Visser – Oxfam Novib project on seed systems and DYNAVERISTY Advisory Board; farmer's rights, benefit sharing
- Marja Thijssen/Abishkar Subedi (WUR/ISSD Africa), Enhancing reliable access to quality seed, see <https://www.wur.nl/en/project/Comprehensive-programme-integrated-seed-sector-development-in-Africa.htm> [she addresses innovative policies/concepts and pleads for pluriform seed systems]
- Riccardo Bocci (RSR, DYNAVERSITY) – The new opening on organic heterogeneous material (evolutionary breeding) in Europe.

Reserve:

- Anja Christinck – Farmers Rights, and experiences with Benefit sharing agreements
- Someone from the ITPGRFA

**Day 6:** Friday: presentations by participants of group work

Departure after lunch

## Annex I

### The RSR training course on Participatory Plant Breeding February 2020

<b>Giorno 1 – Febbraio 2020- ore 10.30-17.30</b> <b>Coltivare la diversità: dalla conservazione alla gestione partecipata</b> <b>R. Bocci</b>	
<ul style="list-style-type: none"><li>• introduzione al corso e definizioni; Introduzione storica e politica della gestione delle risorse genetiche in agricoltura</li></ul>	
<ul style="list-style-type: none"><li>• Gli accordi internazionali da CBD Nagoya a ITPGRA</li></ul>	
<ul style="list-style-type: none"><li>• La ricerca e partecipazione degli utilizzatori della innovazione</li></ul>	
<ul style="list-style-type: none"><li>• Reti di ricerca internazionale e strategie di reti multistakeholder</li></ul>	
<ul style="list-style-type: none"><li>• Il sistema legale europeo e la sua evoluzione in riferimento al mondo biologico</li></ul>	

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#### **Giorno 2 – Febbraio 2020 - ore 9.30-17.30** **Progettare ed implementare un programma di miglioramento partecipato .**

**S. Ceccarelli**

<ul style="list-style-type: none"><li>• Questioni epocali (climate change , nutrizione, fame e governance del food system )</li></ul>
<ul style="list-style-type: none"><li>• Teoria della selezione: dalla selezione centralizzata a quella decentralizzata</li></ul>
<ul style="list-style-type: none"><li>• Efficienza del miglioramento genetico</li></ul>
<ul style="list-style-type: none"><li>• Miglioramento partecipativo delle piante</li></ul>
<ul style="list-style-type: none"><li>• Successi e riconoscimenti di PPB</li></ul>
<ul style="list-style-type: none"><li>• Perché la partecipazione degli agricoltori è ancora marginale</li></ul>
<ul style="list-style-type: none"><li>• La scienza della selezione evolutiva delle piante: dal PPB all'EPB</li></ul>
<ul style="list-style-type: none"><li>• Popolazioni in evoluzione e resistenza alle malattie</li></ul>
<ul style="list-style-type: none"><li>• Stabilità del rendimento delle popolazioni in evoluzione</li></ul>
<ul style="list-style-type: none"><li>• Recenti sviluppi nella selezione evolutiva delle piante</li></ul>

**Giorno 3 – Febbraio 2020 - ore 9.30-17.30**  
**Metodi e pratiche per la produzione sementiera decentralizzata e in azienda agricola**

**S. Ceccarelli**

- Come fare una popolazione evolutiva
- Come possono essere utilizzate le popolazioni evolutive
- Quanto velocemente una popolazione evolutiva si adatta
- Una popolazione evolutiva con il tempo perde la diversità?
- Miscele che non dovrebbero evolvere
- Selezione all'interno delle popolazioni evolutive di colture autoimpollinate.
- Strategie di selezione:
- Gestione dai dati, strategie ed efficienza

**Giorno 4 – Febbraio 2020 - ore 9.30-12.30**  
**Strategie e strumenti per la costruzione di sistemi collettivi di gestione dell'innovazione in agricoltura.**

**R.Franciolini, M. Petitti, Ponzini D.**

- Analisi dei sistemi sementieri e la facilitazione degli attori di rete
- Il decentramento dei sistemi sementieri e adattamento locale della risorsa genetica - adattamento ai cambiamenti climatici
- La gestione delle case delle sementi a livello di comunità
- Il progetto di ricerca partecipato sul "riso resiliente" Integrazione dei modelli di ricerca tra selezione e strategie di gestione agronomica nei sistemi low inputs e biologico