



## NEWSLETTER ISSUE #3

Following several exciting months and a lot of productive problem solving, we are very happy to present you the third edition of the AGENT newsletter. Our second progress meeting in Prague provided our first chance for partners to get acquainted face to face, and to have a first look at thrilling preliminary results of the Czech host CRI. In recognition of the historical inauguration of the new ICARDA Morocco genebank in May, we took the opportunity to present some of the highly renowned researchers of ICARDA. Our partners participated in these alongside a busy schedule of presentations, discussions, and other events run by and for consortium members, during the course of which many promising results from the AGENT project were presented — many of which are already published in scientific journals. Please enjoy this third edition of our newsletter and watch this space for more inspiring AGENT news over the coming months!

### Project Meetings



#### **Talks, a field visit and an in-person get-together: 2nd progress meeting of AGENT in Prague**

From 10 until 12 May 2022, the AGENT project held its 2nd progress meeting. Partners were able to attend the meeting in Prague or virtually. Following many online conversations since the project started, the Prague meeting allowed partners to meet in person for the first time.

After introducing the CRI team, who were hosting the event, scientific coordinator Prof. Nils Stein warmly welcomed all participants to the meeting. This was followed by compelling presentations on the progress of three different work packages, and a key highlight of the three-day conference: a tour of the CRI genebank. To conclude the day, a joint dinner with all participants present in Prague took place at the host institution. The second meeting day continued with presentations on the progress of the work packages. Insightful talks provided detailed information, and productive discussions inspired the consortium on-site and virtually both before and after the joint lunch break at the venue. In the late afternoon, all in-person participants explored the beautiful city centre of Prague on a sightseeing tour before enjoying another excellent dinner in a typical restaurant in the old town.



On the final meeting day, a general discussion on open items and new tasks provided the opportunity to review the presentations from the days before, and to debate the next steps in the project. After the wrap-up by Prof. Stein, the consortium was invited to conclude the meeting with a visit to the genebank's field experiments.

The Prague event provided an excellent opportunity to meet partners in person for the first time, and offered the perfect platform to present exciting progress in the project, identify action points, and inspire consortium members towards a successful future of teamwork and cooperation.

## Spotlight on ... ICARDA

### What is ICARDA

The international center for agricultural research in the dry areas (ICARDA) is one of 15 CGIAR centers that jointly represent a global research partnership for a food secure future, dedicated to reducing poverty, enhancing food and nutrition security, and improving natural resource management. ICARDA holds a global mandate for improving resilience in non-tropical drylands of the developing world, with a focus on Africa, Asia, and the Middle East. Among its activities, ICARDA develops crops and livestock adapted to the impacts of climate, human development, pests and disease. ICARDA scientists are responsible for collecting, conserving, researching plant genetic resources vital for climate-smart crops, but also establishes innovative soil, water, and agronomy technologies, all targeted at increasing farmer incomes through better agricultural systems and market access.

The ICARDA genebank is the fourth largest repository of plant diversity in the world, storing 152,216 accessions of which 60% represent rare specimens of landraces or wild relatives. On the 18th of May 2022, ICARDA inaugurated its new building in Morocco in the presence of His Excellency Dr. Mohamed Sadiki, Morocco's Minister of Agriculture. This state-of-the-art facility stores one of the world's most unique and extensive collections of wheat, barley, chickpeas, faba beans, and lentils. Research into this genetic material forms the basis of breeding programs that aim to deliver domestic alternatives to the widely imported staple crops under pressure today. This genebank is the third that ICARDA has established since the research center was founded in 1977. It was first established in 1989 near Aleppo in Syria, followed by a second in Terbol Lebanon in 2018. With the capacity to hold over 95,000 accessions, this third building in Morocco returns ICARDA to full accession storage capacity, following serious recent disruptions to normal operations in Syria.

### **AGENT plant resources being grown at the genebank station of Marchouch, Morocco**



Final multiplication of landraces

Check trial of wheat with clear differentiation between spring and non-spring types.

ICARDA's genebanks in Lebanon, and now Morocco, embedded within the overall CGIAR genebank system, work in parallel to collect important plant specimen from the local region and beyond. ICARDA's Lebanese genebank specializes in conserving wild crops and forages species from the area historically known as the 'Fertile Crescent', where agriculture first emerged. Both genebanks work with crop breeders to evaluate and disseminate adapted crop varieties to farmers, global researchers, and breeding programs.

[Read more](#)

## The AGENT team of ICARDA

As part of its contribution to the AGENT project, ICARDA facilitates access to its stored germplasm, and also its extensive institutional knowledge of genebank operations. In particular, as leader of WP4, ICARDA brings its capacity to deploy the latest machine learning and statistical models to identify top performing landraces via the use of genomics and the climates of the place of collection. In addition, its extensive field capacity will allow the characterization of AGENT collections for their response to various abiotic and biotic stresses.

Meet the four ICARDA scientists participating in the AGENT project.



### Filippo Bassi - Team Leader

*"This is an inspiring project to truly bring together the rich diversity of the genebank to the needs of breeders to develop better varieties capable of withstanding the whims of the changing climates, and it is an honor for me to lead an outstanding team of statisticians to really make the project vision a reality".*



### Zakaria Kehel - Team Member

*"Seed stored at genebanks is of great importance and data related to it makes it even more useful. AGENT project works toward putting standards in place for phenotypic and genomic data related to accessions and unifies ways of mining and analyzing such information to increase its use".*



### Andrea Visioni - Team Member

*"As cereal pre-breeder it is an honor and a pleasure to have the opportunity of participating in a project like AGENT. The identification of germplasm with increased tolerance of both abiotic and biotic stresses is crucial to meet the future needs of the world population in terms of food security".*

### Meryem Zaim - Team Member

*"AGENT creates a large network for exchanging and deploying genetic resources. This will boost our capacity to discover better diversity, giving*



*breeders faster access to it, to help solve the many issues of climate change stresses on crops. It's a great opportunity for me to be part of this important project".*

[Read more](#)

## Communication and dissemination activities

### Interview

During the 2nd progress meeting in Prague, our coordinator Prof. Nils Stein from IPK gave an exclusive interview on the AGENT project to a Czech journalist.

[Interview in English](#)

[Interview in Czech](#)

### Recent publications

We are pleased to present here the current scientific publications from the consortium.

- Daniel Arend, Dennis Psaroudakis, Junaid Altaf Memon, Elena Rey-Mazón, Danuta Schüler, Jędrzej Jakub Szymanski, Uwe Scholz, Astrid Junker and Matthias Lange. From data to knowledge – big data needs stewardship, a plant phenomics perspective. *The Plant Journal*, 10 May 2022. doi: 10.1111/tpj.15804.
- Sebastian Beier, Anne Fiebig, Cyril Pommier, Isuru Liyanage, Matthias Lange, Paul J. Kersey, Stephan Weise, Richard Finkers, Baron Koylass, Timothee Cezard, Mélanie Courtot, Bruno Contreras-Moreira, Guy Naamati, Sarah Dyer and Uwe Scholz. Recommendations for the formatting of VCF files to make data FAIR. *F1000 Research*, 19 May 2022. doi: 10.12688/f1000research.109080.2.
- Yong Jiang, Stephan Weise, Andreas Graner and Jochen C. Reif. Using Genome-Wide Predictions to Assess the Phenotypic Variation of a Barley (*Hordeum sp.*) Gene Bank Collection for Important Agronomic Traits and Passport Information. *Front. Plant Sci.*, 11 January 2021. doi: 10.3389/fpls.2020.604781.

### Events

#### **AGENT project at “Agriculture for Life, Life for Agriculture”**

Liliana Vasilescu (NARDI Fundulea) has presented a poster at the 11th edition of the International Conference “Agriculture for Life, Life for Agriculture”. The conference was hosted by the University of Agronomic Sciences and Veterinary Medicine (UASVM) of Bucharest, Romania and took place from the 2nd to the 4th of June.

#### **ECPGR Steering Committee Meeting in Malmo, Sweden**

During the 16th Steering Committee (mid-term) meeting in Malmo, Sweden, from the 7th to the 9th of June, ECPGR members were informed about progress in ECPGR related projects, including AGENT. Promotional material was handed out to participants. Find some further information on the meeting [here](#).

#### **Visit of a class of the University of Milano (Italy) to the AGENT field of CREA-CI in Vercelli**

On June, 10th, 2022, a group of students and professors from the University of Milano, Faculty of Agricultural and Food Sciences, came to visit the AGENT field in Vercelli. Patrizia Vaccino and Francesca Sansoni gave an overview of the project and led the students across the AGENT trials in the field.



### **Innovative design and implementation of next-generation Point-of-Care CAR-T**

From the 15th to the 17th of June 2022 the 12th Congress of the Italian Association of Cereal Science and Technology in Portici, Naples, Italy, took place, focussing on the topic "Cereals and Science: resilience, sustainability and innovation". Patrizia Vaccino presented a poster with a schematic description of the main activities carried out within the Agent project.

## **Upcoming events**

7th-8th March, 2023

### **Training of trainers to enable local dissemination of knowledge, Gatersleben, Germany.**

This workshop will include training (databases, tools, web services) for persons that are responsible for, or are involved in, plant genetic resources data life cycle, and on-site tool support. A more detailed agenda for the workshop will be communicated in due course.

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