

# GRAIN LEGUMES WG REPORT FOR PHASE X (2019-2023)

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## 1. CONTRIBUTION TO ECPGR OBJECTIVES

### 1.1. Achievements and success stories

- To efficiently conserve and provide access to unique germplasm in Europe through AEGIS and the European Collection

In the frame of the Activities Smartleg, EuGrainLeg, germplasm of *Phaseolus sp.* and *Lathyrus sp.* was characterized, evaluated and conserved.

- To provide passport and phenotypic information of actively conserved European PGRFA diversity *ex situ* and *in situ* through the EURISCO catalogue

Partial passport and phenotypic data of germplasm investigated in Smartleg and EuGrainLeg Activities are available through the EURISCO catalogue.

- To improve *in situ* conservation and use of crop wild relatives

National initiatives related to the use of crop wild relatives mainly in relation with increasing awareness of the Plant Genetic Resources Strategy for Europe

- To promote on-farm conservation and management of European PGRFA diversity

National initiatives related to on-farm conservation mainly in relation with increasing awareness of the Plant Genetic Resources Strategy for Europe

- To promote use of PGRFA
- National initiatives related to use PGRFA mainly in relation with increasing awareness of the Plant Genetic Resources Strategy for Europe
- Large promotion of Citizen Science Experiments such as the INCREASE project. Members of Grain Legumes Working Group are active in this initiative, which covers Europe and involves a few thousand participants (more than 9,000 only in the third round). The experiment is led by IPK, member of the Grain Legume Working Group. Moreover, focusing on chickpea, common bean, lentil and lupin, the project designed a new approach to conserve, manage and characterize genetic resources leading to benefits on different levels.
- Serving this model other approaches were developed. One was submitted to **IMPETUS: setting a citizen science innovation programme for exploring innovative funding schemes and boosting recognition**, in relation to the funded ECPGR ExploDiv Activity

***(Exploring Legumes Diversity and its Potential to Straighten Local Community – LEGACY)***

**1.2. Gaps or constraints identified**

Time resources difficult to be valorized simultaneously at the group level.

**2. GRANT SCHEME ACTIVITIES, WG MEETINGS AND EVA ACTIVITIES**

- **Grant Scheme proposals (submitted:2; approved:2 (Dec 2022))**
  - [Exploring grain legumes diversity for sustainable European agri-food systems \(ExploDiv\)](#) (6<sup>th</sup> call)
  - [Fostering the need for implementation of the ECPGR European Evaluation Network \(EVA\) on grain legumes \(forEVA\)](#) (6<sup>th</sup> call)
- **Total number of partners involved: 23 from 20 countries**
  - ECPGR-funded: 21 from 18 countries
  - Self-funded: 2 from 2 countries
- **Meetings held**
  - EUGrainLeg Activity (Phase IX) meeting, 10-11 April 2019, Bucharest, Romania
- **Reports and related data**
  - [EUGrainLeg \(Phase IX\) Final Activity Report](#) (2023)
  - [SMARTLEG \(Phase IX\) Final Activity Report](#) (2023)
- **Funds mobilized**
  - ECPGR granted funds: € 45,100
  - Inputs in-kind declared in Grant activities: € 22,913.46
  - Inputs in-kind declared in Grant activities: n/a

**3. OTHER ACTIVITIES (CROSS-WORKING GROUP ACTIVITIES, LINKS WITH OTHER NETWORKS, INTERNATIONAL PROJECTS AND INITIATIVES)**

- **Online event** – World Pulses Day, February 10<sup>th</sup> 2023, organized by Grain Legume WG, hosted by VRDS Bacau (chair affiliated institute) – attendance of 100 participants
- **International projects and initiatives of Grain Legumes WG members:**
  - **BeanAdapt ERA-CAPS project Bean\_Adapt** - “EVOLUTION IN A CHANGING ENVIRONMENT: THE GENETIC ARCHITECTURE OF ADAPTATION OUTSIDE CENTERS OF DOMESTICATION OF *Phaseolus vulgaris* and *P. coccineus*”

- **BRESOV** BREEDING FOR RESILIENT, EFFICIENT AND SUSTAINABLE ORGANIC VEGETABLE PRODUCTION
- **ECOBREED** INCREASING THE EFFICIENCY AND COMPETITIVENESS OF ORGANIC CROP BREEDING
- **INCREASE** INCREASING THE EFFICIENCY AND COMPETITIVENESS OF ORGANIC CROP BREEDING
- **EUCLEG** BREEDING FORAGE AND GRAIN LEGUMES TO INCREASE EU'S AND CHINA'S PROTEIN SELF-SUFFICIENCY

#### 4. WORKING GROUP DOCUMENTS AND PUBLICATIONS

- García-Fernández C, Jurado M, Campa A, Brezeanu C, Geffroy V, Bitocchi E, Papa R, Ferreira JJ. [A Core Set of Snap Bean Genotypes Established by Phenotyping a Large Panel Collected in Europe](https://doi.org/10.3390/plants11050577). *Plants*. 2022; 11(5):577. <https://doi.org/10.3390/plants11050577>
- Rocchetti L, Gioia T, Logozzo G, Brezeanu C, Pereira LG, Rosa LD, Marzario S, Pieri A, Fernie AR, Alseekh S, et al. [Towards the Development, Maintenance and Standardized Phenotypic Characterization of Single-Seed-Descent Genetic Resources for Chickpea](http://dx.doi.org/10.1002/cpz1.371). *Current Protocols*. 2022;2(2). <http://dx.doi.org/10.1002/cpz1.371>.
- Bellucci E, Mario Aguilar O, Alseekh S, Bett K, Brezeanu C, Cook D, De la Rosa L, Delledonne M, Dostatny DF, Ferreira JJ, et al. [The INCREASE project: Intelligent Collections of food-legume genetic resources for European agrofood systems](http://dx.doi.org/10.1111/tpj.15472). *The Plant Journal*. 2021;108(3):646–660. <http://dx.doi.org/10.1111/tpj.15472>.
- Sinkovič L, Pipan B, Sinkovič E, Meglič V. 2019. [Morphological seed characterization of common \(\*Phaseolus vulgaris\* L.\) and runner \(\*Phaseolus coccineus\* L.\) bean germplasm: a Slovenian Gene Bank example](https://doi.org/10.1155/2019/6376948). *BioMed Research International*, vol. 2019, Article ID 6376948, 13 pages, 2019. <https://doi.org/10.1155/2019/6376948>.
- De Ron AM, Rodiño AP, Gioia T, Brezeanu C, Burzo I, Janse van Rensburg B, Pastor Corrales MA, Nay MM, Fourie D, Nkhata W, Shimelis H, Solberg SØ, Logozzo G, Marzario S, Gonçalves-Vidigal MC, Vaz-Bisneta M, Valentini G, Galván MZ, Abán C, Brezeanu PM. (2022). [Common Bean Genetics, Breeding, and Genomics for Adaptation to Biotic Stress Conditions](https://doi.org/10.1007/978-3-030-91043-3_1). In: Kole C (eds) *Genomic Designing for Biotic Stress Resistant Pulse Crops*. Springer, Cham. [https://doi.org/10.1007/978-3-030-91043-3\\_1](https://doi.org/10.1007/978-3-030-91043-3_1)

#### 5. EXPECTED ADDITIONAL ACHIEVEMENTS AND FUTURE ACTIVITIES THAT COULD CONTRIBUTE TO THE IMPLEMENTATION OF THE PGR STRATEGY FOR EUROPE

The development of an EVA network dedicated to legumes, designing an approach to bring stakeholders and end-users of PGR in direct contact with research.

Development of a core consortium focused on the identification of calls and development of ideas for projects to contribute to the implementation of the PGR Strategy.