

GRAIN LEGUMES WG REPORT (2024–2025)

In preparation for the 18th Steering Committee Meeting, Tbilisi, Georgia, 2-4 June 2026

Compiled by WG Chair: Creola Brezeanu

Date of compilation: January 2026

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
The Grain Legumes WG advanced the conservation and accessibility of unique germplasm by implementation of two projects funded under the Grant Scheme, which were designed to align with the prioritized ECPGR objectives:
 - *ExploDiv (Exploring grain legumes diversity for sustainable European agri-food systems)* to secure the vast diversity of grain legumes. The focus was on local germplasm. Within ExploDiv, nine partners collected, regenerated and evaluated local and traditional genotypes, thereby increasing their availability for long-term *ex situ* conservation. The activities included multiplication, monitoring plant viability during cultivation, and phenotyping of a minimum of 40 accessions for each of nine locations (the number was exceeded in some partners/locations). Agronomic evaluation of a subset of accessions (10–15 accessions per location), in low-input crop management systems and/or different agroclimatic conditions, facilitated the selection of grain legume local accessions for inclusion in AEGIS and/or for promoting their use. ExploDiv played a pivotal role in enhancing the value of grain legume diversity by identifying and safeguarding critical genetic materials, especially those that bolster resilience to climate change. In the long term, these efforts hold significant potential to stimulate local and rural economies, support diverse agro-ecosystems, and foster the development of new food and non-food value chains. By its actions, ExploDiv reinforced the collaboration among the members of the Grain Legumes WG and contributed to the improvement of European and mainly regional genetic resources conservation and use. Access to valuable and unique germplasm is or will be made available through the EURISCO catalogue. Important notes: (1) Some PGRs are already introduced in EVA Legumes for wide evaluation, enlarging and ensuring in this manner access to PGR, and (2) some materials were tested across different EU projects, so the complete final data will be made publicly available after the projects have concluded.
 - *ForEVA (Fostering the need for implementation of the ECPGR European Evaluation Network (EVA) on grain legumes projects)*. The project successfully united partners from 24 European genebanks and research institutes, along with over 35 interested stakeholders from both the public and private sectors, collectively motivated to establish the new EVA network for legumes. The aim was to establish a comprehensive framework for selecting and managing genetic resources effectively. The Activity contributed to and updated the European grain legumes genetic resources and diversity required by users' needs in food and agriculture. The EVA Legumes Network was established and is in operation in the framework of the EVA Boost project.

- Moreover, from previous actions, funded under the Grant Scheme, such as EUGrainLeg, seeds of *Lathyrus* accessions are being maintained (during the reporting time); some of these accessions were included in AEGIS within the framework of the EUGrainLeg project.
- To provide passport and phenotypic information of actively conserved European PGRFA diversity *ex situ* and *in situ* through the EURISCO catalogue
Here is a selective update of partners' reports in ExploDiv:
 - Denmark Danish Seedsavers: phenotypic data from 11 bean and 6 pea accessions available
 - Portugal, Banco Português de Germoplasma Vegetal (BPGV) – INIAV ExploDiv: Passport data from 40 entries were provided, EVA: 44 accessions were provided. Seed increase for a set of 15 accessions was concluded in 2023 to be made available for 2024 agronomic evaluation. The data collected will be integrated into the Grin Global platform and subsequently into EURISCO. Agronomic evaluation of a subset of 15 accessions was carried out in the BPGV experimental fields, following the defined protocols. 43 traits were evaluated for 24 accessions, including the 15 selected accessions. For the remaining, 22 traits were evaluated. The data will be made available via EURISCO.
 - Bulgaria Institute of Plant Genetic Resources “K.Malkov”. Within the ExploDiv project, DOI identifiers were assigned to the 40 evaluated pea and faba bean accessions. The evaluation descriptors were recorded in standardized Excel tables and submitted to the institutional officer responsible for this activity for inclusion in the EURISCO databases.
 - Serbia (Institute of field and vegetable crops, IFVCNS) - A collection of 40 accessions a total of *Phaseolus vulgaris* (21) and *Cicer arietinum* (19) was established. 10 accessions of *C. arietinum* were sown in 2023. The full set was proposed for investigations during the 2024 season. In addition to this, the Serbian partner did a small survey and collection of common bean accessions maintained on farm from several locations in Serbia, where the gaps were identified (mainly Western Serbia). Moreover, around 60 accessions were collected, and they are firstly subject of seed increase before evaluation – C&E data for 65 common bean accessions already existing in EURISCO were uploaded; Passport data and C&E data for new 268 accessions of common bean were uploaded; C&E data of 8 grass pea accessions already in EURISCO were uploaded; Passport data and C&E data of 458 field pea accessions were uploaded (all this work was related to the EVA Boost project).
 - Germany, Leibniz Institute of Plant Genetics and Crop Plant Research (IPK). Data were generated for a collection consisting of two characterized and regenerated species – *Cicer arietinum* and *Lathyrus sativus* – including controls (95 chickpea genebank accessions and 96 grasspea genebank accessions). The best 50 accessions of chickpea and 30 of grass pea were characterized and evaluated. DOIs were assigned to the material. Based on morphological and agronomic characters as well as β -ODAP content in grass pea, some suitable accessions were identified and will be made available to German farmers. The data are part of the CiLaKlima project, funded by the German Ministry of Agriculture. After finishing the project, the data will be available in the Genebank Information System of IPK (GBIS) and in EURISCO.
 - Slovakia National Agricultural and Food Centre Research, Institute of Plant Production. 40 Slovak accessions of common bean were multiplied within the ExploDiv project in 2023. After their complete phenotypic evaluation based on selected descriptors, 15 promising genotypes were identified and selected for further multi-year evaluation. These genotypes were subsequently resown and evaluated in 2024 and 2025, allowing verification of their agronomic characteristics, stability of trait expression, and responses to different environmental conditions across years. Within the ForEVA project, 10 genotypes from the Slovak bean collection and 6 genotypes of Serbian origin were selected in 2024 and subsequently multiplied to secure

sufficient material for agronomic and phenotypic evaluation. In 2025, a detailed assessment of these accessions was carried out using the selected descriptors, capturing phenological, morphological, and health-related traits important for further use of the material. The data obtained from both projects have been processed into a unified structure and are prepared for further editing and subsequent integration into the EURISCO database, where they will contribute to improved documentation of Slovak bean diversity and enhance its availability for international use.

- Romania Vegetables Research and Development Station, Bacă. The unit surveyed and selected 92 PGR, 40 lines of *Phaseolus vulgaris* and 52 of *Lupinus sp.* Phenotyping and seed multiplication were successfully conducted. 20 *Phaseolus vulgaris* lines and 5 *Lupinus albus* lines were chosen for agronomic evaluation using a randomized block design. The evaluation provided valuable data for analysis and assessment of *Phaseolus vulgaris* and *Lupinus albus*. Data are in the process of integration and will be available in EURISCO.
- Slovenia (The Agricultural Institute of Slovenia (KIS)) made significant progress in the ExploDiv project by surveying and selecting 40 PGR, including 20 lines each of *Lupinus albus* and *L. mutabilis*. Phenotyping and seed multiplication were successfully conducted under protected conditions. 12 lines and 2 controls were chosen for agronomic evaluation on 36 plots using a randomized block design in association with the INCREASE project. While the results are ready, we are planning to prepare a publication in a broader context to present the diversity of the two lupin species and compare them using agronomic evaluation data to also highlight intraspecific diversity. After that, the data will be shared for transferring to the EURISCO database.
- The Nordic Genetic Resource Center, Sweden. A collection of 30 accessions of *Phaseolus vulgaris* was selected, sown, regenerated and phenotyped in 2023. Selection of 10–15 accessions was planned for 3–4 field trials in contrasting environments in 2024, together with additional regeneration if needed. Some seeds were exchanged to be tested in Romanian climate conditions.

- **To improve *in situ* conservation and use of crop wild relatives**
In the area of *in situ* conservation and the use of crop wild relatives, two separate initiatives have been reported by WG members:
In Bulgaria, this activity has been funded exclusively through the successful acquisition of a project with this specific focus.
There is an initiative of a publication related the Exploring Legume Crop Wild Relatives: A Pathway to Resilient Organic Cropping Systems (draft, Creola Brezeanu)

- **To promote on-farm conservation and management of European PGRFA diversity**
Synergistic activities and complementary achievements of the Grain Legumes WG members were documented as follows:
 - At the end of 2025, a project funded by the Bulgarian National Science Fund was awarded, with the main objective being the on-farm conservation of a winter form of bitter vetch and its inclusion in production trials under the conditions of Sadovo and the Eastern Rhodopes.
 - IFVCNS – Serbia. Survey and collection of common bean accessions from several locations in Serbia, where gaps were identified. During 2023 and 2024, around 60 accessions were collected mainly from Western Serbia via a citizen science approach. Another 14 accessions of common bean were collected directly from farmers during a 5-day field expedition, organized in September 2024 in Eastern and Southern Serbia. Together with seeds, traditional knowledge on these landraces was gathered via questionnaires presented to farmers. Data collected from farmers included: name and surname of farmers, age, telephone number, location of the farm (village, address, coordinates), cultivation duration of the landrace by the family,

cultivation area of that landrace; how did the landrace arrive in the household (inherited, exchanged with somebody from the same or other village, origin from genebank), future plans for the cultivation; reasons for the cultivation (seed phenotype, maturity, biotic and abiotic stress resistance, historic and traditional interest, etc.), way of meal preparation; possible risk of cultivation abandonment. These collected landraces are still being maintained on the farm. Activities regarding the collection of locally grown bean accessions were continued during 2025. However, during this period, only network of citizen scientists, covering large area of Serbian territory, interested in the collection of common bean landraces, was created, and we expect that it will prove first results during 2026.

- To promote use of PGRFA
 - This was approached and achieved using different strategies (within the framework of funded actions of ECPGR or/and in association with other initiatives)
 - The results of the agronomic assessments conducted in ExploDiv during 2024–2025 provided a comprehensive set of data that significantly contributes to a better understanding of the potential of grain legumes genetic resources in different growing conditions. The data obtained allows the identification of genotypes with higher yield stability, better adaptation to adverse conditions or with favourable pod and seed properties, which increases their practical utility in agricultural practice. This information is valuable for farmers, professional institutions and collection managers, as it helps in the selection of material suitable for sustainable cultivation, diversification of production or replenishment of existing collections. The findings also draw attention to genotypes that show specific adaptive properties – such as better tolerance to drought, high temperatures or selected diseases (viral diseases, rust, anthracnose). Such materials represent an important source for further professional use and strengthen the practical importance of genetic resources in the European area.
 - With the support of ExploDiv and other above-mentioned projects (Bulgarian National Science Fund) part of the PGR considered in ExploDiv project were:
 - Introduced in EVA Legumes evaluation, their use/ exploration is being promoted for different purposes by the public and private sectors involved in EVA Legumes.
 - Reintroduced in agriculture (the use of bitter vetch, as well as to promote its utilization as a valuable raw material in food technologies).
 - Via different publications, developed especially in association with other projects and programmes
 - TANWAR, Umesh Kumar, TOMASZEWSKA, Magdalena, CZEPIEL, Katarzyna, NEJI, Mohamed, JAMIL, Humaira, ROCCHETTI, Lorenzo, PIERI, Alice, BITOCCHI, Elena, BELLUCCI, Elisa, PIPAN, Barbara, MEGLIČ, Vladimir, OPPERMANN, Markus, KROC, Magdalena, PAPA, Roberto, SUSEK, Karolina. Establishment and phenotypic characterization of genetically diverse core collections of *Lupinus albus*. *BMC plant biology*. 2025, vol. 25, [article no.] 1256, str. 1-24, ilustr. ISSN 1471-2229. DOI: [10.1186/s12870-025-07115-3](https://doi.org/10.1186/s12870-025-07115-3). [COBISS.SI-ID 251798531]
 - PIPAN, Barbara, SINKOVIČ, Lovro, NEJI, Mohamed, MEGLIČ, Vladimir, SUSEK, Karolina, KROC, Magdalena, BELLUCCI, Elisa, BITOCCHI, Elena, PAPA, Roberto. Application of non-destructive MARVIN and NIR seed screening of pre-breeding material: A case study on common bean (*Phaseolus vulgaris*), white lupin (*Lupinus albus*) and Andean lupin (*L. mutabilis*). *Seed science and technology*. 2025, vol. 53, no. 1, str. 51-72, ilustr. ISSN 1819-5717. DOI: [10.15258/sst.2025.53.1.06](https://doi.org/10.15258/sst.2025.53.1.06). [COBISS.SI-ID 226881795]
 - SINKOVIČ, Lovro, TAVAKOLI HASANAKLOU, Hourieh, NEJI, Mohamed, PLESTENJAK, Eva, DOLNIČAR, Peter, MEGLIČ, Vladimir, PIPAN, Barbara. Combining multi-criteria decision analysis with agro-morphological-biochemical-molecular traits of interest for use in breeding in promising common bean breeding

- lines (*Phaseolus vulgaris* L.). *Cogent food & agriculture*. Dec. 2024, vol. 11, issue 1, [article no.] 2439551, 17 str., ilustr. ISSN 2331-1932. DOI: [10.1080/23311932.2024.2439551](https://doi.org/10.1080/23311932.2024.2439551). [COBISS.SI-ID [219681027](#)]
- PLESTENJAK, Eva, NEJI, Mohamed, SINKOVIČ, Lovro, MEGLIČ, Vladimir, PIPAN, Barbara. Genomic insights into genetic diversity and seed coat color change in common bean composite populations. *Frontiers in plant science*. 2024, vol. 15, [art. no.] 1523745, str. 1-19, ilustr. ISSN 1664-462X, DOI: [10.3389/fpls.2024.1523745](https://doi.org/10.3389/fpls.2024.1523745). [COBISS.SI-ID [223803395](#)]
 - SINKOVIČ, Lovro, BLAŽICA, Vanja, BLAŽICA, Bojan, MEGLIČ, Vladimir, PIPAN, Barbara. How nutritious are french beans (*Phaseolus vulgaris* L.) from the citizen science experiment?. *Plants*. 2024, vol. 13, iss. 2, art. 1314, str. 1-21, ilustr. ISSN 2223-7747. DOI: [10.3390/plants13020314](https://doi.org/10.3390/plants13020314). [COBISS.SI-ID [181918211](#)]
 - UHLARIK, Ana, NAGL, Nevena, SINJUŠIN, A., ILIĆ, Aleksandra, SINKOVIČ, Lovro, PIPAN, Barbara. Assessment of two-year variability in pea genotypes : implications for sustainable agriculture. V: ALEKSIĆ, Nikola (ur.). *Safe food : proceedings : XXVIII International Eco-Conference [and] XIII Safe food, 25-27th September 2024, Novi Sad, Serbia*. Novi Sad: Ecological Movement of Novi Sad, 2024. Str. 103-109. ISBN 978-86-83177-61-5. [COBISS.SI-ID [209748739](#)]
 - PLESTENJAK, Eva, PIPAN, Barbara. Trait-linked DNA markers reveal enhanced pathogen resilience in composite populations of common bean (*Phaseolus vulgaris* L.). V: KRANJC BREZAR, Simona (ur.), ČEMAŽAR, Maja (ur.), MARKELC, Boštjan (ur.). *10th Colloquium of Genetics: book of abstracts: September 19th 2025, National Institute of Biology, Marine Biology Station, Piran*. Ljubljana: Genetic Society of Slovenia: Slovenian Society of Human Genetics, 2025. Str. 34. ISBN 978-961-97126-0-3. https://sgd.si/wp-content/uploads/2025/09/SGD_Zbornik_2025_Kolokvij.pdf. [COBISS.SI-ID [249756419](#)]
 - PLESTENJAK, Eva, NEJI, Mohamed, MEGLIČ, Vladimir, PIPAN, Barbara. Uporaba NGS tehnik pri žlahtnjenju rastlin: analiza heterogenosti barve semen pri kompozitnih populacijah navadnega fižola (*Phaseolus vulgaris* L.) = NGS technique applied in plant breeding: analysing seed colour heterogeneity in composite populations of common bean (*Phaseolus vulgaris* L.). V: ČEH, Barbara (ur.), et al. *Novi izzivi v agronomiji 2025 = New Challenges in Agronomy 2025 : program simpozija in povzetki prispevkov = symposium program and summaries : [Laško, 30. in 31. januar 2025]*. Ljubljana: Slovensko agronomsko društvo: = Slovenian Society of Agronomy, 2025. Str. 76-77, ilustr. ISBN 978-961-94613-4-1. [COBISS.SI-ID [225527043](#)]
 - PLESTENJAK, Eva, MEGLIČ, Vladimir, NEJI, Mohamed, PIPAN, Barbara. Exploring genetic diversity and seed coat colour variation in composite populations of common bean using whole genome sequencing. V: *VI_EUCARPIA conference : Scientific Conference on Breeding to meet environmental and societal challenges : Abstract e-book : 26-28 may 2025, Coimbra, Portugal*. [s. l.: s. n.: 2025]. 2025, str. 18-19. <https://skyros-congressos.pt/eucarpia2025/>. [COBISS.SI-ID [238678531](#)]
 - PIPAN, Barbara (intervjuvanec). *Žlahtnjenje fižola : oddaja Jutro na Planetu, Planet TV, 25. 1. 2024*. Ljubljana: Planet TV, 2024. 1 spletni vir (1 videodatoteka (5 min)), barve, zvok. <https://www.youtube.com/watch?v=J5bAhljz9RI>. [COBISS.SI-ID [186257923](#)]
 - PIPAN, Barbara (intervjuvanec). *Fižol, ki povezuje Evropo: kako lahko znanost zraste na vašem vrtu : Aktualna tema, Prvi program Radia Slovenija, 14. 11. 2025*. <https://prvi.rtvsl.si/podkast/aktualna-tema/323/175174619>. [COBISS.SI-ID [257475843](#)]
 - PLESTENJAK, Eva, JURIČ, Živa, BOHAR, Zala, PIPAN, Barbara. *Delimo raznolikost : barva semena navadnega fižola : Noč raziskovalcev, 26. 9. 2025, Kmetijski inštitut Slovenije*. [COBISS.SI-ID [250791939](#)]
 - PIPAN, Barbara. *Žlahtnjenje fižola : PPT prezentacija na razstavnem prostoru KIS, Gornja Radgona, Agra 2025*. [COBISS.SI-ID [248861955](#)]

- JURIČ, Živa, BOHAR, Zala, PLESTENJAK, Eva, PIPAN, Barbara. *Kateri fižol je najboljši? : Noč raziskovalcev, 27. 9. 2024, Kmetijski inštitut Slovenije*. [COBISS.SI-ID [209725187](#)]
- PIPAN, Barbara. *Challenges in common bean breeding : predavanje na Seminario ... Miglioramento genetico per l'agroecologia = Breeding for agroecology, 6. Dicembre 2024, Udine*. [COBISS.SI-ID [219948547](#)]

1.2. Gaps or constraints identified

Mainly related to the challenges experienced during the experimental periods:

- The evaluation of genetic resources was affected by several limitations in some years. The most significant factor was the occurrence of diseases, especially viral infections, anthracnose, rust and fusarium, which in 2025 significantly affected part of the evaluated material and reduced the reliability of the results. Extreme weather conditions, especially high temperatures and drought, also contributed to the limitations, which led to a decrease in yields and a reduction in the number of areas suitable for analysis. As a result of these factors, it was not possible to evaluate all planned genotypes in some years. (Reported by Slovakia)
- Severe attack of rabbits reported in Germany. Unfortunately, the chickpea cultivation was more or less destroyed by rabbits (2024). For chickpea, the same 50 accessions and 30 grass pea accessions were evaluated in 2025.
- Unfavourable weather conditions, which resulted in decreased agronomic performance, especially of the *L. mutabilis* lines, during the open field trial in 2024 (Slovenia).

Related to networking and collaboration for some document elaboration

- No availability for interaction in order to work on crop-specific conservation standards to be prepared as an element of the AEGIS quality system (AQUAS).

2. GRANT SCHEME ACTIVITIES, WG MEETINGS AND EVA ACTIVITIES

- **Ongoing Grant Scheme proposals (Phase X: submitted:2; approved:2)**
 - [ExploDiv](#) (Exploring grain legumes diversity for sustainable European agri-food systems)
 - [ForEVA](#) (Fostering the need for implementation of the ECPGR European Evaluation Network (EVA) on grain legumes)
- **Total number of partners involved in Grant Scheme: 36 from 19 countries**
 - ECPGR-funded: 33 from 18 countries
 - Self-funded: 3 from 2 countries
- **Meetings held**
 - EVA Legumes, project meeting, 26-27 November 2025, Athens, Greece
 - ForEVA, Seven online meetings of the crop groups, February-March 2024
 - ForEVA, Kick-off meeting, 10-11 October 2023, Bucharest, Romania
 - ExploDiv, online kick-off meeting, April 2023
- **Total number of partners involved in WG Meeting: n/a**
- **Reports and related data**
 - [ForEVA final activity report](#)
- **Funds mobilized**
 - ECPGR granted funds: €45,100 (ExploDiv: €28,600; ForEVA: €16,500)

- Inputs in-kind declared in Grant activities: €22,913 (ExploDiv: €2,600; ForEVA: €20,313)

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

- **Cross-Working Group activities:**

- In 2024, **the EVA Legumes network** was launched as a successor to the ForEVA grant scheme initiative of the Grain Legumes Working Group. This network unites nearly 50 partners from both the private and public sectors. Structured around seven overlapping crop groups, EVA Legumes is led by scientific experts (almost all of them, members of Grain Legumes WG) who guide the planning of tailored activities for each crop. Operations began in 2024 with in-kind regeneration efforts focused on beans and chickpeas. Later that year, Germany awarded the EVA Boost project, which will fund and support the network's activities through 2027.

During 2025, according to the working plan and protocols, trials were conducted in different locations as described in [EVA Legumes Athens 2025-report final.pdf](#). Moreover, at the same link, plans for 2026 are available for consultation. As a summary of the objectives and activities:

- Select accession sets from existing collections/projects and uncharacterized genebank material
- Regenerate materials, creating new SSDs where needed
- Evaluate 50–200 accessions each per crop and year in possibly 10 suitable evaluation sites across Europe over 2 years
- Include on-farm evaluations
- Ensure long-term conservation of evaluated accessions
- Perform biochemical and nutritional analyses (e.g. NIRS), as well as biotic and abiotic stress tests on pre-selected material.
- Partners have also collected and curated pre-existing phenotypic data on legumes, which will be made available in EURISCO after clearance by respective National Focal Points.
- AREI (Latvia) provided data on more than 100 faba bean and pea accessions from multiple sources (EuroLegumes handbook).
- IFVC (Serbia) collected data on more than 500 bean, pea and grasspea accessions from Serbia, including also new accessions in EURISCO.
- INIA-CSIC (Spain) provided data on more than 1,300 accessions of lentil, pea, *Vicia* spp. and other orphans (*Lathyrus*, *Vigna*, *Trigonella*) from the Spanish collection.
- KIS (Slovenia) shared published data on around 1,000 accessions of *P. vulgaris* and *P. coccineus* from the Slovenian collection.

- **Others:**

- Estonia METK** – The results/knowledge of the EVA project are relevant to the activities of the Center of Excellence AgroCropFuture project. <https://pk.emu.ee/en/centre-of-excellence-agrocropfuture>

PEPAC conservation programme of leguminous grain crops (2023-2027) focuses on intervention C.1.1.5 ("Conservation and Improvement of Plant Genetic Resources"), aiming to halt biodiversity loss and increase sustainability for genetic preservation. This measure supports the valorization of local varieties and adaptation to climate change.

- ii. **Italy CNR-IBBR** Submission of a research proposal for the Ager call 2025 Third Edition with Prof. Laura Giagnoni, University of Brescia (Italy), about Chickpeas Cultivation in Italy for Climate resilience, Environmental Sustainability and Human Nutrition. Under evaluation.
- iii. **Portugal BPGV** The LAND project ("Integrated approach for the promotion of legumes") is coordinated by the Catholic University in Porto in partnership with BPGV/INIAV. It aims to increase innovation and the cultivation of legumes, promoting sustainable value chains in Portugal.
- iv. **Serbia IFVCNS** Collection of common bean accessions maintained on farm was done in collaboration with a national initiative, named Bean and Beetles: Citizens Unveil Genetic Diversity. Fundings were ensured for the collection of landraces and genetic diversity studies.
- v. **Horizon projects**, implemented by different consortiums, in which Grain Legumes WG and EVA Legumes members are partners:
 - o **The INCREASE project** proposed and implemented a new approach to conserve, manage, and characterize genetic resources through its innovative, participatory research approach. By focusing on diverse legume species, the project has successfully created, genotyped, and characterized extensive collections. These efforts are supported by detailed protocols for managing Single Seed Descent (SSD) lines, which are produced in insect-free conditions to ensure purity and quality. These valuable resources are further enhanced and utilized within the EVA Boost framework. A key strength of the project lies in its stakeholder consortium, which includes the EVA Network, working collaboratively to maximize the potential of these plant materials. These resources are made widely accessible through a straightforward Standard Material Transfer Agreement (SMTA), promoting their use in research and breeding programmes. Within the EVA Boost project – EVA Legumes, multiple partners contribute INCREASE materials, along with their expertise and capacity, to conduct additional evaluations and expand the utility of these genetic resources. This synergy between INCREASE and EVA Boost underscores a shared commitment to advancing plant genetic resource conservation and utilization for global agricultural sustainability.
 - o The **BELIS project** is dedicated to advancing breeding tools for legume crops. A key work package focuses on developing and optimizing protocols for critical traits such as biomass and seed yield, resilience to biotic and abiotic stresses, and quality attributes. Efforts are being made to transfer existing protocols for priority traits across various grain and forage legumes, maximizing their applicability and efficiency. These tools will be instrumental for screening genetic diversity, conducting association analyses, and supporting breeding programmes. The protocols and tools emerging from BELIS hold significant potential for application within the EVA Legumes framework, fostering synergy between the two initiatives. While molecular tools for legumes are increasingly available, a major challenge remains: the phenotypic characterization of large existing legume collections. This bottleneck underscores the need for collaborative efforts to expand our knowledge and capabilities. The EVA Boost project presents a valuable opportunity to address this gap, further enhancing the impact of both BELIS and EVA Legumes in advancing legume research and breeding.
 - o Moreover, specific links with other projects and initiatives can be demonstrated at level of each ExploDiv project, for example:
 - Screening and identification of different traits with breeding value (BRESOV, CiLaKlima, PreLuteus, SPITFIRE) related to performance in low input

conditions and different tolerance and resistance – linked to Action 1, 2, 3 of ExploDiv

- Diversity improvement (CROPDIVA, BRESOV, EUCLEG, INCREASE) – linked to Actions 2, 3, 4, 5 of ExploDiv
- Facilitating the versatile use for multiple benefits of GrainLeg in agri-food chains (LEGATO, EUCLEG, BRESOV, INCREASE) – linked to Action 1 and Action 5 of ExploDiv
- Phenotyping data for a large variety of species, such as bean, cicer, lentil pea, lathyrus, lupinus and pea (SMARTLEG, EuGrainLeg, INCREASE, BRESOV, CiLaKlima, PreLuteus, SPITFIRE) – linked to Actions 1, 2, 4 of ExploDiv
- Management of collections including local populations, wild material (CROPDIVA, BRESOV, INCREASE) – linked to Actions 1 – 5 of ExploDiv.

4. WORKING GROUP DOCUMENTS AND PUBLICATIONS

Key descriptors for Peas - Bharadwaj, C., Carlson-Nilsson, U., Coyne, C., De la Rosa Fernandez, L., De Ron, A., Hanson, J., Hofer, J., Smykal, P., Alercia, A., Cerutti, A.L. and Lopez, F. 2025, Rome, FAO. (doi: <https://doi.org/10.4060/cd4768en>), were published also thanks to the valuable contributions of several members of the Grain Legumes WG. The descriptors are also available on the ECPGR website under the [Grain Legumes WG pages](#).

The EVA promotional video is available on the ECPGR website and YouTube channel (few members of Grain Legumes WG contributed with materials for this video development) [ECPGR: European Evaluation Network \(EVA\)](#)

Promotion of ECPGR funded Actions during different scientific events, such as conferences:

- The progress of ExploDiv was presented at the EVA Legumes Network meeting in Athens within the EVA Boost project, hosted by the Agricultural University of Athens. November 2025.
- On 23 September 2025, the Faculty of Agriculture of the University of Agriculture and Veterinary Medicine Science (USAMV) Bucharest, Romania, hosted the **INCREASE conference “Pulses: Bringing Diversity to Agrifood Systems”**, organized by VRDS Bacău (Creola Brezeanu) highlighting the role of pulses in sustainable farming, nutrition and cultural heritage and open to everyone interested in the topic. Both projects ExploDiv and ForEVA were mentioned in the introduction of the conference.
- A webinar - ‘Pulses for a sustainable future’ – with large participation of experts from all over Europe. One FAO representative was invited to this event. February 2023.
- Exploring of Grain Legumes Diversity for Sustainable European Agri-food Systems was presented at the ForEVA meeting, Bucharest, Romania, 11 October 2023.

Publications

- **Italy Dr. W. SABETTA and Dr. A.R. PIERGIOVANNI, from CNR-IBBR:**
 - i. W. Sabetta W., M.M. Finetti Sialer, L. Fiorentino, N. Rapanà, A. R. Piergiovanni. “Drought stress resilience of Apulian chickpea local varieties.” *Proceedings of Chimica sotto l'albero 2025, V edizione, Sezione SCI Puglia, Bari, 18-19 December 2025. Edited by: Mariachiara Bianco, Elena Mastronardi, Giovanni Ventura, Cosima Damiana Calvano, Antonio Monopoli. ISBN 978-88-94952-59-9*
 - ii. W. Sabetta W., L. Fiorentino, N. Rapanà, A. R. Piergiovanni, M.M. Finetti Sialer. Valorizing Apulian chickpea (*Cicer arietinum* L.) biodiversity: a multidisciplinary approach. *15th National Conference on Biodiversity 2nd International Conference on Mediterranean Biodiversity. Biodiversity in the XXI century: new paradigms for*

new challenges. Perugia, Italy. June 3-6, 2025. BOOK OF ABSTRACTS Edited by: Pietro Buzzini, Benedetta Turchetti, Ciro Sannino, Gianmarco Mugnai. ISBN 978-88-99407-03-2

- iii. Finetti Sialer Mariella M., Rapanà Nicoletta, Sabetta Wilma, Piergiovanni Angela Rosa. "Characterization of Kunitz Trypsin inhibitors in some Apulian accessions of *Cicer arietinum* L.: enhancing the value of local legumes". *The 11th International Conference on Legume Genetics and Genomics (ICLGG), Brisbane/Meenjin, (Australia), 30 Sept- 3 Oct 2024*
- **Bulgaria Dr. Petrova** - three articles presenting the results of the project within ECPGR ExploDiv.
 - i. Petrova, S. 2025. Agro-morphological assessment of *Pisum sativum* L. accessions of Bulgarian origin. *Journal of Mountain Agriculture on the Balkans*, 28 (1), 140-159.
 - ii. Petrova, S. 2025 Evaluation of phenotypic diversity of local accessions of *Vicia faba* L. *Journal of Mountain Agriculture on the Balkans*, 28 (3), 72-86.
 - iii. Petrova, S. Velinov, V. Simova-Stoilova L. 2026. Seed biochemical composition and stress resistance at germination stage in promising pea (*Pisum sativum*) and broad bean (*Vicia faba*) accessions. *Plant Science*, 4 (in press)
 - **Germany Dr. U. Lohwasser**
 - i. Boldischar, C., J. Bubolz, M. Reckling, U. Lohwasser, S.M. Udupa, S. Zikeli & C. Zörb. Genetic and environmental variation in health-promoting L-homoarginine and neurotoxic β -N-oxalyl-L- α,β -diaminopropionic acid in grass pea (*Lathyrus sativus* L.). *Legume Science*, 2025; 7:e70068.
 - **Slovenia Dr. Pipan - dissemination, exploitation and communication activities associated with ExloDiv project:**
 - i. PIPAN, Barbara. Raziskovanje raznolikosti zrnatih stročnic za trajnostne evropske agroživilske sisteme : ECPGR projekt ExploDiv : predavanje za 4. Projektni dan, 15. 3. 2024, Kmetijski inštitut Slovenije, Ljubljana. [COBISS.SI-ID 192103171]
 - ii. LE MARECHAL KOLAR, Ana, PETEK, Simona, BEVC, Jasmina, PIPAN, Barbara, ŽGAJNAR, Jaka. Iskreno in osebno o karierah v prehranskem sistemu : predstavitev na okrogli mizi v okviru delavnice Eit food carier days, Ljubljana, Biotehniška fakulteta, 25. 10. 2023. [COBISS.SI-ID 172074243]
 - iii. PIPAN, Barbara, KRPAN, Teja, JURIČ, Živa, OGOREVC, Boštjan, CVIJIN, Danijela, PLESTENJAK, Eva, SINKOVIČ, Lovro, DOLNIČAR, Peter, MEGLIČ, Vladimir. Vključenost stročnic v znanstveno-raziskovalne projekte : Noč raziskovalcev, Dan odprtih vrat, 29. 9. 2023, Kmetijski inštitut Slovenije. [COBISS.SI-ID 169211907]
 - iv. PLESTENJAK, Eva, JURIČ, Živa, PIPAN, Barbara. Predstavitev in delavnica na Festivalu biotske raznovrstnosti - Raznoživo, Ljubljana, 22. 5. 2024. [COBISS.SI-ID 197063939]
 - v. PIPAN, Barbara. Terenske vaje na Kmetijskem inštitut Slovenije za študente BF, smer Biotehnologija : pregled materialov in poskusov, predstavitev raziskovalne infrastrukture : ExploDiv, EVA Boost, LiveSeeding, CreditVibes, INCREASE in JS Vrtnarstvo - žlahnjnjenje stročnic : KIS, Jablje, Ljubljana, 4. junij 2025. [COBISS.SI-ID 238888451]
 - vi. BEN AMMAR, Hajer, DOLNIČAR, Peter, PIPAN, Barbara, MEGLIČ, Vladimir, SINKOVIČ, Lovro. Cross-species metabolomic and genomic integration reveals conserved alkaloid regulatory networks in potato and lupin. V: NADIŽAR, Nejc (ur.). 20th CFGBC Symposium: book of abstracts: Slovenia, 11th – 12th June 2025. Electronic version. Ljubljana: University of Ljubljana, Faculty of Medicine, 2025. Str. 91. http://cfgbc.mf.uni-lj.si/wp-content/uploads/2025cfgbcsym20_bookofabstracts.pdf. [COBISS.SI-ID 241056515]

- vii. PLESTENJAK, Eva, JURIČ, Živa, BOHAR, Zala, PIPAN, Barbara. Delimo raznolikost: Noč raziskovalcev, 26. 9. 2025, Kmetijski inštitut Slovenije. [COBISS.SI-ID 250791939]
- **Romania**
 - i. Fiziologia speciilor leguminoase pentru boabe/ Creola Brezeanu, Ioan Burzo, Docucenter, 2024, ISBN 978-606-721-552-6 (the book is published in Romanian language, and contains references to the projects funded in frame of ECPGR Grant Scheme, as ExploDiv and ForEva)

5. EXPECTED ADDITIONAL ACHIEVEMENTS AND FUTURE ACTIVITIES

- Participation of Grain Legumes WG members and EVA Legumes in various European initiatives, either as partners or stakeholders (e.g. Horizon projects), focusing on the valorization of legumes along agri-food chains. This engagement is particularly important for ensuring the continuity of WG activities beyond the limited duration of funded projects. By leveraging the group's diverse expertise, the WG and EVA Legumes serve as a continuous platform for interaction, facilitating the exploitation, integration, and long-term use of project results.
- New projects and initiatives are planned to be elaborated in accordance with ECPGR objectives.
- The final meeting of EVA Boost is foreseen for 2027, and it can be an opportunity to bring together a larger participation of Grain Legumes WG members. The meeting could be organized on the sidelines of the ISHS Legume Symposium organized by C. Brezeanu and E. Bitocchi in Bucharest, Romania, in September 2027. All partners are invited, and the organization of a session dedicated to participatory approaches and the EVA Legumes network could be explored.
- Common publication, especially to disseminate the results of implemented actions and projects (there are some discussions related to the plan to disseminate some previous results of EUGrainLeg).
- Linkage between relevant projects would be beneficial, with common communication and outreach activities, starting with updated information on the Grain Legumes WG webpage.