

On-farm Conservation and Management WG report (2024–2025)

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

Compiled by WG Chair: Lorenzo Raggi

Date of compilation: 23/02/2026

Interesting facts related to on-farm conservation and sustainable use of landraces.

- Across the EU, the Common Agricultural Policy (CAP) 2023–2027 is now the big funding lever that can pay farmers for biodiversity-related practices, including maintaining/valorizing diverse genetic resources on farms through eco-schemes and agri-environment-climate measures. Among the others, CAP specific objective 6 recites *Contribute to halting and reversing biodiversity loss, enhance ecosystem services and preserve habitats and landscapes*. In Sept 2024, the EU CAP Network explicitly highlighted that CAP + Horizon Europe are well placed to support *in situ/on-farm* and *ex situ* conservation together, and it showcased examples of CAP-supported “genetic resources” actions.
- The new **Plant Reproductive Material (PRM)** regulation is still under discussion. The proposed Regulation should increase the diversity of PRM on the market and of cultivated crops in the fields by offering a larger choice to all types of farmers and other users (e.g. amateur gardeners) and facilitate the conservation of this diverse PRM through: a) simplified rules for conservation varieties and heterogeneous material and specific derogations for seed conservation networks and exchange in kind of seed between farmers; b) supports organic production by adapted rules for testing of organic varieties and c) provides more choice for amateur gardeners by lighter rules on market access. Some criticisms arose from organizations acting in conservation and promotion of diversity.
 - In April 2024, the European Parliament voted in favour of the new PRM regulation (moving the file forward);
 - On 10 Dec 2025, the Council agreed its negotiating mandate, setting up trilogue talks with Parliament/Commission in early 2026.

1. Contribution to ECPGR Objectives

ECPGR Phase XI objectives

Table 2: On-farm plant genetic resources conservation and management

PGR Strategy for Europe Objectives	PGR Strategy for Europe Targets	Responsibility (main level/ responsible bodies)	Type of action that ECPGR could undertake	Potential sources of funding to cover the ECPGR action	ExCo proposal for activities to be included in Phase XI workplan
<p>By 2030, an inventory of on-farm landraces has been made in Europe, based on national inventories, compiled in close collaboration with local actors and organizations and with periodic updating.</p> <p>By 2030, valuable landraces' identified diversity is comprehensively conserved on-farm, complemented with <i>ex situ</i> back-ups, and is made available for sustainable use.</p>	1. All countries in Europe include on-farm PGR conservation and management in national programmes and actions.	National	Support of On-farm WG activities contributing to Target 1	National funds/ EC project or external donor/ ECPGR grant	<ul style="list-style-type: none"> • P1 - Develop or improve an ECPGR Portal compiling links to existing national on-farm conservation and management strategies, programmes and initiatives. • P1 - Carry out a survey to identify and describe ongoing on-farm PGR conservation and use examples at national and regional levels (Objectives, history, material and methods; links between <i>ex situ</i> and on-farm management; strengths, weaknesses and opportunities). Focus on arable crops, vegetables, small fruits and top fruits (e.g. orchard meadows).
	2. A European Inventory of on-farm genetic diversity is formally established; a minimum set of passport and characterization descriptors for data exchange is defined.	EURISCO/ Doc&Info WG/On-farm WG	Design extension of EURISCO and implement it	ECPGR- EURISCO budget line/ ECPGR grant/ External donor	<ul style="list-style-type: none"> • P2 - Set up a TF involving EURISCO/ Doc&Info WG/On-farm WG to design the structure and requirements for a European Inventory of on-farm landraces (also based on methods and standards developed by PRO-GRACE for inventorying <i>in situ</i> maintained PGR) – Expertise on all types of crops should be present in the TF. • P3 - Implement the necessary platform to receive on-farm data. • P2 - Provide training workshops on the existing methodologies and criteria for identifying material to be inventoried. • P3 - Support on-farm inventory compilation in pilot countries and provision of data to the centralized platform.
	3. All landraces recorded in the European Inventory have <i>ex situ</i> backup in national genebanks.	National	Coordination/monitoring by On-farm WG	National funds/ ECPGR Grant	<ul style="list-style-type: none"> • P3 - Working Group to coordinate the necessary safety back-up for a number of pilot countries and selected on-farm landraces.
	4. Conservation and management guidelines for on-farm landraces have been defined in the context of the European collaborative programme and are implemented at local level.	National and On-farm WG, in collaboration with stakeholders ¹ that are engaged in diverse conservation and management schemes	Coordination/monitoring by On-Farm WG	National funds/ ECPGR Grant	<ul style="list-style-type: none"> • P1 - Working Group to advise and support the implementation of conservation and management guidelines in a number of countries for selected crops.

¹ Including farmers, amateur gardeners, farmer/gardener networks, seed savers, researchers, local communities, genebanks, community seed bank, NGOs, etc.

Objective P1: Working Group to advise and support the implementation of conservation and management guidelines in a number of countries for selected crops.

In the frame of the ECPGR funded project *INWHEATORY*, case studies reporting information on 42 different wheat landraces from 11 European countries were successfully collected, which allowed the preparation of a “Guide for good practices for on-farm conservation and sustainable use of wheat landraces”. In addition, 25 detailed wheat landrace cultivation descriptions were collected to be added to the ECPGR “*In situ* landraces: best practice evidence-based database landrace database”.

Objectives P2-P3: Design the structure and requirements for a European Inventory of on-farm landraces including the implementation of the platform.

The possibility of using EURISCO to track landraces, while also linking these with *ex situ* conserved landraces, has been recently proposed during the “Documentation and Information WG” ad hoc ECPGR Workshop held in Tallinn (Estonia) 18-19 September 2024. The Mediterranean basin is an important biodiversity hotspot and is also one of the primary centres of origin of important crops and/or secondary centre of diversity of other relevant crops domesticated in different places. As such Plant Genetic Resources (PGR) of the area are crucial components of biodiversity in nature and in cultivation; Results from the study of Raggi et al. (2022), that involved 17 Institutions from 14 European countries, showed that the highest number of landrace cultivation sites (LrCSs) across Europe are located in the Mediterranean corresponding to the 55.6% of the total number of LrCSs recorded in the region; they are mainly scattered over Greece, Italy, Portugal. The Project *ABC Mediterranean landraces* has already been financed under the Phase XI and aims at developing:

- A minimum set of passport and characterization descriptors to be included in future “Lr inventories”
- Developing an EURISCO extension for simple overviews of on-farm landraces (Documentation and Information WG)
- A list of annual and biennial crops for human nutrition that are of paramount relevance and for which diversity still exists on farm in Europe; fruit trees will not be considered;
- A dataset of on-farm existing landraces of target crops still present in the Mediterranean countries involved (i.e. Albania, Bosnia and Herzegovina, Greece, Italy, Montenegro and Portugal) + UK to be included in EURISCO

Objective P3: Support on-farm inventory compilation in pilot countries and provision of data to the centralized platform. Working Group to coordinate the necessary safety back-up for a number of pilot countries and selected on-farm landraces.

In the frame of the ECPGR funded project *INWHEATORY*, a .xls template has been distributed to all the partners that allowed the collection of 616 records of wheat landraces cultivation sites (named “In situ database”); as per collected data, 303 different landrace names were recorded from the 9 target countries. An “*Ex situ* database”, including records stored in Genesys database and representing the actual *ex situ* conserved landraces, was also created, allowing a comparison of *in situ* and *ex situ* landraces distribution in the target countries.

1.1. Achievements and success stories

Under the lead of Italy, and in collaboration with other WG members, an inventory of wheat landrace cultivation sites in Europe was developed (Table 1). A comparison of the current sites where landraces are cultivated and the original collection sites of *ex situ* conserved accessions has been also performed (Figure 1) for the target countries. Results of such a comparison represent a useful basis to investigate genetic erosion in wheat landraces.

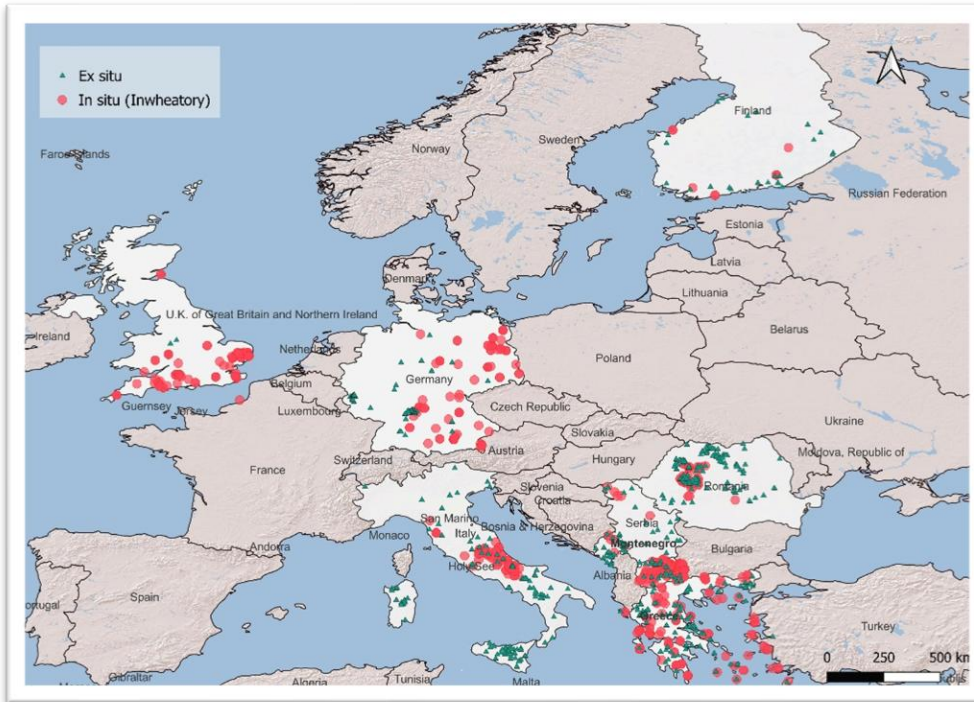
Recommendations for the optimal on-farm management of wheat landraces were elaborated based on a collection of case studies documenting successful cultivation. A “Guide to Good Practices for On-Farm Conservation and Sustainable Use of Wheat Landraces” was developed. In addition, 25 detailed descriptions of wheat landrace cultivation systems was compiled for inclusion in the ECPGR “In situ Landraces: Best Practice Evidence-Based Database.”

Table 1. Number of wheat landraces *in situ* records and landraces with different names collected in the frame of Inwheatory project.

Country	In situ wheat landrace cultivation records	Landrace with different names	Project partners that provided the data
Finland	10	10	Heinonen Maarit
Germany	88	61	Sensen Sarah and Thormann Imke
Greece	181	54	Ralli Parthenopi
Italy	91	70	Raggi Lorenzo and Negri Valeria
North Macedonia	104	33	Ivanovska Sonja
Montenegro	6	3	Jovovic Zoran
Romania	41	41	Străjeru Silvia
Serbia	6	3	Mikić Sanja

United Kingdom	89	28	Clarke Gabrielle and Maxted Nigel
Total	616	303	-

Figure 1. Geographical distribution of the current sites where landraces are cultivated and the original collection sites of *ex situ* conserved for the target countries.



UK Landrace Inventory and On-farm maintenance review 2025 (Gabrielle Clarke and Nigel Maxted). In the UK 2024/2025 work continued in building the National LR Inventory and the promotion of on-farm active maintenance. The status of UK LR and LR populations is summarized in Table 2. The English and Welsh LR Protection Scheme (Clarke et al., 2025a) was launched with three collaborating genetic resources centres (UK Vegetable Genebank, University of Warwick; John Innes Centre, Norwich, and Institute of Biological, Environmental and Rural Sciences, University of Aberystwyth). These GRCs are receiving samples of on-farm cereal, vegetable and forage LR populations donated by maintainers (Clarke et al., 2025b) that secures the basic resource through *ex situ* backup and, if the maintainer is willing, allows the LR to be made available for other potential users. The links between *in situ* or on-farm and GRCs are further elaborated by Maxted et al. (2025). A threat assessment of all British LR is underway applying the methodology proposed by Almeida et al. (2024), in 2025 20 LR were assessed and all those assessed were placed in threatened categories (1 is Extinct On-farm [EO], 3 High [HI], 7 Moderate [MO], 5 Low [LO], and 4 Very Low [LO]). The relative threat assessment and the gap analysis were used to identify priorities for future active LR on-farm conservation.

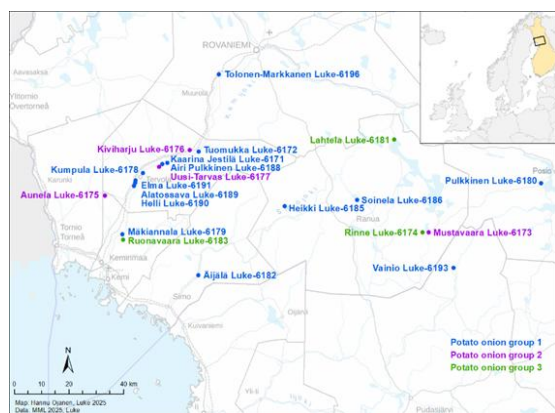
Table 2. Summary findings for 2025 UK inventory and gap analysis.

UK Crop landrace status	Result
Total LR identified in taxonomic inventory	1,202
Total LR identified in population inventory (<i>ex situ</i> & on farm)	2,433

Number of LR populations grown on farm	566
Number of on-farm LR maintainers identified	197
Percentage of on-farm LR that are backed up in ex situ collections	25.80%

During the period 2024–2025, 162 local varieties were collected through expeditions in **Bulgaria**, which are grown on farm in home gardens. The highest number and rich diversity are distinguished by the local varieties of common bean (*Phaseolus vulgaris* L. and *Phaseolus coccineus*), distributed in mountainous and semi-mountainous areas, characterized by specific agroecological conditions. The expeditions were carried out under projects funded by the Bulgarian National Science Fund. All accessions are documented with passport data according to the FAO/Bioversity descriptors (2017) and they are studied by biological and economical traits. Data base for 281 populations of *in situ* CWR (mainly *Aegilops* and some medicinal species) was created according to the FAO/Bioversity descriptors (2022).

In situ inventory of landrace potato onion in the southwest **Lapland area in Finland** was conducted. Inventorying and documenting potato onions in cultivation, cultivation history and use (*in situ*, hobby growers), especially in municipals of Tervola, Ranua, Simo and Kemijärvi. Potato onions (21 found) were compared to samples at the Finnish national genebank of potato onions situated at the Natural Resources Institute Finland (Luke) and the national safety back up (*in situ*) collection at Lappia Vocational College in Tervola. Methods: local plant call, interviews, workshops, SSR-analysis, some phenotype features (from bulb).



The effectiveness and impact of **Finland's** CAP Strategic Plan 2023–2027 measures for biodiversity and landscape were evaluated, and an interim report covering the years 2023–2024 was prepared. The assessment included *in situ* conservation measures for conservation varieties as well as *in situ* safety back-up collections.

An *in situ* inventory of heritage potato varieties in Finland resulted in 20 samples, which were compared with accessions from NordGen and the Latvian and Estonian genebanks. A manuscript for publication was prepared. An action plan and guidelines were developed to increase the availability of local and heritage varieties in Latvia, Estonia, and Finland.

An *in situ* inventory of heirloom crops was conducted in 41 old gardens in the Satakunta province of Finland. Based on local interviews, a total of 175 apple trees, 112 currant bushes, 74 gooseberry bushes, 28 rhubarb plants, 10 sour cherry trees, 10 damson trees, 15 plum trees, and 1 pear tree were identified. No SSR analysis was conducted.

Greece: Three Greek landraces were registered in the national “Catalogue of Agricultural Plant Varieties” as “Conservation Varieties” in 2025, two runner beans and one barley, and seven applications are under evaluation.

Germany (BLE) has added 8 old varieties to the red list of endangered native crops in 2024/2025.

Germany: research funding of some on-farm projects in Germany (e.g. Rediscovery of regional cereal landraces for the sustainable production of organic food specialties (ReBIOdiscover), Exploring the potential of old onion landraces for organic farming).

Over the past three years, the **Israel** Plant Gene Bank at the Agricultural Research Organization (ARO) have successfully established on-farm conservation efforts and they are currently working on the conservation of local chickpea, lentil, watermelon, nigella, grass pea, wheat, eggplant, beet, radish, dill, garden cress (rashad), beans, barley.

1.2. Gaps or constraints identified

- Information base of crop wild relative and landrace populations is often uneven in the different European countries, limiting the potential documentation, protection, use and research activities. Being the potentially high number of landraces existing globally, prioritization of LR for conservation would be extremely useful. There have been several attempts to propose LR threat assessment methods, but none thus far have been widely accepted or applied.
- Conserved on-farm local varieties of grain legumes and traditional vegetables could be found in home gardens in rural areas far from big cities. Through depopulation of villages, these valuable accessions are threatened with extinction. Information on the distribution of landraces is incomplete, and a complete inventory is needed.
- Identified gaps of landrace potato onion in genotypic and geographical measures. As a result of the *in situ* inventory of the landrace potato onion in the southwest Lapland in Finland. Two accessions were accepted to the Finnish national clonal genebank for long-term preservation and the national safety backup collection.

2. GRANT SCHEME ACTIVITIES, WG MEETINGS AND EVA ACTIVITIES

3. Other activities (cross-Working Group activities, links with other networks, projects and initiatives)

Cross-Working Group activities:

- The INWHEATORY Activity, submitted by the On-farm Conservation and Management, and the Wheat Working Groups for funding under the Sixth Call of the Phase X ECPGR Activity Grant Scheme, started in 2023 and was completed in 2025.
- In the framework of the activity “Inventorying wheat on-farm diversity” records of wheat landraces cultivation sites were inventoried and case studies on wheat landraces were prepared, contributing to a Guide for good practices for on-farm conservation and sustainable use of wheat landraces.
- Inclusion of landraces of Mediterranean countries in EURISCO was pursued in *ABC Mediterranean Landraces* project financed under Phase XI in collaboration with the Information and Documentation WG.

Others:

- Research cooperation project DIGIVALPGR “Digitalization and valorization of local plant genetic resources in Bulgaria and Slovakia in the framework of maintaining compatibility and interoperability in the European area” of Bulgarian National Science Fund, Contract KP-06-Slovakia/9/13.08.2024
- The LEMRACE project, funded by NATURAL ENVIRONMENT & INNOVATIVE ACTIONS 2023”, Priority Axis 4, A.4. Protection and Conservation of Biodiversity”, Green Fund. The project “Conservation of the crop genetic wealth of Lemnos: local varieties for sustainable development of the Lemnian food system” started in 2023 and was completed in 2025. The overarching goal of LEMRACE is to safeguard the crop genetic heritage of Lemnos, by conserving and utilizing the local varieties of the island through the development of a local network of seed guardians of the plant genetic resources of Lemnos island in Greece, the establishment of a small-scale community seedbank for local varieties and raising awareness of the local community.
- Horizon project “Promoting a Plant Genetic Resource Community for Europe” (PRO-GRACE).

4. Working Group documents and publications

.....Almeida, M.J., Barata, A.M., De Haan, S., Joshi, B.K., Magos Brehm, J., Yazbek, M. and Maxted, N., (2024). Towards a practical threat assessment methodology for crop landraces. *Frontiers in Plant Science*, 15:1336876. doi: 10.3389/fpls.2024.1336876.

· Antofie MM., Sava C., Vintila T., 2024, Traditional Saxon home gardens as hot-spots for plant genetic resources for food and agriculture conservation - case study in Romania, Romania. *Scientific Papers Series Management, Economic Engineering in Agriculture & Rural Development*, 24 (2) 99-120. WOS:001264962000011,

· Antofie, M. M., 2024, Self-sufficiency for food security analysis in the saxon home gardens of Ațel Commune, Sibiu County, Romania. *Scientific Papers Series Management, Economic Engineering in Agriculture & Rural Development*, 24(3). 59-70, WOS:001390217300002

· Antofie, M. M., Blidar, C. F., Barbu, I., Stanciu, M., 2025, Social innovation: urgent needs for synergic actions among biodiversity conservation, circular economy and bioeconomy policies in rural areas for southeastern European countries. *Annals of Oradea University, Biology Fascicle/Analele Universității din Oradea, Fascicula Biologie*, 32(2). 218-230

· Ceriņa, S., Ilze Dimante, I., Gulbe, I., Heinonen, M., Jukk, Ū., Christiana-Gabriela Kristal, C-G., Kubarsepp, L., Lepik, A., Rokka, V-M., Tähtjärv, T. 2025. Reshaping strategies for improving the availability of small quantities of potato seed material. <https://interreg-baltic.eu/wp-content/uploads/2025/07/Guidelines-for-marketing-of-small-quantities-of-potato-seed-material.pdf>

· Ceriņa, S., Ilze Dimante, I., Gulbe, I., Heinonen, M., Jukk, Ū., Christiana-Gabriela Kristal, C-G., Kubarsepp, L., Lepik, A., Rokka, V-M., Tähtjärv, T. 2025. Guidelines for marketing of small quantities of potato seed material for local Contemporary and heritage varieties. 44 s.

<https://interreg-baltic.eu/wp-content/uploads/2025/07/Summary-of-guidelines-for-marketing-of-small-quantities-of-potato-seed-material.pdf>

- Clarke G., Chayut, N., Huang, L., Allender, C.A. and Maxted, N., (2025a), The English and Welsh landrace protection scheme. University of Birmingham, Birmingham, UK.
- Clarke G., Lindley, H.-R., Maxted, N., Chayut, N., Huang, L., Williams, C., Allender, C.A. and Magos Brehm, J., (2025b), Agrobiodiversity Collection Guidelines: how to collect seed and herbarium specimens of crop wild relatives and traditional crop landraces from in situ populations. University of Birmingham, Birmingham, UK.
- Heinonen, M., Tuomivaara, A., Tenhola-Roininen, T., & Häkkinen, O. 2025. Peräpohjolan sipulit : Arvostetun maatiaiskasvin viljelyä sukupolvelta toiselle. Luonnonvara- ja biotalouden tutkimus 37/2025. Luonnonvarakeskus. Helsinki. 86 pages. <http://urn.fi/URN:ISBN:978-952-419-060-2> (in Finnish; the inventory report of landrace potato onions in the south-west Lapland in Finland)
- Helmisaari, A., Heinonen, M., Mäki, M., Pihlman, S. 2025. Kasviperinnön jäljillä: Pyhäjärvisuon puutarhojen vanhat hyötykasvit. Museologian julkaisuja 4. 455 s. <https://urn.fi/URN:ISBN:978-952-02-0089-3> (in Finnish, In situ inventory report of heirloom crops in old gardens in Satakunta province in Finland)
- Hyvönen, T., Heinonen, M., Heliölä, J., Jauni, M., Korhonen, K., Ovaska, U. 2025 Arviointi CAP-suunnitelman 2023-2027 merkityksestä luonnon monimuotoisuudelle ja maisemalle: Vuosien 2023-2024 väliraportti. Maa- ja metsätalousministeriö. EU:n yhteinen maatalouspolitiikka Suomessa – Arviointeja ja selvityksiä 2025:9. 100 s. <https://urn.fi/URN:ISBN:978-952-366-706-8> (in Finnish with an abstract in English. The evaluation report of the effectiveness and impact Finland's CAP strategic plan 2023-2027 measures for biodiversity and landscape.
- Lefèvre, F., Bojkovski, D., Kharrat, M.B.D., Bozzano, M., Charvolin-Lemaire, E., Hiemstra, S.J., Kraigher, H., Laloë, D., Restoux, G., Sharrock, S., Sturaro, E., van Hintum, T., Westergren, M., Maxted, N., Alia, R., Bytyqi, H., Moncho, M.C., Cvelbar, J.J., Đorđević-Milošević, S., Esposito, E., Farsakoglou, A.M., Martín, J.F., Gandini, G., Hermanowicz, E., Honkatukia, M., Kreft, I., Lovrić, N., Brehm, J.M., Martín-Collado, D., Niggli, C., Notivol, E., Raggi, L., Rusanen, M., Schröder, S., Smith, P., Sonnenschein, K.K., Tixier-Boichard, M., Trudic, B., Ureña, L.P., Vozlič, J.Š., Walshe, S., Woelders, H., Wolter, F., 2024. European genetic resources conservation in a rapidly changing world: three existential challenges for the crop, forest and animal domains in the 21st century. *Genet. Resour.* 5, 13–28. <https://doi.org/10.46265/genresj.REJR6896>
- Maxted, N., Adam-Blondon, A., Aguilar, C. H., Barata, A. M., Bartha, B., Bocci, R., De Paola, D., Fitzgerald, H. S., Fresta, L. J., Fusani, P., Giuliano, G., Guzzon, F., Holzherr, P., Holubec, V., Iriondo Alegría, J. M., Labokas, J., Maggioni, L., Magos Brehm, J., Palmé, A., Phillips, J., Prohens, J., Raggi, L., Ralli, P., Rungis, D., Sarikyan, K., Šuštar Vozlič, J., Thormann, I., Zdunić, G. (2025). A significantly enhanced role for plant genetic resource centres in linking in situ and ex situ conservation to aid user germplasm access. *Genetic Resources (S2)*, 203–222. doi: 10.46265/genresj.UNVV5571.

- Neshev, V. (2025). Biological potential of a common bean collection in relation with the climate change. Scientific Papers. Series B, Horticulture. Vol. LXIX, No. 2, 545-551. <https://horticulturejournal.usamv.ro/index.php/scientific-papers/current-issue?id=1865>
- Neshev, V., Velcheva, N. (2025). Survey and Grouping of Phaseolus vulgaris Accessions by Passport, Characterization and Evaluation Descriptors. Journal of Mountain Agriculture on the Balkans, Vol. 28, Issue 3, 185-202. <https://jmabonline.com/en/article/KPWEMxpxXScrqwhn6c3>
- Raggi, L., Caproni, L., Ciancaleoni, S., D'Amato, R., Businelli, D., Negri, V., 2024a. Investigating the Genetic Basis of Salt-Tolerance in Common Bean: a Genome-Wide Association Study at the Early Vegetative Stage. Sci. Rep. 14, 5315.
- Raggi, L., Spataro, G., Negri, V., 2024. Landrace in situ (on-farm) conservation: European Union achievements. Biodivers. Conserv. <https://doi.org/10.1007/s10531-024-02893-y>
- Skrabule, I., Dimante, I., Rokka, V-M., Heinonen, M., Tähtjärv, T., Kübarsepp, L., Paavilainen, K. 2025. Policy Brief: Action plan to increase the availability of small quantities of seed potatoes for local and heritage varieties (Latvia, Estonia, Finland). 8 s. <https://interreg-baltic.eu/wp-content/uploads/2025/09/Action-plan-BRIEF.pdf>
- Thanopoulos, R., Negri V., Pinheiro De Carvalho, M.A.A., Petrova, S., Chatzigeorgiou, T., Terzopoulos, P.J., Ralli, P., Suso, M.S., Bebeli, P.J. 2024. Landrace legislation in the world: status and perspectives with emphasis in EU system. Genet Resour Crop Evol 71, 957–997 (2024). <https://doi.org/10.1007/s10722-023-01824-0>
- Velcheva, N., Neshev, V. (2025). The home gardens as biocultural reserve of local plant diversity and traditional knowledge. Proceedings of VII. International agricultural, biological, life science conference AGBIOL 2025, Istanbul, Turkey, ISBN: 978-625-96407-0-9, 104-112. <http://hdl.handle.net/20.500.12641/124025>