PRO-GRACE

PROMOTING A PLANT GENETIC RESOURCE COMMUNITY FOR EUROPE

DELIVERABLE 4.2

Workshop on the evaluation of *in situ* and *ex situ* PGR collections, organized in collaboration with the EMPHASIS RI

This deliverable has been submitted and is currently pending approval by the European Commission.

Call identifier:
PRO-GRACE
Grant agreement no: 101094738

Promoting a plant genetic resource community for Europe

Deliverable No. D4.2

Workshop on the evaluation of *in situ* and *ex situ* PGR collections, organized in collaboration with the EMPHASIS RI

Contractual delivery date:
M18

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M18

Responsible partner:
EUROS

Contributing partners:
ENEA, INRAE, IPGRI, CSIC, CREA

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101094738.

Grant agreement no.	Horizon Europe – 101094738
Project full title	PRO-GRACE – Promoting a plant genetic resource community for Europe

Deliverable number	**D4.2**
Deliverable title	Workshop on the evaluation of in situ and ex situ PGR collections, organized in collaboration with the EMPHASIS RI
Type	OTHER
Dissemination level	PU
Work package number	4
Author(s)	N. Vangheluwe, D. Chernokova, N. Capozio, S. Goritschnig, I. Verde
Keywords	Symposium, Workshop, Phenotyping, Stakeholders

The research leading to these results has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101094738.

1. Executive summary

Project partner Euroseeds organised together with other partners of the PRO-GRACE consortium and the plant phenotyping Research Infrastructure (RI) EMPHASIS a policy symposium about the potential of a new RI to enable the potential of Plant Genetic Resources (PGRs) and a workshop about plant phenotyping to discuss future activities and approaches for the characterization of PGRs to support greater utilization of PGRs in breeding programmes to develop improved crops for food and agriculture.

No matter how well conserved and managed PGRs are, the translation of their potential into agricultural practice requires a well-organized system for the evaluation of their traits and agronomic characteristics. Currently, there are a lot of different initiatives and systems in plant phenotyping and related ontologies, and the PRO-GRACE deliverable D4.1 compiles an overview thereof based on a horizon scanning exercise.

The aim of the plant phenotyping workshop was to facilitate an exchange about the identified initiatives and systems between the PGR and plant phenotyping community as well as with other relevant stakeholders. More specifically was discussed how this huge amount of data could become more available for scientific and breeding activities and how to ensure it could be interoperable with different information systems.

The purpose of the policy symposium organized the day before was to discuss the need and potential of a future RI dedicated to PGRs, including phenotyping besides other services. First European -and National level as well as decentralized initiatives dedicated to the conservation, access and use of PGRs were presented. Subsequently, the Commission explained the ESFRI roadmap, and we discussed how a European research infrastructure named 'GRACE-RI' could enable the potential of PGRs.

The hybrid meetings took place in Brussels with approx. 50 in-person and 200 online participants. Providing online access increased the reach to interested individuals residing in approx. 45 different countries. Most of the participants are part of the public sector: public research institutes, academia, government authorities and agencies etc. Approx. 10 % of the participants are from the private sector, more specifically plant breeding and seed businesses.

To raise awareness and inform others about the outputs of the events, a social media communication strategy was established. The live coverage of the events significantly boosted visibility and engagement, resulting in a notable increase in impressions and new followers. The website analytics demonstrated furthermore a clear increase in engagement during the time of the event.

Based on the exchanges, three main outcomes could be concluded: (1) PGRs for Food and Agriculture (PGRFA) have a central role to cope with future challenges, (2) We need to maximise synergies between PGR community/genebanks and plant phenotyping community, and (3) Navigating the Regulatory Landscape: alignment with International Frameworks remains important. These aims could be addressed through the development of a European research infrastructure 'GRACE-RI' to enable the potential of PGRs in Europe.

Following the events, all presentations and recordings were made available on the project website and announced via the project's social media channels. The next step in the coming months involves disseminating each video recording separately, thereby repurposing the content and further increasing the visibility of each topic discussed during the events to relevant stakeholder and target groups. Taken together, we conclude that both events achieved the original aims of the organisers: raising awareness and exploring future collaborations with different actors and communities to enable the potential of PGRs.

2. Introduction

Approximately 40% terrestrial plant species are at risk of extension, causing loss of biodiversity, while plants are essential for life on Earth. Climate change threatens plant diversity and agricultural production in Europe. Better-adapted crop varieties for agricultural practices with lower impacts on the related ecosystems must be provided to farmers. Approximately 2 million plant accessions are conserved in European genebanks and can be exploited in plant research and breeding to introduce new improved traits. To promote the usefulness of plant accessions or Plant Genetic Resources (PGRs) to combat climate change, we need to share phenotypic data of preserved PGRs, together with their passport and genomic data. However, practices and guidelines for phenotyping PGRs are heterogenous from one genebank to another, which hinders the straightforward exchange of data. Therefore, sustainable, high-quality and science-based coordination of phenotypic data management will enable the development of plant-based innovations aimed at contributing to food security and the transition to more sustainable agriculture in Europe.

No matter how well conserved and managed PGR are, the translation of their potential into agricultural practice requires a well-organized system for the evaluation of their traits and agronomic characteristics. Evaluation of core collections for several important crops is currently carried out in H2020-funded projects. The European Evaluation Network (EVA), established by ECPGR and supported by EUROS, has defined public/private partnerships for the characterization of field crop and vegetable PGR in multiple environments by EVA, with a focus on traits of interest for breeders.

The potential of phenotyping is addressed in work package 4 of the EU-funded Research Infrastructure (RI) PRO-GRACE project. The work package has three aims:

- Develop crop-specific methods for crop evaluation, incorporating the ECPGR, MIAPPE, Crop ontology and EMPHASIS RI standards and protocols and the suggestions of the final users (breeders and seed companies).
- Disseminate these standards in the PGR, breeding and plant phenotyping communities, in close collaboration with the EMPHASIS RI.
- Interconnect the different plant phenotype databases with the central EURISCO information system.

In a first step of this work package, deliverable D4.1 aimed to review and map in more details the current initiatives in plant phenotyping and related ontologies (delivered by month 12, in December 2023). In a next step, the current initiatives and related ontologies need to be disseminated and discussed with relevant stakeholders and end-users including the PGR, breeding and plant phenotyping communities. Therefore, it was foreseen in the grant agreement of PRO-GRACE that a workshop on the evaluation of *in situ* and *ex situ* PGR collections, organized by EUROS in collaboration with the EMPHASIS RI (deliverable D4.2).

This report describes the strategy, preparatory steps, statistics regarding participation, outputs and concluding remarks of the policy symposium and plant phenotyping workshop as deliverable D4.2. The generated outputs and received inputs will be helpful to enter the next step in this work package of which the aim is to prepare an improved and more fine-tuned version of the deliverable report D4.1 that compiled the current initiatives in plant phenotyping and related ontologies.


PRO-GRACE
PROMOTING A PLANT GENETIC RESOURCE COMMUNITY FOR EUROPE
EMPHASIS
Joint policy symposium and workshop about plant genetic resources and phenotyping
organized by
Euroseeds
Embracing Nature
co-hosted by
CSIC
27-28 June 2024
Rue du Trône 62
Brussels, Belgium
& Online


PRO-GRACE:
Promoting a Genetic Resources Community in Europe
CSIC

3. Activities

It was decided to set up an organizational committee together with representatives from EMPHASIS and coordinated by EUROS. The committee consisted of Nick Vangheluwe (EUROS), Darya Chernokova (EUROS), Giovanni Giuliano (ENEA), Maria Grazia Petrillo (ENEA), Véronique Lefebvre (INRAE), Ignazio Verde (CREA), Roland Pieruschka (EMPHASIS), Carla Pinheiro (EMPHASIS), Ankica Kondic-Spika (EMPHASIS), and Sandra Goritschnig (IPGRI). We decided to set the date end of June before the summer holidays and used a poll to assess the availability of PRO-GRACE project partners, and the PGR, breeding and plant phenotyping communities. To minimize costs, it was decided to search for a meeting venue in Brussels that could be provided for free through PRO-GRACE project partners, and CSIC offered their meeting room in Brussels, which can host 71 participants.

In a next step, the organizational committee worked on an outline of the programme for the workshop. Considering the timing (second half of the project) and location (Brussels, close to policy makers and other relevant stakeholders), it was decided to organize in addition a policy symposium to present and discuss the aim of the PROGRACE project. Through the networks of the PRO-GRACE project partners and EMPHASIS representatives, we managed to establish an extensive programme for both consecutive events. In order to ensure in-person participation of relevant experts and stakeholders, we sent tailored invitations based on an invitation list that we created together, and we agreed to reimburse specific travel and accommodation costs. After confirming the attendance of key participants, the invitation for in-person participation was opened to anyone who might be interested. It is clear from the registrations, that most of the in-person participants were invited, which contributed to ensure that a diverse group of stakeholders gathered.

Regarding the practicalities of the event, it was decided to enable online participation. The webinar format of the Zoom was selected as most suitable platform and project partner IPGRI offered to use their license and capabilities. To facilitate interaction with the online attendees, Slido polls were implemented at regular intervals in the programme to receive their feedback. The hybrid format of the events added an additional layer of complexity, so the strategy was to compile all presentations of the speakers beforehand to ensure a smooth transition. To raise awareness and inform others about the outputs of the events, a social media communication strategy was implemented to regularly publish posts before, during and after the events. Finally, a gift was given to thank the speakers and the in-person participants for their contributions.

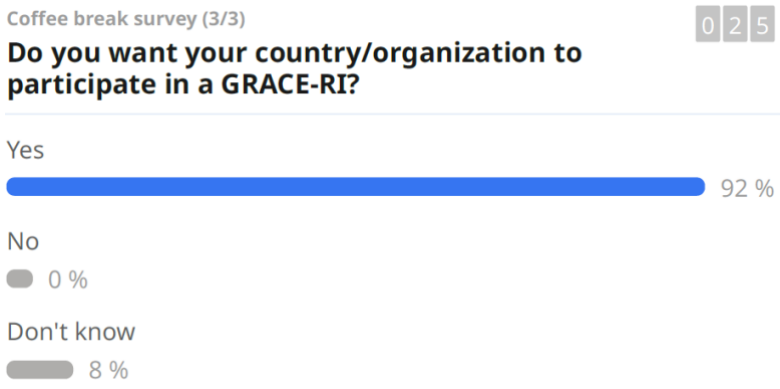
4. Results

The European project PRO-GRACE in collaboration with the EMPHASIS European plant phenotyping infrastructure held a policy symposium on 27 June to address the challenges and opportunities regarding the conservation, characterization, access and use of (non-) commercial plant genetic resources (PGRs) present in genebanks and in their natural habitat in Europe, followed by a workshop on the challenges and opportunities for the harmonization of plant phenotyping in Europe on 28 June. The organization of the event was led by project partner EUROS and the event was hosted by project partner CSIC at their Brussels office at Rue du Trone 62, with 56 and 46 in-person participants on 27 and 28 July respectively. A Zoom webinar, provided by IPGRI, enabled 219 and 175 participants on 27 and 28 July respectively to connect and follow the event online. A networking event, following the symposium on 27 June allowed participants to further connect and discuss.

4.1 Policy symposium Thursday 27 June

The aim of the policy symposium was to engage European and national level policymakers, as well as interested stakeholders, to discuss the potential of a future research infrastructure named 'GRACE-RI' dedicated to PGRs to address biodiversity loss. The symposium was attended by 56 persons in Brussels and 219 persons online (see table and graphs below) and the program of the event is available in the annex.

The symposium started with presentations by project partners providing background information to understand better the challenges and needs related to PGRs: we are losing plant biodiversity in Europe and international policy frameworks are impacting conservation, access and use of PGRs. Subsequently, the Commission presented how the EU is funding and supporting research and innovation for the conservation and use of PGRs, and we learnt in addition more about national initiatives, a decentralized approach to PGR conservation through citizen science as well as the European coordination programme ECPGR. Finally, the Commission explained the ESFRI roadmap and how to submit a proposal for a new research infrastructure and together with different stakeholders we explored how a European research infrastructure 'GRACE-RI' could enable the potential of PGRs. Based on feedback that we obtained through the Slido poll, more than 90% of the respondents indicated that they are in favour of participating in a GRACE-RI:



The outputs of the policy symposium have been made available on PRO-GRACE website (after consent by the speakers and participants):

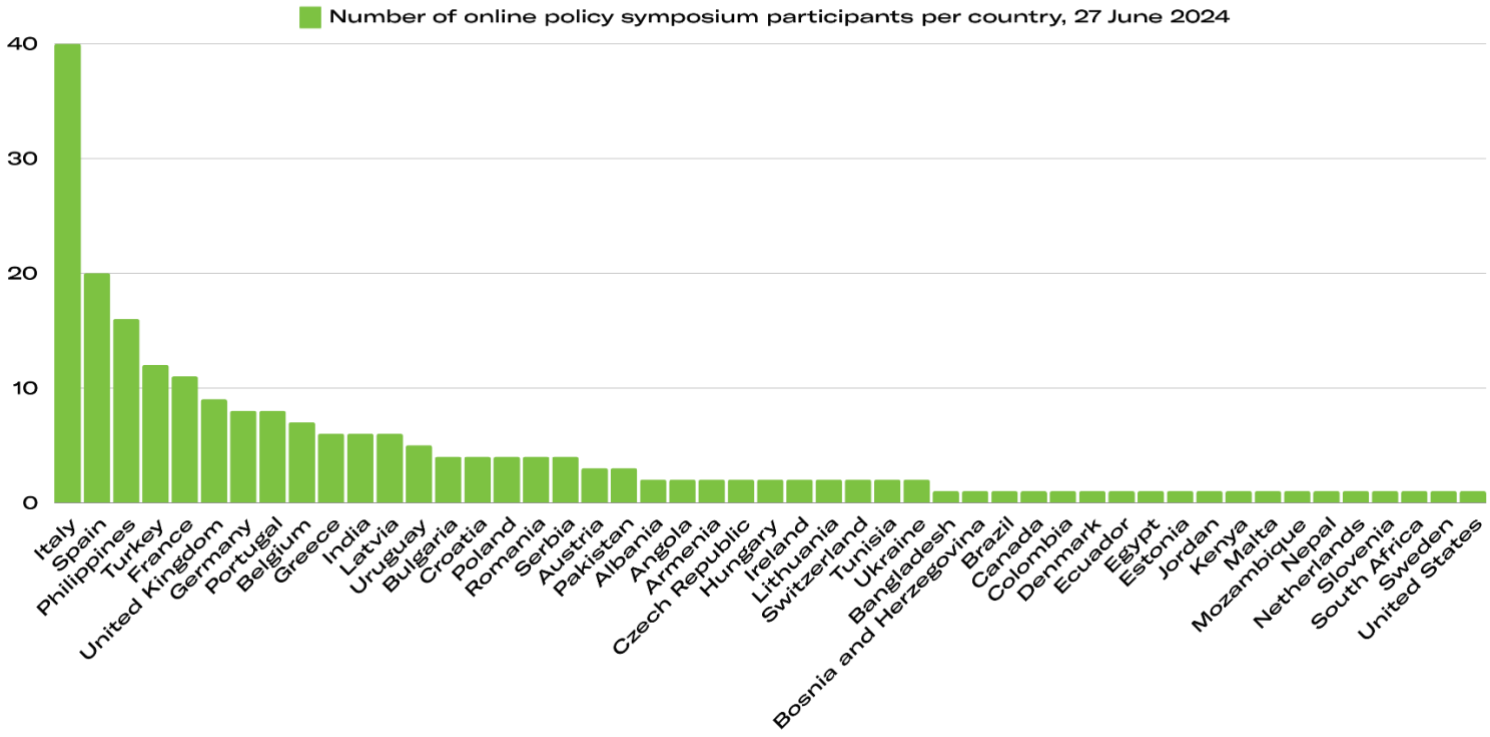
- Presentations
- Recordings

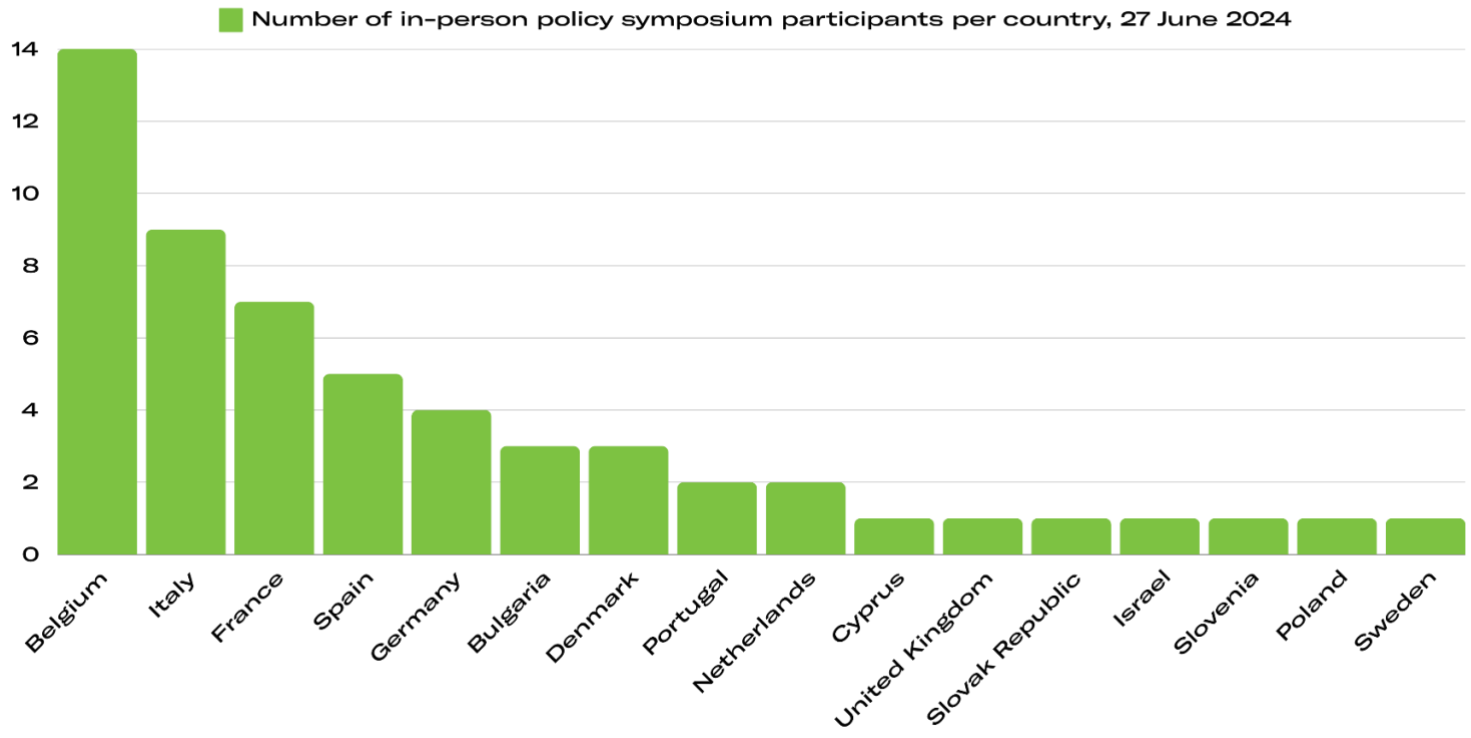
In-person participation day 1:

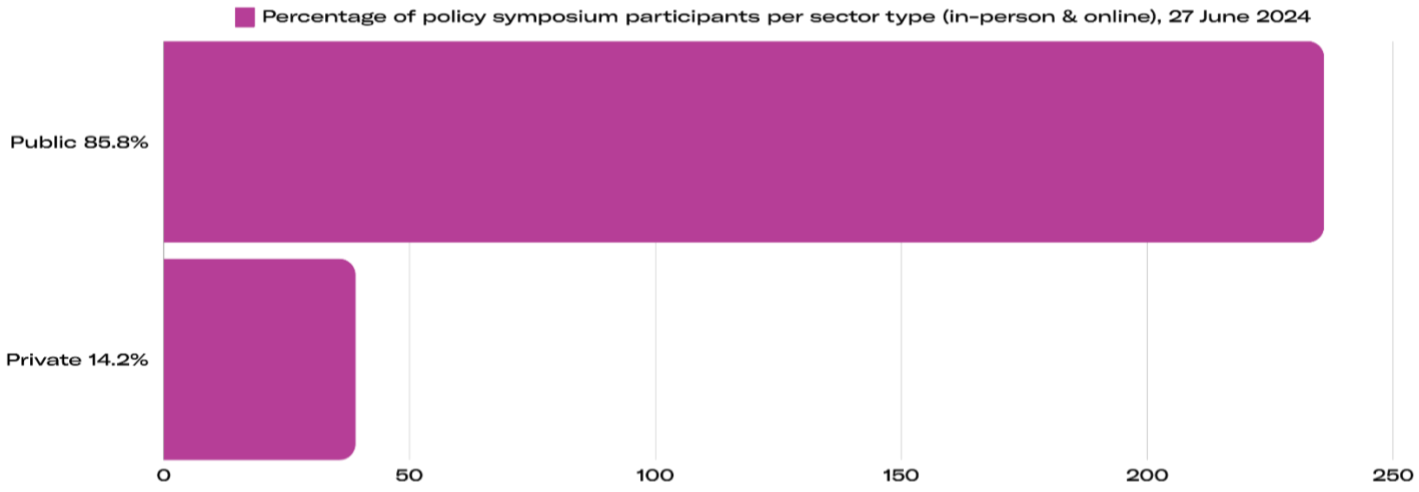
Number: 56
Country: 16
Stakeholder group: 7

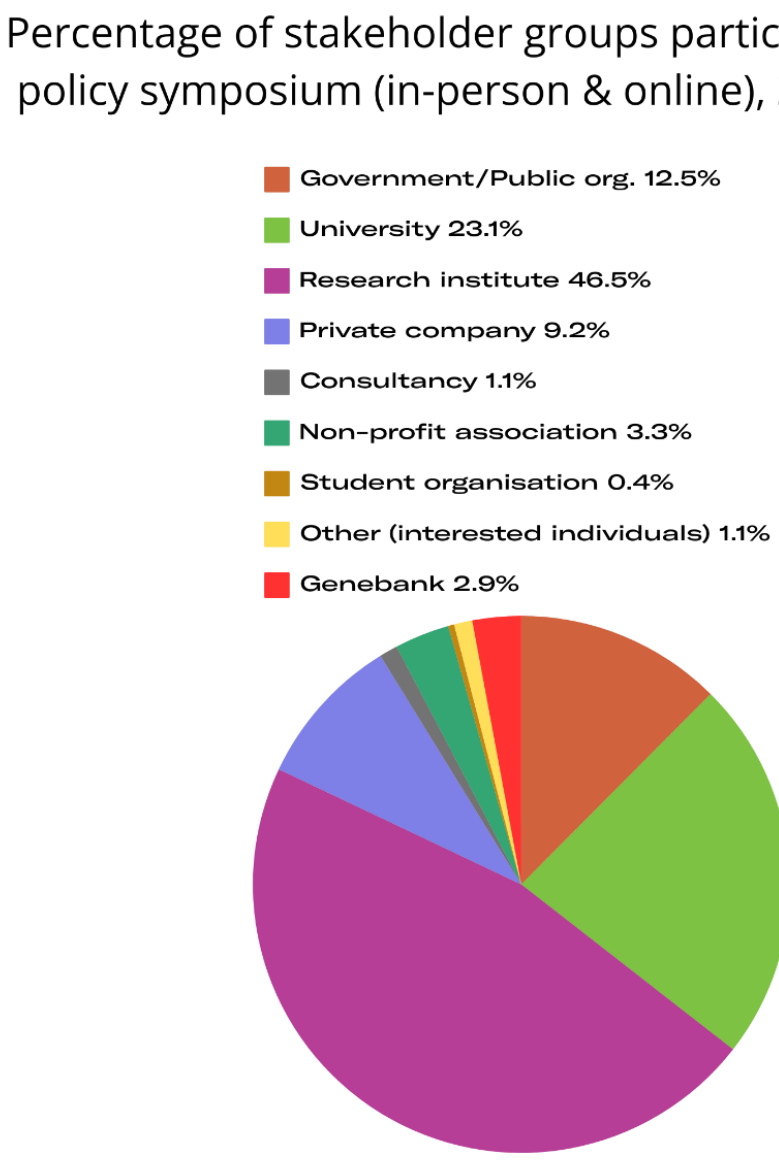
Online participation day 1:

Number: 219
Country: 49
Stakeholder group: 9



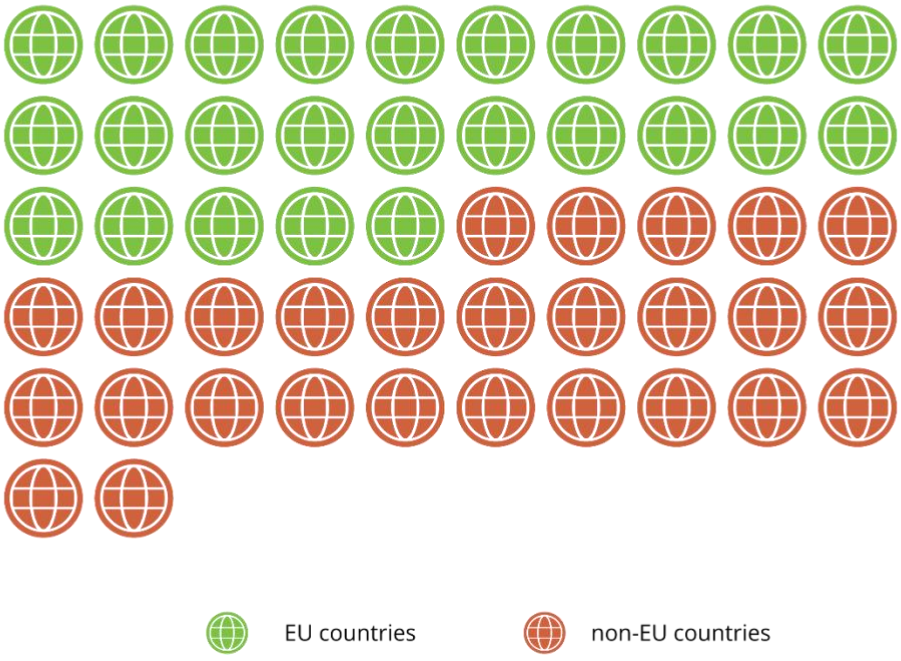



Percentage of policy symposium participants per sector type (in-person & online), 27 June 2024
Public 85.8%
Private 14.2%
0
50
100
150
200
250


Percentage of stakeholder groups participating to the policy symposium (in-person & online), 27 June 2024
Government/Public org. 12.5%
University 23.1%
Research institute 46.5%
Private company 9.2%
Consultancy 1.1%
Non-profit association 3.3%
Student organisation 0.4%
Other (interested individuals) 1.1%
Genebank 2.9%

Total number of policy symposium participants (in-person & online), 27 June 2024: **275**

Total number of countries participating to the policy symposium (in-person & online), 27 June 2024: **52**



4.2 Plant phenotyping workshop Friday 28 June

The aim of the plant phenotyping workshop was to provide an inventory of the different initiatives for phenotyping plant genetic resources and to discuss how plant phenotyping can support the management and utilization of plant genetic resources. More specifically, it was discussed how this huge amount of data could become more available for scientific and breeding activities and how to ensure it could be interoperable with different information systems.

We began the workshop with a presentation on an inventory of the different initiatives for phenotyping and an introduction to EMPHASIS to set the scene and to identify potential synergies between the plant genetic resources and plant phenotyping community. Therefore, relevant EU-funded projects were presented to learn more about the gene bank's perspective on the importance and potential of phenotyping. Subsequently, three thematic sessions took place on the topic of:

(1) Seed phenotyping: Seeds are the main heritable unit stored *ex situ* by genebanks and are at the heart of plant breeding and production. Phenotyping of seed traits that affect plant development or product quality provide a basis for predicting plant growth and development. Presentations covered the potential of using seed phenotyping in predicting traits and introduced several high-throughput and AI-based approaches to automated seed phenotyping.

(2) Cost-effective phenotyping: Collecting high quality phenotyping data is the basis for accurate analyses. Development of low-cost methods and application for measuring of increasing number of traits can contribute to high quality comparable trait assessment conducted in multiple locations and environments. Presentations showed how citizen science and on-farm evaluations can contribute to generating useful and large datasets, highlighted the benefit of ensuring data reusability according to FAIR principles and provided an example of applying sensors/drones to phenotype fields at low cost.

(3) Data management: Phenotypic data sets are growing exponentially. Standardized protocols, data validations, common descriptors etc. are essential to increase the predictive power of these data. Presentations in this session outlined data management needs for PGR documentation, described different approaches to providing FAIR phenotyping data and proposed a metabolomics approach for use in trait predictions.

Based on the questions and discussions, the following conclusions and open questions could be formulated: Quantitative phenotyping is relevant however, throughput remains a challenge. The different presentations made it clear that there is a wide range of tools that can address breeding programs, agricultural management, agroecology such as seed phenotyping including quantitative analyses of seed viability measuring the structure (3D, volume, colour) and function (aging). Based on the discussions, it became apparent that cost-effectiveness of phenotyping tools and data management are important aspects to be taken into consideration. In addition, it remains to be assessed how artificial intelligence and machine learning can contribute to PGR documentation? For instance, for digitizing historical records and archives. It would be interesting to understand better from other PGR-related research projects such as AGENT and DISSCO, on what to do with the phenotypic data generated by different projects and how to ensure linkage with the biological material (i.e. conservation of project collections).

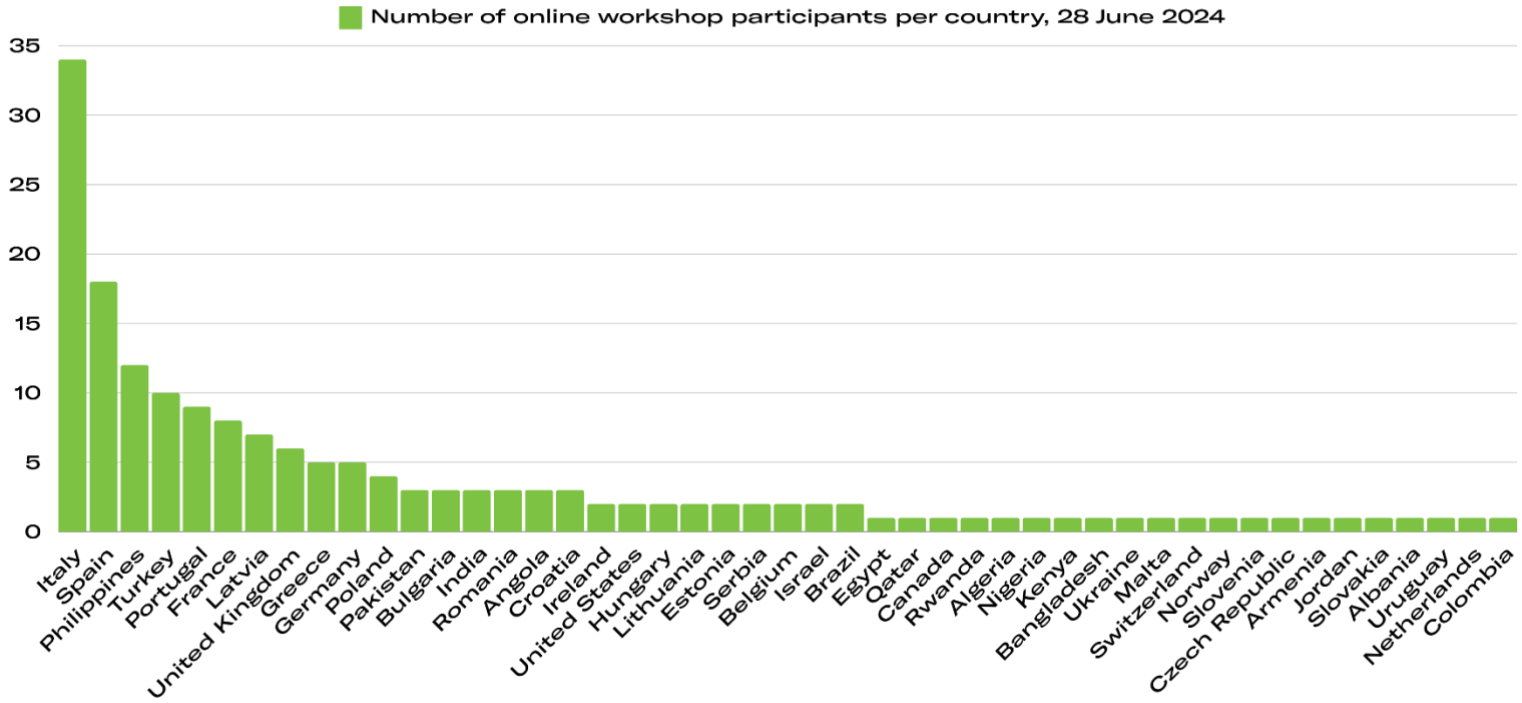
Regarding future engagement with EMPHASIS, it was recommended to explore possible joint projects (e.g. through the recently launched Agroserv call) and that there is a need in PRO-GRACE to facilitate national level discussions on how to implement national nodes and to receive support from National ministries for the ESFRI proposal submission of the GRACE-RI.

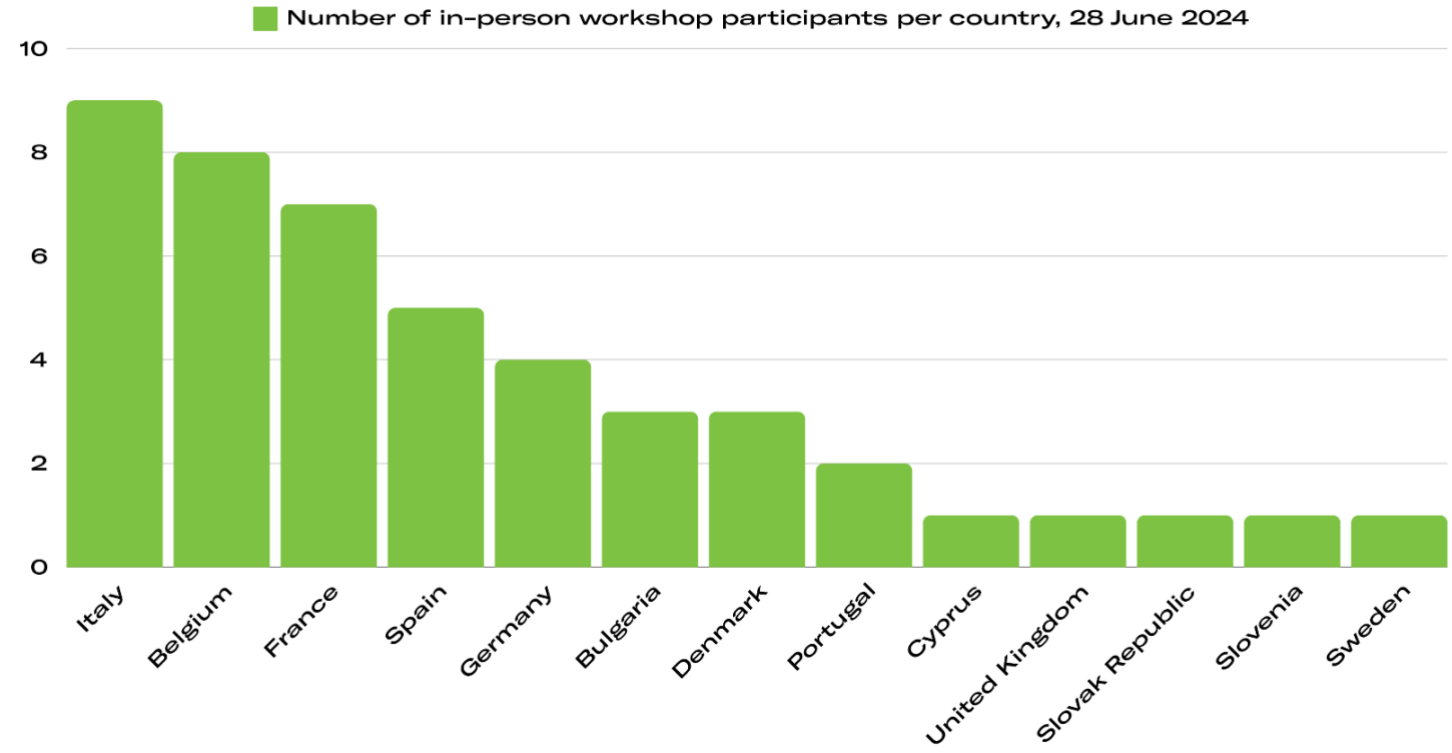
The outputs of the plant phenotyping workshop have been made available on PRO-GRACE website (after consent by the speakers and participants):

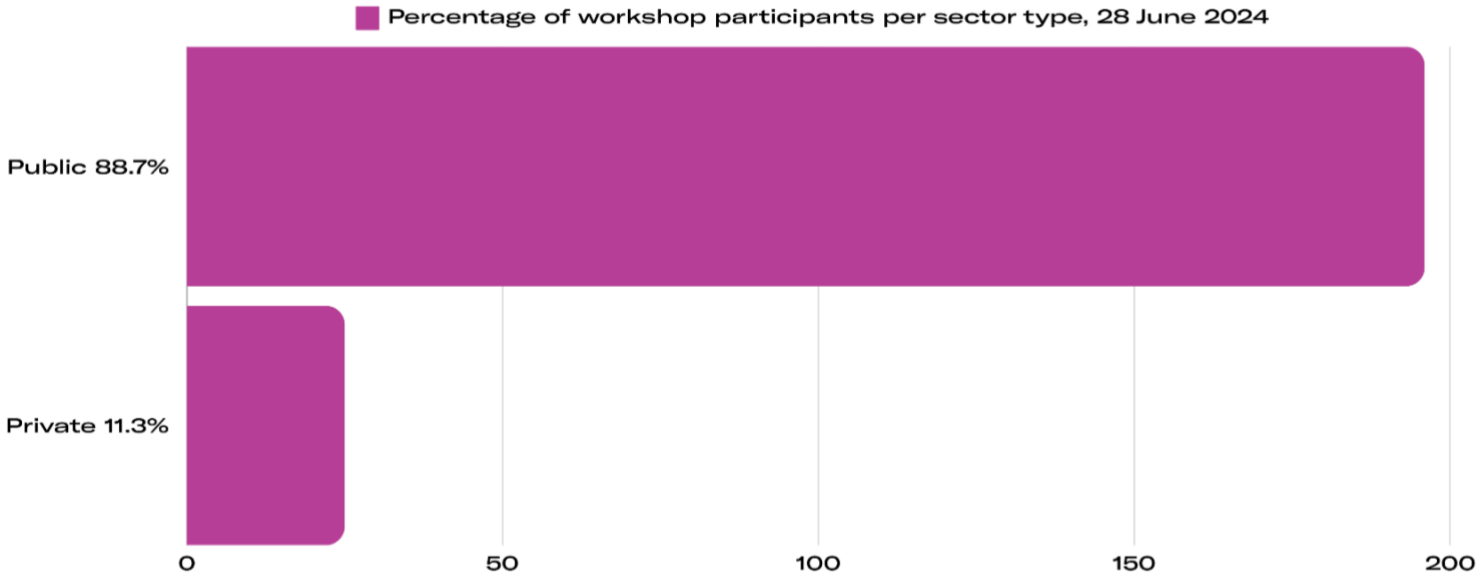
- Presentations
- Recordings

In-person participation day 2:
Number: 46
Country: 13
Stakeholder group: 7

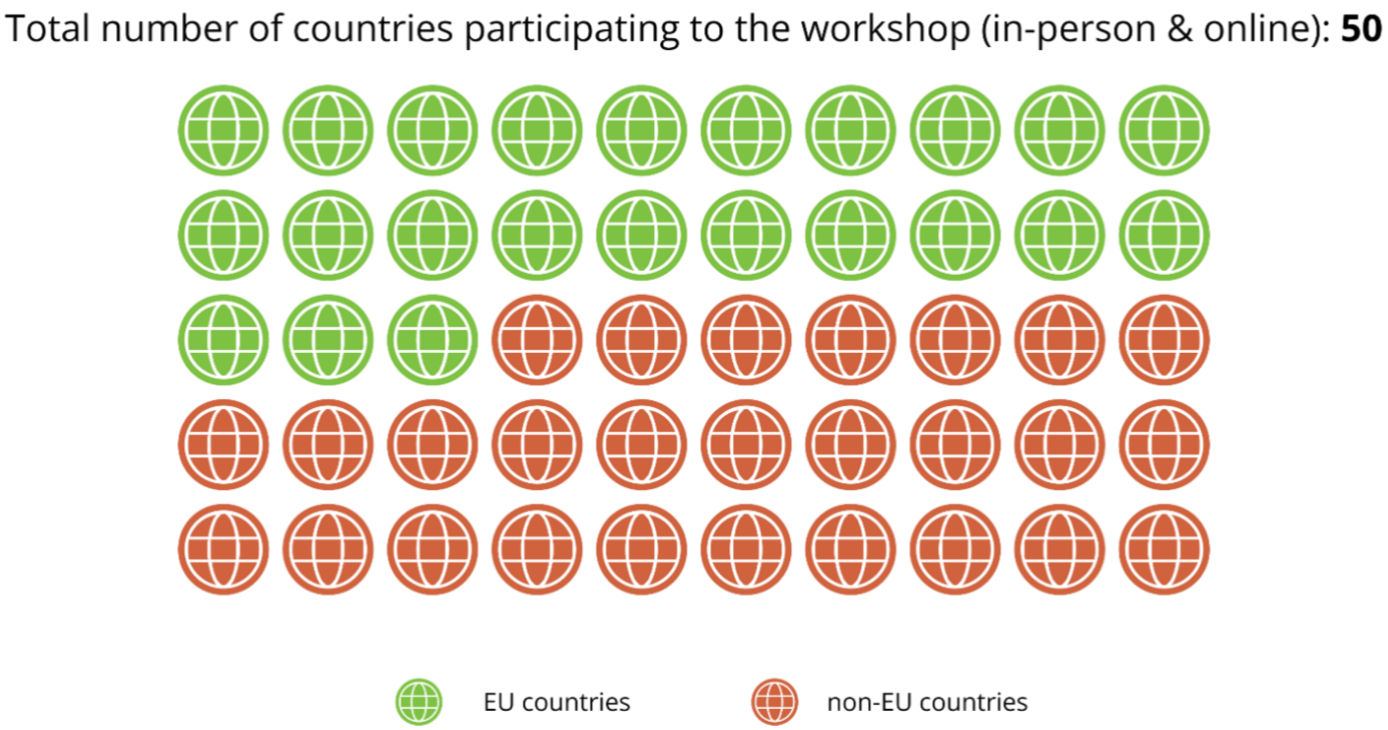
Online participation day 2:
Number: 175
Country: 47
Stakeholder group: 9




Number of in-person workshop participants per country, 28 June 2024
10
8
6
4
2
0
Italy
Belgium
France
Spain
Germany
Bulgaria
Denmark
Portugal
Cyprus
United Kingdom
Slovak Republic
Slovenia
Sweden


Percentage of workshop participants per sector type, 28 June 2024
Public 88.7%
Private 11.3%
0
50
100
150
200


Percentage of stakeholder groups participating to the workshop (in-person & online), 28 June 2024
Government/Public org. 11.7%
University 23.9%
Research institute 48.6%
Private company 8.1%
Consultancy 0.9%
Non-profit association 1.8%
Student organisation 0.5%
Other (interested individuals) 2.3%
Genebank 2.3%
Total number of workshop participants (in-person & online): 221
in-person participants
online participants



4.3 Communication and dissemination activities

- **Website**

In the beginning of April, the PRO-GRACE website announced the joint PRO-GRACE/EMPHASIS policy symposium and workshop on PGRs and phenotyping. The announcement included a comprehensive explanation of the background and objectives of these events. Additionally, a promotional Save-The-Date flyer (see below) was made available to provide additional information about the objectives of both events.

In the lead-up to the event, a detailed agenda was made available on the PRO-GRACE website. This agenda included the titles of all presentations, along with the names, affiliations, and countries of the speakers.

Joint PRO-GRACE/EMPHASIS policy symposium and workshop about plant genetic resources and phenotyping

27-28 June 2024 — Rue du Trône 62, Brussels, Belgium & Online

AGENDA

Thursday, 27 June 2024, 13:00-19:00 CEST: Symposium and networking event on challenges and opportunities regarding the conservation, characterization, access, and use of (non-)commercial Plant Genetic Resources (PGRs)

12:00-13:00	Registration and light lunch
13:00-13:05	**Chair: Nick Vangheluwe** Welcome by Antonio Granell from Consejo Superior de Investigaciones Científicas (CSIC), Spain and by Nick Vangheluwe from Euroseeds, Belgium
13:05-13:20	Why a European Research Infrastructure dedicated to PGRs by PRO-GRACE project coordinator Giovanni Giuliano from ENEA, Italy
13:20-13:35	Research and innovation for conservation and use of PGRs by Gisela Quaglia from the R&I Unit, DG AGRI, European Commission
13:35-13:50	International policy frameworks impacting the conservation, access, and use of PGRs by Leire Escajedo San-Epifanio from University of the Basque Country (UPV/EHU), Spain
13:50-14:05	Examples of national initiatives for the conservation of PGRs by Theo Van Hintum from the Centre for Genetic Resources (CGN), The Netherlands and by Antonio Granell from CSIC, Spain
14:05-14:10	INCREASE project and the decentralized conservation of PGRs by Roberto Papa, UNIVPM, Italy
14:10-14:25	Together we are stronger: A European Programme for Plant Genetic Resources by Jens Weibull, Sweden
14:25-14:35	Seed sector perspective on the potential of PGRs by Szonja Csörgő from ISF, Switzerland
14:35-14:45	EMPHASIS: The road towards a plant phenotyping community by EMPHASIS coordinator Roland Pieruschka from Forschungszentrum Jülich, Germany
14:45-15:10	Q&A
15:10-15:40	Coffee break

Joint PRO-GRACE/EMPHASIS policy symposium and workshop about plant genetic resources and phenotyping

27-28 June 2024 — Rue du Trône 62, Brussels, Belgium & Online

AGENDA

Thursday, 27 June 2024, 13:00-19:00 CEST: Symposium and networking event on challenges and opportunities regarding the conservation, characterization, access, and use of non-commercial Plant Genetic Resources (PGRs)

15:40-15:50	**Chair: Giovanni Giuliano and Sandra Goritschnig** ESFRI 2024 Landscape Analysis in Health & Food domain, ESFRI Roadmap and future project evaluation by Martyn Chamberlain from DG Research and Innovation, European Commission
15:50-16:20	A European research infrastructure to enable the potential of PGRs: 'GRACE-RI' by Sandra Goritschnig from ECPGR, Italy
16:20-17:20	Stakeholder interactive session about the proposed European research infrastructure 'GRACE-RI'
17:20-17:30	Wrap-up & conclusions
17:30-19:00	Reception and networking

Joint PRO-GRACE/EMPHASIS policy symposium and workshop about plant genetic resources and phenotyping

27-28 June 2024 — Rue du Trône 62, Brussels, Belgium & Online

AGENDA

Friday 28 June, 09:00-15:15 CEST: Workshop on the evaluation and valorisation of PGRs

8.30-9:00	Registration
9:00-9:15	**Chair: Véronique Lefebvre** Setting the scene and formulation of expected outcomes of the joint workshop by Véronique Lefebvre from INRAE, France and Ignazio Verde from CREA, Italy
9:15-9:30	Introduction to EMPHASIS: the European plant phenotyping research infrastructure by EMPHASIS coordinator Roland Pieruschka from Forschungszentrum Jülich, Germany
9:30-9:50	How to make genebank materials attractive for users? Genebank perspective by Jaime Prohens from Universitat Politècnica de València, Spain
9:50-10:10	European projects contributing to improved genebank inventories, the example of AGENT and EVA by Sandra Goritschnig from ECPGR, Italy
10:10-10:25	Phenotyping by citizen scientists in INCREASE by Roberto Papa from UNIVPM, Italy
10:25-11:00	Coffee break
11:00-12:00	First thematic session: Seed phenotyping **Chair: Carla Pinheiro** *Seeds are the main heritable unit stored by genebanks and are at the heart of plant breeding and production. Phenotyping of seed traits that affect plant development or product quality provide a basis for predicting plant growth and development.* • Using phenomics to predict quality traits in maize by Stéphane Nicolas from INRAE, France (10 min) • Automated calculation of seed descriptor values and characterization of seeds by Karsten Hartelius from Videometer A/S, Denmark (10 min) • PhenoSeeder: automated phenotyping and sowing of individual seeds of different sizes by Viktor Sydoruk from Forschungszentrum Jülich, Germany (10 min) • Volatilome profiling as a new tool for seed phenotyping by Michelina Ruocco from CNR, Italy (10 min) • Q&A (20 min)
12:00-13:00	Lunch break

Joint PRO-GRACE/EMPHASIS policy symposium and workshop about plant genetic resources and phenotyping

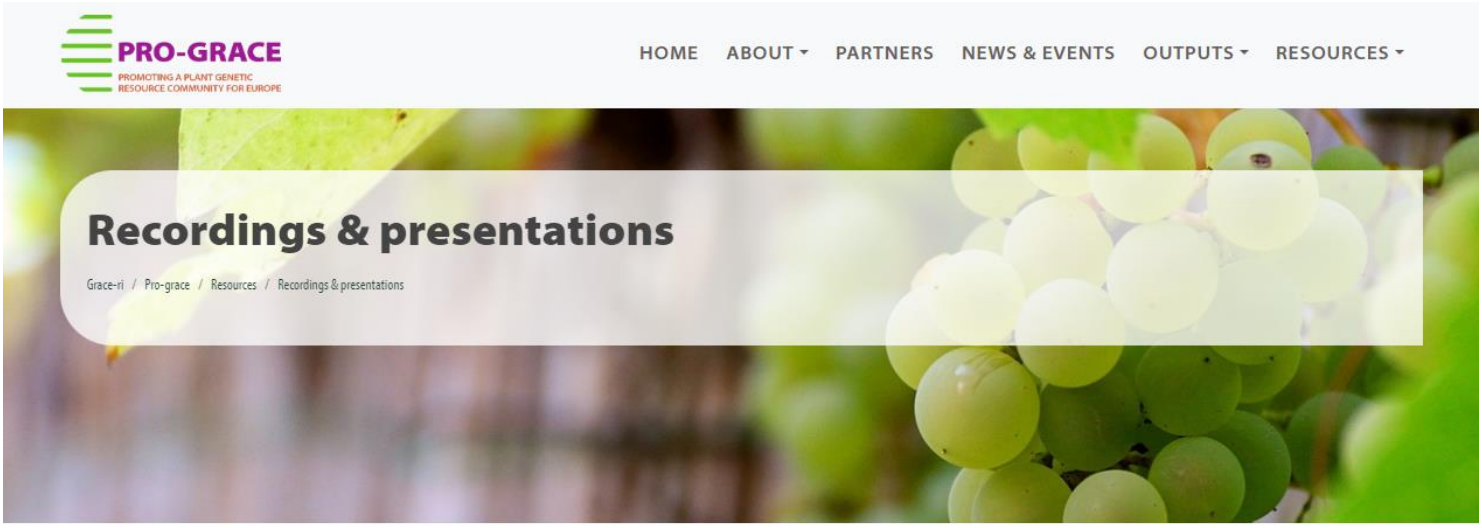
27-28 June 2024 — Rue du Trône 62, Brussels, Belgium & Online

AGENDA

Friday 28 June, 09:00-16:00 CEST: Workshop on the evaluation and valorisation of PGRs

13:00-14:00	Second thematic session: Cost-effective phenotyping **Chair: Ignazio Verde** *Collecting high quality phenotyping data is the basis for accurate analyses. Development of low-cost methods and application for measuring of increasing number of traits can contribute to high quality comparable trait assessment conducted in multiple locations and environments.* • Breeder's perspective on ensuring the sustainable use of PGRs by Nick Vangheluwe from Euroseeds, Belgium • How and why collect phenotyping data on farm by Riccardo Bocci from Rete Semi Rurali, Italy (10 min) • Most cost-effective experiments are those in databases: Using and reusing indoor and multisite field experiments for assessing the genetic variability of plant responses to environment by François Tardieu from INRAE, France (10 min) • Cost-effective plant phenotyping tools: combining emerging technologies and open-source solutions by Jose Jimenez-Berni from CSIC, Spain (10 min) • Q&A (20 min)
14:00-15:00	Third thematic session: Data management **Chair: Roland Pieruschka** *Phenotypic data sets are growing exponentially. Standardized protocols, data validations, common descriptors etc. are essential to increase the predictive power of these data.* • Rethinking Plant Genetic Resources Documentation in the Age of Data-Driven Science by Catherine Aguilar from Leibniz Institute of Plant Genetics and Crop Plant Research (IPK), Germany (10 min) • Tools to manage trial, phenotyping and marker datasets: FAIRness in the Legume Generation consortium by James Brett from Earlham Institute, UK (10 min) • Data management tools for phenomics: from acquisition to validation, integration and sharing by Cyril Pommier from INRAE, France (10 min) • Bandwagon status for metabolomics in plant phenotyping by Yves Gibon from INRAE/University of Bordeaux, France (10 min) • Q&A (20 min)
15:00-15:15	Wrap-up & conclusions

Following the events, which were recorded via Zoom, all presentations and recordings have been made available on the project website (after receiving consent from the speakers and participants).



Joint PRO-GRACE/EMPHASIS Policy Symposium and Workshop on Plant Genetic Resources and Phenotyping

(27-28 June 2024)

On 27 and 28 June 2024, the European project PRO-GRACE, in collaboration with the EMPHASIS European Plant Phenotyping Infrastructure, held a policy symposium and workshop about plant genetic resources and phenotyping in Brussels hosted by CSIC and organized by Euroseeds. The event aimed to address the challenges and opportunities regarding the conservation, characterization, access and use of (non-) commercial plant genetic resources present in genebanks and their natural habitat in Europe.

The Policy Symposium engaged European and national policymakers, as well as interested stakeholders, in discussing the potential of a future research infrastructure named 'GRACE-RI' dedicated to plant genetic resources to address biodiversity loss.

The Plant Phenotyping Workshop aimed to provide an inventory of the different initiatives for phenotyping plant genetic resources and to discuss how plant phenotyping can support the management and utilization of plant genetic resources.

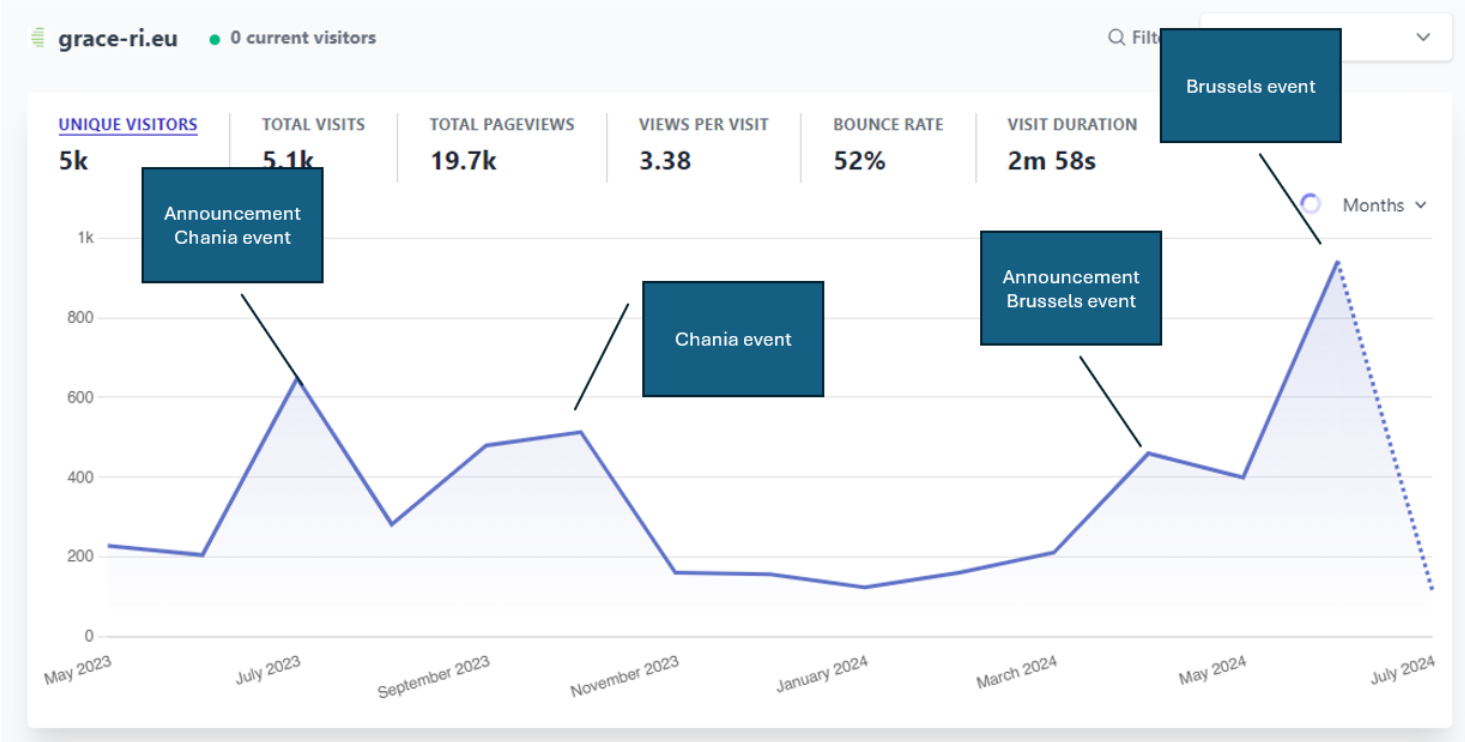
The recordings and presentations of the event are available by clicking on the buttons below.

Symposium
Recordings & presentations

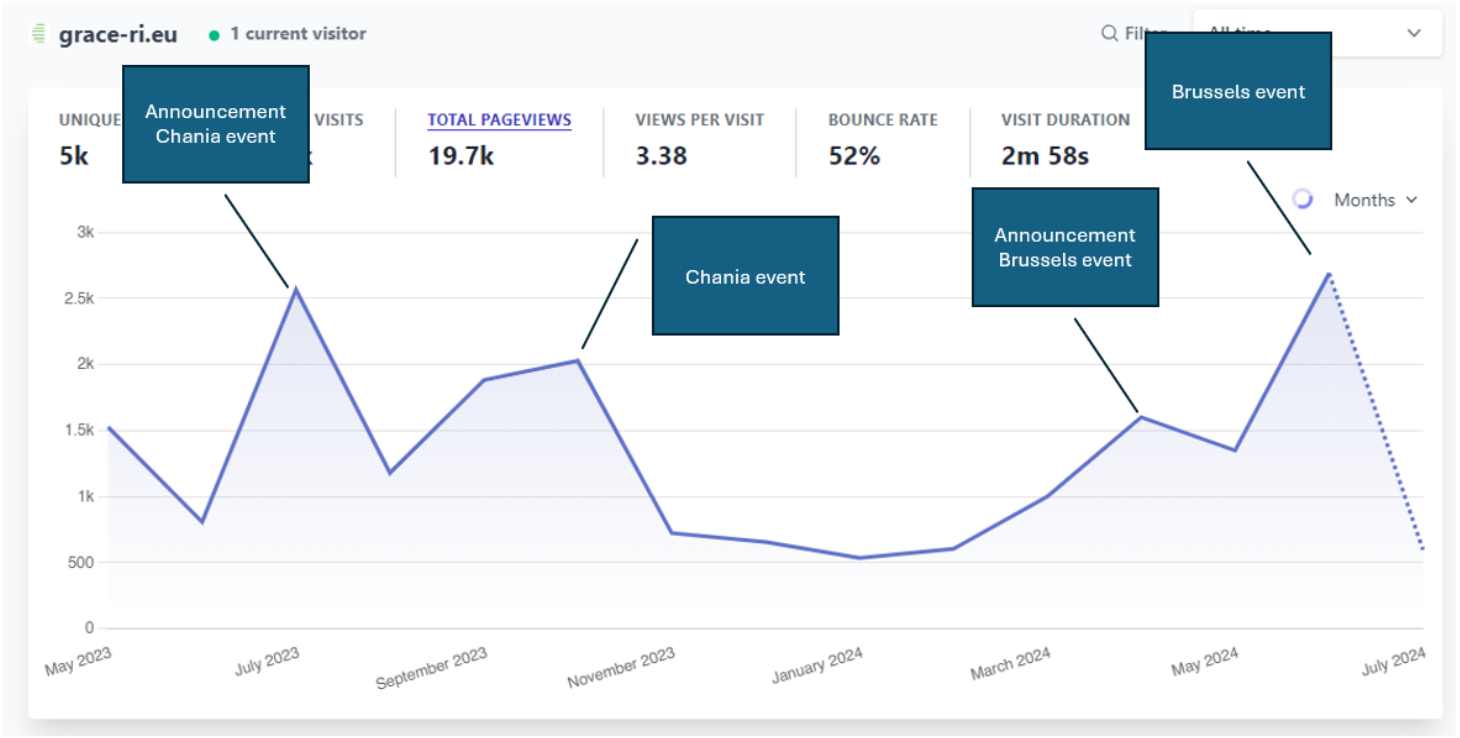
Workshop
Recordings & presentations

The joint PRO-GRACE/EMPHASIS policy symposium and workshop on PGRs and phenotyping garnered significant interest, resulting in increased website activity. The website analytics below demonstrate a clear increase in engagement during the time of the event.

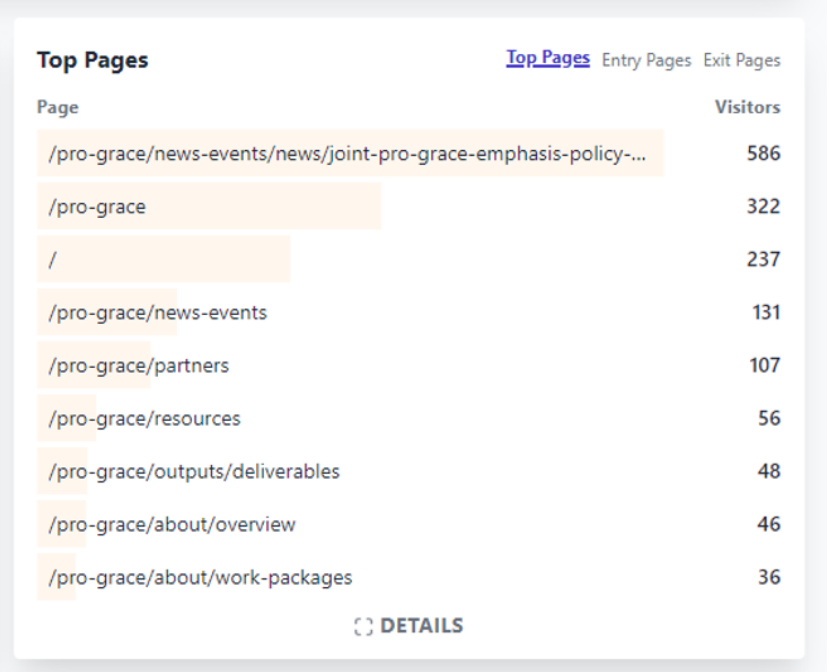
Unique visitors – All time (May 2023-July 2024)



Pageviews – All time (May 2023-July 2024)



Top pages June 2024



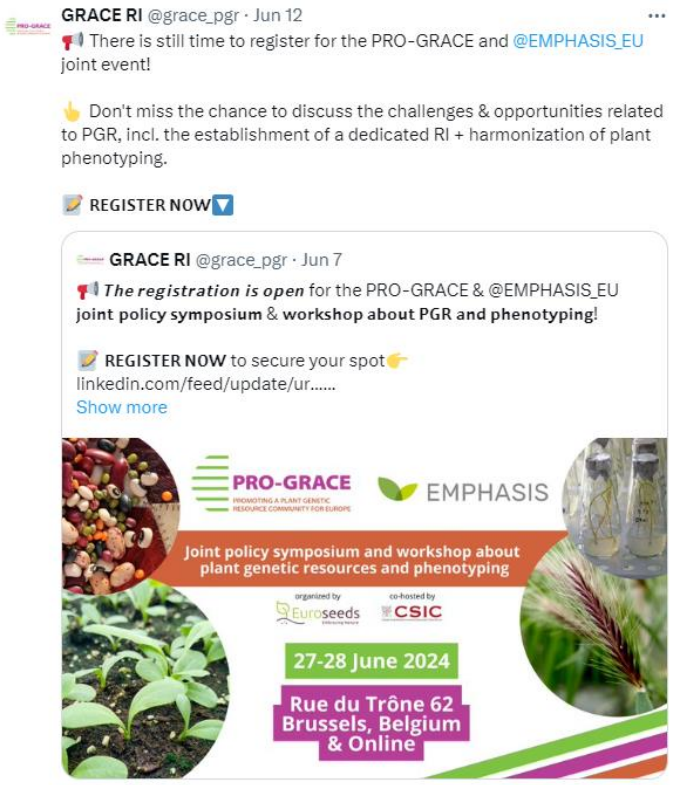
Top Pages — Top Pages | Entry Pages | Exit Pages

Page	Visitors
/pro-grace/news-events/news/joint-pro-grace-emphasis-policy-...	586
/pro-grace	322
/	237
/pro-grace/news-events	131
/pro-grace/partners	107
/pro-grace/resources	56
/pro-grace/outputs/deliverables	48
/pro-grace/about/overview	46
/pro-grace/about/work-packages	36

DETAILS

- **Social media**

The joint PRO-GRACE/EMPHASIS policy symposium and workshop on PGRs and phenotyping have been consistently promoted on social media platforms, encouraging registrations for both in-person and online participation. Once the detailed agenda was available, it was also disseminated through the social media platforms of PRO-GRACE: LinkedIN and X.



During both events, PRO-GRACE provided live coverage on **X** (https://x.com/grace_pgr) and **LinkedIn** (https://www.linkedin.com/company/pro-grace-research-infrastructure/), utilizing the dedicated hashtag **#PROGRACE_EMPHASIS** to consolidate and track trace all related posts on both platforms.

The posts highlighted the key insights and messages from each presentation and were supported by high-resolution photographs.

PRO-GRACE Research Infrastructure
419 followers
1w •

🟢Welcome to PRO-GRACE/EMPHASIS on Plant Phenomics **joint policy symposium and workshop about plant genetic resources and phenotyping**!

On the agenda:
🔶**27 June: POLICY SYMPOSIUM** on the challenges and opportunities in the conservation, characterization, access and use of non-commercial plant genetic resources present in genebanks and in their natural habitat in Europe.

🔶**28 June: WORKSHOP** on the challenges and opportunities for harmonization of plant phenotyping.

🌱Let's promote plant genetic resources and plant phenotyping community for Europe!🚀

ℹ️ More info on the agenda: https://lnkd.in/eKP2bKcb

#PROGRACE_EMPHASIS #plantgeneticresources #cropbiodiversity #plantphenotyping

PRO-GRACE Research Infrastructure
419 followers
1w •

#PROGRACE_EMPHASIS

🟢Today PRO-GRACE & EMPHASIS on Plant Phenomics host a workshop on the evaluation and valorisation of plant genetic resources with the aim of providing an overview of different initiatives for phenotyping PGR and discussing how plant phenotyping can support the PGR management and utilization.

👆Moreover, the workshop is set to explore ways of making this huge amount of data available for scientific and breeding activities and ensuring it is interoperable with different information systems.

#plantgeneticresources #cropbiodiversity

PRO-GRACE Research Infrastructure
419 followers
1w •

#PROGRACE_EMPHASIS

🤔Why do we need a European Research Infrastructure dedicated to #plantgeneticresources? 🍎🫐🌳🥕🍊🍊🍆

💬PRO-GRACE project coordinator Giovanni Giuliano, ENEA, highlights the importance of plants to life on earth and explains the need for a dedicated research infrastructure

💡No EU Research Infrastructure presently addresses the problem of study, conservation and valorization of PGR! ➡️Setting the GRACE-RI will contribute the conservation and improvement of the plants that feed humanity!

#cropbiodiversity

PRO-GRACE Research Infrastructure
419 followers
1w •

#PROGRACE_EMPHASIS

🌱EMPHASIS on Plant Phenomics is a European infrastructure for multi-scale plant phenomics and simulation which entered ESFRI - European Strategy Forum on Research Infrastructures Roadmap in 2016.

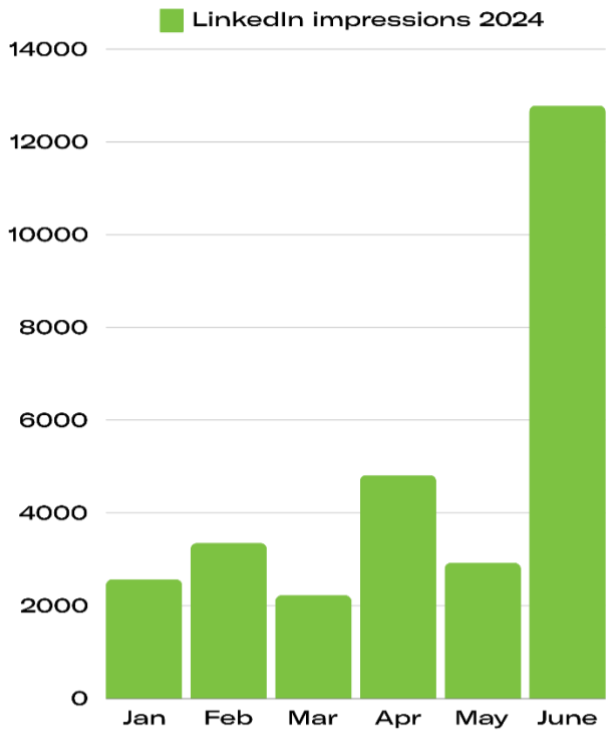
📢EMPHASIS coordinator Roland Pieruschka, Forschungszentrum Jülich, shares the insights on how to establish a plant phenotyping RI 👇

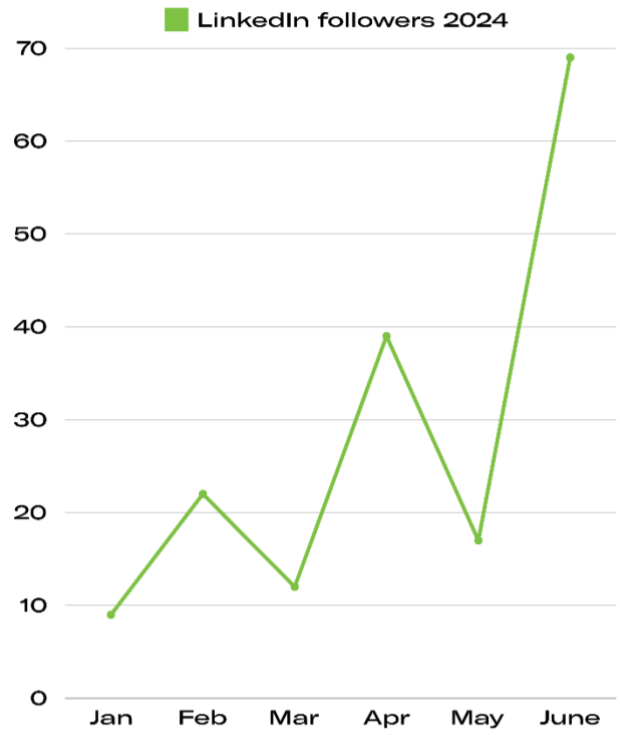
💡There are 3 phases on the road to operational RI:
🔶Preparatory phase
🔶Implementation phase
🔶Operation phase
EMPHASIS is currently in the 2nd phase and will become operational as of 2026!

ℹ️ More on EMPHASIS: https://lnkd.in/ewaKZK-n

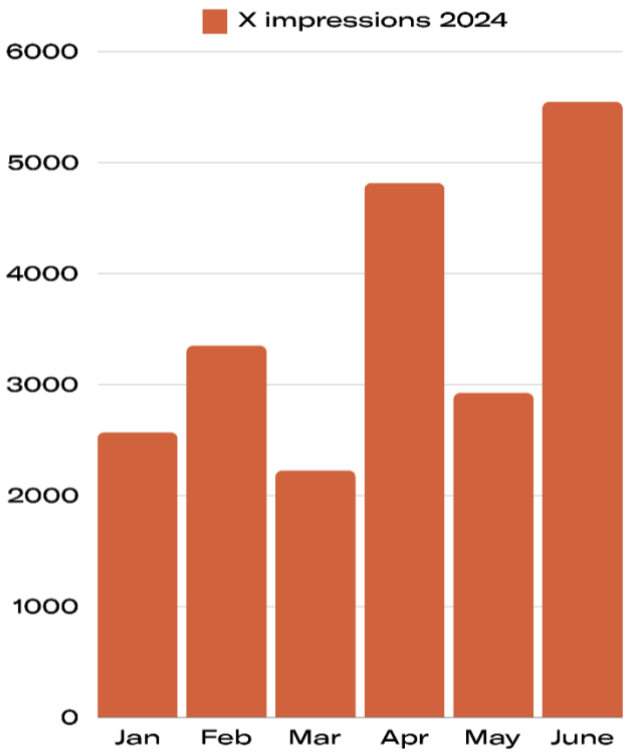
#cropbiodiversity #plantgeneticresources

The live coverage of the events significantly boosted visibility and engagement, resulting in a notable increase in impressions (the total number of exposures to content, including repeated views by the same user) and new followers. Due to X's new policy requiring a paid subscription for detailed analytics, only the manually calculated number of impressions is provided below.

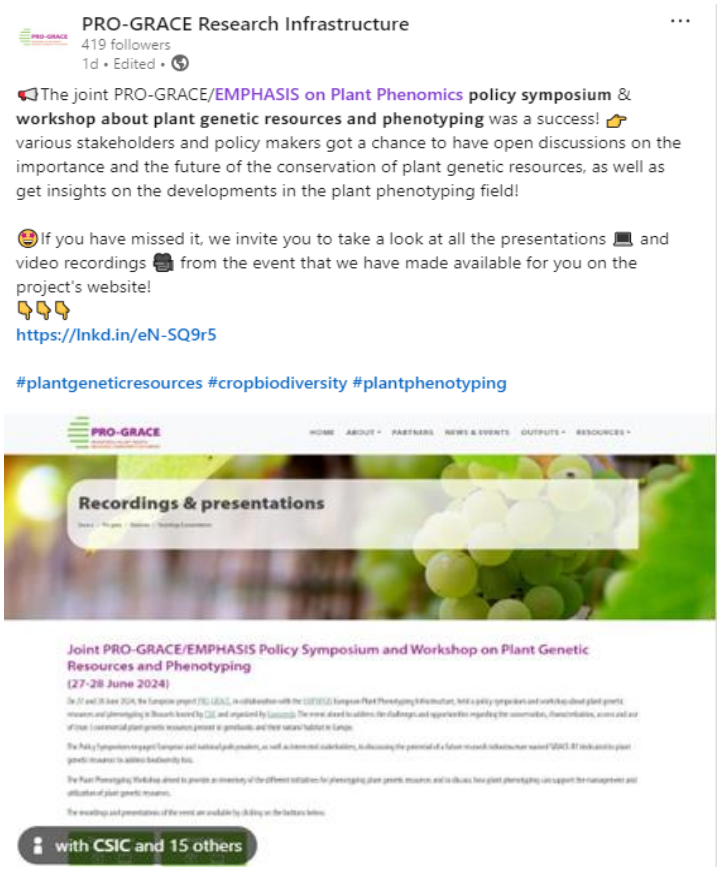




Top LinkedIn post in June 2024



Following the events, the availability of all presentations and recordings on the project website was communicated via the two social media channels. The next step in the coming months involves disseminating each video recording separately, thereby repurposing the content and further increasing the visibility of each topic discussed during the events to relevant stakeholder and target groups.



- **Supporting materials**

To enhance the visibility of the PRO-GRACE project identity, several communication and administrative materials were specifically developed for these events. These materials included:

- an event roll-up, featuring the QR code leading the Linktree where the participants could find the event agenda and links to more information about PRO-GRACE and EMPHASIS;
- name badges;
- photo consent form

Additionally, various project materials were displayed and distributed to raise awareness of the project, such as PRO-GRACE project brochures and a roll-up.

Other partners, including ECPGR, CREA Ricerca, CNR, Rete Semi Rurali, and EMPHASIS, were also given the opportunity to display their materials, contributing to a collaborative and informative event environment.


PRO-GRACE
EMPHASIS
Euroseeds
CSIC
Joint PRO-GRACE/EMPHASIS policy symposium and workshop about plant genetic resources and phenotyping
Roland Pieruschka
EMPHASIS coordinator
Forschungszentrum Jülich
PRO-GRACE
EMPHASIS
Euroseeds
CSIC
Joint PRO-GRACE/EMPHASIS policy symposium and workshop about plant genetic resources and phenotyping
Giovanni Giuliano
PRO-GRACE project coordinator
ENEA


PRO-GRACE
SETTING THE SCENE
CSIC


PRO-GRACE

4.4 Concluding remarks and recommendations

Outcome 1: PGRs for Food and Agriculture (PGRFA) have a central role to cope with future challenges

The meeting highlighted the critical role of Plant Genetic Resources for Food and Agriculture (PGRFA) in tackling future challenges like global warming and emerging pests and diseases. Genebanks, which store PGRFA, face drawbacks like limited funding, complex procedures, and difficulties in achieving and maintaining high-quality genetic material. International agreements further complicate matters.

However, the meeting presented a European research infrastructure as complementary solution: GRACE-RI. This infrastructure offers secure and easy access to both genetic material and related information through research, services and a database adhering to FAIR principles (Findable, Accessible, Interoperable, and Reusable). Key takeaways from the discussion include the need for adequate funding and public-private partnerships to support GRACE-RI. Additionally, leveraging services in genotyping and high-throughput phenotyping, while reducing bureaucratic hurdles, can foster collaboration and ultimately enable the potential of PGRs.

Establishing the GRACE-RI will provide the necessary impetus to guarantee long-term conservation and facilitated access to PGRs for a European collaborative research and breeding targeted to the public good, also building capacity of those involved in PGR management and research and creating visibility of the diversity within our genebanks and their potentialities among diverse communities of stakeholders as well as society. GRACE-RI is the opportunity to have an impact, to connect wide sectors of research that need PGR diversity (food and health, climate, environment etc.) to national conservation, evaluation and documentation programs.

Outcome 2: Maximise synergies between PGR community / genebanks and plant phenotyping community

The meeting emphasized the importance of maximizing collaboration between the PGR community (including genebanks) and the plant phenotyping community. This collaboration is crucial for selecting the most suitable genetic material for breeding programs and research for effectively characterizing the phenotypic traits and associate them to genomic regions and linked molecular markers.

Current bottlenecks include complex regulations and limitations in characterizing PGRs. To overcome these challenges, the discussion focused on utilizing emerging technologies to enable targeted and cost-effective phenotyping. Additionally, standardization of both experimental procedures and associated metadata is essential to make PGRs better available for future research and breeding efforts.

The meeting highlighted the need to avoid duplication of efforts. This can be achieved through a coordinated European Research Infrastructure (RI) strategy and fostering interaction between GRACE-RI and platforms like EMPHASIS. Effective collaboration can be fostered by understanding the needs of each community. Joint workshops, staff exchanges, and training programs were suggested as ways to bridge the gap. Ultimately, the goal is to create a system where the communities have access to phenotyping tools and data, leading to the development of joint services.

Outcome 3: Navigating the Regulatory Landscape: alignment with International Frameworks is important

The meeting recognized the importance of aligning national policies with international regulatory frameworks, particularly the Plant Treaty (ITPGRFA), the Convention on Biological Diversity (CBD) and its Nagoya Protocol. Open access for sequence data was emphasized during the meeting as a critical aspect that needs to be maintained to enable the potential and use of PGRs. Raising awareness of these issues among the scientific communities, i.e., maintaining open access to all sequence data (DSI or GSD) is of paramount importance.

5. REFERENCES

Event page: https://www.grace-ri.eu/pro-grace/news-events/news/joint-pro-grace-emphasis-policy-symposium-and-workshop-on-plant-genetic-resources-and-phenotyping

Programme: https://www.grace-ri.eu/fileadmin/user_upload/Pro-grace/News_events/PRO-GRACE_-_EMPHASIS_Policy_symposium___Workshop_flyer___agenda.pdf

Outputs day 1: https://www.grace-ri.eu/pro-grace/resources/joint-pro-grace/emphasis-policy-symposium-on-plant-genetic-resources

Outputs day 2: https://www.grace-ri.eu/pro-grace/resources/joint-pro-grace/emphasis-workshop-on-plant-genetic-resources-and-phenotyping

6. DEVIATIONS

None