



ECPGR Activity Grant Scheme Proposal Form

Sixth Call

Activity Proposal

Activity	
Full title coordinator activity	TRAINING ON IDENTIFICATION OF BOTANICAL VARIETIES IN TRITICUM SPECIES
Acronym (or short title)	Training in Triticum species: TTS
Duration of Activity (in months)	15 months
Start date – End date Please indicate start date not earlier than 3 months after deadline of call	1 st July 2018 - 30 th September 2019

Applying Working Group(s)

	Working Group	Indicate name and surname of Working Group Chair
1.	Wheat working group	Francois Balfourier
2.		
3.		
4.		

Activity Coordinator

Activity Coordinator	
Name and Surname	Pavol Hauptvogel
Nationality	Slovak
Current position	Director (Researcher and Supervisor of research institute)
Institute	National Agricultural and Food Centre – Research Institute of Plant Production
Country	Slovak Republic
Telephone	+421-33-7947271
Email	hauptvogel@vurv.sk

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Activity Partners

Please note that each partner needs to be a member of a Working Group's Pool of Experts to be eligible.

A maximum of 12 funded partners can be listed. For self-funded partners please use the separate box below.

Partner ID No.	Name and Surname	Institute	Country
1	Agata Rascio	CREA-CI Research Centre for Cereals and Industrial Crops	Italy
2	Emmanuelle Escarnot	Centre Wallon de Recherches Agronomiques (CRA-W)	Belgium
3	Gergana Desheva	Institute for Plant Genetic Resources "K. Malkov" Sadovo	Bulgaria
4	Noor Bas	Centre for Genetic Resources, the Netherlands (CGN)	Netherlands
5	Ricos Thanopoulos	Agricultural University of Athens	Greece
6	Heinrich Grausgruber	BOKU – University of Natural Resources and Life Sciences	Austria
7	Beate Schierscher	Agroscope	Switzerland
8	Reine Koppel	Estonian Crop Research Institute	Estonia
9	Miroslav Švec	Comenius University Bratislava, Faculty of Natural Sciences	Slovak Republic
10	Mehraj Abbasov	Genetic Resources Institute ANAS	Azerbaijan
11	Zoran Jovović	University of Montenegro Biotechnical Faculty	Montenegro
12	Iryna Markewich	Research and Practical Center of the National Academy of Sciences of Belarus for Arable Farming	Belarus

Self-funded partners

Partner No.	Name and Surname	Institute	Country
1	Pavol Hauptvogel	NPPC - Research Institute of Plant Production	Slovak Republic
2	Katarína Matušková	NPPC - Research Institute of Plant Production	Slovak Republic
3	Mehraj Abbasov	Genetic Resources Institute ANAS	Azerbaijan
4	Stephan Weise	Leibniz Institute of Plant Genetics and Crop Plant Research, Gatersleben	Germany

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Description of Activity (suggested max. 1000 words)

Please address the following aspects:

– Background: *Explain the context behind the choice of this Activity, e.g. why this has been prioritized or selected. If this is the continuation of a preceding Activity, please indicate how and why the new Activity will build on previous results/experiences.*

Species of *Triticum* is the largest part of accessions maintained in European gene banks. According to EURISCO, Catalogue contains passport data of more than 189,000 accessions (189,092 accessions on 15 March 2018), and the share of wheat accessions in EURISCO catalogue is 9.63 %. Diversity of *Triticum* samples is represented by more than 90 species with genus-species combinations including synonyms and spelling variants from 36 countries. Around 51 000 accessions lack intraspecific information. This kind of information in one passport data field covers some characterization description (e.g. glumes color, awns color). The quality of processed passport data and, in particular, the taxonomic data in the crop database, are closely related to the use of botanical nomenclature. Over 10,000 years of cultivation many forms of wheat, many of which are hybrids, combined with artificial and natural selection, have developed. In addition, regions of geographic or political nature played a significant role in the nomenclature of wheat. This variety has led to confusion in naming wheat.

Taxonomy plays an essential role in genebanks documentation. It is often the first level at which users search for material, and it determines the protocols used in the management of collections. Especially, when plant genetic resources information is pooled in systems such as EURISCO, the European catalogue of ex situ plant genetic resources, problems regarding technical handling of taxonomic nomenclature, such as lack of standardization and low quality of data, become apparent.

In the *Triticum* classification, we know a few different systems (Dorofeev et al., 1979, Gandilyan 1980, Löve 1984, Flora of Turkey 1985, Kimber & Sears 1987, Kimber & Feldman 1987, Mac Key 1988, van Slageren 1994). The existence and use of competing wheat classifications and the use of different botanic names for a single species cause confusion in the research community.

During the meetings of the ECPGR and many WWG workshops, attention was paid in particular passport and descriptive data. It was assumed that the knowledge of the botanical classifiers would be known, but some shortcomings appeared. In the passport data of collections of wheats, there is a lack of information on the classification of varieties of botanical varieties in botanical systems. The knowledge suggests that there is a need for a constant updating on botanical classification species of wheats and crop wild relatives. This goal can be achieved by training on the botanical classification of species and their CWR species. WWG members must be maintained and trained for their role, and existing WWG members must be updated on new development of taxonomical systems.

During TRISECA meeting participants articulated the need for training in the field of taxonomic identification of wheat species. The most important goal of actively engaged WWG members during their meetings is that they realize they own one of the largest collections: it's their product because they are responsible for the quality of the content. ECPGR and curators of wheats are only intermediaries.

– Justification: *Explain why this Activity is justified in terms of making progress towards achieving the ECPGR objectives.*

Proper botanical identification is important for better description, knowledge and sharing information of European *Triticum* collection. This kind of data can be used for molecular studies as a source of trusted information for *Triticum* identification and molecular comparison studies. Clear information about intraspecific nomenclature allows to choose proper material for breeding and prebreeding activities. A workshop, which can provide knowledge of identification of intraspecific taxa on field without expensive molecular methods, is desired by the curator and breeders participating in ECPGR. Knowledge and application of taxonomic identification could solve the use of correct and accepted botanical names of many gene banks in Europe, thus improving the quality of passport data.

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- The training on identification of botanical varieties in *Triticum* species will contribute and fulfil the ECPGR's long-term goal.

Outcomes will be related with to:

Outcome 1: AEGIS is operational. Accessions in AEGIS are characterized and evaluated.

Outputs 1.1: Membership agreements signed

Activity 1.1.2: Establishment of proper documentation of AEGIS accessions

Outputs 1.2: AEGIS collections established

Activity 1.2.2: Verification of the proposed AEGIS accessions

Outputs 1.5: Other capacity building schemes for Associate Members operational

Activity 1.5.2: Training opportunities identified (continuing activity)

Outcome 2: Quantity and quality of data in EURISCO, including in situ and on-farm data, have been increased. Functionality of EURISCO meets users' expectations.

Outputs 2.1: All National Focal Points (NFPs) update national inventories effectively and timely

Activity 2.1.1: Identification of National Inventory (NI) (all public ex situ plant genetic resources for food and agriculture (PGRFA) collections to be included in EURISCO)

Outcome 5: Relations with users of germplasm are strengthened.

Outputs 5.2: Expectations of users regarding genebank services known and answered

Activity 5.2.1: Effective services to users are established

Outputs 5.4: Improved collaboration with users in public and private sector

Activity 5.4.1: Research partnerships established between genebanks and researchers, including through EU projects

– Rationale for the choice of partners: Explain why the selected partners are the most suitable to carry out the proposed Activity and briefly describe their respective roles in the Activity.

- The proposed activity will reside in increased participation of WWG members in AEGIS initiative to create and improve the European Collection on wheats.
- The selected partners are coming both from Western and Eastern European countries. So, they are familiar with taxonomy based on different botanical classification. Comparisons between the different scientific knowledges will be of interest.
- A 2-3-day meeting will be organized in the Slovak Republic with registered participants, during which they will identify botanical species in wheats in the field experiment and from the herbarium.

– Methodology or Approach: Explain how the partners will operate. Clearly explain who is expected to do what. Also explain the rationale of meeting (or not) as part of the Activity. Include a Gantt Chart, to illustrate the work breakdown structure of the project.

This project is based and focused on 2-3 days training. The training will be conducted by the botany specialists from N.I.Vavilov Research Institute of Plant Industry, CRI Prague and Comenius University in Bratislava.

Training will be focused on several important botanical varieties genus of *Triticum* and other CWR of wheats. The training will cover theoretical and discussion part (presentation) and practical aspects (demonstration field with *T.aestivum* botanical varieties). For training purposes, taxonomy based on classification of *Triticum* according to Dorofeev et al. 1979, Mac Key (1988), van Slageren (1994), Kimber & Sears and Kimber & Feldman (1987) will be used.

– Description of genetic material: If your Activity is focusing on genetic material, please describe in detail, as far as possible, who is providing this genetic material, its status and the number of accessions under investigation (for example: This Activity aims at molecularly analyse/safety-duplicate/evaluate/collect XY accessions (listed) of "Genus species", provided by genebank Z/ farmers in country W /to be collected in country P..., etc.).

During training on taxonomical identification of wheats botanical varieties, we will use other taxonomy systems and we will compare these systems. Biological and genetic material will be provided by NPPC-Research Institute of Plant Production Piešťany from herbarium and accessions from experimental field. This Activity aims at the identification of 20-25 botanical varieties of *T.aestivum*

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and 20-30 botanical species of *Triticum* sp. and *Aegilops* sp.

– **Expected impact.** *Clearly specify the expected impact from this Activity for the respective ECPGR objective(s), compared to the current state of progress of those same objectives. Explain how the impact will be obtained.*

Proposal of practical proposals:

- The use of correct and accepted botanical names of many GB in Europe.
- The improving the quality of passport data in EURISCO.
- Practical manual for information systems on plants genetic resources.
- Preparation of manual botanical classification

The expected impacts of this activity are:

- better and increased knowledge of *Triticum* species among gene bank curators
- better documentation of plant genetic of wheats
- Improvement of Characterization and evaluation data.

The project will result in an increased knowledge about taxonomic system and identification of botanical varieties of wheats amongst European PGR actors and especially curators, possibly followed by the correct and improved passport data in more genebanks and the subsequent improvement of PGR in Europe.

– **Links with other non-ECPGR projects or individuals:** *If applicable, clearly explain the objectives of the linked projects and the reasons for complementarity with the ECPGR Activity.*

There is no connection with other ECPGR projects or individuals.

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Expected products and related ECPGR Objectives

List concrete products and results that are obtained by the Activity and the corresponding number(s) of the ECPGR Outcome(s) and/or Output(s) and/or Activities to which each product/result will contribute.

	Expected products/results	Corresponding ECPGR outcome, output, activity
1	<p>Task 1: Preparation of wheats collection for increasing quality and quantity of botanical training species data</p> <p>1. Experimental nursery of various kinds wheat species (diploid, tetraploid and hexaploid)</p>	<p><u>Outcome 1:</u> AEGIS is operational. Accessions in AEGIS are characterized and evaluated.</p> <p>Outputs 1.1: Membership agreements signed</p> <p>Activity 1.1.2: Establishment of proper documentation of AEGIS accessions</p> <p>Outputs 1.2: AEGIS collections established</p> <p>Activity 1.2.2: Verification of the proposed AEGIS accessions</p>
2	<p>Task 2: Preparation of trainings materials and an environment on the experiment field and herbarium for better and increased knowledge of participants about the taxonomic classification system.</p> <p>2. Leaflets and brochures with botanical characteristics and pictorial attachment of various species of breeders</p>	<p><u>Outcome 2:</u> Quantity and quality of data in EURISCO, including in situ and on-farm data, have been increased. Functionality of EURISCO meets users' expectations.</p> <p>Outputs 2.1: All National Focal Points (NFPs) update national inventories effectively and timely</p> <p>Activity 2.1.1: Identification of National Inventory (NI) (all public ex situ plant genetic resources for food and agriculture (PGRFA) collections to be included in EURISCO)</p>
3	<p>Task 3: Workshop - Training on identification of botanical varieties in Triticum species</p> <p>3. Ability to distinguish types of breeders according to morphological features</p> <p>4. Ability to include the plant in the classification system</p> <p>5. Practical course of project partners – June 2019</p>	<p><u>Outcome 1:</u> AEGIS is operational. Accessions in AEGIS are characterized and evaluated.</p> <p>Outputs 1.5: Other capacity building schemes for Associate Members operational</p> <p>Activity 1.5.2: Training opportunities identified (continuing activity)</p> <p><u>Outcome 2:</u> Quantity and quality of data in EURISCO, including in situ and on-farm data, have been increased. Functionality of EURISCO meets users' expectations.</p> <p>Outputs 2.1: All National Focal Points (NFPs) update national inventories effectively and timely</p> <p>Activity 2.1.1: Identification of National Inventory (NI) (all public ex situ plant genetic resources for food and agriculture (PGRFA) collections to be included in EURISCO)</p> <p><u>Outcome 5:</u> Relations with users of germplasm are strengthened.</p> <p>Outputs 5.2: Expectations of users regarding genebank services known and answered</p> <p>Activity 5.2.1: Effective services to users are established</p> <p>Outputs 5.4: Improved collaboration with users in public and private sector</p> <p>Activity 5.4.1: Research partnerships established between genebanks and researchers, including through EU projects</p>
4	<p>Task 4: Other action – short workshop report</p> <p>6. Certificate of graduation from training botanical course</p> <p>7. Workshop report</p>	<p><u>Outcome 2:</u> Quantity and quality of data in EURISCO, including in situ and on-farm data, have been increased. Functionality of EURISCO meets users' expectations.</p>

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		Outcome 5: Relations with users of germplasm are strengthened
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Workplan for the proposed period of the Activity

Brief description of meetings and/or main actions of the Activity.

task	Type of Action <i>(indicate if "meeting" or "other action")</i>
1 - other action	Start-up of activity - Initiate the work on task 1 and 2, and plan for the workshop. <ol style="list-style-type: none"> 1. Selection of crop species and crop wild relatives (CWR) and their sowing in autumn 2018 (winter type) and spring 2019 (spring type). 2. The treatment and evaluation of important features for the botanical classification of Triticum and CWR species. 3. April and May: preparation accommodation participation of partners 4. Preparation of manual botanical classification.
2 - meeting	Workshop for all participants in Piestany, Slovak Republic (Responsible: Pavol Hauptvogel) A workshop with the aim: <ol style="list-style-type: none"> 1. To tasks 1 and 2 - preparation of wheats collection and training materials (<i>all preparations of all material will be done by National Agricultural and Food Centre – Research Institute of Plant Production</i>) 2. Presentation of the Triticum classification in nowadays. 3. Botany specialist from N.I.Vavilov Research Institute of Plant Industry and CRI Prague will help partners from each country to develop skills, knowledge and motivation for personal development about use taxonomy system for improvement wheats collection and research projects. 4. The training of theoretical and practical part with demonstration field with wheats and CWR species. 5. Discuss of the taxonomy systems for better data in national database of wheats, AEGIS and EURISCO. 6. Assessing the current state identifications of botanical species in partner countries –presentation and demonstration of the spikes and important significant characteristics. 7. Presentation the current state of the botanical classification of wheat and the comparison of system by expert of wheat 8. Updating botanical names by taxonomy system of passport data in collection
3	Follow-up activity (Responsible: task coordinators) Continue and finalize the work in tasks 2, task 3 and task 4.
4 -other action	Report (Responsible: task coordinators and all participants) <ol style="list-style-type: none"> 1. Final report to document the work completed in the action. 2. Publishing handbook of wheat and CWR species.

Additional remarks

Indicate any additional remark(s) that is/are important for the evaluation/implementation of the proposed Activity

Remarks:
<ol style="list-style-type: none"> 1. The meeting will be organised by Pavol Hauptvogel, director of the National Agricultural and Food Centre – Research Institute of Plant Production, in Slovak Republic in June 2019. 2. The conference room in National Agricultural and Food Centre – Research Institute of Plant Production (NPPC-RIPP) would be provided in-kind

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3. The accommodation facilities are available at city Piestany (15 minutes on foot). Meeting place will be Piestany. (Address: Research Institute of Plant Production Piestany, Bratislavská cesta 122, 921 68 Piešťany, Slovak Republic).
4. The fund requested from ECPGR Activity Grant Scheme will be mainly used to cover the travel costs (accommodation, meals, flights) for the funded participants, cost for local IT support and the workshop dinner. Travel and accommodation costs for botany specialist, together with a handbook preparation, will be covered by additional "other action" cost (see budget table).
5. The National Agricultural and Food Centre – Research Institute of Plant Production) in Piestany will take in charge all the preparations of genetic material (field experiment, herbarium,..) as an in-kind contribution.

2. Proposal to "expected products":

1. Experimental nursery of various kinds wheat species (diploid, tetraploid and hexaploid)
2. Leaflets and brochures with botanical characteristics and pictorial attachment of various species of breeders
3. Ability to distinguish types of breeders according to morphological features
4. Ability to include the plant in the classification system
5. Practical course of project partners – June 2019
6. Certificate of graduation from training botanical course
7. Workshop report

Task	Year Months	2018						2019								
		7	8	9	10	11	12	1	2	3	4	5	6	7	8	9
1																
2																
3-4																
5-6																
7																

**Please send the completed form together with the budget table to the
Chair of the submitting Working Group for submission of the Activity proposal.**