Deliverable D5.2:
Dissemination and exploitation plan
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Executive Summary

Objectives

Within the EPPN2020 project, we will strongly focus on making the results and deliverables of the project widely available to the relevant stakeholders and the wider audience. Several instruments will be established to affectively disseminate the results of EPPN2020. The end-users of these results include: (i) scientists in platforms working on phenotyping technologies and concepts, (ii) researchers from academic and industrial sectors who are potential users of phenotyping platforms, (iii) companies involved in crop breeding and/or precision agriculture (iii) companies providing technology (equipment, software); (iv) international phenotyping centres outside Europe; and (v) image analysts requiring access to well annotated data sets. The Networking Activities of EPPN2020 have designed specific dissemination plans for each of these targets. A number of these activities will be addressed by synergistic mutual efforts with national programmes (FPPN, DPPN, UK-PPN etc.), the International Plant Phenotyping Network (IPPN) and with the ESFRI infrastructure project EMPHASIS.

Rationale

EPPN2020 will develop concerted activities to raise awareness about the state of the art results in plant phenotyping and how different stakeholders can benefit from the existing expertise and developments. We will develop instruments such as workshops, training schools and participate at international symposia to disseminate, inform and engage the community in the discussion about the needs and requirements when performing plant phenotyping. Finally, the results of EPPN2020 activities from JRAs and the TNA will be widely disseminated as a basis for upcoming follow-up projects and developments.

Main Results

EPPN2020 activities in JRA include the development and establishment of instruments that aim at development of best phenotyping practice across Europe that will be implemented in phenotyping centres providing TNA. This will improve the data quality and comparability and advance European plant phenotyping science based on the demand of users. Close interaction between EPPN2020 and the ESFRI project EMPHASIS will enable a long-term perspective for the European plant phenotyping science and further development of approaches beyond the duration of the EPPN2020 project. The dissemination and exploitation plan addresses all relevant stakeholders and involves several dedicated activities such as:

- o Publications in academic journals addressing methodological progress in JRAs and results of experiments in TNA.

- o A public website to provide a major dissemination tool for the project which details i) the project objectives, ii) access modalities and TA provisions iii) electronic version of training courses, iv) links to other EU or international plant phenotyping initiatives, projects and stakeholders associations, and v) best practice examples.

- o Community building workshops in EU member states that are not partners of EPPN for attracting high-quality users, presenting the scientific rationale of EPPN2020 and informing the science community in these countries about phenotyping.

- o Advanced workshops with technology developers to facilitate and assess the potential for novel sensors, hard- and software for phenotyping, standardization of protocols and novel plant trait-oriented assays and procedures for data storage and exchange.

- o Application focused workshops with breeding companies to address the requirements for practical solutions required in industrial breeding programs, discussing opportunities and sharing concepts and methods between academia and industry.

- o Expert meetings to discuss, set and distribute best phenotyping practices, standards and protocols, in close interaction with JRAs.
- o Round table meetings to evaluate existing tools for integrating phenotyping and genomic datasets.
- o Training schools providing practical training in, for example, the use of instruments and tools of phenotyping for dedicated groups of early career scientists (lectures, demonstrations and computer exercises).
- o International symposia and topical workshops in cooperation with the IPPN, open to the phenotyping community including industrial partners in and beyond Europe.

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1. PLAN FOR THE DISSEMINATION AND EXPLOITATION OF THE PROJECT RESULTS

EPPN2020 project partners actively foster mutual efforts of an advanced plant phenotyping community to address all relevant stakeholders. We interact closely with national infrastructure programmes (FPPN (France), DPPN (Germany), UK-PPN (UK), APPN (Austria), Phen-Italy (Italy) etc.) and with the ESFRI infrastructure project EMPHASIS as well as with international association IPPN. Through close cooperation with other communities and projects we will further develop interest and knowledge about state-of-the-art plant phenotyping. Finally, we are actively approaching communities such as technology developers, geneticist, horticultural scientists, environmental scientists etc. to identify common interests and ways to valorise those interests in a mutual and synergistic way. Planned dissemination activities are summarized below (Tab. 1).

1.1. Overview of the dissemination of the project results

The dissemination plan addresses all relevant stakeholders as summarized in the table below (Tab. 1).

Tab. 1 Summary of the dissemination activities in EPPN2020

Month	Action planned	End-users
M1-48	Advertisement of EPPN2020 events to the plant phenotyping community in specific journals, international conferences addressed throughout the project lifetime (Deliverable 4.1)	Mainly transnational access users: scientists, breeders, representatives of precision agriculture companies based in Europe, technology providers, international phenotyping centres outside Europe and image analysis experts.
M3	Web based portal with all relevant information about transnational access (see Deliverable D5.1)	Mainly transnational access users: scientists, breeders, representatives of precision agriculture companies based in Europe, technology providers, and international phenotyping centres outside Europe
M4 M10, M16, M22, M28 M34	Publication of dedicated calls for applications to obtain transnational access	Mainly transnational access users: scientists, breeders, representatives of precision agriculture companies based in Europe, technology providers, and international phenotyping centres outside Europe
M5, M7, M12	Organisation of workshops in EU member states not covered by EPPN2020 (next workshops: September 2017: Novo Sad, Serbia, November 2017, Tartu Estonia)	Plant phenotyping community at large: scientists, breeders, representatives of precision agriculture companies based in Europe, technology providers, and international phenotyping centres outside Europe and image analysis experts.
M12	EPPN2020 website extended to share phenotyping protocols, guidelines, literature, and results	Plant phenotyping infrastructure within EPPN2020 partners and beyond and image analysis experts.
M15, M21, M30	Three Workshops Events "Novel Sensors Technologies for Plant Phenotyping"	Mainly breeders, representatives of EU companies of precision agriculture, technology providers
M18 M30	Evaluation of the transnational access (quality feedback)	Project and transnational access coordination to improve access to EPPN2020 facilities

M15, M30	Two workshops about practical plant phenotyping for breeding	Whole Plant phenotyping community; breeding groups in academia and industry
M18	1st Round Table on procedures for Good Phenotyping Practice (GPP)	Plant phenotyping scientists
M20	Training school linked to the technology developers workshop	Mainly breeders, representatives of EU companies of precision agriculture, technology providers as well as scientists
M18, M36, M48	Creation of the network of EPPN2020 international fellows	EPPN2020 partners
M19, M33	Organization of two International Plant Phenotyping Conferences	Scientists, breeders, representatives of precision agriculture companies based in Europe, technology providers, and international phenotyping centres outside Europe.
M33	2nd Round Table on standards and protocols	Plant phenotyping scientists; discussion with wider science community
M36	Training school	Mainly breeders, representatives of EU companies of precision agriculture, technology providers as well as scientists

1.2. Exploitation of results

The EPPN2020 dissemination activities provide a wide range of results that will be specifically utilized by many different stakeholders. The exploitation of the results focuses on the use of the phenotyping infrastructure by the wider community, increase of the quality of the infrastructure providing access, support of users from academia and industry etc.. Specifically, the exploitation of the results addresses different beneficiaries facilitated though:

- Improvement in the quality of results obtained from plant phenotyping facilities: TNA installations directly benefit form EPPN2020 results and improve the data quality and, disseminate the results to the community beyond EPPN2020 partnership

   o   JRA activities in EPPN2020 introduce: i) consistent calibration procedures and information for the acquisition of phenotypic data related to trait assessment and environmental monitoring, ii) statistical design and analysis approaches, iii) methods and interfaces to manage, share, reuse and visualize heterogeneous high throughput plant phenotyping data. The JRA results will be implemented in the facilities providing TNA, which improves the quality of results. The results of the JRA activities will also be available beyond the EPPN2020 consortium and published in scientific publication, reports and white papers that will be made available on EPPN2020 website and disseminated through other networks and initiatives such as EMPHASIS and IPPN.

- TNA activities: access providers and users will generate novel data advancing basic plant science and the translation into practical application.

   o   Open Access publications from TNA activities will result in highly ranked scientific contributions by complementing expertise from users for genetic analyses, trans-scale analyses, modelling or any scientific use of phenotypic datasets. TNA access provider will specifically foster timely publication of the results.

   o   Development of follow-up cooperative projects that start with TNA by further using the infrastructure, utilizing novel research ideas and opportunities for future projects with users.

- o Data reuse through the combination of information systems within EPPN2020 infrastructure with the data management plan (Deliverable D3.1) we expect timely publication of the results and data availability for reuse in meta-studies.
- o Access by SMEs will foster the translation of basic plant science into application and be a major step in the implementation of phenotyping technology into practical breeding
- o Access by users from developing and emerging countries and international agricultural research centres (e.g. CGIAR) will be stimulated by EPPN2020 that will foster the development of phenotyping approaches in these countries and advance breeding

- Interaction with the community at large

- o Closely interacting community of infrastructure providers, users and developers, which can foster the development of user driven facilities with wide knowledge of experts in technologies and infrastructure management.
- o Close interaction with industry by organising dedicated workshops and the establishment of an industry advisory board will enable development and exploitation of technology for EU industry such as breeders and technology providers

- EPPN2020 and specifically TNA represent an important case study for a long tern operation of pan-European infrastructure within the framework of EMPHASIS

- o Evaluation and establishment of a user demand driven access process for use of pan-European infrastructure in Europe
- o Development and implementation of a data management structures in EPPN2020 for a long-term operation in EMPHASIS
- o Development of quality and life cycle assessment based on EPPN2020 infrastructure for a long-term operation
- o Establishment of systematic communication between different stakeholders (phenotyping centres, users from academia and industry, technology developers, policy makers) on a regional, European and global scale.

Glossary

EPPN[2020]: European Plant Phenotyping Network - 2020
EGU: European Geophysical Union
JRA: Joint Research Activities
TNA: Transnational Access

Annex 1: Check list

Deliverable Check list (to be checked by the "Deliverable leader")

	Check list		Comments
BEFORE	I have checked the due date and have planned completion in due time		*Please inform Management Team of any foreseen delays*
	The title corresponds to the title in the DOW		*If not please inform the Management Team with justification*
	The dissemination level corresponds to that indicated in the DOW		
	The contributors (authors) correspond to those indicated in the DOW		
	The Table of Contents has been validated with the Activity Leader		*Please validate the Table of Content with your Activity Leader before drafting the deliverable*
	I am using the EPPN^{2020} deliverable template (title page, styles etc)		*Available in "Useful Documents" on the collaborative workspace*
	The draft is ready		
AFTER	I have written a good summary at the beginning of the Deliverable		*A 1-2 pages maximum summary is mandatory (not formal but really informative on the content of the Deliverable)*
	The deliverable has been reviewed by all contributors (authors)		*Make sure all contributors have reviewed and approved the final version of the deliverable. You should leave sufficient time for this validation.*
	I have done a spell check and had the English verified		
	I have sent the final version to the WP Leader and to the Project coordinator (cc to the project manager) for approval		*Send the final draft to your WPLeader and the coordinator with cc to the project manager on the 1st day of the due month and leave 2 weeks for feedback. Inform the reviewer of the changes (if any) you have made to address their comments. Once validated by the 2 reviewers and the coordinator, send the final version to the Project Manager who will then submit it to the EC.*