



Coordinating global research for wheat

Wheat Phenotyping to support Wheat Improvement EWG

Annual report and action plan

NAME OF EXPERT WORKING GROUP
Wheat Phenotyping to Support Wheat Improvement

LEADERSHIP & AUTHORSHIP	
Chair	Bettina Berger (University of Adelaide, Australia)
Vice-Chair(s)	Uli Schurr (FZ Juelich, Germany); José-Luis Araus (University of Barcelona, Spain)
Report Authors	Bettina Berger

MEETINGS HELD (please attach minutes of these meetings using the template provided)						
Face-to-Face Meetings	Name	Date	Location	Duration	# EWG members present	Cost (€)
	2 nd face-to-face meeting	10 Dec 2015	Barcelona	1day	21	3007
	White-Paper Writing Group	10 Dec 2015	Barcelona	1hr	5	0
	Attendance at other EWG and WI meetings (with EWGs abiotic stress & modelling)	21-25 Sept 2015	International Wheat Conference, Sydney	½ day	3-5	0
Other Meetings	Type (online, etc)	Date	Location	Duration	# EWG members present	Cost (€)
	Skype meeting – white paper writing group	3 Mar 2015	online	2hrs	10	0

AIMS OF THE EWG

- Strengthen and support wheat phenomics research
- Promote international collaborations and the exchange of expertise in wheat phenotyping
- Enhance the integration of wheat phenotyping into breeding and genomics programs
- Engage experts from non-plant disciplines in wheat phenotyping (e.g. computer vision, software engineering)

2015 ACTIVITY REPORT

Reminder of **EWG action plan for the duration of the EWG, with flow-chart indicating timeline and outputs**

Objectives identified for 2015

- Election of chair and co-chairs
- Feedback from WI members on key traits for phenotyping
- Work on White Paper
- 2nd face-to-face meeting
- Integration and consultation with other EWGs
- Interaction with other phenotyping initiatives

Progress against aims for 2015

- Elections were held online in the first quarter of 2015 (B. Berger-chair, U. Schurr and J-L. Araus co-chairs)
- Questionnaire enquiring about key traits for phenotyping was sent to WI members in early 2015. Only few responses were obtained th do not allow generalised conclusions. Overall, field phenotyping was raised most frequently as bottleneck
- Work on a phenotyping White Paper progressed, however, with recent reviews in the area published, the group felt that a more targeted approach was necessary. The focus was narrowed to phenotyping of early generation breeding lines in the field. A first outline is currently in progress
- 2nd face-to-face meeting was held in Barcelona
- Integration and consultation with other EWGs is ongoing. Key EWGs that require phenotyping expertise are just being established (abiotic stress tolerance, NUE). Members of the phenotyping EWG are part of these EWGs and first interactions took place during IWC in Sydney
- EWG members interact regularly with other phenotyping activities, including IPPN, EPPN, COST, LatPPN and other xPPNs around the world

Outputs and deliverables in 2015

- Input into Strategic Research Agenda
- Interaction with other EWGs during IWC in Sydney
- International networking by bringing together members of EWG (online and face-to-face meeting)
- Presentation at Research Board meeting in Sydney
- Cont'd work on position paper and gap analysis for early generation phenotyping
- Discussion of SRA priorities and requirement for interaction of EWGs for implementation
- Presentation of EWG and WI in general at EPPN meeting in Barcelona (B.Berger)
- Start on funding proposal for field phenotyping

Contribution to Wheat Initiative objectives (http://www.wheatinitiative.org/about/objectives)
<ul style="list-style-type: none"> • The EWG contributed towards the SRA and discussed its implementation and need for cross-EWG activities • The EWG comprises members of the public and private research sector, thereby stimulating discussions and collaboration • The EWG comprises over 40 members from more than 20 countries, enhancing the international network of phenotyping experts and transfer of knowledge • The EWG is preparing a position paper to recommend targeted investment in the area of wheat phenotyping, where biggest impacts for wheat breeding can be achieved
Links established with other Wheat Initiative activities
<ul style="list-style-type: none"> • Meetings with EWG modelling and abiotic stress in Sydney • Joint members of multiple EWGs (modelling-phenotyping, abiotic stress-phenotyping, NUE-phenotyping)
Additional activities

ACTION PLAN FOR NEXT TWO YEARS						
Meeting planned for (2016)						
Face-to-Face Meetings	Name	Date	Location	Duration	# EWG members expected	Estimated Cost (€)
	EWG meeting joint with international conference	TBD (2016)	TBD	1 day	20-25	17K
Other Meetings	Type (online, etc)	Date	Location	Duration	# EWG members expected	Estimated Cost (€)
	Skype meetings for paper writing and updates (2-3 per year)	TBD	online	1-2 hrs	~5-8	0
	Skype meeting to discuss funding proposal for field phenotyping and workshops	TBD	online	1-2 hrs	3-5	0
Priorities identified for 2016-2017						
<ul style="list-style-type: none"> • Closer interaction with EWG Abiotic Stress Tolerance and EWG NUE to work on SRA implementation and identify their needs for expertise in phenotyping area • Work on funding proposal for field phenotyping and workshops • Closer interaction with EWG WheatIS to investigate if protocols/guidelines for phenotyping and expert register could be housed on WheatIS site. • Identify most suitable way of disseminating phenotyping expertise (protocols, guidelines, contacts) 						
Expected outputs and deliverables for 2016-2017						
<ul style="list-style-type: none"> • Continued work on White Paper, with narrower focus on phenotyping of early generation breeding lines and economy of phenotyping at single row/hill plot level – outline by March 2016, draft by August 2016 • Funding proposal for field phenotyping will be prepared in small group by end of 2016 (scope and format will depend on criteria for ICC proposals) • Identify most suitable host for phenotyping guidelines (Wheat Initiative website, WheatIS website, PrometheusWiki) – by April 2016 • Prepare example protocols for 2-3 traits/phenotyping techniques to identify most suitable format and minimum required information – by May 2016 • Invite experts to contribute phenotyping guidelines/protocols for shared platform – ongoing (also dependent on EWG Abiotic Stress and NUE progress) 						
Timeline of activities for 2016-2017						
<ul style="list-style-type: none"> • See above 						

Meetings organised in 2014-2015

	2014	2015
Location	Frankfurt	Barcelona
Date/duration	05 December 2014	10 December 2015
# attendees	26 (+3 online)	21

Meetings planned in 2016

	Meeting 1
Location	TBD
Date/duration	1 day