



Coordinating global research for wheat

NAME OF EXPERT WORKING GROUP	
Nutrient Use Efficiency (NUE)	

LEADERSHIP & AUTHORSHIP	
Chair	Malcolm Hawkesford (Rothamsted Research)
Vice-Chair(s)	Jacques Le Gouis (INRA), Ivan Ortiz-Monasterio (CIMMYT)
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AIMS OF THE EWG
<ul style="list-style-type: none"> • Assess current state of the art with regard to knowledge on NUE in wheat • Evaluate potential of genetic versus agronomic solutions to improve NUE • Assess importance of interaction between nutrients on specific (nutrient) NUE • Assess how priorities for traits and NUE may vary from region to region • Promote information and expertise exchange, focusing on promoting mobility of next generation researchers • Facilitate discussions with other Expert Working Groups to use all available tools (phenotyping platforms, crop models...) to better characterize NUE • Coordinate current research on NUE and propose joint initiatives where possible

STRATEGIC RESEARCH AGENDA CORE-THEME(S) /TOPIC(S) COVERED BY THE EWG
<p><i>CORE THEME 3</i> <i>Protect the environment and increase the sustainability of wheat production systems</i> <i>Subtopic 3.1 Nutrient use efficiency</i></p>

2016 ACTIVITY REPORT

MEETINGS HELD				
Face-to-Face Meetings	Location	Date	Duration	# EWG members attending
	Ciudad Obregon (Mexico)	9-11 March	2 days	14
Other Meetings	Type (online, etc)	Date	Duration	# EWG members attending

PROGRESS AGAINST AIMS				
Objectives identified for 2016 in the global EWG Action Plan (with objective #)	Tasks/actions undertaken by the EWG (with task #)	Achievements	Outputs/Deliverables	Comments
Organization of EWG (Objective #1)	Organization of the 2 nd face-to-face meeting (task #1.3)	All participants presented their current research	Presentations available on the WI platform	
Assess current state of the art (Objective #2)	Survey of funded NUE projects (task #2.3)	Map of current NUE projects (2014-2020)	Excel file with 20 projects – still not complete so not yet submitted	<p>Summary:</p> <p>Partner projects to EWG-NUE</p> <p>20 partner projects related to EWG-NUE:</p> <p>Countries involved: Australia, Brazil, France, India, Kenya, Spain, UK, USA</p> <p>PI's involved: J-L Arous, B Berger, D Diepeveen, J Derory, T Garnett, I Edwards, D Gouache, MJ Hawkesford, S Heuer, S Islam, SC Kefauver, S Lafarge, J Le Gouis, M Lu, W</p>

				<p>Ma, D Mullan, M Okamoto, MD Serett, S Tausz-Posch, K Venkatesh.</p> <p>Funding bodies: ARC, ANR, BBSRC, CIMMYT, Defra, FSOV, GRDC, ICREA, IWYP, Murdoch University, Syngenta, UA</p> <p>Organisations: ACPFG, Agriculture Victoria, AGT, Arvalis, Biogemma, BISA, DAFWA, Edstar Genetics, EM Lyon, IARI, IIWBR, INRA, Intergrain, John Innes Institute, Limagrain, Momont, NIAB, NRCPB, PAU, Pioneer-Dupont, RAGT, RRes, Secobra, UAS, Universities of Aberdeen, Adelaide, Arizona State, Bangor, Barcelona, Melbourne, Murdoch, Nottingham, UNESP, W Australia.</p> <p>Totalling: euro 14,600,977</p>
Priority and gap analysis for research into NUE (Objective #2)	Brainstorm of key areas for research (Tasks #2.4 and #2.5)	List produced,	List included as part of Obregon meeting report	Will become basis of discussion at meeting planned for 2017
Facilitate discussions with other EWG (Objective #3)	Representatives participation to other EWG (Task #3.1)	Participation to the modelling EWG (Montpellier, June		

		2016) and Agronomy EWG (Phoenix, November 2016)		
Coordinate current research on NUE (objective #4)	Proposition of a NUE initiative workshop (Task 4.1)	Workshop supported by ICC members	Workshop to take place at Rothamsted 16-17 th May 2017	
Dissemination of information (Objective #5)	Review on nitrogen use efficiency (Task #5.1)	Book chapter	<p>Le Gouis J, Hawkesford M (2017) Improving the uptake and assimilation of nitrogen in wheat plants. In: Langridge P (ed) Achieving sustainable wheat cultivation. BDS publishing.</p> <p>Additional papers in preparation or submitted.</p>	

2017 PLAN

MEETINGS PLANNED			
Face-to-Face Meetings	Location	Date	Duration
	Rothamsted	16-17 May 2017	2 days
Other Meetings	Type (online, etc)	Date	Duration

PLANNED ACTIVITIES			
Objectives identified for 2017 in the global EWG Action Plan (with objectives #)	Tasks/actions to be undertaken by the EWG (with tasks #)	Timeline (e.g. February-March)	Expected Outputs/Deliverables
Assess current state of the art (#2)	Survey of funded NUE project (#2.3)	December	Update on current research map
Facilitate discussions with other EWG (#3)	Representatives participation to other EWG (#3.1)	December	Identify possible cross-EWG actions
Coordinate current research on NUE (#4)	Organization of the NUE initiative workshop (#4.1)	May	Identification of gaps and identification of scope for possible NUE initiative
Assess priority traits for NUE (#5)	Coordinate a review on NUE variation from region to region (#5.2)	December	A reference paper on NUE