



Coordinating global research for wheat

EXPERT WORKING GROUP MEETING REPORT
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NAME OF EXPERT WORKING GROUP	
Durum Wheat Genomics and Breeding	
DATE OF THE MEETING	23/04/2017
LOCATION/ONLINE	Tulln (Austria)

Participants	
The meeting had 22 participants from 11 countries, their names and institutions.	

Apologies and Absentees	

AGENDA (*)	
17:00/ 19:00	1. Welcome and tour de table
	2. Short update on the perspective of the work on the durum wheat reference collection <ul style="list-style-type: none"> 2.1. Status of the multiplication work 2.2. Funding perspectives
	3. The durum wheat genome (a presentation on the sequencing of the durum wheat genome will be given at the IWGS)
	4. Workshop on wheat bioinformatics and EWG meeting in late 2017 <ul style="list-style-type: none"> 4.1. Definition of the program, date and venue
	5. Organization of the contributions for a book on durum wheat genome
	6. Any other item

(*): Indicative agenda items

MEETING REPORT

The meeting started at 5 pm with a quick tour de table to introduce the 22 participants.

Luigi Cattivelli presented the progress in the assembly and characterization of the Durum Wheat Reference Collection (DWRC). The pdf file with the slides that were presented is available at the EWG-DWGB website. On April 20 and 21, following an invitation of the coordinators of the EWG on Quality and the EWG on Phenotyping to present an update on the DWRC, Roberto Tuberosa gave a similar presentation. The corresponding pdf is available at the websites of the EWG on Quality and the EWG on Phenotyping. Possible opportunities of interactions based upon the DWRC were discussed at these EWG meetings.

After the presentation of Luigi Cattivelli, the discussion addressed the issue on how to complete the genotyping of the collection. So far, the collection has been characterized with a set of 96 KASP

markers uniformly distributed along the chromosomes. The information provided by the KASP markers, while being sufficient to evaluate the general structure and genetic diversity of the original materials used to set up the collection, is largely insufficient to properly characterize the final set of the DWRC. Based upon the fact that (i) 322 accessions of the final set of the DWRC have already been fingerprinted with the Illumina wheat 90K SNP array, (ii) a detailed durum consensus map is available based upon the profiles of 13 maps obtained with the 90K SNP array, and (iii) a number of biparental and GWAS studies have already been completed using the 90K SNP platform, most participants agreed to complete the fingerprinting of the DWRC using this array. The two co-chairs of the EWG together with the executive committee will organize the completion of the genotyping of the DWRC collecting contributes (both in kind and cash) from EWG members.

A critical discussion addressed the use of exome capture, GBS and skim sequencing as additional options to further characterize the DWRC and, more in general, additional tetraploid wheat panels that will soon become available as complementary material to the DWRC. Curtis Pozniak and Penny Tricker suggested a staged proposal process for re-sequencing some of the accessions, if worthwhile, following analysis of the 90K SNP array results. Information could be enriched by the skim sequencing (1X) of accessions that added molecular diversity using a reference-guided approach, or at higher coverage if necessary. The representative of AAFC Canada (Ron Knox) and other EWG members expressed interest in joining such a proposal and help in the fund-raising activities with the respective national representatives. Based on the outcome of the discussion, a proposal targeting the capture of a greater level of variability in tetraploid wheat will be prepared following 90K data analysis and discussed at the next annual meeting.

Prior to the annual meeting scheduled for the November 2017 in Italy (location and date to be defined), a training workshop on wheat bioinformatic resources will be organized on how to best harness the sequencing information obtained with the recent assembly of the Svevo genome. Funds will be available (up to Euro 20,000) to support the organization of the meeting and the travel of EWG members.

Roberto Tuberosa has announced an initiative for the preparation of a book on durum wheat genomics; a tentative Table of Contents will be prepared in the next months taking advantage from the expertise present in the EWG.

The meeting was closed at 7 pm.

Actions:

As to the implementation of the 90K SNP profiling, Steven Xu is willing to fingerprint the 7 plates which will be sufficient to complete the DWRC fingerprinting within the next few months. To cover the cost, a call for contributors will be opened in the next weeks among the EWG members.

ATTACHED DOCUMENTS

Please provide a list of the documents attached to the meeting report

1. EWG_list_of_participants
2. Pdf file of the presentation on DWRC given at the EWG meeting