

Whealbi

Wheat and barley Legacy for Breeding Improvement

Grant agreement number: FP7-613556

**Collaborative Project
SEVENTH FRAMEWORK PROGRAMME**

D8.4: First report on training organisation

Due date: M24

Actual submission date: M26

Project start date: January 1st, 2014 **Duration:** 60 months

Workpackage concerned: WP8

Concerned workpackage leader: AI

Dissemination level: PU

1. Introduction

The goal of this deliverable is to prepare the plan and strategy for WHEALBI trainings for the next 3 years of the project.

As mentioned in the DoW, each individual work-package has to set up a training dedicated to different public and stakeholders.

What was mentioned in the DoW is:

Title of the training course	Organizer	Proposed month of organisation
Protocols for Next Generation Valorization and Utilization of PGRFA collections	IPK	M30
High-throughput genotyping. Use of the microphenomics platform	IPK JHI	M24
High-throughput and precision phenotyping for most relevant agronomic traits (abiotic stress tolerance, response to major disease, plant growth descriptors)	CRA	M24
Bioinformatics and databases	DLO, HMGU, INRA	M36
Allele mining / genetic analysis	UZH	M42
Practical assisted pre-breeding	KWS, ATK	M48
Crop management / development of innovative cropping systems	NIAB	M48

Two trainings may be organized concomitantly in a same place (for instance Bioinformatics and Allele mining).

“A special emphasis of these training events will be put on including young scientists (easy access to the training), new member states (organization of one practical assisted pre-breeding training in Hungary) and these trainings will be widely open to private companies (for technology transfer) and breeders academies (KWS breeders academy for instance).

Attention will be given to the content of the training to interest not only the scientific community but also the end-users. Training sessions will move from general/exploitable results to the detailed production of results and methods, giving the opportunity for the participants to follow a short or long training (i.e. from 1 to 5 days).

When possible, these training activities will be linked or co-organised with other European projects, for instance the one on minor cereals.”

The table above was indicative at the time of drafting the DoW.

The goal of this deliverable after two years of running the project is to set-up the real dates and organization of the trainings. The first trainings will start the same week as the second year annual meeting, the week of the 18th to 22nd of April.

Grouping of trainings around the dates of the annual meeting will be convenient for the attendants as well as for the internal organization.

2. Training organization – general view

Title of the training course	Main Organizer	Proposed month of organisation
Protocols for Next Generation Valorization and Utilization of PGRFA collections	NIAB	Annual meeting 2017 (Around M42)
High-throughput genotyping.	JHI	Around annual meeting 2016 (Around M30)
High-throughput and precision phenotyping for most relevant agronomic traits (abiotic stress tolerance, response to major disease, plant growth descriptors)	CRA	Annual meeting 2016 (Around M30)
Bioinformatics, Databases and Statistical Analyses	DLO	Annual meeting 2017 (Around M42)
Allele mining / genetic analysis	UZH	Annual meeting 2017 (Around M42)
Wheat and Barley pre-breeding	KWS	Annual meeting 2018 (Around M54) or specific location
Crop management / development of innovative cropping systems	NIAB	Annual meeting 2018 (Around M54) or specific location

Two deliverables are linked to the training organization:

- one at M24, which goal is to explain our plan and goals for the trainings all along the project
- one at M54 at the end of the trainings, to summarize the main outputs (attendance, reached targets, evaluation etc)

3. Tentative programme and schedule for the different trainings

WP2 - JHI	
Title	SNP discovery and analysis using next generation technologies : exome capture and RNAseq
Organizers	The James Hutton Institute
Proposed date	19 th to 20 th May 2016
Length	2 days
Targeted public	Young scientists, scientists, young breeders (breeders academy)
Co-organizers	PTP
Interest to link it to other whealbi trainings?	No
Interest to link it to other (FP7 project) trainings?	No
Specific location needed	The James Hutton Institute, Dundee, Scotland
Maximum attendance	24 persons
Short description (structure, contents) 20 lines max.	<p>Day 1- 19th May 2016</p> <ol style="list-style-type: none"> 1. Introduction – available approaches to SNP discovery (exome capture, RNA seq) : 2. Mapping and variant calling (barley genome assembly, pseudomolecules and pipelines for SNP calling)- 3. Visualisation and databasing (Flapjack and MorexGenes) <p>Day 2 – 20th May 2016</p> <ol style="list-style-type: none"> 1. Data utilisation – Applications for population genetics 2. QTLs and GWAS approaches 3. Combining SNP data with bioclimatic variables 4. eQTLs Wider applications and the development of SNP assays (KASPs and 50K SNP chips) 5. Targeted approaches for disease resistance genes an example from potato (REN seq) 6. Summing up and round table discussion
Assistance from Arcadia needed?	Diffusion of the training invitation to different channels to fill in the course with targeted public. Logistics (room, documents, welcome participants, etc.). Recording to broadcast on Whealbi website.

WP3 - CRA	
Title	High-throughput and precision phenotyping for most relevant agronomic traits (abiotic stress tolerance, response to major disease, plant growth descriptors)
Organizers	Luigi Cattivelli, Alessandro Tondelli, Franz Badeck and Fulvia Rizza
Proposed date	18-19 April 2016 (the annual meeting 2016 will be on 20-22 of April)
Length	2 days
Targeted public	Young scientists, scientists, young breeders (breeders academy)
Co-organizers	Other partners involved in common garden experiments.
Interest to link it to other whealbi trainings?	No
Interest to link it to other (FP7 project) trainings?	No
Specific location needed	c/o CREA Genomics Research Centre in Fiorenzuola d'Arda (Italy), the annual meeting will be in Salsomaggiore (20 km from Fiorenzuola). Field visit planned.
Maximum attendance	30 persons
Short description (structure, contents) 20 lines max.	<p>The goal of the training is to provide a practical and direct experience on the plant phenotyping techniques for the most relevant agronomic traits (frost and drought tolerance, major leaf disease, plant growth and canopy descriptors).</p> <p><u>Tentative program</u></p> <p><i>April 18th</i> from 2 pm to 7pm - Short introduction on Whealbi project (Luigi Cattivelli). - Phenotyping for low temperature tolerance in cereals: theory and practice (Fulvia Rizza). - Phenotyping for canopy development in wheat and barley: theoretical bases (Franz Badeck). - Plant development and mutant-based analysis: visit to a mutant barley collection (speaker, to be appointed).</p> <p><i>April 19th</i> Morning - Phenotyping for drought tolerance in wheat and barley: theory and practice (speaker, to be appointed). - Phenotyping for leaf disease in wheat and barley: 1) theory and practice (speaker, to be appointed, Giampiero Valè).</p> <p>Afternoon</p>

	<ul style="list-style-type: none"> - Phenotyping for canopy development in wheat and barley: 2) a practical experience in the whealbi field (Franz Badeck, Fulvia Rizza). - Plant growth descriptors (speaker, to be appointed). - Phenotyping for canopy development in wheat and barley: 3) bioinformatic analysis of collected data (Franz Badeck).
<p>Assistance from Arcadia needed?</p>	<p>Diffusion of the training invitation to different channels to fill in the course with targeted public. Logistics (room, documents, welcome participants, etc.). Recording to broadcast on Whealbi website.</p>

WP4 - DLO	
Title	Bioinformatics, Databases and Statistical Analyses
Organizer	Fred van Eeuwijk
Proposed date	Coinciding with 2017 Annual Meeting of WHEALBI
Length	2 days
Targeted public	(young) scientists & breeders
Co-organizers	INRA-UGRI; HMGU
Interest to link it to other whealbi trainings?	May link to multiple WPs, i.e., WP2, WP3, WP5, and WP6, but could be independent
Interest to link it to other (FP7 project) trainings?	Yes, particular projects/initiatives to be identified in due time
Specific location needed	No, except for superb <u>access</u> to high performance computing facilities. Will be probably held in Wageningen
Maximum attendance	30-40 persons
Short description (structure, contents) 20 lines max.	<p>The goal of the training course is to educate participants in bioinformatics and statistical tools and approaches to manage, extract, merge and analyze multiple sources of data on wheat and barley. These data include DNA sequences, SNP markers, trait phenotypes, etc.</p> <p>The tentative plan is:</p> <p>Day 1: (full day):</p> <ul style="list-style-type: none"> • WHEALBI database organization and querying • Use project web portal and show how to access the wheat and barley variation databases • Specific bioinformatics tools for analysis and visualization of NGS data <p>Day 2: (full day) :</p> <ul style="list-style-type: none"> • Statistical tools for genotype imputation, probabilistic ancestral inference, genomic prediction and GWAS
Assistance from Arcadia needed?	<ul style="list-style-type: none"> • multi-media advertise Training Course to target audience • registration, payments, logistics (venue, food, hotel rooms, training material copies, etc.) • recording to broadcast on Whealbi website

WP5 - UZH	
Title	Allele mining and genetic analysis in cereal crops: how to identify functionally relevant molecular diversity for agronomically important traits
Organizer	Beat Keller and colleagues
Proposed date	Around 2017 annual meeting
Length	1-2 days, combined with bioinformatics and databases training
Targeted public	Young scientists, scientists, young breeders (breeders academy)
Co-organizers	Other partners involved in WP5 allele mining
Interest to link it to other whealbi trainings?	Ideally in combination with bioinformatics and databases training
Interest to link it to other (FP7 project) trainings?	No
Specific location needed	2017 meeting ideally in a relatively central place (a number of people will be involved in the training activities, so travel should be short and cheap).
Maximum attendance	30 persons (20 if there are practical exercises with computers)
Short description (structure, contents) 20 lines max.	<p>The goal of the training is to allow the participants to understand molecular tools/bioinformatics to isolate novel alleles from large data generating projects such as WHEALBI.</p> <p>The tentative plan is:</p> <ul style="list-style-type: none"> - Lectures on allele- and pathway mining - Experimental approaches for allele-mining - Bioinformatic approaches for allele-mining - Allele mining vs./and genetic analysis? - Functional assays: how to identify functionally relevant diversity - Other topics raised by the co-organizers - If infrastructure would allow, some practical (computer) exercises could be included
Assistance from Arcadia needed?	<p>Diffusion of the training invitation to different channels to fill in the course with targeted public</p> <p>Logistics (room, documents, welcome participants, etc.)</p> <p>Recording to broadcast on Whealbi website</p>

WP6 - KWS/ATK	
Title	Wheat and Barley pre-breeding
Organizer	KWS
Proposed date	In connection with annual meeting in M54
Length	1 day
Targeted public	Public and private breeders working with pre-breeding in wheat and barley
Co-organizers	ATK
Interest to link it to other whealbi trainings?	No
Interest to link it to other (FP7 project) trainings?	No
Specific location needed	No
Maximum attendance	30-40
Short description (structure, contents) 20 lines max.	<p>The goal of the training is to discuss:</p> <ul style="list-style-type: none"> • What are the desired outcomes of pre-breeding? • Different methodologies for different objectives <p>The structure is:</p> <ul style="list-style-type: none"> • Presentation by WP6 members on their Whealbi projects • Presentations from speakers selected from participants and/or invited speakers • Discussions on pre-breeding strategies and tools
Assistance from Arcadia needed?	<p>Diffusion of the training invitation to different channels to fill in the course with targeted public</p> <p>Logistics (room, documents, welcome participants, etc.)</p> <p>Recording to broadcast on Whealbi website</p>

WP7 - NIAB	
Title	Crop management / development of innovative cropping systems
Organizer	Nathan Morris
Proposed date	Around 2018 annual meeting
Length	1-2 days (could include mini-conference to other researchers in the subject area to attend and give talks).
Targeted public	Farmers, breeders, scientists
Co-organizers	Other partners involved cropping system experiments Short introduction on Whealbi project common garden experiments (WP3)
Interest to link it to other whealbi trainings?	Not necessarily. Can be independent
Interest to link it to other (FP7 project) trainings?	No, unless other FP7 projects (e.g. CREA, Foggia, Italy (durum landrace comparisons ; CSIC, Zaragoza, barley landraces) were relevant
Specific location needed	No, but if any field experiments are still running e.g. at partner sites, then a field tour might be interesting.
Maximum attendance	30 persons max
Short description (structure, contents) 20 lines max.	<p>The goal of the training is to report on the performance of ideotypes that are associated with improved performance under low input agri-systems.</p> <p>The tentative plan is:</p> <ul style="list-style-type: none"> - Discuss / evaluate the approaches to low input agri-systems. - Discuss with geneticists, scientists and growers mapping populations for key adaptive traits and to report on a toolkit for future varieties in sustainable cropping systems. - Discuss the farmers' economic interest to adopt new wheat and barley management practices in the light of the new Common Agricultural Policy.
Assistance from Arcadia needed?	Diffusion of the training invitation to different channels to fill in the course with targeted public Logistics (room, documents, welcome participants, etc.) Recording to broadcast on Whealbi website