



NEWSLETTER

No 1, June 2014

Dear Readers,

Welcome to the first issue of the HealthyMinorCereals Newsletter!

HealthyMinorCereals (full title “An integrated approach to diversify the genetic base, improve stress resistance, agronomic management and nutritional/processing quality of minor cereal crops for human nutrition in Europe”) is a multidisciplinary project, funded by the EU 7th Framework Programme. Our project aims to respond to consumers’ increasing demands for healthy, nutritious, and innovative food produced sustainably. The work will involve universities, agricultural research institutes and SMEs involved in crop breeding, farming and food production. In all, sixteen organisations from ten European countries will work together for five years aiming to boost cultivation and consumption of five minor cereal species - rye, oat, spelt, einkorn and emmer.

The reason why rye, oat, spelt, einkorn and emmer are classed as “minor cereals” is that their areas of cultivation are currently small. What’s more, there are only a few minor cereal varieties available for cultivation. To enhance minor cereals production, more than 800 traditional genotypes available in European gene banks will be studied using modern scientific methods. This should enable to select genotypes with promising traits for yield, resistance to fungal diseases and nutritional quality. These genotypes will then be subjected to further experiments aimed at optimising minor cereals species cultivation and also the technology involved in grain processing, so as to maintain the high nutritional quality of final products. Another important project component is an analysis of the market potential of minor cereals products in Europe. The aim of this newsletter is to keep you up-to-date with the project progress. *Enjoy reading it.*

(More information can be found at the project website: www.healthyminorcereals.eu)

Dagmar Janovská
Project Coordinator

Martina Eiseltová
Dissemination Manager

Successful start of the project



On 16-18 October 2013 the HealthyMinorCereals consortium met in Prague at the project kick-off meeting. The meeting was opened by Dagmar Janovská, the project coordinator, who cordially welcomed all participants and thanked all for their support so far during the project proposal and contract negotiation phases. Each partner gave a short presentation of their organisation with a focus on their scientific expertise in relation to the HealthyMinorCereals project and their role in the project. This was followed by presentations of work package leaders who gave an overview of their work packages. A lively discussion followed addressing specific points of each work package and focusing on detailed planning for the first year of the project. A critical point discussed was the need to secure sufficient quantities of seeds for laboratory analysis and especially for field trials. At the end of the meeting the Crop Research Institute, who hosted the consortium meeting, organised a visit to the Gene Bank located at its premises and also to laboratories that will participate in the project. At the same time a press conference with Czech press took place to introduce the project to the public. The HealthyMinorCereals project has been given coverage in several press articles, also Dagmar Janovská and Martina Eiseltová feature in the video produced by the Czech press Úroda aimed at farmers and Vojtěch Holubec was interviewed on Czech TV morning news.

Work in progress

A crucial step in the project is to obtain enough material for study. For many of the studied genotypes, only a few grams of seed are available. Hence multiplication of genetic resources and breeding materials had already started at several of the project partners during the project proposal development phase (in 2012) with 5 gram samples of gene bank accessions and continued in 2013/2014. Multiplication of seeds has taken place in Austria, Czech Republic, Estonia and Switzerland/Germany. It involved 311 genotypes of spelt, 41 genotypes of rye, and 264 genotypes of oats. We experienced problems with the multiplication of rye due to the low germination of seed and winter damage of stands sown in Estonia. Alternative solutions will have to be sought in order to get enough material for further research on rye.

The obtained seeds of minor cereal genotypes are then being distributed amongst partners for genotyping, phenotyping, analysis of nutritional composition, and grain processing trials.

Multiplication and phenotyping of oats



At the field station at Krukanice, Czech Republic, Selgen has sown 264 genotypes of oats collected from around the world; all the genotypes will be described using the descriptor list developed specifically for the project. From these genotypes, materials will be chosen for detailed phenotyping in the second year of the project.



Sowing oats in Estonia at the Estonian Crop Research Institute, April 2014

Multiplication and phenotyping of spelt



The set of 214 spelt lines is being grown in double rows at the University of Natural Resources and Life Sciences in Austria and at two sites of the Getreidezüchtung Peter Kunz (in Switzerland and Germany). A smaller set of spelt lines is grown in Estonia.

The photo shows the set of spelt landraces, spelt varieties and modern breeding lines grown in Darmstadt (Germany).

And as the partner Getreidezüchtung Peter Kunz reports:

“We are ‘lucky’ to have a natural yellow rust (*Puccinia striiformis*) infection in Austria, Germany and Switzerland this year. This does not occur every year, and so we have a good opportunity to see the differences in susceptibility of the studied spelt lines to the yellow rust infection.”



Spelt genotypes (left and below) growing in Estonia at the Estonian Crop Research Institute, as of 8 May 2014



Phenotyping for drought and salt tolerance



The greenhouse at Sabanci University in Istanbul is being used for screening of cereal genotypes for their drought and salt stress tolerance. The first tests with spelt genotypes have been completed. Based on these results we will be selecting the most contrasting genotypes for detailed physiological tests.

Genotypic characterisation



Oat genotypes being grown for DNA extraction at the Crop Research Institute in Prague, where work has started on the characterisation of more than 200 oat genotypes



Gel electrophoresis of DNA extracted from ten (1-10) oat genotypes; M is the size marker λ HindIII.

Preparatory work for agronomic field trials in Greece



In Greece, there has so far been limited experience with growing spelt. Thus preliminary experiments are carried out by the SME of Nikolaos Volakakis to find optimum planting dates and suitable fertilizer inputs. Three planting dates and three fertilizer input types are being compared.

Assessing nutritional content of minor cereal grains



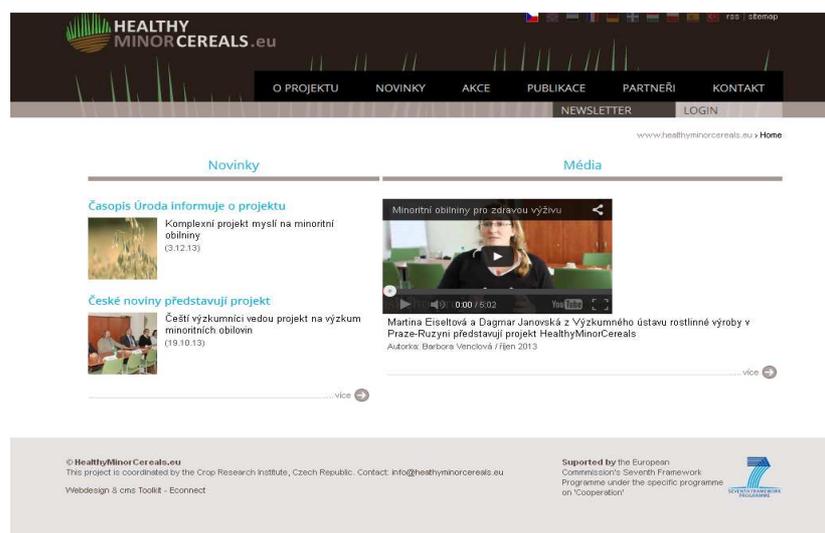
Analysis of nutritional composition of minor cereal grains started at Sabanci University in Istanbul using inductively-coupled plasma optical emission spectrometry (ICP-OES) and inductively-coupled plasma mass spectrometry (ICP-MS).

Project communication, cooperation and publicity

The target groups for the communication and dissemination of the project results are: researchers, farmers, crop breeders and the food/feed industry. Project results and planned events – workshops, field days and other publicity activities - are published on the project website. Cooperation and exchange of information with other relevant projects is sought: The HealthyMinorCereals project was introduced at the Healthgrain Forum Association meeting in Vienna on 24 April 2014.



The HealthyMinorCereals project has its own website where detailed information is available in the national languages of all project partners. A project leaflet is available in English.



Partners in the HealthyMinorCereals project

The project consortium includes nine academic centres (six research institutes and four universities) and seven SMEs located in 10 European or Associated countries.

- › Partner 1: Crop Research Institute (CRI), Czech Republic, Coordinator
- › Partner 2: PRO-BIO Trading Company Ltd. (PROBIO), Czech Republic
- › Partner 3: Selgen a. s. (SEL), Czech Republic
- › Partner 4: University of Newcastle upon Tyne (UNEW), United Kingdom
- › Partner 5: Gilchesters Organics Ltd. (GIL), United Kingdom
- › Partner 6: Sabanci University, Faculty of Engineering and Natural Sciences (SU), Turkey
- › Partner 7: Research Institute of Organic Agriculture (FiBL), Switzerland
- › Partner 8: Getreidezüchtung Peter Kunz (GZPK), Switzerland
- › Partner 9: Volakakis Nikolaos (GEO), Greece
- › Partner 10: Estonian Crop Research Institute (ETKI), Estonia
- › Partner 11: University of Natural Resources and Life Sciences (BOKU), Austria
- › Partner 12: Institut für Lebensmittel-und Umweltforschung e.V. (ILU), Germany
- › Partner 13: Stolzenberger's Bakery (SB), Germany
- › Partner 14: University of Kassel, Section of Organic Breeding and Agro-Biodiversity (UNI KASSEL), Germany
- › Partner 15: Grupa BGK Spółka z o.o. (BGK), Poland
- › Partner 16: Hungarian Research Institute of Organic Agriculture (ÖMKi), Hungary

Links to the partners' organisations are at the project website.

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This Newsletter is available at project website: www.healthyminorcereals.eu



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