

HealthyMinorCereals Partners



The HealthyMinorCereals consortium consists of 16 partners from 10 countries, including universities, agricultural research institutes and SMEs involved in crop breeding, farming and food production.

Crop Research Institute (Czech Republic)

PROBIO Trading Company Ltd. (Czech Republic)

Selgen a.s. (Czech Republic)

Newcastle University (UK)

Gilchesters Organics Ltd (UK)

Sabancı University, Faculty of Engineering and Natural Sciences (Turkey)

FiBL - Research Institute of Organic Agriculture (Switzerland)

Getreidezüchtung Peter Kunz (Switzerland)

Nikolaos Volakakis (Greece)

Estonian Crop Research Institute (Estonia)

University of Natural Resources and Life Sciences (Austria)

Institut für Lebensmittel - und Umweltforschung e.V. (Germany)

Stolzenberger's Bakery (Germany)

University of Kassel, Section of Organic Breeding and Agro-Biodiversity (Germany)

Grupa BGK Spółka z o.o. (Poland)

Hungarian Research Institute of Organic Agriculture (Hungary)



HealthyMinorCereals

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Enhancing
cultivation
and use
of traditional
European
cereal
varieties



Background

Conventional cereal production is dominated by common wheat and barley, both intensively bred for high yields. But the high productivity is dependent on high inputs of fertilizers, pesticides and energy, making production ever more expensive as costs of chemical inputs and fuel rise. Furthermore, this type of agriculture production has many negative impacts on the environment and is unsustainable.

Demands for a more sustainable agriculture, less dependent on external inputs and better suited to local conditions, have revived interest in diverse traditional cereal species. No longer widely grown in Europe, they are now classified as “minor cereals”. Yet, these minor cereal species are perfectly suited to organic and sustainable agriculture. They can also have higher concentrations of micronutrients and bioactive compounds essential for a healthy nutrition, which is of strong interest for consumers. However, minor cereals have hardly been studied using modern scientific approaches, and breeding programmes have been limited - with only a few minor cereal varieties available for cultivation in most countries.

Minor Cereals in Europe

Rye, oats, spelt, einkorn and emmer are now classified as “minor cereals” due to their currently small areas of cultivation. Yet not so long ago, rye and oats were widely grown in parts of Europe. Rye traditionally played an important role in central and eastern Europe for bread making, but in the past decades was largely replaced by higher-yielding common wheat. Oats, once a major cereal in northern Europe, has declined to a minor cereal during the last sixty years.

Einkorn, emmer and spelt are among the earliest cultivated wheat species. Their cultivation is restricted mainly to marginal mountain areas of eastern and southern Europe and Turkey, with spelt grown also in Germany and Switzerland. These minor wheat species are becoming popular again and have a great potential to find new markets as healthy food. In Italy, the collective name for einkorn, emmer and spelt is “farro” which can be found in many culinary recipes.



The multidisciplinary HealthyMinorCereals project responds to consumers' increasing demands for nutritious and innovative food, produced sustainably

HealthyMinorCereals aims to boost cultivation and consumption of five minor cereal species (rye, oat, spelt, einkorn and emmer) by applying modern scientific approaches to study 800+ traditional genotypes of these species available from European gene banks. For many of these genotypes, only a few grams of seed are available, so a key step is to multiply the seed to obtain enough material for study.

HealthyMinorCereals will:

- employ state-of-the-art methods for genetic characterisation of minor cereals and their wild relatives, to identify genetic markers related to disease resistance and nutritional quality that can be used in minor cereal breeding programmes
- test minor cereal genotypes with promising traits for yield, resistance to fungal diseases, and nutritional quality in field trials performed in European regions with differing soils and climates, to optimise cultivation methods under organic and conventional agricultural systems
- analyse grain nutritional composition of minor cereal genotypes and evaluate nutritional impacts on human cells using human cell cultures
- optimise grain processing methods (such as milling) and final product manufacturing (baking, etc.) in order to preserve high nutritional quality of final products
- study producer and consumer behaviour and expectations to aid the successful development of minor cereals products and marketing strategies
- provide effective knowledge and technology transfer especially to European small and medium sized companies (SMEs) involved in minor cereal production, for rapid and comprehensive utilisation of project results