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MINOR CEREALS: EINKORN IN HUNGARY

AT FIRST GLANCE

Re-introducing einkorn varieties and landraces, and turning them into new food products such as beer, bread, biscuits, pasta for the organic market

Introduction

Einkorn is an ancient cereal species that is particularly rich in micronutrients and essential amino-acids, but unfortunately it has been almost completely excluded from cultivation in the second half of the 19th century.



Therefore, with the aim to renew the production of einkorn and improve genetic diversity in the field and in the human diets, the Agricultural Institute, Centre for Agricultural Research at Martonvásár (MTA ATK Martonvásár - branch of the Hungarian Academy of Sciences) has developed two einkorn varieties that are now also listed in the National Variety Catalogue in Hungary: **MV Alkor** (2008) and **MV Menket** (2011). MV Menket was bred within the so called **Alkobeer** (2009-2014) project, which still has a decisive role in the progress of the Hungarian einkorn market.

The currently available processed products in Hungary are pasta and bakery products and snacks made out of einkorn and an organic einkorn beer. The einkorn beer project was launched in 2014 and according to the project website, annual sales are approximately 100.000 of 0,33 liter bottles.

The trade company which purchased the ownership rights of these varieties from the breeding centre is overseeing the production and marketing of the Hungarian bred commercial einkorn varieties. According to the company's business model, the farmer purchasing seed from them state that the produced grain would be sold throughout them. As a result of this, the trading company takes over the responsibility for marketing and processing of the raw einkorn material, but on the other hand the market is very much closed and have limited development possibilities.

Today, less than a dozen suppliers exist in terms of einkorn processed product producers. Less than a dozen organic farms produce einkorn. Recently an artisan bakery started producing einkorn bread as well. The einkorn used for this product is a landrace from Transylvania (Bözöd einkorn).

Embedding crop diversity and
networking for local high quality
food systems



DIVERSIFOOD approach

DIVERSIFOOD aims to conduct a multi-actor analysis of the einkorn value chain, with several interrelations between the different players having different roles in this niche market. Besides interviewing all relevant players and stakeholders on the market, and assessing the case study of the Hungarian minor cereal landscape, we also test einkorn landraces in the frame of a randomized field trial.

The landraces were provided by the Partners of the project (Pro Specie Rara, Louis Bolk Institute, ÖMKI, ORC), and were tested under different climatic conditions (UK, Netherlands, Hungary, Cyprus). The small amount of seeds was multiplied, so that promising landraces can be later on tested on farms and in bakeries as well.

DIVERSIFOOD first results and outlook

Our einkorn trial was conducted with 5 einkorn varieties (three Hungarian varieties: Mv Alkor, Mv Menket, NÖDIK Alakor and two Foreign varieties: Dutch alakor and GT-2139) in northeastern Hungary. According to the results from the first year, GT-2139 variety performed with the highest yield (5,53kg/parcel) and the best quality. Mv Alkor, NÖDIK and Dutch varieties had similar average results, around 4,8 kg/parcel. Mv Menket had the lowest yield (1,91kg/parcel) and quality. Frequent damages of wireworm (*Agroites mancus*) were observed in NÖDIK and Mv Menket, but Mv Alkor developed in a spectacularly good health status. The Dutch variety showed the best resistance to *Fusarium* infection but NÖDIK and Mv Menket had a far-gone *Fusarium* infection, these varieties are very sensitive to diseases and pests.



In order to promote einkorn and products made of einkorn flour among the consumers, processors and researchers, ÖMKI organized two testing events of einkorn products in March 2017. Participants were able to taste an einkorn bread and 3 types of einkorn cookies (from Mv Menket, Nödik einkorn variety and a Dutch einkorn variety). The einkorn bread and all cookies were well accepted and they received very high ratings (80% out of 100% of satisfaction for bread, Nödik and Mv Menket cookies and 84% for the cookies from Dutch einkorn variety) even though, the majority of the people have not tested einkorn products before. Participants liked in the products the most their special taste, smell, color and fiber content.

In recent years, the above mentioned Hungarian varieties are commercially available. However, many farmers and bakers have special requirements, and would wish to have more choice and a more open market for einkorn seeds. They are interested in landraces, in order to test these populations under real life farming conditions, and produce new bakery and pasta products out of them.

Suggested readings

Alko Beer project website: <http://alkobeerprojekt.hu/cms/english/organicbreeding/>

The influence of glumes in the malting of Einkorn and Emmer <http://alkobeerprojekt.hu/cms/wp-content/uploads/2014/06/poster-Marconi-final.pdf>

Attila-Levente Fogarasi - Szilárd Kun - Gabriella Tankó - Éva Stefanovits-Bányai - Beáta Hegyesné-Vecseri (2015): A comparative assessment of antioxidant properties, total phenolic content of einkorn, wheat, barley and their malts. Food chemistry, 167, 1-6.

https://www.researchgate.net/profile/Attila_Fogarasi/publication/263787646_A_comparative_assessment_of_antioxidant_properties_total_phenolic_content_of_einkorn_wheat_barley_and_their_malts/links/5627721908ae2b313c54e399.pdf

Attila-Levente Fogarasi - Zsuzsanna Kiss - Szilárd Kun - Beáta Vecseri-Hegyes (2013): Examination of organic einkorn wheat (triticum monococcum) and organic einkorn wheat beer healthcare potential: <http://alkobeerprojekt.hu/cms/wp-content/uploads/2013/09/Publication-Fog-Kiss-Kun-H.V.B.pdf>

Hegyesné Vecseri Beáta (2014): *Organikus biosör laboratóriumi és félüzemi technológiájának kidolgozása*. – Előadás (nyomtatott anyag). –

ALKOBEER projekt zárókonferencia 2014.06.25., Gyula. – Forrás (2015.07.20. 11:00-i állapot): http://alkobeerprojekt.hu/cms/wp-content/uploads/2014/06/3_BCE.pdf