The project is co-financed by the European Union

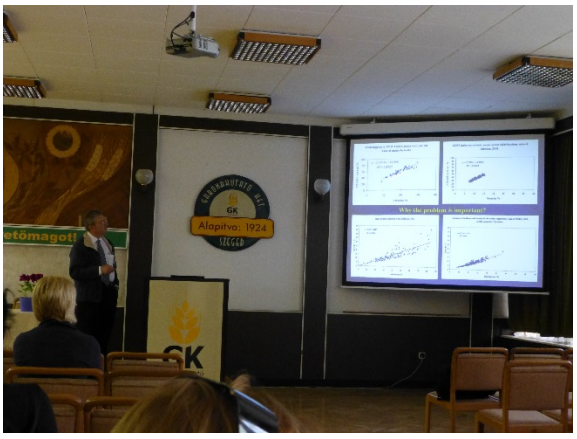
Hungary-Serbia
IPA Cross-border Co-operation Programme

Project number: HUSRB/1002/122/062/02
Project Acronym: ToxFreeFeed

Project title: Improvement of safety of corn-based feedstuffs through using more resistant hybrids and management of corn processing

1. Summary of achievements (from the project start till the end of the reporting period)

In connection with the start and end of the project, we took part in the Project Opening Event in Szeged, on 24/02/2012 and in the Closing Event held in Novi Sad on 18/12/2013.
Ten group meetings have been organized (on 24 Febr. in Szeged, on 26 Apr. 2012 in Novi Sad, on 28 July 2012 in Senta and Novi Sad, on 29 Aug. 2012 in Kupusina and Novi Sad, on 20 Sept. and 17 Oct. 2012 in Szeged, on 18 Apr. 2013 in Novi Sad, on 26 Apr., on 3 Sept. 2013 in Szeged and on 19 Dec. in Novi Sad 2013) to discuss the achievements. A workshop was also organized with the participation of all partners on 26 April 2013 at the GK Kft.Two review papers have been published and preliminary results of the project were published in a peer-reviewed journal (Acta Agronomica Hungarica). Some results of the project have been also presented at several Hungarian, Croatian and Serbian conferences.



Concerning the scientific activity, the 2012-2013 maize field experiments consisted of 10 Hungarian and 10 Serbian hybrids with differing resistance. The experiments were sown in the last week of April. The artificial inoculations were made 6-10 days after midsilking. The inoculation results were at medium level, the hybrid differences were well expressed and the resistance to different species was also clearly differentiated. The correlations between *F. graminearum* and *F. culmorum* infections were close. However, this was not connected to the *A. flavus* and *F. verticillioides* reaction. This means that the resistance background to these pathogens seems to be different. Regarding the natural infection, *F. verticillioides* and *A. flavus* infections were also recorded. The conclusion is that the resistance to these pathogens should be measured separately and so the risk analysis can be made by a much higher preciosity for the given hybrid or inbred line. This indicates also the introduction of this methodology into the variety registration and screening the hybrids in the commercial production. Of course, toxin tests should accompany these experiments.

The project is co-financed by the European Union

Hungary-Serbia
IPA Cross-border Co-operation Programme

All of the naturally infected samples contain fumonisins B1 and B2, the highest amount of FB1 was 9,33 mg/kg in a Serbian sample and 5,30 mg/kg in a Hungarian sample, these are above the EU limit.

During harvest naturally infected maize samples were collected from trial fields. We have isolated one hundred and sixty fungal strains. The occurrence of *F. graminearum* isolates were very low, most of the *Fusarium* isolates belong to *F. verticillioides*. In contrast, we could identify large numbers of *Aspergillus flavus*. We have studied the genetic variability a *F. verticillioides* population by UP-PCR analysis. Maize samples were also collected from two warehouses in the region, these samples were analyzed for fungal and mycotoxin contamination.

Supervisor of Cereal Research:

Dr. Ákos Mesterházy (*e-mail: akos.mesterhazy@gabonakutato.hu)*