

3rd International Conference on

Agricultural Engineering and Food Security

November 12-13, 2018 | Berlin, Germany



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Food security and food safety can secure together the survival of mankind

Food security was very much stressed, but much less the food safety caused by toxigenic fungi. Toxin contaminated grains has much less or no value. We need the beside the amount of food and feed that they are non toxic. Economic lossed In goes for billions in dollars, in Hungary the 2014 maize suffered about 300 million USD. The research clarified in maize and wheat that the most important toxin regulating agent is the resistance in both plants. In wheat the resistance to different *Fusarium* spp. is common, so testing *F. graminearum* resistance is enough. But this is in maize mostly independent, they need independent tests. The tested pathogens in maize: *F. graminearum*, *F. verticillioides* and *Aspergillus flavus*. More than ten time differences in resistance in commercial cultivars and hybrids were found. About 10-15 % of the hybrids shows good resistance to all species, most are very differing. Besides resistance the measurement of toxins is inevitable. This makes possible to screen wheat and maize for resistance to toxigenic fungi. As a result susceptible and very susceptible genotypes should not be registered or should be withdrawn from production. We did not find yield penalty for highly resistant varieties. So their combination with a consequent breeding work is without compromises possible. The breeding philosophy therefore needs to be updated to correspond to the new challenges both for human food and animal feed safety. I think the the yield maximalization without food safety should be over.

Biography

Akos Mesterhazy completed his PhD at the age of 34 from the Hungarian Academy of Sciences (HAS) (1979). He was elected to full member of the HAS in 2013. He is now research professor at the Cereal Research non-profit Ltd. He published more than 60 paper in highly reputed International Journals with more than 3000 citations. He is serving as an editorial board member of repute for two journals.

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