

About the project

The MycoHunt project aims at increasing the competitiveness of a large group of SMEs by developing a cost-effective method to detect infection of mycotoxin deoxynivalenol in wheat grains, a major threat to the food and feed sector of the European industry. A group of SME-AGs, covering the two relevant sectors and representing vast number of sector SMEs, have put together this project in order to gain knowledge and resources to further exploit the results of the novel technology proposed by providing a thorough sampling and measurement method of grain.

The economic consequences of mycotoxin infection to animal husbandry and the cost of infected crop to farmers as well as mill and storage house owners are of increasing concern while human health and safety effects are and must be addressed additionally.

MYCOHUNT: Development of a Rapid, Online Biosensor for the Detection of Mycotoxin in Wheat

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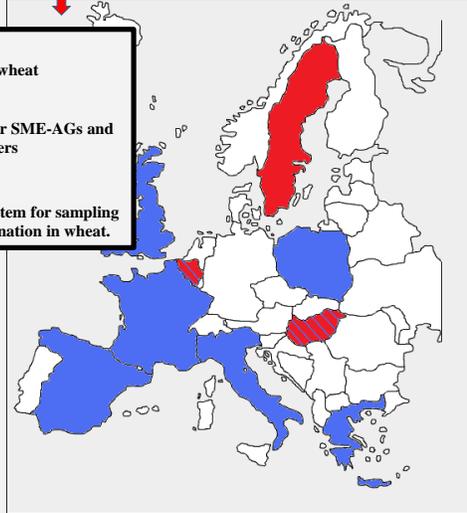
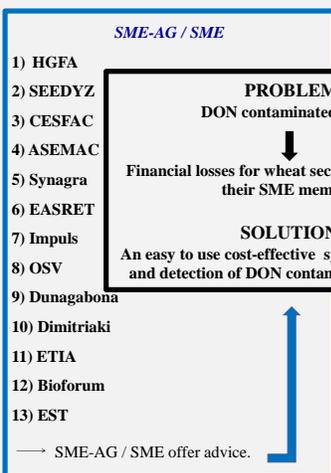
1: Ghent University, Belgium, 2: MFKK Invention and Research Center Ltd., Hungary, 3: University College Ghent, Belgium, 4: University of Lund, Sweden, 5: Hungarian Grain and Feed Association (HGFA), Hungary, 6: Greek Association of Traders and Exporters of Cereal By-products and Feeds (SEEDYZ), Greece, 7: Confederación Española de Fabricantes de Alimentos Compuestos para Animales (CESFAC), Spain, 8: Asociación Española de Fabricantes de Masas Congeladas (ASEMAC), Spain, 9: Synagra, Belgium, 10: Union of Agricultural Cooperatives of Rethymo (EASRET), Greece, 11: Impuls Ltd, Poland, 12: OSV Srl, Italy, 13: Dunagabona Ltd., Hungary, 14: Dimitriaki S.A., Greece, 15: Evaluation Technologique, Ingénierie et Applications (ETIA), France, 16: Bioforum S. A., Greece, 17: Electrochemical Sensor and Technology Ltd (EST), United Kingdom

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INTRODUCTION

Mycotoxin is a project granted in the EU 7th framework program. The project aims to increase the competitiveness of a large group of "Small and Medium Enterprises" (SME) and "Small and Medium Enterprises-Association Groups" (SME-AG) in Europe by developing a cost-effective method to detect the contamination of deoxynivalenol (DON) in wheat grains. This mycotoxin forms a major threat in the food and feed sector of the European industry. A group of SME Associations, covering the relevant sectors and representing a vast number of sector SMEs, participate in the project.

PARTNERS AND TASKS



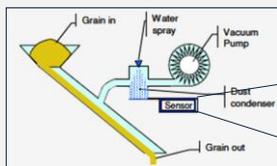
RTD PERFORMERS

- 1) **MFKK Invention and Research Center**
 - The coordination of the project.
 - The development of a sampling unit for the wheat grain and the dust.
- 2) **University College Ghent**
 - The sampling and characterization of the dust fraction.
 - The determination of the correlation between DON in wheat grain and in dust.
- 3) **Ghent University**

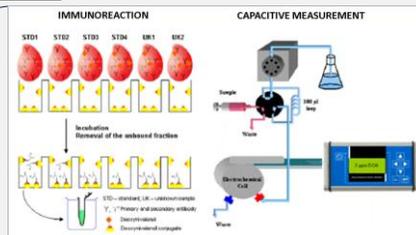
The development of monoclonal antibodies against DON with a low cross reactivity against other trichothecenes like 3-acetyl-DON, 15-acetyl-DON.
- 4) **University of Lund**

The development and characterization of an immunosensor for the determination of DON contamination on field. Therefore the developed monoclonal antibodies (Ghent University) will be used. For making the immunosensor, different parameters are optimized like the choice of an immobilization surface, a direct (with immobilized antibodies) or indirect (with immobilized antigen) competitive immunoreaction and good assay parameters.

THE USE OF THE SAMPLING AND DETECTION (IMMUNOSENSOR) UNIT



A representative grain sample is taken from for example a loading ship. The dust is generated and is transported to a separate part. By clean-up a clean water sample which contains DON is obtained. This water sample can be directed to the sensor for measurement.



The immunoreaction module consists of a DON conjugate- or anti-DON antibody-coated surface, which is the region where the immunoreaction takes place. Aqueous samples are applied to the biosensor and the presence of DON is determined using a capacitive detector.