

# MYCOHUNT:

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

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### INTRODUCTION

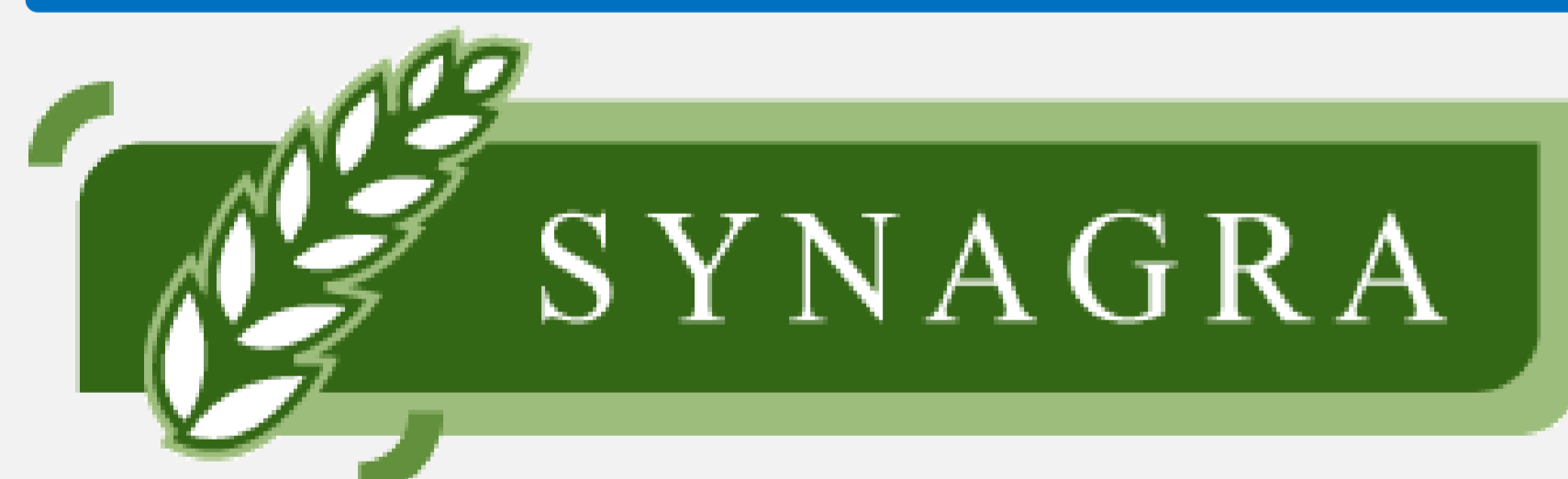
MycoHunt is a project granted in the EU 7<sup>th</sup> framework program. The project aims to increase the competitiveness of a large group of “Small and Medium Enterprises” (SME) and “Small and Medium Enterprises-Association Groups” (SME-AG) in Europe by developing a cost-effective method to detect 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

#### SME-AG / SME

- 1) HGFA
- 2) SEEDYZ
- 3) CESFAC
- 4) ASEMAC
- 5) Synagra
- 6) EASRET
- 7) Impuls
- 8) OSV
- 9) Dunagabona
- 10) Dimitriaki
- 11) ETIA
- 12) Bioforum
- 13) EST

→ SME-AG / SME offer advice.

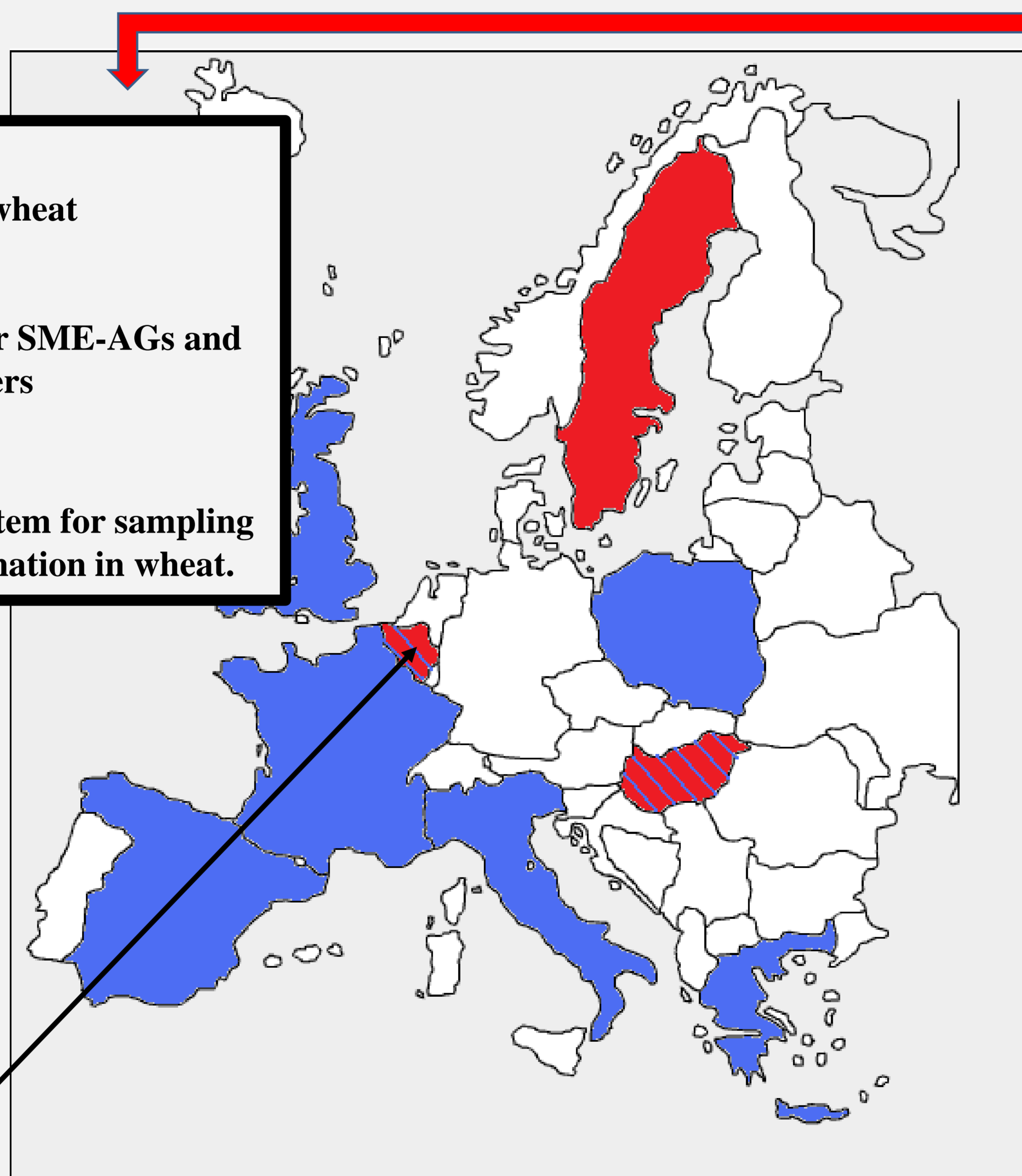


**PROBLEM:**  
DON contaminated wheat

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Financial losses for wheat sector SME-AGs and their SME members

**SOLUTION:**  
An easy to use cost-effective system for sampling and detection of DON contamination in wheat.



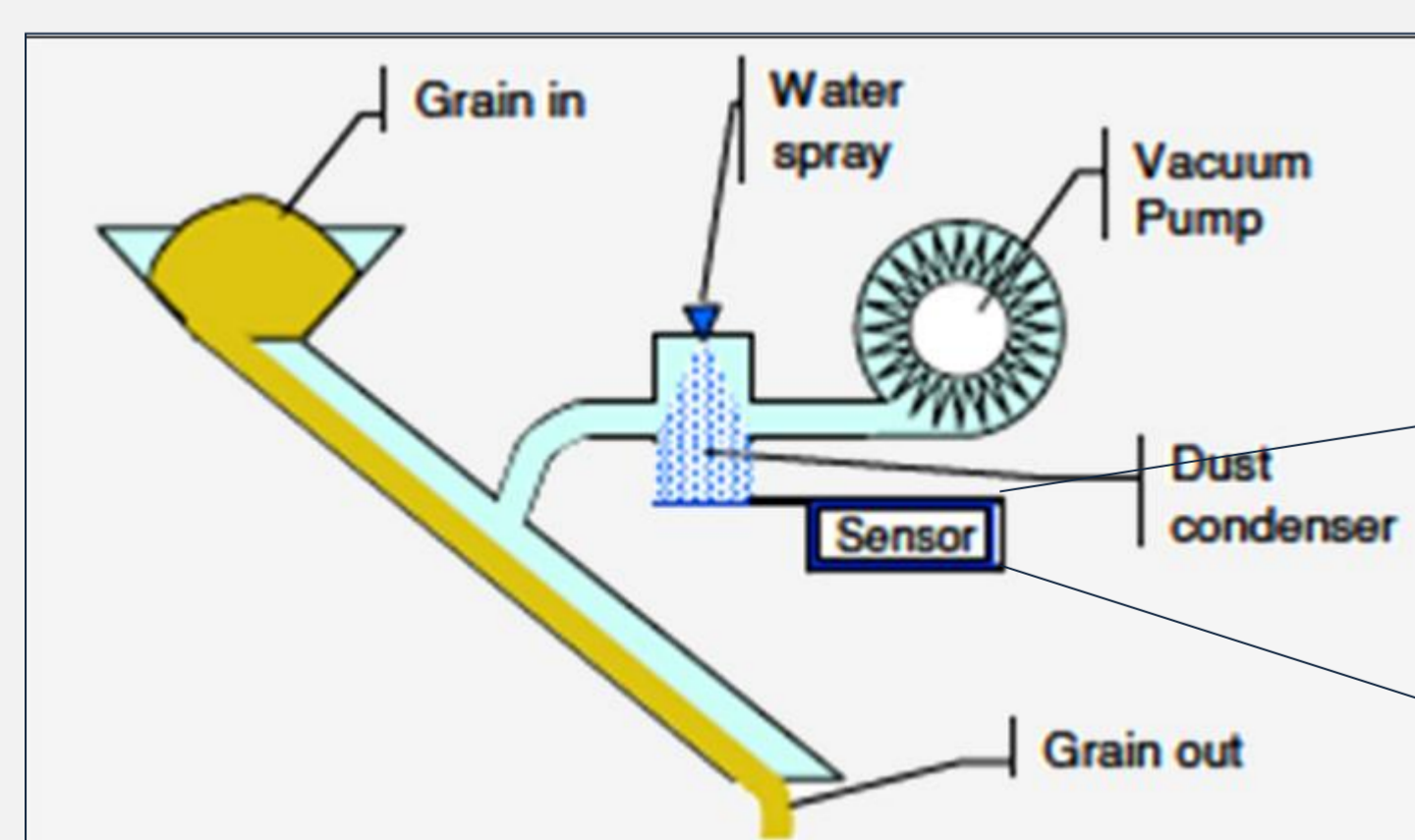
#### RTD PERFORMERS

- 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**

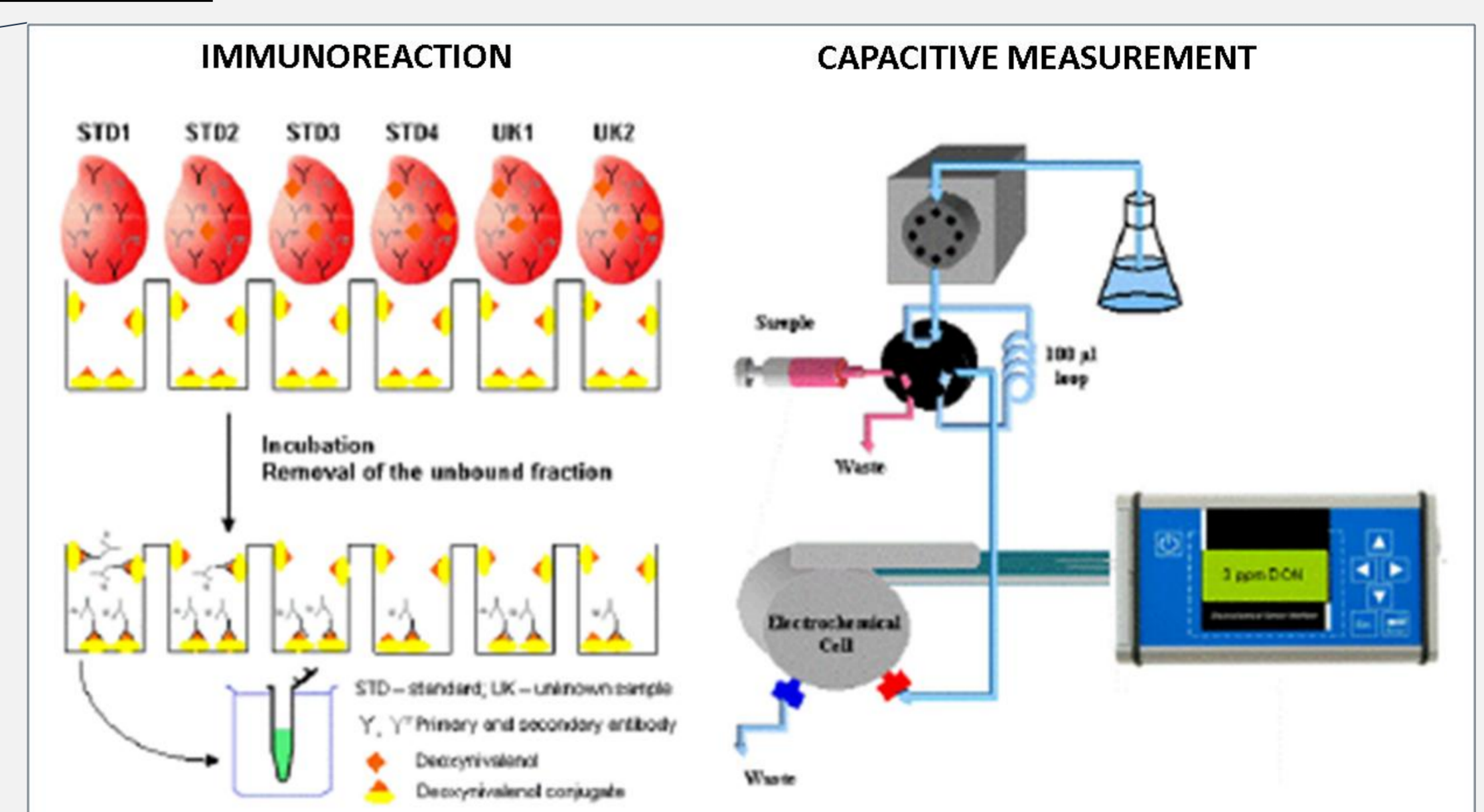
The development and characterization of an immunosensor for the determination of DON contamination on field. Therefore the developed monoclonal antibodies (Ghent University) will be used. For making the immunosensor, different parameters are optimized like the choice of an immobilization surface, a direct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

### THE USE OF THE SAMPLING AND DETECTION (IMMUNOSENSOR) UNIT



More details on [www.mycohunt.eu](http://www.mycohunt.eu)

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.