

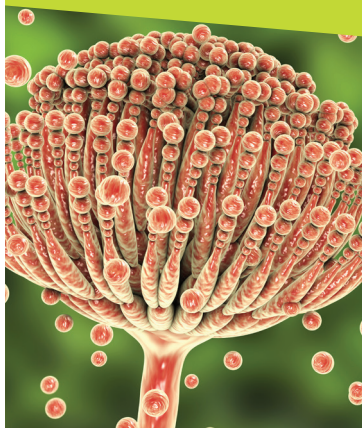
Battling toxic fungi in our cereals and nuts

A new e-platform to arm farmers and agri-industry to detect and decrease fungal toxins levels



The Challenge

There are hundreds of fungal toxins and the toxin situation is predicted to become more challenging with climate change. The MyToolBox project aims to devise strategies to reduce mycotoxins in wheat, oats, maize, peanuts and dried figs in the EU and China. There is a need to reduce fungal infections on farms, for example by breeding more resistant maize and developing new strategies including harmless fungi that can out-compete harmful strains. Sensors are being tested in large grain storehouses to give an early warning of fungal attacks. There is also research into how contaminated feed could be put to good use.



Our story

Fungi infect our major crops such as wheat, maize and oats and can also produce toxins as by-products. This chemical contamination of crops reduces the quality and quantity of grain harvested; unfortunately the toxins can cause harm to health of animals and people if they get into feed and food chains. The toxins can also travel through the food chain; infected cereals fed to dairy cattle can produce milk containing a metabolite of THE fungal toxin.

Toxins are not a one-off problem. They are a constant threat. Surveys suggest 20 to 80% of all cereal harvests are contaminated by toxins to some degree, with 5 to 10% of all crops in Europe lost dueo mycotoxins. Mycotoxins inflicts costs of Perhaps €2 billion euro a year. MyToolBox is an EU research project tackling the toxins from many directions: in the crop fields, during storage and through processing and baking.



► The solution

An e-toolbox will be made available, accessible by smartphones, smartpads and laptops. Once a baker, a farmer or grain storage manager says who they are, the toolbox will open and reveal all the relevant information they need. The information will be dynamic and for instance predict risk of contamination of stored grain or tell a farmer when is the best time to spray with fungicide. Pre- and post-harvest measures could cut crop losses by 20 to 90%.

► What's it for?

- Better early warning systems that anticipate fungal contamination in a field and recommend actions.
- To discover which bio-controls [such as other microorganisms] could be used against fungi.
- Improved sensor technology for granaries in Europe and China, using carbon dioxide levels and temperature fluxes along with better use of data to warn about fungal growth.
- To treat contaminated grain so it can be used for biofuel by treating protein-rich left overs with enzymes and thus made safe for animal feed.
- Innovate baking and milling procedures that can reduce toxin level in processed cereals.
- Use high-tech imaging cameras to spot dried figs and other produce contaminated with fungal toxins so they can be sorted and removed.

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