

# Mycotoxins - Rapid Testing Solutions

Kai Pumpa





- Kai Pumpa
- Master of Science Biology
- Product manager mycotoxins at R-Biopharm AG
- Working at R-Biopharm AG since 4 years
  - Field Service and Application unit (2 years)
  - Junior product manager automation (1 year)

# Well known mycotoxins & lesser known mycotoxins

**Aflatoxin B1, B2, G1, G2**

**Aflatoxin M1**

**Ochratoxin A**

**Fumonisin B1, B2, B3**

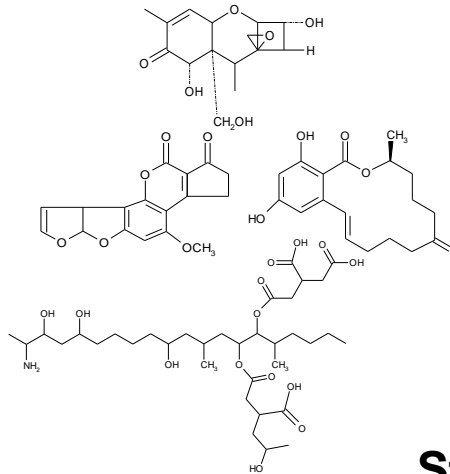
**Zearalenone**

**Trichothecenes  
(DON,  
T-2 Toxin, HT-2 Toxin)**

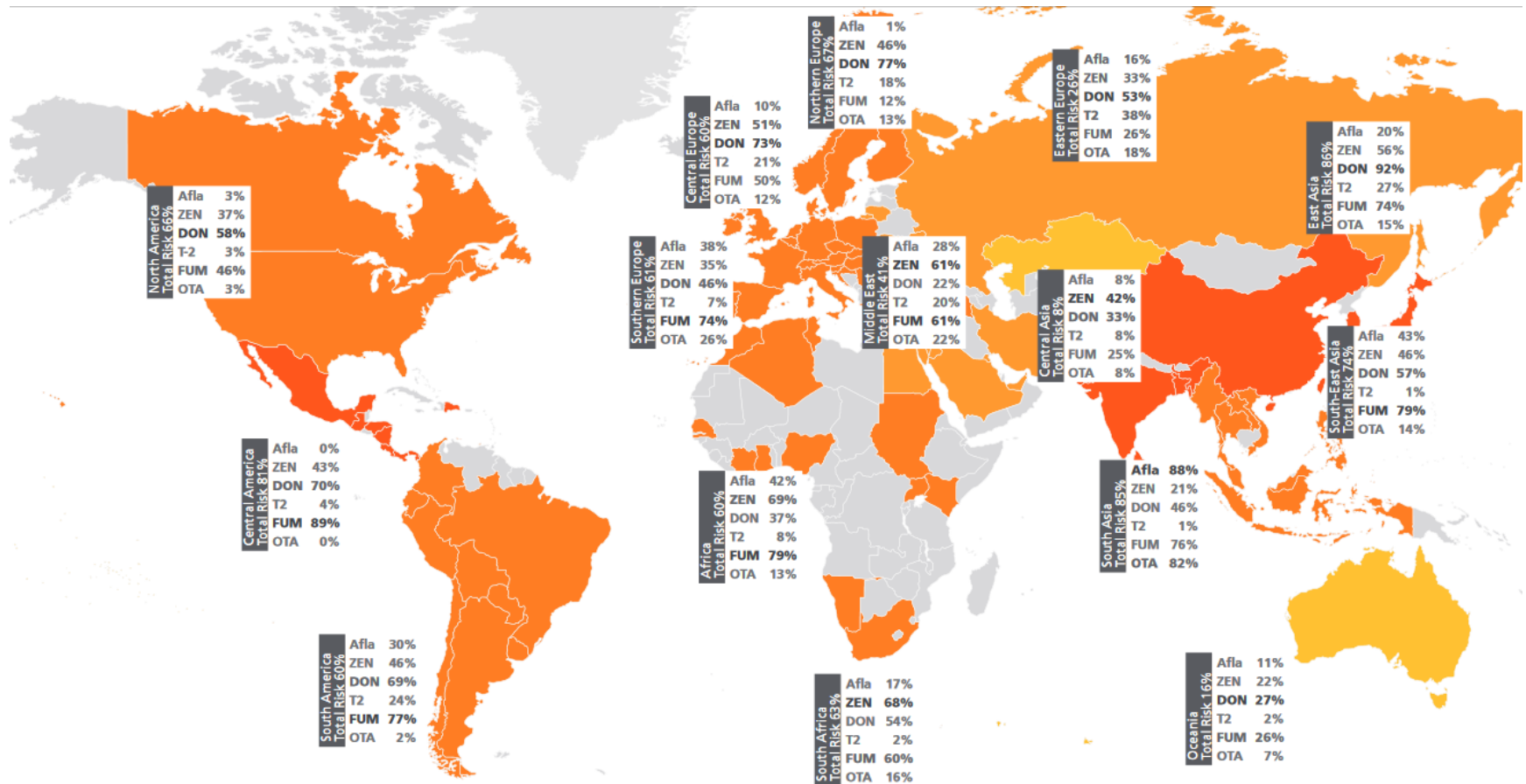
**Citrinin**

**Patulin**

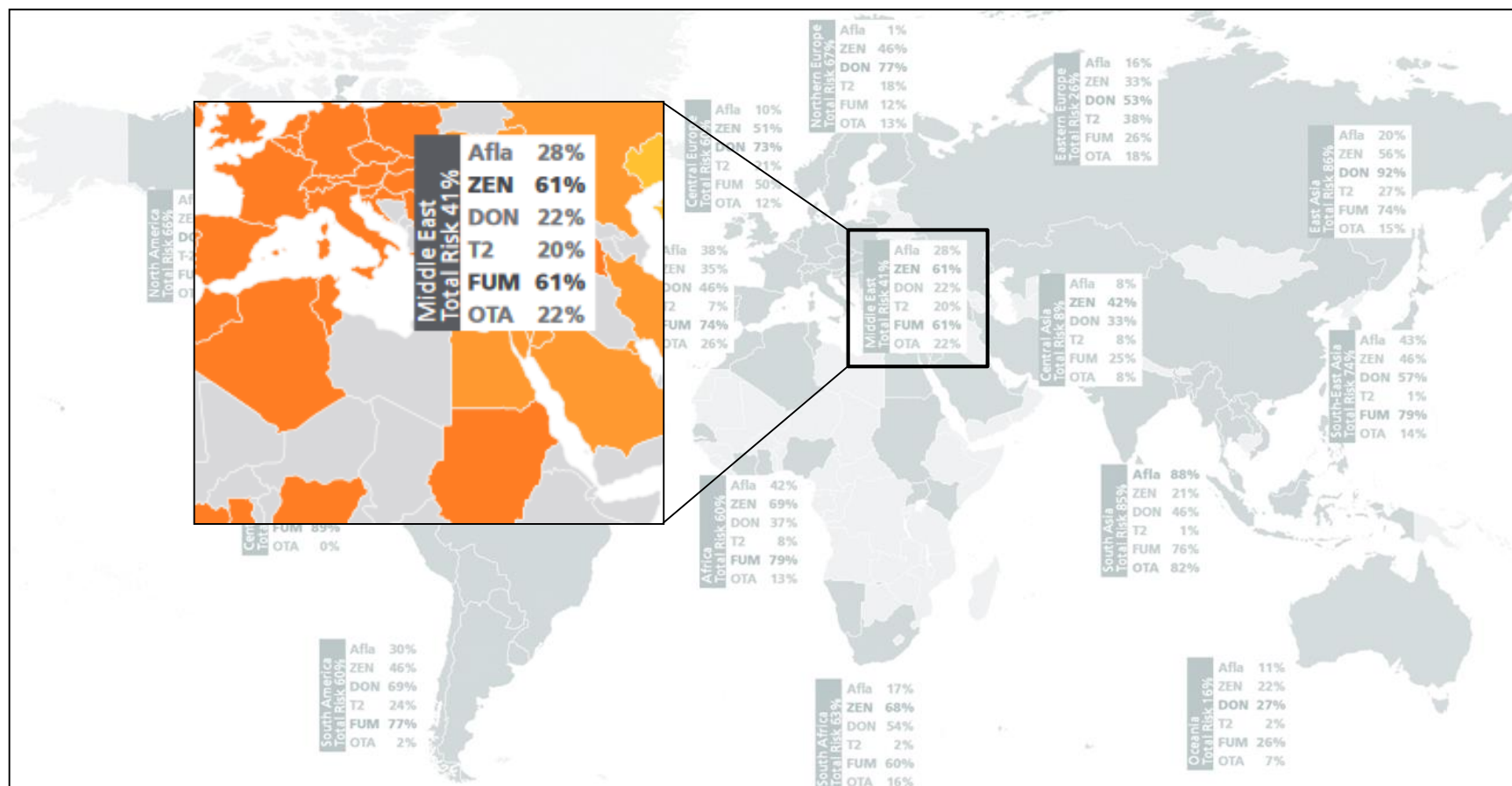
**Sterigmatocystin**



# Mycotoxins – a ubiquitous problem?



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## Major commodities associated with mycotoxins:



- Corn (AFB, FUM, DON, ZON)
- Wheat (DON, ZON, T-2 & HT-2 Toxin)
- Rice, Barley, Oat, Rye, Sorghum (AFB; OTA, DON, T-2 & HT-2 Toxin)

(Corn, wheat, rice and barley cover > 90% of world cereal production)

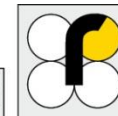


- Milk (AFM)
- Oilseeds (peanuts, soy) (AFB, OTA)
- Tree nuts, fruits (raisins, figs, apples) (AFB, OTA, PAT)
- Coffee, tea, liquorice, spices, herbs (AFB, OTA)
- All products derived from these commodities



# The Big Picture – mycotoxins in global food





# R-Biopharm – the mycotoxin analytic experts



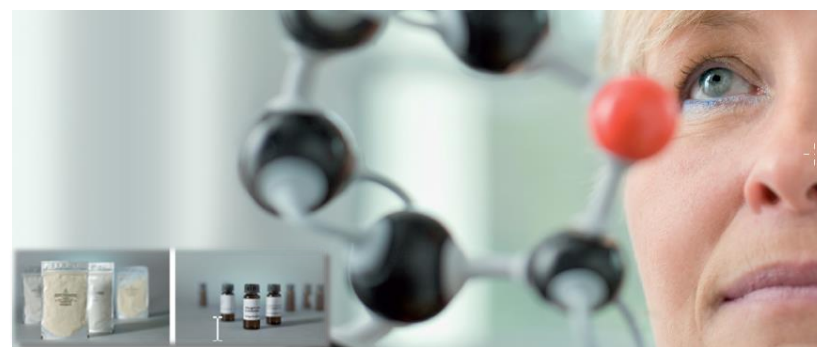
**RIDA®QUICK Lateral Flow Solutions**



**RIDASCREEN®FAST ELISA**



**RIDA® Automation**



**Analytical Services and Quality Assurance Products by Trilogy®**

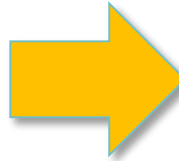




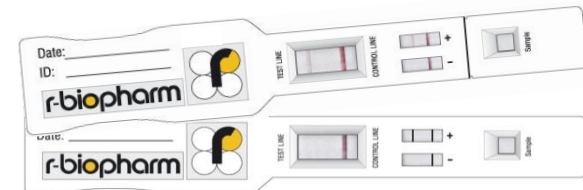
# RIDA®QUICK Lateral Flow Solutions

for a wide range of mycotoxin analysis in food and feed

## Out of the laboratory...



2005 The first lateral flow test for aflatoxin appeared on the market



## RIDA®QUICK mycotoxin - lateral flow solutions from R-Biopharm



### Aqueous extraction

#### Product

RIDA®QUICK Aflatoxin RQS ECO  
RIDA®QUICK DON RQS ECO  
RIDA®QUICK Fumonisin RQS ECO  
RIDA®QUICK T-2 / HT-2 RQS ECO

### Ethanol/methanol extraction

#### Product

RIDA®QUICK Aflatoxin RQS  
RIDA®QUICK Zearalenon RQS



Short testing times



Easy to perform



Quantitative



The optimal tool for on-site testing  
of raw materials



Innovative test reading  
with smartphone

## Product focus – RIDA<sup>®</sup>QUICK



- ✓ Single sample testing solution (small sample numbers)
- ✓ Ideal tool for on-site testing
- ✓ Optimal for screening raw material (e.g. incoming goods control)
- ✓ 3-5 min incubation time for quantitative results
- ✓ Minimal training required
- ✓ Minimal equipment required (no incubator needed)



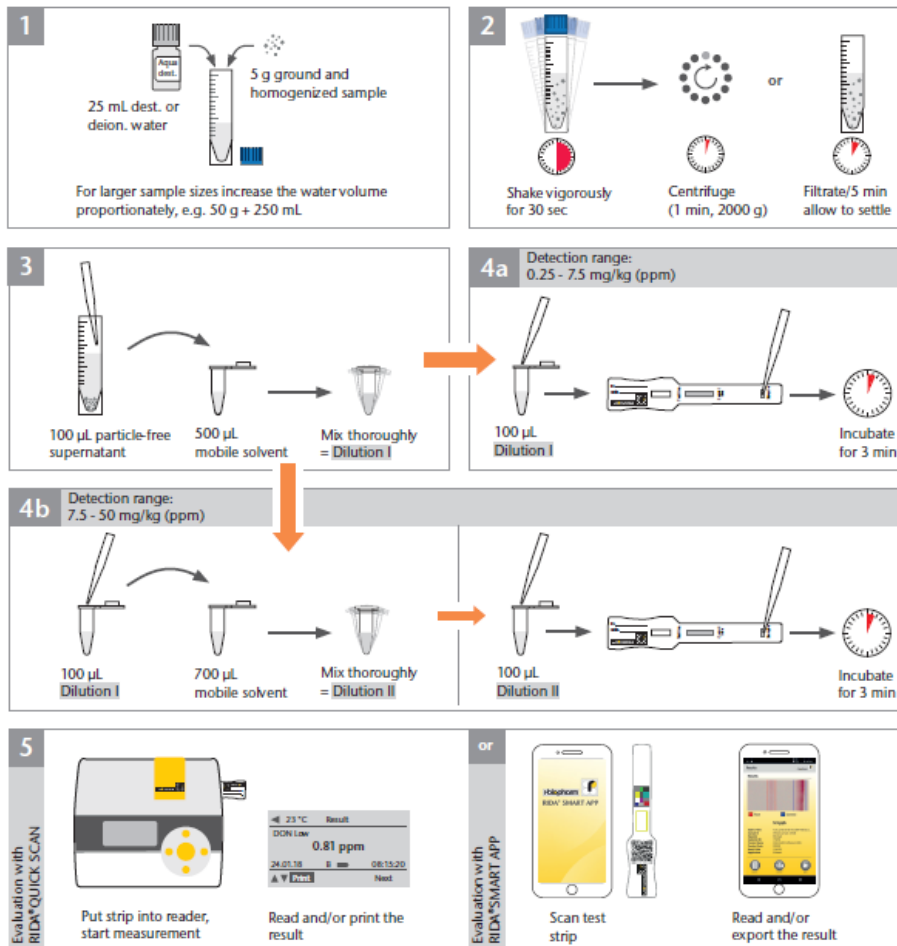
## Product focus – RIDA<sup>®</sup>QUICK



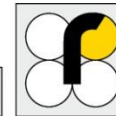
- ✓ Meet with regulatory limits in many countries worldwide
- ✓ Every lot optimized by using Trilogy<sup>®</sup> naturally contaminated reference materials
- ✓ New standard curves with every lot for best possible results
- ✓ Unique, innovative evaluation with smartphone (RIDA<sup>®</sup>SMART APP)



## Example: RIDA<sup>®</sup>QUICK DON RQS ECO



- ✓ Short video of the simple use of the RIDA<sup>®</sup> QUICK Mycotoxin Lateral Flow Tests.
- ✓ Used a Trilogy<sup>®</sup> wheat sample with an 0.5 ppm DON contamination



## Hands on the RIDA<sup>®</sup>QUICK DON RQS ECO





# RIDASCREEN®FAST ELISA

for a wide range of mycotoxin analysis in food and feed

# Enzyme linked immunoassay - ELISA

Antibody based technology  
Quantitative



## Suitable for:

- large numbers of samples
- broad range of matrices (application notes available)
- can be used in basic / midsize labs with photometer

## Advantages:

- easy to use and in-line with EU legislation
- wide product range (various parameters)
- good correlation with reference methods

# Product focus - RIDASCREEN®FAST ELISA



## Key benefits

- ✓ **Fast** – results in not more than 30 min (incl. sample preparation)
- ✓ **Easy** – simple sample preparation and easy handling
- ✓ **Reliable** – regular quality control of every batch during shelf life
- ✓ **Quantitative Results** – every test comes with its specific standard curve
- ✓ **Experience** – R-Biopharm Group has years of extensive know how in ELISA mycotoxin testing



# Product focus - RIDASCREEN®FAST ELISA




## What kind of customer?

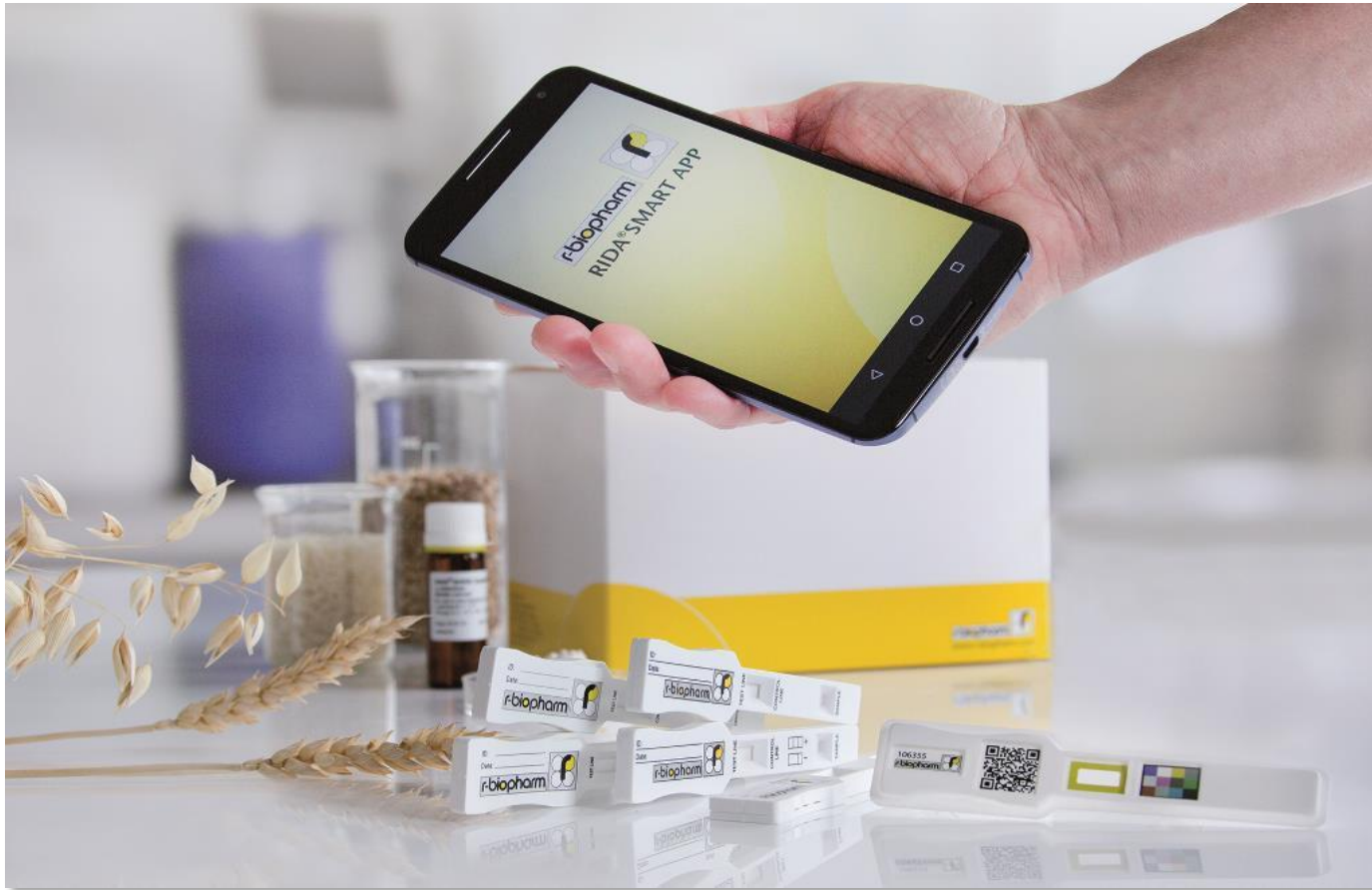
- ✓ For all customers with
  - ✓ a basically equipped lab
  - ✓ need for cost-effective and quantitative mycotoxin screening method
  
- ✓ For customers that need to be flexible with sample numbers
  - ✓ from testing a few samples
  - ✓ to high sample throughput

# RIDASCREEN®FAST product line - overview

Parameter	Incubation time	Limit of detection	Commodities
Aflatoxin M <sub>1</sub>	15 min	125 ppt	Milk, milk powder
Aflatoxin	15 min	1,7 ppb	Cereals, feed, nuts*
Aflatoxin SC	15 min	2 ppb	Cereals, feed
Citrinin	25 min	15 ppb	Cereals, feed
DON	8 min	0,2 ppm / 0,36 ppm	Cereals, feed, malt
DON SC	8 min	0,074 ppm	Cereals, feed, malt
Fumonisin	15 min	0,222 ppm	Cereals, feed
Ochratoxin A	15 min	5 ppb	Cereals, feed
T-2 Toxin	15 min	20 ppb	Cereals, feed
Zearalenon SC	15 min	5 ppb	Cereals, feed
Zearalenon	15 min	50 ppb	Cereals, feed

**Test format:** microtiter plate, 48 wells, 48 & 96 for DON

 = aqueous extraction



## RIDA®SMART APP

The mobile & smart lateral flow reader technology.

Compatible with all quantitative RIDA®QUICK RQS tests.

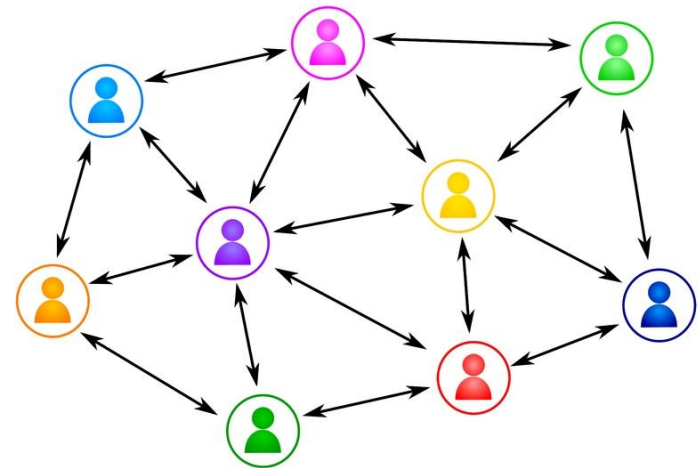


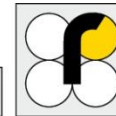
# Why use smartphone technology?



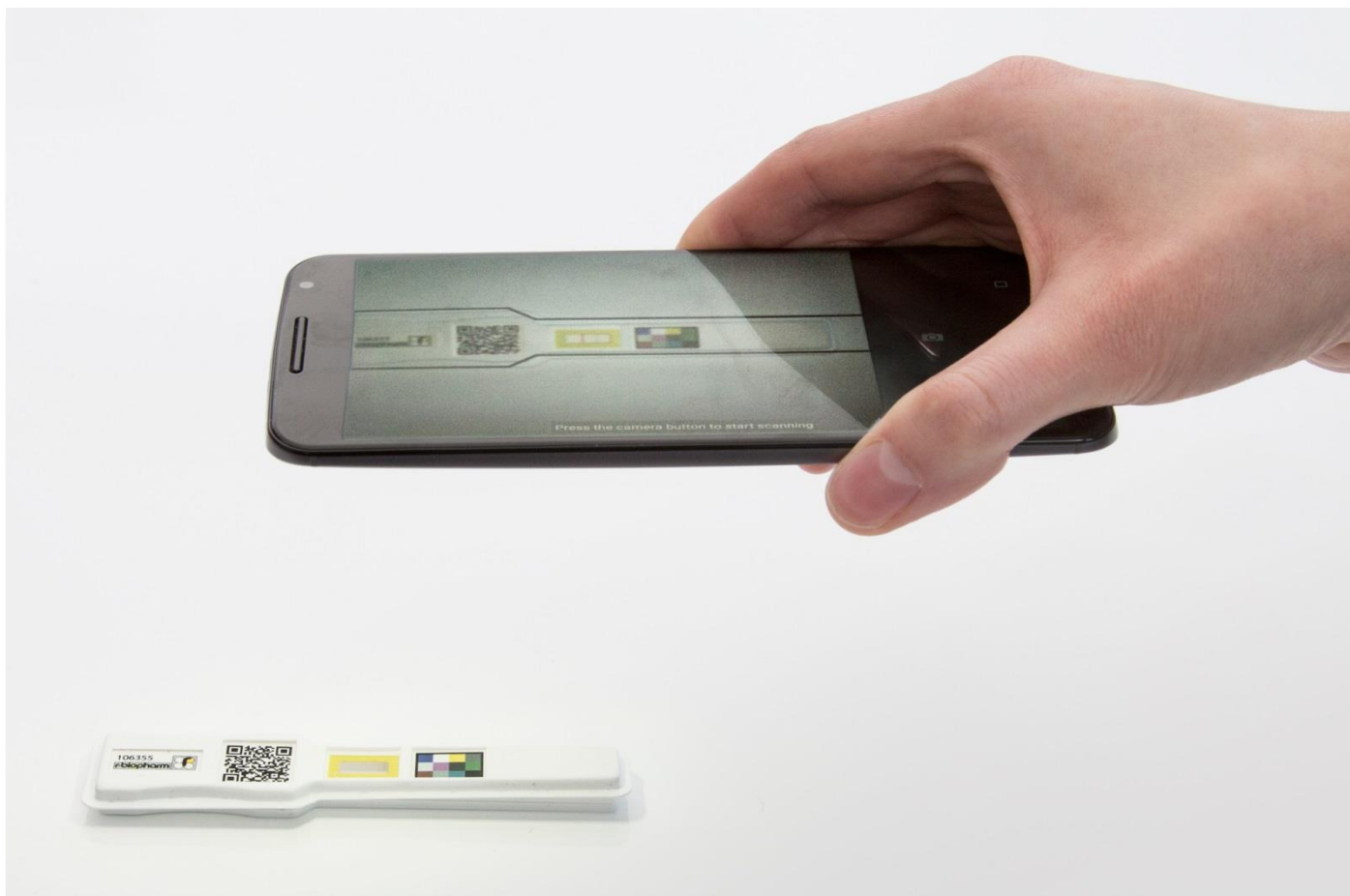
But the best thing is: “Connectivity”

- ✓ As the central QC manager you can have real-time data “from the field” for mycotoxins and manage more effectively



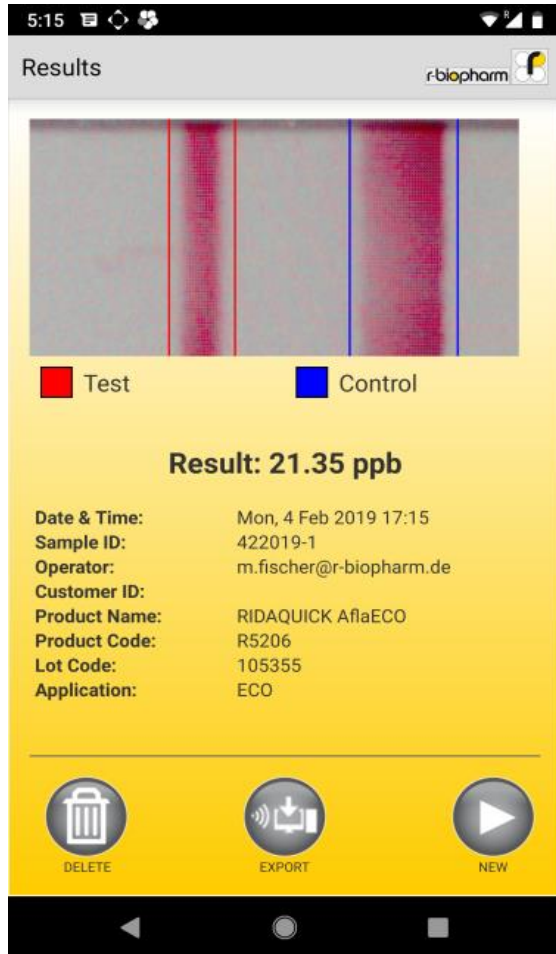


## RIDA<sup>®</sup>SMART APP Strip Scanning





# Mobile result reporting with RIDA®SMART APP



## Export results by:

- ✓ Cellular network (SIM card)
- ✓ WiFi
- ✓ Bluetooth



## Export as:

- ✓ html. file via email
- ✓ csv. file to import data in customer data bases/apps or to Excel
- ✓ printable report to connected network printer





## RIDA® ABSORBANCE 96

The Unique, fast & reliable microtiter plate reader technology.  
Compatible with all RIDASCREEN® tests.



**Quality assurance with Trilogyl® naturally contaminated commodities**  
Finely ground and homogenized naturally contaminated samples. Suitable for Trainings, Validation, calibration & quality assurance

**Thank you**  
for your attention!

