



**Joint FAO/IAEA Programme**  
of Nuclear Techniques in Food and Agriculture

# FAO Role and Activities

for Planning for and Responding To a Nuclear or Radiological Emergency

Webinar on Food Safety in a Nuclear or Radiological Emergency  
23<sup>rd</sup> October 2018



Carl Blackburn & Gerd Dercon

Joint FAO/IAEA Division of Nuclear Techniques  
in Food and Agriculture



# Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture

The use of nuclear techniques and related technologies for sustainable food security and safety.

Five sections + laboratories in the thematic areas of;

- Soil and Water Management and Crop Nutrition
- Food and Environmental Protection
- Plant Breeding and Genetics
- Animal Production and Health
- Insect Pest Control



# Why is food so important?

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- **Nutrition + Identity = Emotion**

Health, well-being BUT also how we define ourselves, our families (culture, history, country, region, even our religious beliefs).

- **Public confidence** in the food supply is important

- **Threat to food safety or quality** = strong feelings, headlines, anger



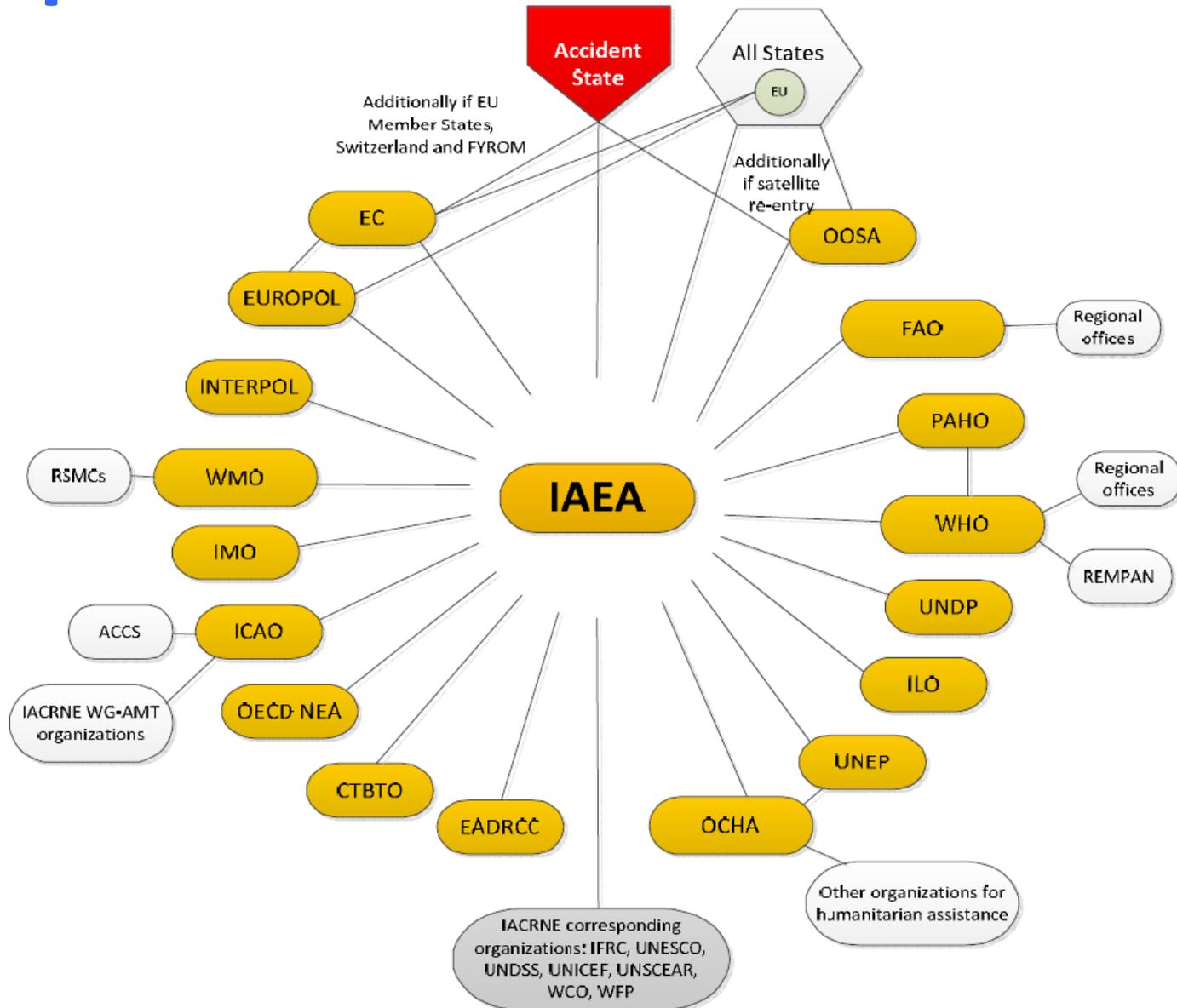
# Emergencies

## **Nuclear and Radiological Emergencies Affecting Food and Agriculture**

- Providing support
- Providing technical assistance
- Providing and facilitating information exchange
- Working in collaboration with others

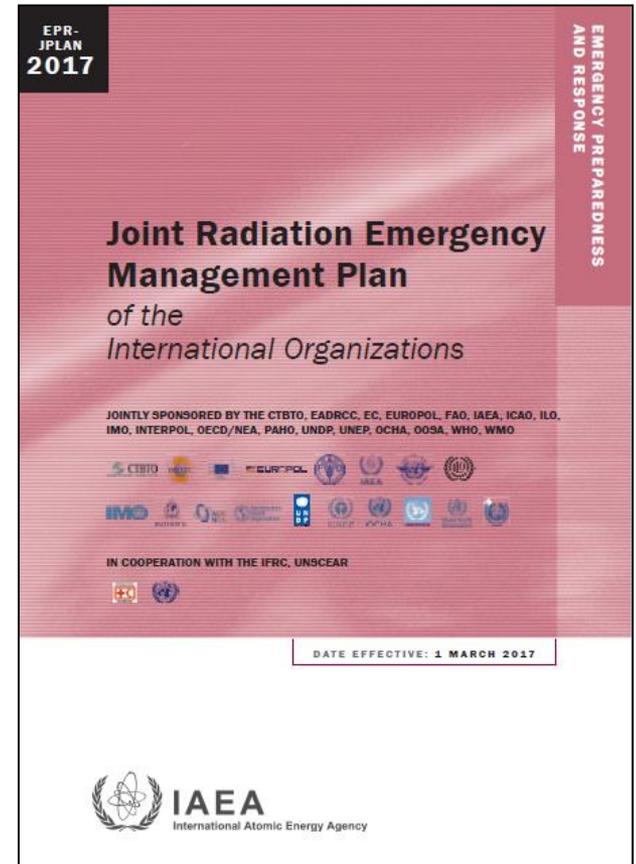
FAO = Food, agriculture, forestry, fisheries, trade

# Cooperation



# Food and Agriculture Organization of the United Nations

- **Joint Radiation Emergency Management Plan of the International Organizations (JPLAN-2017)**
- Convention on Early Notification of a Nuclear Accident
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
- FAO/IAEA Cooperative Arrangements
- Inter-Agency Committee on Radiological and Nuclear Emergencies (IACRNE)
- International exercises





## INFOSAN (Expert to Expert)

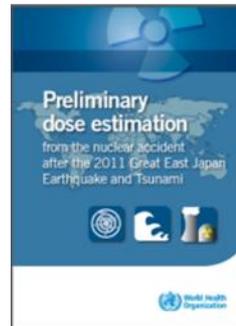
The International Food Safety Authorities Network (INFOSAN) is a global network of national food safety authorities, managed jointly by FAO and WHO.

INFOSAN aims to:

- Promote the rapid exchange of information during food safety related events
- Share information on important food safety related issues of global interest
- Promote partnerships and collaboration between countries, and between networks
- Help countries strengthen their capacity to manage food safety emergencies

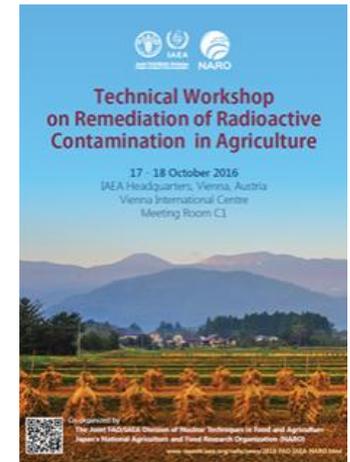
# For Example: Fukushima NPP Accident

- Activities to support briefing on food contamination and monitoring data to MS Board meetings, press conferences and FAO, WHO & IAEA websites
- Addressing requests (governments, organizations and individuals) and providing technical advice and support
- Promoting knowledge and information exchange (e.g. initiating web-based Q&A briefings with others)
- International Expert Missions (food safety / remediation)
- Compiling data (later used WHO, UNSCEAR and IAEA sponsored reports)



# Technical support – R&D

- Three International Group Expert Missions – Food Safety and Remediation of Large Contaminated Areas off-site F1 NPP (2011 and 2013)
- Revision of International Standards
  - International Working Group considering activity concentrations relating to food and water in the different international standards.
- Technical meetings ([Remediation TW, 17-18 October, 2016, Vienna](#))
- Research Activities (2013 - onwards)



# Response to Nuclear Emergencies Affecting Food and Agriculture

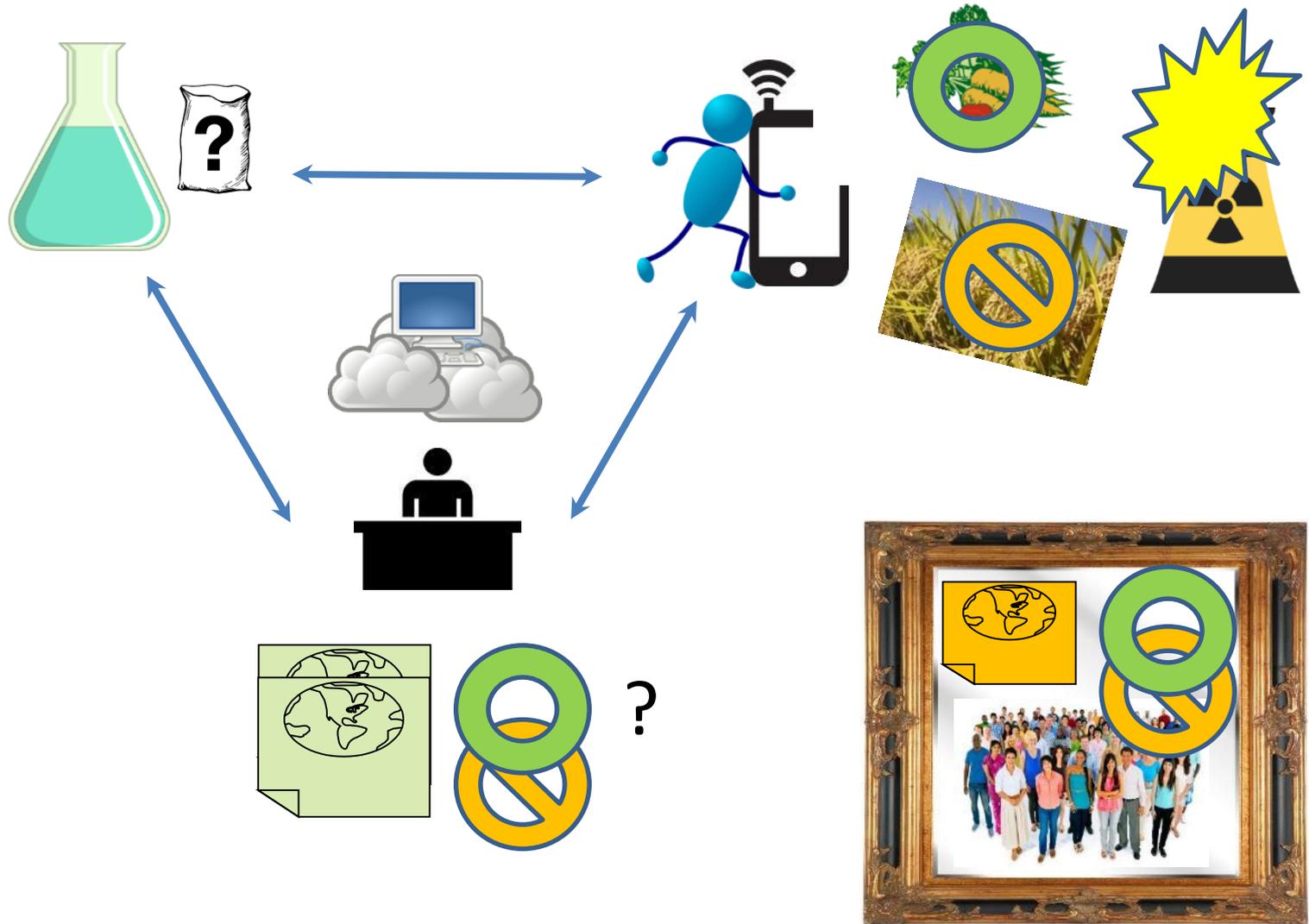
IAEA Coordinated Research Project (2013-2018)

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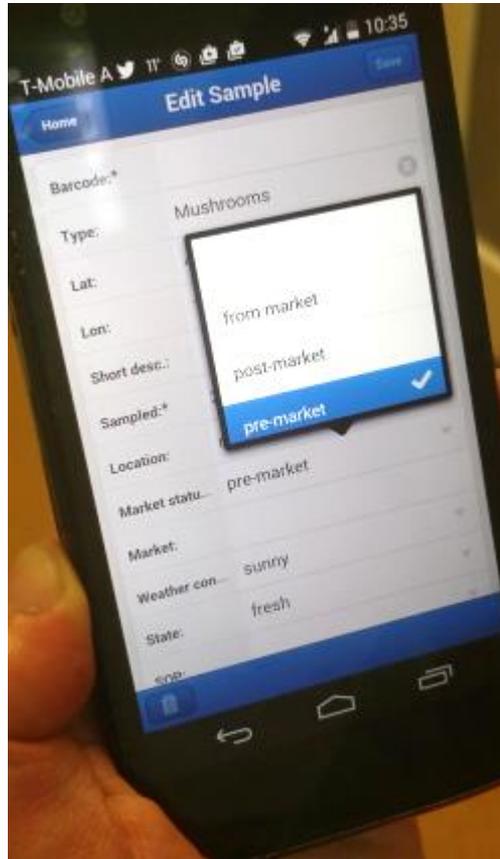
## Objectives

- Development of **protocols for sampling and analysing** food products
- Development of an **Online Information System** for Optimizing Decision Making **in Food Safety** (Routine-Emergency monitoring)

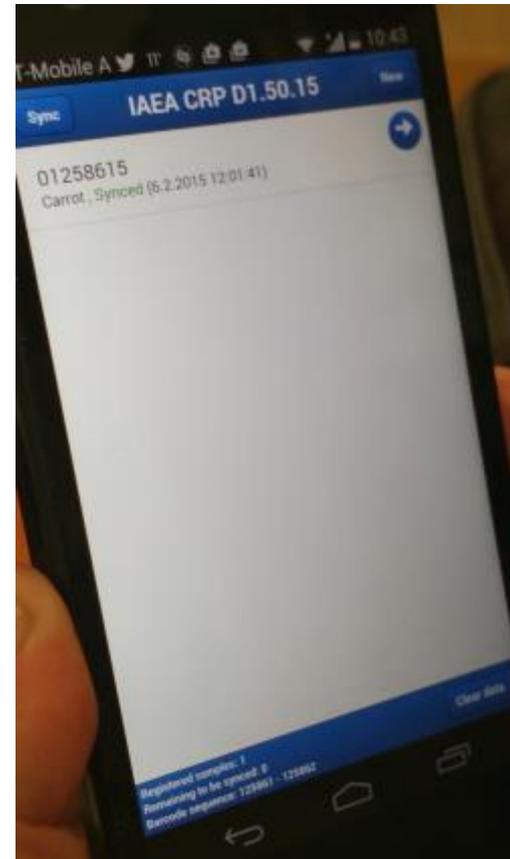
# Structure of DSS4NAFA



# DSS4NAFA - Collecting and registering sample data



Registering sample attributes via mobile devices (automatic geo-referencing)



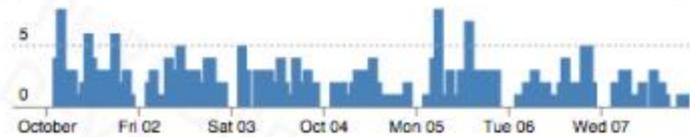
Synchronisation with central database (cloud)

# Data visualization at different scales

Simulated data

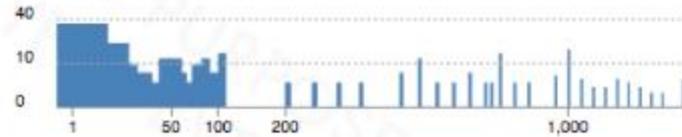
TIME EVOLUTION [ 01 Oct 04:00,07 Oct 23:00 ]

Number of samples collected over the last: Week Day 4 Hours



SAMPLES HISTOGRAM ( Bq/kg ) [ 0,1500 ]

Food restriction threshold (200 Bq/kg): Below Above



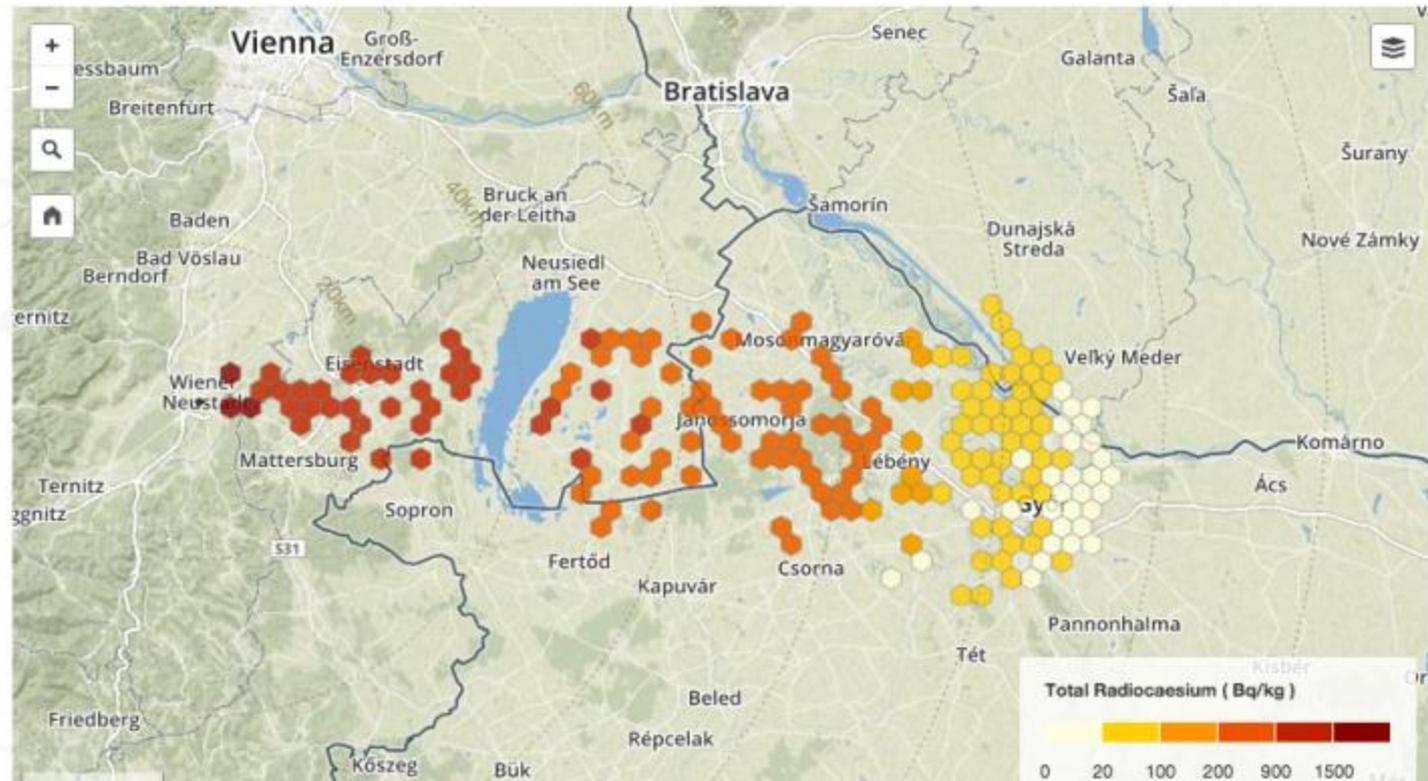
300 measurements selected out of 300

Min: 0 Mean: 325 Max: 1500

MEASUREMENTS LOCATION

Encode hexagons colors based on:

Max value Nb. samples



# FAO/IAEA Examples of Infographics



<http://www-naweb.iaea.org/nafa/resources-nafa/DSS4NAFA-ST-English-web.mp4>

# New Coordinated Research Project (CRP)

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**Focus on remediation of radioactive contamination in agriculture**

**(2019-2023; planned)**

- Optimization versus Prioritization
- Recontamination processes
- Decision-making

# Challenges – Remediation in agriculture

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- **Consumers / Producers Want Immediacy**  
Optimizing response time and effectiveness of remediation efforts
- **Optimization**  
How far do we go with decontamination?  
Prioritization?
- **Scalability**  
Could be a large scale operation
- **Long-term monitoring of food safety**  
An issue long after the emergency is over
- **Rebuilding confidence in the produce after remediation**  
Monitoring versus prediction



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