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## Food safety and quality research at the JRC

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## Food safety and quality at the DG JRC

• Member States and the EU have put in place a scientific safety and quality assessment mechanism, involving i.e. DGs JRC, SANCO, & RTD, and EFSA

Complementarities of institutions:

- EFSA looks into toxicity issues and safety, particularly in cases of authorisation,
- JRC focuses on detection methodologies
- SANCO develops and implements food legislation
- RTD funds related research projects (through FP7, ...)

• This mechanism is proving to be effective in tackling and avoiding potential risks to food safety and quality

• Aim is to safeguard the entire food supply chain ("from-farm-to-fork" concept), including traceability

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## Food safety and quality at the DG JRC

➤ Scientific and technical support

- to Directorates General when developing food and feed legislation
- to the European Food Safety Authority
- to national official control laboratories for implementation of legislation

➤ Pro-active research in areas where legislation is expected

➤ Input for standardisation and harmonisation bodies  
(e.g. European Committee for Standardisation (CEN), Codex Alimentarius, AOAC International)



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## Food safety and quality at the DG JRC



- Allergens
- Sustainable agriculture and organic foods
- Natural toxins - mycotoxins
- Semicarbazide (SEM)
- Food contaminants
- Sweeteners
- Chocolate
- Functional foods and antioxidants
- GMOs (Genetically Modified Organisms)
- PAHs and smoke flavourings
- Acrylamide
- Feed additives
- marker for Animal By-Products
- Meat-and-Bone meal (MBM)
- Food contact materials
- Trace elements (heavy metals)
- Veterinary drugs in feeds
- Wine authentication

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## Food safety and quality at the DG JRC

Complementary approaches:

- Method development, validation and harmonisation (e.g. mycotoxins, food allergens)
- Proficiency testing (e.g. acrylamide, PAHs)
- Food data bases (e.g. authenticity of wines, monitoring of acrylamide)
- Reference materials (e.g. GMOs, contaminants)



=> **Measured once, accepted everywhere!**

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## Food safety and quality at the DG JRC

JRC work assures that

- the same reference materials and quality assessment methodologies are being used across Europe,
- control methods and tools used to ensure a good analytical strategy are harmonised.

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## DG JRC Tasks on Food Safety and Quality

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GMOs

- Validation of analytical methods for the detection and quantification of GMOs in raw materials and processed food,
- Member States asked to coordinate a network of national enforcement laboratories on GMO detection (ENGL),
- GMO-based certified reference materials, essential for the establishment of appropriate protocols for GMO detection,
- Community's reference laboratory on GMOs.

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## DG JRC Tasks on Food Safety and Quality

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- JRC's GMO detection and referencing methodologies recently put to the test when rice cargo from the US was held in Rotterdam,
- detected the presence of LL Rice 601, a strain of unauthorised GMO rice,
- EU results turned out to be positive while they were tested negative in the US,
- need for further collaboration between the US and EU to bring in line the testing methodologies and sampling on GMOs
  - US: 1000 grains x3 → 0.1%
  - EU: 8000 grains x4 → 0.01 %

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## DG JRC Tasks on Food Safety and Quality

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Acrylamide

- compound known to be carcinogenic,
- produced when starch-rich food is cooked at high temperatures,

JRC responsible for running the European monitoring database which contains data on the presence of this compound in food,

- allows exposure assessments to estimate the average daily intake by a consumer of the compound.

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## Food safety and quality at the DG JRC

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- European Office for Wine, Alcohol and Spirit Drinks (BEVABS), to facilitate the implementation of EU wine legislation,
- databank on authentic European wines to ensure that when we buy a wine of a certain geographic origin, we are not drinking wine produced elsewhere.

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## DG JRC Tasks on Food Safety and Quality

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Mycotoxins (natural substances produced by moulds)

- reference tools (methods, RMs) on development and validation (collaborative trial) of a method for the determination of Zearalenone, (for DG SANCO),
- Difficulty: limited availability of naturally contaminated material.

Determination of :

- Patulin,
- T-2/HT-2 toxin,
- deoxynivalenol (DON).



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## DG JRC Tasks on Food Safety and Quality

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Current topics

- contaminants released from food packaging,
- presence of nanoparticles in food additives,
- method validation criteria for the detection of allergens in food,
- development and validation of a TLC method for the analysis of intense sweeteners,
- development and validation of a method for polycyclic aromatic hydrocarbons (PAHs) in smoke flavouring primary products.

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## JRC as CRLs for Food

Community Reference Laboratories (CRL's)

- foreseen in Regulation (EC) No 882/2004,
- contribute to a high quality and uniformity of test results throughout the EU,
- in particular in those areas where a need for precise analytical and diagnostic results exists (regulatory limits).

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## JRC as CRLs for Food

JRC is appointed as Community Reference Laboratories (CRLs, with NRLs):

- Feed additives authorisation & control,
- Food contact materials,
- Genetically modified organisms (GMOs),
- Mycotoxins,
- Polycyclic aromatic hydrocarbons (PAHs),
- Trace elements,
- Water in poultry.

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## DG JRC collaboration with Romania

Romanian participation :

- in several inter-laboratory comparisons for chemical measurements,
- in Training Courses and Workshops (in 2005, 320 experts in 102 events), organised by the JRC
- JRC organised 14 workshops in Romania in 2005 and 2006

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## DG JRC collaboration with Romania

- Official visit of Commissioner J. Potočnik to Bucharest, 11-12 September 2006
- The JRC is currently hosting 41 Romanian experts and researchers in its institutes under temporary contracts of typically 1 to 2 years
- Romanian research organisations are involved in 25 JRC research networks and 10 FP6 projects in several scientific areas such as environment, nuclear safety and food.
- JRC is looking forward to the association of Romanian partners to FP7 projects

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## DG JRC collaboration with Romania

- **GMOs.** Romanian partner in the European Network of GMO Laboratories (ENGL) is the University of Agricultural Sciences and Veterinary Medicine, Cluj.
- Upon request, the JRC organised an ad hoc training course on B&GMOs for a Romanian delegation, Ispra, 12-16 June 2006.

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Thank you for your attention!

Multumesc!

<http://www.jrc.cec.eu.int/enlargement>

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