FOOD SAFETY DEPARTMENT

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Agriculture and Food Development Authority

BACKGROUND
EXTERNAL DRIVERS FOR FOOD SAFETY RESEARCH

- Need to protect consumer from food borne illness
- Maintaining Irelands reputation for naturally produced safe food is critically important to sustainability and development Irish agri-food sector particularly, export markets (*FoodWise* 2025)
- Food safety regulations in EU and export markets
- Changes in agri-food production and processing technologies and global food supply chains can introduce new risks and challenges to safe food

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OBJECTIVE

Provide the science to underpin a total chain risk based approach to food safety focusing on microbial and chemical contaminants in the “farm to fork” food chain.

STAKEHOLDERS

- Food Industry (meat, dairy sectors, prepared consumer foods)
- Food safety regulators and policy makers (Ireland, International)

PROGRAMME

Focus is on **microbiological** and **chemical** contaminants in farm to fork chain

Food safety department is located at Teagasc Ashtown and Moorepark Campus's

- **Lead Research Scientists in Food Safety**

Microbiology

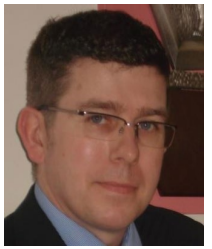
Geraldine Duffy, Declan Bolton, Kaye Burgess, Kieran Jordan

Chemical Contaminants

Martin Danaher







With team of Technologists, Technicians, Post- doctoral fellows and Walsh fellows

- **Laboratories**

-Microbiology category 2 and 3 (high level containment) laboratory
-Biotechnology Laboratory
-Chemical Contaminants (GC/MS/MS equipment)

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MICROBIAL PATHOGENS

Focus is on key microbial pathogens:
Shigatoxigenic *E. coli, Campylobacter,*
Listeria monocytogenes and *Salmonella*

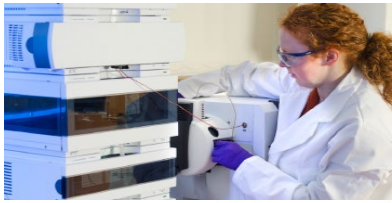
RESEARCH AREAS

- Pathogen transmission and tracking from farm to fork
- Pathogen behaviour, resistance and adaptation to stress
- Assessing human virulence potential and risk from known and emerging pathogens
- New innovative approaches to control pathogens including use of natural clean label agents and novel processing technologies
- Microbial spoilage and shelf-life in meat and milk

CURRENT LARGE MICROBIAL RESEARCH ACTIVITIES

Supporting microbial risk assessment and control

- Leading a national **OneHealth** programme on surveillance and control of **STEC** in the agri–food chain (incorporating whole genome sequencing approaches) supporting public health and export market access for Irish meat
- ***Campylobacter*** transmission and control in the **poultry** chain
- **Meat Technology Ireland**
  Leading programme to assure safety and extending the shelf life of fresh red meat (beef and lamb)
- **Prepared consumer foods** : Innovative approaches to control pathogens and extend shelf-life
- Transmission and control of ***Listeria monocytogenes*** in ready to eat foods
- Transmission and control of pathogens on **fresh produce**



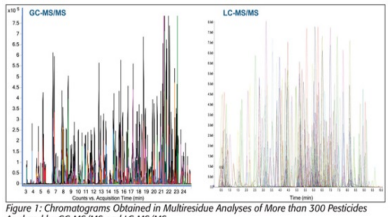


Figure 1: Chromatograms Obtained in Multiresidue Analyses of More than 300 Pesticides Analyzed by GC-MS/MS and LC-MS/MS

CHEMICAL CONTAMINANTS

Focus is on detecting a range of veterinary drug residues, environmental and food processing contaminants, and micronutrients (vitamins)

KEY RESEARCH AND ACTIVITIES

- Developing state of art methods to detect chemical contaminants and micronutrients using (mass spectroscopy GC/MS/MS technologies)

- Developed methods are accredited (INAB) and used in

  - **National Reference Laboratory** for **Veterinary Drug Residues** as part of the National Residue Testing Programme (under contract to DAFM)

  - **Specialist Analytical Service** in chemical residues to food industry, in particular chlorate residues in dairy sector

Providing risk assessment and assurances on chemical safety of Irish food

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