

AFBI Food Research Branch - Future Direction

“Key Customer Day” - 20 April 2018

Linda Farmer
Head of AFBI Food Research Branch

Food Research Branch - Future Direction

- Context
- Our focus
- Projects
- Partnerships

*“Supporting ... industry innovation across
the agri-food and rural sector ...”*



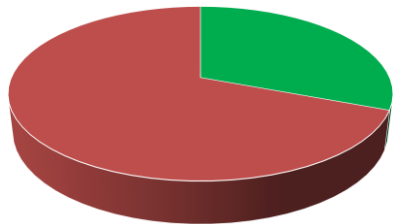
Food Supply Chain



Environment	Farming	Crops	Transport	Quality	Consumers
Soil	Grass	Animals	Fish	Processing	Safety
Water	Feed	Poultry	Dairy	Storage	Shelf-life
					Economics

NI Economy

NI GVA Agriculture and Food Processing
£1.1billion

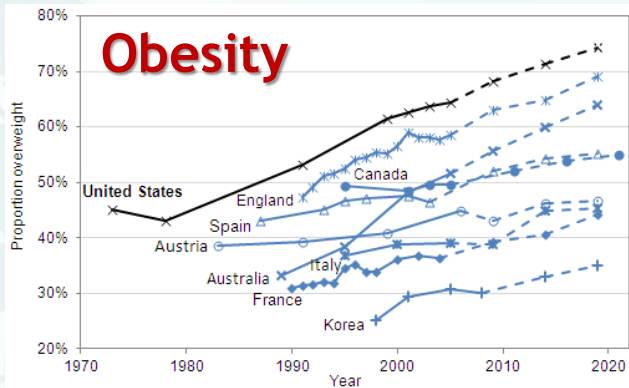


■ Agriculture £340m ■ Food Processing £760m

Research and Information Service Briefing Paper for the Northern Ireland Assembly, September 2016

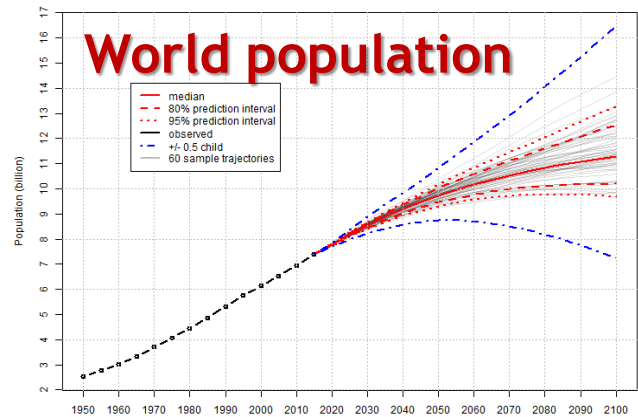
Context

Obesity



OECD

World population

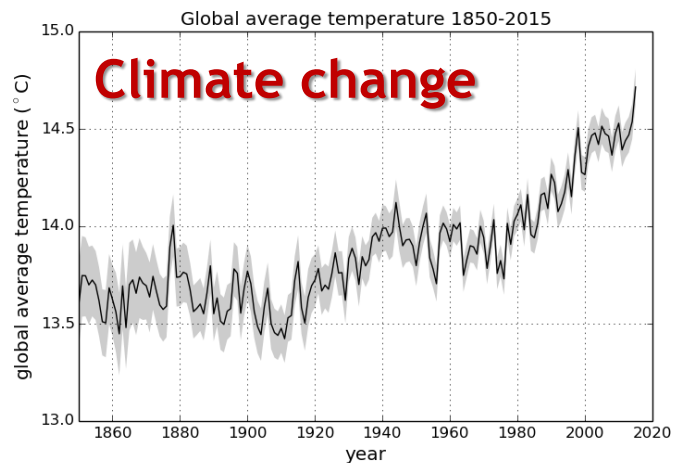


United Nations projections, 2017

Food Waste

Globally 1.3 billion tonnes (one third) food wasted

United Nations (FAO)



Royal Meteorological Society

data:HadCRUT4, courtesy of UK Met Office

Brexit



Challenges?
Opportunities?
Delays to market?
New markets?
Cheap imports?

Number of human genome base pairs sequenced per US\$

The number of human genome DNA base pairs which can be sequenced for one US\$.

● LINEAR

Scientific advances

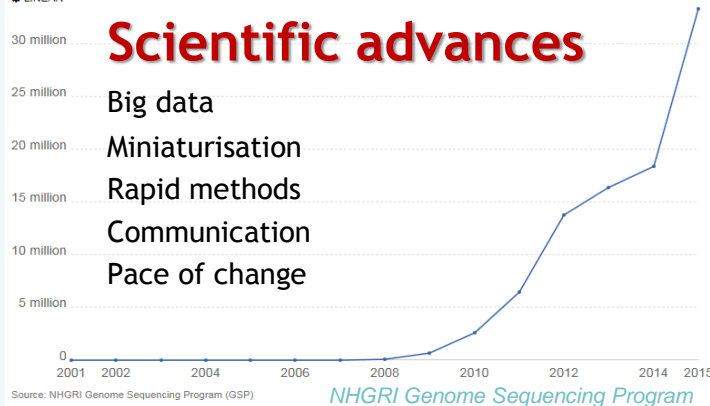
Big data

Miniaturisation

Rapid methods

Communication

Pace of change



Source: NHGRI Genome Sequencing Program (GSP)

NHGRI Genome Sequencing Program

What can we offer?

Focus on three issues:

The need to:

1. Compete in new markets and with competitors from overseas
 - Quality, consistency, added value
2. Deliver products to market with adequate shelf-life
 - South of England or world-wide
3. Reduce waste and maximise use of NI product streams
 - Increase profitability and sustainability



FRB Focus

Added quality and value

Needs

- To help NI maintain competitiveness
- To attract and retain customers at home and overseas.

Goals

- Quality and consistency - eating quality, nutritional quality
- Unique points of difference for NI

How?

- Research on new strategies to enhance quality
- Underpinned by instrumental analyses, sensory research, prediction of quality, quality assurance.



FRB Focus

Extending shelf-life

Needs

- Exploitation of new markets and maintenance of existing ones, post-Brexit.
- Sufficient shelf-life to overcome any transport issues.

Goals

- Extend shelf-life of NI food products.

How?

- Research on novel techniques / processing to extend shelf-life.
- Underpinned by shelf-life and processing methodologies.
- Also challenge testing (with Bacteriology Branch).



FRB Focus

Valorisation of co-products

Needs

- Efficient use of resources to maximise competitiveness
- Minimise environmental impact

Goals

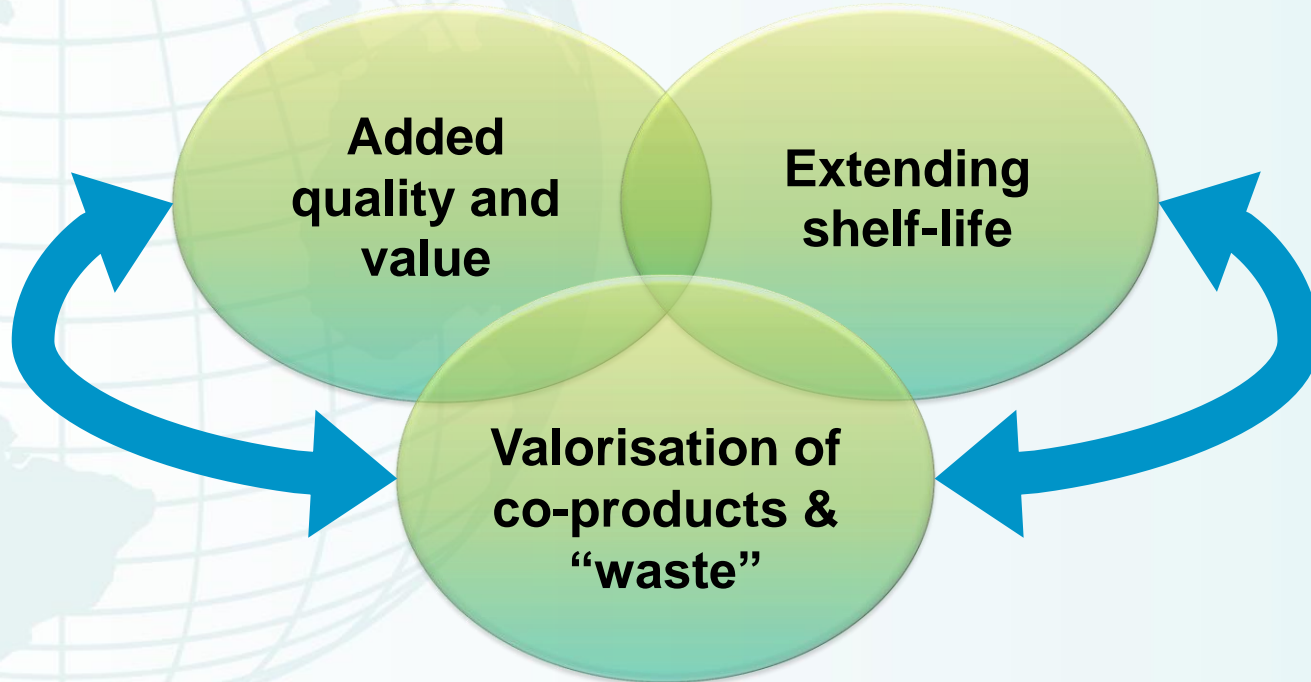
- New profitable uses for co-products and waste.
- Add value to lower valued products.

How?

- Research on exploitation of properties of plant- and animal-based co-products.
- Underpinned by extraction techniques, advanced analyses, methods for quality and shelf-life.

FRB Focus

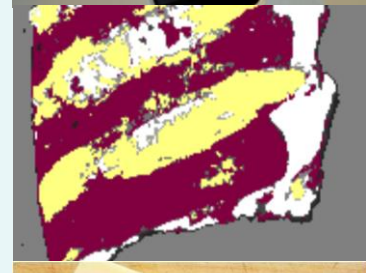
**Novel methods to add quality, value and shelf-life
and minimise waste**



Food Research Branch

Growing our capability

- Understanding what people like
 - Sensory and consumer methods; analysis of odour, flavour, texture and colour; chemometrics
- Maximising nutritional value
 - Vitamins, fatty acids, antioxidants
- New technologies and processing methods
 - Food preservation; shelf-life extension; extraction of valuable components from co-products
- Advanced analytical chemistry
 - Advanced mass spectrometry, chromatography; spectroscopic methods
- Meat & dairy science
 - Providing research and solutions to problems



Projects in progress

- Enhancement of Vitamin D (AFQCC)
 - *How could NI enhance vitamin D in meat and dairy products?*
- New technologies to enhance chicken flavour (AFQCC)
 - *Using an understanding of consumers and marker compounds*
- Flavoursome beef (Consortium, Australia)
 - *Can we add value to beef based on flavour and MSA system?*
- Odour emissions from pigs (AFQCC)
 - *Can we reduce odours through management of gut microflora and diet?*
 - *Does this reduce off-flavours in pork too?*

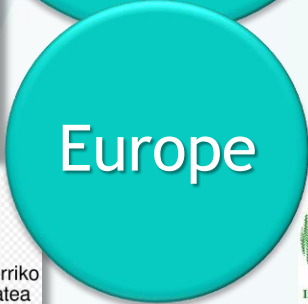
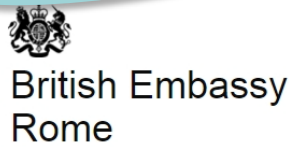
Projects for the future

- Food Futures (AFQCC)
 - *Using big data to make the most of NI food production*
- Quality of mushrooms (EU proposal)
 - *Novel methods to manage and improve quality*
- Maximising quality and value of NI food (QUALCOP+ : DAERA proposal)
 - *Adding quality, shelf-life and value to NI food through new technologies.*
 - *Creating points of difference for NI produce.*
- Others under discussion ...

Working with:

LMC

Livestock & Meat Commission



Conclusions

- Interesting projects and results
- Exciting opportunities
- Excellent team
- Thank you

