




Maximising the productivity and quality of UK food production – implementing the Agri-tech Strategy

The Foundation for Science and Technology
21st May 2014



George Freeman MP
Member of Parliament for Mid Norfolk
Chairman of the APPG on Science & Technology in Agriculture



Career

- Farming family background
 - Student trainee, Greens of Soham.
- NFU Parliamentary Officer
- 15 year career Bioscience Venture Capital
- Non-Executive Director: NRP, Icení Seed Fund
- Non-Executive Director: Elsoms Seeds
- 2010 Elected to Parliament for new constituency of Mid Norfolk
 - Chairman of the All Party Parliamentary Group on Science and Technology in Agriculture
 - Government Adviser on Life Sciences
 - UK Life Science Industrial Strategy
 - UK Agri-Tech Industrial Strategy
 - UK Agri Tech Industrial Strategy Leadership Council.
 - UK Trade Envoy to the Philippines

Agricultural Science and Technology: The Challenge and Opportunity

- The Global Agri-Tech Revolution
- Challenges and opportunities
- UK Agri-Tech Strategy
- Implementation: barriers and priorities

UK Agriculture Sector: a major industry

- The Agri-Food supply chain contributes £96 billion
- Agriculture contributes £9 billion to the UK economy
- Underpins £26 billion food and drink manufacturing sector
- The UK is one of the top 12 food and drink exporters in the world
- UK exported £18 billion of food, feed, and drink in 2012
- 3.8 million employed in agriculture and fishing supply chains



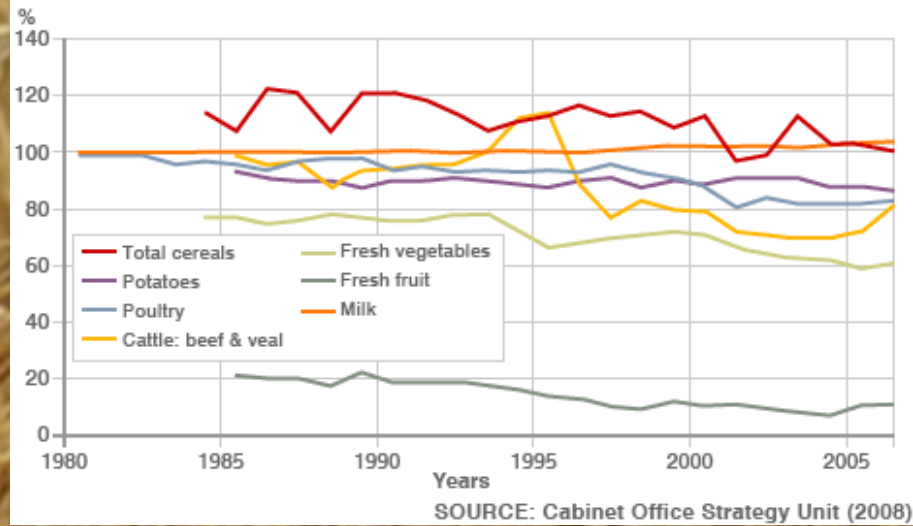
Agriculture employs 450,000 people.



Agriculture contributes £9 billion to the UK economy and underpins the UK's £26 billion food and drink manufacturing sector.

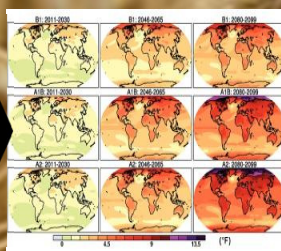
But self sufficiency is *declining*

UK food self-sufficiency (by commodity) 1980-2005

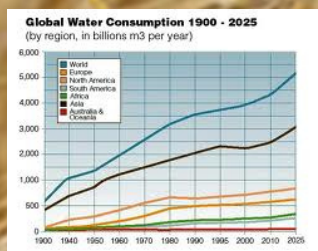


...big global pressures on all commodities

CLIMATE CHANGE



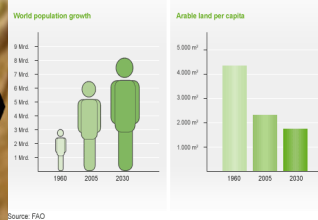
WATER



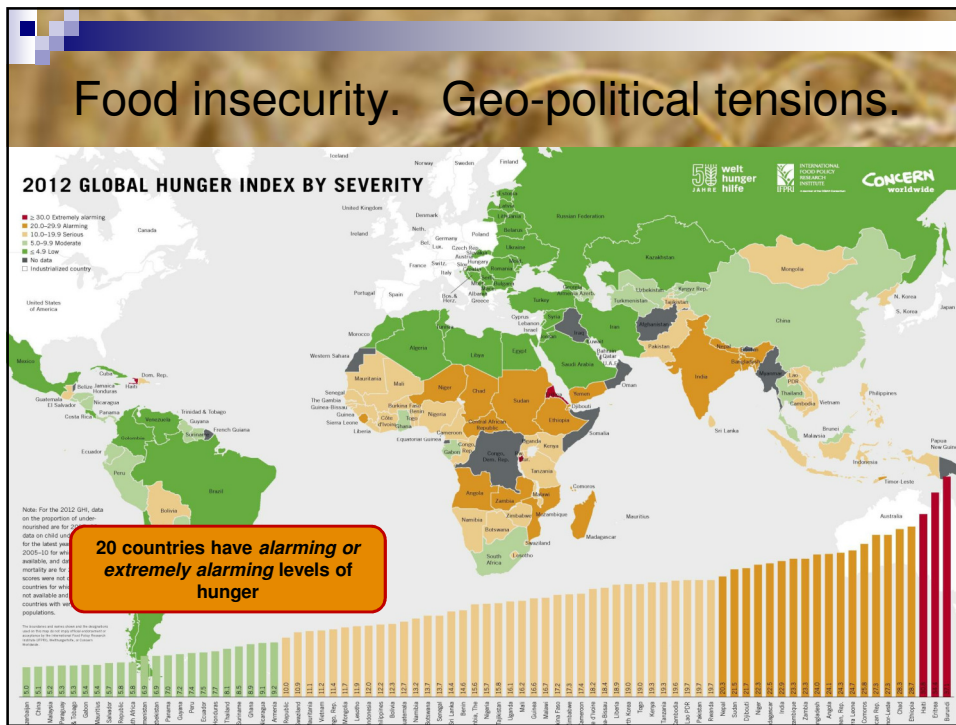
POPULATION GROWTH



LAND



Source: Centres for Agricultural Innovation. Presentation by Judith Batchelar 21.10.13



With Technological Innovation



UK – opportunity and challenge

- Home of the 1st Agricultural Revolution
- World class food and farming sector
- World class Agricultural R+D research base
 - (£450m Annual expenditure by UK Government!)
- Vast global markets for food, R+D + UK leadership

But

- UK Science base + Farming Industry + Global markets - not well integrated
- No UK strategy, vision or business plan.

The Opportunities. The Challenges.

<ul style="list-style-type: none"> ■ The Opportunities □ Inward Investment From Wave of Global \$ For Ag Science □ UK IPR / Tech Transfer □ Spin-outs □ Competitiveness of UK Agriculture Plc □ Emerging Markets □ Growth of Bioeconomy 	<ul style="list-style-type: none"> ■ The Challenges □ Food Inflation □ Relative Decline of UK Applied Science Base □ Global Population Growth □ Global Climate Change □ Fragmented / Silo'd UK □ Lack of grassroots networks □ Lack of demonstrable metrics
--	---

UK Strategy for Agricultural Technologies

A UK Strategy for Agricultural Technologies

July 2013

Agricultural technologies

Agriculture employs 450,000 people.

Agriculture contributes £9 billion to the UK economy and underpins the UK's £26 billion food and drink manufacturing sector.

The growing global agricultural technologies sector is worth \$400 billion, offering export opportunities in emerging markets.

Science + Innovation



13

Science Supply Chain Global markets



14





The Goal: *what success would look like*

- Better industry links / Leadership in UK Ag-Science
- Significant Inward Co-investment Into UK R+D
 - From Global + Industry / Partners
- Boost Global Status of UK Ag Research
 - Attract and train top rising star researchers
- Better Capture And Commercialise UK IPR
 - Technology transfer / spin outs and start-ups
- Catalyse a vibrant UK Agri-Tech VC Sector
- Support greater industry / research collaboration and uptake
- Increase grass roots 'demonstration farm' uptake
- Develop UK leadership in science + metrics of sustainability / Ag-informatics
- New Global Collaborations / Trade Links

Needs to a Strategy for all the Partners

- UK Research sector
 - JIC, Rothamsted, Aberystwyth, IFR, NIAB, Roslin, James Hutton, Etc
 - Levy Boards
 - BBSRC
- Global AgBioTech
 - Big 6:
 - UK: Syngenta,
 - Row: Basf, Monsanto, Bayer...
 - Nutraceuticals:
 - Abbot Nutrition
 - Unilever
- Farming
 - Progressive Leaders: Cargill, Velcourt, G's, Spearhead, Etc
 - Family Farms
- Food Industry
 - UK And Global. (Pepsico.
 - Small / Farm Gate
 - Processors
 - Retailers
- Charities
 - UK Foundations
 - Gatsby / Hutton Etc
 - Gates Foundation
 - NGOs
- Sovereign Wealth
 - Brics
 - Qatar
 - EU

19

Measures

1. The Agri-Tech Catalyst Fund
2. Institute of Agricultural Metrics
3. Agricultural Innovation 'Hubs'
4. Access to global markets





20

1. Agri-Tech Catalyst Fund

Agri-Tech Catalyst
Helping to commercialise
UK agricultural innovation



- A £70 million Fund to support early stage Proof of Concept / Translation of agricultural innovation
- Strategic aim: to promote innovation and the translation of science and technology into common practice in the supply chain
- The Catalyst will take innovative ideas from any sector or discipline that demonstrate the potential to advance sustainable intensification of agriculture and deliver economic impact for the UK Agri-Tech industry by tackling domestic or international challenges.

21

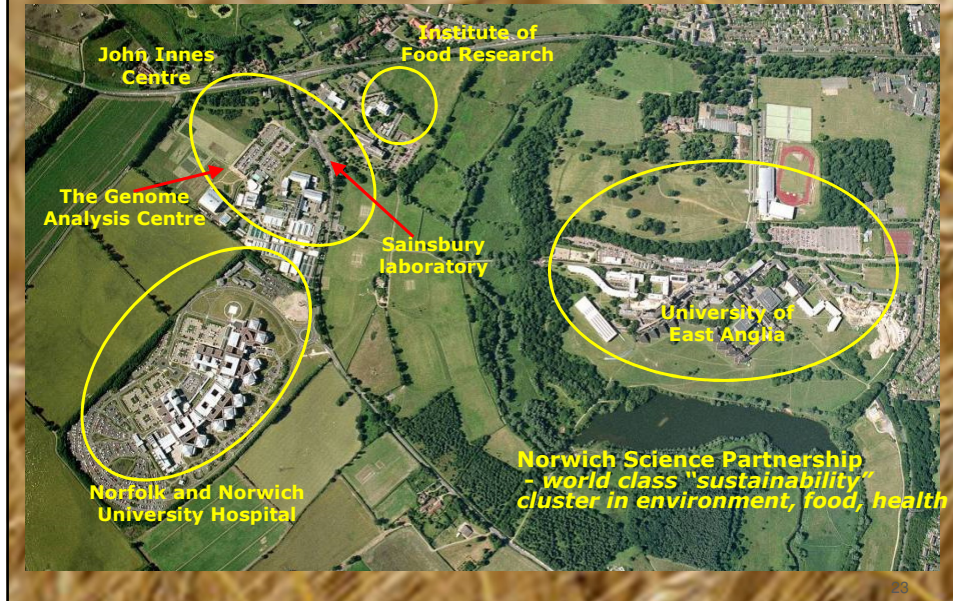
2. Agricultural Innovation 'hubs'

- Investing £90 million in a number of regional / sectoral Agricultural Innovation 'hubs'
 - Virtual / Physical
 - Sectoral / Regional
 - Deep science to near market
- Network of grassroots Hubs for practical farm businesses / Ag Colleges to plug into
- The first Centre for Agricultural Informatics, to establish the UK as a world class centre in agricultural informatics
- Rest will be industry-led / partnered
- Open to bids now



22

Investing in regional clusters



3. Institute of Agricultural Metrics

- Informatics is the collation and application of insights gained from the study of large integrated data sets
- It is starting to deliver benefits across genetics, economics, agronomy, hydrology and soil science.
- The Government will establish a Centre for Agricultural Informatics and Metrics of Sustainability, at an estimated cost of £10 million.
- Creating a global hub of excellence.
- The first of the Centres of Agricultural Innovation.



4. Emerging Markets

DfiD £10m Catalyst for Emerging Market Agri-Tech

FCO / DfiD 'Africa Britain China' (ABC) Partnership

UKTI Agri-Tech Unit
Inward investment
Trade and Export promotion

.....Agri-Tech in the 'Global Race'
.....Strategic alignment of Aid and Trade in emerging markets
.....eg: Kenya / E Africa



The key to success?

Ambitious, skilled, entrepreneurial next generation of new entrants.



27

Agri Tech 1980s-2013: Key Challenges

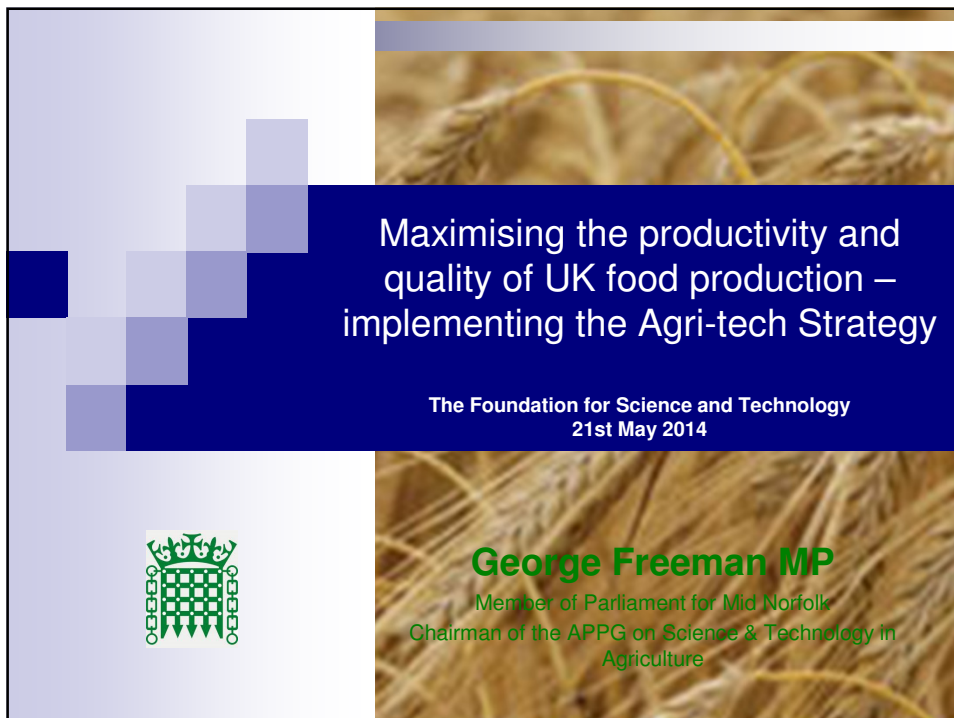
- LACK OF GOVNT RECOGNITION
- LACK OF IND FUNDING FOR R+D
- FRAGMENTED RESEARCH BASE:
 - COMPETITIVE NOT COLLABORATIVE
- OVER-DEPENDENCE ON BBSRC / TSB CORE FUNDING
- LACK OF KEY RES SKILLS
- LACK OF REWARDS FOR IPR / COMMERCIALISATION
- SHORT TERMISM AND LACK OF R+D CULTURE IN FOOD IND
- UK MISSING OUT ON WAVE OF GLOBAL FINANCE FOR AGSCI
- DEFRA V DFID V BIS
- WHITEHALL IGNORANCE OF COMMERCIAL AGRICULTURE SECTOR
- UK MISSING OUT ON HUGE EU FUNDING
- CAP REFORM GOING AWAY FROM INTENSIVE AG SUPPORT
- LACK OF LEADERSHIP (FORUM) IN UK AG SCI POLICY
- POOR TRANSLATION OF AGSCI TO THE FIELD/FARM
 - LACK OF DEMONSTRATION FARMS
- LACK OF INPUT ON RES PRIORITIES FROM INDUSTRY
- IPR LEAKAGE
- EU REGULATION (GM)
- UK FAR TOO PAROCHIAL – LACKS GLOBAL AMBITION / VISION



Priorities for 2014


- Industry leadership and co-investment
- UK leadership in metrics, measurement and evidence based policy
- European regulation
- The UK Centre for Agricultural Metrics
- Demonstrating early wins
 - Inward investment
 - Commercialisation of innovation
- Public and consumer support for 21stC 'progressive farming'

29



Maximising the productivity and quality of UK food production – implementing the Agri-tech Strategy

The Foundation for Science and Technology
21st May 2014



George Freeman MP
Member of Parliament for Mid Norfolk
Chairman of the APPG on Science & Technology in Agriculture