Food Security + Land Research Alliance

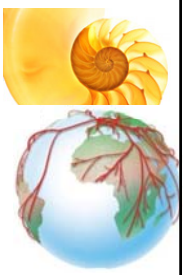
The Challenge: food security & sustainability

Professor Michael Winter OBE

Centre for Rural Policy Research
University of Exeter

The Uniqueness of the Alliance in Addressing current Challenges

- Alliance of Top-Tier Universities and Institutes in the UK
- Unique combination of skills needed (plant pathology, veterinary sciences, agroecology, climate change science, agricultural economics and social sciences)
- Unique training environment
- Multidisciplinary approach



MW1

Alliance Strengths

- Crop Protection (Rothamsted, Bristol, Exeter)
- Crop Breeding (Rothamsted and Bristol)
- Soil Protection and Management (Rothamsted, Bristol, Exeter)
- Water Management (Rothamsted, Bristol, Exeter)
- Ecosystem Services (Rothamsted, Bristol, Exeter)
- Climate Change (Rothamsted, Bristol, Exeter)

Our work on crops is underpinned by:

- Molecular plant pathology research at *Exeter*
- Plant molecular biology at *Bristol*
- Long-term experimental data, sample Archive and eRA database at *Rothamsted*

This is further enhanced by:

- Animal sciences at The Bristol Veterinary School
- Rural social science and humanities spread across Politics, Human Geography, History & English, and the Business School at Exeter
- The Farm Platform at North Wyke

Our Challenge

- Ensuring global food security - one of the biggest challenges facing humanity.
- It can only be achieved by dramatic increases in food availability across the world.
- Requires fundamental research in plant and animal science, sustainable agriculture, land use and ecosystem services.
- Must utilise social science and the humanities in addressing issues of sustainable production and consumption.

Slide 3

MW1 Winter, Michael, 20/10/2011

The issues

- Food price spikes in 2008 and 2011.
- Projected Population increase.
- The Nutrition Transition.
- Increased production of biofuels and other demands on land.
- Pressures on key resources such as oil, water, nitrates, phosphates.
- Soil degradation.
- Climate Change.
- Declining growth in agricultural productivity.

The consequences of not meeting these challenges

- **Unacceptable levels of suffering in the developing world**
- **Political instability in disadvantaged nations**
- **Interrupted energy/raw material supplies**
- **Mass migration**
- **Major shifts in balance of power/influence**

- **So where are we in the UK?**

Average yields of cereals in the UK 1945-2008 (t/ha). (source: Defra)

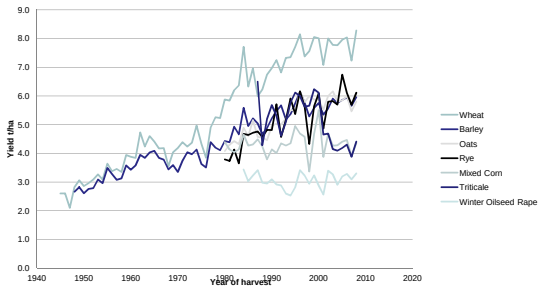
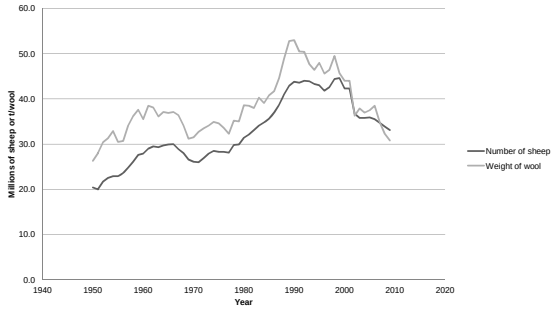
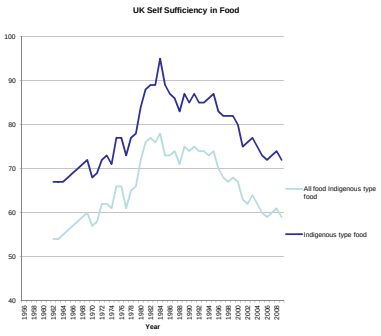


Figure 2. Numbers of sheep in the UK between 1945 and 2008, and the total weight of wool harvested in each year (source Defra and BWMB)





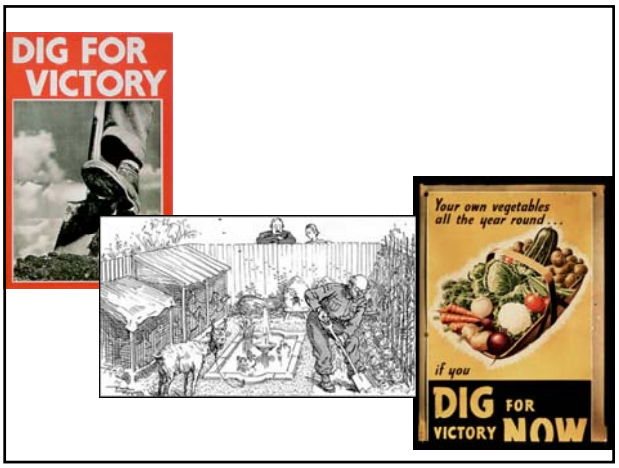
Indicative British self-sufficiency ratios over different periods

Food Security + Land Research Alliance

1750 – 1830s	- around 90-100%
1870s	- around 60%.
1914	- around 40%
1930s	- 30 - 40%
1950s	- 40 - 50%
1980s	- 60 – 70%
2000s	- 60%

Source: Defra (2006) Food Security and the UK: An Evidence and Analysis Paper

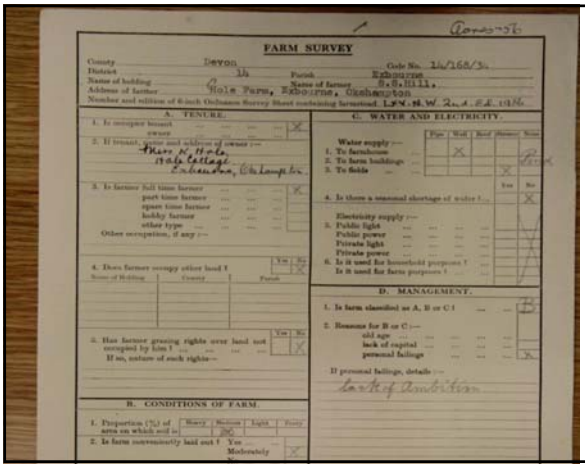
ROTHAMSTED RESEARCH | University of BRISTOL | UNIVERSITY OF EXETER

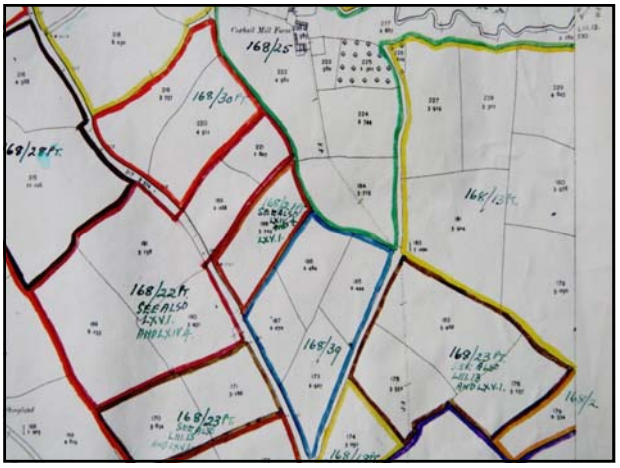


Food Security + Land Research Alliance

- Actually it was less about 'digging' and more about the application of technology and knowledge,
- And a tough, patriotic jurisdiction.

ROTHAMSTED RESEARCH | University of BRISTOL | UNIVERSITY OF EXETER



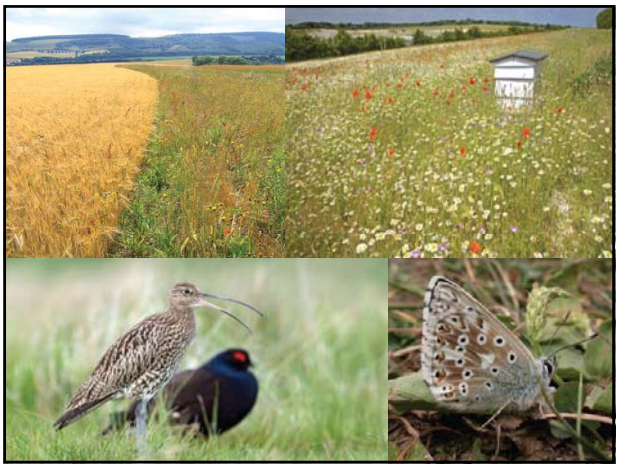


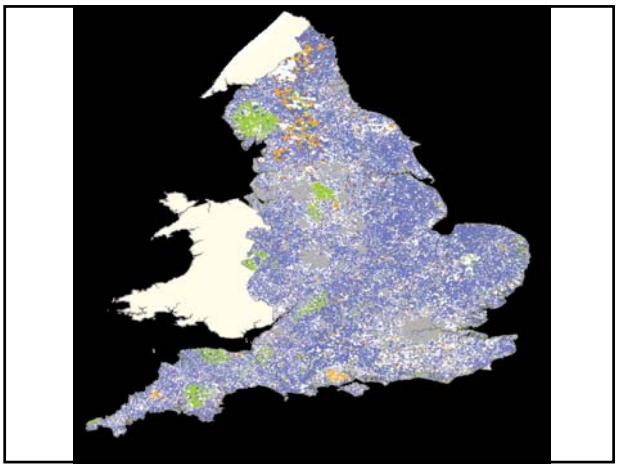
A return to 'dig for victory' ?

Food Security + Land Research Alliance

- Compromised by other pressures on land use, notably energy; by thirty years of a 'consumer countryside'; and by public concerns over biodiversity, climate change, and agro-food sustainability.
- In particular the agri-environmental consensus forged in the 1980s and 90s may be under pressure but it is deep-rooted as seen in current CAP reform process.

ROTHAMSTED RESEARCH | University of BRISTOL | UNIVERSITY OF EXETER





Question marks over a new productivism in the UK

Food Security + Land Research Alliance

- 'Obvious' technological solutions, such as genetic modification, remain contested.
- Organic farming on the backfoot but deeply rooted in our agri-politics.
- The recognition of the importance of Ecosytem Services to human wellbeing.
- Our land occupancy arrangements.

ROTHAMSTED RESEARCH

University of BRISTOL

UNIVERSITY OF EXETER

Where now?

Food Security + Land Research Alliance

- 'Sustainable intensification' is the new mantra – dismissed by some as an oxymorn and embraced by others seeking 'smart solutions'.
- To me there is no alternative to 'SI' – maximising production that does not compromise the environment on some land and maximising other ecosystem services on other land.
- We won't be going back to 'Dig for Victory' but we do need farmers and scientists to work together again in common cause to face the challenges.

UNIVERSITY OF EXETER