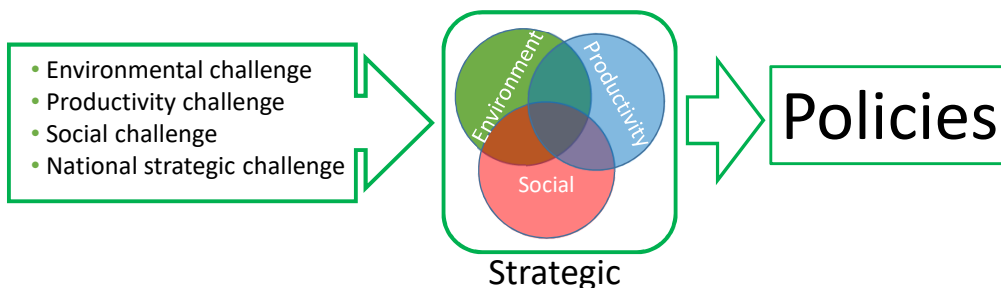



Future of Farming and the Environment

The Foundation for Science and Technology
Ian Boyd, Defra Chief Scientific Adviser

Key challenges for the agricultural sector



Strategic context




Department for Environment Food & Rural Affairs

Health and Harmony: the future for food, farming and the environment in a Green Brexit

February 2018

- Environmental challenge
- Productivity challenge
- Social challenge
- National strategic challenge

- 25 Year Environment Plan
- Future of Food, Farming and Environment Green Paper
- Industrial Strategy
- Clean Growth Strategy
- Resource Efficiency and Waste



The Future Farming and Environment Evidence Compendium

February 2018

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/683972/future-farming-environment-evidence.pdf

The environmental challenge

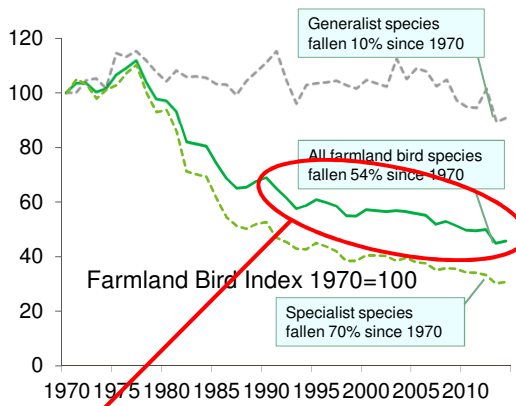
The 25 Year Environment Plan

Objectives:

- Clean air & water
- Thriving wildlife
- Reduced drought and flooding
- Efficient use of natural resources
- Enhance cultural heritage

Deliver:

Optimisation of natural capital stocks and flows



Year	Generalist species	All farmland bird species	Specialist species
1970	100	100	100
1975	105	105	105
1980	100	95	90
1985	105	75	65
1990	100	60	50
1995	105	55	45
2000	100	50	40
2005	105	50	40
2010	100	46	30

Many indicators show significant changes

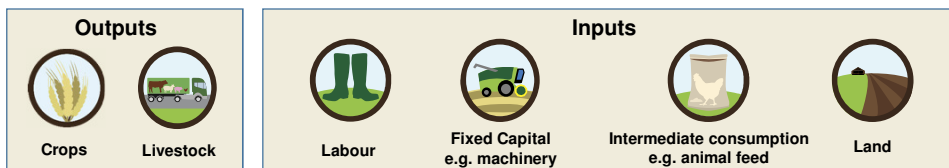
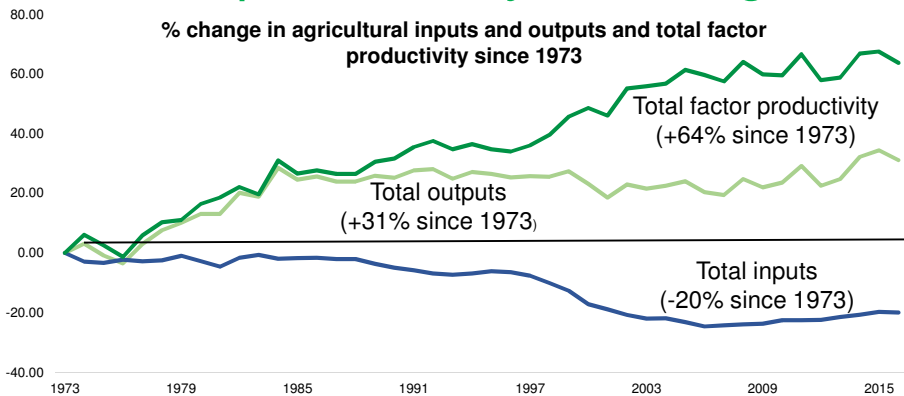
The environmental challenge

Meeting the challenge

- Releasing land (or production intensity) for other functions
 - Carbon sequestration
 - Biodiversity recovery
- Making a step change in food production efficiency
 - Farming is currently <10% efficient in terms of calories
 - 25% of produce wasted
 - Nitrate pollution is damaging
 - Chemical food production (pesticides, AMR)
- Need to re-imagine how we produce food
 - Should not think the future will be like the past
 - Embrace new technologies
 - Zero-waste, zero-emissions farming

Solving many of these also solves many productivity challenges

The productivity challenge

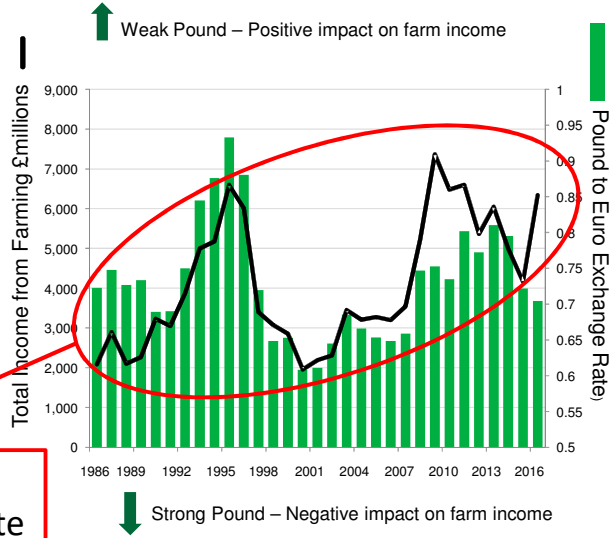


The productivity challenge

Volatility

Volatility

- Exchange Rates
- Direct Payments
- Production
- External shocks



Farm incomes tend to follow Euro exchange rate

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The social challenge

Farm incomes/profits (England)

Key

- Direct Payments
- Diversification
- Agri-environment
- Agriculture

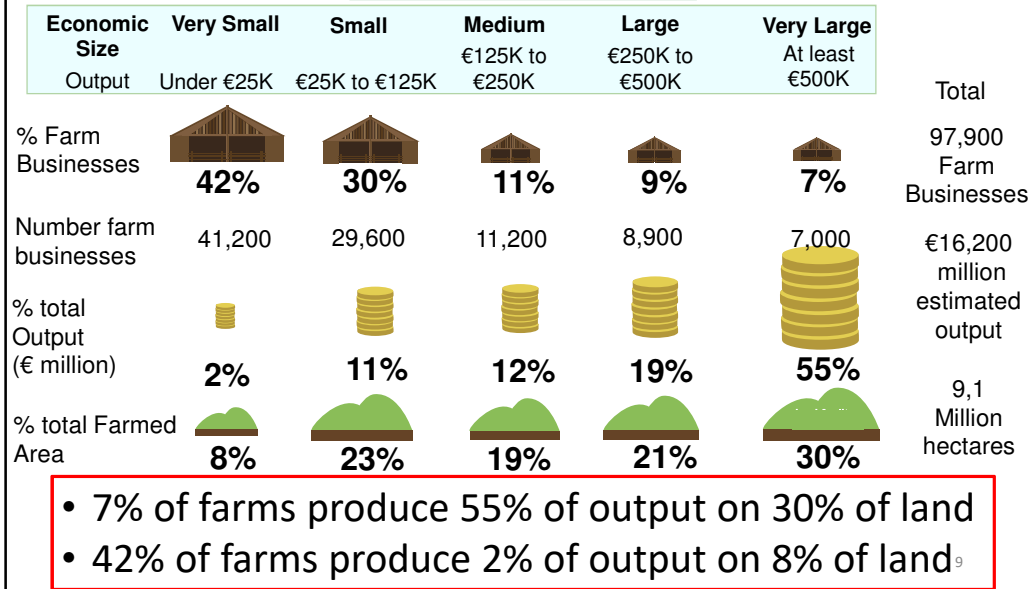


- Large number of farms lose money from agriculture
- Poor performers depend on direct payments

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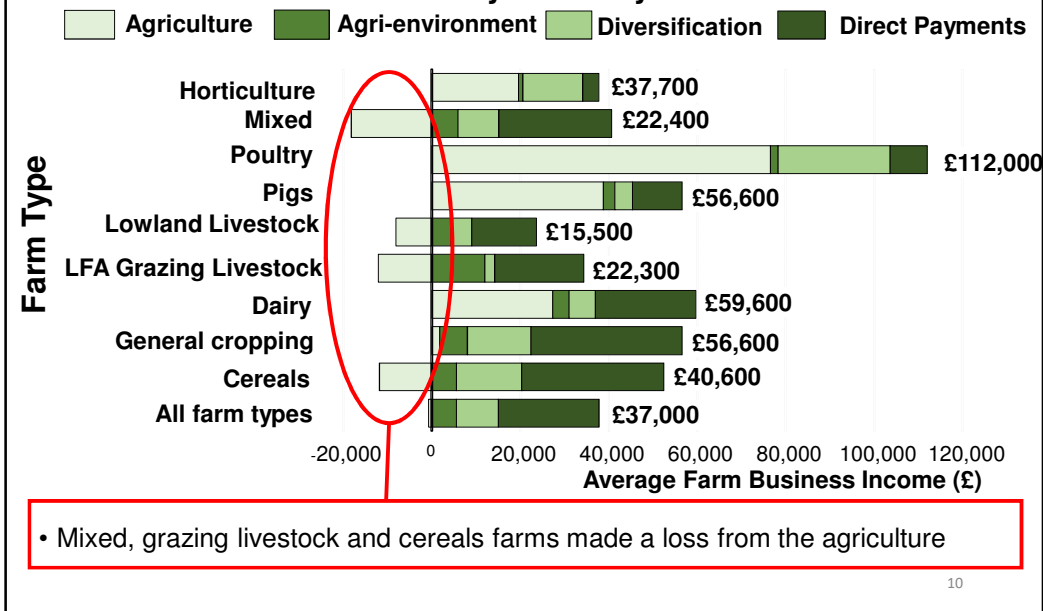
The productivity challenge

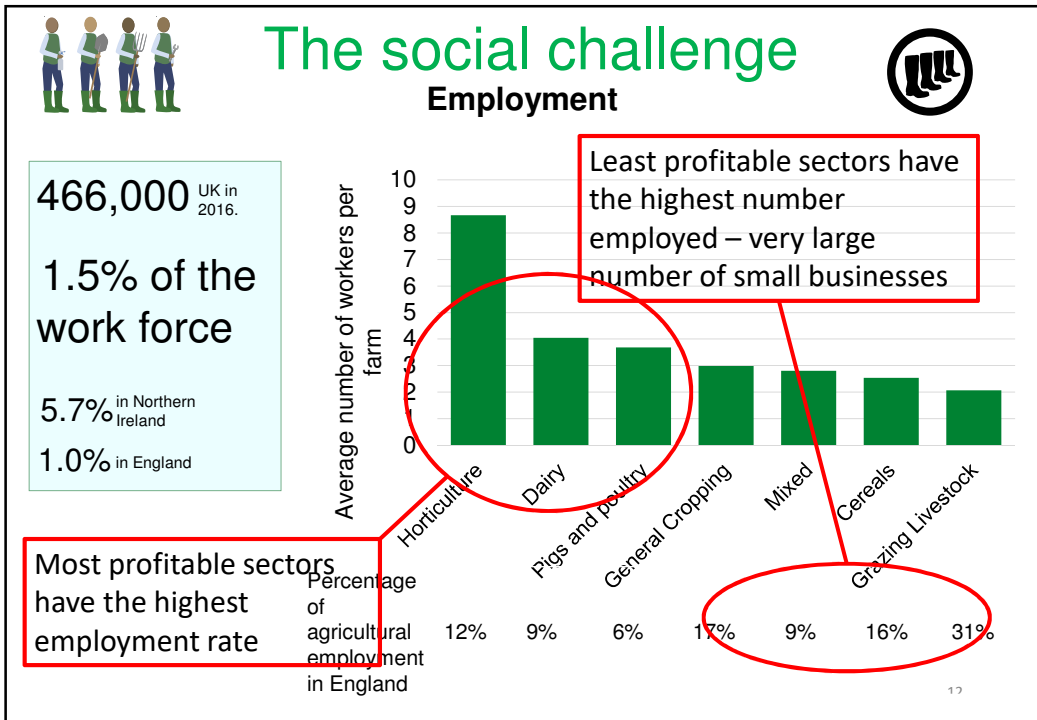
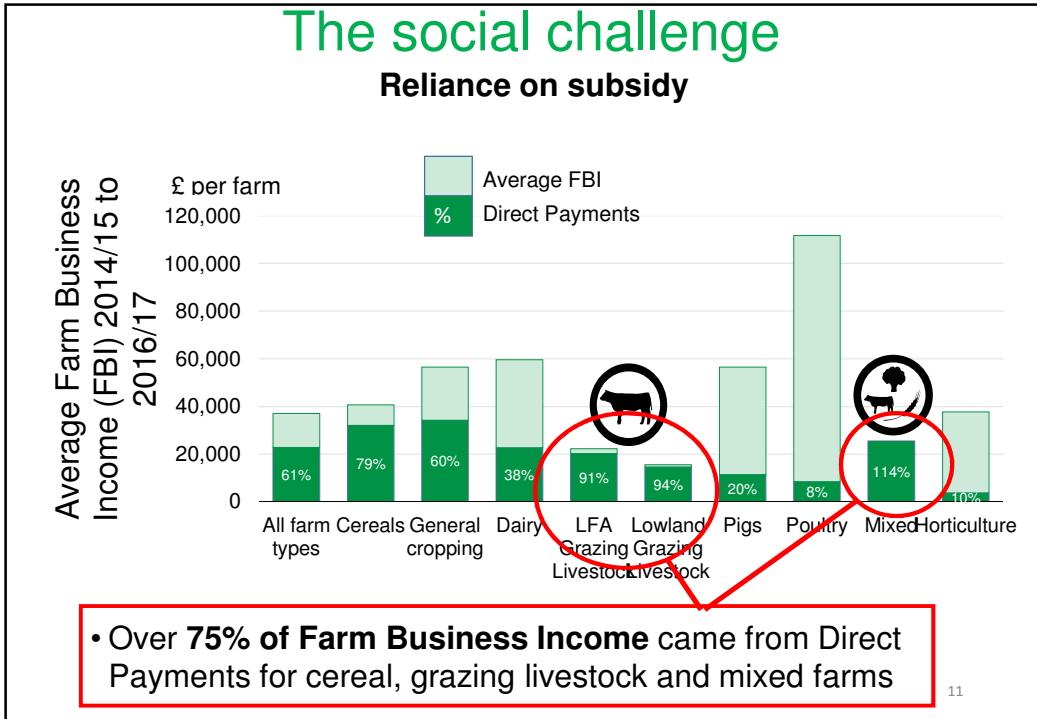
Performance by size

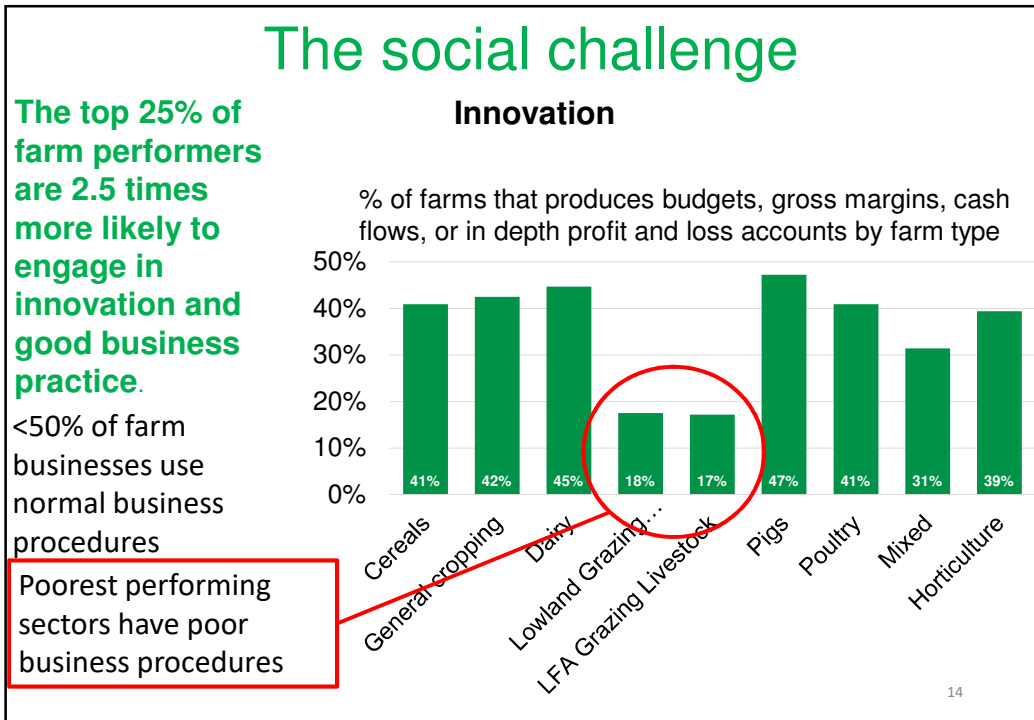
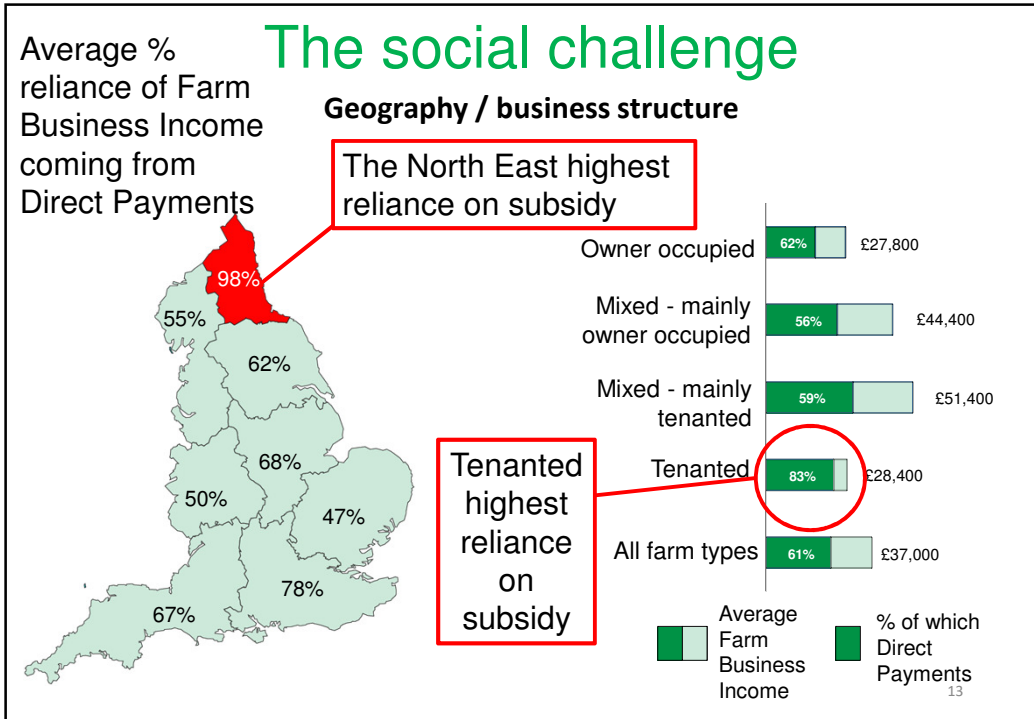


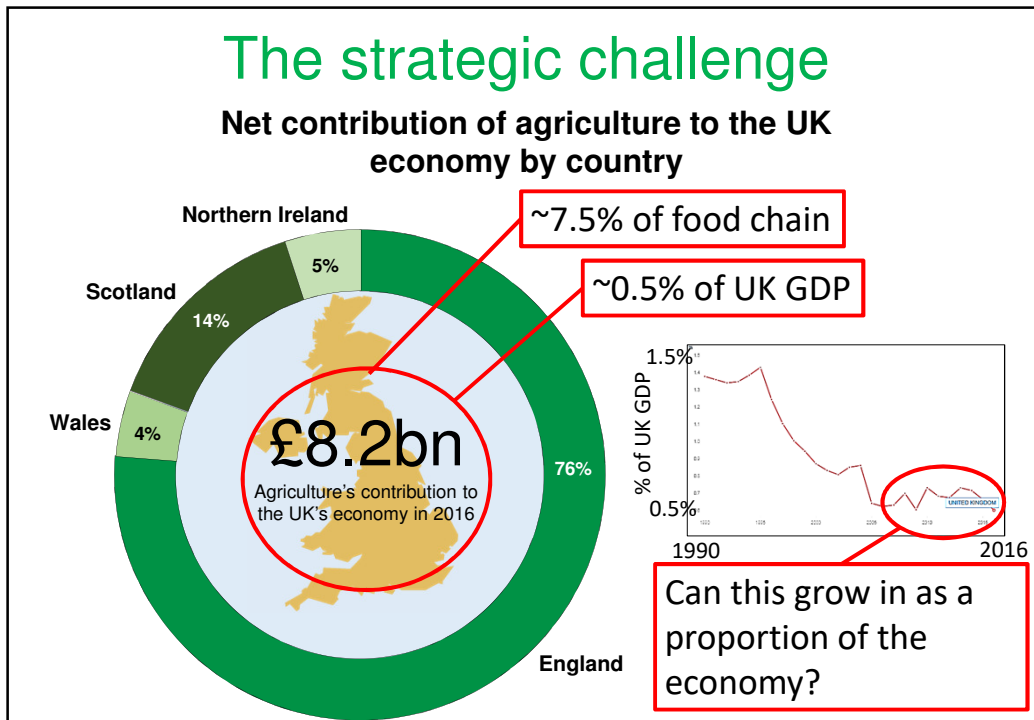
The social challenge

Profitability varies by sector









The strategic challenge

Reliance on global markets

- About 50% of our food is imported
- **Decisions made in the UK are not internalised** (exporting our problems)



Reliance on subsidy

- Significant parts of UK farming are inefficient (economically and environmentally)
- Innovation is low and patchily distributed

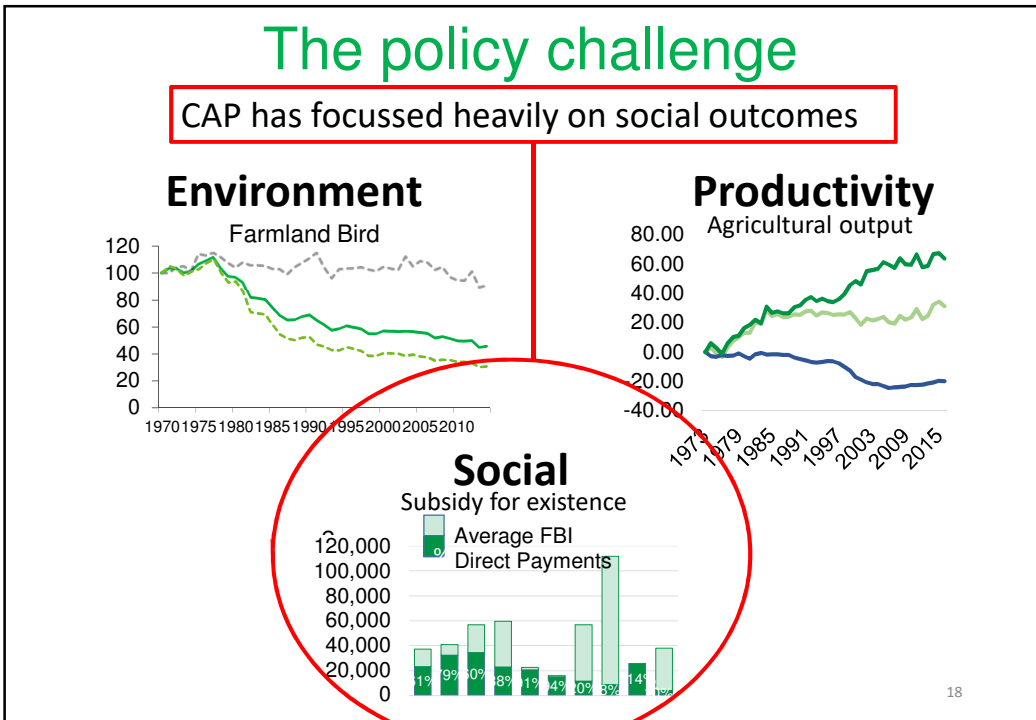
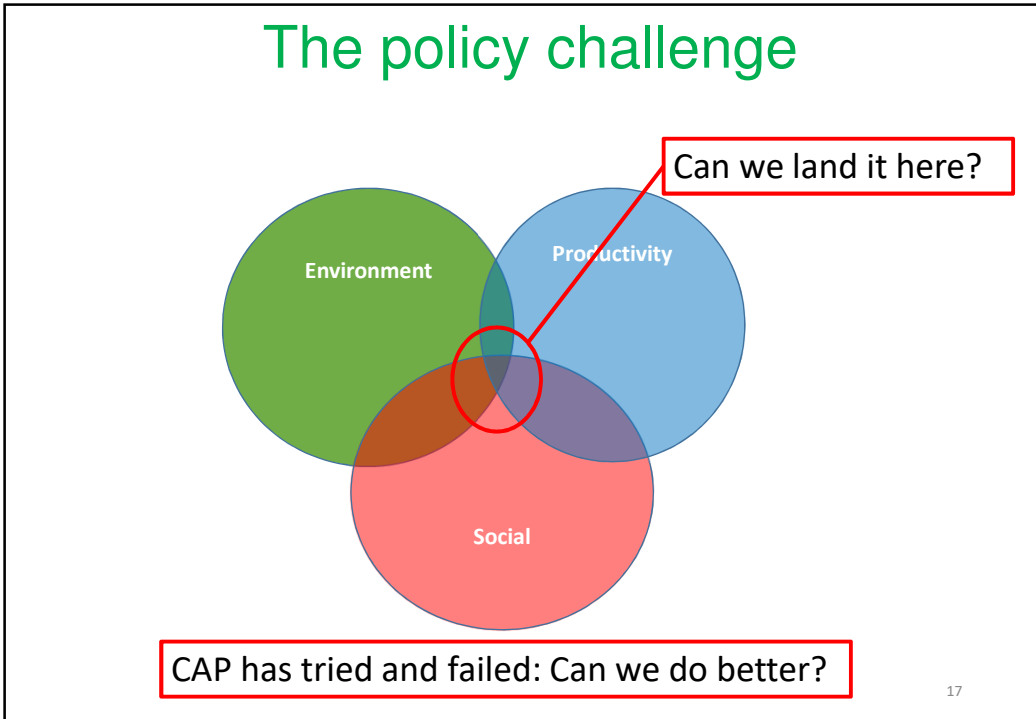


Incompatible stakeholder expectations

- Not everybody will be able to have what they want
- How to compensate for losses?
- Defining "**Public money for public goods**"



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The policy challenge

What is likely to work?

- Clear, and balanced, objectives consistent at all scales
- Transition over time to allow social/structural adaptation
- Preparedness to make hard choices
- A system of support which is sensitive to:
 - Sector ambition
 - Geography/region
- Measures of success which reflect the policy objectives
- Reward for outcomes

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