

# HOW DO WE GET THE R&D WE NEED, NOT THE R&D PEOPLE WANT TO DO?

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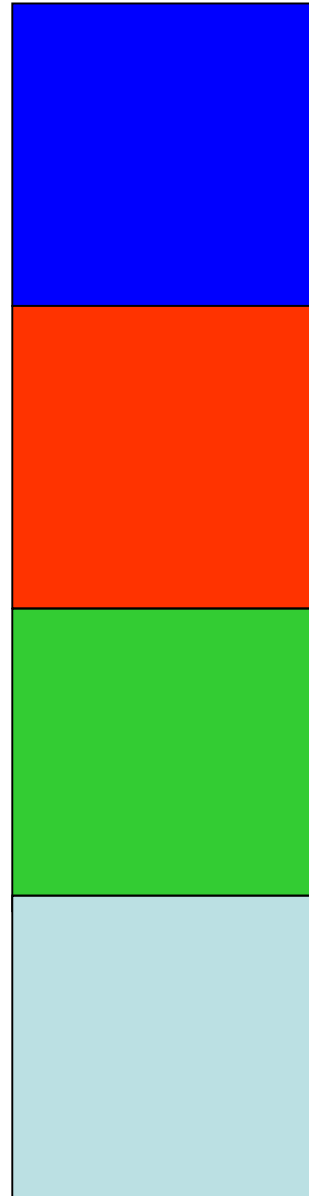
# **SYNOPSIS**

- **Current Position (and how we got there)**
- **New Challenges for Funders & Providers**
- **Promoting the Voice of Producers:**
  - **Proposals**
  - **Recommendations**
  - **Next Steps**
- **Science, Evidence and Policy**

# WHAT DO WE NEED?

- **Excellent basic science (science push)**
- **Smooth bi-directional flow of information and expertise to drive strategic and applied research and to generate options for basic research**
- **Effective mechanisms to use products of R&D within the industry (industry pull)**
- **Strategic overview that defines the broad “direction of travel” without constraining innovation**

# 1970-1980, The Garden Of Eden?



**Basic Research (AFRC)**

**Strategic Research  
(AFRC, MAFF, Industry)**

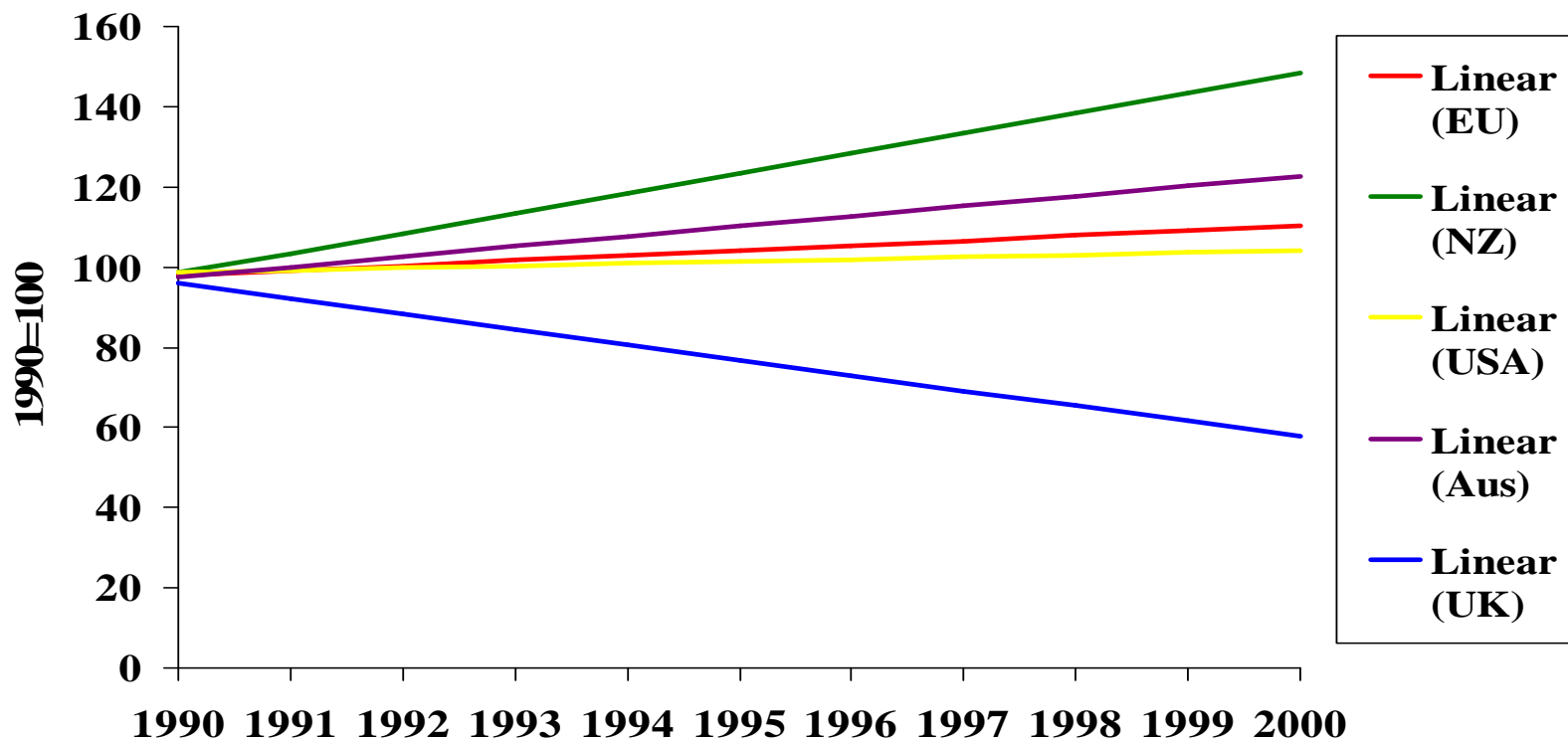
**Applied R &D, Development  
and Extension (ADAS, Levy  
Boards, Industry)**

**Outputs (more food, lower costs,  
more CAP support payments)**

# **ADVANTAGES AND DISADVANTAGES**

- **Large increases in productivity across all sectors**
- **More labour-efficient enterprises**
- **Security of supply**
- **Improvement in quality**
- **Reductions in cost for consumers**
- **Only productivity targeted**
- **Significant environmental impact**
- **Resource use efficiency declined**
- **Profit moved away from primary producers**
- **Rural life changed markedly**
- **Political clout of farmers reduced**
- **Loss of public sympathy because of surpluses**

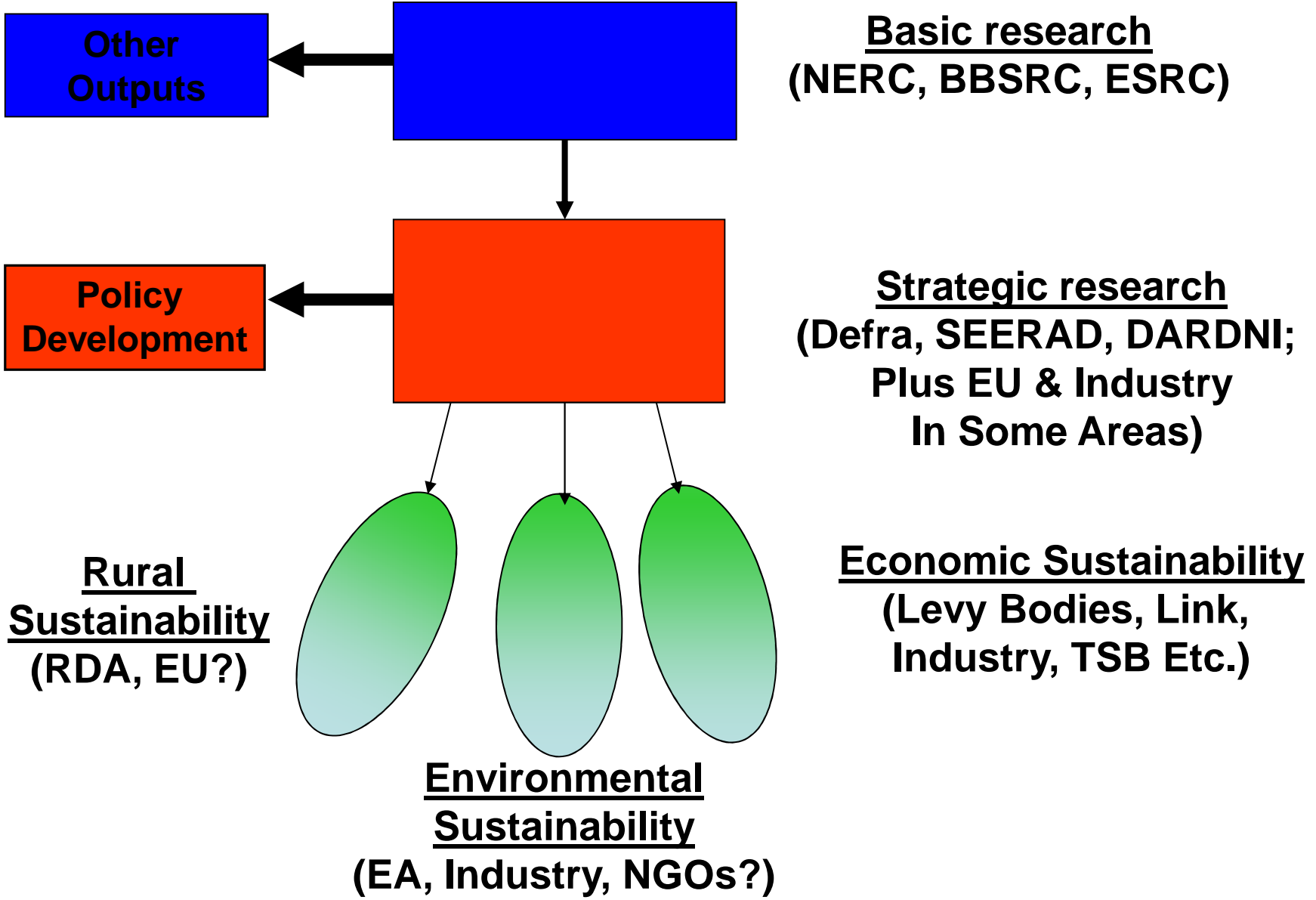
# FARM INCOMES - A GLOBAL ANALYSIS



SOURCE: DEFRA, EUROSTAT, USDA,  
ECONMAGIC.COM, NZ MAF.

HSBC   
The world's local bank

# THE R&D LANDSCAPE AT THE MILLENIUM



# **ADVANTAGES AND DISADVANTAGES**

- **Greater awareness of importance of “sustainability”**
- **More attention paid to whole systems and to cross-disciplinary research**
- **Increased emphasis on input efficiency**
- **“New Biology” provided new opportunities**
- **Funding reductions**
- **Decline in emphasis on science for precision management**
- **Fragmentation of extension services**
- **Levy Bodies increasingly emphasised short-term sectoral issues**
- **Broader RC remits led to loss of skills and of awareness of strategic issues by basic scientists**



# **THE DRIVERS FOR CHANGE SINCE 2000**

- **Foresight:**
  - **Increased demand**
  - **Climate Change**
  - **Need to mitigate environmental damage**
- **Increased competition for land**
- **Legislative and consumer pressures**
- **“The Impact Agenda”**
- **New business opportunities**

**THE ROYAL SOCIETY TALKS ABOUT  
'SUSTAINABLE INTENSIFICATION'**

**FARMERS AND LAND MANAGERS WILL  
DELIVER THIS, NOT POLITICIANS AND  
RESEARCHERS**

**WHAT CHANGES ARE NEEDED IN  
ORDER TO PROMOTE THIS GOAL?**

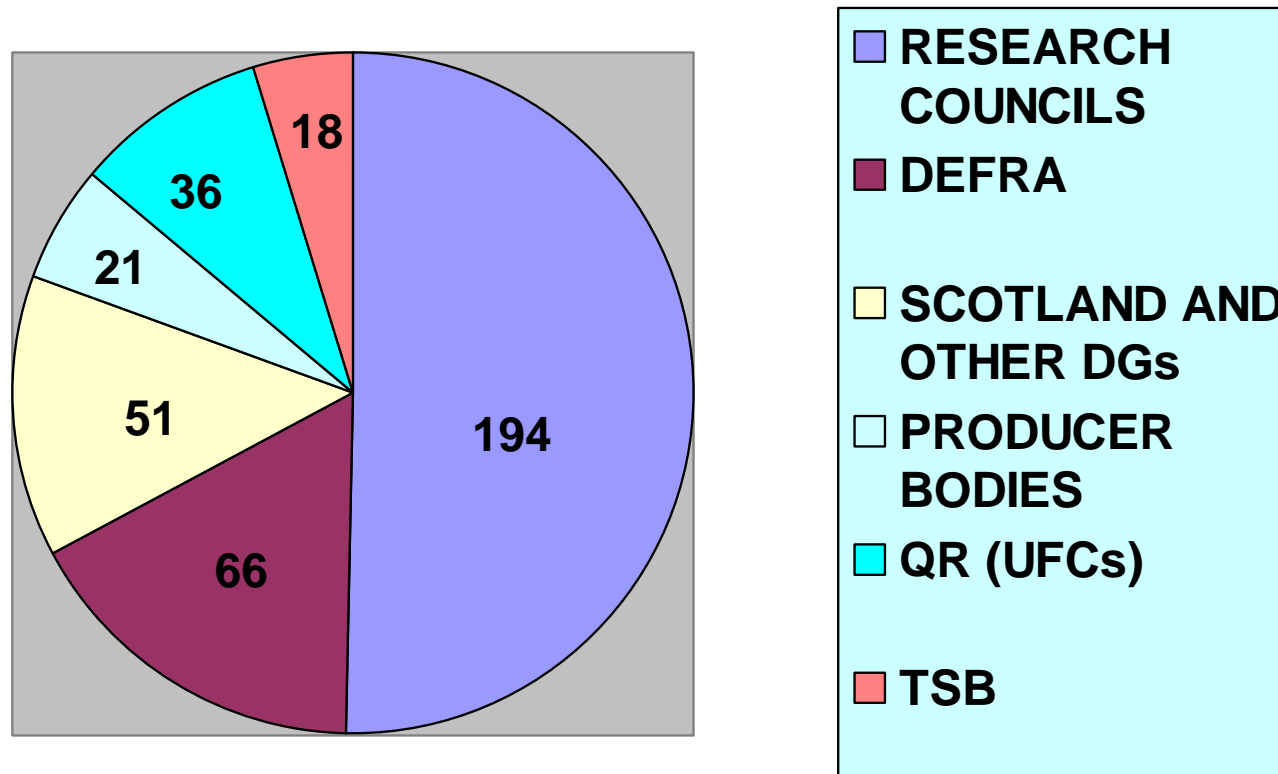
# **DO WE NOW HAVE THE R&D BASE TO SUPPORT 21<sup>ST</sup> CENTURY AGRICULTURE?**

- **Priority area for BBSRC**
- **Relevant spend by NERC, EPSRC**
- **TSB now involved in commissioning strategic/enabling research**
- **AHDB formed**

**HOWEVER, WE NEED TO REPAIR AND RE-DIRECT THE R&D “PIPELINE”**

# ARE WE MAKING THE BEST USE OF EXISTING FUNDING?

Distribution of the annual spend on UK agricultural and related research by UK agencies. The total is ca £M386.



# CHALLENGES

- **Imbalance between basic, strategic and applied funding**
- **Basic funding and Funding Council support also about maintaining research excellence across a range of disciplines**
- **Lack of cohesion between different funders relating to objectives, timescales, deliverables and knowledge transfer.**

# **ADDRESSING THE CHALLENGES**

- **Need for change widely recognised  
Post-Foresight**
- **A number of reviews, studies and reports emphasised the need to “reinforce the delivery pipeline”**
- **The Joint Commissioning Group was established in 2011 to develop a ‘Producer View’ of priorities**

# BRIEF

- To add value to and support existing activity by building on existing sector R&D strategies to develop an overarching strategy for primary food production by :-
- *Identifying key cross-sector priorities*
- *Identifying the current impediments to achieving these*
- *Highlighting the industry's current 'Knowledge Gaps', 'Capacity Gaps' and 'Technology, Product & Service gaps'*

**The aim is to help the Industry meet the mid-century challenges identified by Foresight**

# WORKING METHODS

- A series of sectoral and cross-cutting workshops held during 2012, together with additional directed consultations
- The outputs were provided to an Editor who used them to develop a set of *Key Priorities* and *Researchable Issues* that were producer-focused, generic and long-term
- These were refined by discussion within the group and elsewhere
- There were also *Recommendations* and identification of *Next Steps* intended to facilitate delivery



# RESEARCH PRIORITIES

- 1. Utilisation of modern technologies to improve the precision and efficiency of key agricultural management practices.**
- 2. Apply modern genetic and breeding approaches to improve the quality, sustainability, resilience and profitability of crops and farm animals.**
- 3. Use systems-based approaches to understand better and manage interactions between soil, water and crop /animal processes.**
- 4. Develop integrated approaches to the effective management of crop and animal pests & diseases within farming systems.**
- 5. Develop evidence-based approaches to value ecosystem service delivery by land users and incorporate these approaches into effective decision support systems at the enterprise or grouped enterprise level.**
- 6. Extend the training and professional development of researchers, practitioners and advisors to promote delivery of the targets above.**
- 7. Improve the use of social and economic science to promote development, uptake and use of sustainable, resilient and profitable agricultural practice that can deliver affordable, safe and high-quality products.**

# **‘BIG TICKET’ ISSUES**

- **Importance of engineering solutions for precision agriculture**
- **Importance of systems-based approaches to minimising “footprint”**
- **Throughout the pipeline a need to “upskill” as well as deliver new knowledge and products**
- **Need to involve social and economic science to maximise impact**

# **RECOMMENDATIONS TO IMPROVE DELIVERY**

- **Levy bodies must build on recent developments by basic and strategic funders to deliver effective research partnerships**
- **Levy bodies and other funders need to develop better understanding of each other's strategies**
- **Government Departments should continue to develop a common approach to promoting innovation within the land-based sector**
- **Funders of basic and strategic research should consider how to develop capacity in both new and existing key skills and how to deliver impact across the industry**

# WHAT NEXT?

- **Consultation on the draft report until 31 Jan 2013; final report to be presented in Spring 2013**  
<http://www.FeedingtheFuture.info/Consultation>
- **Emerging Findings to be used as basis for responses to BIS and to GO Science for their concurrent reviews**
- **Dialogue between 'Interested Parties' to be continued, focussing on the report recommendations**

# **SCIENCE, EVIDENCE AND POLICY**

**DOES R&D PLAY AN  
APPROPRIATE ROLE IN  
FRAMING POLICY?**

# THE UK IS COMMITTED TO EVIDENCE-BASED POLICY

- Government departments commission independent R&D to inform policy implementation and to monitor change
- UK has a wide range of independent scientific advisory committees
- Process is monitored internally (GO Science) and externally (Royal Society and others)

## However:

- Evidence-based policy implementation is not the same as evidence-based policy development
- Europe, not UK is the origin of most current “land and water use” legislation
- Considerable uncertainty in Europe about what regulation is for; management of risk or management of risk perception.

# **THE FORESIGHT PROCESS: A WAY FORWARD?**

- **10-20 year Horizon**
- **Topic-defined (e.g. Food Security; Land Use)**
- **Very wide pool of experts consulted; central co-ordinating committee, lots of challenge**
- **Operation independent of Government**
- **All outputs published; very evidence-based**
- **How can we promote the process within Europe to influence future policy?**

# CONCLUSIONS

- **R&D is an integral part of a successful land use sector**
- **Despite many challenges, “production-oriented” R&D remains alive but needs to be managed more effectively**
- **A co-ordinated “producer voice” needs to be deployed more effectively to help drive the agenda**
- **Production R&D does not yet integrate well with R&D on environmental and social issues**
- **I have significant worries that the European policy environment is and will remain a barrier to progress**
- **Is this the next “crusade” for science?**