

# IBERS ABERYSTWYTH

Institute of Biological, Environmental and Rural Sciences



# IBERS

Sefydliad y Gwyddorau Biolegol, Amgylcheddol a Gwledig  
Institute of Biological, Environmental and Rural Sciences

- Largest agricultural department in UK
  - > 300 staff
  - > 1200 students
  - £24M income (£17M for Research)
- Outcome based structure focusing on delivering holistic solutions to the global grand challenges:
  - ✓ Living with climate change
  - ✓ Renewable energy
  - ✓ Global food and water security
  - ✓ Animal and plant diseases

## Capital Spend Key Facts and Figures

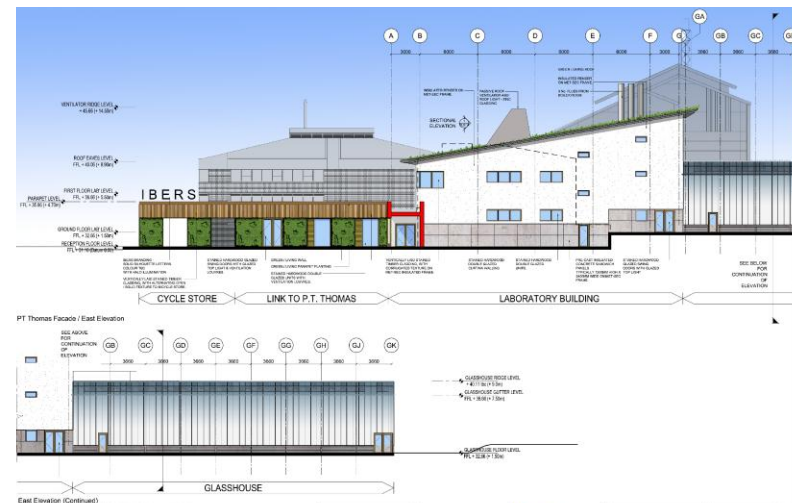
**Penglais** new Build –completion November 2011 £6.0m

**Penglais** refurbishment –completed June 2010 £0.8m

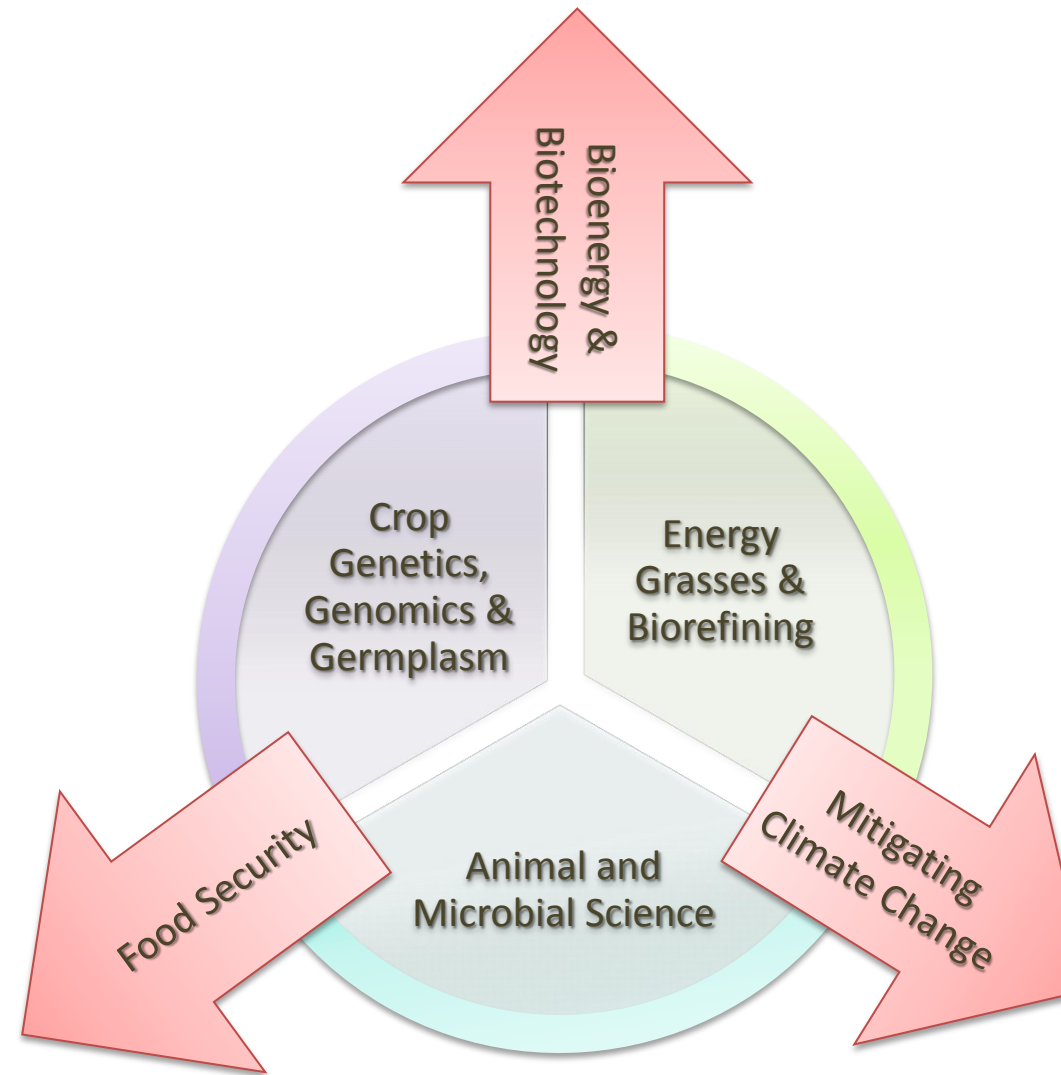
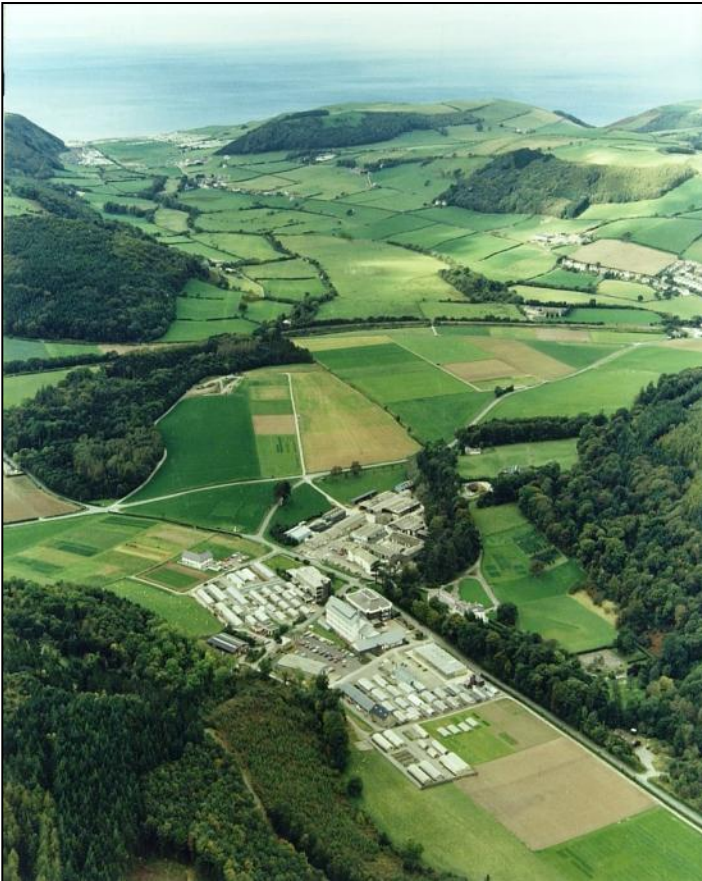
**Gogerddan** new Build –Decemeber July 2011 £9.0m

**Farms redevelopment** – on-going £2m

**Capital equipment** - £5 m







**World Class Sustainable Land Use Centre**

# Plant Breeding at IBERS

- Grasses -perennial ryegrass( Italian ryegrass, hybrids)
- White and red clover
- Oats
- (lupins)





# Phenomics

- Conveyor based system delivering radio-tagged plants automatically to state-of-the-art imaging stations controlled by high capacity computing equipment





# Biorenewables & Environmental Change



Miscanthus

Laboratories

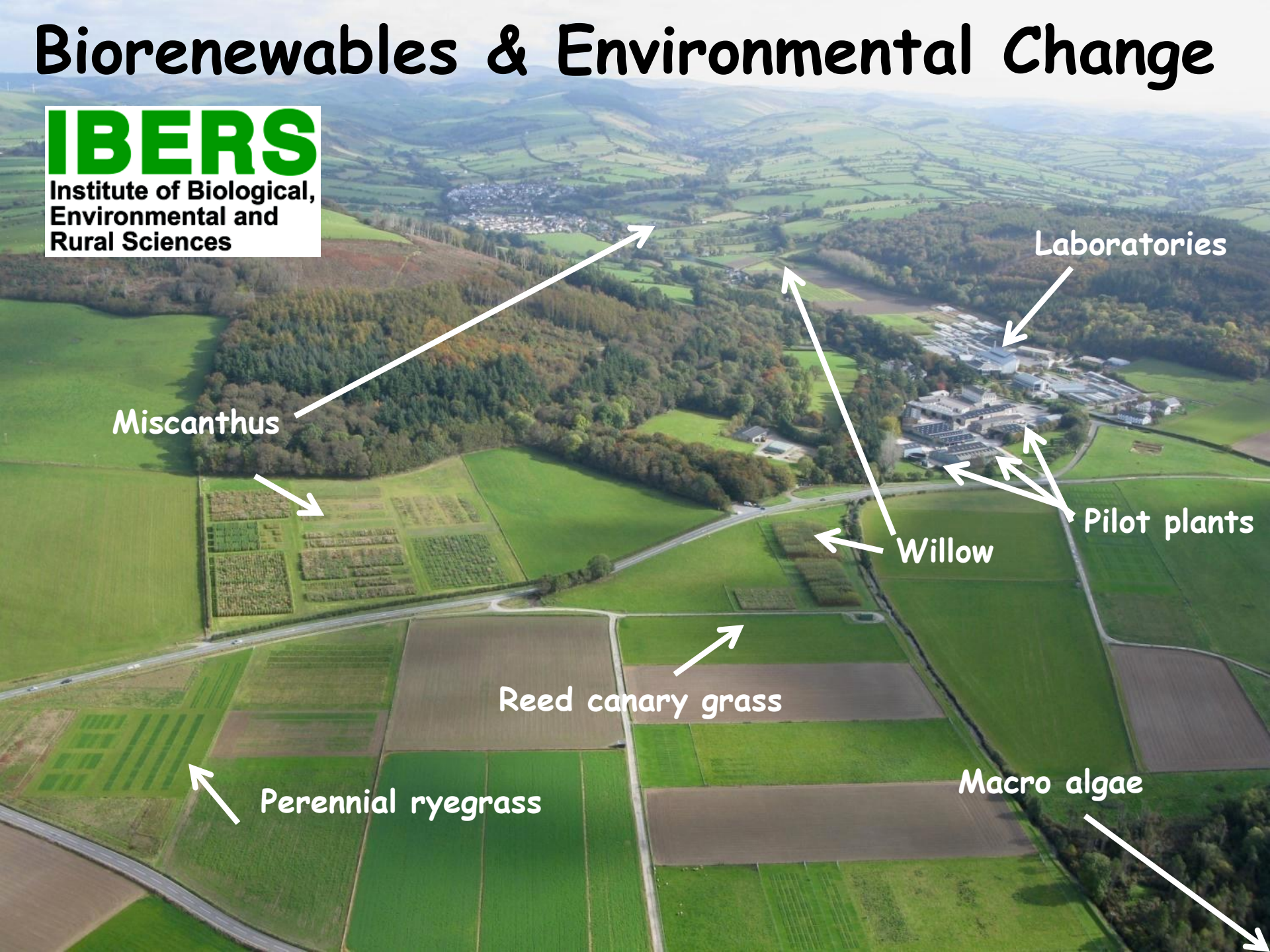
Pilot plants

Willow

Reed canary grass

Perennial ryegrass

Macro algae



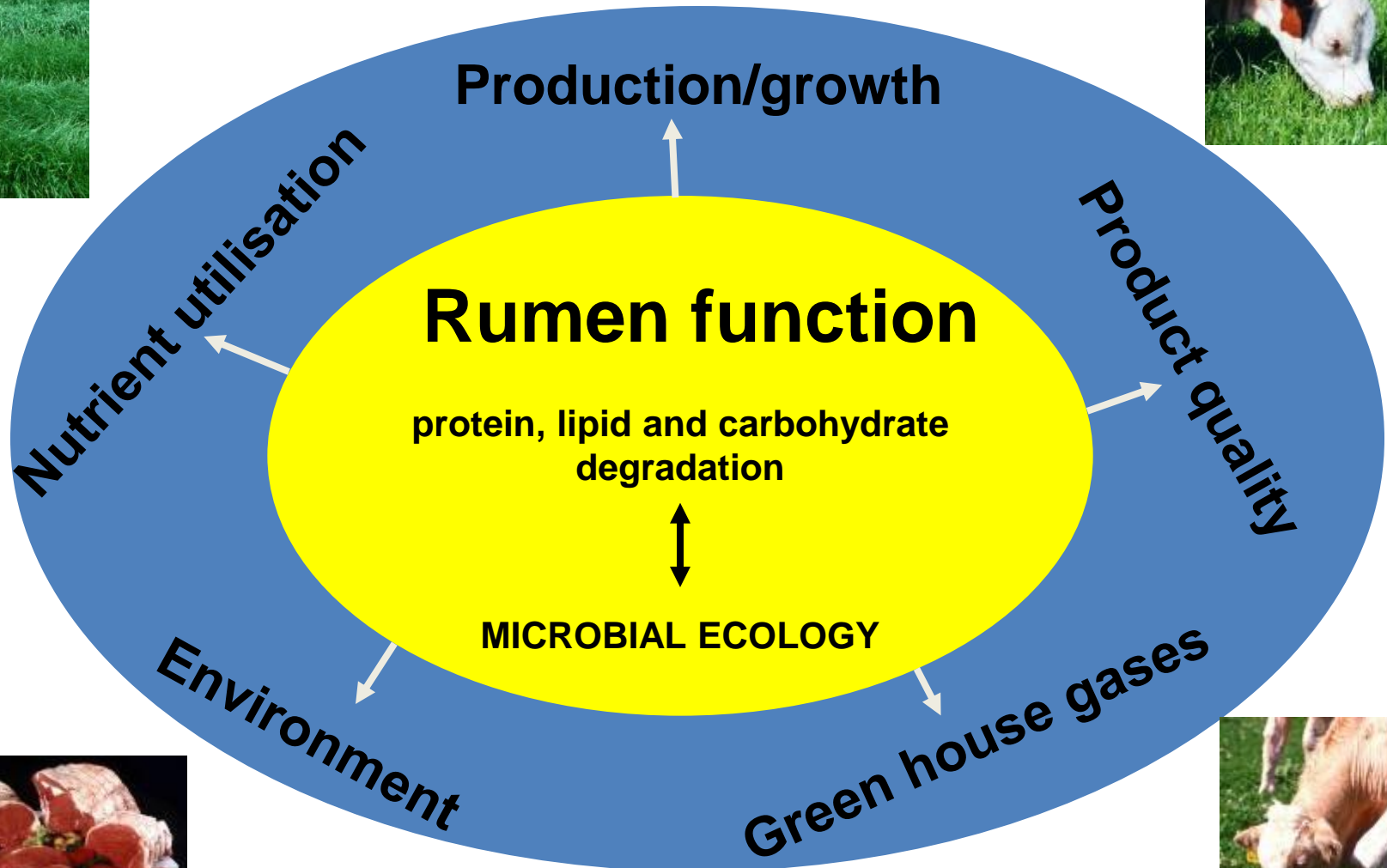


# Development of Biorefineries to increase value in the energy chain





# Animal Science IBERS



*emphasis on innovation, competitiveness and consumer orientation*



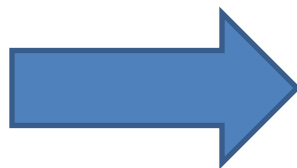


$N_2O$

$CH_4$



# Project AC0115 – Development of the national inventory: Methane



Smarter GHG inventories:

- Emission factors for cattle, sheep and manures
- Allow tracking of UK policy implementation
- UNFCCC reporting
- Chamber studies, SF<sub>6</sub> and novel assessment technologies



Llywodraeth Cynulliad Cymru  
Welsh Assembly Government



The Scottish Government  
Riaghaltas na h-Alba

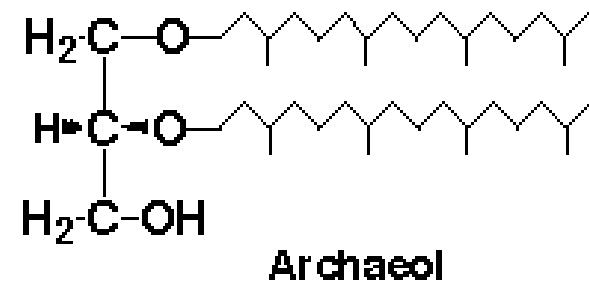
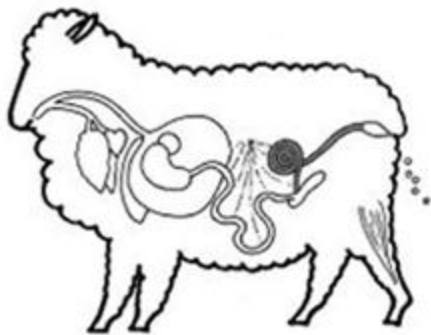


Department of  
Agriculture and  
Rural Development  
[www.dardni.gov.uk](http://www.dardni.gov.uk)









# LINK: Plant Breeding, HSG



Diet protein (N)

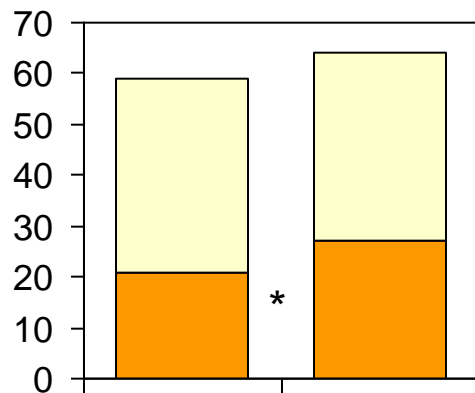
Milk N 

Urine N 

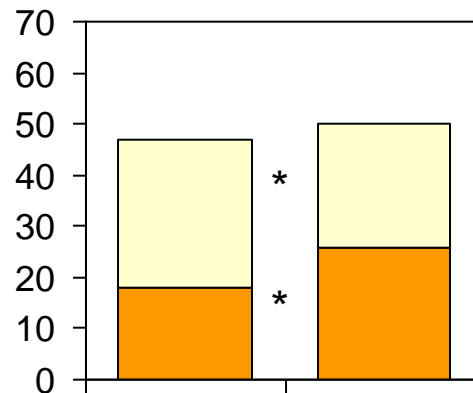
Faeces N

Body N (muscle)

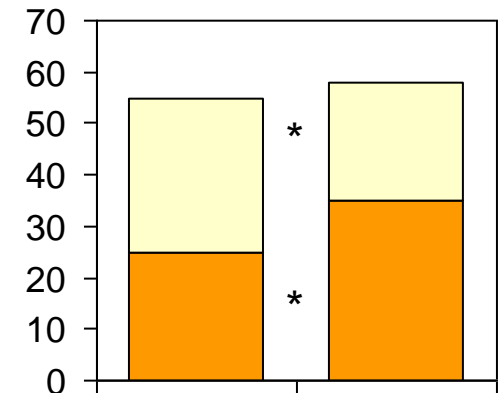
Percent of diet N



HS Control  
Early



HS Control  
Mid  
Stage of Lactation



HS Control  
Late

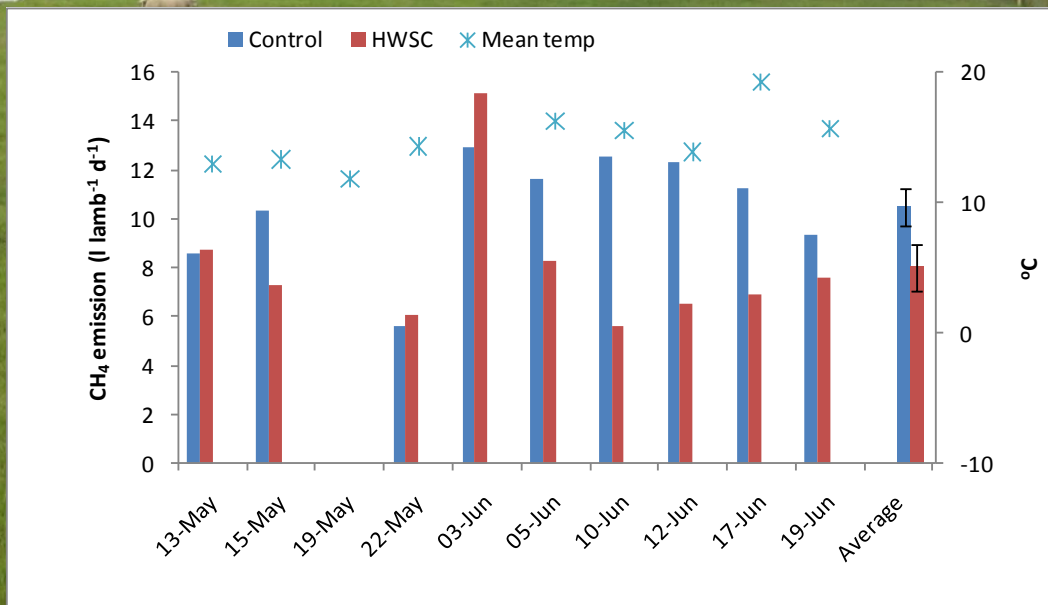




# Live weight gain (g/d)

Control	106
HWSC	153

c. 20% reduction in  
emission per lamb





# An integration of mitigation and adaptation options for sustainable livestock production under climate change

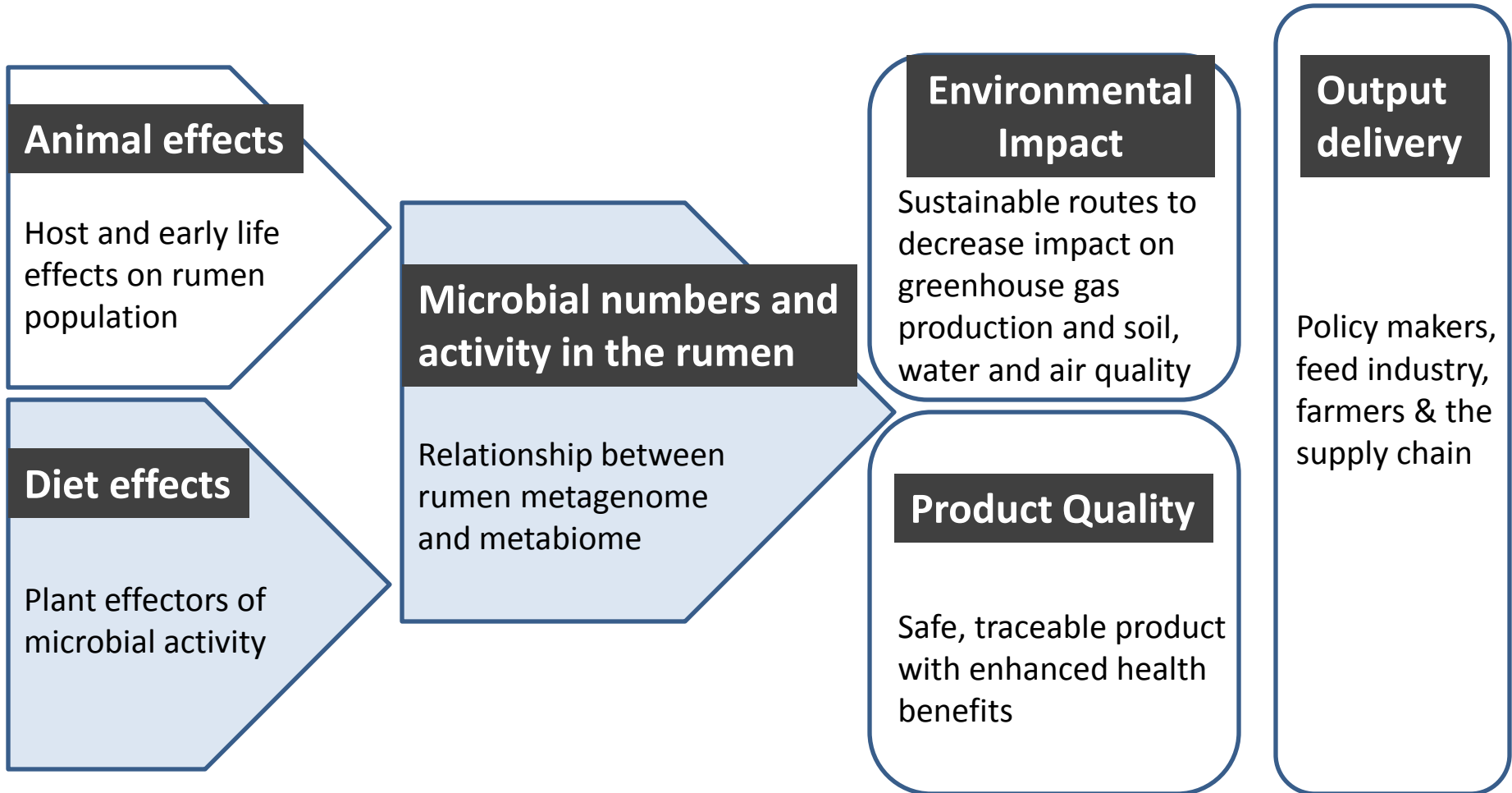
## European Research Institutes/Universities



- Institut National de la Recherche Agronomique – (France)
- Aarhus University (Denmark)
- Irish Agriculture and Food Development Authority (Ireland)
- Universidad Politécnica de Madrid (Spain)
- Aberystwyth University - Institute of Biological, Environmental and Rural Science (United Kingdom)
- Stichting Dienst Landbouwkundig Onderzoek (The Netherlands)
- Institute of Botany and Ecophysiology, Szent Istvan University (Hungary)
- Centre de coopération internationale en recherche agronomique pour le développement (France)
- Federal Department of Economic Affairs - Agroscope Swiss Federal Research Station (Switzerland)
- Scottish Agricultural College (United Kingdom)
- Commissariat à l'Énergie Atomique (France)
- International Institute for Applied Systems Analysis (Austria)
- INRA Transfert (France)



# Animal and Microbial Sciences



# Linking pastoral based systems to rumen microbiology & host genomics

