Improving the sustainability of the Livestock sector

Meeting the challenges in animal health and welfare

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Changing Landscape

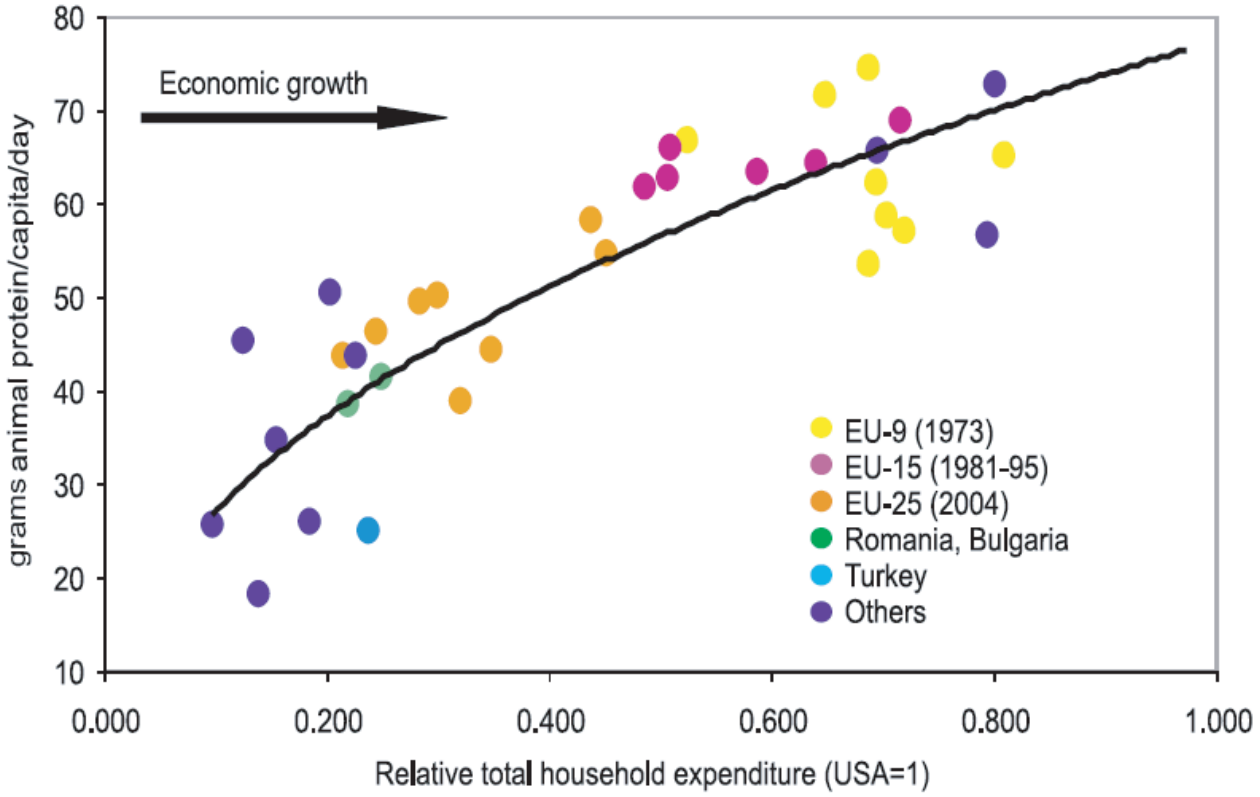
(from Feeding Britain, Bridge and Johnson (Eds.), 2009)

At the global level, long-term population growth, economic growth in key emerging economies, changing dietary patterns, finite land availability, climate change, the continuing availability of key resources (notably water), the energy challenge (including the competition between crops for biofuels and food), and a slowdown in the rate of increase of food productivity and level of food stocks all point to the simple fact that we can no longer take food for granted.

- Rising incomes also bring about a broad shift in diets, from ones based on carbohydrates to ones with a higher protein content.

Impact of economic growth on protein consumption

(from European Lifestyles and Marine Ecosystems, Langmead and McQuatters-Gollop (Eds.), 2007)



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Report from a UK think-tank on food security

(from Feeding Britain, Bridge and Johnson (Eds.), 2009)

To feed 9 billion people by 2050 while taking action on climate change:

- There is a need for greater skills as the industry becomes more high-tech;
- Need improved levels of knowledge transfer and R&D;
- GM can not be avoided;
- The supply chain needs to be made more efficient.

Factors contributing to new animal health and welfare challenges

- Increasing demand for protein
- Globalisation
- Changing farming practices
- New farmed species and new breeds
- Consumer health and expectations
- Climate change
- Regulations
- Removal of subsidies

Health

- Existing disease challenges/endemic diseases
- Re-emerging diseases
- New diseases

Disease reduces production efficiency, increasing the environmental footprint of livestock products

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Existing disease challenges/endemic diseases

- Dairy sector
  - Mastitis, lameness, infertility
    - the incidence of mastitis was approximately 71 cases per 100 cows per year. This incidence rate, on a national basis, is equivalent to a loss of UK milk supply of around 250 million litres a year, assuming all other factors remain constant.
    - The ideal calving interval is 365 days; however, data suggests that the average is nearer 419 days. If this slippage, which costs on average £2.50 per day per cow, were reversed, annual yield per cow would be improved by 7% while reducing cow replacement rates.

Existing disease challenges/endemic diseases

- Beef sector
  - BVD, Johne's disease, respiratory diseases of calves
- Small ruminants
  - Parasites, abortion,
- Pigs
  - Gut health, respiratory disease, piglet mortality, lameness
- Poultry sector
  - Mareks disease, Infectious bronchitis, coccidiosis/gut health, salmonella, campylobacter

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Existing disease challenges/endemic diseases

- Many of the health problems reducing production are complex multi-factorial syndromes – no single agent involved

New disease challenges

- New strains of organisms
  - Mareks disease, Infectious Bronchitis, PRRSV,
  - Antibiotic resistance
  - Anthelmintic resistance
- New pathogens
  - TSEs, PMWS
- Extension of range of vector-borne diseases
  - Blue tongue

Options for Sustainability

- Decreased evolutionary pressure on pathogens.
- Increased resistance of hosts
  - Selection for resistance
  - Immunopotentiators
  - Reduced stress
- Improved biosecurity

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Welfare Challenges

- Increasing consumer expectations
- Welfare assessment
  - Five freedoms
  - Input → Outcome assessment
  - Positive Affective State

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Welfare challenges

- New species(especially fish) farmed
- Climate change mitigation and animal welfare
  - Outdoor pigs
- Health/biosecurity versus welfare
- Intensification
  - Zero-grazed dairy cows

Options for Sustainability

- Consumer pays for improved welfare.
- Common standards for imported and locally produced – labelling.

- Reduced stress of pregnant and newborn animals – early life programming
- Selection for decreased susceptibility to stress.

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Research focus

- An integrated approach to health and welfare using animals selected to meet the challenges of the production system and environment (Integration instead of Reduction).
  - Selection based on clearly defined outcomes
    - Lifetime feed conversion rate
    - Lifetime milk production

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EU Animal Health Strategy

- Goal 2 To promote animal health by preventing/reducing the incidence of animal diseases, and in this way support the farming and rural economy.
- Goal 4 To promote farming practices and animal welfare which prevent animal health related threats and minimise environmental impacts in support of the EU Sustainable Development Strategy

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Research Funding in Europe

- Regional and national funding bodies
- Charities and private non-profit foundations
- Pharmaceutical and Biotechnology industries
- European Commission (~5%)

(All these funding bodies have their own agendas/priorities that are set independently of each other)

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Schemes for networking researchers in the ERA

- Collaborative research projects
- Networks of Excellence
- COST Actions

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Coordination of research programmes

- The ERA-NET scheme was introduced under FP6 to support the networking of **research funding organisations** (programme owners and managers e.g. government ministries and research councils) to develop and strengthen the coordination of national research programmes.
- Collaborative Working Groups under the Standing Committee on Agriculture research

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Need for coordination in Animal Health research

- Common problems - animal diseases are the biggest threat to livestock production.
  - Exotic diseases
  - Evolving/remerging pathogens
- Legislation relating to animal welfare and disease control is largely enacted at the EU level requiring a common evidence base.
- Animal research is expensive

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SCAR CWG on Animal Health & Welfare Research - background

1. Improving collaboration on research activities.

2. Creating critical mass and focus to deliver the animal health and welfare research needs .

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Proposed Activities of Collaborative Working Group

1. Map the landscape of national, EU and international RTD.

2. Map programme objectives against relevant policy drivers.

3. Identify gaps.

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Proposed Activities of Collaborative Working Group (continued)

Assess research capacities and identify shortfalls.

5. Establish common agreement on priorities.

6. Develop mechanisms for cooperation on procurement.

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EMIDA
ERA-NET

- Coordination of European research in the area of animal health, including emerging threats, infectious diseases and surveillance

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Scope of EMIDA

- The scope of the project will include emerging and major infectious diseases of production animals, including fish and bees and including those conditions which pose a threat to human health but excluding food safety issues relating to livestock products and diseases of wildlife, except where they act as a reservoir of infection for humans and animals.

EMIDA

- 27 partners in 19 countries and four associated partners
- Combined research budget in the region of 270 million Euros

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Operational Procedures

Current structure

- CWG
  - EMIDA (with NMG)
  - Animal Welfare Subgroup
  - Infrastructure Subgroup

Proposal

- Formation of a Genetics and Genomics Subgroup
- Formation of a CWG Management Board

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Case for broadening remit

- The development of resistance to anthelmintics and antibiotics highlights the need for more sustainable/alternative control methods.
- Health, welfare, genetics, nutrition and production system interact closely.
- Joining up the different areas allows a systems approach to solving production problems.

Case for broadening remit - continued

- Increasing emphasis on herd/flock health
  - Farm health planning
- A joined-up approach will facilitate greater and more meaningful interaction with livestock industries (e.g. Australian CRCs).
- Pharmaceutical companies have been acquiring animal genetics.

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Case for broadening remit - continued

- The Second Pillar of CAP has shifted the EU policy framework towards rural development

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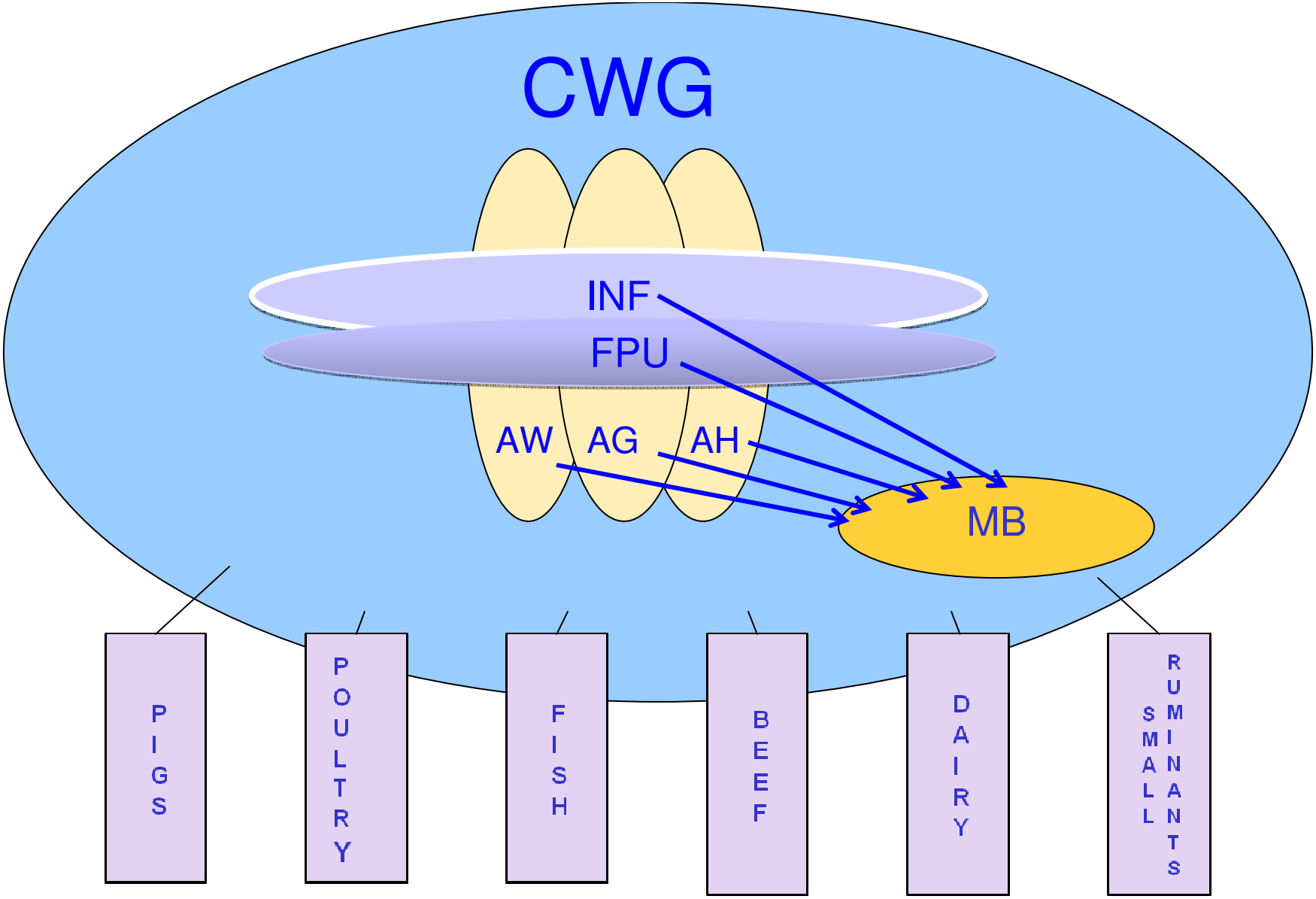

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