



British Grassland Society

R&D Priorities

2009 – 2012

About the British Grassland Society

The British Grassland Society is a forum for those with an active interest in the science and practice of temperate grassland production and utilization. As a registered charity it has clear objectives to support the grassland farming industry; these are:

1. The improvement of methods of production and utilization of grass and forage crops for the promotion of profitable agriculture.
2. The advancement of education and research in grass and forage crop production and utilization. Publication of the results of research to national and international audiences is via the journal Grass and Forage Science and at conferences and symposia.
3. Knowledge exchange through interpretation of research and active communication of improved methods of production and utilization to the farming community.
4. Promotion of grassland farming as an exemplar of sustainable agriculture for the public benefit.
5. Represent members' interests to Government by responding to consultations and identifying priorities for research.

The BGS is a unique organisation

The Society brings together farmers, research workers, advisors, teachers, students, and commercial members of the agricultural industry. BGS is in contact with farmers through its network of affiliated local grassland societies across the United Kingdom. No other like organisation has such a broad membership and regularly communicates with thousands of grassland farmers.

The global context to R&D priorities

Food security is an issue of growing importance as the impacts of a rising global population and of climate change become clearer. A competitive agriculture is needed to address these challenges, and this requires innovative developments from R&D.

Grass and forage production takes place on about two thirds of the UK agricultural land area providing for the production of milk, meat, fibre and biofuels, while maintaining landscape, wildlife habitat and amenity value as part of the rural economy. This illustrates the complexity and challenges facing grassland farmers in meeting these sometimes connected and sometimes competing priorities.

The grassland farmer of the future will require to be competitive, profitable, environmentally proactive, compliant with ever increasing legislation and be prepared to change in order to meet the different demands that society places on the sector. The priorities for R&D have to reflect and anticipate these diverse demands.



The priorities

To address these demands, the BGS believes that the R&D priorities of temperate grassland farming are contained in the following five areas:

1. COMPETITIVENESS

In order to be 'sustainable' (technically, environmentally and socially) grassland farming needs to be profitable. The requirement is for research to develop farming systems that combine profit with delivery of environmental and social benefits, with the following priorities:

- **To maximise efficiency of animal production, whilst complying with tight environmental targets.** The challenges associated with complying with the Nitrates Directive illustrate the urgency for R&D in this area. Research on different component processes needs to be brought together through both models and experiments into whole systems that are nutrient tight and profitable. The use of efficient plants (including forage legumes), efficient animals, improved manure handling, improved grazing and silage-making techniques and precision management of inputs such as fertilisers and feed, all have a part to play in achieving this goal.
- **To increase the quality and animal performance potential of grazed and conserved grass.** This is a priority area for the development of efficient, profitable and sustainable animal production systems. Research needs to be undertaken with performance efficient animals and to focus on intake, digestibility and utilization of feed N and minerals, while protecting animal welfare. Developments in breeding, technology and management will need to be integrated to enhance performance from grass-based feeding, including the use of complementary feeds such as whole crop cereals, maize and biofuel manufacturing bi-products.
- **To improve management of soils for efficient and sustainable production.** This is required to achieve target levels of production with low environmental losses and efficient use of fertiliser and manure inputs. We need to develop indices to predict the effects of grass and forage management on the stability, structure and future productivity of soils.
- **To breed grasses and forages with enhanced feed value and improved environmental performance.** It is crucial that a national programme for breeding grasses and forages is maintained. New opportunities derive from the greater understanding of genetic structure and function. For the production of animal feed it is important for research to improve the nutritive value and analysis of grass and forage plants and their ability to enhance the quality of animal products. For the environment it is important to develop plants more efficient in their growth and that reduce livestock emissions of greenhouse gases and reduce losses of nitrogen and phosphorus. For diversification of profitable systems, it is important to consider opportunities for the role of grasses and forages in industrial uses.

2. FOOD

The security of food supply for an island nation is a growing issue where environmental requirements may reduce productivity. Grassland production has the potential to provide safe, wholesome food and in this context, we need:

- **To support national food output from grassland farming systems by using genetics, technology and management tools.** Basic genetic and technology research needs to be encouraged, alongside system development that integrates specific improvements into practical farming outcomes to increase production efficiency.
- **To ensure the safety of food from grassland farms.** Research is needed to reduce disease impact on farms through improved husbandry and to ensure grassland produced milk and meat is safe to eat and welfare-friendly.

- **To meet consumer demand for healthy food by demonstrating the positive aspects of meat and milk and by developing techniques to enhance the health value of food.** Research is required to investigate the potential of grassland to deliver benefits to consumers through farm management techniques. For example, increasing the level of omega-3 polyunsaturated fatty acids in milk or meat through grazing and pasture species.

3. ENVIRONMENT

Grassland farming has impacts on the environment that are both positive and negative; we require R&D to enhance the positive (e.g. farmland biodiversity) and reduce the negative (e.g. emissions to air and water). We need:

- **To reduce impact of grassland farming on air and water environments.** Continued research is required to minimize losses of surplus nitrogen and phosphorus, pathogenic organisms and sediments to water and of environmentally damaging gasses, such as ammonia and nitrous oxide to the atmosphere. Improvements in breeding, use of fertilisers and manures, as well as animal feeding and management, all have a role to play in achieving environmental targets whilst enhancing the profitability of grassland farming systems
- **To develop the role of grassland farming in increasing farmland biodiversity and the multi-functional use of grasslands.** Priorities here are how to proactively integrate profitable food production with the enhancement of the habitat quality of grassland farms, the development of grassland management techniques for horses and providing society with a grassland landscape that is accessible and aesthetically pleasing.

4. CLIMATE CHANGE

Regardless of the root causes of climate change, the phenomenon is real and must be addressed by the grassland community. In order to contribute to this issue, R&D is required:

- **To reduce losses of greenhouse gases from grassland farms.** Whilst acknowledging that ruminant production inevitably leads to the losses of methane and N₂O, research is required in plant breeding, manure and fertiliser management and animal feeding to develop integrated techniques that will increase carbon and nitrogen capture in animal products and reduce unnecessary losses.
- **To enhance the role of grassland as a carbon sink.** Grass and forage production captures carbon and we need to develop the role of grassland farming in acting as a sink for carbon in reducing losses of CO₂ to air. The role of grass as a carbon sink needs to be quantified and recognised. It is also a priority to elucidate the balance of carbon capture and food production.
- **To develop strategies to enable grassland farmers to adapt to the consequences of climate change.** For example, we need to genetically develop plants such as lupins, which can grow in warmer and wetter conditions, enhance protein production on farms, reduce the amount of protein brought in to the UK and reduce losses of N to the environment.
- **To understand and reduce the impact of energy costs on grassland farming.** Increases in fuel and energy costs are impacting on farm profitability; this will continue in the medium to long term. Farming systems which ensure efficient use of fertilisers and feed need to be supported to maintain profitability.

5. KNOWLEDGE

R&D can have an impact when the new knowledge is effectively used on grassland farms and integrated into management systems. To achieve this challenging goal, there is a need:

- **To encourage and support R&D aimed at improving the sustainability of UK grass and forage systems.**

- To encourage and support on-farm development work that integrates the findings of research and leads to improvements in grassland farm performance.
- To have a co-ordinated system for getting information and knowledge to grassland farmers through publications, conferences, discussion groups and the community of farm consultants.
- To work together with other organisations that have a role in technology transfer, to ensure that farming techniques are logically explained, practically demonstrated and communicated effectively to farmers and land managers.

The British Grassland Society is a forum for those with an active interest in the science and practice of temperate grassland production and utilization, and organises publications, conferences, study tours, meetings and forums for the grassland farming community to interact, gain information and learn. The nationwide network of local societies and groups also provides a continuous information flow between research and practice'

The British Grassland Society R&D Priorities 2009 – 2012 document has been produced by the BGS R&D Committee.

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