

# Strategic Programme

## Efficient and Resilient Supply Chains for Food (Food) Theme

The Scottish Government Rural and Environmental Science and Analytical Services division (RESAS) has initiated a Strategic Research Programme to address major policy issues and deliver evidence based information vital to Scotland's future prosperity and wellbeing.

The Strategic Programme is being carried out through collaboration between leading teams of scientists across the range of Main Research Providers\* and is being delivered through two interlinked, multidisciplinary programmes: Environmental Change (Local Responses to Global Change) and Food, Land and People (Optimising the Potential of Scotland's Natural Assets). The Food Theme is a component of the Food Land and People-Programme

### The Food Theme: A brief Introduction

The time when plentiful and cheap food for the human population was taken for granted is over. There is much to be concerned about in terms of how we produce sufficient healthy food for humans in ways that are environmentally sustainable and socially acceptable. The Food Theme is concerned with this very important issue. It seeks, in collaboration with other themes, to develop new knowledge and technology that will improve the efficiency and sustainability of food production, whilst also developing the nutritional, health-enhancing and other qualities of crop and livestock products.

**The majority of the research in the Food Theme is focused around the production of crops and animal products reflecting the strength of the RESAS programme in research into primary production:**

- In our crop and plant based research we aim to enable production of crop and plant varieties that use less of valuable resources such as water and fertiliser, whilst preserving the productivity that is required to maintain the food security so important in underpinning the Scottish Economy.
- In our livestock based research we aim to improve efficiency and other benefits stemming from livestock production whilst also understanding better how we can better manage other impacts including the environmental footprint of our livestock systems and animal welfare.

**There is also a significant component of socio-economic research in the Food Theme which has particular relevance to the development of food policy in Scotland and the UK:**

- In the Food Theme our socioeconomic research aims to measure and identify opportunities for improving the sustainability and efficiency of selected food commodity supply chains. We will also provide an assessment of Scotland's food security in the context of global issues including climate change.

**We place a considerable emphasis on our Knowledge Exchange activities aimed at translating the results of our research into relevant messages for policy, industry and public audiences.**

### Examples of key policies supported and intended benefits from the research:

- The main purpose of Scottish Government is to create 'a more successful country, with opportunities for all of Scotland to flourish' and the food and drink industry is a key sector within the Scottish economy. The Food Theme will contribute to a future where food production is productive and resource efficient, sensitive to demand and human health issues and socially acceptable.
- The Food Theme will contribute to the food security agenda by understanding how we make the supply of food more reliable, resilient to change and produced as sustainably as possible.
- The Food Theme will also help to reduce the amount of nitrogen and phosphate being applied to agricultural land, which may impact on crop productivity. It is also important to consider other wider impacts (e.g. on animal welfare) of improving productivity and efficiency.
- The Food Theme contribution to improve the efficiency of food supply chains is central to reducing Scotland's environmental impact and meeting the Scottish targets for reducing greenhouse gas (GHG) emissions.
- The research planned in The Food theme will tackle a number of the 'big issues' identified by CAMERAS including: (a) ensuring that Scottish food production responds appropriately to the challenge of climate change; (b) protecting our environmental assets; (c) promoting animal health and welfare; (d) minimising disease impacts on crops; (e) improving the health and welfare of our population.

## Examples of key policy documents

- Scottish Government (2009). Scotland Climate Change Adaptation Framework, Scottish Government: Edinburgh.
- Scottish Government (2009). Recipe For Success - Scotland's National Food and Drink Policy, Scottish Government: Edinburgh.
- Department for Environment, Food and Rural Affairs (Defra) (2012). The Green Food Project. Defra: London.

## Examples of expected outputs:

### Crop research:

- Improved varieties of agricultural and horticultural plants with reduced requirements for nitrogen use, reduced waste and production of by-products with potential for other uses.
- Tools and technologies for the production of agricultural and horticultural plants with enhanced nutritional qualities for humans.
- Animal research:
- A better understanding of how to influence the nutritional quality of milk for humans through diet, husbandry and genetics.
- Improvements to the productivity and sustainability of key extensive and intensive animal production systems such as beef and dairy cow production.

### Socioeconomic research:

- To develop measures of resource use efficiency and sustainability across specific food supply chains relevant to Scotland.
- To identify areas of risk for food security and where it is possible to develop local resources to improve food security and/or sustainability.

## Examples of outputs so far:

- Analysis of food policy discussion for Scotland: An analysis produced by Food Theme scientists for the Scottish Government and used to help formulate the subsequent National Food Policy.
- Participation in the Malting Barley Committee: A member of the Food Theme currently helps support the evaluation of new varieties of barley for use in the malting industry an industry of extreme importance to the Scottish economy.
- Genetic evaluations for the Livestock Industries: Food Theme scientists are involved in producing UK genetic evaluations for dairy, beef and sheep used by farmers to select the best animals for their production systems.

## Examples of research in the RESAS programme that is linked to other funded work:

- EU Framework 7 programme: Food Theme scientists have been funded (with partners) to investigate how to improve food composition to achieve satiety and aid weight management in humans.
- Genomic improvement in carcass traits: Food Theme scientists have been funded with industrial partners to use genomic information in the selection for beef carcass traits using video image analysis (VIA) machines at abattoirs.

## Key email contacts

The Food Theme is a substantial piece of research running over 5 years and this summary has only given an indication of the breadth and depth of the research being undertaken. If you would like to learn more then please contact:

### Theme coordinator: Professor Alistair Lawrence

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