Supporting Existing and New Knowledge and Technology to Farmers Across Scotland

Farmers are the custodians of much of the land mass in Scotland. Farmers play a vital role in maintaining rural populations, with many of these people relying on farming and food businesses for employment.

Land is Scotland has many functions and one of the principal activities is production of food, including crops, vegetables, meat, milk and eggs. It is now widely accepted that local, regional and national food production underpins the health and wellbeing of the Scottish population and is an essential element of Scotland Food and Drink’s Ambition 2030 to double turnover in this sector by that date.

Food production must go hand-in-hand with maintaining Scotland’s unique environment, including biodiversity, soil, water and air quality. Sustainable agriculture has a very significant role: it strives to produce high quality, safe food with the optimal use of natural resources while minimising waste and protecting the environment.

The Moredun Research Institute focusses on research and development into livestock disease, mainly vaccines, diagnostic tests and disease control programmes. The examples I have provided here therefore relate generally to this area. The concept however can be extended to mixed, arable and remote farming systems, including crofting.

I suggest setting up Knowledge Exchange Hubs (KEHubs) in regional areas of Scotland. Existing offices used by Animal Health or SRUC could allow co-location. The number and locations of the KEHubs should allow most farmers to attend face-to-face meetings while others could join via IT systems. The reason for the regional approach is that farms in one location are likely to be more similar than those at a distance (e.g. mixed upland grazing in the west and in the islands; lowland beef and finishing units in the north east). This means that farm performance can be compared within a region and this allows farmers to see where they can and need to improve – in the example here – in livestock health and welfare.

Farmers already hold much data on their farms and livestock although it is held in a number of disparate databases. Organisations such as SAOS, NFUS and QMS are in a strong position to co-ordinate how the data might be accessed and used for benchmarking across the KEHubs. We know that even in a single region, some farms perform well, while others are doing less well. The data from the region could be presented anonymously to the KEHub meetings so that farmers can see what is possible if they improve. An example of this might be number of suckled calves sold (and/or retained) each year per 100 cows served. We know that on some farms the performance is 98 calves, while others raise only 82, resulting in a significant financial loss and a negative impact on carbon footprint.

Waste occurs across the food chain. It is relatively easy to visualise post-harvest food waste in kitchens, during storage and transport, however waste also occurs during primary production. This happens when farming systems are not optimal and the yield of product per unit of input resources is low. This can be termed inefficient productivity and there can be many different and inter-dependent causes e.g. lack of water, poor animal nutrition, inappropriate breeds and varieties for the situation and diseases.
In livestock production, it is estimated that approximately 20% of productivity is lost to “endemic” or common “production” diseases, such as lameness, mastitis and pneumonia. There is, therefore, a very significant opportunity to reduce these losses by taking active and practical steps to prevent disease. The ways this may be achieved include the use of vaccines and improved disease control programmes.

Farmers would identify what their main issues are – these could be number of lame sheep, amount of antibiotic used to treat pneumonia, abortion in lowland flocks (or similar). The KEHub would help the farmers to set their own targets and to alter their systems using local knowledge and the most up to date technology provided by Moredun, QMS and other bodies. This knowledge is based on previous and current research and development already funded by SG and so is a clear example of added value.

The Scottish Government currently holds much data relating to farm productivity and economics and in addition, individual farms and farmers currently record information with reference to animal births and deaths, movements, drug usage, and quality assurance schemes. It would also be possible to build further data/impact upon the “Scotch” quality brand which is based on standards for individual red meat species assessed annually by farm inspection.

One suggestion is to use some of the “previously pillar 2” farm support to deliver the KEHubs. It would allow flexibility as to what topics farmers wish to address and would allow this to be done collectively (but with data anonymised). Payments could be made for attending KEHub meetings but otherwise not “policed” – this would reduce red tape of monitoring and would move the emphasis to self-motivated performance. (Where health or disease targets are made, it is important to know that these can fluctuate with weather and other factors, in other words there are no penalties for the targets not being met. The main issues is direction of travel).

There is a wealth of technological outputs from all of the Institutes and other organisations across Scotland. This route would allow direct access of farmers to knowledge where it can be best used.

As an example for more remote regions, the target could be e.g. raising small numbers of sheep and managing land to allow access for tourists and increasing biodiversity. In this example three outputs might be appropriate – increased lambing percentage (to the regional average), maintaining footpaths across land, and developing wetland areas for mammals and birds. The concept of KEHubs is therefore consistent with different aims and targets for disparate regions of Scotland.

Julie Fitzpatrick 12th April 2019

Below is a very brief summary of a grant to Innovate UK submitted from a number of partners including Moredun/SRUC/SAOS late in 2018. While the initial bid was not funded, we intend to resubmit. There are elements of this proposal which fit with some of the concepts described above (these are highlighted in yellow)
The **Scottish aquaculture** and **livestock sectors** are an essential part of the food and drink supply chain worth ~£3.5bn *pa*. **Midlothian** has the largest concentrations of scientists in Europe working on aquaculture and livestock science and innovation and is the geographic location for the proposed **Aquaculture and Livestock Innovation Cluster for Enterprise (ALICE)**.

ALICE will stimulate and expand interactions between research and business partners driving novel scientific and commercial developments addressing the critical requirement for sustainable increases in the productivity of the aquaculture and livestock sectors, and further growing and developing the Cluster.

**Investment** in a **Data Delivery and Interpretation Hub** for state of the art data capture, processing, interpretation and storage to provide benchmarking data to support on farm productivity improvements.

**Networking and Knowledge Exchange events** to develop greater collaboration and links between research and commercial organisations.

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