



Defra Science Advisory Council (SAC)

Minutes of meeting - 05 May 2022

Actions arising

| <u>Action number</u> | <u>Action</u> | <u>Owner</u> |
|----------------------|--|------------------------------|
| May (22) 01 | <u>SAC</u> : The SAC consider a future discussion on the success of UKRI priority funds or the industrial strategy funds, reflecting on lessons learned and strategic opportunities. | SAC / SAC Secretariat |
| May (22) 02 | <u>SAC</u> : The SAC to suggest networks (e.g. e-DNA networks) to Defra's Innovation Strategy Team via email. | SAC |
| May (22) 03 | <u>Devolved administration observer</u> : The Scottish Government Observer to contact the Farming Innovation Programme Team to offer the Scottish perspective on aquaculture programmes. | Scottish Government Observer |

1. Welcome and apologies

The Chair welcomed attendees, apologies are recorded in Annex A.

2. Chief Scientific Adviser (CSA) update

The CSA advised that they are currently involved in discussion on several key topics including recruitment and procurement processes, specialists' pay, the impacts of the Ukraine crisis, the rising cost of living, and the UK's involvement in the EU's Horizon and Copernicus programmes.

Defra's draft Research and Innovation Strategy has now been reviewed by Defra's Group Evidence Science and Analysis Committee (GESAC) and Executive Committee (ExCo), with the strategy covering the next few years of funding. A SAC discussion is planned for June 2022 as an opportunity for SAC members to provide their feedback and discuss how Defra could leverage expertise from across the research and development landscape.

The UK Research and Innovation (UKRI) strategy will be published soon, with the expectation that UKRI want to increase their engagement with government.

Following the publication of the UKRI strategy the CSA suggested a future SAC discussion on the success of UKRI priority funds, or the industrial strategy funds.



ACTION May (22) 01 is that the SAC consider a future discussion on the success of UKRI priority funds or the industrial strategy funds, reflecting on lessons learned and strategic opportunities.

3. Innovation Strategy

This was an introductory item, ahead of a larger session at the 2022 June Principal meeting, about environmental monitoring innovation.

Monitoring

A new project will consider the implications of disruptive technologies, new demands for products, systems and services and innovation drivers over the next 5 to 10 years. The SAC highlighted that achieving Net Zero will increase demand for monitoring, evaluation, and verification technology and advised on how Defra can best coordinate with experts in academia and industry to enhance remote, automatic measurement capabilities. Innovative technologies for monitoring biodiversity change (e.g. E-DNA and advancements in multi-spectral remote sensing capabilities) were considered important for quantifying Biodiversity Net Gain. Additionally, the SAC considered there was a need for innovation to increasing the coverage of atmospheric CO₂ measurements, helping to verify net CO₂ emissions.

Data analysis platforms

The SAC advised on the need for a focused approach on strategic data collection, emphasising that Defra should question why specific data is needed and highlighted innovation in targeted sensors in the [NSF NERC program \(signals in the soil\)](#). The SAC considered that regulation can be a major driver of innovation, with new technologies often leading to legislation changes.

The SAC highlighted the importance of new software solutions, such as platforms which combine different data streams by networking together various remote sensors and processing software that reduces data biases and automates data processing. Data analysis automation has the potential to develop new insights at various landscape scales.

Citizen Science

The SAC agreed citizen science is good for both gathering data **gathering** and public engagement, linking to the Social Science Expert Group (SSEG) Public Engagement Review (in production) that highlights how citizen science can be used to monitor environmental issues (e.g. monitoring air pollution using wearable monitors). The SAC noted the limits of successful citizen science, the ethics of collecting dispersed data (e.g. via mobile phones and smart cities) and emphasised the need for a benchmark from which citizen science data can be validated.

ACTION May (22) 02: The SAC to suggest networks (e.g. e-DNA networks) to Defra's Innovation Strategy Team via email.



4. Farming Innovation Programme

Defra officials updated the SAC on the Farming Innovation Programme (launched October 2021) and sought the SAC's view on the programme and its direction of travel. The Farming Innovation Programme is composed of three separate funds; 'industry led partnerships', 'farming futures', and 'projects to accelerate' adoption (not yet launched). The farming futures fund so far covers two themes; climate smart farming and sustainable farm-based proteins. The sustainable protein's theme is a £12.5M competition for multiple small sized (maximum £1M) short-term projects (two years, or five years for breeding projects), which aim to find new technologies, practices, and processes to improve productivity and sustainability of farm-based proteins, and evidence sharing to boost adoption. Defra also noted that aquaculture is not in the scope as it is included within a separate innovation program in Defra.

Overall, the SAC were supportive of the Farming Innovation Programme thus far, acknowledging its resourcing, variety of projects, geographical dispersion, and farmer focus seemed sensible and suitable.

Indices

The SAC questioned the use of Total Factor Productivity metric, as the UK may not be comparable to other countries owing to differences in monitoring and reporting indices, suggesting a need to check for environmentally balanced comparisons as some may not include pollution and biodiversity loss. The SAC noted that there may be difficulty in measuring additionality of investments as these are outcomes that would not have occurred as part of ordinary management.

The SAC suggested indices should have a focus on boosting production and be adjusted to assess impact(s) on biodiversity and suggested inclusion of additional indices such as reduced labour or swapping natural capital with manufactured alternatives. The SAC also suggested the sustainable protein projects involving livestock should measure nutrition to quantify the growth efficiency of livestock.

Social Science

Defra officials explained that farmers are most influenced through peer-to-peer contact and there is now a growing digital knowledge exchange through social media, competing with traditional knowledge exchange from agricultural advisors and peer reviewed papers. The SAC commented that a struggle that the Farming Innovation Programme has had, is in convincing farmers and researchers that Farming Innovation Programme funds are targeted towards farmers, and they should apply for funding. The SAC also questioned what happens after the application stage to identify promising projects into the acceleration programme.



The SAC thought the Farming Innovation Programme could draw on insights from the social sciences to help understand cultures within farming and how these might change (e.g. promoting the benefits of agro-forestry) and assess how the farming community is expected to change in the future. The SAC also suggested how maximising engagement with applicants to the Farming Innovation Programme and providing them feedback would increase their positive experience of engagement with Defra.

ACTION May (22) 03 is that the Scottish Government Observer to contact the Farming Innovation Programme Team to offer the Scottish perspective on aquaculture programmes.

5. SAC-Exotic Diseases (SAC-ED) subgroup update

The new chair of the SAC-ED subgroup (Professor Rowland Kao) updated the SAC on their current plans:

1. Subgroup members have agreed some administrative changes, phasing in fixed-term limits for subgroup members and increase the frequency of meetings to two to three times a year.
2. The range of members expertise will be boarded to encompass natural science, wildlife ecology, disease vectors, and disease influenced by climate change such as entomology and acarology.
3. The SAC-ED subgroup remit could be expanded to include changes occurring that could impact disease monitoring and look at potential for interaction with reference laboratories at the Animal and Plant Health Agency (APHA) and Pirbright.

The SAC agreed with the outlined proposals and suggested membership expertise should also consider including the freshwater systems.



Annex A: Attendees and apologies

SAC members

Louise Heathwaite (Chair)

Peter Cox

Lin Field

Rosie Hails

Nick Hanley

Susan Owens

Lisa Collins

Richard Bardgett

Defra Chief Scientific Adviser's Office

Gideon Henderson – Chief Scientific Adviser

Rob Bradburne – Deputy Chief Scientific Adviser

SAC Secretariat

Devolved administration observers

n/a

Defra officials in relation to specific agenda discussion

Chief Scientific Adviser's Office (CSAO) – Innovation

Defra Farming Innovation Programme

Defra observers

Defra UKRI PhD intern

Apologies

Felix Eigenbrod – SAC member

Matthew Williams – Scottish Government Observer

Caryl Williams – Welsh Government Observer

Alistair Carson – Northern Irish Government Observer