

UK Genetics for Livestock and Equines Committee annual report 2022

Foreword by the Chair, Tim Brigstocke

This is the first annual report of the UK Genetics for Livestock and Equines (UKGLE) Committee. The report highlights the work of the committee during 2022.

The UK Genetics for Livestock and Equines (UKGLE) Committee is an independent expert scientific advisory committee which provides advice to the Department for Environment, Food and Rural Affairs (Defra) and the devolved administrations in Scotland, Wales, and Northern Ireland. It was established formerly under the name of 'Farm Animal Genetic Resources' (FAnGR) Committee' in 2011.

2022 was a very busy year for the committee. Following a review and widening of the remit of the committee, to ensure it aligned with the evolving sustainable farming policy, the committee was re-launched as the UK Genetics for Livestock and Equines (UKGLE) Committee.

As a committee, we have dedicated much time and effort to understanding the key issues that need attention within our livestock and equine sector and how we can best engage with the 4 UK governments to provide advice to inform how to address these effectively.

Our new [mission statement](#) reflects our ambition to tackle 3 very important challenges:

- building UK capability through our genetic resource
- resource monitoring
- harnessing the potential of the data revolution and genomic passports

The UKGLE Industry Workshop in June 2022 helped set the direction of the committee and gave us a deeper insight into the needs and ambitions of the livestock breeding industry and helped identify opportunities for partnership working with the UK government.

We established a new breeder's liaison group to help strengthen these links and provide a forum for all interested parties involved in livestock breeding to discuss issues affecting the sector, facilitate knowledge exchange, and network.

We hope that the group will be successful in creating new opportunities for collaboration and more can be achieved in the conservation and sustainable use of our genetic resources by working together.

Within the committee, we have maintained 6 sub-groups that look at certain aspects of our work in more detail. The inventory and monitoring sub-group has continued their important work in close collaboration with breed societies from all over the UK to publish the annual National Breed Inventory, which details the population numbers of pedigree livestock breeds in the UK.

The current and new technologies sub-group produced a very informative paper titled 'Progress and opportunities through use of genomics in animal production' which illustrates the recent advances, as well as the future possibilities, within our sector. I would like to thank those sub-groups for their hard work and commitment this year.

I have only highlighted some of the projects that the UKGLE Committee has embarked upon this year. There is a wide range of activity being progressed by the members of this committee. This is summarised in the full report. I would therefore like to express my thanks to current members of UKGLE for their continuing effort and dedication.

I should also like to thank the Defra Secretariat for their endeavours in supporting the work of the committee.

[Find out more information about UKGLE's work on GOV.UK](#)

Main activities

Meetings

The committee met 3 times during 2022 to discuss a wide range of matters relating to livestock and equines genetic resources. The committee discussed current issues of relevance to the livestock breeding industry including the development of the Genetic Technology (Precision Breeding) Bill, now act, and the impacts of outbreaks of African Swine Fever in the EU and Avian Influenza in the UK.

Members also participated in discussions to provide advice to Defra and the devolved administrations to inform policy developments relating to the conservation of livestock and equine breeds.

The committee was also updated on new scientific research and innovation including Defra's Farming Innovation Programme and ongoing research and development activity being undertaken by Defra's agri-food science programmes.

UKGLE Industry Workshop

On the 30 June 2022, Defra held a stakeholder workshop for the UKGLE Committee. The theme of the event was 'The Role of Genetics in the UK Livestock Industry'. The aim of the day was to increase awareness of genetic resources and to encourage a joined-up approach between UK government and industry going forward. Key stakeholders and industry officials were invited to the event, hosted by Defra, to join and learn about the new mission statement and future work of the committee.

It was an interesting day for all that attended, building opportunities for engagement and generated useful discussions, insights and helpful suggestions regarding work for the committee going forward.

Attendees were presented with 3 talks on principal work areas for the committee. These were:

- 'Building UK Capability through our Genetic Resources' by Tim Riley
- 'Resource and Capability Monitoring' by Marcus Bates
- 'Harnessing the Potential of the Data Revolution and Genomic Passports' by Huw Jones

In addition, there were presentations on aligned areas of activity from Defra and Agriculture and Horticulture Development Board (AHDB) colleagues. These were:

- 'The role of genetics in reducing the climate impacts of livestock production' by Defra
- 'Delivering a vision for improving the beef and sheep sectors through animal breeding' by the AHDB
- 'The Genetic Technology (Precision Breeding) Bill' by Defra

The workshop succeeded in raising awareness of the committee's work and promoted opportunities for engagement within the sector. Other key outputs from this event included the creation of the breeders liaison group, as well as sharing views and insights which informed future activity.

Breeders Liaison Group

Following the widening of the committee's remit to provide advice on the importance of genetic variation in ensuring resilient production and high health standards within farm animal breeding, the UKGLE Committee established the Breeder's Liaison Group and hosted its first meeting in October. A wide range of industry representatives from across the breeds sector (cattle, sheep, equines, goats, pigs, and poultry), attended.

The purpose of the group is to provide a forum for commercial breeders in the UK to connect and exchange views on the different challenges and opportunities facing the sector to inform UKGLE advice to government. The group looks at issues which related specifically to mainstream breeding and genetics.

For example, Zootechnical legislation and its impact on the mainstream breeding sector, the role of the breeding sector in enabling food security, access to international markets, and support for research and development. The views and ideas expressed in the group will be used to inform development of advice for policy development in these areas.

If you want to hear more about the breeders liaison sub-group then email the secretariat at ukglesecretariat@defra.gov.uk.

Inventory and Monitoring Sub-Group

In May, the UKGLE's Inventory and Monitoring Sub-group published the 2022 National Breed Inventory. This Inventory details the number of pedigree farm animals in the UK in 2022 and estimates the breeding female population of each breed for 2023. The full at [UK farm animal genetic resources \(FAnGR\): breed inventory results](#) dataset and stats release are available on GOV.UK.

The poultry breed inventory was also updated following publication during 2022. These revised statistics are still classed as 'experimental' as the methodology used in the production of these statistics is not fully developed and is undergoing evaluation. The avian influenza outbreak presented some challenges in gathering the data. The group has successfully helped align the timing of publication of the poultry inventory more closely to the breed inventory for other livestock and equines.

One of the highlights of the 2022 inventory is that it now provides greater insight into population changes and trends over the past 5 years for native breeds in general, as well as for the different species. The online data for the inventory has been modified so that it is presented in a more user-friendly and informative format.

The sub-group has also undertaken a review into the Native Breeds at Risk (NBAR) list. This is the list used to determine eligibility for government support in England in the Countryside Stewardship 'Native Breeds at Risk supplement'. The group will be reviewing the current eligibility requirements to claim the supplement with regard to fulfilling the objectives of the supplement and exploring opportunities to promote the conservation of our endangered native breeds.

Current and New Technologies Subgroup

The current and new technologies subgroup is an expert group focused on identifying and evaluating cutting-edge technologies in genetics and genomics with the potential to improve livestock and equine breeding programmes. Two members of the group, Huw Jones and Philippe Wilson, published an article '[Progress and opportunities through use of genomics in animal production](#)' in Trends in Genetics.

The review covers the history of genomics, markers for genomic selection, how this field is evolving, and what the regulations in different countries are. The paper also examines the genetic passports concept, genome editing and the potential benefits from using genomic information to improve conservation schemes.

The paper builds upon several work streams that the new technologies sub-group has addressed in 2022. The paper also identifies potential additional approaches and benefits in terms of reducing use of resources, health treatments, and environmental impact, whilst also improving animal health and welfare.

UKGLE newsletter

The committee published 2 editions of the UKGLE newsletter to update subscribers with the work that UKGLE is carrying out, and recent developments in the livestock and equine area. The editions were sent out in August and December.

To subscribe to the newsletter, please email the secretariat at: ukglesecretariat@defra.gov.uk.

Other activities

The committee advises Defra and the devolved administrations on all issues relating to livestock and equine genetic resources. On the provision of advice relating to Zootech, members of the Zootech Sub-group reviewed applications from breed societies that wish to be recognised under the Zootechnical regime, providing careful scrutiny of the breeding programmes to ensure they meet the required standard.

Over the year, Defra has been notified of several Zootech compliance issues. The committee's expert and independent advice has informed Defra and the devolved administrations' activity relating to these issues and supported breed societies to fulfil their regulatory requirements.

This has helped ensure that breeding programmes are run effectively and in a compliant manner, thereby maintaining the genetic integrity of the country's pedigree livestock and equines.

The Welsh Government sought advice from UKGLE on how the conservation of native breeds could be included in their Sustainable Land Management schemes. The committee provided independent advice on ways to develop an infrastructure for a native breeds market, engaging with breed societies, and on the building of metrics into the scheme system and strengthening collaboration across the devolved administrations and Defra.

UKGLE will continue to provide independent advice to Defra and the devolved administrations on the inclusion of the conservation of native breeds in Land Management schemes as the UK moves away from the Basic Payments Scheme. This will build on the outputs of activity relating to the inventory, and the work the Inventory and Monitoring Sub-group is undertaking to review the NBAR list.

The committee also advised Defra on genomic matters as the Genetic Technology (Precision Breeding) Bill activity progressed. Animal welfare was a prominent topic of discussion, and the members' expertise and knowledge ensured the committee provided informative, independent advice to support development of policy on precision breeding.

Due to the global outbreak of African Swine Fever, which reached central Europe in 2022, the committee worked alongside the Defra Exotic Disease Control Team to provide advice to inform the government's contingency plans to respond to outbreaks in the UK, with particular attention to its potential effect on Breeds at Risk.

Throughout the year, members of UKGLE proactively engaged with relevant industry bodies including levy bodies via the Ruminant Breeding and Genetics Liaison Group.

Discussions explored topics such as sustainability traits in genetics and genomics evaluation, and the impact of genetics on production, longevity, fertility and feed efficiency and how this is driving change in the livestock breeding sector. From these discussions UKGLE gathered stakeholder insight which informed development of advice.

Governance

The committee's role, remit, and duties are covered in the [Terms of Reference](#) on GOV.UK.

The [mission statement](#) was prepared by the committee following its relaunch as the UK Genetics for Livestock and Equines Committee to lay down its key objectives and work areas.