UK Farm Animal Genetic Resources (FAnGR) Breed Inventory
Numbers of pedigree farm animals 2016

This release announces the number of pedigree farm animals in the UK in 2016 and estimates of the breeding female livestock populations for 2017. The full dataset is presented in a timeseries at www.gov.uk/government/collections/farm-animal-genetic-resources (click on “Annual Statistics”) for cattle, sheep, pigs, goats, horses and camels.

Key results for Cattle: Data were collected in 2016 from 25 out of the 38 native cattle breeds. Of the returns, the largest numbers of female registrations were from the Jersey cattle breed at 6,600, a 6% fall on 2015 and continuing the falls seen in recent years. This data implies an estimated breeding female population for 2017 of almost 24 thousand. The smallest female breeding population is the Vaynol cattle (flagged as “critical” on the Rare Breeds Survival Trust Watchlist) which had only 4 female registrations in 2016, implying a breeding female population of 8 for 2017. This is an increase on the previous year and returns the breeding population to 2015 levels. The chart below shows the timeseries for the five commonest and rarest native breeds which returned data in 2016.

Estimated cattle breeding female populations 2002-2017
(only for breeds included in the 2016 exercise)

Fig 1: The five commonest native breeds in the exercise

Fig 2: The five rarest native breeds in the exercise

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An Official Statistics publication. These statistics are produced to the high professional standards set out in the Code of Practice for Official Statistics, which sets out eight principles including meeting user needs, impartiality and objectivity, integrity, sound methods and assured quality, frankness and accessibility. See http://www.statisticsauthority.gov.uk/national-statistician/types-of-official-statistics/index.html for further details on Official Statistics.
**Key results for Sheep:** Data were collected in 2016 from 37 out of the 59 native sheep breeds. Of the returns, the largest numbers of female registrations were from the Swaledale sheep breed at 69 thousand, remaining stable over recent years. This data implies an estimated breeding female population for 2017 of almost 165 thousand. This breed had large numbers of 750 thousand breeding females in 2002 so has fallen steeply (78%) since then. The smallest female breeding population continues to be the Boreray sheep which had 176 female registrations in 2016, implying a breeding female population of 426 breeding females for 2017. These numbers have been steadily rising for over a decade so are now almost at the same levels of the other rarest breeds. The chart below shows the timeseries for the five commonest and rarest native breeds which returned data in 2016.

*Estimated sheep breeding female populations 2002-2017 (only for breeds included in the 2016 exercise)*

**Fig 3: The five commonest native breeds in the exercise**

**Fig 4: The five rarest native breeds in the exercise**

*NB: Swaledale 2002 numbers (750 thousand) excluded as the figure masks the smaller timeseries changes of other breeds*

*The low levels of Lincoln Longwools in 2003/04 were due to the Foot & Mouth outbreak which had a large impact on this highly regional breed*
**Key results for Pigs:** Data were collected from all 11 of the UK native pig breeds. The latest results highlight the dramatic fall in the numbers of pedigree British Landrace and Large White over the previous 15 years. Most other breeds continue to be affected by the cyclical nature of pig production but have managed to increase their populations since 2002. The Oxford Sandy & Black in particular have been able to achieve a significant increase in their population over the last 15 years.

Fig 5: *Number of pedigree breeding sows 2002-2016*  
(*All data sourced from the British Pig Association annual Bloodline Audit*)

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**Acknowledgements**

The FAnGR committee would like to say a big thank you to all those breed societies already taking part and to Grassroots Systems Ltd., the Rare Breeds Survival Trust and the British Pig Association for their high level of support and input into this project. The FAnGR team would also be happy to hear your feedback on this publication and how it can be enhanced for future years. This annual release will be updated May 2018.
**Background**

The UK has one of the richest native Farm Animal Genetic Resources (FAnGR) populations in the world and the importance of FAnGR has been recognised at both international and UK levels.

Because of this, a commitment was made under national and global biodiversity strategies to establish an annual inventory to show how breed populations are changing over time. The inventory was set up by Defra in 2013 to deliver that commitment and the inventory is steadily increasing in scope and coverage each year as it becomes established. Once the trends become apparent from the inventory, it enables decisions to be made to safeguard UK livestock biodiversity and to help future-proof UK farming.

The results build on the findings from the 2012 “UK Country Report on Farm Animal Genetic Resources (FAnGR)” and are a collaborative effort between the national Farm Animal Genetic Resources (FAnGR) Expert Committee, Defra and the Devolved Administrations who work together to support the conservation and sustainable use of UK FAnGR. The inventory complements the committee’s other monitoring efforts and the work of the Rare Breeds Survival Trust on conservation and protection of UK rare and native breeds of farm animals.

**Methodology and Data Sources**

**Coverage**

Data in the inventory is sourced from individual breed society records. As all pedigree animals need to be registered with their respective society to receive their pedigree certificate, the breed society records are comprehensive. Therefore, the data provided for all categories (with the exception of the estimates of breeding females) have complete coverage so require no estimation.

**Methodology**

Data is collected annually for around 50% of all breeds and every three years for the others (most latterly in 2015). The annual returns are collated by central organisations that already have access to all the data, either from breed society databases or from surveys which they already run for other purposes. This is designed as a highly efficient way to gather large amounts of data with very little effort by breed societies. Breed societies have given their permission for these companies to supply the data every year for this exercise.

Data for all other breeds is collected via a survey on a three yearly basis; the latest was in October 2015 when we contacted the individual breed societies for the information. Questionnaires are emailed or posted and non-respondents are contacted several times to encourage response. Priority is given to gathering comprehensive data from native breeds.

It is made clear to participating breed societies in advance that all data supplied will be published (as it is all collected at the aggregate level). Therefore, there are no confidentiality issues around the data. Some breed societies already publish this information in their flock/ herd books.
The categories of data collected in the annual and three yearly exercises are exactly the same. The categories collected are for data covering the latest three years:

- Number of pedigree female registrations (fully pure-bred, pedigree registered, UK born)
- Number of pedigree male registrations (fully pure-bred, pedigree registered, UK born)
- Number of active pedigree herds which registered offspring in any of the latest three years
- Number of active pedigree herds which registered pedigree offspring in the specific year
- Annual number of pedigree sires which produced pedigree registered offspring in the year
- Annual number of pedigree dams which produced pedigree registered offspring in the year

Data is published for all these categories and gives a comprehensive picture of the structure of each breed.

A key variable is the number of pedigree breeding females. The actual number of these animals is not always directly available from breed societies as the databases are not always completely up to date. Therefore, estimates are made of this key measure. This estimate is made by multiplying the average number of pedigree female registrations over the previous three complete years by multipliers defined for each species (see Table below) to estimate the number of breeding females (so for example, the number of pedigree breeding females for 2015 is calculated as the average number of female registrations for 2012, 2013 and 2014 and multiplied by the appropriate multiplier below). The multiplier is calculated using historic data on the ratio of the number of adult females in a breed to the number of female registrations in a year. The full technical description for these multipliers is available in the Source document linked below the table.

<table>
<thead>
<tr>
<th>Species</th>
<th>Multiplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle</td>
<td>3.52</td>
</tr>
<tr>
<td>Sheep</td>
<td>2.41</td>
</tr>
<tr>
<td>Pigs</td>
<td>2.7</td>
</tr>
<tr>
<td>Goats</td>
<td>5.16</td>
</tr>
</tbody>
</table>


**Data Sources**

All the annual data is reported through either Grassroots Systems Ltd., the British Pig Association or the Rare Breeds Survival Trust. Between them, we receive annual data from around 50% of breeds (125 out of around 250 total breeds) and which accounts for 72% of native breeds (97 out of 134). Coverage has been steadily increasing since the annual inventory was first developed in 2013.

The pig data on numbers of pedigree breeding sows (with the exception of the British Lop and Kune Kune) are sourced from the Bloodline Census, an annual exercise carried out by the British Pig Association (results are available at [http://www.britishpigs.org.uk/breedlist.htm](http://www.britishpigs.org.uk/breedlist.htm)). This Census also collects data on the number of members keeping registered pigs so this data has been included as an additional table in the Pigs Section.

**Data uses**

The data in this report will be of value to all those with an interest in using, developing and protecting the UK’s farm animal genetic resources. This includes breeders, breed societies, associations and non-governmental organisations who are directly involved in
their management and conservation. It also includes policymakers, academics and national experts who have an interest in making sure that national and international commitments are met and key issues and trends are being monitored and addressed appropriately. The report will also be of interest to international experts and organisations who are involved in European and global assessments of the state of agricultural biodiversity in the livestock sector.

The data will be used to:

1  Enhance knowledge of population size and prevent the loss of breeds

Comprehensive breed inventories and data on the size and structure of breed populations are prerequisites for effective management of Animal Genetic Resources, particularly to identify breeds that are at risk of extinction. Current dependence on a small number of commercial breeds is placing our future food security at risk. An essential defensive strategy is to conserve our breeds/FAnGR in order to future proof our farming.

2  Support strategic planning for the sustainable utilisation of animal genetic resources

Without good knowledge of FAnGR, decision-makers at national level, in the breeding industry and in breed societies will be unable to develop strategic plans for sustainable use and development. Knowledge of all the breeds that might be drawn upon, and of the production environments in which the animals can be kept, is needed in order to develop or strengthen animal breeding programmes. The information gained from repeated surveys is important for identifying trends that need to be addressed in future plans, and provides a basis for assessing progress in the implementation of existing plans and policies.

3  Improve priority setting for conservation programmes

The limited availability of resources for conservation programmes to protect breeds that are at risk means that priority setting is necessary. Decisions as to which breeds to target for conservation require up-to-date information on the risk status of all the breeds under consideration and on any unique characteristics that the breeds may possess. This information will be used to update the UK Breeds At Risk list (BAR).

4  Enhance knowledge of cross-border genetic linkages

Because of cross-border exchanges of genetic material a national breed population may be part of a common gene pool whose range extends beyond national boundaries. In other words it is appropriate to consider the national population to be part of an international population. Establishing whether or not this is the case may be important for cross-border cooperation in managing the population. Identifying national populations that should be linked at the international level is also important for regional and global assessments of FAnGR diversity.

5  Reporting obligations

Because of the importance of FAnGR, there are national and international obligations for reporting on the status of animal genetic resources.

UN Food and Agriculture Organisation’s (FAO) “Global Plan of Action”

UN Convention on Biological Diversity “Strategic Plan for Biodiversity 2011-2020” and the Aichi biodiversity goals and targets. The UK biodiversity indicators are used to report on progress towards meeting these goals http://jncc.defra.gov.uk/page-4240

Input to the European Farm Animal Biodiversity Information System (EFABIS) and the FAO Global Information System (DAD-IS) to monitor Farm Animal Biodiversity across Europe and globally. The FAO data links all countries into the FAO Global Strategy for the Management of Farm Animal Genetic Resources.

6 Raise public awareness

Survey outputs such as breed population numbers, trends of populations, descriptions of breeds with particularly interesting characteristics or photographs of animals in their production environments, are likely to be useful in the preparation of publicity materials that can promote understanding of the importance of FAnGR among decision-makers and the general public.

Revisions Policy

If any revisions are required to past data we will update the published results as early as possible and provide information about these revisions in the Excel dataset.

Quality Assurance

For Quality Assurance reasons, results are shared in advance of publication to members of the FAnGR committee. This is to check that definitions are correct and understandable and that the presentation of tables are clear, contain the most appropriate metadata and in the most suitable format.

Further data sources

Full results from the Breed Inventory
www.gov.uk/government/collections/farm-animal-genetic-resources


FAnGR policy information
https://www.gov.uk/government/groups/farm-animal-genetic-resources-committee-fangr

Research report into predicting the number of breeding females based on registration data https://www.gov.uk/government/publications/census-information-on-livestock-breeds

UK biodiversity indicator – animal genetic resources: effective population size of native breeds at risk http://jncc.defra.gov.uk/page-4240