



Home Office

Annual Statistics of Scientific Procedures on Living Animals Great Britain 2012

Speaking of Research

HOME OFFICE

Annual Statistics of Scientific Procedures on Living Animals

GREAT BRITAIN
2012

Presented to Parliament pursuant to section 21(7) of
the Animals (Scientific Procedures) Act 1986

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Note: The ‘**Supplementary Tables**’ and ‘**Time Series Tables**’ and the ‘**User Guide to Home Office Statistics of Scientific Procedures on Living Animals**’ can be found on the website at: <https://www.gov.uk/government/publications/statistics-of-scientific-procedures-on-living-animals-great-britain-2012>.

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Introductory Notes

The statistics in this publication relate to scientific procedures performed using living animals subject to the provisions of the Animals (Scientific Procedures) Act 1986, during the year 2012. The purpose of the publication is to meet the requirements of the Animals (Scientific Procedures) Act 1986 section 21(7) “The Secretary of State shall in each year publish and lay before Parliament such information as he considers appropriate with respect to the use of protected animals in the previous year for experimental or other scientific purposes”. The system of control under the 1986 Act is explained in detail in Appendix A.

Confidentiality and data quality

Detailed information on the work of individual project licence holders is not readily identifiable in this publication. Where a further breakdown of the ‘other’ species categories is not given in the commentary this is to safeguard the confidentiality of the establishment and the licence holder. The data are subject to revision in accordance with the Home Office’s revisions policy. For more information, please see the User Guide to Home Office Statistics of Scientific Procedures on Living Animals, hereafter referred to as the User Guide.

Symbols used in tables

..	not available
-	nil
N/A	not applicable
r	revised

Acknowledgements

This publication and the accompanying web tables have been prepared by staff in the Home Office Statistics unit of the Home Office Science Group. We are grateful for the contribution of licensees who provided the returns on which this report is based. We are also grateful for the support of colleagues in the Policing Data Collection Section for data input; the Animals in Science Regulation Unit for their assistance with the collection, processing and quality assurance processes involved in preparing this report; and colleagues in the Communications Development Section who assisted in preparing the report for publication.

Uses of the statistics

The statistics are used to inform the general public, by the Government for policy decisions, for resource allocation, to inform private sector commercial choices, to support third sector activity and to facilitate academic research. For more detailed information, please refer to the User Guide.

Further information available

This publication is available online at: <https://www.gov.uk/government/publications/statistics-of-scientific-procedures-on-living-animals-great-britain-2012>. The website also includes:

- the ‘User Guide to Home Office Statistics of Scientific Procedures on Living Animals’ (a useful online reference guide which includes explanatory notes on the issues and classifications which are key to the production and presentation of the statistics);
- the ‘Supplementary Tables’ and the ‘Time Series Tables’.

The dates of forthcoming publications are pre-announced and listed on the UK National Statistics Publication Hub: <http://www.statistics.gov.uk/hub/index.html>.

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This statistical bulletin is a National Statistics output produced to the highest professional standards and free from political interference. It has been produced by statisticians working in Home Office Statistics in accordance with the Home Office's Statement of Compliance with the Code of Practice for Official Statistics, which covers our policy on revisions and other matters. The governance arrangements in the Home Office for statistics were strengthened on 1 April 2008 to place the statistical teams under the direct line management of a Chief Statistician, who reports to the National Statistician with respect to all professional statistical matters.

Definition – for the compilation of these statistics the number of procedures reported generally corresponds to the number of animals. A procedure, as regulated by law, is an experiment (or other scientific procedure) conducted on a living animal which has the effect of causing that animal pain, suffering, distress or lasting harm. Please see the User Guide for the legal definition. Where an animal that has recovered fully from a completed procedure is used again for a further procedure it is counted as a separate procedure.

Presentation – the figures given refer to the numbers of procedures that were started in 2012 (rather than the numbers of animals), compared with 2011, unless indicated otherwise. Some figures have been rounded depending on the size of the figures in a particular section of commentary.

Summary

1. In 2012, 4.11 million scientific procedures were started in Great Britain, an increase of eight per cent (+317,200 procedures) compared with 2011. The rise was mainly attributable to a 22 per cent (+363,100) increase in the breeding of genetically modified (GM) animals¹ and harmful mutants (HM)², mainly mice, to 1.98 million procedures, nearly half (48%) of the total number of procedures performed. Excluding the breeding of GM and HM animals, the total number of procedures decreased by two per cent (-46,000) to 2.13 million procedures.
2. For the first time, the number of procedures involving GM animals (1.91 million) was greater than the number performed on normal animals (1.68 million).
3. There were increases in 2012 in the numbers of procedures for the following species: mice (+379,058 or +14%); sheep (+5,157 or +14%); goats (+1,462 or +746%), up from 196; guinea pigs (+1,203 or +10%); and non-human primates (+545 or +22%). There were falls for the following species: fish (-63,073 or -11%); amphibians (-2,218 or -14%); rabbits (-1,595 or -10%); and pigs (-961 or -22%).
4. The numbers of procedures for safety testing (toxicology³) decreased by six per cent (-22,100) to 377,000, with a greater proportion to 2011 carried out to meet at least one legislative/regulatory requirement (94% compared with 84%).
5. The number of non-toxicology procedures increased by ten per cent (+339,200) to 3.73 million and included rises for the following fields of research: nutrition (79,300 or +425%); anatomy⁴ (73,200 or +20%); cancer research (+69,000 or +16%); genetics⁵ (+46,000 or +13%); ecology⁶ (+33,100 or +85%); and biochemistry⁷ (+15,800 or +54%). There were falls in the fields of physiology⁸ (-173,600 or -29%); pharmaceutical research and development (-24,600 or -11%); and pharmacology⁹ (-10,100 or -14%).

¹ Genetically modified animals are animals whose genetic characteristics have been altered using genetic engineering, which produces a new trait in an animal or a biological substance, such as a protein or hormone. For a more detailed description, please see the User Guide.

² Harmful mutants are animals possessing one or more genes that have undergone mutation, which involves a change in their genetic structure. For a more detailed description, please see the User Guide.

³ For the purposes of these statistics, toxicology means the safety evaluation of the effects of substances on man, animals or the environment, mainly medical treatments.

⁴ The study of a physical structure of an organism.

⁵ The study of genes, heredity, and variation in living organisms.

⁶ The study of interactions among organisms and their environment.

⁷ The study of chemical processes within, and relating to, living organisms.

⁸ The study of the functions of the individual structures and systems within an organism.

⁹ The study of drugs.

6. There were 1.49 million more procedures (+57%) than in 2001 (which had the lowest figure since 1955), primarily due to increases in the use of breeding to produce GM or HM animals (+1.20 million or +155%) and fundamental biological research¹⁰ (+525,400 or +67%), although there was also a notable decrease in procedures for applied studies¹¹ in human medicine or dentistry (-194,200 or -28%). Mice primarily accounted for the rises for both GM and HM animals (+1.04 million) and fundamental biological research (+412,600). Excluding GM or HM breeding, the total number of procedures was higher than in 2001 (+284,500 or +15%).

(Source: Tables 1, 3, 6, 9, 10, 19; and online Time Series Tables 20, 26)

¹⁰ Fundamental biological research is carried out with the primary intention of increasing knowledge of the structure, function and malfunction of man and other animals, or plants. Please see the User Guide for more details.

¹¹ Consists of research into, development of and quality control of products or devices. See User Guide for more information.

Definition – for the compilation of these statistics the number of procedures reported generally corresponds to the number of animals. A procedure, as regulated by law, is an experiment (or other scientific procedure) conducted on a living animal which has the effect of causing that animal pain, suffering, distress or lasting harm. Please see the User Guide for the legal definition. Where an animal that has recovered fully from a completed procedure is used again for a further procedure it is counted as a separate procedure. The circumstances in which this re-use of an animal is permitted are limited.

Presentation – the figures given refer to the numbers of procedures that were started in 2012 (rather than the numbers of animals), compared with 2011, unless indicated otherwise. Some figures have been rounded depending on the size of the figures in a particular section of commentary. For given sections, all figures are presented in an unrounded form where some figures are less than 1,000 and all figures are presented to the nearest 100 where all figures are in their thousands. All figures in millions are presented as millions to two decimal places (e.g. 4.11 million). This practice is taken in order to simplify the explanation/presentation; therefore the figures shown will not be identical to the figures in the tables. However, percentage changes given are calculated using the unrounded data available in the tables.

Commentary

Procedures started in 2012

(Tables 1, 1a; and online Time Series Tables 20, 26)

There were 4.11 million scientific procedures started in 2012, an increase of 317,200 (+8%) compared with 2011. The rise was mainly attributable to an increase of 363,100 (+22%) in the breeding of genetically modified (GM) animals¹² and harmful mutants (HM)¹³, mainly mice, to 1.98 million procedures, nearly half (48%) of the total number of procedures performed. Excluding the breeding of GM and HM animals, the total number of procedures decreased by 46,000 (-2%) to 2.13 million procedures. There were 4.03 million animals used for the first time in procedures started in 2012, an increase of 322,700 (+9%), reflecting the increase in the numbers of procedures started.

Figure 1 shows that the number of experiments increased considerably between 1945 and 1971, rising from 1.18 million to 5.61 million (+4.43 million or +377%), and from that period on to 1986 the number decreased to 3.11 million (-2.50 million or -45%). The implementation of the Animals (Scientific Procedures) Act 1986 changed the methodology of the collection from experiments to procedures¹⁴ and in 1987 data were collected based on both measures, the combined figure being 3.63 million experiments/procedures.

From 1988 onwards data for procedures alone were collected and in the following years the number decreased to 2.62 million in 2001 (-882,600 or -25%), mainly due to a reduction in the use of rats, mice, all other rodents¹⁵, rabbits, and birds (although there was an increase in the number of procedures performed on fish). Since then, the number of procedures has risen to 4.11 million in 2012 (+1.49 million or +57%), primarily due to increases in breeding to produce GM or HM animals (+1.20 million

¹² Genetically modified animals are animals whose genetic characteristics have been altered using genetic engineering, which produces a new trait in an animal or a biological substance, such as a protein or hormone. For a more detailed description, please see the User Guide.

¹³ Harmful mutants are animals possessing one or more genes that have undergone mutation, which involves a change in their genetic structure. For a more detailed description, please see the User Guide.

¹⁴ The Cruelty to Animals Act 1876 covered all animals which were used in experiments i.e. a procedure of unknown outcome. The Animals (Scientific Procedures) Act 1986 has a broader definition as it includes all scientific procedures which may cause pain, suffering, distress or lasting harm. Therefore, the change in methodology accounted for the increase in figures from 1987 onwards.

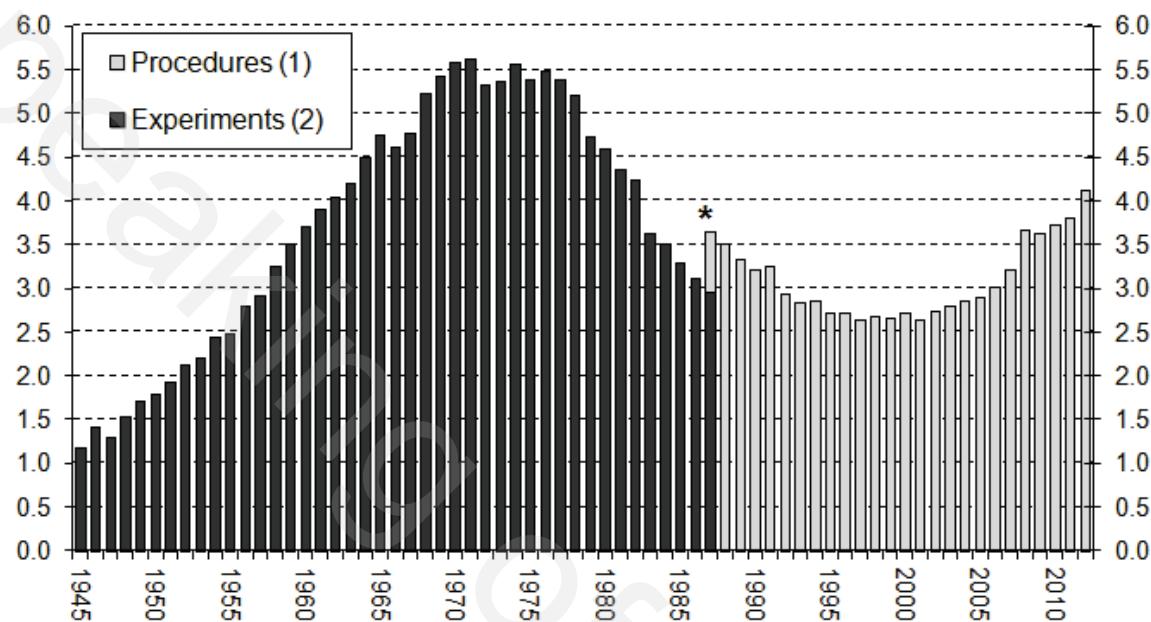
¹⁵ Includes guinea pigs, hamsters, gerbils, and other rodent species.

or +155%) and fundamental biological research¹⁶ (+525,400 or +67%), with mice mainly accounting for the rises.

The overall level of scientific procedures is determined by a number of factors, including the economic climate and global trends in scientific endeavour. In recent years, while many types of research have declined or even ended, the advent of modern scientific techniques has opened up new research areas, with genetically modified animals, mainly mice, often being required to support these areas.

Figure 1: Experiments or procedures commenced each year, 1945–2012

Millions of procedures



(1) Scientific Procedures under the 1986 Act

(2) Experiments under the 1876 Act

* The 1987 total includes experiments under the 1876 Act as well as procedures under the 1986 Act.

Primary purpose

(Tables 1 and 1a)

Figure 2 below compares breeding to produce GM and HM animals with other primary purposes. It shows that breeding to produce GM or HM animals increased from 312,700 in 1995 to 1.98 million in 2012 (+1.67 million or 534%). Following on from that trend, the proportion of the total number of procedures accounted for by breeding to produce GM or HM animals rose from 12 per cent in 1995 to 48 per cent in 2012, nearly half of the total number of procedures performed.

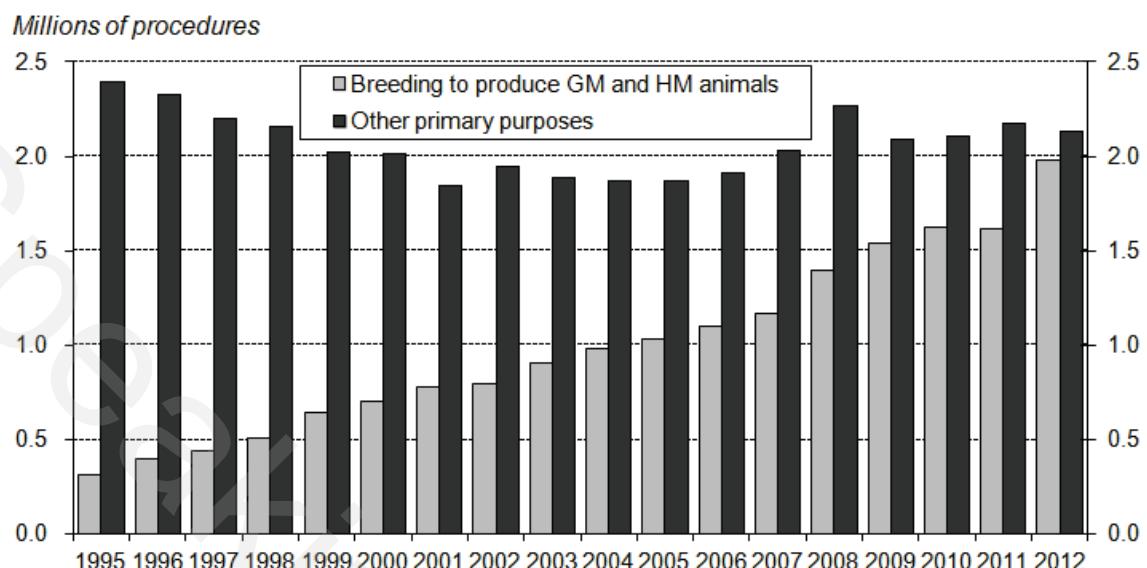
The number of procedures undertaken for other primary purposes generally declined between 1995 to 2005, decreasing from 2.40 million to 1.87 million (-528,000 or -22%). The figure then rose to 2.27 million in 2008, fell to 2.09 million the following year and has remained relatively stable since with the figure being 2.13 million in 2012.

The most common primary purposes throughout the period, other than breeding to produce GM or HM

¹⁶ Fundamental biological research is carried out with the primary intention of increasing knowledge of the structure, function and malfunction of man and other animals, or plants. Please see the User Guide for more details.

animals, were fundamental biological research and applied studies¹⁷ in human medicine or dentistry.

Figure 2: Comparison of breeding to produce GM and HM animals with other primary purposes, 1995–2012



Increases

There were increases in the numbers of procedures between 2011 and 2012 for the following primary purposes:

- breeding of GM or HM animals (+363,000 or +22%);
- applied studies in human medicine or dentistry (+12,900 or +3%);
- direct diagnosis¹⁸ (+3,600 or +8%).

Decreases

There were decreases in the numbers of procedures between 2011 and 2012 for the following primary purposes:

- fundamental biological research (-34,800 or -3%);
- protection of man, animals or environment¹⁹ (-17,000 or -15%);
- applied studies in veterinary medicine (-10,600 or -6%).

¹⁷ Consists of research into, development of and quality control of products or devices. See User Guide for more information.

¹⁸ Direct diagnosis is the investigation of disease including investigating suspected poisoning. Please see the User Guide for more information.

¹⁹ Refers to using toxicological or other safety or environmental evaluation to protect man, animals or the environment.

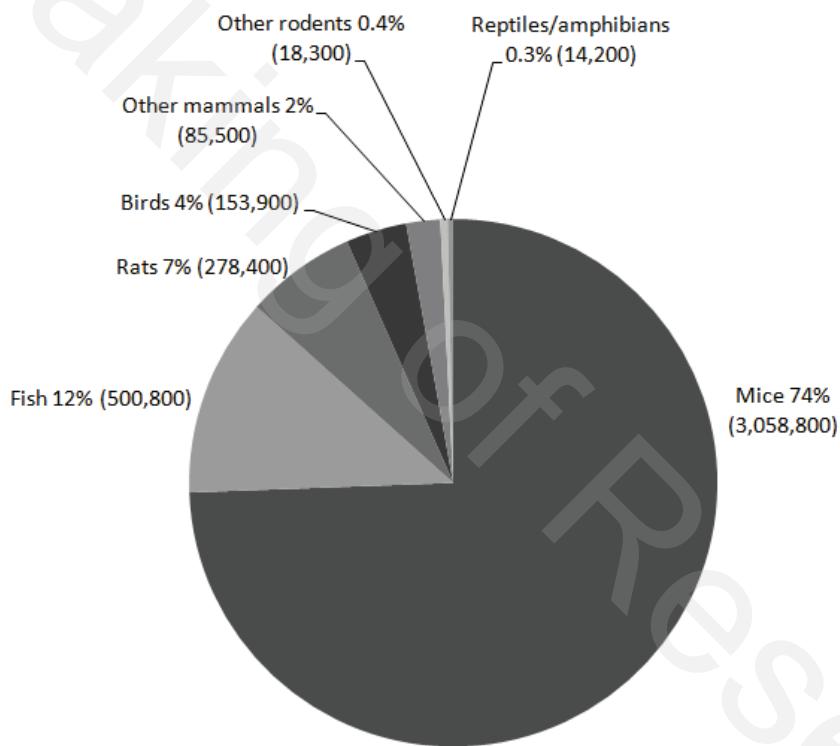
Species used

(Tables 1, 1a and online Time Series Table 20)

Figure 3 below shows that:

- Mice were the most commonly used species accounting for around three-quarters of procedures (74%).
- Fish (12%), rats (7%) and birds²⁰ (4%) were the next most frequently used species. Domestic fowl accounted for 89 per cent of all procedures using birds.
- Other mammals²¹ accounted for two per cent of all procedures, of which dogs, cats and non-human primates combined were used in 0.2 per cent of all procedures, with a combined total of 8,100.
- Other rodents²² and reptiles/amphibians accounted for 0.4 per cent and 0.3 per cent of procedures respectively.

Figure 3: Procedures by species of animal, 2012



Increases

There were higher numbers of procedures using some species in 2012, as follows:

- mice (+379,058 or +14 %);
- sheep (+5,157 or +14%);

²⁰ Includes domestic fowl (*Gallus domesticus*), turkeys, all species of quail, and other bird species. The species are grouped together for the purposes of the pie chart but data are collected and published on them separately.

²¹ Includes rabbits, cats, dogs, ferrets, other carnivores, horses and other equids, pigs, goats, sheep, cattle, deer, marmosets/tamarins, macaques and other mammal species. The species are grouped together for the purposes of the pie chart but data are collected and published on them separately.

²² Includes guinea pigs, hamsters, gerbils, and other rodent species. The species are grouped together for the purposes of the pie chart but data are collected and published on them separately.

- goats (+1,462 or +746%), up from 196;
- guinea pigs (+1,203 or 10%);
- non-human primates²³ (+545 or +22%), with New World monkeys²⁴ (-68 or -19%) and Old World monkeys²⁵ (+613 or +29%).

Decreases

There were lower numbers of procedures using other species in 2012, as follows:

- fish (-63,073 or -11%);
- amphibians (-2,218 or -14%);
- rabbits (-1,595 or -10%);
- pigs (-961 or -22%).

Use of mice, rats, and fish

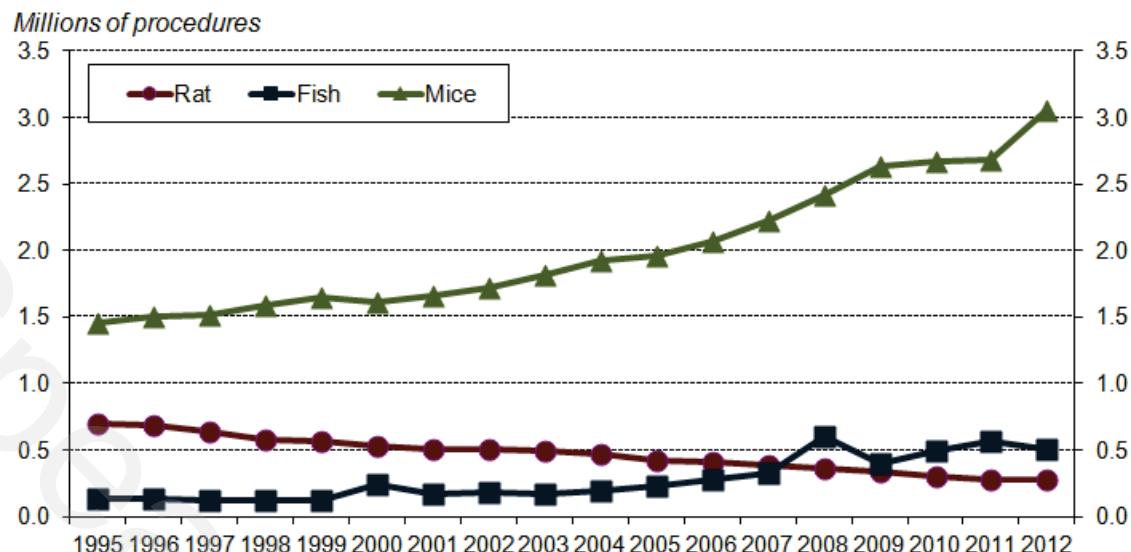
Figure 4 below details the numbers of procedures on the most common species used (mice, rats and fish). The chart shows that there has been a decline in the use of rats, falling from 694,400 in 1995 to 271,500 in 2011 (-61% or -422,800) but the figure increased slightly to 278,400 in 2012. The number of procedures using mice, the most frequently used species of the three throughout the series, rose from 1.45 million in 1995 to 2.63 million in 2009 (+81% or +1.17 million). The figure remained relatively stable for a couple of years then rose to 3.06 million in 2012. The overall trend for fish has seen their numbers gradually grow from 131,100 to 500,800 over the same period (+282% or 369,700), with fish being more commonly used than rats from 2008 onwards. The proportion of total procedures accounted for by mice, rats and fish has steadily increased from 84 per cent in 1995 to 93 per cent in 2012.

²³ The definition for non-human primates includes prosimians, New World monkeys, Old World monkeys, and apes. However, in recent years only procedures on New World monkeys and Old World monkeys have been undertaken.

²⁴ The definition for New World (i.e. the Americas and Oceania) monkeys includes marmosets/tarmarins; squirrel, owl, and spider monkeys; and other New World monkeys. However, in recent years, including both 2011 and 2012, only marmosets have been used in procedures.

²⁵ The definition for Old World (i.e. Europe, Asia, and Africa) monkeys includes macaques, baboons, and other Old World monkeys. However, in recent years, including both 2011 and 2012, only macaques have been used in procedures.

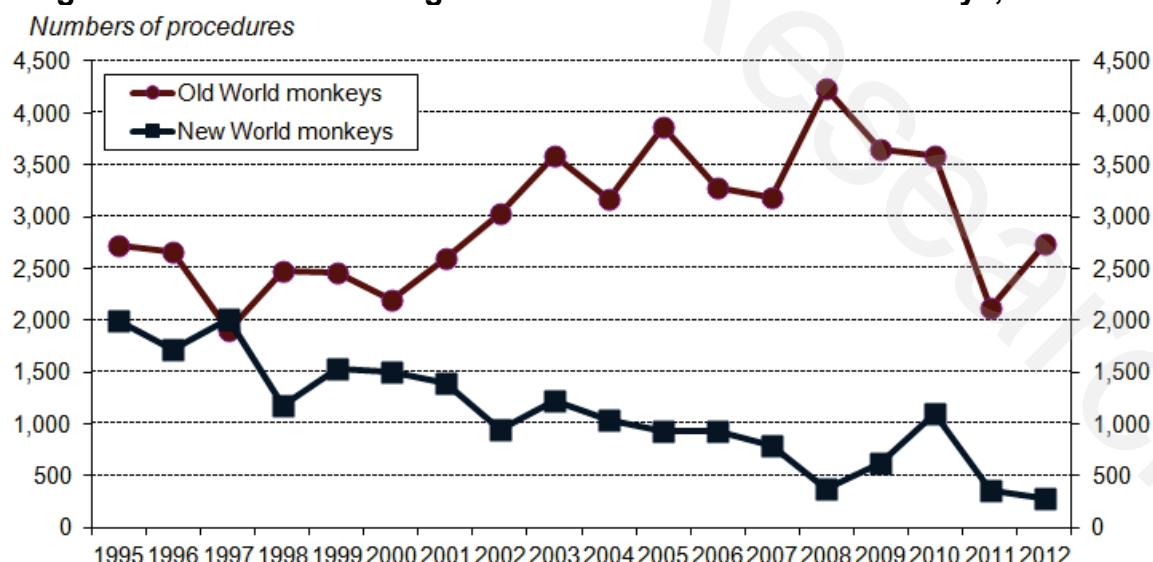
Figure 4: Procedures using mice, rats and fish 1995-2012



Primate use

Figure 5 below shows the change in the numbers of procedures using Old World and New World monkeys from 1995 to 2012. The use of the former was more common than that of the latter throughout the series, apart from in 1997. From that year until 2008 the overall trend was that the number of procedures on Old World monkeys increased (+56% or +1,510), as they have been required for more regulatory testing to meet legal requirements, whilst for New World monkeys (specifically marmosets) the number of procedures decreased (-82% or -1,633), as changing patterns of research have led to a decline in their use. Between 2008 and 2011 there was a fall in the use of Old World monkeys but the numbers again increased in 2012 to 2,737; however, the figure was still lower than the majority of years in the previous decade. There was a rise in the use of New World monkeys between 2008 and 2010, decreasing from then on to 283 in 2012, its lowest ever figure in the series.

Figure 5: Procedures using New World and Old World monkeys, 1995–2012



Comparing the changes between just 2011 and 2012:

- The number of procedures using New World monkeys (i.e. marmosets/tamarins only in this comparison) fell by 68 (-19%) to 283, and the number of animals used also decreased by 12 to 232.
- The number of procedures using Old World monkeys (i.e. macaques only in this comparison) rose by 613 (+29%) to 2,737, and the number of animals used also increased by 739 to 1,954.
- Some primates were used more than once since some of the procedures they were involved in had only a minimal effect.
- Overall, the total number of procedures using non-human primates increased by 545 (+22%) to 3,020 and the number of animals used also rose by 727 to 2,186.

Species on which no procedures were started in 2012

No procedures were performed using greyhounds, a number of primate species, camelids, other ungulates²⁶, quail (*Coturnix coturnix*)²⁷ and *Octopus vulgaris*²⁸. No great apes have been used since the current legislation (the 1986 Act) was implemented in 1987.

Source

(Table 2 and online Supplementary Tables 2.1, 2.2)

The majority (82% or 3.37 million) of the 4.11 million procedures started in 2012 were performed using animals listed in Schedule 2 of the Act. These animals must come from a designated source²⁹, unless a special exemption is granted. Animals listed in Schedule 2 are: mice; rats; guinea pigs; hamsters; gerbils; rabbits; cats; dogs; ferrets; non-human primates; pigs (if genetically modified); sheep (if genetically modified); and common quail (*Coturnix coturnix*). The procedures involving animals listed in Schedule 2 and acquired from non-designated sources³⁰ in the UK are authorised under Section 10(3) of the Act. The following were sources for Schedule 2 listed animals in 2012:

- Designated establishments in the UK were the source of animals for 3.35 million (82%) procedures using Schedule 2 listed species.
- Other EU countries were the source of animals for 11,900 (0.3%) procedures using Schedule 2 listed species.
- Schedule 2 listed animals acquired from other sources (including Council of Europe countries who are signatories to ETS123³¹) were used in 16,000 procedures (0.4%).

²⁶ Ungulates are animals which have hooves.

²⁷ *Coturnix coturnix* is the common quail. Quail (not *Coturnix coturnix*) refers to all other species of quail.

²⁸ *Octopus vulgaris* refers to the common Octopus.

²⁹ A designated source is a supplier licensed to breed or supply animals for scientific purposes.

³⁰ Non-designated sources include any unlicensed source of animals in the UK, as well as any source of animals outside of the UK.

³¹ European Convention for the Protection of Vertebrate Animals used for Experimental and Other Scientific Purposes.

Genetic status

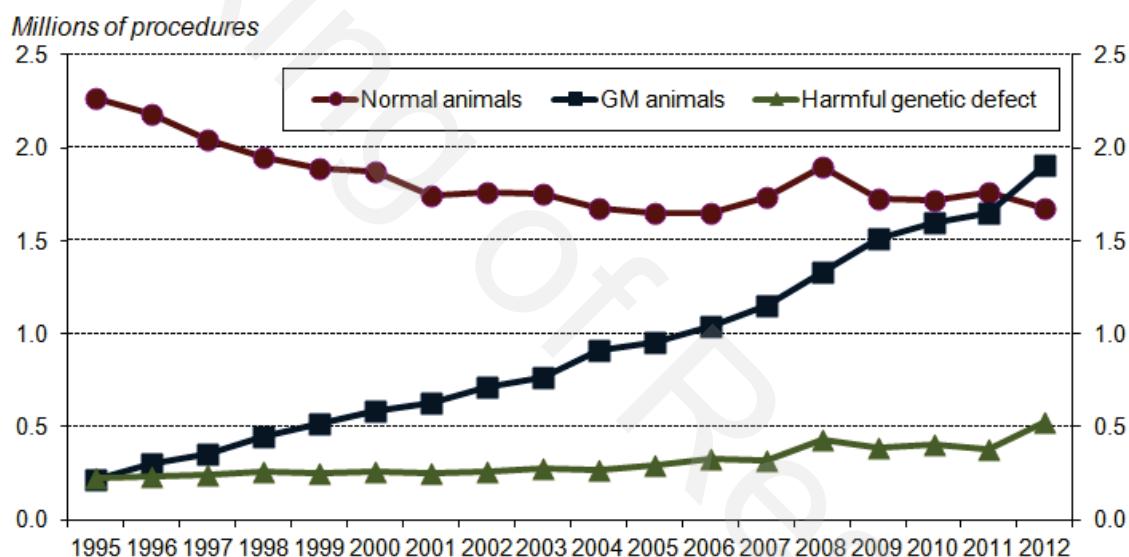
(Table 3 and online Supplementary Tables 3 (full), 3.1, 3.2, 3.3)

Figure 6 below shows the number of procedures performed by the genetic status of the animal between 1995 and 2012. It shows that the use of GM animals increased considerably over the period from 215,300 in 1995 to 1.91 million animals in 2012 (+1.69 million or +786%), with the breeding of GM animals and fundamental biological research being the main primary purposes accounting for the rise. In 2012, for the first time in the series, the number of procedures involving GM animals was greater than the number involving normal animals³².

Between 1995 and 2012, the number of procedures involving animals with a harmful genetic mutation also rose, but to a lesser extent, from 226,600 in 1995 to 525,000 in 2012 (+298,400 or +132%), with the breeding of HM animals driving the increase. The change between 2011 and 2012 accounted for half of this increase (+149,300).

Over the same period, the use of normal animals decreased from 2.27 million in 1995 to 1.68 million in 2012 (-591,200 or -26%), mainly due to a reduction in procedures undertaken for applied studies, although there was an increase in the use of normal animals for the breeding of GM or HM animals.

Figure 6: Procedures by genetic status of animal, 1995–2012



Genetically normal animals

There were 1.68 million procedures involving normal animals in 2012 (41% of the overall total), with mice, fish and rats accounting for the majority (52%, 17%, and 15% of normal animals respectively), and fundamental biological research, applied studies and the breeding of GM or HM animals being the main primary purposes for these species. Compared with 2011, there was a decrease in procedures using normal animals (-86,900 or -5%), mainly due to a decline in the use of fish (-117,000 or -29%), although there was an increase in the use of mice (+46,400 or +6%).

Animals with a harmful genetic mutation

There were 525,000 procedures involving animals with a harmful genetic mutation in 2012 (13% of the overall total), with mice accounting for the majority (84% of animals with a harmful genetic mutation) and the breeding of HM animals being the main primary purpose for this species. Compared with

³² Non-GM or HM animals.

2011, there was an increase in procedures using animals with a harmful genetic mutation (+149,300 or +40%), which was also mainly attributable to mice (+119,100 or +37%).

Genetically modified animals

There were 1.91 million procedures involving GM animals in 2012 (46% of the overall total), with mice accounting for the majority (91% of GM animals), and breeding of GM animals and fundamental biological research being the main primary purposes for this species. Compared with 2011, there was an increase in procedures using GM animals (+254,800 or +15%), with mice also being the key driver of the increase (+213,500 or 14%).

Target body system

(Table 4)

In 2012, 2.12 million, slightly over half (52%) of all procedures, were directed towards one particular body system³³.

- The immune system was the largest single category, accounting for 557,400 procedures (14% of all procedures), of which the main species used was mice (514,200 or 92% of this type of procedure).
- The nervous and reproductive systems were the next largest single categories with 417,900 (10%) and 356,700 (9%) procedures respectively. Mice, rats and fish were the most common species used for these systems accounting for 415,600 (99%) of procedures for the former and 341,100 (96%) of procedures for the latter.
- Of the single body system categories, the largest increase was in the alimentary³⁴ body system (+108,000 or +167%) and the largest decrease was in the respiratory system (-27,400 or -24%).

Procedures conducted where the target body system was not relevant accounted for 836,300 (20% of all procedures) and remained stable compared with 2011 (-4,200 or -0%). The category for multiple target body systems accounted for 1.16 million procedures (28% of all procedures) increasing by 171,900 (+17%).

Use of anaesthesia

(Table 5)

Procedures which cause pain, suffering, distress, or lasting harm to the animal are only permitted without anaesthesia³⁵ or analgesic³⁶ when such administration is judged more traumatic than the procedure itself, or when it is incompatible with the object of the procedure.

- In 2012, 28 per cent of procedures (1.16 million) had some form of anaesthesia to alleviate the severity of the interventions, a similar proportion to 2011 (29%). For many of the remaining procedures the use of anaesthesia would have potentially increased the adverse effects of the procedure.
- The use of neuromuscular blocking agents (NMBA)³⁷ was recorded in 1,675 procedures, a decrease from 2,547 procedures in 2012. All NMBA procedures involved the use of general anaesthesia.

³³ A group of organs that work together to perform a certain task.

³⁴ Includes all parts of the body involved in preparing food for absorption into the body and excretion of waste products.

³⁵ Anaesthesia involves using medication to induce a loss of sensation in the animal.

³⁶ An analgesic is a drug used to relieve pain.

³⁷ Neuromuscular blocking agents (NMBA) relax skeletal muscles and induce paralysis.

Fundamental and applied studies other than toxicology, regulatory or safety purposes

(Table 6)

Non-toxicology³⁸ accounted for 3.73 million procedures in 2012 (91% of the total number of procedures), an increase of 339,200 (+10%) compared with the previous year. The main fields of research were: immunology (575,800 or 15% of the total number of non-toxicological procedures); cancer research (500,700 or 13%); physiology³⁹ (430,900 or 12%); anatomy⁴⁰ (430,400 or 12%); and genetics⁴¹ (391,700 or 11%).

Compared with 2011, there were increases for: nutrition (+79,300 or +425%); anatomy (+73,200 or +20%); cancer research (+69,000 or +16%); genetics (+46,000 or +13%); ecology⁴² (+33,100 or +85%); and biochemistry⁴³ (+15,800 or +54%). There were falls for: physiology (-173,600 or -29%); pharmaceutical research and development (-24,600 or -11%); and pharmacology⁴⁴ (-10,100 or -14%).

Production of biological materials

(Table 7)

In 2012, 357,800 procedures were carried out to produce biological materials, 8,100 more (+2%) than in 2011. Biological materials were produced for the following purposes:

- 134,500 procedures (38% of the procedures undertaken to produce biological materials) were for the production of infectious agents, of which the most common species used were birds (78%) and mice (17%).
- Vectors⁴⁵, neoplasms⁴⁶ and antibody production⁴⁷ accounted for 30,600 procedures (9%) undertaken to produce biological materials, with mice predominantly used (87%).
- The remaining 192,700 biological procedures (54%) were undertaken to produce other biological material such as tissues or blood products, with mice (65%) and pigs, sheep, and all other ungulates (19%) used.
- The numbers of procedures using immunisation to produce monoclonal antibodies by in vitro methods fell by 17 per cent (-300) to 1,600 procedures in 2012, less than half the level of 4,000 procedures in 2008.

Toxicology, other safety or efficacy evaluation

(Tables 9, 9a, 10, 11; online Supplementary Tables 12, 15, 16; and online Time Series Table 25)

In 2012, 377,000 procedures were undertaken for toxicological or other safety/efficacy⁴⁸ evaluation

³⁸ For the purposes of these statistics, toxicology means the safety evaluation of the effects of substances on man, animals or the environment, mainly medical treatments.

³⁹ The study of the functions of the individual structures and systems within an organism.

⁴⁰ The study of a physical structure of an organism.

⁴¹ The study of genes, heredity, and variation in living organisms.

⁴² The study of interactions among organisms and their environment.

⁴³ The study of chemical processes within, and relating to, living organisms.

⁴⁴ The study of drugs.

⁴⁵ A vector is an agent that transfers genetic material from one cell to another.

⁴⁶ A neoplasm is an abnormal growth of tissue in animals.

⁴⁷ Antibodies identify and neutralise foreign objects such as bacteria and viruses.

⁴⁸ Safety testing is generally carried out to meet regulatory requirements for safety of pharmaceuticals, chemicals etc. Efficacy testing is to demonstrate the effectiveness of drugs, which may or may not be carried out for regulatory purposes.

purposes, nine per cent of the total 4.11 million procedures. This represents a decrease of 22,100 (-6%) compared with 2011, which continues the overall trend of a fall in toxicological procedures in recent years. The decrease in 2012 was mainly attributable to a decline in the use of fish (-41,600 or -55%) but there was also a rise in the use of mice (+16,400 or +10%). In 2012, 281,700 (75%) of toxicological procedures were for pharmaceutical safety/efficacy evaluation, with 223,100 involving mice or rats (79% of all pharmaceutical safety/efficacy evaluation procedures) and just 2,100 (less than 1%) involving non-human primates. Following a Government ban, no toxicological procedures involving cosmetics have been undertaken on animals since 1998.

Figure 7 shows the toxicological procedures undertaken by species of animal in 2012. Mice were the main species used with 184,000 procedures (49% of the toxicological total). Rats and fish were the next most common species, accounting for 111,500 (30%) and 34,700 (9%) of toxicological procedures respectively. Other species used were birds⁴⁹ (17,700 or 5% of the toxicology total), rabbits (10,000 or 3%), other animals⁵⁰ (9,600 or 3%) and all other rodents⁵¹ (9,400 or 2%).

⁴⁹ Includes domestic fowl (*Gallus domesticus*), quail, and other bird species. The species are grouped together for the purposes of the pie chart but data are collected and published on them separately.

⁵⁰ Includes dogs (beagles), other carnivores, horses and other equids, pigs, goats, sheep, cattle, marmosets/tamarins, macaques, and amphibians. The species are grouped together for the purposes of the pie chart but data are collected and published on them separately.

⁵¹ Includes guinea pigs, hamsters, gerbils, and other rodent species. The species are grouped together for the purposes of the pie chart but data are collected and published on them separately.

Figure 7: Procedures (toxicology) by species of animal, 2012

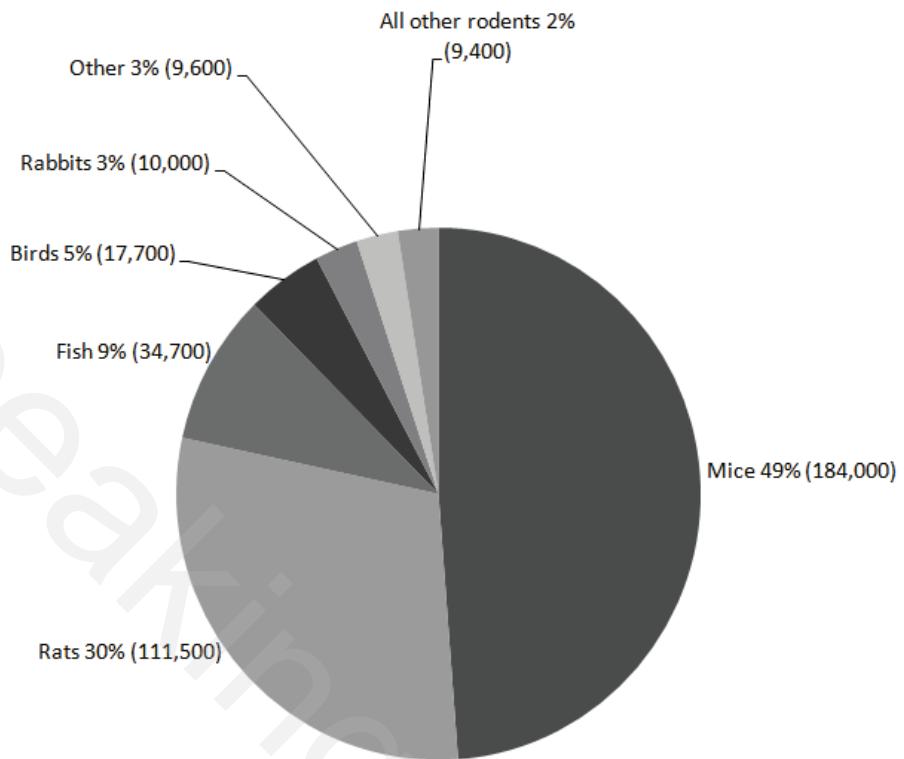
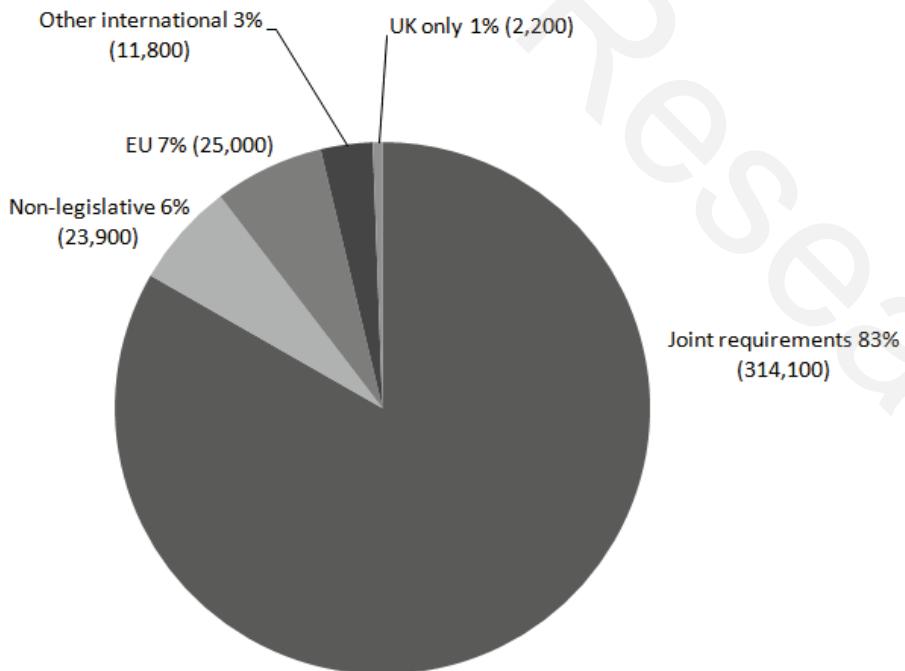


Figure 8 shows that the majority of toxicological procedures (353,200 or 94%) conformed to legal or regulatory requirements with most (314,100 or 83%) meeting a combination of requirements. In 2012, 23,900 (6%) procedures did not conform to any legislative requirements.

Figure 8: Procedures by legislative requirement (toxicology), 2012



Rodenticide trials

It is impracticable to collect accurate figures on the number of animals used in field trials of rodenticide⁵² substances. Nonetheless, no returns indicated that such field trials occurred in 2012.

Use of animals on the CITES list

Returns were required on the use of animals listed in Appendix 1 of the Convention on International Trade in Endangered Species of Flora and Fauna (CITES)⁵³ or in Annex C.1 to the Council Regulation (EEC) 3626/82 (see form notes section in the User Guide). There were 147 procedures performed using animals in this category in 2012; these involved wild birds and amphibia in research relevant to those species.

Type of establishment

(Table 19 and Online Time Series Table 23)

Universities accounted for the majority of procedures in 2012, undertaking 48 per cent (1.97 million) of the 4.11 million procedures. In addition, universities held 76 per cent (2,467) of the 3,239 licences for which returns were received. Other types of establishment which undertook procedures were commercial organisations (accounting for 27% or 1.13 million procedures), other public bodies (accounting for 13% or 549,500 procedures) and non-profit organisations (accounting for 9% or 352,000 procedures). These organisations respectively held eight per cent, seven per cent and four per cent of the licences for which returns were received.

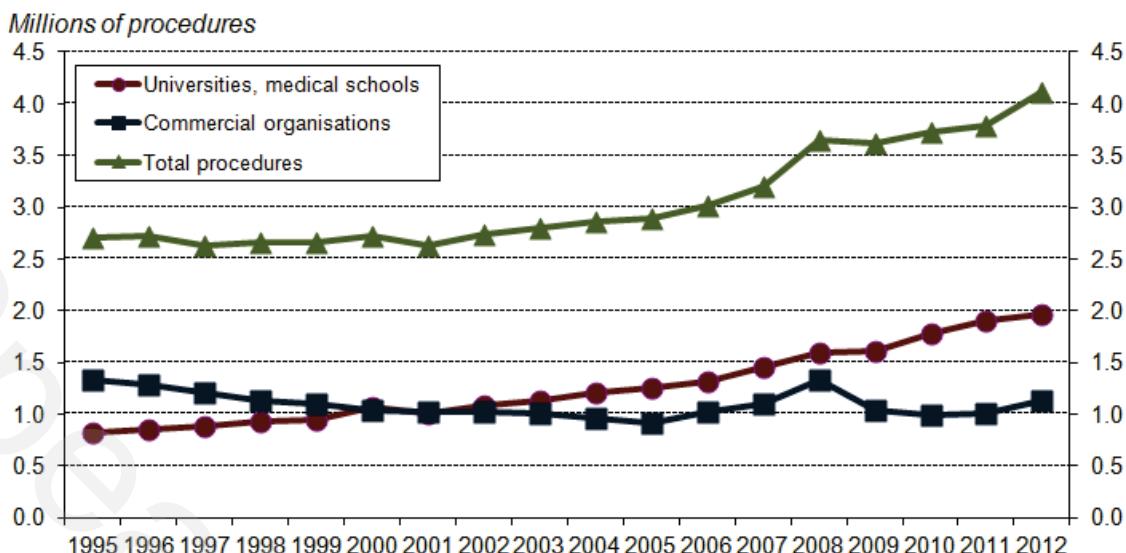
Figure 9 shows the procedures undertaken in universities/medical schools and commercial organisations between 1995 and 2012. The number of procedures accounted for by the commercial sector decreased between 1995 and 2005 from 1.33 million to 908,200 (-421,200 or -32%). The figure then rose from then on to 1.33 million in 2008, the same figure as 1995, and then fell in the following year to 1.03 million. The number remained relatively stable between 2009 and 2011 and then increased slightly in 2012 to 1.13 million. Between 1995 and 2012, the number of procedures carried out in the university sector rose by 1.14 million (+139%) to 1.97 million, with the figure overtaking the commercial sector from 2002 onwards.

The difference in trends between the commercial sector and the university sector is likely to reflect the increase in fundamental research using GM animals within universities, as well as the decline in procedures undertaken for toxicological purposes.

⁵² Rodenticides are a category of pest control chemicals intended to kill rodents. Rodenticide trials are field trials of such chemicals and are occasionally undertaken by commercial companies who produce them.

⁵³ CITES is an international agreement between governments with the aim of ensuring that international trade in specimens of wild animals and plants does not threaten their survival.

Figure 9: Procedures by establishment type, 1995–2012



International comparisons

(Table 1a and Commission report⁵⁴ Tables 1.0 and 1.1)

Data compiled by EU countries and submitted to the European Commission use a narrower, but common, definition of animal experiments. The main difference with the definition used for the other statistics in this publication is that the data are based on numbers of animals and excludes breeding to produce GM or HM animals. The latest data are for 2008⁵⁵ and some of the key points are as follows:

- The total number of animals used for experiments in the 27 EU Member States in 2008 was just over 12 million, falling by two per cent compared with 2005.
- In France, the UK and Germany there were experiments using 2.33 million animals, 2.27 million animals, and 2.02 million animals respectively.
- No apes were used in experiments anywhere in the EU in 2008. A total of 9,569 non-human primates were used in experiments across the EU27, a third (35% or 3,354) of which were used in the UK.

The full report is available on the Commission's website

http://ec.europa.eu/environment/chemicals/lab_animals/reports_en.htm

Returns, project licensees and designated places

(Appendix A Table 19)

Statistical returns are required each year from every person in Great Britain who holds a project licence for part or all of the year. For 2012, 3,239 licensees provided returns which reported either that

⁵⁴ Commission Staff Working Paper - Report on the Statistics on the Number of Animals used for Experimental and other Scientific Purposes in the Member States of the European Union in the year 2008 (SEC (2010) 1107/final 2), available at http://ec.europa.eu/environment/chemicals/lab_animals/reports_en.htm. Data quoted are from Tables 1.0 and 1.1 of the Commission Working Paper SEC (2010) 1107/final 2, available at http://ec.europa.eu/environment/chemicals/lab_animals/pdf/sec_2010_1107.pdf.

⁵⁵ Data for France related to 2007.

procedures were started (2,556 licensees, of which 15 reported only non-countable procedures⁵⁶) or that none were started (681 licensees).

There were 2,717 project licences in force at the end of 2012 compared with 2,624 at the end of 2011, a slight increase. The number of certificates of designation in force authorising places where work was carried out was 176 at the end of 2012 compared with 181 at the end of 2011, continuing the trend of falls in recent years. The number of personal licences in force decreased to 14,875 at the end of 2012, compared with 15,403 at the end of 2011.

Further information

Information about research and testing using animals can be found at <https://www.gov.uk/research-and-testing-using-animals>.

Information about the Animals in Science Committee can be found at <https://www.gov.uk/government/organisations/animals-in-science-committee>.

Information about the National Centre for the Replacement, Refinement and Reduction of Animals in research (NC3Rs) can be found at <http://www.nc3rs.org.uk/>.

Information relating to Northern Ireland is published by the Department of Health, Social Services and Public Safety and can be found at <http://www.dhsspsni.gov.uk/healthprotection-animalscience>.

Information on public attitudes to animal testing is available from IPSOS MORI at <http://www.ipsos-mori.com/researchpublications/publications/1343/Views-on-Animal-Experimentation.aspx>.

Tables

Notes providing details of the terms and classifications used ('User Guide to Home Office Statistics of Scientific Procedures on Living Animals'), and the 'Supplementary Tables' and 'Time Series Tables' can be found at: <https://www.gov.uk/government/publications/statistics-of-scientific-procedures-on-living-animals-great-britain-2012>.

Definitions

All tables refer to the numbers of scientific procedures started on adult animals in 2012, unless indicated otherwise. Tables suffixed with an 'a' (e.g. Tables 1a, 6a, 9a) relate to the numbers of animals used.

Symbols used in tables

..	not available	-	nil
NA	not applicable	r	revised

⁵⁶ It is not possible to collect accurate figures on the numbers of procedures started using immature forms (e.g. larvae, embryos). Information is collected indicating when procedures using such forms are carried out, which are classified as non-countable procedures.

Organisation Chart: Relationship between the tables, 2012

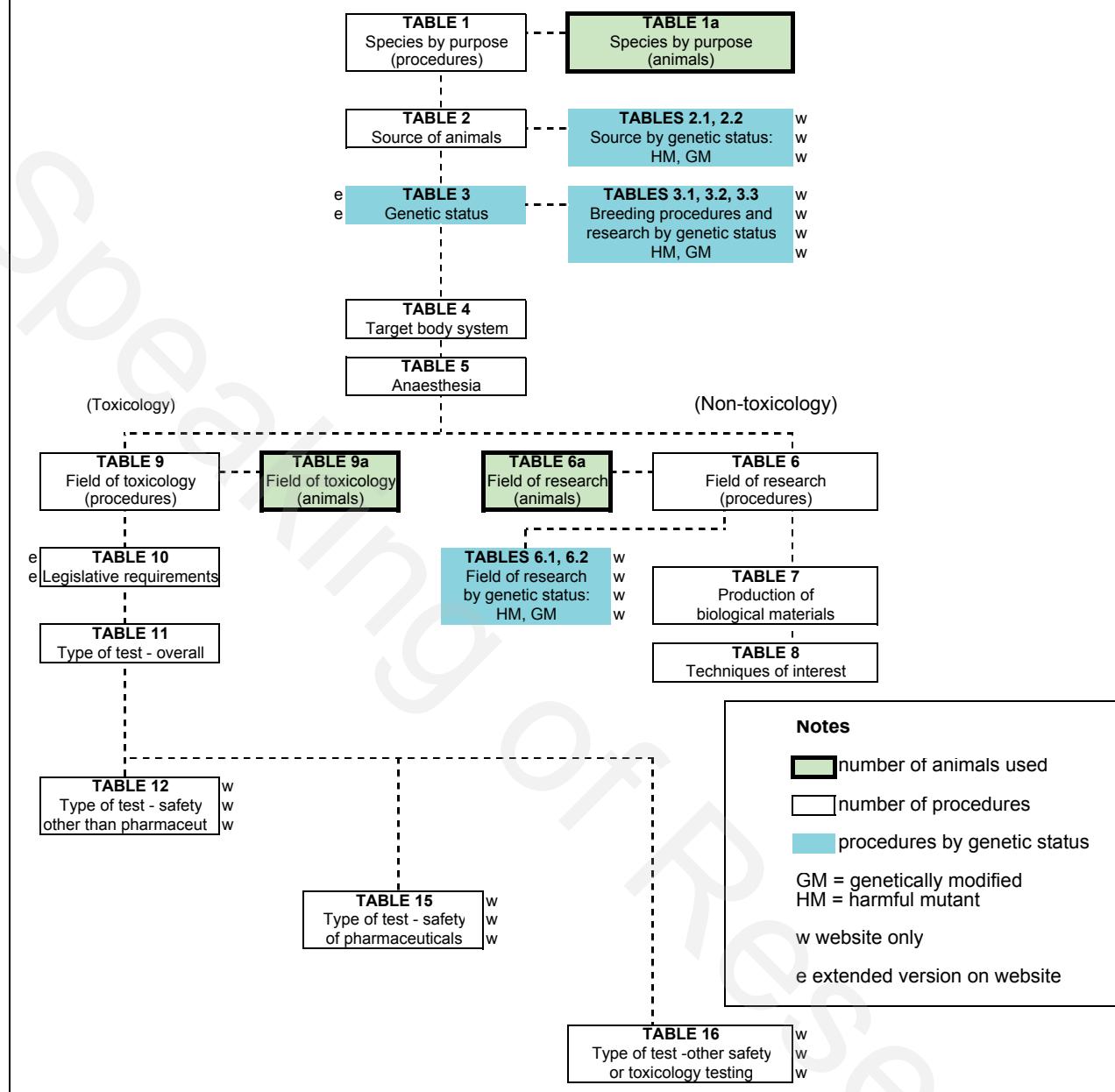


Table 1 Scientific procedures by species of animal and primary purpose of the procedure, page 1 of 2

Species of animal	Fundamental biological research	Primary purpose of the procedure						Number of procedures		
		Applied studies -veterinary medicine	Applied studies -human medicine or dentistry	Protection of man, animals or environment	Education	Training	Forensic enquiries	Direct diagnosis	Breeding of GM or HM animals	Total
Mammal										
Mouse	902,799	345,173	15,916	13,738	889	10	-	3,390	1,776,906	3,053,821
Rat	75,477	119,520	192	51,264	415	693	-	4	30,821	278,386
Guinea pig	1,611	9,788	1,148	-	110	-	-	83	-	12,740
Hamster	880	1,323	-	33	-	-	-	-	-	2,236
Gerbil	340	-	-	-	-	-	-	-	-	340
Other rodent	2,652	-	-	361	-	-	-	-	-	3,013
Rabbit	978	7,930	2,401	1,445	16	-	-	1,069	27	13,866
Cat	107	-	140	-	-	-	-	-	-	247
Dog	334	3,952	255	102	-	-	-	-	-	4,643
Beagle	-	-	-	-	-	-	-	-	-	-
Greyhound	-	-	-	-	-	-	-	-	-	-
Other including cross-bred dogs	130	-	68	-	-	-	-	-	2	200
Ferret	125	201	4	-	13	-	-	5	-	348
Other carnivore	529	-	49	135	-	-	-	-	-	713
Horse and other equids	115	-	298	-	-	-	-	8,069	-	8,482
Pig	779	709	1,768	23	-	-	-	-	100	3,379
Goat	20	5	1,607	16	-	-	-	10	-	1,658
Sheep	4,602	527	1,183	132	-	-	-	36,369	58	42,871
Cattle	4,056	-	1,274	73	-	-	-	79	-	5,482
Deer	77	-	-	-	-	-	-	-	77	-
Camelid	-	-	-	-	-	-	-	-	-	-
Other ungulate	-	-	-	-	-	-	-	-	-	-

Table 1 Scientific procedures by species of animal and primary purpose of the procedure, page 2 of 2

Great Britain 2012

Species of animal	Primary purpose of the procedure						Number of procedures
	Fundamental biological research	Applied studies -human medicine or dentistry	Applied studies -veterinary medicine	Protection of man, animals or environment	Education	Training	
Primate							
Prosimian	-	-	-	-	-	-	-
New World monkey							
marmoset, tamarin	177	106	-	-	-	-	283
Squirrel, owl, spider monkey	-	-	-	-	-	-	-
Other New World monkey	-	-	-	-	-	-	-
Old World monkey							
Macaque	181	2,412	-	120	-	24	2,737
Baboon	-	-	-	-	-	-	-
Other Old World monkey	-	-	-	-	-	-	-
Ape							
Gibbon	-	-	-	-	-	-	-
Great ape	-	-	-	-	-	-	-
Other mammal							
533	-	-	-	-	-	-	533
Bird							
Domestic fowl (<i>Gallus domesticus</i>)	5,758	271	128,499	281	-	1,053	137,059
Turkey	800	154	3,292	-	-	190	4,436
Quail (<i>Coturnix coturnix</i>)	-	-	-	-	-	-	-
Quail (not <i>Coturnix coturnix</i>)	308	-	-	550	-	-	858
9,718	-	-	-	1,293	-	-	11,580
Other bird	513	-	-	-	-	569	-
Reptile - any reptilian species	11,118	-	-	404	-	-	513
Amphibian - any amphibian species	279,375	3,623	18,276	29,811	70	-	13,697
Fish - any fish species	-	-	-	-	-	-	500,830
Cephalopod - <i>Octopus vulgaris</i>	-	-	-	-	-	-	-
Total	1,304,092	495,694	176,370	99,781	1,513	703	50,914
Increase on 2011	-34,781	12,899	-10,643	-17,035	32	-17	-23
Percentage change from 2011	-3%	3%	-6%	-15%	2%	-2%	N/A
Percentage of total for 2012	32%	12%	4%	2%	0.0%	0.0%	1%
2011 Totals	1,338,873	482,795	187,013	116,816	1,481	720	23
							47,323
							1,617,813
							3,792,857

N/A = Not applicable

Table 1a Animals used, by species of animal and primary purpose of the procedure, page 1 of 2

Species of animal	Primary purpose of the procedure					Number of animals
	Fundamental biological research	Applied studies -human medicine or dentistry	Applied studies -veterinary medicine	Protection of man, animals or environment	Education	
						Total
Mammal						
Mouse	897,620	343,707	15,916	13,730	889	10
Rat	72,520	117,435	192	50,970	415	693
Guinea pig	1,611	9,788	1,148	-	110	83
Hamster	880	1,323	-	33	-	-
Gerbil	327	-	-	-	-	-
Other rodent	1,684	-	-	361	-	-
Rabbit	807	5,561	1,663	1,445	16	1,019
Cat	62	-	140	-	-	27
Dog						
Beagle	139	2,647	247	85	-	-
Greyhound	-	-	-	-	-	-
Other including cross-bred dogs	26	-	68	-	-	2
Ferret	125	201	4	-	13	5
Other carnivore	481	-	27	135	-	-
Horse and other equids	23	-	125	-	-	43
Pig	758	639	1,610	21	-	97
Goat	20	5	1,607	16	-	10
Sheep	4,362	412	1,040	132	-	645
Cattle	3,404	-	1,216	67	-	79
Deer	77	-	-	-	-	-
Camelid	-	-	-	-	-	-
Other ungulate	-	-	-	-	-	-

Table 1a Animals used, by species of animal and primary purpose of the procedure, page 2 of 2

Species of animal	Primary purpose of the procedure						Number of animals		
	Fundamental biological research	Applied studies -human medicine or dentistry	Applied studies -veterinary medicine	Education	Training	Forensic enquiries	Direct diagnosis	Breeding of GM or HM animals	Total
Primate	-	-	-	-	-	-	-	-	-
Prosimian	-	-	-	-	-	-	-	-	-
New World monkey	171	61	-	-	-	-	-	-	232
Marmoset, tamarin	-	-	-	-	-	-	-	-	-
Squirrel, owl, spider monkey	-	-	-	-	-	-	-	-	-
Other New World monkey	-	-	-	-	-	-	-	-	-
Old World monkey	97	1,739	-	115	-	-	3	-	1,954
Macaque	-	-	-	-	-	-	-	-	-
Baboon	-	-	-	-	-	-	-	-	-
Other Old World monkey	-	-	-	-	-	-	-	-	-
Apes	-	-	-	-	-	-	-	-	-
Gibbon	-	-	-	-	-	-	-	-	-
Great ape	-	-	-	-	-	-	-	-	-
Other mammal	460	-	-	-	-	-	-	-	460
Bird									
Domestic fowl (<i>Gallus domesticus</i>)	5,758	215	128,499	238	-	-	1,053	1,197	136,960
Turkey	800	10	3,292	-	-	-	82	-	4,184
Quail (<i>Coturnix coturnix</i>)	-	-	-	-	-	-	-	-	-
Quail (not <i>Coturnix coturnix</i>)	308	-	-	550	-	-	-	-	858
Other bird	8,816	-	1,293	-	-	-	248	-	10,357
Reptile - any reptilian species	513	-	-	-	-	-	-	-	513
Amphibian - any amphibian species	4,808	-	404	-	-	-	-	763	5,975
Fish - any fish species	279,050	3,623	18,276	29,811	70	-	-	169,226	500,056
Cephalopod - <i>Octopus vulgaris</i>	-	-	-	-	-	-	-	-	-
Total	1,285,707	487,366	175,070	99,406	1,513	703	-	6,664	1,976,881
Increase on 2011	-25,560	14,847	-10,418	-16,823	38	-17	-23	-2,273	362,918
Percentage change from 2011	-2%	3%	-6%	-14%	3%	-2%	N/A	-25%	22%
Percentage of total for 2012	32%	12%	4%	2%	0.0%	0.0%	0.2%	0.2%	100%
2011 Totals	1,311,267	472,519	185,488	116,229	1,475	720	23	8,937	1,613,963
2011 Totals	1,311,267	472,519	185,488	116,229	1,475	720	23	8,937	1,613,963

N/A = Not applicable

Table 2 Scientific procedures by Schedule 2 listed species and source of animals

Great Britain 2012

Species of animal	Source				Total
	Animals acquired from within own designated establishment	Animals acquired from another designated breeding or supplying establishment in the UK	Animals acquired from non-designated sources in the UK	Animals acquired from sources within the EU (outside the UK)	
Mouse	2,466,003	573,594	329	7,296	384 11,215 - 3,058,821
Rat	62,385	213,444	14	1,366	- 1,177 - 278,386
Guinea pig	1,153	9,802	-	1,785	- - - 12,740
Hamster	339	1,641	-	256	- - - 2,236
Gerbil	266	17	-	33	- 24 - 340
Rabbit	4,972	8,236	-	325	- 333 - 13,866
Cat	72	2	-	92	- 81 - 247
Dog	1,259	2,297	39	641	- 607 - 4,843
Ferret	17	315	-	-	- 16 - 348
Pig (genetically modified)	43	-	-	-	- - - 43
Sheep (genetically modified)	33	-	-	-	- - - 33
Primate	409	342	-	80	- 2,189 - 3,020
Quail (<i>Coturnix coturnix</i>)	-	-	-	-	- - - - -
Animals not listed in Schedule 2	-	-	-	-	- 735,105 - 735,105
Total	2,536,951	809,690	382	11,874	384 15,642 735,105 4,110,028
Increase on 2011	373,484	12,351	-57	-1,777	228 1,869 -68,927 317,171
Percentage change from 2011	17%	2%	-13%	-13%	146% 14% -9% 8%
Percentage of total for 2012	62%	20%	0.3%	0.0%	0.4% 0.4% 18% 100%
2011 Totals	2,163,467	797,339	439	13,651	156 13,773 804,032 3,792,857

Note. The total number of procedures using animals listed in schedule 2 was 3,374,923.

Table 3 Scientific procedures by species of animal, and genetic status

Summary Version

Note. For numbers of procedures by purpose, see full table available on the website

Great Britain 2012

Species of animal	Genetic status			Number of procedures
	Normal animal	Animal with harmful genetic mutation	Genetically modified animal	
Mammal				
Mouse	875,298	441,610	1,741,913	3,058,821
Rat	243,954	27,386	7,046	278,386
Guinea pig	12,740	-	-	12,740
Hamster	2,236	-	-	2,236
Gerbil	340	-	-	340
Other rodent	3,013	-	-	3,013
Rabbit	13,839	-	27	13,866
Cat	247	-	-	247
Dog				
Beagle	4,643	-	-	4,643
Greyhound	-	-	-	-
Other inc cross-breds	198	2	-	200
Ferret	348	-	-	348
Other carnivore	713	-	-	713
Horse and other equids	8,482	-	-	8,482
Pig	3,336	-	43	3,379
Goat	1,658	-	-	1,658
Sheep	42,838	-	33	42,871
Cattle	5,482	-	-	5,482
Deer	77	-	-	77
Camelid	-	-	-	-
Other ungulate	-	-	-	-
Primate				
Prosimian	-	-	-	-
New World monkey				
marmoset, tamarin	283	-	-	283
Squirrel, owl, spider monkey	-	-	-	-
Other New World monkey	-	-	-	-
Old World monkey				
Macaque	2,737	-	-	2,737
Baboon	-	-	-	-
Other Old World monkey	-	-	-	-
Ape				
Gibbon	-	-	-	-
Great ape	-	-	-	-
Other mammal	533	-	-	533
Bird				
Domestic fowl (<i>Gallus domesticus</i>)	135,836	522	701	137,059
Turkey	4,436	-	-	4,436
Quail (<i>Coturnix coturnix</i>)	-	-	-	-
Quail (not <i>Coturnix coturnix</i>)	858	-	-	858
Other bird	11,580	-	-	11,580
Reptile				
Amphibian	11,179	405	2,113	13,697
Fish	289,131	55,056	156,643	500,830
Cephalopod	-	-	-	-
Total	1,676,528	524,981	1,908,519	4,110,028
Percentage of total for 2012	41%	13%	46%	100%

Table 4 Scientific procedures by species of animal and target body system

Species of animal		Number of procedures											
		Respiratory	Cardiovascular	Nervous	Senses	Alimentary	Skin	Musculo-skeletal	Reproductive	Immune and reticulo-endothelial	Other system	Multiple systems	System not relevant
Great Britain 2012													
Mammal													
Mouse	57,674	103,371	298,605	40,541	61,269	42,194	51,523	244,521	514,229	67,239	963,624	614,031	3,058,821
Rat	21,162	14,165	64,542	2,484	4,138	464	1,616	38,107	7,124	3,183	61,725	59,676	278,386
All other rodents	2,439	3,068	241	310	283	525	-	34	5,797	-	3,276	2,356	18,329
Rabbit	60	823	9	187	4	715	54	1,527	2,954	694	4,977	1,862	13,866
Cat	-	32	14	6	3	-	-	-	3	-	133	56	247
Dog	132	359	-	99	-	2	25	44	129	1,844	2,209	4,843	
Ferret	96	13	-	52	-	-	-	-	40	-	9	138	348
Other carnivore	-	3	-	-	-	-	-	-	94	-	33	583	713
Horse and other equids	87	71	-	-	-	5	2	17	129	6,363	96	1,712	8,482
Pig	159	87	95	-	280	56	-	142	918	84	607	951	3,379
Sheep	262	234	164	-	899	159	213	423	1,196	33,076	2,989	3,256	42,871
All other ungulates	325	31	4	-	1,760	-	-	1,048	2,434	294	1,266	55	7,217
New World monkey	-	7	30	-	-	-	-	-	-	-	153	93	283
Old World monkey	35	30	59	2	-	-	-	20	86	-	809	1,696	2,737
All other mammals	-	-	5	-	81	-	-	101	-	-	-	346	533
Bird	640	1,296	1,483	504	9,748	-	301	2,635	6,085	112,545	10,587	8,109	153,933
Reptile	-	-	-	-	-	-	-	-	-	513	-	-	513
Amphibian	-	-	167	-	119	383	221	9,510	-	-	1,189	2,108	13,697
Fish	4,580	13,087	52,441	4,925	93,932	9,803	7,195	58,498	16,403	1,200	101,688	137,058	500,830
Total	87,651	136,677	417,854	49,016	172,554	54,385	61,127	356,702	557,442	225,320	1,155,005	836,295	4,110,028
Increase on 2011	-27,419	4,373	-2,273	-2,154	107,994	-2,761	17,146	32,808	44,876	-23,071	171,854	-4,202	317,171
Percentage change from 2011	-24%	3%	-1%	-4%	16%	-5%	39%	10%	9%	-9%	17%	-0.5%	8%
Percentage of total for 2012	2%	3%	10%	1%	4%	1%	9%	14%	5%	28%	20%	100%	
2011 Totals	115,070	132,304	420,127	51,170	64,560	57,146	43,981	323,894	512,566	248,391	983,151	840,497	3,792,857

Table 5 Scientific procedures by species of animal and level of anaesthesia

Species of animal	No anaesthesia	Type of anaesthesia			General anaesthesia throughout, without recovery	General anaesthesia at end of procedure, without recovery	General anaesthesia throughout, without recovery	Total	Number of procedures
		General anaesthesia, with recovery	Local anaesthesia	General anaesthesia					
Mammal									
Mouse	2,363,943	419,004	130,951	97,120	47,803	3,058,821			
Rat	161,015	69,349	881	26,935	20,206	278,386			
All other rodents	11,725	2,629	141	1,604	2,230	18,329			
Rabbit	8,334	325	1,517	1,389	2,301	13,866			
Cat	94	153	-	-	-	247			
Dog	3,898	402	124	274	145	4,843			
Ferret	9	312	-	5	22	348			
Other carnivore	220	477	-	-	-	713			
Horse and other equids	350	12	8,120	-	-	8,482			
Pig	2,659	347	12	1	360	3,379			
Sheep	42,114	626	45	75	11	42,871			
All other ungulates	7,129	16	68	-	4	7,217			
Primate									
New World monkey	156	84	-	12	31	283			
Old World monkey	2,004	716	-	5	12	2,737			
All other mammals	528	3	-	-	2	533			
Bird	50,234	635	-	101,989	1,075	153,933			
Reptile	513	-	-	-	-	513			
Amphibian	11,903	1,720	-	-	74	13,697			
Fish	285,964	193,191	99	20,911	665	500,830			
Total	2,952,792	690,001	141,958	250,320	74,957	4,110,028			
Increase on 2011	257,071	131,534	-14,343	-54,311	-2,780	317,171			
Percentage change from 2011	10%	24%	-9%	-18%	-4%	8%			
Percentage of total for 2012	72%	17%	3%	6%	2%	100%			
2011 Totals	2,695,721	558,467	156,301	304,631	77,737	3,792,857			

Note. Neuromuscular blocking agents (NMBA) were used in 1,675 procedures in 2012. All of these procedures involved the use of general anaesthesia.

Table 6 Scientific procedures (non-toxicology) by species of animal and field of research, page 1 of 4

Species of animal	Number of procedures												
	Species of animal		Field of research		Field of research		Field of research		Field of research		Field of research		
	Anatomy	Physiology	Biochemistry	Psychology	Pathology	Immunology	Microbiology	Parasitology	Pharmacology	Pharmaceutical R&D	Therapeutics	Clinical medicine	Clinical surgery
Mammal													
Mouse	272,811	363,470	43,166	28,479	65,581	553,265	29,491	29,669	40,363	116,757	17,167	17,663	1,472
Rat	5,369	33,168	509	8,791	2,031	2,791	927	655	16,749	58,310	3,681	3,451	1,068
Guinea pig	-	378	-	-	21	265	239	-	1,648	1,836	101	-	-
Hamster	-	212	4	-	-	45	325	185	-	172	78	-	-
Gerbil	-	5	-	-	-	1	-	294	-	-	40	-	-
Other rodent	-	-	-	-	19	-	-	2,383	-	-	-	-	-
Rabbit	5	559	157	-	33	929	336	-	48	1,678	32	51	32
Cat	-	2	-	-	-	59	-	2	61	-	6	-	-
Dog	-	-	-	-	-	-	-	-	-	-	-	-	-
Beagle	-	-	-	-	-	-	-	-	-	-	-	-	-
Greyhound	-	-	-	-	-	-	-	-	-	-	-	-	-
Other including cross-bred dogs	-	3	-	-	-	-	-	-	-	-	-	2	-
Ferret	3	28	-	-	21	-	-	-	-	-	13	9	-
Other carnivore	-	-	-	-	94	-	-	-	-	-	10	-	-
Horse and other equids	17	5	-	-	-	72	8,103	-	76	-	-	69	14
Pig	103	203	-	109	130	349	97	26	23	63	102	95	43
Goat	-	-	-	-	-	10	-	-	-	47	-	-	-
Sheep	83	394	189	138	82	690	35,907	855	-	177	28	339	159
Cattle	-	-	1,115	-	-	4	1,586	112	145	4	280	-	-
Deer	-	-	-	-	-	-	-	-	-	-	-	-	-
Camelid	-	-	-	-	-	-	-	-	-	-	-	-	-
Other ungulate	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 6 Scientific procedures (non-toxicology) by species of animal and field of research, page 2 of 4

Species of animal	Number of procedures												
	Field of research			Field of research			Number of procedures						
	Anatomy	Physiology	Biochemistry	Psychology	Pathology	Immunology	Microbiology	Parasitology	Pharmacology	Pharmaceutical R&D	Therapeutics	Clinical medicine	Clinical surgery
Primate	-	-	-	-	-	-	-	-	-	-	-	-	-
Prosimian	-	-	-	-	-	-	-	-	-	-	-	-	-
New World monkey	7	48	-	38	59	13	4	-	25	47	-	-	-
marmoset, tamarin	-	-	-	-	-	-	-	-	-	-	-	-	-
Squirrel, owl, spider monkey	-	-	-	-	-	-	-	-	-	-	-	-	-
Other New World monkey	-	-	-	-	-	-	-	-	-	-	-	-	-
Old World monkey	3	18	56	40	-	74	64	-	-	214	-	-	-
Macaque	-	-	-	-	-	-	-	-	-	-	-	-	-
Baboon	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Old World monkey	-	-	-	-	-	-	-	-	-	-	-	-	-
Ape	-	-	-	-	-	-	-	-	-	-	-	-	-
Gibbon	-	-	-	-	-	-	-	-	-	-	-	-	-
Great ape	-	-	-	-	-	-	-	-	-	-	-	-	-
Other mammal	-	5	-	-	-	-	-	-	-	-	-	-	-
Bird	-	-	-	-	-	-	-	-	-	-	-	-	-
Domestic fowl (<i>Gallus domesticus</i>)	1,173	1,637	3	70	-	922	7,238	104,185	-	941	200	12	-
Turkey	-	-	-	-	-	18	222	1224	-	270	-	-	-
Quail (<i>Coturnix coturnix</i>)	-	-	-	-	-	-	-	-	-	-	-	-	-
Quail (not <i>Coturnix coturnix</i>)	-	241	-	-	-	-	-	-	-	-	-	-	-
Other bird	14	63	-	1,284	-	565	4	42	-	-	-	-	-
Reptile - any reptilian species	-	-	-	-	-	-	-	-	-	-	-	-	-
Amphibian - any amphibian species	10,680	476	1,057	-	-	303	80	24	-	-	-	-	-
Fish - any fish species	140,151	28,879	-	1,026	6,947	14,003	10,757	4,726	5,128	22,276	-	1,592	-
Cephalopod - <i>Octopus vulgaris</i>	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	430,419	430,909	45,141	40,090	74,907	575,762	94,413	144,471	64,196	203,787	21,437	23,272	2,788
Increase on 2011	73,166	-173,645	15,764	-6,096	1,248	43,661	6,918	-12,883	-10,127	-24,629	2,264	5,443	-236
Percentage change from 2011	20%	-29%	54%	-13%	2%	8%	8%	-8%	-14%	-11%	12%	31%	-8%
Percentage of total for 2012	12%	12%	1%	1%	2%	15%	3%	4%	2%	5%	1%	0.6%	0.1%
2011 Totals	357,253	604,554	29,377	46,186	73,659	532,101	87,495	157,354	74,323	228,416	19,173	17,829	3,024

Table 6 Scientific procedures (non-toxicology) by species of animal and field of research, page 3 of 4

Species of animal	Field of research						Number of procedures								
	Dentistry	Genetics	Molecular biology	Cancer research	Nutrition	Zoology	Botany	Animal science	Ecology	Animal welfare	Other	Tobacco (1)	Alcohol		
Mammal															
Mouse	119	360,106	165,709	472,257	2,535	-	19	12	-	493	293,602	-	571	2,874,777	
Rat	64	165	2,327	3,085	1,338	-	4	-	-	156	22,220	-	-	166,859	
Guinea pig	-	-	-	-	-	-	-	-	-	-	-	-	-	4,488	
Hamster	-	-	131	20	80	-	-	-	-	-	-	-	-	1,252	
Gerbil	-	-	-	-	-	-	-	-	-	-	-	-	-	340	
Other rodent	-	-	-	-	-	-	-	-	-	-	-	-	-	2,843	
Rabbit	-	-	-	-	-	-	-	-	-	-	-	-	-	3,878	
Cat	-	32	-	-	85	-	-	-	-	-	-	-	-	247	
Dog	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Beagle	-	-	-	-	-	-	-	-	-	-	-	-	-	845	
Greyhound	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Other including cross-bred dogs	-	-	19	46	130	-	-	-	-	-	-	-	-	200	
Ferret	-	-	-	-	-	-	-	-	-	-	-	-	-	348	
Other carnivore	-	-	-	-	-	-	-	-	-	-	-	-	-	675	
Horse and other equids	-	-	-	-	-	-	-	-	-	-	-	-	-	8,376	
Pig	-	-	-	-	-	-	-	-	-	-	-	-	-	1,444	
Goat	-	1,565	10	-	-	-	-	-	-	-	-	-	-	1,642	
Sheep	-	375	-	-	-	-	-	-	-	-	-	-	-	42,432	
Cattle	-	-	-	-	-	-	-	-	-	-	-	-	-	4,891	
Deer	-	77	-	-	-	-	-	-	-	-	-	-	-	77	
Camelid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Other ungulate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

(1) Following a Government decision in 1997, procedures using animals in research on tobacco have not been allowed.

Table 6 Scientific procedures (non-toxicology) by species of animal and field of research, page 4 of 4

Species of animal	Field of research						Number of procedures
	Dentistry	Genetics	Molecular biology	Cancer research	Nutrition	Zoology	
Primate	-	-	-	-	-	-	-
Prosimian	-	-	-	-	-	-	-
New World monkey	-	-	-	-	-	-	241
marmoset, tamarin	-	-	-	-	-	-	-
Squirrel, owl, spider monkey	-	-	-	-	-	-	-
Other New World monkey	-	-	-	-	-	-	-
Old World monkey	-	-	-	-	-	-	469
Macaque	-	-	-	-	-	-	-
Baboon	-	-	-	-	-	-	-
Other Old World monkey	-	-	-	-	-	-	-
Ape	-	-	-	-	-	-	-
Gibbon	-	-	-	-	-	-	-
Great ape	-	-	-	-	-	-	-
Other mammal	182	-	-	-	-	-	533
Bird	-	-	-	-	-	-	-
Domestic fowl (<i>Gallus domesticus</i>)	-	63	-	390	-	-	122,045
Turkey	-	-	-	64	-	-	3,494
Quail (<i>Coturnix coturnix</i>)	-	-	-	-	67	-	-
Quail (not <i>Coturnix coturnix</i>)	-	-	-	-	4,170	-	308
Other bird	-	-	-	-	57	2,852	10,349
Reptile - any reptilian species	-	-	-	513	-	-	513
Amphibian - any amphibian species	-	593	20	51	9	-	13,233
Fish - any fish species	-	28,571	12,401	25,214	92,984	1,162	466,120
Cephalopod - <i>Octopus vulgaris</i>	-	-	-	-	-	-	-
Total	183	391,666	180,680	500,679	97,910	5,968	38
Increase on 2011	102	45,972	385	69,022	79,261	878	4
Percentage change from 2011	126%	13%	0.2%	16%	425.0%	17%	12%
Percentage of total for 2012	0.0%	10%	5%	13%	2.6%	0.2%	0.0%
2011 Totals	81	345,684	180,295	431,657	18,649	5,080	34
						8,662	38,989
						1,673	131,632
						0	541
							3,393,731

(1) Following a Government decision in 1997, procedures using animals in research on tobacco have not been allowed.

N/A = Not applicable

Table 6a Animals used (non-toxicology), by species of animal and field of research, page 1 of 4

Great Britain 2012		Number of animals													
Species of animal		Anatomy		Physiology		Biochemistry		Psychology		Pathology		Immunology		Field of research	
Mammal															
Mouse	272,090	362,093	43,141	27,742	65,515	550,732	29,491	29,669	39,424	116,511	17,167	17,574	3,677	1,472	
Rat	5,369	33,098	509	8,535	1,979	2,791	927	655	14,741	57,059	1,836	101	2,872	1,068	
Guinea pig	-	378	-	-	21	265	239	-	1,648	-	172	78	-	-	
Hamster	-	212	4	-	-	45	325	185	-	-	40	-	-	-	
Gerbil	-	5	-	-	-	1	-	281	-	-	-	-	-	-	
Other rodent	-	-	-	-	19	-	-	1,415	-	-	-	-	-	-	
Rabbit	5	559	29	-	33	886	286	-	48	1,670	32	51	32	-	
Cat	-	2	-	-	-	59	-	2	49	-	6	-	-	-	
Dog	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Beagle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Greyhound	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Other including cross-bred dogs	-	3	-	-	-	-	-	-	-	-	-	-	2	-	
Ferret	3	28	-	21	-	-	-	-	-	-	-	-	-	-	
Other carnivore	-	-	-	46	-	-	-	-	-	-	-	-	-	-	
Horse and other equids	3	5	-	-	12	43	-	-	-	-	-	-	-	-	
Pig	103	188	-	100	130	214	97	26	23	63	102	95	43	-	
Goat	-	-	-	-	-	10	10	-	-	47	-	-	-	-	
Sheep	83	394	189	138	82	419	406	812	-	74	28	185	159	-	
Cattle	-	1,115	-	-	4	1,558	112	145	4	280	-	-	-	-	
Deer	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Camelid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Other ungulate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Table 6a Animals used (non-toxicology), by species of animal and field of research, page 2 of 4

Species of animal	Field of research						Number of animals					
	Anatomy	Physiology	Biochemistry	Psychology	Pathology	Immunology	Microbiology	Parasitology	Pharmacology	Pharmaceutical Research and Development	Clinical medicine	Clinical surgery
Primate	-	-	-	-	-	-	-	-	-	-	-	-
Prosimian	-	-	-	-	-	-	-	-	-	-	-	-
New World monkey												
marmoset, tamarin	7	42	-	38	59	13	4	-	25	37	-	-
Squirrel, owl, spider monkey	-	-	-	-	-	-	-	-	-	-	-	-
Other New World monkey	-	-	-	-	-	-	-	-	-	-	-	-
Old World monkey												
Macaque	2	18	2	11	-	74	64	-	-	6	-	-
Baboon	-	-	-	-	-	-	-	-	-	-	-	-
Other Old World monkey	-	-	-	-	-	-	-	-	-	-	-	-
Apes												
Gibbon	-	-	-	-	-	-	-	-	-	-	-	-
Great ape	-	-	-	-	-	-	-	-	-	-	-	-
Other mammal												
Bird												
Domestic fowl (Gallus domesticus)	1,173	1,637	3	70	-	922	7,238	104,185	-	885	200	12
Turkey	-	-	-	-	-	18	74	-	1,224	-	166	-
Quail (Coturnix coturnix)	-	-	-	-	-	-	-	-	-	-	-	-
Quail (not <i>Coturnix coturnix</i>)	-	241	-	-	-	-	-	-	-	-	-	-
Other bird	14	63	-	1,199	-	248	-	42	-	-	-	-
Reptile - any reptilian species	-	-	-	-	-	-	-	-	-	-	-	-
Amphibian - any amphibian species	4,268	92	182	-	1,026	6,947	-	303	80	24	-	-
Fish - any fish species	140,060	28,879	-	-	-	13,685	10,757	4,726	5,128	22,276	-	1,592
Cephalopod - <i>Octopus vulgaris</i>	-	-	-	-	-	-	-	-	-	-	-	-
Total	423,180	429,057	44,059	38,926	74,789	572,057	50,650	143,447	61,141	201,276	21,433	22,381
												2,785

Table 6a Animals used (non-toxicology), by species of animal and field of research, page 3 of 4

Outer ringlet (1) Following a Government decision in 1997, procedures using animals in research on tobacco have not been allowed.

Table 6a Animals used (non-toxicology), by species of animal and field of research, page 4 of 4

Species of animal	Field of research						Number of animals
	Dentistry	Genetics	Molecular biology	Cancer research	Nutrition	Zoology	
Primate	-	-	-	-	-	-	-
Prosimian	-	-	-	-	-	-	-
New World monkey	-	-	-	-	-	-	225
marmoset, tamarin	-	-	-	-	-	-	-
Squirrel, owl, spider monkey	-	-	-	-	-	-	-
Other New World monkey	-	-	-	-	-	-	-
Old World monkey	-	-	-	-	-	-	177
Macaque	-	-	-	-	-	-	-
Baboon	-	-	-	-	-	-	-
Other Old World monkey	-	-	-	-	-	-	-
Apes	-	-	-	-	-	-	-
Gibbon	-	-	-	-	-	-	-
Great ape	-	-	-	-	-	-	460
Other mammal	-	182	-	-	-	-	-
Bird	-	-	63	-	390	-	121,989
Domestic fowl (<i>Gallus domesticus</i>)	-	-	-	64	5,110	-	3,242
Turkey	-	-	-	-	1,696	-	-
Quail (<i>Coturnix coturnix</i>)	-	-	-	-	-	-	-
Quail (not <i>Coturnix coturnix</i>)	-	-	-	67	-	-	308
Other bird	-	-	-	3,476	-	-	9,126
Reptile - any reptilian species	-	-	-	513	1	2,785	513
Amphibian - any amphibian species	-	593	20	-	9	-	5,571
Fish - any fish species	-	28,531	12,401	25,214	92,659	1,162	1,500
Cephalopod - <i>Octopus vulgaris</i>	-	-	-	-	-	-	465,346
Total	167	391,434	180,079	499,479	97,341	5,264	38
							10,416
							71,969
							2,928
							316,001
							2,071
							3,662,368

(1) Following a Government decision in 1997, procedures using animals in research on tobacco have not been allowed

Table 7 Scientific procedures (non-toxicology) by species of animal and production of biological materials

Species of animal	Infectious agents	Vectors	Neoplasms	Production			Other ⁽¹⁾	Total	Number of procedures
				Monoclonal antibodies (ascites model)	Monoclonal antibodies (initial immunisation)	Polyclonal antibodies			
Mammal									
Mouse	23,478	3,747	13,933	-	1,467	7,480	126,180	2,698,492	2,874,777
Rat	669	65	249	-	43	61	10,751	155,021	166,859
All other rodents	349	-	20	-	-	81	1,155	7,318	8,923
Rabbit	-	-	-	28	2,200	793	-	857	3,878
Cat	2	-	-	-	-	3	-	242	247
Dog	-	-	-	-	-	-	677	368	1,045
Ferret	-	-	-	-	-	89	-	259	348
Other carnivore	-	-	-	-	-	-	3	672	675
Horse and other equids	-	-	-	-	-	1	6,426	1,949	8,376
Pigs, sheep & all other ungulates	661	3	-	24	855	36,440	12,503	50,486	
Primate									
New World monkey	-	-	-	-	-	-	67	174	241
Old World monkey	-	-	-	-	-	-	289	180	469
All other mammals	-	-	-	-	-	-	-	533	533
Bird	104,411	-	-	-	-	243	2,032	29,510	136,196
Reptile, Amphibian	-	-	-	-	-	-	7,075	6,731	13,806
Fish	4,893	-	-	-	-	-	855	460,372	466,120
Total	134,463	3,815	14,202	-	1,562	11,013	192,743	3,375,181	3,732,979
Increase on 2011	-13,001	-1,354	3,668	0	-311	3,618	15,454	331,174	339,248
Percentage change from 2011	-9%	-26%	35%	N/A	-17%	49%	9%	11%	10.0%
Percentage of total for 2012	4%	0.1%	0.4%	0.0%	0.0%	0.3%	5%	90%	100%
2011 Totals	147,464	5,169	10,534	0	1,873	7,395	177,289	3,044,007	3,393,731

(1) Includes breeding procedures which are now detailed in Tables 3.1 - 3.3

N/A = Not applicable

Table 9 Scientific procedures (toxicology) by species of animal and toxicological purpose, page 1 of 4

Species of animal	Toxicology or other safety/efficacy evaluation						Number of procedures
	Pollution	Agriculture	Industry	Household	Food additives	Other foodstuffs	
Mammal							
Mouse	-	4,275	6,993	-	114	42	-
Rat	-	10,628	36,370	-	435	254	-
Guinea pig	-	-	-	-	-	-	-
Hamster	-	-	-	-	-	-	-
Gerbil	-	-	-	-	-	-	-
Other rodent	-	60	-	-	-	-	-
Rabbit	-	732	625	-	-	-	-
Cat	-	-	-	-	-	-	-
Dog	-	52	3	-	-	-	-
Beagle	-	-	-	-	-	-	-
Greyhound	-	-	-	-	-	-	-
Other including cross-bred dogs	-	-	-	-	-	-	-
Ferret	-	-	-	-	-	-	-
Other carnivore	-	-	-	-	-	-	-
equids	-	-	-	-	-	-	-
Pig	-	-	-	-	-	-	-
Goat	-	-	-	-	-	-	-
Sheep	-	-	-	-	-	-	-
Cattle	-	-	-	-	-	-	-
Deer	-	-	-	-	-	-	-
Camelid	-	-	-	-	-	-	-
Other ungulate	-	-	-	-	-	-	-

(2) Following a Government decision in 1998, procedures using animals in research on finished cosmetics and on cosmetic ingredients have not been allowed.

Table 9 Scientific procedures (toxicology) by species of animal and toxicological purpose, page 2 of 4

Species of animal	Toxicology or other safety/efficacy evaluation						Number of procedures	
	Pollution	Agriculture	Industry	Household	Food additives	Other foodstuffs	Finished cosmetics	Cosmetics ingredients(2)
Primate	-	-	-	-	-	-	-	-
Prosimian	-	-	-	-	-	-	-	-
New World monkey	-	-	-	-	-	-	-	-
marmoset, tamarin	-	-	-	-	-	-	-	-
Squirrel, owl, spider monkey	-	-	-	-	-	-	-	-
Other New World monkey	-	-	-	-	-	-	-	-
Old World monkey	-	-	-	-	-	-	-	-
Macaque	-	-	-	-	-	-	-	-
Baboon	-	-	-	-	-	-	-	-
Other Old World monkey	-	-	-	-	-	-	-	-
Apes	-	-	-	-	-	-	-	-
Gibbon	-	-	-	-	-	-	-	-
Great Ape	-	-	-	-	-	-	-	-
Other mammal	-	-	-	-	-	-	-	-
Bird							120	-
Domestic fowl (<i>Gallus domesticus</i>)	-	157	-	-	-	-	-	-
Turkey	-	-	-	-	-	-	-	-
Quail (<i>Coturnix coturnix</i>)	-	-	-	-	-	-	-	-
Quail (not <i>Coturnix coturnix</i>)	-	550	-	-	-	-	-	-
Other bird	-	1,231	-	-	-	-	-	-
Reptile - any reptilian species	-	-	-	-	-	-	-	-
Amphibian - any amphibian species	400	-	-	-	-	-	-	-
Fish - any fish species	8,150	2,989	796	-	-	-	-	-
Total	8,550	20,699	44,787	-	669	332	-	-
Increase on 2011	-5,126	-2,086	25,584	0	-2,855	-3,757	0	0
Percentage change from 2011	-37%	-9%	133%	N/A	-81%	-92%	N/A	N/A
Percentage of total for 2012	2%	5%	12%	0.0%	0.2%	0.1%	0.0%	0.0%
2011 Totals	13,676	22,785	19,203	0	3,524	4,089	0	0

N/A = Not applicable

(2) Following a Government decision in 1998, procedures using animals in research on finished cosmetics and on cosmetic ingredients have not been allowed.

Table 9 Scientific procedures (toxicology) by species of animal and toxicological purpose, page 3 of 4

Species of animal	Toxicology or other safety/efficacy evaluation						Other purposes			Total
	Pharmaceutical safety/efficacy evaluation			Toxicology research	Tobacco safety(1)	Medical device safety	Method development	Other		
	Safety testing	Efficacy testing	ADME and residue							
Mammal										
Mouse	31,525	6,299	117,240	9,905	561	-	1,080	4,863	1,147	
Rat	47,514	148	1,228	9,218	393	-	-	3,835	1,504	
Guinea pig	4,813	-	3,379	-	-	-	-	60	-	
Hamster	900	-	12	72	-	-	-	-	984	
Gerbil	-	-	-	-	-	-	-	-	-	
Other rodent	-	-	-	-	-	-	-	-	-	
Rabbit	5,218	9	3,017	24	-	-	-	-	110	
Cat	-	-	-	-	-	-	-	-	170	
Dog	2,687	42	4	735	-	-	-	-	44	
Beagle	-	-	-	-	-	-	-	-	-	
Greyhound	-	-	-	-	-	-	-	-	-	
Other including cross-bred dogs	-	-	-	-	-	-	-	-	-	
Ferret	-	-	-	-	-	-	-	-	-	
Other carnivore	16	22	-	-	-	-	-	-	38	
Horse and other equids	-	100	-	6	-	-	-	-	-	
Pig	980	816	-	87	11	-	-	41	-	
Goat	-	-	-	-	-	-	-	-	106	
Sheep	145	105	135	27	-	-	-	27	-	
Cattle	43	414	10	104	-	-	-	11	-	
Deer	-	-	-	-	-	-	-	-	-	
Camelid	-	-	-	-	-	-	-	-	16	
Other ungulate	-	-	-	-	-	-	-	-	439	

(1) Following a Government decision in 1997, procedures using animals in research on tobacco have not been allowed.

Table 9 Scientific procedures (toxicology) by species of animal and toxicological purpose, page 4 of 4

Great Britain 2012

Species of animal	Toxicology or other safety/efficacy evaluation						Number of procedures		
	Pharmaceutical safety/efficacy evaluation			Other purposes			Total		
	Safety testing	Efficacy testing	Quality control	ADME and residue	Toxicology research	Tobacco safety(1)	Medical device safety	Method development	Other
Primate	-	-	-	-	-	-	-	-	-
Prosimian	-	-	-	-	-	-	-	-	-
New World monkey	10	19	-	-	13	-	-	-	42
marmoset, tamarin	-	-	-	-	-	-	-	-	-
Squirrel, owl, spider monkey	-	-	-	-	-	-	-	-	-
Other New World monkey	-	-	-	-	-	-	-	-	-
Old World monkey	1,712	5	-	334	-	-	217	-	2,268
Macaque	-	-	-	-	-	-	-	-	-
Baboon	-	-	-	-	-	-	-	-	-
Other Old World monkey	-	-	-	-	-	-	-	-	-
Apes	-	-	-	-	-	-	-	-	-
Gibbon	-	-	-	-	-	-	-	-	-
Great Ape	-	-	-	-	-	-	-	-	-
Other mammal	-	-	-	-	-	-	-	-	-
Bird	-	-	-	-	-	-	-	-	-
Domestic fowl (<i>Gallus domesticus</i>)	1,790	11,511	880	54	-	-	108	394	15,014
Turkey	710	232	-	-	-	-	-	-	942
Quail (<i>Coturnix coturnix</i>)	-	-	-	-	-	-	-	-	-
Quail (not <i>Coturnix coturnix</i>)	-	-	-	-	-	-	-	-	550
Other bird	-	-	-	-	-	-	-	-	1,231
Reptile - any reptilian species	-	-	-	-	-	-	-	-	-
Amphibian - any amphibian species	-	-	-	-	-	-	-	-	404
Fish - any fish species	10,227	6,191	-	1,039	-	-	5,318	-	34,710
Total	108,290	25,913	125,905	21,618	965	-	1,282	14,835	3,204
Increase on 2011	-46,604	2,560	15,619	118	-1,180	0	-957	-2,670	-723
Percentage change from 2011	-30%	11%	14%	1%	-55%	N/A	-43%	-15%	-18%
Percentage of total for 2012	29%	7%	33%	6%	0.3%	0.0%	0.3%	4%	1%
Total	154,894	23,353	110,286	21,500	2,145	0	2,239	17,505	3,927
									399,126

(1) Following a Government decision in 1997, procedures using animals in research on tobacco have not been allowed.

N/A = Not applicable

Table 9a Animals used (toxicology), by species of animal and toxicological purpose, page 1 of 4

Species of animal	Toxicology or other safety/efficacy evaluation						Number of animals
	Pollution	Agriculture	Industry	Household	Food additives	Other foodstuffs	
						Finished cosmetics(2)	
Mammal							
Mouse	-	4,275	6,993	-	114	42	-
Rat	-	10,628	36,370	-	435	254	-
Guinea pig	-	-	-	-	-	-	-
Hamster	-	-	-	-	-	-	-
Gerbil	-	-	-	-	-	-	-
Other rodent	-	60	-	-	-	-	-
Rabbit	-	732	625	-	-	-	-
Cat	-	-	-	-	-	-	-
Dog	-	49	3	-	-	36	-
Beagle	-	-	-	-	-	-	-
Greyhound	-	-	-	-	-	-	-
Other including cross-bred dogs	-	-	-	-	-	-	-
Ferret	-	-	-	-	-	-	-
Other carnivore	-	-	-	-	-	-	-
Horse and other equids	-	-	-	-	-	-	-
Pig	-	-	-	-	-	-	-
Goat	-	-	-	-	-	-	-
Sheep	-	-	-	-	-	-	-
Cattle	-	-	-	-	-	-	-
Deer	-	-	-	-	-	-	-
Camelid	-	-	-	-	-	-	-
Other ungulate	-	-	-	-	-	-	-

(2)Following a Government decision in 1998, procedures using animals in research on finished cosmetics and on cosmetic ingredients have not been allowed.

Table 9a Animals used (toxicology), by species of animal and toxicological purpose, page 2 of 4

Species of animal	Toxicology or other safety/efficacy evaluation						Number of animals
	Pollution	Agriculture	Industry	Household	Food additives	Other foodstuffs	
Primate	-	-	-	-	-	-	-
Prosimian	-	-	-	-	-	-	-
New World monkey	-	-	-	-	-	-	-
marmoset, tamarin	-	-	-	-	-	-	-
Squirrel, owl, spider monkey	-	-	-	-	-	-	-
Other New World monkey	-	-	-	-	-	-	-
Old World monkey	-	-	-	-	-	-	-
Macaque	-	-	-	-	-	-	-
Baboon	-	-	-	-	-	-	-
Other Old World monkey	-	-	-	-	-	-	-
Ape	-	-	-	-	-	-	-
Gibbon	-	-	-	-	-	-	-
Great Ape	-	-	-	-	-	-	-
Other mammal	-	-	-	-	-	-	-
Bird	-	-	-	-	-	-	-
Domestic fowl (<i>Gallus domesticus</i>)	-	-	-	-	-	-	-
Turkey	-	-	-	-	-	-	-
Quail (<i>Coturnix coturnix</i>)	-	-	-	-	-	-	-
Quail (not <i>Coturnix coturnix</i>)	-	-	-	-	-	-	-
Other bird	-	-	-	-	-	-	-
Reptile - any reptilian species	-	-	-	-	-	-	-
Amphibian - any amphibian species	400	-	-	-	-	-	-
Fish - any fish species	8,150	2,989	796	-	-	-	-
Cephalopod - <i>Octopus vulgaris</i>	-	-	-	-	-	-	-
Total	8,550	20,653	44,787	-	669	332	-

(2)Following a Government decision in 1998, procedures using animals in research on finished cosmetics and on cosmetic ingredients have not been allowed.

Table 9a Animals used (toxicology), by species of animal and toxicological purpose, page 3 of 4

Species of animal	Toxicology or other safety/efficacy evaluation						Number of animals	
	Pharmaceutical safety/efficacy evaluation			Other purposes			Total	
	Safety testing	Efficacy testing	Quality control	ADME and residue	Toxicology research	Tobacco safety (1)		
Mammal								
Mouse	31,525	6,299	117,240	9,905	561	-	1,080	4,659
Rat	47,307	148	1,222	9,215	393	-	-	2,975
Guinea pig	4,813	-	3,379	-	-	-	60	-
Hamster	900	-	12	72	-	-	-	984
Gerbil	-	-	-	-	-	-	-	-
Other rodent	-	-	-	-	-	-	-	-
Rabbit	3,518	9	1,729	23	-	175	34	44
Cat	-	-	-	-	-	-	-	-
Dog	2,435	42	4	182	-	-	61	-
Beagle	-	-	-	-	-	-	-	2,812
Greyhound	-	-	-	-	-	-	-	-
Other including cross-bred dogs	-	-	-	-	-	-	-	-
Ferret	-	-	-	-	-	-	-	-
Other carnivore	12	15	-	-	-	-	-	27
Horse and other equids	-	87	-	6	-	-	-	93
Pig	952	800	-	51	11	-	31	-
Goat	-	-	-	-	-	-	-	16
Sheep	135	105	133	27	-	27	-	427
Cattle	43	381	10	104	-	-	11	558
Deer	-	-	-	-	-	-	-	-
Camelid	-	-	-	-	-	-	-	-
Other ungulate	-	-	-	-	-	-	-	-

(1)Following a Government decision in 1997, procedures using animals in research on tobacco have not been allowed.

Table 9a Animals used (toxicology), by species of animal and toxicological purpose, page 4 of 4

Species of animal	Toxicology or other safety/efficacy evaluation						Number of animals Total		
	Pharmaceutical safety/efficacy evaluation			Other purposes					
	Safety testing	Efficacy testing	Quality control	ADME and residue	Toxicology research	Tobacco safety (1)	Medical device safety	Method development	Other
Primate									
Prosimian	-	-	-	-	-	-	-	-	-
New World monkey									
marmoset, tamarin	-	-	-	-	7	-	-	-	7
Squirrel, owl, spider monkey	-	-	-	-	-	-	-	-	-
Other New World monkey	-	-	-	-	-	-	-	-	-
Old World monkey									
Macaque	1,539	3	-	105	-	-	-	130	-
Baboon	-	-	-	-	-	-	-	-	-
Other Old World monkey	-	-	-	-	-	-	-	-	-
Ape									
Gibbon	-	-	-	-	-	-	-	-	-
Great Ape	-	-	-	-	-	-	-	-	-
Other mammal									
Bird									
Domestic fowl (<i>Gallus domesticus</i>)	1,790	11,511	880	54	-	-	-	108	394
Turkey	710	232	-	-	-	-	-	-	14,971
Quail (<i>Coturnix coturnix</i>)	-	-	-	-	-	-	-	-	942
Quail (not <i>Coturnix coturnix</i>)	-	-	-	-	-	-	-	-	-
Other bird	-	-	-	-	-	-	-	-	550
Reptile - any reptilian species	-	-	-	-	-	-	-	-	1,231
Amphibian - any amphibian species	-	-	-	-	-	-	-	-	-
Fish - any fish species	10,227	6,191	-	1,039	-	-	5,318	-	404
Cephalopod - <i>Octopus vulgaris</i>	-	-	-	-	-	-	-	-	34,710
Total	105,906	25,823	124,609	20,790	965	-	1,282	13,387	3,189
									370,942

(1)Following a Government decision in 1997, procedures using animals in research on tobacco have not been allowed.

Table 10 Scientific procedures (toxicology) by species of animal and type of legislation
Summary version

Note. For numbers of procedures by purpose, see full table available on the website

Species of animal	UK requirements only	One EU country only (not UK)	EU requirements, incl. European Pharmacopoeia	Requirements of (non-EU) Council of Europe	Requirements of other countries	Number of procedures	
						Any combination of legislative requirements	Non-legislative purposes
Great Britain 2012							
Mammal							
Mouse	411	-	6,243	-	9,796	163,220	4,374
Rat	169	-	5,661	-	110	101,072	4,515
All other rodents	67	-	955	-	342	8,042	-
Rabbit	112	-	3,197	-	48	6,314	317
Cat	-	-	-	-	-	-	-
Dog	-	-	42	-	-	3,617	139
Ferret	-	-	-	-	-	-	-
Other carnivore	38	-	-	-	-	-	-
Horse and other equids	-	-	41	-	-	65	-
Pigs, sheep & all other ungulates	-	-	1,141	-	3	1,745	92
Primate							
New World monkey	-	-	-	-	-	42	-
Old World monkey	-	-	-	-	-	2,200	68
All other mammals							-
Bird	-	-	2,366	-	1,005	14,162	204
Reptile / Amphibian	-	-	-	-	-	404	-
Fish	1,386	-	5,403	-	534	13,230	14,157
Total	2,183	-	25,049	-	11,838	314,113	23,866
Increase on 2011	-1,088	-1,562	-46	-2,353	9,298	15,492	-41,818
Percentage change from 2011	-33%	-100%	-9%	N/A	366%	5%	-64%
Percentage of total for 2012	1%	0.0%	7%	0.0%	3%	83%	6%
2011 Totals	3,271	1,562	27,402	46	2,540	298,621	65,684
							399,126

N/A = Not applicable

Table 11 Scientific procedures (toxicology) by species of animal and type of toxicological test: all purposes, page 1 of 2

Species of animal	Type of toxicological test or procedure						Number of procedures			
	Acute lethal toxicity	Acute lethal concentration	Acute limit setting	Acute non - lethal clinical sign	Subacute limit-setting or dose ranging	Subacute toxicity	Subchronic and Chronic	Carcinogenicity	Genetic toxicology (includes mutagenicity)	Teratogenicity
Mammal										
Mouse	97,236	845	1,344	10,709	2,010	2,104	2,467	2,803	2,323	294
Rat	57	1,404	2,576	4,440	8,233	13,392	6,897	5,154	3,311	2,700
All other rodents	-	110	-	40	-	-	-	650	-	-
Rabbit	10	-	-	30	61	146	60	-	-	1,344
Cat	-	-	-	-	-	-	-	-	-	-
Dog	-	-	-	38	458	1,399	420	-	-	-
Ferret	-	-	-	-	-	-	-	-	-	-
Other carnivore	-	-	-	-	-	-	-	-	-	-
Horse and other equids	-	-	-	-	-	-	-	-	-	-
Pigs, sheep & all other ungulates	-	-	-	-	-	-	-	-	-	-
Primate										
New World monkey	-	-	-	-	-	10	-	-	-	-
Old World monkey	-	-	-	-	-	271	690	728	-	-
All other mammals	-	-	-	-	-	-	-	-	-	-
Bird	660	330	269	-	-	66	1,132	-	-	-
Reptile, amphibian	-	-	-	-	-	-	400	-	-	-
Fish	-	5,362	2,908	-	-	360	5,038	3,320	-	-
Total	97,963	8,051	7,097	15,257	11,529	24,434	14,010	8,607	5,634	4,338
Increase on 2011	18,593	-632	-3,378	-1,862	-2,814	-1,788	-4,224	4,760	-1,382	-817
Percentage change from 2011	23%	-7%	-32%	-11%	-20%	-7%	-23%	124%	-20%	-16%
Percentage of total for 2012	26%	2%	2%	4%	3%	6%	4%	2%	1%	1%
2011 Totals	79,370	8,683	10,475	17,119	14,343	26,222	18,234	3,847	7,016	5,155

Table 11 Scientific procedures (toxicology) by species of animal and type of toxicological test: all purposes, page 2 of 2

Species of animal	Other reproductive toxicity	In eyes	For skin irritation	Type of toxicological test or procedure				Number of procedures			
				For skin sensitisation	Toxicokinetics	Pyrogenicity	Biocompatibility	Enzyme induction for in vitro tests	Immunotoxicology	Other toxicology	Total
Mammal											
Mouse	1,092	-	115	982	6,689	-	700	-	7,641	44,690	184,044
Rat	40,044	-	-	-	8,072	-	-	148	290	14,809	111,527
All other rodents	-	-	-	-	72	-	-	-	-	8,534	9,406
Rabbit	156	712	595	-	8	4,655	236	-	-	1,975	9,988
Cat	-	-	-	-	-	-	-	-	-	-	-
Dog	82	-	-	-	278	-	-	-	-	1,123	3,798
Ferret	-	-	-	-	-	-	-	-	-	-	-
Other carnivore	-	-	-	-	-	-	-	-	-	38	38
Horse and other equids	-	-	-	-	6	-	-	-	-	100	106
Pigs, sheep & all other ungulates	-	-	-	-	125	-	63	-	-	2,482	2,981
Primate	-	-	-	-	-	-	-	-	-	26	42
New World monkey	-	-	-	-	6	-	-	-	-	377	2,268
Old World monkey	-	-	-	-	202	-	-	-	-	-	-
All other mammals	-	-	-	-	-	-	-	-	-	-	-
Bird	456	-	-	-	127	-	-	-	-	14,697	17,737
Reptile, amphibian	-	-	-	-	-	-	-	-	-	4	404
Fish	885	-	-	-	378	-	-	-	-	16,459	34,710
Total	42,715	712	982	15,963	4,655	999	148	7,931	105,314	377,049	
Increase on 2011	6,236	20	-391	-372	-3,873	374	358	-114	-5,196	-25,575	-22,077
Percentage change from 2011	17%	3%	-36%	-27%	-20%	9%	56%	-44%	-40%	-19.5%	-6%
Percentage of total for 2012	11%	0.2%	0.2%	0.3%	4%	1%	0.3%	0.0%	2%	28%	100%
2011 Totals	36,479	692	1,101	1,354	19,836	4,281	641	262	13,127	130,889	399,126

Appendix A

General system of control under the Animals (Scientific Procedures) Act 1986.

Introduction

1. The Animals (Scientific Procedures) Act 1986 puts into effect a rigorous system of controls on scientific work on living animals, including the need for: both the researcher and the project to be separately licensed; stringent safeguards on animal pain and suffering; and general requirements to ensure the care and welfare of animals. The Act implements, and in some ways exceeds, the requirements of European Union Directive 86/609/EEC.
2. Operation of the Act is a reserved issue in Great Britain, the Home Office administering the legislation in England, Scotland and Wales. The Act is separately administered in Northern Ireland.

Scope of the Act

3. The 1986 Act controls any experimental or other scientific procedure applied to a 'protected animal' which may have the effect of causing that animal pain, suffering, distress or lasting harm. Such work is referred to in the Act as a 'regulated procedure'.
4. 'Protected animals' are defined as all living vertebrate animals, except man, plus one invertebrate species, *Octopus vulgaris*. The definition extends to fetal, larval or embryonic forms that have reached specified stages in their development.
5. Under the Act an animal is regarded as 'living' until "the permanent cessation of circulation or complete destruction of its brain". Procedures carried out on decerebrate animals are also subject to the controls of the Act.
6. The definition of a regulated procedure encompasses most breeding of animals with genetic defects; production of antisera and other blood products; the maintenance and passage of tumours and parasites; and the administration for a scientific purpose of an anaesthetic, analgesic, tranquilliser or other drug to dull perception. Killing an animal requires licence authority in certain circumstances.
7. The controls of the 1986 Act do not extend to procedures applied to animals in the course of recognised veterinary, agricultural or animal husbandry practice; procedures for the identification of animals for scientific purposes, if this causes no more than momentary pain or distress and no lasting harm; or the administration of a novel veterinary product under authority of an Animal Test Exemption Certificate (issued under the Medicines Act 1968).
8. Two kinds of licence are required for all work controlled by the Act. The procedures must be part of a programme of work authorised by a project licence and the person applying the regulated procedures must hold a personal licence. No work may be done unless the procedure, the animals used and the place where the work is to be done are specifically authorised in both project and personal licences.

Personal licences

9. A personal licence is the Home Secretary's endorsement that the holder is a suitable and competent person to carry out specified procedures on specified animals, under

supervision where necessary. Applicants must be over 18 and are required to give details of their qualifications, training and experience. Those who have not previously held a Home Office licence need the endorsement of a sponsor (usually a personal licence holder in a senior position at the applicant's place of work). Satisfactory completion of an accredited training course is also required before a personal licence is issued.

10. On 31 December 2012 there were 14,875 active personal licences. Personal licences continue to be in force until revoked but they must be reviewed at least every five years.

Project licences

11. A project licence is granted when the Home Secretary considers that the use of living animals in a programme of work, for a purpose permitted by the Act, is justified and the methods proposed appropriate.
12. In deciding whether and on what terms to authorise the project, the likely adverse effects on the animals used must be weighed against the potential benefits (to humans, other animals or the environment) which are expected to accrue from the work. Adequate consideration must also have been given to the feasibility of using alternative methods not involving living animals.
13. The holder of a project licence undertakes overall responsibility for the scientific direction and control of the work. New project licence applicants are required to complete an accredited training course before the licence is granted.
14. When making an application for a project licence the applicant nominates, and the Home Office assigns, an overall severity banding to the project. There are three main severity bandings: mild, moderate and substantial. A fourth band, unclassified, is used for procedures where the animals are decerebrate or used under terminal anaesthesia – i.e. the animal is anaesthetised before the procedure starts, is kept anaesthetised throughout the course of the procedure and is killed without recovering consciousness.
15. The severity band depends not only upon the amount of suffering caused but also the duration, the number of animals and what action is taken to reduce suffering, such as the use of anaesthesia or early end-points. The overall severity is used in weighing the likely adverse effects on the animals against the benefits likely to accrue, as required by section 5(4) of the Act.
16. The following table details the number of project licences which were active on 31 December 2012, the number granted during 2012 and the number revoked during 2012 (usually either at the licence holder's request or because the licence had run the maximum allowed term of five years). The total figures are subdivided into severity bandings.

Project licences by severity band – number and share of total, 2012

Severity band	In force on 31 December 2012		Granted during 2012		Revoked during 2012	
	Number	%	Number	%	Number	%
Mild	969	36%	239	38%	197	38%
Moderate	1647	61%	366	58%	306	59%
Substantial	56	2%	9	1%	9	2%
Unclassified	45	2%	13	2%	10	2%
Total	2717		627		522	

NB Percentages may not sum to 100 due to rounding.

Designation of premises

17. Except where otherwise authorised in a project licence (e.g. for field work at a specified place and time), any place where work is carried out under the Act must be designated as a scientific procedure establishment. Since January 1990 establishments that breed certain types of animal listed in Schedule 2 of the Act – mice, rats, guinea pigs, hamsters, rabbits, dogs, cats and primates – for use in scientific procedures ('breeding establishments'), and establishments that obtain such animals from elsewhere and supply them to laboratories ('supplying establishments') must hold a certificate of designation.
18. Quail (*Coturnix coturnix*) was added to the list of species specified in Schedule 2 of the Act in 1993, and ferrets, gerbils, genetically modified pigs and genetically modified sheep were added to the list in 1999. Designated establishments are required to nominate a person to be responsible for the day-to-day care of animals and a veterinary surgeon to advise on their health and welfare.
19. There were 176 certificates of designation in force on 31 December 2012. Of these, 175 were registered as user establishments, 114 as breeding establishments and 65 as supplying establishments. These figures add up to more than the total number of establishments because a single establishment may fall into more than one of the categories: for example, an establishment may be registered as both a breeder and user of animals.

Table 19 Project licences and scientific procedures by type of designated establishment

Great Britain 2012

Type of designated establishment	Number of licence holders ⁽¹⁾ reporting countable ⁽²⁾ procedures, by number of procedures reported							Licensees reporting non-countable ⁽²⁾ procedures only	Total	Number of licence holders ⁽¹⁾ reporting no procedures	Total	Percentage					
	Number of procedures reported																
	1 to 50	51 to 100	101 to 200	201 to 400	401 to 600	601 to 800	801 to 1,000										
Public health laboratories	11	1	1	2	3	-	-	4	22	2	4	28					
Universities, medical schools	383	208	240	295	157	109	91	451	1,934	9	524	2,467					
NHS hospitals	2	3	4	5	2	1	-	6	23	-	5	28					
Government departments	28	7	8	9	3	1	4	12	72	-	26	98					
Other public bodies	28	11	12	17	9	12	3	75	167	2	57	226					
Non-profit-making organisations	19	11	8	8	8	3	4	47	108	-	18	126					
Commercial organisations	36	12	17	25	20	11	8	88	217	2	47	266					
Total	507	253	290	361	202	137	110	683	2,543	15	681	3,239					
												4,110,028					
												100%					

(1) Some licence-holders hold more than one licence; these figures are compiled by **numbers of project licences**, not by numbers of actual licence-holders.

(2) Only procedures on adult or free-living animals (including neonatal and juvenile mammals, and newly-hatched birds) are counted.

Details of procedures on immature forms (e.g. larvae, embryos) are collected but not counted.

Animals in the wild involved in rodenticide trials are also not counted. Details (if applicable) are given in the Commentary.

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