Home Office

Statistics of Scientific Procedures on Living Animals Great Britain 2009

HC 317
£9.75

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Statistics of Scientific Procedures on Living Animals

GREAT BRITAIN
2009

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

Ordered by the House of Commons
to be printed 27 July 2010

HC 317 LONDON: The Stationery Office £9.75

ISBN: 9780102967647

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STATISTICS OF SCIENTIFIC PROCEDURES ON LIVING ANIMALS GREAT BRITAIN 2009

Note: Appendices B, C (Form Notes, and explanatory details for published tables), **Appendix E** (Report on consultation carried out in 2009), and the **Supplementary tables** and **Time Series tables** can be found on the website at: http://www.homeoffice.gov.uk/rds/scientific1.html

INTRODUCTORY NOTES

1. 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 2009. 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".

2. The system of control under the 1986 Act is explained in detail in Appendix A (NB some information previously included is now published via the annual report of the Inspectorate, available at http://scienceandresearch.homeoffice.gov.uk/animal-research/). Under this Act any scientific procedure carried out on any living vertebrate animal, or one species of octopus *(Octopus vulgaris)*, which is likely to cause that animal pain, suffering, distress or lasting harm is a regulated procedure requiring licence authority. Recognised veterinary, agricultural or animal husbandry practice and the administration of medicines under an Animal Test Certificate granted under Veterinary Medicines Regulations 2008 are excluded from the controls of the 1986 Act.

Collection procedures, Coverage, Confidentiality, and Quality assurance

3. The statistics are compiled from returns, submitted by project licence holders at the end of each year, or on the termination of the licence when this occurs during the year. A copy of the form instructions can be found in Appendix B, including the detailed definition of a procedure, and descriptions of the standard coding lists used for describing procedures. Each procedure (which may consist of several stages) for a given purpose on an animal is counted as one returnable procedure for the year in which it commenced. A study involving a procedure using a number of animals is counted once for each animal. Where an animal which has recovered fully from a completed procedure is used again for a further procedure it is counted as a separate procedure, but the animal itself is not re-counted. The circumstances in which this re-use of an animal is permitted are limited.

4. Licence holders are required, as a condition of their licence, to submit a return even if no work has been undertaken (nil returns). A record is kept of all licensees from whom returns have been received. Those who fail to do so are reminded of their obligation under the Animals (Scientific Procedures) Act 1986.

5. To ensure that the published data are as complete as possible the Home Office will not publish the statistics unless the number of missing returns represents less than 0.5 percent of all the returns expected.

6. 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 are not given in the commentary this is to safeguard the confidentiality of the establishment and the licence holder.

7. The current classification system (coding lists) dates from 1995, and was modified in 1999 in those areas relating to source of animals, production and breeding (to produce genetically modified animals or harmful mutants), toxicology and legislation. During the collection and verification process, forms that have been incorrectly coded are referred back to the licensees for correction. Further details of the coding of GM and HM animals are given in the Appendix B page 6 (Form Notes).

8. The Animals (Scientific Procedures) Inspectorate (ASPI) scrutinise the returns and output tables and provide advice to Science and Research Group (SRG) of the Home Office. During this process, Inspectors may contact licensees to discuss and confirm coding, and inform SRG of any amendments that may be necessary.

Data quality

9. The data provided remains provisional and subject to revision.

Format and accessibility of information relating to 2009

10. The format of information provided broadly follows that used for the publication of previous statistics relating to 2008, with some changes made to further improve clarity. For the purpose of the commentary most figures have been rounded to the nearest 1000 or 100 procedures (or animals) or to two significant figures, in order to simplify the explanation; therefore the figures shown will not be identical to the figures in the tables. Where particular types of procedures have been disallowed under administrative provisions subsequent to the inception of the Act, footnotes have been added.

Symbols used in tables

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

Information provided online only

11. The following sections are available online only, at http://www.homeoffice.gov.uk/rds/scientific1.html

- Appendix B – Form notes including definitions
- Appendix C – detailed explanatory table notes
- Appendix E – Report on consultation carried out in 2009
- Supplementary Tables – the more detailed set of tables produced historically
- Time series tables – describing key trends over time

Request for feedback

12. In line with the Code of Practice for Official Statistics we welcome comments from users on how well this publication meets their needs, and we will consider any suggestions for improving it in future years. Under the Code of Practice for Official Statistics, good practice includes publishing information about users' experiences of the format and timing of reports, and assessing the cost burden on data suppliers (which should not be excessive) relative to the benefits arising from the use of the statistics.

13. A summary of the responses to a consultation carried out in 2009 relating to the format and content of the publication, is given at Appendix E.

14. We continue to welcome feedback. Comments should be sent by end October 2010 at the latest to: Assistant to the Chief Statistician, Home Office Statistics, Science and Research Group, Home Office, 5th floor Peel, 2 Marsham Street, London SW1P 4DF (or email: public.enquiries@homeoffice.gsi.gov.uk marked FAO Assistant to the Chief Statistician, Home Office Statistics).

Home Office Responsible Statistician

15. David Blunt, Chief Statistician and Head of Profession for Statistics.

Acknowledgements

16. This publication and the accompanying web tables have been prepared by staff in the Home Office Statistics unit of the Science and Research Group. We are grateful for the support of colleagues in Policing Data Collection Section for data input, the Animals (Scientific Procedures) Inspectorate (ASPI), 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. Last but not least, the contribution of licensees who provided the returns on which this report is based is acknowledged.

Summary

Key points

1. Just over 3.6 million scientific procedures were started in Great Britain in 2009, falling 1% (-37,000).

2. Breeding to produce genetically modified (GM) animals and harmful mutants (HM) increased by 10% (+143,000) to 1.5 million procedures, accounted for by mice (+161,000).

3. Excluding such breeding, the numbers of procedures fell from 2.3 million to 2.1 million (-8% or -180,000).

4. For the first time, procedures using genetically 'normal' animals were less than half the total (48%).

5. There was an increase of 9% in numbers of procedures involving mice, a fall of 7% for non-human primates, and falls for most other species.

6. The total number of procedures was a third (+33% or +905,000) higher in 2009 than in 2000, mostly accounted for by breeding to produce GM and HM animals (+834,000 higher, of which mice +734,000). Excluding such breeding, the total was slightly higher than in 2000 (+3% or +70,000)

(Source: Tables 1, 3. Definitions below and further details provided overleaf)

Definition – for the compilation of these statistics the number of procedures reported generally corresponds to the number of animals. Where an animal which 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. (see the Introductory Notes and Appendix B for further details)

Presentation – the figures given refer to the numbers of procedures that were started in 2009 (rather than the numbers of animals), compared with 2008, unless indicated otherwise. Most figures have been rounded to the nearest 1000 or 100 procedures or to two significant figures, 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.

Further detail

Species (Table 1)

7. There were

   - increases in procedures involving mice (+210,000 or +9%), birds (+3,500 or +3%), sheep (+2,200 or +6%) and cattle (+2,100 or +89%).
   - a decrease overall in non-human primates (-340 or -7%), due to a fall in old world primates (-590 or -14%) along with an increase in new world primates (+250 or +68%).
   - decreases in most other species in particular fish (-207,000 or -34%), rats (-22,000 or -6%), amphibians (-12,000 or -37%), guinea pigs (-10,000 or -35%), pigs (-3,100 or -45%), horses and other equids (-620 or -7%), rabbits (-500 or -3%), goats (-370 or -73%), ferrets (-230 or -21%), dogs (-180 or -3%), gerbils (-160 or -15%), hamsters (-140 or -4%), and cats (-85 or -24%).

Purpose and genetic status (Tables 1, 3)

8. There was an increase in procedures for breeding (+143,000 or +10%), little change for fundamental biological research (+3,600 or +0.3%) or for veterinary medicine (+4,300, or +3%), and falls for human medicine/dentistry (-176,000 or -21%) and for protection of man, animals or environment (-11,000 or -13%).

9. Breeding for the purpose of producing genetically modified (GM) animals or harmful mutants (HM) accounted for 1.5 million procedures (42%). Other purposes accounted for 2.1 million – of which three tenths (30% or 623,000) used GM or HM animals.

10. Procedures using GM animals, HM animals, and genetically 'normal' animals accounted for 42%, 11% and 48% of the total respectively. (NB percentages do not sum to 100 due to rounding).

Use of anaesthesia (Table 5)

11. A third (33%) of all procedures in 2009 had some form of anaesthesia to alleviate the severity of the interventions. For many of the remaining procedures the use of anaesthesia would have potentially increased the adverse effects of the procedure.

Non-toxicology (Table 6)

12. Non-toxicology accounted for 3.2 million procedures, nine-tenths (88%) of the total, and very similar to the level in 2008 (+0.3%). The main areas were:- cancer research (14% of such procedures) immunological studies (14%), genetics (12%), anatomy (12%), physiology (11%) and pharmaceutical R&D (9%).

13. There were changes in individual fields of research for non-toxicology procedures. The largest increases occurred for genetics (+68,000 or +23%), cancer research (+43,000 or +11%) and ecology (+62,000 or +228%), anatomy (+32,000 or +9%), and immunology (+14,000 or +3%); whilst there were falls for pharmaceutical R&D (-107,000 or -27%) and physiology (-88,000 or -20%).

Toxicology (Tables 9, 10)

14. Just over one in ten (12%) of procedures were for toxicological purposes (438,000), falling ten percent. Most (78%) toxicology procedures were for pharmaceutical safety and efficacy evaluation, and seven tenths (72%) involved rodent species; while non-human primates accounted for less than one percent of such procedures. (Table 9)

15. Four fifths of toxicological procedures (80%) were carried out to conform to legal or regulatory requirements, with most of these (68% of toxicology procedures) carried out to meet a combination of legislative requirements. By comparison in 1995 a similar proportion of toxicology procedures (83%) were carried out to meet legislative requirement but a smaller proportion (59%) were to meet joint requirements. (Table 10)

Licences (Appendix A, Table 19)

16. Statistical returns are required each year from every person who holds a project licence for part or all of the year. In 2009 there were 3,177 licensees reporting either starting procedures (2,497 licensees) or reporting none (680 licensees).

17. There were 2,658 project licences in force at the end of 2009 compared with 2652 at the end of 2008, after falling in the previous few years. Similarly the number of certificates of designation in force authorizing places where work is carried out was 190 at the end of 2009 compared with 191 at the end of 2008, again after falls in recent years. The number of personal licences in force at the end of 2009 continued to increase, to 15,492 compared with 14,910 at the end of 2008, after increases in recent years.

Type of establishment (Appendix A Table 19, Time Series Table 23)

18. In 2009 commercial organizations accounted for 29% of procedures and 10% of project licences; the corresponding figures for universities were 45% and 73% respectively.

19. The number of procedures accounted for by the commercial sector fell from 2 million annually at the end of the 1980s to 908,000 in 2005 after which it has risen, particularly in 2008 (+236,000 to 1.3 million procedures) but fell back to just over 1 million procedures in 2009. The number of procedures carried out in the university sector has been increasing fairly steadily since the end of the 1980s and remained at around the same level on 2009 (1.6 million procedures, +1%) as in 2008. This difference is likely to reflect the increase in fundamental research using GM animals within universities.

International comparisons (Table 1a and Commission report[1] Table 1.1)

20. Based on EU-comparable definitions (numbers of animals, excluding breeding) the number of animals used in Great Britain in 2009 was 2.01 million, a fall of 8% (-186,000) compared with 2008 (2.19 million) and slightly (+3%) higher (+65,000) than in 2000 (1.94 million). The latest internationally comparable data[1] indicates that the total number of animals used for experiments in the 25 EU Member States in 2005[2] was 12.1 million, with France, UK and Germany using 2.33 million animals, 1.87 million animals, and 1.82 million animals respectively.

[1] 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 2005 (SEC (2007) 1455) available alongside the "Fifth Report from the Commission to the Council and the European Parliament on the Statistics on the number of animals used for experimental and other scientific purposes in the member states of the European Union" at http://ec.europa.eu/environment/chemicals/lab_animals/reports_en.htm

[2] data for France relates to 2004

Commentary

Note – the figures quoted below refer to the numbers of scientific procedures using animals that were started in 2009 (rather than the numbers of animals used), compared with 2008, unless indicated otherwise. For the purpose of the following commentary most figures have been rounded to the nearest 1000 or 100 procedures (or animals) or to two significant figures, 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.

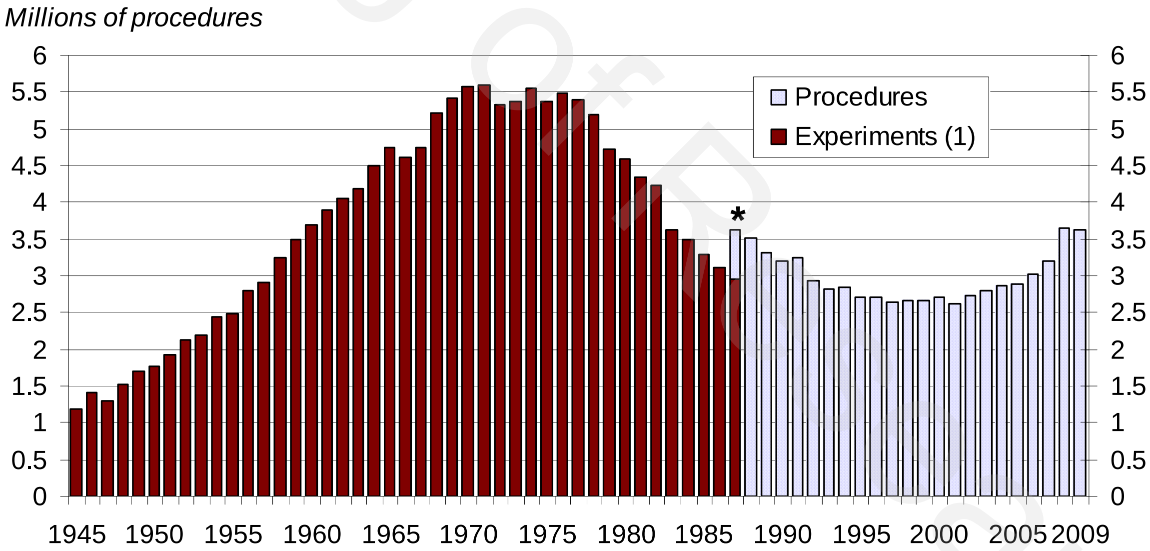
Procedures started in 2009 (Tables 1, 1a)

There were just over 3.6 million scientific procedures started in 2009, a fall of 37,000 (-1%) on 2008. Breeding is for the purpose of producing genetically modified (GM) animals or harmful mutants (HM) and accounted for 1.5 million procedures (42%). Excluding such breeding procedures the total fell from 2.27 million to 2.09 million (-8% or -180,000). There were some 3.5 million animals used for the first time in procedures started in 2009 (Table 1a), this was a fall of 1% (-42,000) reflecting the trend in numbers of procedures started.

There has been a significant reduction in the annual number of scientific procedures since 1976, this trend levelled out in the second half of the 1990s and in recent years there has been an increase in the number of procedures. The total number of procedures was a third (+33% or +905,000) higher than in 2000, mostly accounted for by breeding to produce GM and HM animals (+834,000 higher, of which mice +734,000). Excluding such breeding, the total was slightly higher than in 2000 (+3% or +70,000)

The overall level of scientific procedures is determined by a number of factors, including the economic climate and global trends in scientific endeavour.

Figure 1: Experiments or procedures commenced each year 1945-2009



(1) Experiments under the 1876 Act or Scientific Procedures under the 1986 Act
* The 1987 total includes experiments under the 1876 Act as well as procedures under the 1986 Act

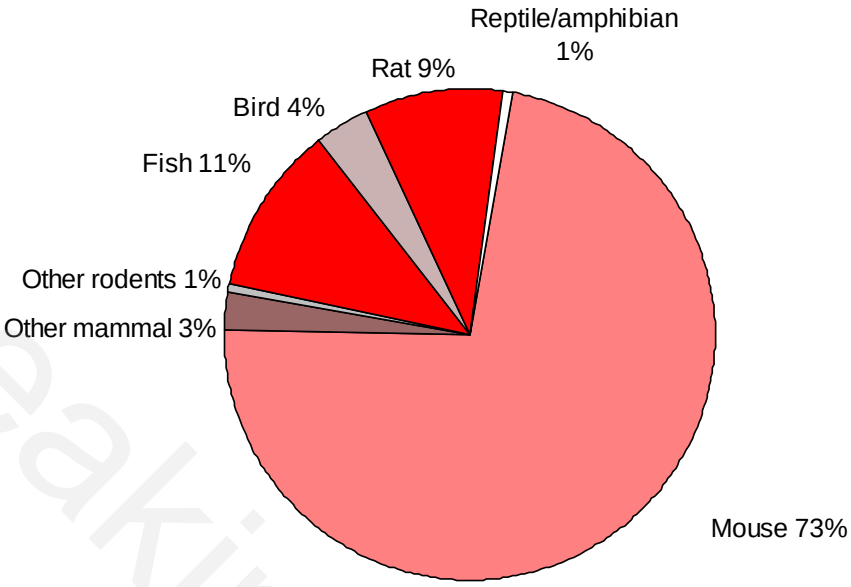
Species used (Tables 1 and 1a, and website Table 20)

<u>Overall numbers</u>

- Mice (73%), fish (11%), rats (9%) and birds (4%) were involved in the largest numbers of procedures. These proportions are broadly similar to recent years (though somewhat higher for fish and slightly lower for mice and rats).
- Domestic fowl accounted for ninety percent of all procedures using birds.
- Dogs, cats and non-human primates combined were used in less than half of one percent of all procedures, with a combined total of 10,500. This was 600 lower than in 2008 as a result of falls of 180, 85 and 340 procedures using dogs, cats and primates respectively (for further details see

below).

Figure 2: Procedures by species of animal, 2009



Increases

There were higher numbers of procedures using some species (and corresponding increases in the numbers of animals used) in 2009, notably:-

- Mice, up 210,000 (+9%), associated with fundamental biological research (+55,000), and breeding (+161,000).
- Birds up 3,500 (+3%), an increase for veterinary medicine (+7,600) along with a fall in fundamental biological studies (-3,200).
- Sheep, up 2,200 (+6%) due to increases in direct diagnosis (+3,700) along with falls for fundamental biological research (-610) and veterinary medicine (-890).
- Cattle, up 2,100 (+89%) - the annual level of procedures returned to previous (pre-2008) levels, mainly due increases for fundamental biological research (+1,400), veterinary medicine (+380) and protection of man, animals or environment (+260)

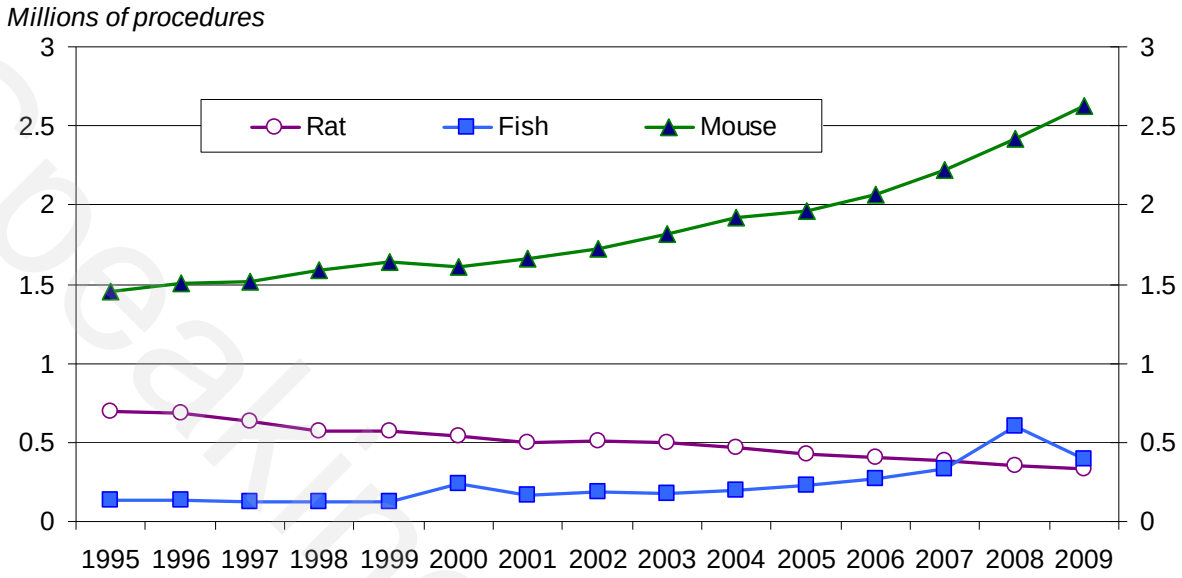
Decreases

There were falls in numbers of procedures (and corresponding falls in the numbers of animals used) using other species in 2009, notably:-

- Fish, down 207,000 (-34%), due to decreases in applied studies for human medicine or dentistry (-140,000) and fundamental biological research (-50,000)
- Rats, down 22,000 (-6%) due to a fall in applied studies for human medicine or dentistry (-25,000) along with an increase in protection of man, animals or environment (+2,700).
- Amphibians, down 12,000 (-37%) due to falls in breeding (-11,000), and fundamental biological research (-1,400).
- Guinea pigs, down 10,000 (-35%) due to falls in applied studies for human medicine or dentistry (-10,000).
- Pigs, down 3,100 procedures (-45%), due to a fall in veterinary medicine (-2,900).

Figure 3 below shows that since 1995, there has been a steady decrease in the number of procedures using rats, while the number of procedures using mice (especially genetically modified mice) has steadily increased. The number of procedures using fish fell back from the 2008 peak after increases in recent years.

Figure 3: Procedures using mice, rats and fish 1995-2009



'Other' categories use-detail

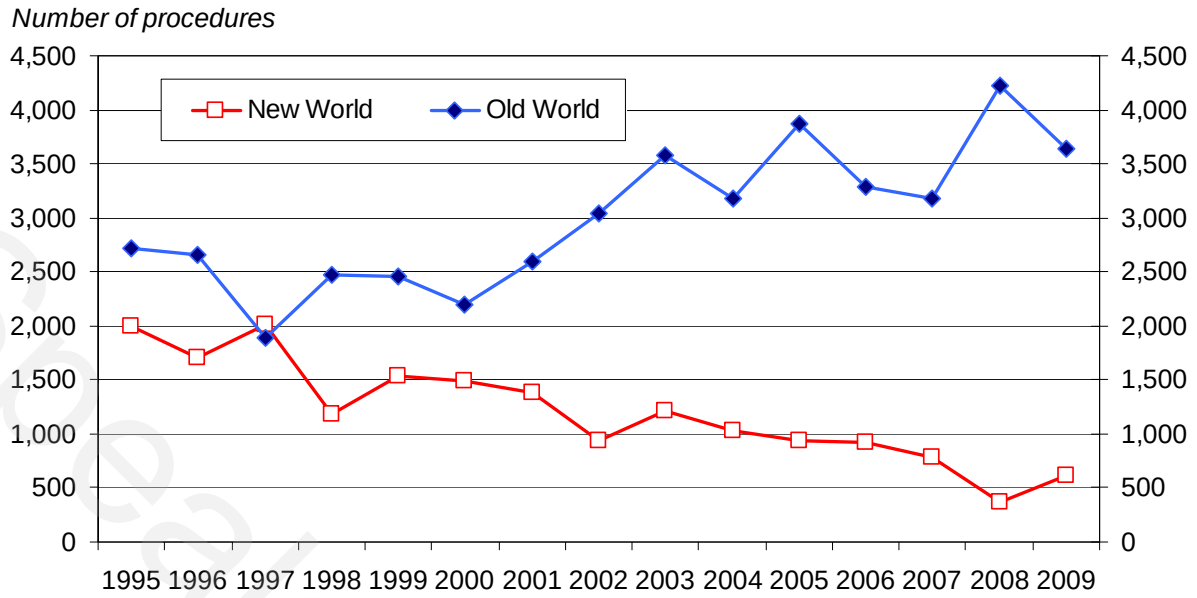
- The 'other carnivore' category included badgers, foxes and seals.
- The 'other mammals' category included mainly bats but also tree shrews and hares.
- 'Other rodents' included voles, wood mice, squirrels, chinchillas.
- 'Other birds' included zebra finches, ducks and geese, pigeons, guinea fowl, plus various wild garden or woodland birds, seabirds, waterfowl and game birds.

Primate use

Figure 4 below shows the changes in procedures using old-world and new-world primates since 1995 *(for details on primate species, see appendix B):-*

- The number of procedures using new-world primates rose by 250 (+68%), whilst remaining below the levels seen before 2008, and there were 236 more animals used.
- The number of procedures using old-world primates fell by 590 (-14%), and there was a fall of 780 animals used. These figures have fluctuated around an upward trend over the last few years, as shown by Figure 4.
- Some primates were used more than once since some of the procedures they were involved in have only a minimal effect.
- Hence although the total number of procedures using primates fell by 340 from 4,600 in 2008 to 4,300 in 2009, the number of animals fell more, by around 540 (from 3,400 in 2008 to 2,800 or -16%), with slightly over 1,400 procedures in 2009 involving re-use of primates.

Figure 4: Procedures using non-human primates, 1995-2009



Species on which no procedures were started in 2009

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

Primary purpose (Tables 1 and 1a)

NB Breeding is for the purpose of producing genetically modified (GM) animals or harmful mutants (HM). Further details of the coding of GM and HM animals are given in the Appendix B page 6 (Form Notes).

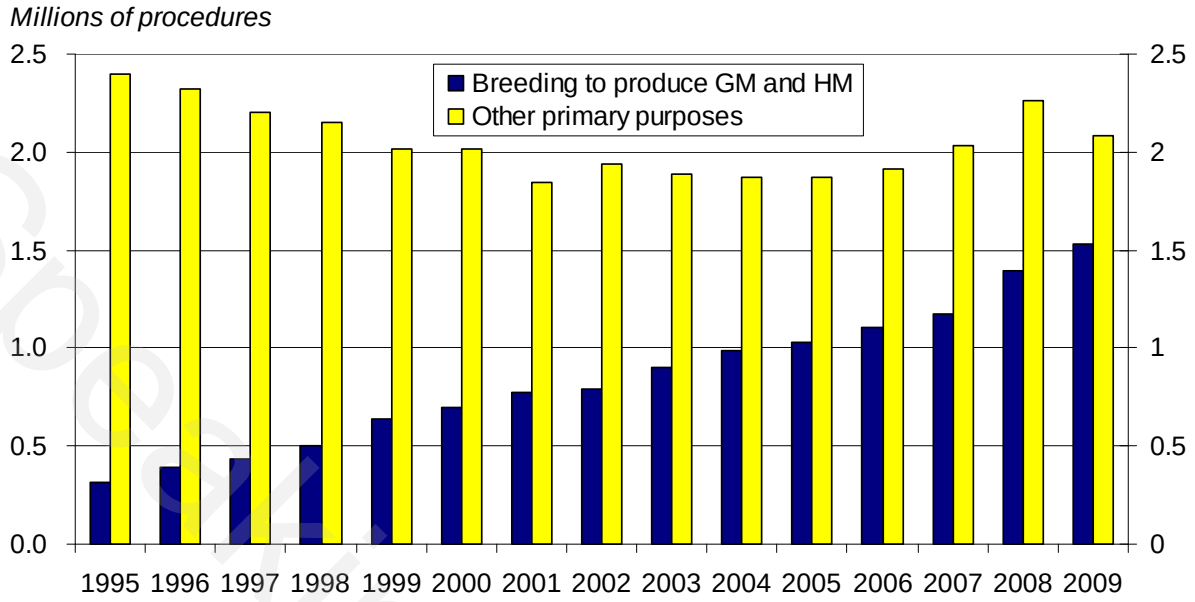
Increases

- The largest single change for individual purposes was for breeding (in particular maintenance of breeding colonies of mutant and genetically modified animals, mainly in support of fundamental research). Breeding accounted for 1.5 million procedures (42%) in 2009. These procedures were up 143,000 (+10%) from 2008 as part of a continuing trend (see Figure 5).
- Fundamental biological research accounted for 1.2 million (32%) procedures, at around the same level (+0.3% change, +3,600).
- Applied studies in veterinary medicine accounted for 141,000 (4%) procedures, slightly up (+4,300 or +3%).

Decreases

- Applied studies for human medicine and dentistry accounted for 643,000 (18%) procedures, down 176,000 (-21%).
- Protection of man, animals or environment accounted for 73,000 (2%) of procedures, down 11,000 (-13%).
- Direct diagnosis accounted for 52,000 (1%) procedures, around the same level (down 780 or -1%).

Figure 5: Comparison of breeding to produce GM and HM animals, with other primary purposes, 1995-2009



Source (Table 2, and website Tables 2.1, 2.2)

Most (83%) procedures started in 2009 were carried out with animals listed in Schedule 2 of the Act. These animals must come from a designated source, unless a special exemption is granted. The animals in Schedule 2 are: mouse, rat, guinea pig, hamster, gerbil, rabbit, cat, dog, ferret, non-human primate, pigs (if genetically modified), sheep (if genetically modified), and quail (*Coturnix coturnix*). The procedures involving animals listed in Schedule 2 and acquired from non-designated sources in the UK are authorised under Section 10(3) of The Act.

- Designated establishments in the UK were the source of animals for 3.0 million or 99 per cent of procedures, for those species listed under Schedule 2.
- Other EU countries were the source for Schedule 2 animals used in 11,200 procedures.
- Schedule 2 listed animals acquired from other sources (including Council of Europe countries who are signatories to ETS123) were used in 11,500 procedures; of these procedures seventy-two percent (8,200) involved mice or rats (of which the large majority, 7,200, used GM or HM animals).

Genetic status (Table 3, and website Tables 3 (extended), 3.1, 3.2, 3.3)

For the first time there was a higher total of procedures using GM and HM animals than using genetically 'normal' animals, with 1.7 million (48%) of procedures using 'normal' animals, 380,000 (11%) using HM animals and 1.5million (42%) using GM animals. There was an increase in procedures using GM animals (+178,000 or +13%) and falls in use of harmful mutants (-43,000 or -10%) and use of normal animals (-172,000 or -9%). The increase for GM was largely due to an increase (+152,000 or +20%) in use of GM mice in breeding procedures.

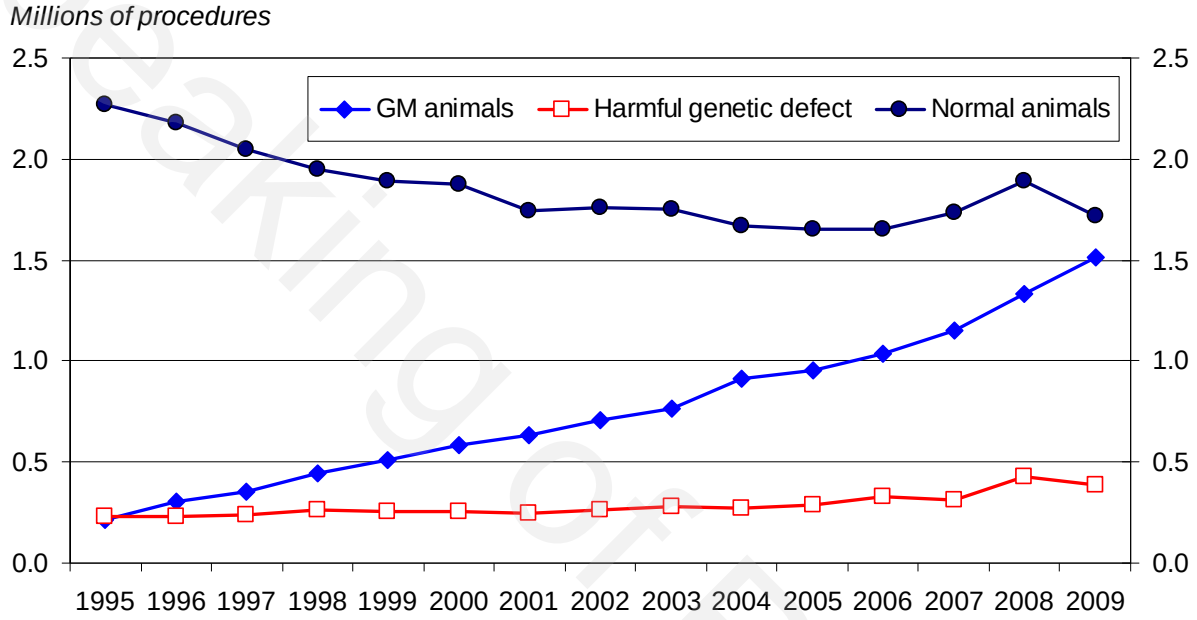
Genetically 'normal' animals (Table 3)

The overall fall in procedures using genetically 'normal' animals (-172,000) was accounted for by falls in use of fish (-153,000), rats (-20,000), guinea pigs (-10.000), and pigs (-3,200) along with increases in the use of mice (+7,700), sheep (+2,100), domestic fowl (+3,800), and cattle (+2,100).

Animals with a harmful genetic defect (Table 3)
The overall change in procedures using HM animals (-43,000) was accounted for by falls in use of fish (-35,000), Amphibians (-11,000), and rats (-480) along with an increase in the use of mice (+3,500). The procedures using mice, rats and fish were mainly for maintaining breeding colonies, with significant use of mice also for fundamental biological research and applied studies.

Genetically modified animals (Table 3)
The overall increase (+178,000) in procedures using genetically modified animals (GM) was attributable to higher use of mice of +199,000 (with +152,000 breeding and +51,000 fundamental biological research), as well as increases in the use of pigs (+110), sheep (+43), although there were falls in the use of fish (-19,000), rats (-1,200), domestic fowl (-180) and amphibians (-120).

Figure 6: Procedures by genetic status of animal, 1995-2009



Target body system (Table 4)

About half (52%) of all procedures were prospectively directed towards one particular body system:-

- The Immune system was the largest single category, accounting for 484,000 procedures (13%)- mainly mice (446,000).
- The Nervous system was the next largest with 397,000 (11%) procedures; mice, rats and fish were the most common species used (99% of this type of procedure).
- Of the single body system categories, there was a mix of rises and falls. After more than doubling in 2008, Alimentary system more than halved (-56%) in 2009 due to a reduction of -118,000 procedures (of which -109,000 was the use of fish).

Procedures conducted where the target body system was 'not relevant' accounted for 973,000 (27% of total procedures), up 92,000 (+10%). The category for 'multiple' target body systems accounted for 755,000 (21% of all procedures) around the same level as 2008 (up by 1,300 or +0.2% change).

Use of anaesthesia (Table 5)
Procedures are only permitted without anaesthesia or analgesic when such administration is judged more traumatic than the procedure itself, or when it is incompatible with the object of the procedure.

- 2.4 million procedures (67%) did not use any anaesthesia, slightly changed compared with 2008 (+36,000 or +2%).
- General anaesthesia at the end of procedure, without recovery, was used in 257,000 (7%)

procedures down 39,000 (-13%), use of local anaesthesia was also lower (-34,000, -12%) whilst general anaesthesia throughout the procedure, without recovery increased (+8,500 or +11%).

- The use of neuromuscular blocking agents (NMBA) was recorded in 3,594 procedures; all of these used general anaesthesia.

FUNDAMENTAL AND APPLIED STUDIES OTHER THAN TOXICOLOGY, REGULATORY OR SAFETY PURPOSES

(Tables 6, 6a, 7)

Just under 3.2 million procedures were conducted for fundamental and applied studies other than toxicology, safety or other regulatory purposes. This accounted for almost nine-tenths (88%) of all procedures started in 2009:-

- There was the same level of non-toxicology procedures as in 2008 (+9,500 or +0.3% change) and the corresponding number of animals used was also at the same level (+5,200 or +0.2% change)
- Some 2.4 million (77%) of these procedures used mice, a further 313,000 (10%) used fish, 216,000 (7%) using rats and 113,000 (4%) using birds (mainly domestic fowl).
- Dogs, cats and non-human primates collectively were used in 2,200 such procedures.

Field of research (Tables 6, 6a)

Although the level of non-toxicology procedures was very similar (+0.3%) to 2008, there were changes in individual fields of research:-

- the largest increases occurred for genetics (+68,000 or +23%), ecology (+62,000 or +228%), cancer research (+43,000 or +11%), anatomy (+32,000 or +9%) and immunology (+14,000 or +3%).
- and there were falls for physiology (-88,000 or -20%), and pharmaceutical R&D (-107,000 or -27%).

Production of biological materials (Table 7)

In 2009 some 332,000 procedures, 13,000 (+4%) more than in 2008, were carried out to produce biological materials:-

- Thirty-seven percent of these were for the production of infectious agents, (four percent of total non-toxicology procedures), of which the most common species used were birds (72%) and mice (18%).
- Vectors, neoplasms and antibody production accounted for a further nine percent of procedures for production of biological materials; using a wide range of species.
- The remaining fifty-four percent of production procedures were to obtain other biological material such as tissues or blood products, also using a wide range of species.
- After increasing in 2008 (to 4000 procedures), the numbers of procedures using immunisation to produce monoclonal antibodies by *in vitro*[1] methods fell back to 2,500 (-39% or -1,500) in 2009.

[1] See Appendix C for more details.

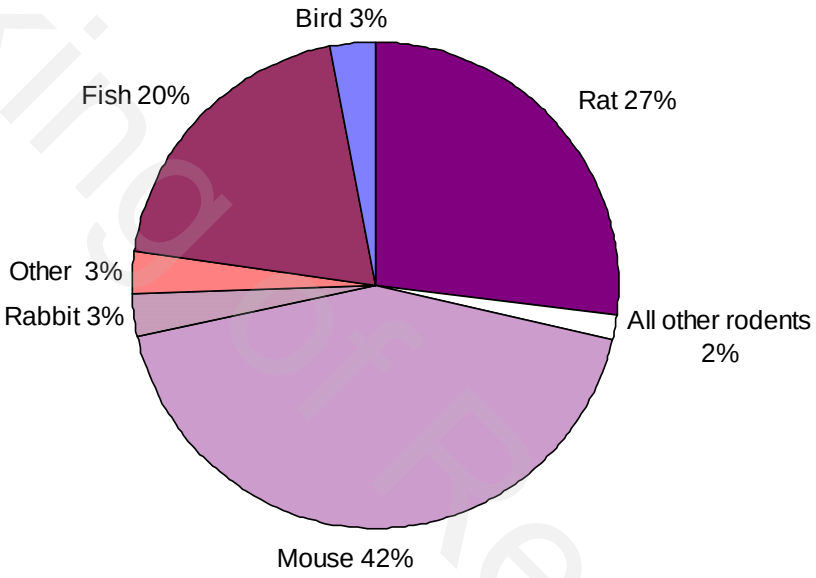
TOXICOLOGY, OTHER SAFETY OR EFFICACY EVALUATION
(Tables 9, 9a, 10, 11, (online only) Tables 12, 15, 16)

Toxicology procedures or those for safety and efficacy evaluation accounted for 438,000 (12%) of procedures started in 2009, compared with a quarter (25%) in 1995. Toxicological procedures fell by 46,000 (-10%) compared with 2008, following falls in most recent years.

Species (toxicology) (Table 9)

- Altogether rodents (mice, rats, and all other rodent species) accounted for 314,000 procedures (72% of toxicology procedures). The next major use was fish, accounting for some 86,000 procedures (20%).
- There were 3,100 procedures (less than 1%) using non-human primates, principally old-world species, mainly for pharmaceutical safety testing.
- Birds were used in 14,000 procedures (3%) and rabbits were used in 12,000 procedures (3%), while the remaining species accounted for only two percent of all toxicology procedures.

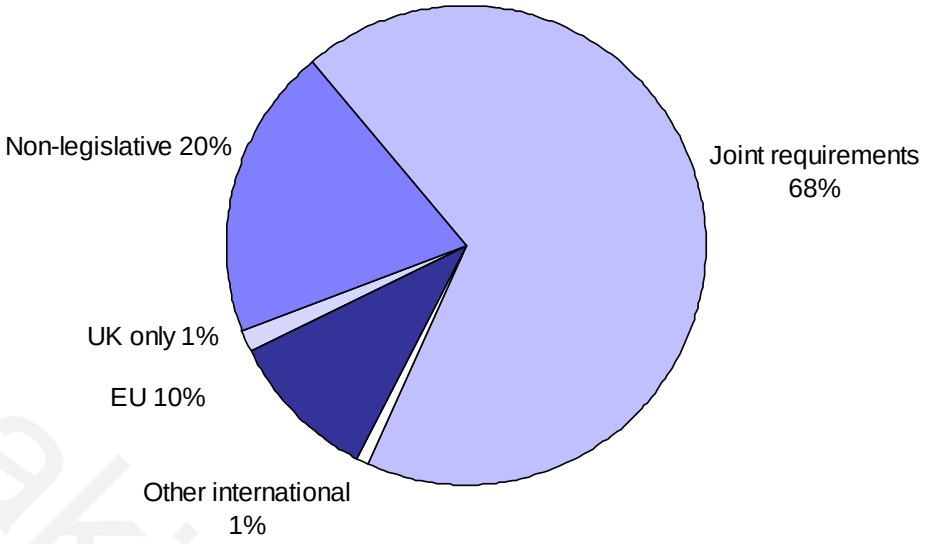
Figure 7: Procedures (toxicology) by species of animal, 2009



Legislative requirements (Table 10)

Of the 438,000 toxicological procedures conducted in 2009, four fifths (80%) were carried out to conform to legal or regulatory requirements. Most of these (68% of toxicology procedures) were carried out to meet a combination of legislative requirements i.e. avoiding duplication of animal use to fulfil more than one legislative requirement. By comparison in 1995 a similar proportion of toxicology procedures (83%) were carried out to meet legislative requirement but a smaller proportion (59%) were to meet joint requirements.

Figure 8: Procedures by legislative requirement (toxicology), 2009



Rodenticide trials
It is impracticable to collect accurate figures on the number of animals affected in field trials of rodenticidal substances. There was one return which described field trials occurring in 2009.

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) or in Annex C.1 to the Council Regulation (EEC) 3626/82 (see notes in Appendix B). There were 82 procedures performed using animals in this category in 2009; these involved fish and wild birds in research relevant to those species.

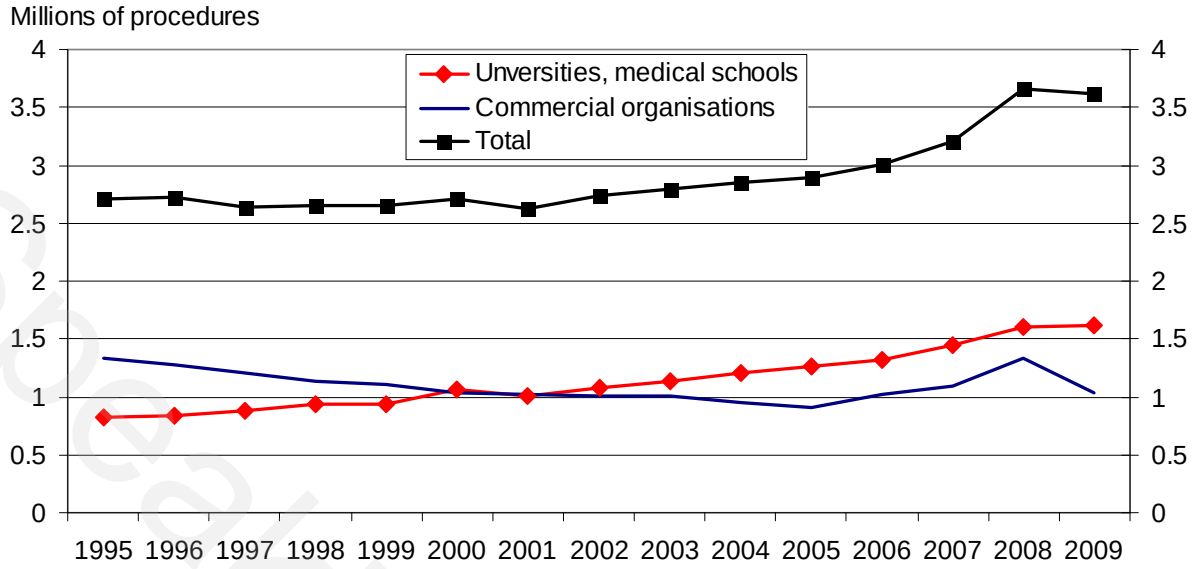
RETURNS, PROJECT LICENSEES AND DESIGNATED PLACES
(Appendix A, Table 19, Time series Table 23)

Returns were received for 3,177 licences; of which 2,486 returns reported countable procedures using adult animals that were started in 2009, a further 11 returns reported only non-countable procedures (e.g. using larval/embryonic/foetal animals), and 680 (21% of returns) indicated that no procedures were started in 2009. Of the 2,486 returns reporting countable procedures, 2,007 (81%) reported starting more than fifty procedures.

In 2009 commercial organizations accounted for 29% of procedures and 10% of project licences; the corresponding figures for universities were 45% and 73% respectively.

The number of procedures accounted for by the commercial sector fell from 1.3 million in 1995 to 908,000 in 2005 after which it has risen, particularly in 2008 (+236,000 to 1.3 million procedures) but fell back to just over 1 million procedures in 2009. The number of procedures carried out in the university sector has been increasing fairly steadily since the end of the 1980s and remained at around the same level in 2009 (1.6 million procedures, up +1%) as in 2008. This difference is likely to reflect the increase in fundamental research using GM animals within universities.

Figure 9 Procedures by establishment type 1995-2009



International comparisons (Table 1a, EU report[1] Table 1.1)

Data compiled by EU countries and submitted to the European Commission uses a narrower, but common, definition of animal experiments. The main difference with the definition used for the other statistics in this publication is that it is based on numbers of animals and excludes breeding to produce GM or HM animals. The latest data[1] is for 2005[2] (France reported data for 2004), some of the key points are:

- A total of just over 12.1 million animals were used for experiments across the 25 EU Member states. In 2005
- France, UK and Germany using 2.33 million animals, 1.87 million animals, and 1.82 million animals respectively in 2005.
- The distribution of species of animals used in experiments in the UK was broadly similar in 2005 to that in the EU as a whole, although the UK used a slightly higher proportion of mice, rats and birds and a smaller proportion of fish, rabbits, reptiles and amphibians.

- No apes were used in experiments anywhere in the EU in 2005. A total of 10,443 non-human primates were used in experiments across the EU; three tenths (30% or 3,115) 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.

[1] 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 2005 (SEC (2007) 1455) available alongside the "Fifth Report from the Commission to the Council and the European Parliament on the Statistics on the number of animals used for experimental and other scientific purposes in the member states of the European Union" at http://ec.europa.eu/environment/chemicals/lab_animals/reports_en.htm

[2] data for France relates to 2004

FURTHER INFORMATION

Further information about the work of the Animals Scientific Procedures Division and Inspectorate can be found in the 2009 Annual Report of the Home Office Animals Scientific Procedures Division (ASPD) and Inspectorate (ASPI) at http://www.homeoffice.gov.uk/science-research/animal-research/

Information about the Animal Procedures Committee can be found at http://apc.homeoffice.gov.uk/

Information about the National Centre for the Replacement, Refinement and Reduction of Animals in research NC3R^{s} 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

TABLES

Form Notes, and detailed table notes providing details of the terms and classifications used (**Appendices B and C**), and the **Supplementary tables** and **Time Series tables**, can be found on the website at: http://www.homeoffice.gov.uk/rds/scientific1.html.

Definitions

All tables refer to numbers of scientific procedures started on adult animals in 2009, unless indicated otherwise. Tables suffixed with an 'a' (e.g. Tables 1a, 6a, 9a) relate to numbers of animals used.

Symbols used in tables

..	not available	**-**	nil
NA	not applicable	**r**	revised

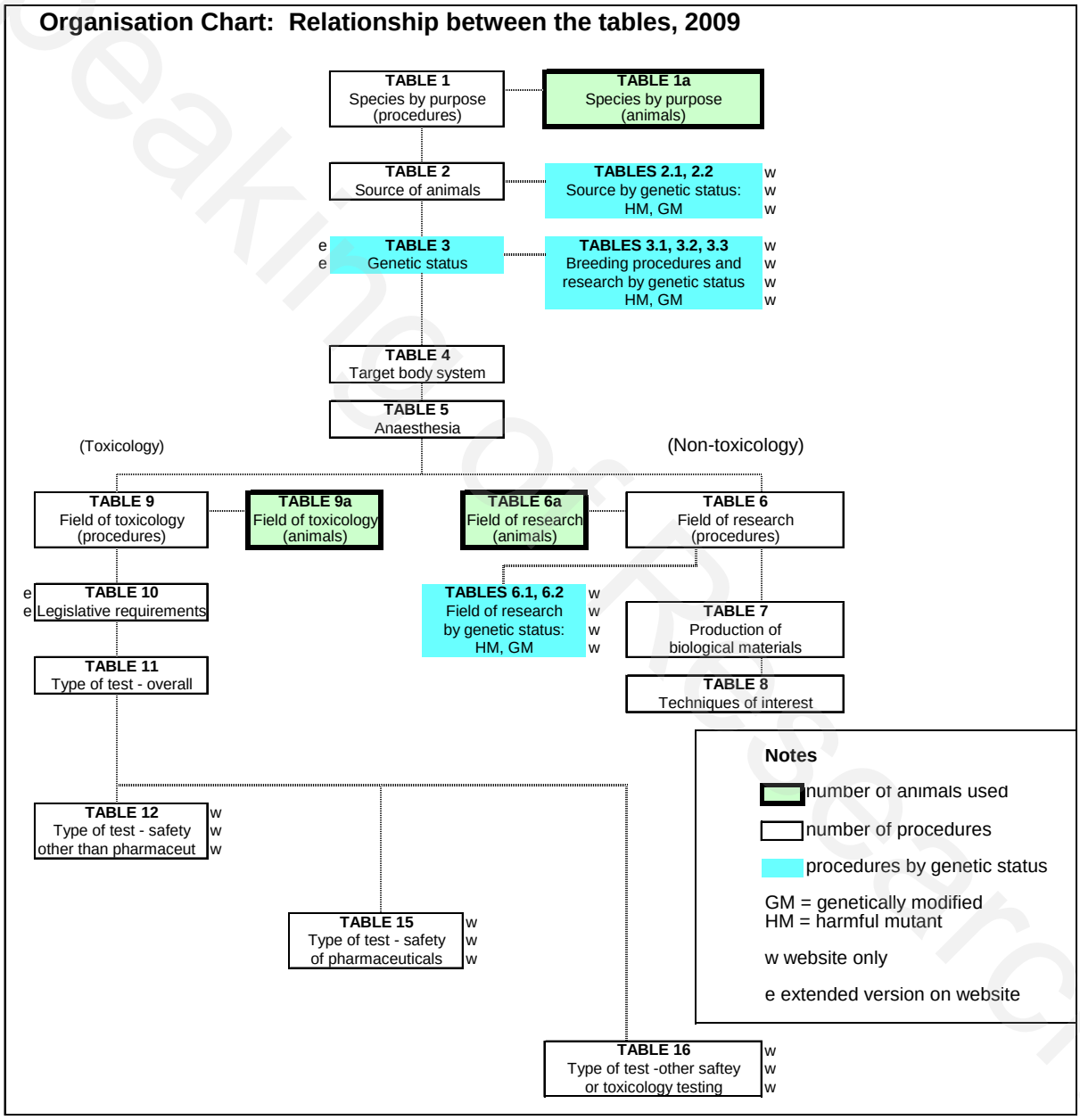


Table 1 Scientific procedures by species of animal and primary purpose of the procedure, page 1 of 2

Great Britain 2009 **Number of procedures**

Species of animal	Primary purpose of the procedure									Total
	Fundamental biological research	Applied studies - human medicine or dentistry	Applied studies - veterinary medicine	Protection of man, animals or environment	Education	Training	Forensic enquiries	Direct diagnosis	Breeding of GM or HM animals	
Mammal										
Mouse	830,642	357,954	12,308	20,700	891	-	-	6,721	1,399,340	**2,628,556**
Rat	96,478	191,396	15	29,021	451	688	-	533	15,283	**333,865**
Guinea pig	1,407	15,864	1,553	-	181	-	-	154	-	**19,159**
Hamster	882	1,478	735	62	-	-	-	-	-	**3,157**
Gerbil	688	240	-	-	-	-	-	-	-	**928**
Other rodent	2,121	-	-	383	-	-	-	-	-	**2,504**
Rabbit	1,340	10,926	2,274	954	18	-	-	1,050	-	**16,562**
Cat	55	-	220	-	-	-	-	-	-	**275**
Dog										
Beagle	96	5,297	271	200	-	-	-	-	-	**5,864**
Greyhound	-	-	-	-	-	-	-	-	-	**-**
Other including cross-bred dogs	-	-	59	-	-	-	-	-	-	**59**
Ferret	387	451	-	-	12	-	-	40	-	**890**
Other carnivore	456	-	425	114	-	-	-	-	-	**995**
Horse and other equids	181	2	124	-	-	-	-	8,440	-	**8,747**
Pig	1,220	1,243	1,236	30	-	-	-	4	24	**3,757**
Goat	3	3	15	88	-	-	-	24	-	**133**
Sheep	4,509	915	1,454	12	-	-	-	30,996	117	**38,003**
Cattle	2,392	-	1,687	260	-	-	-	19	-	**4,358**
Deer	71	-	-	-	-	-	-	-	-	**71**
Camelid	-	-	-	-	-	-	-	-	-	**-**
Other ungulate	-	-	-	-	-	-	-	22	-	**22**

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

Great Britain 2009 **Number of procedures**

Species of animal	Primary purpose of the procedure									Total
	Fundamental biological research	Applied studies - human medicine or dentistry	Applied studies - veterinary medicine	Protection of man, animals or environment	Education	Training	Forensic enquiries	Direct diagnosis	Breeding of GM or HM animals	
Primate										
Prosimian	-	-	-	-	-	-	-	-	-	**-**
New World monkey										
marmoset, tamarin	218	401	-	-	-	-	-	-	-	**619**
Squirrel, owl, spider monkey	-	-	-	-	-	-	-	-	-	-
Other New World monkey	-	-	-	-	-	-	-	-	-	**-**
Old World monkey										
Macaque	194	2,946	-	504	-	-	-	-	-	**3,644**
Baboon	-	-	-	-	-	-	-	-	-	**-**
Other Old World monkey	-	-	-	-	-	-	-	-	-	**-**
Ape										
Gibbon	-	-	-	-	-	-	-	-	-	**-**
Great ape	-	-	-	-	-	-	-	-	-	**-**
Other mammal	1,217	-	-	98	-	-	-	-	-	**1,315**
Bird										
Domestic fowl (*Gallus domesticus*)	9,714	19	102,300	276	150	-	-	1,571	271	**114,301**
Turkey	391	138	2,221	-	-	-	-	146	-	**2,896**
Quail (*Coturnix coturnix*)	20	-	-	-	-	-	-	-	-	**20**
Quail (not *Coturnix coturnix*)	-	-	-	500	-	-	-	-	-	**500**
Other bird	8,094	-	310	442	-	-	-	218	-	**9,064**
Reptile - any reptilian species	459	-	-	1	-	-	-	-	-	**460**
Amphibian - any amphibian species	16,065	163	-	1,184	-	-	-	-	3,303	**20,715**
Fish - any fish species	194,992	53,426	13,663	18,046	-	-	-	2,398	115,576	**398,101**
Cephalopod - *Octopus vulgaris*	-	-	-	-	-	-	-	-	-	**-**
Total	**1,174,292**	**642,862**	**140,870**	**72,875**	**1,703**	**688**	**-**	**52,336**	**1,533,914**	**3,619,540**
Increase on 2008	3,630	-175,766	4,303	-10,709	-164	-89	0	-778	143,033	-36,540
Percentage change from 2008	0.3%	-21%	3%	-13%	-9%	-11%	N/A	-1%	10%	-1%
Percentage of total for 2009	32%	18%	4%	2%	0.0%	0.0%	0%	1%	42%	100%
2008 Totals	1,170,662	818,628	136,567	83,584	1,867	777	0	53,114	1,390,881	3,656,080

N/A = Not applicable

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

Great Britain 2009 **Number of animals**

Species of animal	Primary purpose of the procedure									Total
	Fundamental biological research	Applied studies - human medicine or dentistry	Applied studies - veterinary medicine	Protection of man, animals or environment	Education	Training	Forensic enquiries	Direct diagnosis	Breeding of GM or HM animals	
Mammal										
Mouse	825,365	353,704	12,308	20,700	891	-	-	6,721	1,398,985	**2,618,674**
Rat	88,783	188,290	15	29,011	451	688	-	533	15,283	**323,054**
Guinea pig	1,407	15,806	1,553	-	181	-	-	102	-	**19,049**
Hamster	617	1,478	735	62	-	-	-	-	-	**2,892**
Gerbil	688	240	-	-	-	-	-	-	-	**928**
Other rodent	2,121	-	-	383	-	-	-	-	-	**2,504**
Rabbit	1,147	7,030	1,498	950	18	-	-	1,000	-	**11,643**
Cat	55	-	117	-	-	-	-	-	-	**172**
Dog										
Beagle	96	3,536	266	191	-	-	-	-	-	**4,089**
Greyhound	-	-	-	-	-	-	-	-	-	**-**
Other including cross-bred dogs	-	-	40	-	-	-	-	-	-	**40**
Ferret	387	352	-	-	12	-	-	40	-	**791**
Other carnivore	456	-	222	114	-	-	-	-	-	**792**
Horse and other equids	38	2	111	-	-	-	-	48	-	**199**
Pig	1,207	1,093	1,206	30	-	-	-	4	24	**3,564**
Goat	3	3	15	88	-	-	-	24	-	**133**
Sheep	4,455	847	1,277	-	-	-	-	1,319	117	**8,015**
Cattle	1,561	-	1,564	241	-	-	-	8	-	**3,374**
Deer	71	-	-	-	-	-	-	-	-	**71**
Camelid	-	-	-	-	-	-	-	-	-	**-**
Other ungulate	-	-	-	-	-	-	-	22	-	**22**

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

Great Britain 2009 **Number of animals**

Species of animal	Primary purpose of the procedure									Total
	Fundamental biological research	Applied studies - human medicine or dentistry	Applied studies - veterinary medicine	Protection of man, animals or environment	Education	Training	Forensic enquiries	Direct diagnosis	Breeding of GM or HM animals	
Primate										
Prosimian	-	-	-	-	-	-	-	-	-	**-**
New World monkey										
marmoset, tamarin	178	320	-	-	-	-	-	-	-	**498**
Squirrel, owl, spider monkey	-	-	-	-	-	-	-	-	-	**-**
Other New World monkey	-	-	-	-	-	-	-	-	-	**-**
Old World monkey										
Macaque	162	1,866	-	289	-	-	-	-	-	**2,317**
Baboon	-	-	-	-	-	-	-	-	-	**-**
Other Old World monkey	-	-	-	-	-	-	-	-	-	**-**
Ape										
Gibbon	-	-	-	-	-	-	-	-	-	**-**
Great ape	-	-	-	-	-	-	-	-	-	**-**
Other mammal	1,132	-	-	98	-	-	-	-	-	**1,230**
Bird										
Domestic fowl (*Gallus domesticus*)	9,714	19	102,300	276	150	-	-	1,571	271	**114,301**
Turkey	391	84	2,221	-	-	-	-	22	-	**2,718**
Quail (*Coturnix coturnix*)	20	-	-	-	-	-	-	-	-	**20**
Quail (not *Coturnix coturnix*)	-	-	-	500	-	-	-	-	-	**500**
Other bird	7,909	-	310	442	-	-	-	218	-	**8,879**
Reptile - any reptilian species	459	-	-	1	-	-	-	-	-	**460**
Amphibian - any amphibian species	8,473	60	-	1,184	-	-	-	-	3,142	**12,859**
Fish - any fish species	194,668	53,426	13,663	18,046	-	-	-	2,398	115,263	**397,464**
Cephalopod - *Octopus vulgaris*	-	-	-	-	-	-	-	-	-	-
Total	**1,151,563**	**628,156**	**139,421**	**72,606**	**1,703**	**688**	**-**	**14,030**	**1,533,085**	**3,541,252**
Increase on 2008	-1,517	-173,762	4,294	-10,816	-157	-89	0	-3,479	143,555	-41,971
Percentage change from 2008	-0.1%	-22%	3%	-13%	-8%	-11%	N/A	-20%	10%	-1%
Percentage of total for 2009	33%	18%	4%	2%	0.0%	0.0%	0%	0.4%	43%	100%
2008 Totals	1,153,080	801,918	135,127	83,422	1,860	777	0	17,509	1,389,530	3,583,223

N/A = Not applicable

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

Great Britain 2009 | Number of procedures

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)	Animals acquired from Council of Europe countries who are signatories to ETS123	Animals acquired from other sources	Animals not listed in Schedule 2	
Mouse	2,060,834	552,130	12	7,512	244	7,824	-	**2,628,556**
Rat	45,296	287,042	101	1,248	-	178	-	**333,865**
Guinea pig	326	18,833	-	-	-	-	-	**19,159**
Hamster	518	1,219	-	1,218	-	202	-	**3,157**
Gerbil	363	-	-	482	-	83	-	**928**
Rabbit	5,061	10,816	-	288	-	397	-	**16,562**
Cat	55	9	21	146	-	44	-	**275**
Dog	1,370	3,539	11	232	-	771	-	**5,923**
Ferret	55	834	-	-	-	1	-	**890**
Pig (genetically modified)	178	-	-	-	-	-	-	**178**
Sheep (genetically modified)	9	34	-	-	-	-	-	**43**
Primate	557	1,844	-	75	18	1,769	-	**4,263**
Quail *(Coturnix coturnix)*	20	-	-	-	-	-	-	**20**
Animals not listed in Schedule 2	-	-	-	-	-	-	605,721	**605,721**
Total	**2,114,642**	**876,300**	**145**	**11,201**	**262**	**11,269**	**605,721**	**3,619,540**
Increase on 2008	188,417	-8,836	-55	-872	-251	-1,554	-213,389	-36,540
Percentage change from 2008	10%	-1%	-28%	-7%	-49%	-12%	-26%	-1%
Percentage of total for 2009	58%	24%	0.0%	0.3%	0.0%	0.3%	17%	100%
2008 Totals	1,926,225	885,136	200	12,073	513	12,823	819,110	3,656,080

Note. The total number of procedures using animals listed in schedule 2 was 3,013,819

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 2009 **Number of procedures**

Species of animal	Genetic status			Total
	Normal animal	Animal with harmful genetic	Genetically modified animal	
Mammal				
Mouse	891,433	331,508	1,405,615	**2,628,556**
Rat	313,168	16,131	4,566	**333,865**
Guinea pig	19,159	-	-	**19,159**
Hamster	3,157	-	-	**3,157**
Gerbil	928	-	-	**928**
Other rodent	2,504	-	-	**2,504**
Rabbit	16,562	-	-	**16,562**
Cat	275	-	-	**275**
Dog				
Beagle	5,864	-	-	**5,864**
Greyhound	-	-	-	**-**
Other inc cross-breds	59	-	-	**59**
Ferret	890	-	-	**890**
Other carnivore	995	-	-	**995**
Horse and other equids	8,747	-	-	**8,747**
Pig	3,579	-	178	**3,757**
Goat	133	-	-	**133**
Sheep	37,960	-	43	**38,003**
Cattle	4,358	-	-	**4,358**
Deer	71	-	-	**71**
Camelid	-	-	-	**-**
Other ungulate	22	-	-	**22**
Primate				
Prosimian	-	-	-	**-**
New World monkey				
marmoset, tamarin	619	-	-	**619**
Squirrel, owl, spider monkey	-	-	-	**-**
Other New World monkey	-	-	-	**-**
Old World monkey				
Macaque	3,644	-	-	**3,644**
Baboon	-	-	-	**-**
Other Old World monkey	-	-	-	**-**
Ape				
Gibbon	-	-	-	**-**
Great ape	-	-	-	**-**
Other mammal	1,315	-	-	**1,315**
Bird				
Domestic fowl (*Gallus domesticus*)	113,811	361	129	**114,301**
Turkey	2,896	-	-	**2,896**
Quail (*Coturnix coturnix*)	20	-	-	**20**
Quail (not *Coturnix coturnix*)	500	-	-	**500**
Other bird	9,064	-	-	**9,064**
Reptile	460	-	-	**460**
Amphibian	13,406	5,764	1,545	**20,715**
Fish	267,004	29,175	101,922	**398,101**
Cephalopod	-	-	-	**-**
Total	**1,722,603**	**382,939**	**1,513,998**	**3,619,540**
Percentage of total for 2009	48%	11%	42%	100%

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

Great Britain 2009 **Number of procedures**

Species of animal	Body systems												Total
	Respiratory	Cardiovascular	Nervous	Senses	Alimentary	Skin	Musculo - skeletal	Reproductive	Immune and reticulo - endothelial	Other system	Multiple systems	System not relevant	
Mammal													
Mouse	56,183	78,663	264,009	38,499	47,337	55,358	46,407	205,105	445,556	62,030	593,396	736,013	**2,628,556**
Rat	25,437	22,942	88,708	3,089	11,819	1,398	3,372	37,813	6,257	14,033	69,873	49,124	**333,865**
All other rodents	9,494	782	1,078	328	978	105	3	53	4,715	405	3,842	3,965	**25,748**
Rabbit	94	805	143	227	132	541	178	2,957	2,892	354	6,573	1,666	**16,562**
Cat	-	9	124	31	9	-	-	-	30	-	30	42	**275**
Dog	93	426	8	-	54	-	-	20	-	34	3,289	1,999	**5,923**
Ferret	155	35	26	74	-	-	-	-	95	-	354	151	**890**
Other carnivore	-	89	-	-	-	-	-	31	-	-	425	450	**995**
Horse and other equids	114	58	-	-	-	-	4	39	47	5,957	27	2,501	**8,747**
Pig	249	243	148	31	483	85	-	87	550	4	1,406	471	**3,757**
Sheep	150	149	739	-	717	74	403	882	1,556	27,908	2,889	2,536	**38,003**
All other ungulates	277	4	22	-	710	18	-	205	698	2	1,701	947	**4,584**
New World monkey	-	20	56	-	-	-	-	53	4	2	156	328	**619**
Old World monkey	20	91	82	11	-	-	-	14	31	4	1,359	2,032	**3,644**
All other mammals	-	-	-	16	-	-	-	4	-	240	-	1,055	**1,315**
Bird	111	3,019	1,860	1,063	4,557	625	112	142	1,932	93,964	9,410	9,986	**126,781**
Reptile	-	-	-	-	-	8	-	-	-	451	-	1	**460**
Amphibian	-	47	105	180	-	620	452	17,000	-	600	523	1,188	**20,715**
Fish	80	3,788	39,912	8,143	24,336	10,034	21,065	32,370	19,236	20,861	59,642	158,634	**398,101**
Total	**92,457**	**111,170**	**397,020**	**51,692**	**91,132**	**68,866**	**71,996**	**296,775**	**483,599**	**226,849**	**754,895**	**973,089**	**3,619,540**
Increase on 2008	-5,985	7,873	-44,209	9,147	-118,145	11,735	-23,705	-9,790	22,561	20,424	1,349	92,205	-36,540
Percentage change from 2008	-6%	8%	-10%	21%	-56%	21%	-25%	-3%	5%	10%	0.2%	10%	-1%
Percentage of total for 2009	3%	3%	11%	1%	3%	2%	2%	8%	13%	6%	21%	27%	100%
2008 Totals	98,442	103,297	441,229	42,545	209,277	57,131	95,701	306,565	461,038	206,425	753,546	880,884	3,656,080

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

Great Britain 2009 **Number of procedures**

Species of animal	No anaesthesia	Type of anaesthesia				Total
		General anaesthesia, with recovery	Local anaesthesia	General anaesthesia at end of procedure, without recovery	General anaesthesia throughout, without recovery	
Mammal						
Mouse	1,882,857	372,478	230,218	93,107	49,896	**2,628,556**
Rat	176,065	97,944	1,417	32,224	26,215	**333,865**
All other rodents	12,465	7,970	68	3,368	1,877	**25,748**
Rabbit	10,189	651	2,446	1,506	1,770	**16,562**
Cat	150	108	-	-	17	**275**
Dog	4,648	392	280	449	154	**5,923**
Ferret	225	619	-	17	29	**890**
Other carnivore	184	811	-	-	-	**995**
Horse and other equids	212	1	8,534	-	-	**8,747**
Pig	2,870	382	77	102	326	**3,757**
Sheep	36,659	1,101	39	82	122	**38,003**
All other ungulates	4,329	41	173	29	12	**4,584**
Primate						
New World monkey	389	83	16	-	131	**619**
Old World monkey	3,079	292	-	221	52	**3,644**
All other mammals	1,234	65	3	-	13	**1,315**
Bird	36,228	1,083	58	88,529	883	**126,781**
Reptile	460	-	-	-	-	**460**
Amphibian	19,148	1,369	-	98	100	**20,715**
Fish	222,454	134,676	2	37,414	3,555	**398,101**
Total	**2,413,845**	**620,066**	**243,331**	**257,146**	**85,152**	**3,619,540**
Increase on 2008	36,054	-8,403	-33,672	-38,984	8,465	-36,540
Percentage change from 2008	2%	-1%	-12%	-13%	11%	-1%
Percentage of total for 2009	67%	17%	7%	7%	2%	100%
2008 Totals	2,377,791	628,469	277,003	296,130	76,687	3,656,080

Note. Neuromuscular blocking agents (NMBA) were used in 3,594 procedures in 2009. 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

Great Britain 2009 **Number of procedures**

Species of animal	Field of research												
	Anatomy	Physiology	Biochemistry	Psychology	Pathology	Immunology	Microbiology	Parasitology	Pharmacology	Pharmaceutical R&D	Therapeutics	Clinical medicine	Clinical surgery
Mammal													
Mouse	239,479	293,984	37,020	41,614	60,420	439,515	35,247	24,021	38,714	158,696	10,408	7,909	141
Rat	6,075	39,638	4,125	11,166	2,049	4,523	467	800	21,296	100,695	2,162	5,909	1,229
Guinea pig	-	406	-	-	-	100	193	9	2,492	9,520	79	-	-
Hamster	-	164	-	-	-	45	208	461	-	146	330	-	-
Gerbil	-	2	-	-	-	69	-	319	-	240	41	-	-
Other rodent	10	4	-	127	21	-	94	-	-	-	-	-	-
Rabbit	4	518	134	-	97	974	423	179	55	1,902	94	55	43
Cat	-	46	-	-	-	30	-	-	116	-	-	-	-
Dog													
Beagle	-	-	-	-	-	-	-	-	-	710	-	-	-
Greyhound	-	-	-	-	-	-	-	-	-	-	-	-	-
Other including cross-bred dogs	-	-	-	-	-	-	-	-	-	-	-	2	-
Ferret	6	80	-	37	-	202	511	-	12	3	-	-	-
Other carnivore	-	-	-	31	-	-	-	-	7	-	-	-	-
Horse and other equids	2	66	-	-	-	46	8,521	-	53	-	2	-	-
Pig	24	129	-	682	31	174	386	16	14	67	234	62	35
Goat	-	-	3	79	-	39	-	-	-	3	-	-	-
Sheep	183	929	248	-	420	353	30,261	1,017	-	200	169	365	221
Cattle	-	207	-	-	2	478	242	226	77	-	11	-	-
Deer	-	-	-	-	-	-	-	-	-	-	-	-	-
Camelid	-	-	-	-	-	-	-	-	-	-	-	-	-
Other ungulate	-	-	-	-	-	22	-	-	-	-	-	-	-

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

Great Britain 2009 — **Number of procedures**

Species of animal	**Field of research**												
	Anatomy	Physiology	Biochemistry	Psychology	Pathology	Immunology	Microbiology	Parasitology	Pharmacology	Pharmaceutical R&D	Therapeutics	Clinical medicine	Clinical surgery
Primate													
Prosimian	-	-	-	-	-	-	-	-	-	-	-	-	-
New World monkey													
marmoset, tamarin	-	108	-	26	14	16	4	-	61	271	26	-	-
Squirrel, owl, spider monkey	-	-	-	-	-	-	-	-	-	-	-	-	-
Other New World monkey	-	-	-	-	-	-	-	-	-	-	-	-	-
Old World monkey													
Macaque	2	83	-	4	21	41	116	-	-	315	-	-	2
Baboon	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Old World monkey	-	-	-	-	-	-	-	-	-	-	-	-	-
Ape													
Gibbon	-	-	-	-	-	-	-	-	-	-	-	-	-
Great ape	-	-	-	-	-	-	-	-	-	-	-	-	-
Other mammal	-	13	-	-	243	-	-	-	-	-	-	-	-
Bird													
Domestic fowl (*Gallus domesticus*)	917	299	67	1,878	240	787	6,333	89,132	-	137	50	-	-
Turkey	-	-	-	-	-	-	535	337	-	588	-	-	-
Quail (*Coturnix coturnix*)	-	-	-	-	-	-	-	-	-	-	-	-	-
Quail (spp. other than *Coturnix coturnix*)	-	-	-	-	-	-	-	-	-	-	-	-	-
Other bird	30	32	-	340	-	215	168	-	-	-	-	-	-
Reptile - any reptilian species	-	-	-	-	-	-	-	-	-	-	-	-	-
Amphibian - any amphibian species	12,121	591	826	-	-	-	1,000	-	20	-	-	-	-
Fish -any fish species	118,524	15,368	64	1,483	5,582	12,270	8,338	6,837	-	8,930	-	120	-
Cephalopod - Octopus vulgaris	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	**377,377**	**352,667**	**42,487**	**57,467**	**69,140**	**459,899**	**93,047**	**123,354**	**62,917**	**282,423**	**13,606**	**14,422**	**1,671**
Increase on 2008	32,134	-87,699	9,836	6,300	1,589	14,129	-1,981	1,272	4,407	-106,854	-13,605	-1,064	-1,164
Percentage change from 2008	9%	-20%	30%	12%	2%	3%	-2%	1%	8%	-27%	-50%	-7%	-41%
Percentage of total for 2009	12%	11%	1%	2%	2%	14%	3%	4%	2%	9%	0.4%	0.5%	0.1%
2008 Totals	345,243	440,366	32,651	51,167	67,551	445,770	95,028	122,082	58,510	389,277	27,211	15,486	2,835

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

Great Britain 2009 **Number of procedures**

Species of animal	Field of research													Total
	Dentistry	Genetics	Molecular biology	Cancer research	Nutrition	Zoology	Botany	Animal science	Ecology	Animal welfare	Other	Tobacco (1)	Alcohol	
Mammal														
Mouse	8	328,217	161,691	416,349	3,327	-	18	4,288	-	76	138,405	-	430	**2,439,977**
Rat	57	1,771	2,671	4,078	2,465	-	8	-	-	47	5,077	-	80	**216,388**
Guinea pig	-	-	-	-	-	-	-	-	-	-	-	-	-	**12,799**
Hamster	-	-	-	6	52	6	-	-	-	-	-	-	-	**1,418**
Gerbil	-	-	-	257	-	-	-	-	-	-	-	-	-	**928**
Other rodent	-	-	-	-	-	310	-	-	1,682	4	-	-	-	**2,252**
Rabbit	-	-	-	2	-	-	3	12	-	70	7	-	-	**4,572**
Cat	-	-	-	-	9	-	-	-	-	-	-	-	-	**201**
Dog														
Beagle	-	-	-	18	-	-	-	-	-	96	-	-	-	**824**
Greyhound	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Other including cross-bred dogs	-	-	-	-	46	-	-	-	-	-	-	-	-	**48**
Ferret	-	-	-	-	-	-	-	-	-	-	-	-	-	**851**
Other carnivore	-	-	-	-	-	89	-	-	436	14	-	-	-	**577**
Horse and other equids	-	39	-	-	-	-	-	-	-	-	-	-	-	**8,729**
Pig	-	2	-	-	1	-	-	-	-	54	-	-	-	**1,911**
Goat	-	-	-	-	-	-	-	-	-	-	-	-	-	**124**
Sheep	-	205	-	-	170	-	-	1,917	-	453	577	-	-	**37,688**
Cattle	-	842	-	-	270	-	-	533	-	-	-	-	-	**2,888**
Deer	-	71	-	-	-	-	-	-	-	-	-	-	-	**71**
Camelid	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Other ungulate	-	-	-	-	-	-	-	-	-	-	-	-	-	**22**

(1) Following a 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

Great Britain 2009 — **Number of procedures**

Species of animal	Field of research													Total
	Dentistry	Genetics	Molecular biology	Cancer research	Nutrition	Zoology	Botany	Animal science	Ecology	Animal welfare	Other	Tobacco (1)	Alcohol	
Primate														
Prosimian	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
New World monkey														
marmoset, tamarin	-	-	4	-	-	-	-	-	-	-	-	-	-	**530**
Squirrel, owl, spider monkey	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Other New World monkey	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Old World monkey														
Macaque	-	-	-	-	-	-	-	-	-	-	-	-	-	**584**
Baboon	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Other Old World monkey	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Ape														
Gibbon	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Great ape	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Other mammal	-	4	-	-	-	-	-	-	1,041	14	-	-	-	**1,315**
Bird														**-**
Domestic fowl (*Gallus domesticus*)	-	861	-	-	412	255	-	621	-	387	-	-	-	**102,376**
Turkey	-	-	-	-	734	-	-	-	-	52	-	-	-	**2,246**
Quail (*Coturnix coturnix*)	-	-	-	-	-	20	-	-	-	-	-	-	-	**20**
Quail (spp. other than *Coturnix coturnix*)	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Other bird	-	434	-	-	-	3,057	-	2	4,167	-	-	-	-	**8,445**
Reptile - any reptilian species	-	-	-	-	-	459	-	-	1	-	-	-	-	**460**
Amphibian - any amphibian species	-	3,399	100	1,372	-	600	2	-	684	-	-	-	-	**20,715**
Fish - any fish species	-	31,261	5,283	11,123	2,714	3,216	-	-	81,351	71	-	-	-	**312,535**
Cephalopod - *Octopus vulgaris*	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Total	**65**	**367,106**	**169,749**	**433,205**	**10,200**	**8,012**	**31**	**7,373**	**89,362**	**1,338**	**144,066**	**-**	**510**	**3,181,494**
Increase on 2008	34	67,558	9,197	42,808	-18	1,323	24	-3,752	62,132	-130	-27,325	0	313	9,464
Percentage change from 2008	110%	23%	6%	11%	-0.2%	20%	343%	-34%	228%	-9%	-16%	N/A	159%	0.3%
Percentage of total for 2009	0.0%	12%	5%	14%	0.3%	0.3%	0.0%	0.2%	3%	0.0%	5%	0%	0.0%	100%
2008 Totals	31	299,548	160,552	390,397	10,218	6,689	7	11,125	27,230	1,468	171,391	0	197	3,172,030

(1) Following a 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 2009 **Number of animals**

Species of animal	Field of research												
	Anatomy	Physiology	Biochemistry	Psychology	Pathology	Immunology	Microbiology	Parasitology	Pharmacology	Pharmaceutical R&D	Therapeutics	Clinical medicine	Clinical surgery
Mammal													
Mouse	239,240	293,635	36,871	41,592	59,965	436,239	35,247	24,021	38,441	156,682	10,408	7,539	141
Rat	6,075	39,622	4,125	10,550	2,049	4,523	467	560	21,127	91,512	2,162	5,764	1,224
Guinea pig	-	406	-	-	-	100	141	9	2,492	9,462	79	-	-
Hamster	-	164	-	-	-	45	208	202	-	146	330	-	-
Gerbil	-	2	-	-	-	69	-	319	-	240	41	-	-
Other rodent	10	4	-	127	21	-	94	-	-	-	-	-	-
Rabbit	4	518	16	-	97	974	373	93	55	1,902	94	55	43
Cat	-	46	-	-	-	30	-	-	30	-	-	-	-
Dog													
Beagle	-	-	-	-	-	-	-	-	-	243	-	-	-
Greyhound	-	-	-	-	-	-	-	-	-	-	-	-	-
Other including cross-bred dogs	-	-	-	-	-	-	-	-	-	-	-	2	-
Ferret	6	80	-	37	-	202	441	-	12	3	-	-	-
Other carnivore	-	-	-	31	-	-	-	-	-	-	-	-	-
Horse and other equids	2	24	-	-	-	17	97	-	-	-	2	-	-
Pig	24	129	-	682	31	161	386	16	14	67	226	62	35
Goat	-	-	3	79	-	39	-	-	-	3	-	-	-
Sheep	183	911	248	-	420	342	611	846	-	132	169	329	221
Cattle	-	190	-	-	2	448	242	157	77	-	-	-	-
Deer	-	-	-	-	-	-	-	-	-	-	-	-	-
Camelid	-	-	-	-	-	-	-	-	-	-	-	-	-
Other ungulate	-	-	-	-	-	22	-	-	-	-	-	-	-

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

Great Britain 2009 **Number of animals**

Species of animal	Field of research												
	Anatomy	Physiology	Biochemistry	Psychology	Pathology	Immunology	Microbiology	Parasitology	Pharmacology	Pharmaceutical R&D	Therapeutics	Clinical medicine	Clinical surgery
Primate													
Prosimian	-	-	-	-	-	-	-	-	-	-	-	-	-
New World monkey													
marmoset, tamarin	-	77	-	26	14	16	3	-	61	209	26	-	-
Squirrel, owl, spider monkey	-	-	-	-	-	-	-	-	-	-	-	-	-
Other New World monkey	-	-	-	-	-	-	-	-	-	-	-	-	-
Old World monkey													
Macaque	2	66	-	1	-	33	100	-	-	57	-	-	2
Baboon	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Old World monkey	-	-	-	-	-	-	-	-	-	-	-	-	-
Ape													
Gibbon	-	-	-	-	-	-	-	-	-	-	-	-	-
Great ape	-	-	-	-	-	-	-	-	-	-	-	-	-
Other mammal	-	13	-	-	243	-	-	-	-	-	-	-	-
Bird													
Domestic fowl (Gallus domesticus)	917	299	67	1,878	240	787	6,333	89,132	-	137	50	-	-
Turkey	-	-	-	-	-	-	371	337	-	574	-	-	-
Quail (Coturnix coturnix)	-	-	-	-	-	-	-	-	-	-	-	-	-
Quail (spp,other than Coturnix coturnix)	-	-	-	-	-	-	-	-	-	-	-	-	-
Other bird	30	32	-	269	-	215	168	-	-	-	-	-	-
Reptile - any reptilian species	-	-	-	-	-	-	-	-	-	-	-	-	-
Amphibian - any amphibian species	6,558	153	139	-	-	-	1,000	-	20	-	-	-	-
Fish - any fish species	118,291	15,368	64	1,483	5,582	12,270	8,338	6,837	-	8,930	-	40	-
Cephalopod - *Octopus vulgaris*	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	**371,342**	**351,739**	**41,533**	**56,755**	**68,664**	**456,532**	**54,620**	**122,529**	**62,329**	**270,299**	**13,587**	**13,791**	**1,666**

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

Great Britain 2009 **Number of animals**

Species of animal	Field of research													Total
	Dentistry	Genetics	Molecular biology	Cancer research	Nutrition	Zoology	Botany	Animal science	Ecology	Animal welfare	Other	Tobacco(1)	Alcohol	
Mammal														
Mouse	8	328,187	161,544	414,287	3,327	-	18	4,288	-	76	138,405	-	430	**2,430,591**
Rat	57	1,771	2,671	4,078	2,465	-	8	-	-	47	5,077	-	80	**206,014**
Guinea pig	-	-	-	-	-	-	-	-	-	-	-	-	-	**12,689**
Hamster	-	-	-	6	52	-	-	-	-	-	-	-	-	**1,153**
Gerbil	-	-	-	257	-	-	-	-	-	-	-	-	-	**928**
Other rodent	-	-	-	-	-	310	-	-	1,682	4	-	-	-	**2,252**
Rabbit	-	-	-	2	-	-	3	12	-	70	7	-	-	**4,318**
Cat	-	-	-	-	-	-	-	-	-	-	-	-	-	**106**
Dog														
Beagle	-	-	-	6	-	-	-	-	-	96	-	-	-	**345**
Greyhound	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Other including cross-bred dogs	-	-	-	-	27	-	-	-	-	-	-	-	-	**29**
Ferret	-	-	-	-	-	-	-	-	-	-	-	-	-	**781**
Other carnivore	-	-	-	-	-	89	-	-	436	14	-	-	-	**570**
Horse and other equids	-	39	-	-	-	-	-	-	-	-	-	-	-	**181**
Pig	-	2	-	-	1	-	-	-	-	54	-	-	-	**1,890**
Goat	-	-	-	-	-	-	-	-	-	-	-	-	-	**124**
Sheep	-	205	-	-	162	-	-	1,891	-	453	577	-	-	**7,700**
Cattle	-	321	-	-	218	-	-	304	-	-	-	-	-	**1,959**
Deer	-	71	-	-	-	-	-	-	-	-	-	-	-	**71**
Camelid	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Other ungulate	-	-	-	-	-	-	-	-	-	-	-	-	-	**22**

(1) Following a 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

Great Britain 2009 — **Number of animals**

Species of animal	**Field of research**													**Total**
	Dentistry	Genetics	Molecular biology	Cancer research	Nutrition	Zoology	Botany	Animal science	Ecology	Animal welfare	Other	Tobacco(1)	Alcohol	
Primate														
Prosimian	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
New World monkey														**-**
marmoset, tamarin	-	-	-	-	-	-	-	-	-	-	-	-	-	**432**
Squirrel, owl, spider monkey	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Other New World monkey	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Old World monkey														
Macaque	-	-	-	-	-	-	-	-	-	-	-	-	-	**261**
Baboon	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Other Old World monkey	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Ape														
Gibbon	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Great ape	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Other mammal	-	4	-	-	-	-	-	-	956	14	-	-	-	**1,230**
Bird														
Domestic fowl (*Gallus domesticus*)	-	861	-	-	412	255	-	621	-	387	-	-	-	**102,376**
Turkey	-	-	-	-	734	-	-	-	-	52	-	-	-	**2,068**
Quail (*Coturnix coturnix*)	-	-	-	-	-	20	-	-	-	-	-	-	-	**20**
Quail (spp,other than *Coturnix coturnix*)	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Other bird	-	434	-	-	-	2,958	-	2	4,152	-	-	-	-	**8,260**
Reptile - any reptilian species	-	-	-	-	-	459	-	-	1	-	-	-	-	**460**
Amphibian - any amphibian species	-	3,242	100	363	-	600	-	-	684	-	-	-	-	**12,859**
Fish - any fish species	-	31,261	5,283	11,123	2,714	3,216	-	-	81,027	71	-	-	-	**311,898**
Cephalopod - *Octopus vulgaris*	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Total	**65**	**366,398**	**169,598**	**430,122**	**10,112**	**7,907**	**29**	**7,118**	**88,938**	**1,338**	**144,066**	**-**	**510**	**3,111,587**

(1) Following a 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

Great Britain 2009 **Number of procedures**

Species of animal	Production							Other [1]	Total
	Infectious agents	Vectors	Neoplasms	Monoclonal antibodies (ascites model)	Monoclonal antibodies (initial immunisation)	Polyclonal antibodies	Other biological materials		
Mammal									
Mouse	22,377	6,433	10,338	-	2,146	3,672	97,467	2,297,544	**2,439,977**
Rat	603	288	303	-	170	68	16,559	198,397	**216,388**
All other rodents	610	308	6	-	-	100	146	16,227	**17,397**
Rabbit	40	87	-	-	10	2,184	419	1,832	**4,572**
Cat	-	-	-	-	-	-	-	201	**201**
Dog	-	-	-	-	-	-	379	493	**872**
Ferret	-	-	-	-	-	63	216	572	**851**
Other carnivore	-	-	-	-	-	-	89	488	**577**
Horse and other equids	-	-	-	-	-	-	5,974	2,755	**8,729**
Pigs, sheep & all other ungulates	855	2	6	-	38	1,104	29,198	11,501	**42,704**
Primate									
New World monkey	-	-	-	-	-	-	219	311	**530**
Old World monkey	-	-	-	-	-	-	235	349	**584**
All other mammals	-	-	-	-	-	-	-	1,315	**1,315**
Bird	89,339	-	-	-	96	667	1,616	21,369	**113,087**
Reptile, Amphibian	-	-	-	-	-	-	8,554	12,621	**21,175**
Fish	10,005	-	1,221	-	-	43	18,194	283,072	**312,535**
Total	**123,829**	**7,118**	**11,874**	**-**	**2,460**	**7,901**	**179,265**	**2,849,047**	**3,181,494**
Increase on 2008	2,426	829	-370	0	-1,540	1,806	9,741	-3,428	9,464
Percentage change from 2008	2%	13%	-3%	N/A	-39%	30%	6%	-0.1%	0.3%
Percentage of total for 2009	4%	0.2%	0.4%	0%	0.1%	0.2%	6%	90%	100%
2008 Totals	121,403	6,289	12,244	0	4,000	6,095	169,524	2,852,475	3,172,030

(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

Great Britain 2009 **Number of procedures**

Species of animal	Toxicology or other safety/efficacy evaluation							
	General safety/efficacy evaluation							
	Pollution	Agriculture	Industry	Household	Food additives	Other foodstuffs	Finished cosmetics(2)	Cosmetics ingredients(2)
Mammal								
Mouse	589	4,564	5,792	-	-	7,670	-	-
Rat	281	11,836	11,612	-	877	120	-	-
Guinea pig	-	-	-	-	-	-	-	-
Hamster	-	-	-	-	-	-	-	-
Gerbil	-	-	-	-	-	-	-	-
Other rodent	-	60	-	-	-	-	-	-
Rabbit	-	214	634	-	24	-	-	-
Cat	-	-	-	-	-	-	-	-
Dog								
Beagle	-	56	32	-	-	-	-	-
Greyhound	-	-	-	-	-	-	-	-
Other including cross-bred dogs	-	-	-	-	-	-	-	-
Ferret	-	-	-	-	-	-	-	-
Other carnivore	-	-	-	-	-	-	-	-
Horse, donkey and cross-bred equids	-	-	-	-	-	-	-	-
Pig	-	25	-	-	-	240	-	-
Goat	-	9	-	-	-	-	-	-
Sheep	-	-	-	-	-	-	-	-
Cattle	-	162	-	-	-	-	-	-
Deer	-	-	-	-	-	-	-	-
Camelid	-	-	-	-	-	-	-	-
Other ungulate	-	-	-	-	-	-	-	-

(2) Following a 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

Great Britain 2009 **Number of procedures**

Species of animal	Toxicology or other safety/efficacy evaluation							
	General safety/efficacy evaluation							
	Pollution	Agriculture	Industry	Household	Food additives	Other foodstuffs	Finished cosmetics(2)	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	-	-	-	-	-	-	-	-
Ape								
Gibbon	-	-	-	-	-	-	-	-
Great Ape	-	-	-	-	-	-	-	-
Other mammal	-	-	-	-	-	-	-	-
Bird								
Domestic fowl (Gallus domesticus)	-	276	-	-	-	-	-	-
Turkey	-	-	-	-	-	-	-	-
Quail (Coturnix coturnix)	-	-	-	-	-	-	-	-
Quail (spp,other than Coturnix coturnix)	-	500	-	-	-	-	-	-
Other bird	-	309	-	-	-	-	-	-
Reptile - any reptilian species	-	-	-	-	-	-	-	-
Amphibian - any amphibian species	-	-	-	-	-	-	-	-
Fish - any fish species	14,956	966	299	-	-	-	-	-
Total	**15,826**	**18,977**	**18,369**	**-**	**901**	**8,030**	**-**	**-**
Increase on 2008	4,810	1,843	-5,143	-132	530	436	0	0
Percentage change from 2008	44%	11%	-22%	-100%	143%	6%	N/A	N/A
Percentage of total for 2009	4%	4%	4%	0%	0.2%	2%	0%	0%
2008 Totals	11,016	17,134	23,512	132	371	7,594	0	0

N/A = Not applicable

(2) Following a 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

Great Britain 2009 **Number of procedures**

Species of animal	Toxicology or other safety/efficacy evaluation									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	
Mammal										
Mouse	40,103	9,775	99,796	14,435	1,342	-	617	2,848	1,048	**188,579**
Rat	70,446	182	1,558	13,644	679	-	37	4,001	2,204	**117,477**
Guinea pig	1,367	58	4,845	-	-	-	-	90	-	**6,360**
Hamster	934	735	-	8	-	-	-	62	-	**1,739**
Gerbil	-	-	-	-	-	-	-	-	-	
Other rodent	-	-	-	-	-	-	-	-	192	**252**
Rabbit	6,304	24	3,697	124	-	-	772	178	19	**11,990**
Cat	72	2	-	-	-	-	-	-	-	**74**
Dog										
Beagle	3,706	34	-	1,059	-	-	-	153	-	**5,040**
Greyhound	-	-	-	-	-	-	-	-	-	**-**
Other including cross-bred dogs	-	11	-	-	-	-	-	-	-	**11**
Ferret	-	29	-	10	-	-	-	-	-	**39**
Other carnivore	370	48	-	-	-	-	-	-	-	**418**
Horse and other equids	-	-	2	16	-	-	-	-	-	**18**
Pig	574	743	4	162	18	-	12	65	3	**1,846**
Goat	-	-	-	-	-	-	-	-	-	**9**
Sheep	60	10	136	6	-	-	3	-	100	**315**
Cattle	294	451	484	48	-	-	-	27	4	**1,470**
Deer	-	-	-	-	-	-	-	-	-	**-**
Camelid	-	-	-	-	-	-	-	-	-	**-**
Other ungulate	-	-	-	-	-	-	-	-	-	**-**

(1) Following a 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 2009 **Number of procedures**

Species of animal	Toxicology or other safety/efficacy evaluation									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	89	-	-	-	-	-	-	-	-	**89**
Squirrel, owl, spider monkey	-	-	-	-	-	-	-	-	-	**-**
Other New World monkey	-	-	-	-	-	-	-	-	-	**-**
Old World monkey										
Macaque	1,969	37	10	538	-	-	-	506	-	**3,060**
Baboon	-	-	-	-	-	-	-	-	-	**-**
Other Old World monkey	-	-	-	-	-	-	-	-	-	**-**
Ape										
Gibbon	-	-	-	-	-	-	-	-	-	**-**
Great Ape	-	-	-	-	-	-	-	-	-	**-**
Other mammal	-	-	-	-	-	-	-	-	-	**-**
Bird										
Domestic fowl (Gallus domesticus)	2,127	8,972	550	-	-	-	-	-	-	**11,925**
Turkey	650	-	-	-	-	-	-	-	-	**650**
Quail (Coturnix coturnix)	-	-	-	-	-	-	-	-	-	**-**
Quail (spp,other than Coturnix coturnix)	-	-	-	-	-	-	-	-	-	**500**
Other bird	310	-	-	-	-	-	-	-	-	**619**
Reptile - any reptilian species	-	-	-	-	-	-	-	-	-	**-**
Amphibian - any amphibian species	-	-	-	-	-	-	-	-	-	**-**
Fish - any fish species	27,116	24,471	-	478	2,326	-	-	14,954	-	**85,566**
Total	**156,491**	**45,582**	**111,082**	**30,528**	**4,365**	**-**	**1,441**	**22,884**	**3,570**	**438,046**
Increase on 2008	-39,072	3,532	-6,435	1,168	936	0	1,063	-9,644	104	-46,004
Percentage change from 2008	-20%	8%	-5%	4%	27%	N/A	281%	-30%	3%	-10%
Percentage of total for 2009	36%	10%	25%	7%	1%	0%	0.3%	5%	1%	100%
2008 Totals	195,563	42,050	117,517	29,360	3,429	0	378	32,528	3,466	484,050

(1) Following a 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

Great Britain 2009 **Number of animals**

Species of animal	Toxicology or other safety/efficacy evaluation							
	General safety/efficacy evaluation							
	Pollution	Agriculture	Industry	Household	Food additives	Other foodstuffs	Finished cosmetics(2)	Cosmetics ingredients(2)
Mammal								
Mouse	589	4,564	5,792	-	-	7,670	-	-
Rat	281	11,826	11,612	-	877	120	-	-
Guinea pig	-	-	-	-	-	-	-	-
Hamster	-	-	-	-	-	-	-	-
Gerbil	-	-	-	-	-	-	-	-
Other rodent	-	60	-	-	-	-	-	-
Rabbit	-	214	634	-	24	-	-	-
Cat	-	-	-	-	-	-	-	-
Dog								
Beagle	-	56	32	-	-	-	-	-
Greyhound	-	-	-	-	-	-	-	-
Other including cross-bred dogs	-	-	-	-	-	-	-	-
Ferret	-	-	-	-	-	-	-	-
Other carnivore	-	-	-	-	-	-	-	-
Horse and other equids	-	-	-	-	-	-	-	-
Pig	-	25	-	-	-	240	-	-
Goat	-	9	-	-	-	-	-	-
Sheep	-	-	-	-	-	-	-	-
Cattle	-	161	-	-	-	-	-	-
Deer	-	-	-	-	-	-	-	-
Camelid	-	-	-	-	-	-	-	-
Other ungulate	-	-	-	-	-	-	-	-

(2)Following a 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

Great Britain 2009 **Number of animals**

Species of animal	Toxicology or other safety/efficacy evaluation							
	General safety/efficacy evaluation							
	Pollution	Agriculture	Industry	Household	Food additives	Other foodstuffs	Finished cosmetics(2)	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	-	-	-	-	-	-	-	-
Ape								
Gibbon	-	-	-	-	-	-	-	-
Great Ape	-	-	-	-	-	-	-	-
Other mammal	-	-	-	-	-	-	-	-
Bird								
Domestic fowl (*Gallus domesticus*)	-	276	-	-	-	-	-	-
Turkey	-	-	-	-	-	-	-	-
Quail (*Coturnix coturnix*)	-	-	-	-	-	-	-	-
Quail (spp,other than *Coturnix coturnix*)	-	500	-	-	-	-	-	-
Other bird	-	309	-	-	-	-	-	-
Reptile - any reptilian species	-	-	-	-	-	-	-	-
Amphibian - any amphibian species	-	-	-	-	-	-	-	-
Fish - any fish species	14,956	966	299	-	-	-	-	-
Cephalopod - *Octopus vulgaris*	-	-	-	-	-	-	-	-
Total	**15,826**	**18,966**	**18,369**	**-**	**901**	**8,030**	**-**	**-**

(2)Following a 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

Great Britain 2009 **Number of animals**

Species of animal	Toxicology or other safety/efficacy evaluation									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	
Mammal										
Mouse	39,622	9,775	99,796	14,435	1,342	-	617	2,833	1,048	**188,083**
Rat	70,055	182	1,558	13,644	679	-	37	3,965	2,204	**117,040**
Guinea pig	1,367	58	4,845	-	-	-	-	90	-	**6,360**
Hamster	934	735	-	8	-	-	-	62	-	**1,739**
Gerbil	-	-	-	-	-	-	-	-	-	**-**
Other rodent	-	-	-	-	-	-	-	-	192	**252**
Rabbit	4,348	24	1,590	124	-	-	339	9	19	**7,325**
Cat	64	2	-	-	-	-	-	-	-	**66**
Dog										
Beagle	3,364	32	-	140	-	-	-	120	-	**3,744**
Greyhound	-	-	-	-	-	-	-	-	-	**-**
Other including cross-bred dogs	-	11	-	-	-	-	-	-	-	**11**
Ferret	-	-	-	10	-	-	-	-	-	**10**
Other carnivore	174	48	-	-	-	-	-	-	-	**222**
Horse and other equids	-	-	2	16	-	-	-	-	-	**18**
Pig	481	743	4	94	18	-	12	54	3	**1,674**
Goat	-	-	-	-	-	-	-	-	-	**9**
Sheep	60	10	136	6	-	-	3	-	100	**315**
Cattle	273	418	484	48	-	-	-	27	4	**1,415**
Deer	-	-	-	-	-	-	-	-	-	**-**
Camelid	-	-	-	-	-	-	-	-	-	**-**
Other ungulate	-	-	-	-	-	-	-	-	-	**-**

(1)Following a 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

Great Britain 2009 **Number of animals**

Species of animal	Toxicology or other safety/efficacy evaluation									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	66	-	-	-	-	-	-	-	-	**66**
Squirrel, owl, spider monkey	-	-	-	-	-	-	-	-	-	**-**
Other New World monkey	-	-	-	-	-	-	-	-	-	**-**
Old World monkey										
Macaque	1,632	37	-	94	-	-	-	293	-	**2,056**
Baboon	-	-	-	-	-	-	-	-	-	**-**
Other Old World monkey	-	-	-	-	-	-	-	-	-	**-**
Ape										
Gibbon	-	-	-	-	-	-	-	-	-	**-**
Great Ape	-	-	-	-	-	-	-	-	-	**-**
Other mammal	-	-	-	-	-	-	-	-	-	**-**
Bird										
Domestic fowl (Gallus domesticus)	2,127	8,972	550	-	-	-	-	-	-	**11,925**
Turkey	650	-	-	-	-	-	-	-	-	**650**
Quail (Coturnix coturnix)	-	-	-	-	-	-	-	-	-	**-**
Quail (spp,other than Coturnix coturnix)	-	-	-	-	-	-	-	-	-	**500**
Other bird	310	-	-	-	-	-	-	-	-	**619**
Reptile - any reptilian species	-	-	-	-	-	-	-	-	-	**-**
Amphibian - any amphibian species	-	-	-	-	-	-	-	-	-	**-**
Fish - any fish species	27,116	24,471	-	478	2,326	-	-	14,954	-	**85,566**
Cephalopod - *Octopus vulgaris*	-	-	-	-	-	-	-	-	-	**-**
Total	**152,643**	**45,518**	**108,965**	**29,097**	**4,365**	**-**	**1,008**	**22,407**	**3,570**	**429,665**

(1)Following a 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

Great Britain 2008 **Number of procedures**

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	Any combination of legislative requirements	Non-legislative purposes	**Total**
Mammal								
Mouse	1,839	17	22,047	-	790	154,846	9,040	**188,579**
Rat	1,011	52	2,916	-	1,602	103,293	8,603	**117,477**
All other rodents	133	-	2,122	-	144	5,856	96	**8,351**
Rabbit	472	9	3,393	-	135	7,703	278	**11,990**
Cat	2	-	64	-	8	-	-	**74**
Dog	17	-	8	-	-	4,479	547	**5,051**
Ferret	-	-	-	-	-	10	29	**39**
Other carnivore	418	-	-	-	-	-	-	**418**
Horse and other equids	-	-	-	-	-	18	-	**18**
Pigs, sheep & all other ungulates	4	-	864	-	10	2,660	102	**3,640**
Primate								
New World monkey	-	-	-	-	-	89	-	**89**
Old World monkey	-	-	-	-	5	3,055	-	**3,060**
All other mammals	-	-	-	-	-	-	-	**-**
Bird	-	-	4,527	-	90	9,028	49	**13,694**
Reptile / Amphibian	-	-	-	-	-	-	-	**-**
Fish	2,122	-	8,845	-	432	6,084	68,083	**85,566**
Total	**6,018**	**78**	**44,786**	**-**	**3,216**	**297,121**	**86,827**	**438,046**
Increase on 2008	2,024	8	5,536	0	-1,483	1,862	-53,951	-46,004
Percentage change from 2008	51%	11%	14%	N/A	-32%	1%	-38%	-10%
Percentage of total for 2009	1%	0.0%	10%	0%	1%	68%	20%	100%
2008 Totals	3,994	70	39,250	0	4,699	295,259	140,778	484,050

N/A = Not applicable

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

Great Britain 2009 **Number of procedures**

Species of animal	Type of toxicological test or procedure									
	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	80,034	1,323	8,844	1,088	3,264	2,726	3,115	4,162	3,338	244
Rat	35	1,775	2,709	4,711	7,833	12,544	8,690	6,404	5,239	3,025
All other rodents	-	192	-	54	82	-	424	-	-	-
Rabbit	-	-	-	58	34	345	70	-	-	2,097
Cat	-	-	-	-	-	-	42	-	-	-
Dog	-	-	28	20	519	1,494	1,299	-	-	-
Ferret	-	-	-	-	-	-	-	-	-	-
Other carnivore	-	-	-	-	-	-	-	-	-	-
Horse and other equids	-	-	-	-	-	-	-	-	-	-
Pigs, sheep & all other ungulates	-	-	-	17	49	227	193	-	-	-
Primate										
New World monkey	-	-	-	-	16	47	-	-	-	-
Old World monkey	-	-	-	8	336	848	696	-	-	-
All other mammals	-	-	-	-	-	-	-	-	-	-
Bird	132	240	130	-	18	604	-	-	-	-
Reptile, amphibian	-	-	-	-	-	-	-	-	-	-
Fish	-	6,529	30,156	-	71	3,162	-	-	-	-
Total	**80,201**	**10,059**	**41,867**	**5,956**	**12,222**	**21,997**	**14,529**	**10,566**	**8,577**	**5,366**
Increase on 2008	-6,940	682	-35,976	-468	-4,316	-1,405	-6,610	1,429	144	-3,120
Percentage change from 2008	-8%	7%	-46%	-7%	-26%	-6%	-31%	16%	2%	-37%
Percentage of total for 2009	18%	2%	10%	1%	3%	5%	3%	2%	2%	1%
2008 Totals	87,141	9,377	77,843	6,424	16,538	23,402	21,139	9,137	8,433	8,486

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

Great Britain 2009 **Number of procedures**

Species of animal	Type of toxicological test or procedure										Total
	Other reproductive toxicity	In eyes	For skin Irritation	For skin sensitisation	Toxicokinetics	Pyrogenicity	Biocompatibility	Enzyme induction for in vitro tests	Immunotoxicology	**Other toxicology**	
Mammal											
Mouse	1,766	122	6	862	10,934	-	265	102	5,879	60,505	**188,579**
Rat	33,959	-	-	-	11,618	-	137	171	340	18,287	**117,477**
All other rodents	-	-	-	-	-	-	-	-	-	7,599	**8,351**
Rabbit	337	304	455	-	55	6,190	118	-	-	1,927	**11,990**
Cat	-	-	-	-	-	-	-	-	-	32	**74**
Dog	-	-	-	-	565	-	-	-	-	1,126	**5,051**
Ferret	-	-	-	-	-	-	-	-	-	39	**39**
Other carnivore	-	-	-	-	-	-	-	-	-	418	**418**
Horse and other equids	-	-	-	-	16	-	-	-	-	2	**18**
Pigs, sheep & all other ungulates	54	-	-	-	164	-	3	-	-	2,933	**3,640**
Primate											
New World monkey	-	-	-	-	10	-	-	-	-	16	**89**
Old World monkey	-	-	-	-	361	-	-	-	-	811	**3,060**
All other mammals	-	-	-	-	-	-	-	-	-	-	**-**
Bird	160	-	-	-	140	-	-	-	-	12,270	**13,694**
Reptile, amphibian	-	-	-	-	-	-	-	-	-	-	**-**
Fish	5,362	-	-	-	1,047	-	-	-	2,000	37,239	**85,566**
Total	**41,638**	**426**	**461**	**862**	**24,910**	**6,190**	**523**	**273**	**8,219**	**143,204**	**438,046**
Increase on 2008	8,562	-53	-291	-212	-1,158	-562	373	131	3,363	423	-46,004
Percentage change from 2008	26%	-11%	-39%	-20%	-4%	-8%	249%	92%	69%	0.3%	-10%
Percentage of total for 2009	10%	0.1%	0.1%	0.2%	6%	1%	0.1%	0.1%	2%	33%	100%
2008 Totals	33,076	479	752	1,074	26,068	6,752	150	142	4,856	142,781	484,050

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 foetal, 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 2009 there were 15,492 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. It is not possible to lay down hard and fast rules about how severity should be assessed. It 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 endpoints. 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 2009, the number granted during 2009 and the number revoked during 2009 (usually either at the licence holder's request or because the licence had run the maximum allowed term of 5 years). The total figures are subdivided into severity bandings.

Project licences by severity band - number and share of total, 2009

Severity band	*In force on 31 December 2009*		*Granted during 2009*		*Revoked during 2009*	
Mild	966	*36%*	187	*35%*	196	*38%*
Moderate	1580	*59%*	330	*61%*	299	*58%*
Substantial	53	*2%*	13	*2%*	10	*2%*
Unclassified	59	*2%*	11	*2%*	14	*2%*
Total	2658		541		519	

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 to the Act - mouse, rat, guinea-pig, hamster, rabbit, dog, cat and primate - 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 190 certificates of designation in force on 31 December 2009. Of these, 188 were registered as user establishments, 121 as breeding establishments and 69 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 2009

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	Number of licence holders[1] reporting no procedures	Total licensees	Procedures	
	Number of procedures reported								Total				Total	*Percentage*
	1 to 50	51 to 100	101 to 200	201 to 400	401 to 600	601 to 800	801 to 1,000	More than 1,000						
Public health laboratories	9	2	1	3	1	0	0	3	19	1	4	24	11,686	*0%*
Universities, medical schools	352	212	260	270	135	103	77	399	1,808	4	495	2,307	1,615,842	*45%*
NHS hospitals	3	1	3	4	3	4	0	4	22	0	3	25	21,870	*1%*
Government departments	31	10	7	13	1	5	1	13	81	0	34	115	92,666	*3%*
Other public bodies	36	20	15	19	15	11	6	75	197	3	57	257	529,818	*15%*
Non-profit-making organisations	16	9	8	6	13	5	7	39	103	1	27	131	315,490	*9%*
Commercial organisations	32	13	23	31	18	17	11	111	256	2	60	318	1,032,168	*29%*
Total	479	267	317	346	186	145	102	644	2,486	11	680	3,177	3,619,540	*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, fish fry) 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.

APPENDIX D Details of previous annual publications; Contact information

Annual publications giving detailed figures for scientific procedures under the Animals (Scientific Procedures) Act 1986 were published (by HMSO) as "Statistics of Scientific Procedures on Living Animals" as follows:

Year	Command/House of Commons Paper	Year	Command Paper
2008	HC 800		
2007	HC 800		
2007	HC 933		
2006	Cm 7153		
2005	Cm 6877	1995	Cm 3516
2004	Cm 6713	1994	Cm 3012
2003	Cm 6291	1993	Cm 2746
2002	Cm 5886	1992	Cm 2356
2001	Cm 5581	1991	Cm 2023
2000	Cm 5244	1990	Cm 1574
1999	Cm 4841	1989	Cm 1152
1998	Cm 4418	1988	Cm 743
1997	Cm 4025	1987	Cm 515
1996	Cm 3722		

Detailed figures for experiments on living animals under the Cruelty to Animals Act 1876 were published (by HMSO) as "Statistics of experiments on living animals" as follows:

Year	Command Paper	Year	Command Paper
1986	Cm 187	1981	Cmnd 8657
1985	Cmnd 9839	1980	Cmnd 8301
1984	Cmnd 9574	1979	Cmnd 8069
1983	Cmnd 9311	1978	Cmnd 7628
1982	Cmnd 8986	1977	Cmnd 7333

Less detailed information about experiments on living animals for the years prior to 1977 was published in the form of a "Return to an Address of the Honourable the House of Commons".

Acknowledgements
This publication and the accompanying web tables have been prepared by staff in the Home Office Statistics unit of the Science and Research Group. We are grateful for the support of colleagues in Policing Data Collection Section for data input, the Animals (Scientific Procedures) Inspectorate (ASPI), 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. Last but not least, the contribution of licensees who provided the returns on which this report is based is acknowledged.

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Printed in the UK by The Stationery Office Limited
on behalf of the Controller of Her Majesty's Stationery Office

ID 2379367 07/10

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ISBN 978-0-10-296764-7
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