



Home Office

Statistics of Scientific Procedures on Living Animals Great Britain 2008

HC 800
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HOME OFFICE

Statistics of Scientific Procedures on Living Animals

GREAT BRITAIN
2008

Presented to Parliament by the Secretary of State for the
Home Department pursuant to section 21(7) of
the Animals (Scientific Procedures) Act 1986

*Ordered by the House of Commons
to be printed 21 July 2009*

HC 800

LONDON: The Stationery Office

£14.35

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Appendices B and C (Form Notes, and explanatory details for published tables), and the **Supplementary tables** and **Time Series tables** can be found on the website at: <http://www.homeoffice.gov.uk/rds/scientific1.html>

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ISBN: 9780102962116

STATISTICS OF SCIENTIFIC PROCEDURES ON LIVING ANIMALS GREAT BRITAIN 2008

Note: Appendices B and C (Form Notes, and explanatory details for published tables), 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 2008. 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.

4. 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.

5. 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, toxicology and legislation. During the collection and verification process, forms that have been incorrectly coded are referred back to the licensees for correction

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.

Format and accessibility of information relating to 2008

9. The format of information provided broadly follows that used for the publication of previous statistics relating to 2007, 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

As previously, the following sections are available online only:-

- Appendix B – form notes including definitions
- Appendix C – detailed explanatory table notes
- Supplementary Tables – the more detailed set of tables produced historically
- Time series tables – describing key trends over time

at <http://www.homeoffice.gov.uk/rds/scientific1.html>

Request for feedback

11. 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 the stated 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. We would particularly welcome feedback from users on how, why and how often they use each table of the existing statistics (including online tables) and the Commentary, and what the impact would be of either reduced frequency or deletion of each table, in order to help to continue to justify the use of the resources devoted to the data collection and publication. We would particularly welcome comments on the following specific options

- (i) making all tables other than the general tables (Tables 1, 1a, 2, 3, 4, 5) available online only
- (ii) providing online tables in Excel format rather than in pdf format
- (iii) ceasing publication of the Commentary section
- (iv) ceasing publication full Supplementary Tables and Time Series tables or reducing their frequency of publication to tri-ennial (every third year)

13. Comments should be sent by the end of October 2009, 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

in order to inform the development of the publication of data relating to 2009.

Data quality

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

MAIN POINTS

Note – the figures given below refer to the numbers of scientific procedures using animals that were started in 2008 (rather than the numbers of animals used), compared with 2007, unless indicated otherwise.

1. Just under 3.7 million scientific procedures were started in 2008, a rise of 454,000 (14%) on 2007, mainly due to increases in the use of fish (+278,000 or 85%), mice (+197,000 or 9%), amphibians (+15,000, or 81%), pigs (+3,600 or 114%), sheep (+3,100 or 9%) and turkeys (+1,500 or 135%). Use of non-human primates rose by slightly over 600 (+16%), due to an increase of 1,000 (+33%) procedures involving old world primates and a fall of 400 (-53%) procedures using new world primates. (Table 1)
2. There were falls in the use of most other species, in particular rats (-30,000 or -8%), domestic fowl (-5,100 or -4%), guinea pigs (-2,600 or -8%), rabbits (-2,500 or -13%), and beagles (-1,200 or -17%)
3. Mice, rats and all other rodents together accounted for the majority of procedures; seventy-seven percent (77%) of the total. Fish and birds were used in, respectively, 17% and 3% of procedures. The largest increases in the use of mice and of fish were for fundamental biological research, applied studies for human medicine or dentistry, and breeding. Dogs, cats, horses and non-human primates, afforded special protection by the Act, were collectively used in less than one percent of all procedures.
4. Breeding for the production of harmful mutant and genetically modified animals accounted for nearly two fifths (1.4 million or 38%) of the total procedures started in 2008.
5. Ninety-nine percent of procedures carried out using animals listed in Schedule 2 of the Act used animals acquired from designated sources in the United Kingdom. (Table 2)
6. Of the total 3.7 million procedures, 1.9 million used genetically normal animals, an increase of 160,000 or 9%, which was largely as a result of the increased use of fish and of mice for fundamental biological research and for applied studies. There were 0.43 million procedures using animals with harmful genetic mutations (up 110,000 or 35%, the majority using rodents, fish or amphibians) and 1.3 million procedures using genetically modified animals (up 186,000, or 16%, the vast majority (99%) of these which used mice and fish). (Table 3)
7. Thirty-five percent of all procedures used 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. (Table 5)
8. Non-toxicological procedures accounted for eighty-seven percent of the procedures started in 2008. This contrasts with seventy-five percent of such procedures in 1995. The main areas of use were for immunological studies, pharmaceutical research and development, cancer research, anatomy and physiology. (Table 6)
9. Procedures for toxicological purposes accounted for thirteen percent of all procedures started in 2008. This contrasts with twenty-five percent of procedures started in 1995. The number of such procedures increased sixteen percent in 2008, after falling in most of the last few years. In 2008 the majority (79%) of procedures were for pharmaceutical safety and efficacy evaluation. Two thirds (66%) of toxicological procedures in 2008 used rodent species; while non-human primates were used in less than one percent of such procedures. Of all the toxicological procedures conducted in 2008, seventy-one percent were performed to conform to legal or regulatory requirements. (Tables 9, 10)

COMMENTARY

Note – the figures quoted below refer to the numbers of scientific procedures using animals that were started in 2008 (rather than the numbers of animals used), compared with 2007, 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; therefore the figures shown will not be identical to the figures in the tables.

Procedures started in 2008

There were just under 3.7 million scientific procedures started in 2008 (Table 1), a rise of about 454,000 (14%) on 2007. There has been a significant reduction in the annual number of scientific procedures since 1976, this trend levelled out in the 1990s and in recent years there has been an increase in the number of procedures. Since 2000 the number of procedures has risen by just over a third (35%), with the rise in breeding procedures accounting for a significant part of this increase. The overall level of scientific procedures is determined by a number of factors, including the economic climate and global trends in scientific endeavour. Some 3.6 million animals were used for the first time in procedures (Table 1a), this was about 457,000 (15%) more than in 2007 broadly reflecting the trend in procedures started.

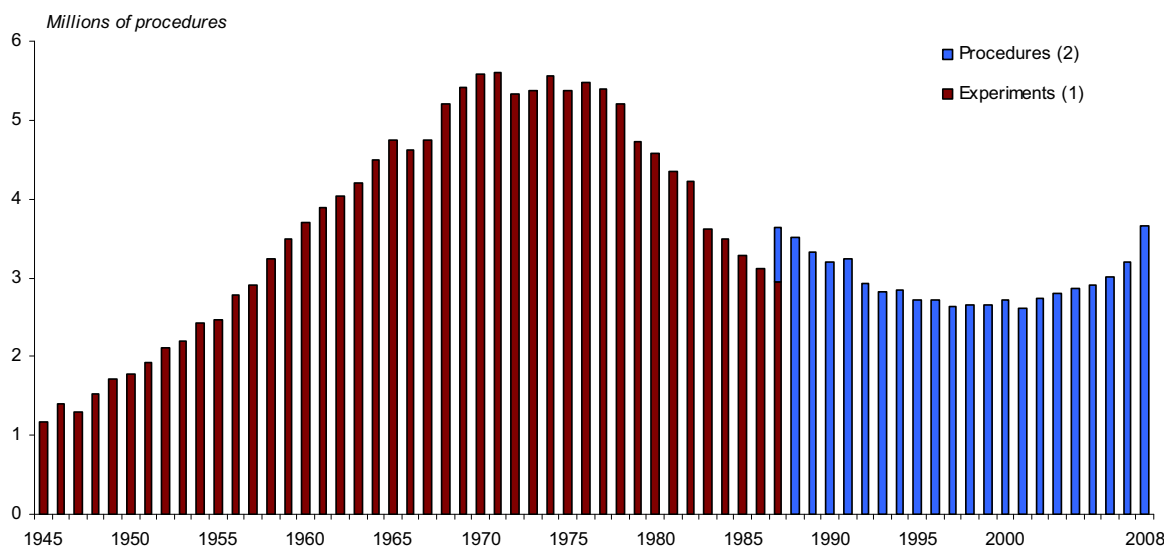


Figure 1: Experiments or procedures commenced each year, 1945-2008(1)

(1) Experiments under the 1876 Act or scientific procedures under the 1986 Act

(2) The experiments included in the 1987's figures also counted as procedures under the 1986 Act

Species used (Tables 1 and 1a, Figure 2, website Table 20)

Overall numbers

- Mice (66%), rats (10%), fish (17%), and birds (3%) 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 birds used for procedures.
- Dogs, cats and non-human primates combined were used in less than half of one percent of all procedures, with a combined total of 11,100. This was nearly 700 lower than in 2007 as a result of a fall of nearly 1,400 procedures using dogs and an increase of slightly over 600 procedures using primates (for further details see below), and an increase for cats of 50 procedures.

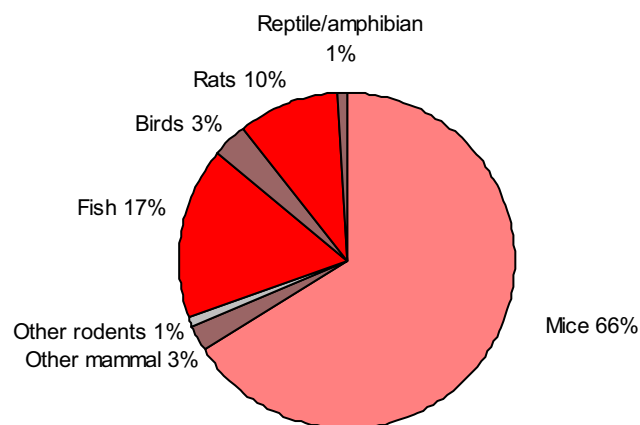


Figure 2: Procedures by species of animal, 2008 (Table 1)

Increases

There were increases in procedures using some species (and corresponding increases in the numbers of animals used) in 2008, notably:-

- Fish up 278,000 (85%).
 - Mice, up 197,000 (9%).
 - Amphibians up 15,000 (81%).
 - Pigs up 3,600 (114%).
 - Sheep, up 3,100 (9%).
 - Turkeys, up 1,500 (135%).
 - Ferrets, up 680 (154%).
- The increased use of mice was associated with fundamental biological research, applied studies for human medicine or dentistry, and breeding.
 - The increased use of fish was associated with fundamental biological research, applied studies for human medicine or dentistry, and breeding ; but this increase was partly accounted for by a change in the stage of development at which fish fry were counted.
 - The rise in amphibian use was due to increases in fundamental biological research and in breeding.
 - The rise in use of pigs and of turkeys was mainly due to increases in applied studies in veterinary medicine (as well as increases for turkeys in procedures for fundamental biological research and applied studies for human medicine or dentistry).
 - The rise in sheep use was due to increases in use for direct diagnosis.
 - The rise in use of ferrets was largely accounted for by an increase in use for research on respiratory viruses such as influenza.

Decreases

There were decreases in numbers of procedures (and corresponding falls in the numbers of animals used) using other species in 2008, notably:-

- Rat use fell by 30,000 (8%), due to decreases for most purposes, except notably breeding.
- Domestic fowl use fell by 5,100 (4%) due to decreases in fundamental biological research. and in applied veterinary studies.
- Guinea pig use was down 2,600 (8%) due to decreases in applied studies for human medicine or dentistry.
- Use of rabbits fell 2,500 procedures (13%) due to decreases for a range of purposes.
- Beagle use was down 1,200 procedures (17%), due to a fall in use for applied studies for human medicine or dentistry.

Figure 3 below shows that since 1995, there has been a steady decrease in the number of rats used in procedures, while the number of mice used for scientific procedures (especially genetically modified mice) has steadily increased. The use of fish in procedures had remained relatively steady since 1995 but this has also seen an increase in recent years as Figure 3 below shows.

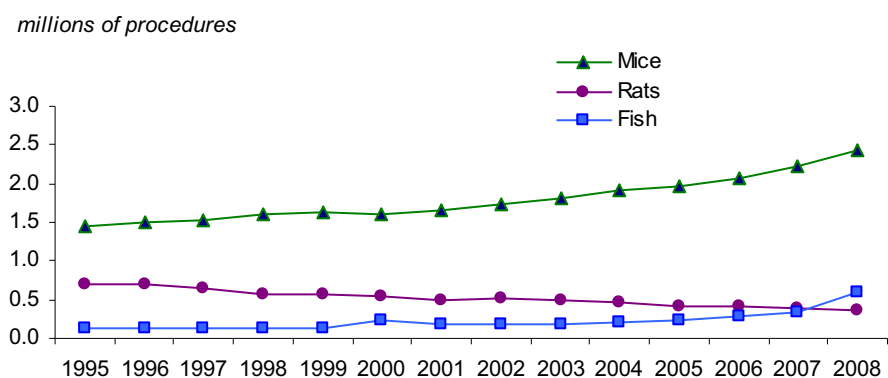


Figure 3: Procedures using mice, rats and fish 1995-2008

Other category use

- The ‘other carnivore’ category included foxes, badgers, seals and mink used for research relevant to those species.
- The ‘other mammals’ category included bats, hares, and bottle nosed dolphins.
- Other rodents used were wood mice, voles, squirrels, and chinchillas.
- Other birds used were zebra finches, pigeons and parakeets as well as various wild garden birds, game birds, sea birds and magpies.

Primate use

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

- The number of procedures using new-world primates fell by 410 (53%), part of a downward trend since 1999 and corresponding to 350 fewer animals used.
- The number of procedures using old-world primates rose by 1050 (33%). These figures have fluctuated around an upward trend over the last few years, as shown by Figure 4, and corresponded to an increase of 580 animals used.
- Some primates were used more than once since some of the procedures they are involved in have only a minimal effect, for which anaesthesia is not required.
- Hence although the total number of procedures using primates rose by slightly over 600 from 4,000 in 2007 to 4,600 in 2008, the number of animals used rose less, by around 230 (from 3,130 in 2007 to 3,350 in 2008), with slightly over 1,200 procedures in 2008 involving re-use of primates.

Number of procedures

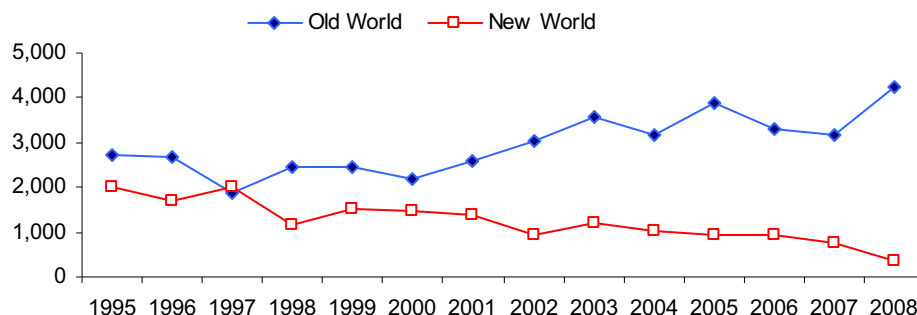


Figure 4: Procedures on non-human primates, 1995-2008

Species on which no procedures were started in 2008

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

Primary purpose (Tables 1 and 1a)

Increases

- The largest single change was the use of animals in maintenance of colonies of mutant and genetically modified animals mainly in support of fundamental research. Breeding accounted for 1.4 million procedures (38%) in 2008, see Figure 5. These procedures were up 221,000 (19%) from 2007 as part of a continuing trend.
- Fundamental biological research accounted for 1.2 million (32%) procedures, up 172,000 (17%).
- Applied studies for human medicine and dentistry accounted for 819,000 (22%) procedures, up 133,000 (19%).
- Direct diagnosis accounted for 53,000 (1%) procedures, up 5,200 (11%).

Decreases

- Protection of man, animals or environment accounted for 84,000 (2%) of procedures, down 67,000 (44%).
- Applied studies in veterinary medicine accounted for 137,000 (4%) procedures, and fell 10,000 (7%).

Millions of procedures

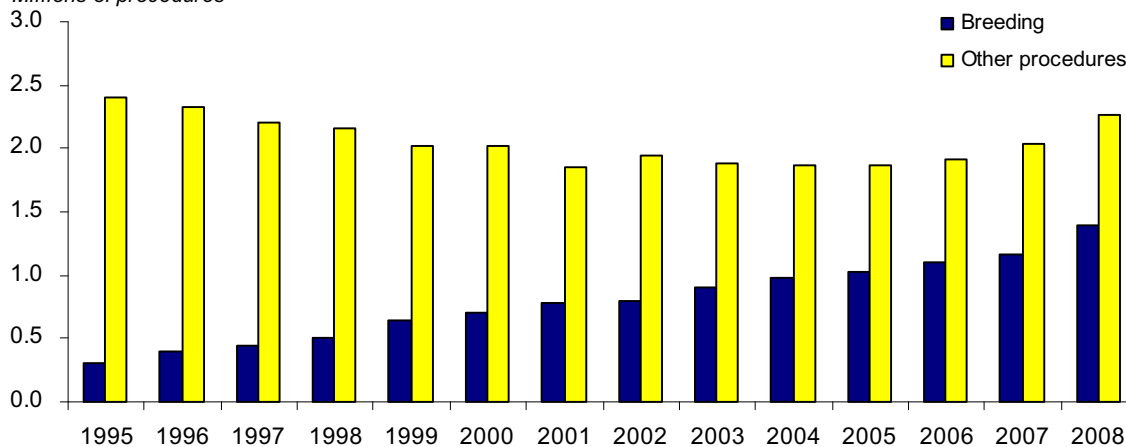


Figure 5: Comparison of breeding with all other procedures, 1995-2008

Source (Table 2, website Tables 2.1, 2.2)

Seventy-eight percent of all procedures started in 2008 were carried out using 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 use of animals listed in Schedule 2 and acquired from non-designated sources in the UK was authorised under Section 10(3) of The Act.

- Designated establishments in the UK were the source of animals for 2.8 million or 99 per cent of procedures, where the animals were listed under Schedule 2.
- The number of procedures involving Schedule 2 listed animals obtained from sources outside the EU was 13,300; of these procedures seventy-six percent used mice or rats (of which the majority were genetically modified).

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

Genetically normal animals (Table 3)

Some 1.9 million (52%) procedures involved genetically normal animals, up 160,000 (9%), largely the result of increased use of fish (up 182,000) and mice (up 13,000) along with a fall of 32,000 for rats.

Animals with a harmful genetic defect (Table 3)

Altogether some 0.43 million (12%) procedures involved animals with a harmful genetic defect, up 110,000 (35%):-

- Use of such animals has risen from eight percent of all procedures in 1995 to twelve percent now.
- Mice (77%), fish (15%), rats (4%), and amphibians (4%) accounted for the large majority of procedures using animals with a harmful genetic defect; with increases, respectively, of 57,000 (21%), 37,000 (136%), 1,600 (11%) and 14,000 (685%).
- Other than maintaining the breeding colonies, mice and rats with a harmful genetic defect were mainly used for fundamental biological research and applied studies.
- Fish with a harmful genetic defect were used primarily for maintenance of breeding colonies and for applied studies.
- Amphibians with a harmful genetic defect were used for maintenance of breeding colonies and for fundamental biological research.

Genetically modified animals (Table 3)

Genetically modified animals (GM) were used in 1.3 million (37%) procedures in 2008, some 186,000 (16%) higher:-

- The use of GM animals is more than six times higher than in 1995, see Figure 6.
- Some 860,000 (64%) procedures using GM animals were to maintain breeding colonies, nearly a fifth up on 2007 (122,000 or +17%). There were 420,000 procedures using GM animals for fundamental biological research.
- Mice and fish were used in ninety-nine percent of the procedures using GM animals.
- Genetically modified mice use rose 127,000 (12%), GM fish use rose by 58,000 (93%).

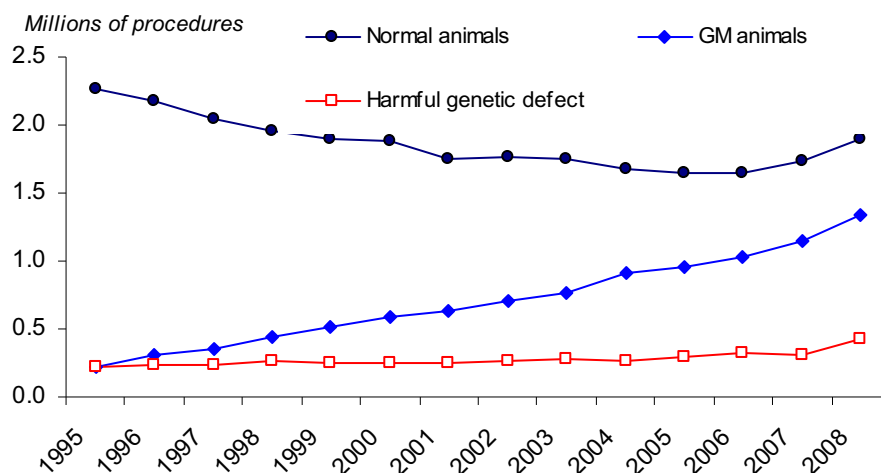


Figure 6: Procedures by genetic status of animal, 1995-2008

Target body system (Table 4)

About half (55%) of all procedures were prospectively directed towards one particular body system:-

- The Immune system was the largest single category, accounting for 461,000 procedures (13%).
- The Nervous system was the next largest with 441,000 (12%) procedures; mice and rats and fish were the major species used (99%) in this type of procedure.
- Of the single body system categories, most areas saw an increase in numbers of procedures compared with 2007, reflecting the overall increases in animal use; procedures related to the Alimentary system more than doubled.
- Procedures conducted where the target body system was ‘not relevant’ accounted for 881,000 (24%), up 81,000 (10%).
- The category for ‘multiple’ target body systems accounted for 754,000 (21%) up by 88,000 (13%).

Use of anaesthesia (Table 5)

Procedures are permitted without anaesthesia or analgesic only when the administration of an anaesthetic or analgesic is judged more traumatic than the procedure itself, or when anaesthesia is incompatible with the object of the procedure:-

- 2.4 million procedures (65%) did not use any anaesthesia, up 420,000 (21%), largely reflecting the increased use of fish and mice (accounting for 224,000 and 195,000 of the increase respectively).
- General anaesthesia at the end of procedure, without recovery, was used in 296,000 (8%) procedures up 52,000 (21%); the level of use of other types of anaesthesia was broadly similar to 2007.
- Local anaesthesia was used in 277,000 (8%) procedures (mainly using mice (96%)).
- The use of neuromuscular blocking agents (NMBA) was recorded in 4,400 procedures; all of these used general anaesthesia.

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

Just under 3.2 million procedures were conducted for fundamental and applied studies other than toxicology, safety or other regulatory purposes. This accounted for eighty-seven percent all procedures started in 2008:-

- There was a rise of 387,000 (14%) in the number of such procedures.
- The number of animals used increased by 390,000 (14%), reflecting the rise in the overall number of procedures.
- Some 2.2 million (70%) procedures were carried out using mice, a further 236,000 (7%) using rats, another 115,000 (4%) using birds (mainly domestic fowl) and 473,000 (15%) using fish.
- Dogs, cats and non-human primates were collectively used in 2,200 procedures.

Field of research (Tables 6, 6a)

- Immunology was the largest single category, accounting for 446,000 (17%) procedures, mainly using rodents.
- Categories where the number of procedures accounted for more than five percent of the total were: Anatomy, Physiology, Immunology, Pharmaceutical Research and Development (R&D), Genetics, Molecular Biology, and Cancer research.

Production of biological materials (Table 7)

In 2008 some 320,000 procedures, 3,000 (1%) fewer than in 2007, were performed to produce biological materials:-

- Thirty-eight percent of these were for the production of infectious agents, (four percent of total non-toxicology procedures), of which the main species used were birds (70%) and mice (22%).
- 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-three percent of production procedures were to obtain other biological material such as tissues or blood products, also using a wide range of species.
- Immunisation to produce monoclonal antibodies by *in vitro*¹ methods was 72% higher than 2007 with 4,000 procedures.

¹ See Appendix C for more details.

TOXICOLOGY, OTHER SAFETY OR EFFICACY EVALUATION

Toxicology procedures or those used for safety and efficacy evaluation accounted for 484,000 (13%) of procedures started in 2008, and contrasts with twenty-five percent of procedures started in 1995. Toxicological procedures increased by about 68,000 (16%) compared with 2007, slightly more than the increase for non-toxicological procedures (14%).

Species (toxicology) (Table 9)

- The majority of animals used were rodents, accounting for 318,000 procedures (66%). The next major use was fish, accounting for some 132,000 procedures (27%).
- There were around 3,600 procedures (less than 1%) that used non-human primates, principally old-world species, mainly for pharmaceutical safety testing.
- Rabbits were used in 13,000 procedures (3%) and birds were used in 8,000 (2%) while the remaining species accounted for only two percent of all toxicology procedures.

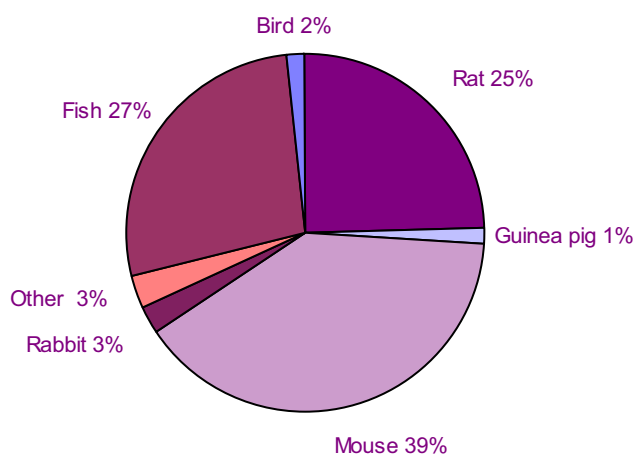


Figure 7: Procedures (toxicology) by species of animal, 2008

Legislative requirements (Table 10)

The majority (71%, 343,000 out of 484,000) of the toxicology procedures in 2008 were to fulfil legislative requirements, of which some 295,000 procedures (61% of the 484,000) were to satisfy a combination of requirements i.e. avoiding duplication of animal use to fulfil more than one legislative requirement. The remaining 141,000 procedures (29%) were for purposes other than direct legislative or regulatory requirements.

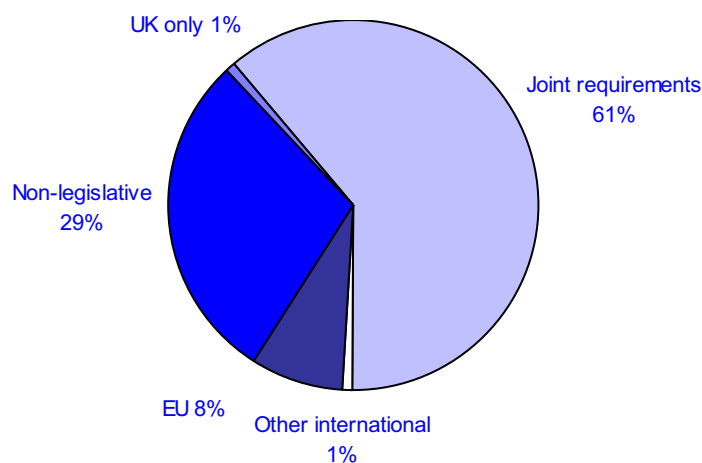


Figure 8: Procedures by legislative requirement (toxicology), 2008

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 indicating field trials starting in 2008.

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 121 procedures performed using animals in this category in 2008; these involved amphibia and wild birds in research relevant to those species.

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

Returns were received for 3,373 licences; of which 2,579 returns reported countable procedures using adult animals that were started in 2008, a further 14 returns reported only non-countable procedures (i.e. using larval/embryonic/foetal animals), and 780 (23% of returns) indicated that no procedures were started in 2008. Of the 2,579 returns reporting countable procedures, 2,047 (79%) reported starting more than fifty procedures.

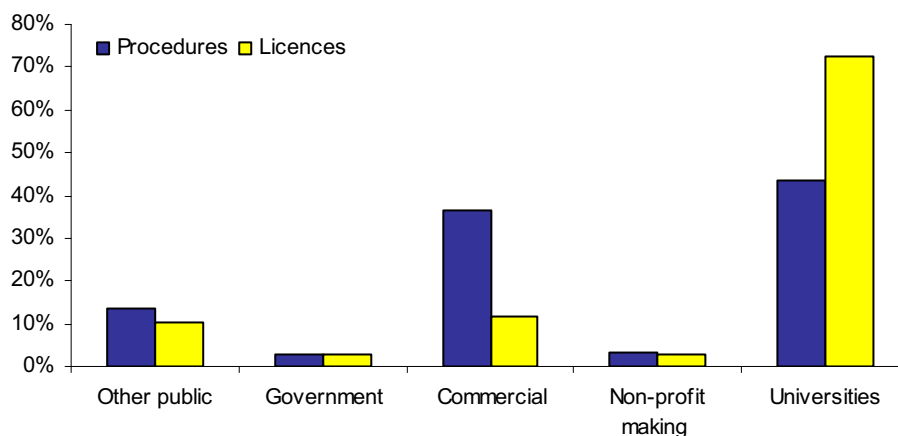


Figure 9 Project licence holders and procedures, by type of designated place

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 2008, unless indicated otherwise. Tables suffixed with an 'a' (e.g. Tables 1a, 6a, 9a) relate to numbers of animals used for the first time in 2008 (as part of scientific procedures started in 2008).

Symbols used in tables

..	not available	-	nil
NA	not applicable	r	revised

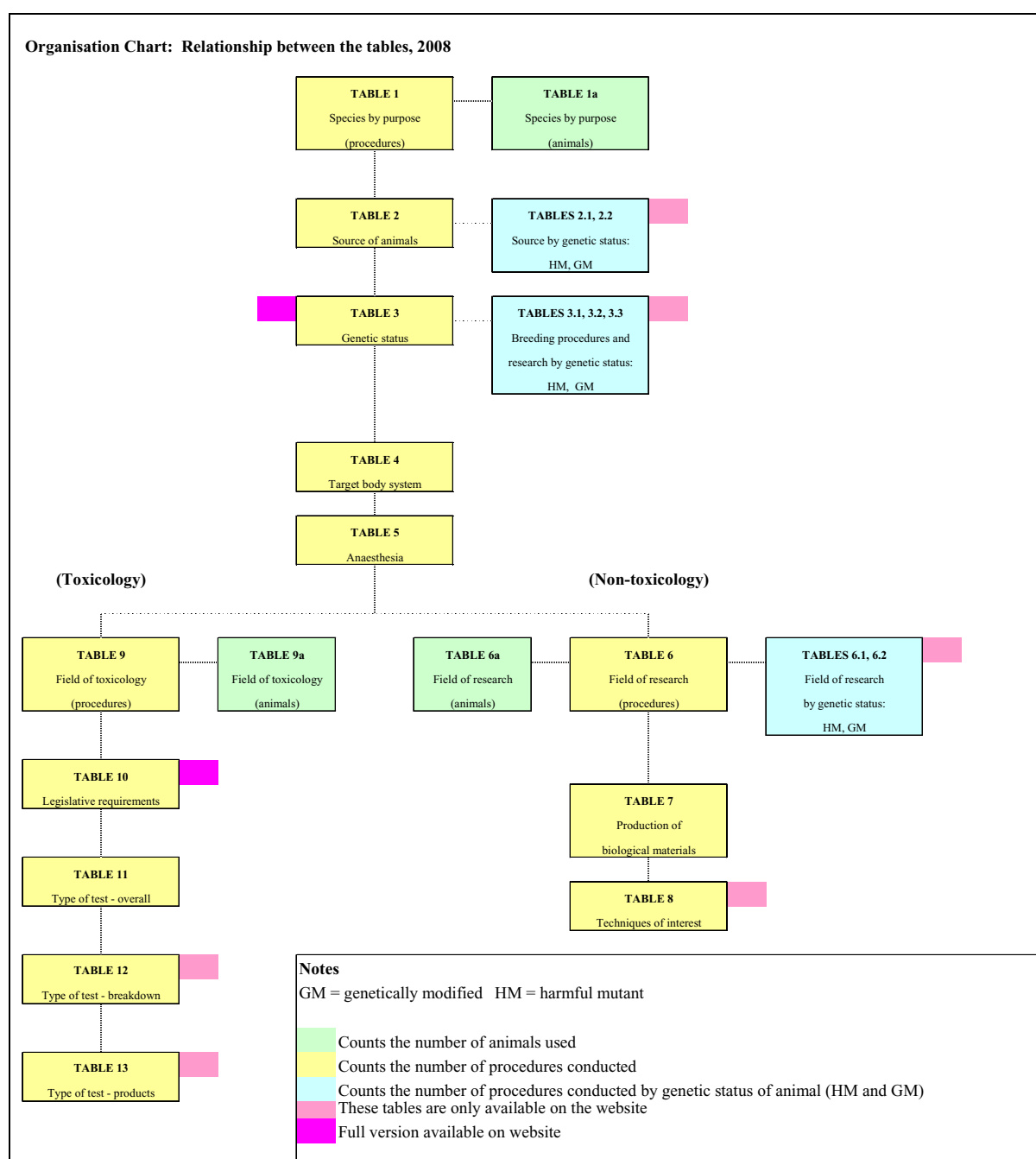


Table 1 Scientific procedures by species of animal and primary purpose of the procedure, page 1 of 2

Species of animal	Primary purpose of the procedure							Number of procedures		
	Fundamental biological research	Applied studies - human medicine or dentistry	Applied studies - veterinary medicine	Protection of man, animals or environment	Education	Training	Forensic enquiries	Direct diagnosis	Breeding	Total
Mammal										
Mouse	775,746	355,728	17,365	17,545	841	-	-	12,857	1,238,522	2,418,604
Rat	96,415	216,653	75	26,275	609	777	-	517	14,049	355,370
Guinea pig	1,753	25,921	1,333	-	118	-	-	168	-	29,293
Hamster	1,283	1,439	576	-	-	-	-	-	-	3,298
Gerbil	515	542	27	-	-	-	-	-	8	1,092
Other rodent	416	235	-	215	-	-	-	-	-	866
Rabbit	1,157	11,232	1,954	1,632	16	-	-	1,069	-	17,060
Cat	61	-	299	-	-	-	-	-	-	360
Dog										
Beagle	5	5,499	130	403	-	-	-	37	-	6,074
Greyhound	-	-	-	-	-	-	-	-	-	-
Other inc cross-breds	-	-	31	-	-	-	-	-	-	31
Ferret	319	744	6	-	12	-	-	41	-	1,122
Other carnivore	654	-	495	115	-	-	-	-	-	1,264
Horse and other equids										
Horse	135	4	257	-	-	-	-	8,969	-	9,365
Pig	1,241	1,284	4,092	73	-	-	-	-	134	6,824
Goat	72	10	395	10	-	-	-	12	-	499
Sheep	5,118	992	2,344	-	-	-	-	27,280	86	35,820
Cattle	986	-	1,312	-	-	-	-	4	-	2,302
Deer	63	-	-	-	-	-	-	-	-	63
Camelid	-	-	-	-	-	-	-	-	-	-
Other ungulate	-	-	-	-	-	-	-	-	-	-
Primate										
Prosimian	-	-	-	-	-	-	-	-	-	-
New World monkey										
marmoset, tamarin	93	275	-	-	-	-	-	-	-	368
Squirrel, owl, spider monkey	-	-	-	-	-	-	-	-	-	-
Other New World monkey	-	-	-	-	-	-	-	-	-	-

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

Species of animal	Primary purpose of the procedure							Number of procedures			
	Fundamental biological research	Applied studies - human medicine or dentistry	Applied studies - veterinary medicine	Protection of man, animals or environment	Education	Training	Forensic enquiries	Direct diagnosis	Breeding	Total	
Old World monkey											
Macaque	133	3,737	-	360	-	-	-	-	-	4,230	
Baboon	-	-	-	-	-	-	-	-	-	-	
Other Old World monkey	-	-	-	-	-	-	-	-	-	-	
Ape											
Gibbon	-	-	-	-	-	-	-	-	-	-	
Great ape	-	-	-	-	-	-	-	-	-	-	
Other mammal	808	-	-	170	-	-	-	-	-	978	
Bird											
Domestic fowl (<i>Gallus domesticus</i>)	12,262	7	95,865	347	154	-	1,587	491	-	110,713	
Turkey	649	496	1,337	30	-	-	106	-	-	2,618	
Quail (<i>Coturnix coturnix</i>)	-	-	-	-	-	-	-	-	-	-	
Quail (not <i>Coturnix coturnix</i>)	-	-	-	426	-	-	-	-	-	426	
Other bird	8,466	-	-	569	-	-	467	-	-	9,502	
Reptile											
Any reptilian species	30	-	-	79	-	-	-	-	-	109	
Amphibian											
Any amphibian species	17,432	-	-	842	-	-	-	14,400	-	32,674	
Fish											
Any fish species	244,850	193,830	8,674	34,493	117	-	-	123,191	-	605,155	
Cephalopod											
<i>Octopus vulgaris</i>	-	-	-	-	-	-	-	-	-	-	
Total	1,170,662	818,628	136,567	83,584	1,867	777	-	53,114	1,390,881	3,656,080	
Increase on 2007	171,780	133,411	-10,411	-67,011	96	90	-32	5,182	221,394	454,499	
Percentage change from 2007	17%	19%	-7%	-44%	5%	13%	-100%	11%	19%	14%	
Percentage of total for 2008	32%	22%	4%	2%	0%	0%	0%	1%	38%	100%	
2007 Totals	998,882	685,217	146,978	150,595	1,771	687	32	47,932	1,169,487	3,201,581	

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

Species of animal	Primary purpose of the procedure							Number of animals		
	Fundamental biological research	Applied studies human medicine or dentistry	Applied studies - veterinary medicine	Protection of man, animals or environment	Education	Training	Forensic enquiries	Direct diagnosis	Breeding	Total
Mammal										
Mouse	768,882	353,062	17,365	17,545	841	-	-	12,857	1,237,430	2,407,982
Rat	95,085	210,575	75	26,275	609	777	-	517	14,049	347,962
Guinea pig	1,753	25,881	1,333	-	115	-	-	168	-	29,250
Hamster	828	1,439	576	-	-	-	-	-	8	2,843
Gerbil	515	542	27	-	-	-	-	-	-	1,092
Other rodent	416	235	-	215	-	-	-	-	-	866
Rabbit	985	7,150	1,119	1,632	12	-	-	1,018	-	11,916
Cat	61	-	115	-	-	-	-	-	-	176
Dog										
Beagle	4	3,854	54	317	-	-	-	11	-	4,240
Greyhound	-	-	-	-	-	-	-	-	-	-
Other including cross-bred dogs	-	-	31	-	-	-	-	-	-	31
Ferret	319	592	6	-	12	-	-	41	-	970
Other carnivore	507	-	-	115	-	-	-	-	-	948
Horse, and other equids	54	4	175	-	-	-	-	19	-	252
Pig	1,230	1,143	4,092	73	-	-	-	-	134	6,672
Goat	65	1	395	10	-	-	-	12	-	483
Sheep	5,008	784	2,332	-	-	-	-	974	86	9,184
Cattle	913	-	1,230	-	-	-	-	4	-	2,147
Deer	63	-	-	-	-	-	-	-	-	63
Camelid	-	-	-	-	-	-	-	-	-	-
Other ungulate	-	-	-	-	-	-	-	-	-	-
Primate										
Prosimian	-	-	-	-	-	-	-	-	-	-
New World monkey										
marmoset, tamarin	82	180	-	-	-	-	-	-	-	262
Squirrel, owl, spider monkey	-	-	-	-	-	-	-	-	-	-
Other New World monkey	-	-	-	-	-	-	-	-	-	-

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

Species of animal	Primary purpose of the procedure										Number of animals									
	Fundamental biological research	Applied studies human medicine or dentistry	Applied studies - veterinary medicine	Protection of man, animals or environment	Education	Training	Forensic enquiries	Direct diagnosis	Breeding	Total										
Old World monkey																				
Macaque	122	2,630	-	340	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3,092
Baboon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Old World monkey	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ape																				
Gibbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Great ape	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other mammal	762	-	-	127	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	889
Bird																				
Domestic fowl (<i>Gallus domesticus</i>)	12,238	4	95,865	347	154	-	-	-	-	-	-	-	1,587	491	-	-	-	-	-	110,686
Turkey	649	12	1,337	30	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	2,033
Quail (<i>Coturnix coturnix</i>)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Quail (not <i>Coturnix coturnix</i>)	-	-	-	426	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	426
Other bird	8,268	-	-	556	-	-	-	-	-	-	-	-	296	-	-	-	-	-	-	9,120
Reptile																				
Any reptilian species	30	-	-	79	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	109
Amphibian																				
Any amphibian species	9,703	-	-	842	-	-	-	-	-	-	-	-	-	14,241	-	-	-	-	-	24,786
Fish																				
Any fish species	244,538	193,830	8,674	34,493	117	-	-	-	-	-	-	-	-	123,091	-	-	-	-	-	604,743
Cephalopod																				
<i>Octopus vulgaris</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	1,153,080	801,918	135,127	83,422	1,860	777	-	17,509	1,389,530	3,583,223										
Increase on 2007	180,870	132,304	-10,127	-67,065	105	90	-10	2,393	218,837	457,397										
Percentage change from 2007	19%	20%	-7%	-45%	6%	13%	-100%	16%	19%	15%										
Percentage of total for 2008	32%	22%	4%	2%	0%	0%	0%	0%	39%	100%										
2007 Totals	972,210	669,614	145,254	150,487	1,755	687	10	15,116	1,170,693	3,125,826										

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

Species of animal	Source of animals							Number of procedures	
	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	Total	
Mouse	1,853,744	549,354	-	5,947	408	9,151	-	2,418,604	
Rat	63,920	290,028	22	812	105	483	-	355,370	
Guinea pig	496	28,309	-	488	-	-	-	29,293	
Hamster	529	1,165	-	1,604	-	-	-	3,298	
Gerbil	365	151	-	542	-	34	-	1,092	
Rabbit	5,200	8,962	116	2,326	-	456	-	17,060	
Cat	126	18	19	163	-	34	-	360	
Dog	1,405	3,757	43	90	-	810	-	6,105	
Ferret	75	1,042	-	-	-	5	-	1,122	
Pig (genetically modified)	68	-	-	-	-	-	-	68	
Sheep (genetically modified)	-	-	-	-	-	-	-	-	
Primate	297	2,350	-	101	-	1,850	-	4,598	
Quail (<i>Coturnix coturnix</i>)	-	-	-	-	-	-	-	-	
Animals not listed in Schedule 2	-	-	-	-	-	-	819,110	819,110	
Total	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 2,836,970.

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 2008

Number of procedures

Species of animal	Genetic status			Total
	Normal animal	Animal with harmful genetic	Genetically modified animal	
Mammal				
Mouse	883,689	327,961	1,206,954	2,418,604
Rat	333,023	16,614	5,733	355,370
Guinea pig	29,293	-	-	29,293
Hamster	3,298	-	-	3,298
Gerbil	1,092	-	-	1,092
Other rodent	866	-	-	866
Rabbit	17,060	-	-	17,060
Cat	360	-	-	360
Dog				
Beagle	6,074	-	-	6,074
Greyhound	-	-	-	-
Other inc cross-breds	31	-	-	31
Ferret	1,122	-	-	1,122
Other carnivore	1,264	-	-	1,264
Horse and other equids	9,365	-	-	9,365
Pig	6,756	-	68	6,824
Goat	499	-	-	499
Sheep	35,820	-	-	35,820
Cattle	2,302	-	-	2,302
Deer	63	-	-	63
Other ungulate	-	-	-	-
Primate				
Prosimian	-	-	-	-
New World monkey				
marmoset, tamarin	368	-	-	368
Squirrel, owl, spider monkey	-	-	-	-
Other New World monkey	-	-	-	-
Old World monkey				
Macaque	4,230	-	-	4,230
Baboon	-	-	-	-
Other Old World monkey	-	-	-	-
Ape				
Gibbon	-	-	-	-
Great ape	-	-	-	-
Other mammal	978	-	-	978
Bird				
Domestic fowl (<i>Gallus domesticus</i>)	110,008	396	309	110,713
Turkey	2,618	-	-	2,618
Quail (<i>Coturnix coturnix</i>)	-	-	-	-
Quail (not <i>Coturnix coturnix</i>)	426	-	-	426
Other bird	9,502	-	-	9,502
Reptile	109	-	-	109
Amphibian	14,518	16,490	1,666	32,674
Fish	420,147	64,178	120,830	605,155
Cephalopod	-	-	-	-
Total	1,894,881	425,639	1,335,560	3,656,080
Percent of total for 2008	52%	12%	37%	100%

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

Species of animal	Body systems											Number of procedures			
	Respiratory	Cardiovascular	Nervous	Senses	Alimentary	Skin	Musculo - skeletal	Reproductive	Immune and reticulo - endothelial	Other system	Multiple systems	System not relevant	Total		
Mammal															
Mouse	43,266	70,176	259,989	28,297	58,847	43,257	44,786	188,840	432,785	61,678	545,852	640,831	2,418,604		
Rat	34,832	20,605	101,920	3,290	9,646	3,086	2,221	29,467	10,879	15,021	68,873	55,530	355,370		
Other rodent	17,312	957	1,854	421	664	99	36	15	4,983	229	4,924	3,055	34,549		
Rabbit	33	662	118	111	162	782	347	3,839	1,385	506	8,202	913	17,060		
Cat	-	10	117	18	46	12	-	-	8	-	97	52	360		
Dog	234	542	16	-	58	-	31	-	6	52	2,759	2,407	6,105		
Ferret	414	32	53	72	-	-	-	-	231	-	286	34	1,122		
Other carnivore	-	45	-	-	-	-	-	-	-	-	495	724	1,264		
Pig	176	174	108	29	826	191	21	36	3,182	218	742	1,121	6,824		
Sheep	105	66	528	-	545	82	374	1,775	1,046	25,711	3,850	1,738	35,820		
Horse and other equids	89	91	91	-	-	-	28	5	28	6,543	64	2,426	9,365		
Other ungulate	505	1	15	-	300	30	-	242	583	-	1,044	144	2,864		
Primate															
New World monkey	-	34	40	6	-	-	-	29	24	-	95	140	368		
Old World monkey	60	109	152	8	-	-	-	10	16	4	1,566	2,305	4,230		
Other mammal															
Bird	854	4,438	1,859	878	5,239	890	215	238	3,444	87,545	9,214	8,445	123,259		
Reptile / Amphibian	-	96	90	37	-	374	783	27,567	-	46	271	3,519	32,783		
Fish	562	5,249	74,279	9,373	132,944	8,009	46,859	54,502	2,438	8,392	105,212	157,336	605,155		
Total	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

Species of animal	No anaesthesia	Type of anaesthesia			Number of procedures	
		General anaesthesia, with recovery	Local anaesthesia	General anaesthesia at end of procedure, without recovery	General anaesthesia throughout, without recovery	Total
Mammal						
Mouse	1,668,305	361,473	265,323	83,518	39,985	2,418,604
Rat	178,907	111,423	1,176	32,490	31,374	355,370
Other rodent	11,482	15,184	346	5,769	1,768	34,549
Rabbit	13,909	456	234	1,045	1,416	17,060
Cat	208	125	-	-	27	360
Dog	4,646	322	499	384	254	6,105
Ferret	253	782	-	41	46	1,122
Other carnivore	181	1,065	-	-	18	1,264
Pig	5,584	765	29	130	316	6,824
Sheep	34,162	1,410	152	96	-	35,820
Horse and other equids	259	32	9,074	-	-	9,365
Other ungulate	2,739	23	82	12	8	2,864
Primate						
New World monkey	280	58	-	-	30	368
Old World monkey	3,849	313	-	56	12	4,230
Other mammal	841	91	46	-	-	978
Bird	39,077	700	-	82,765	717	123,259
Reptile / Amphibian	31,512	1,098	-	30	143	32,783
Fish	381,597	133,149	42	89,794	573	605,155
Total	2,377,791	628,469	277,003	296,130	76,687	3,656,080

Note. Neuromuscular blocking agents (NMBA) were used in 4,400 procedures in 2008. 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 2008		Field of research										Number of procedures		
Species of animal	Anatomy	Physiology	Biochemistry	Psychology	Pathology	Immunology	Microbiology	Parasitology	Pharmacology	Pharmaceutical R&D	Therapeutics	Clinical medicine	Clinical surgery	
Mammal														
Mouse	214,069	255,645	29,417	35,322	60,187	426,489	41,673	25,900	31,613	151,734	23,839	9,539	230	
Rat	9,402	39,224	1,907	12,021	2,489	5,379	606	1,281	23,869	111,579	2,137	4,773	2,422	
Guinea pig	-	633	40	-	-	1,140	401	25	2,240	17,488	73	-	-	
Hamster	-	219	96	-	-	37	331	493	-	21	259	-	-	
Gerbil	-	1	-	-	-	18	-	352	-	542	16	-	-	
Other rodent	-	2	-	-	25	-	132	-	235	-	-	-	-	
Rabbit	25	662	114	28	59	1,692	526	168	23	711	169	61	12	
Cat	-	43	-	-	-	-	28	-	102	40	-	-	-	
Dog	-	-	-	-	-	-	-	-	-	-	-	-	-	
Beagle	-	-	-	-	-	6	-	-	-	704	-	3	-	
Greyhound	-	-	-	-	-	-	-	-	-	-	-	-	-	
Other including cross-bred dogs	-	-	-	-	-	-	-	-	-	-	-	31	-	
Ferret	9	81	3	41	-	161	531	-	23	59	-	-	-	
Other carnivore	-	6	-	87	-	-	-	-	87	-	-	-	-	
Horse and other equids	4	41	-	-	-	94	-	-	160	7	4	-	-	
Pig	134	387	6	11	3	2,585	9,029	40	24	129	229	80	59	
Goat	-	-	-	-	445	12	-	22	-	10	-	-	-	
Sheep	476	1,049	184	4	756	300	26,815	385	-	214	105	987	112	
Cattle	-	215	-	-	15	384	82	234	59	24	-	12	-	
Deer	-	-	-	-	-	-	-	-	-	-	-	-	-	
Camelid	-	-	-	-	-	-	-	-	-	-	-	-	-	
Other ungulate	-	-	-	-	-	-	-	-	-	-	-	-	-	
Primate	-	-	-	-	-	-	-	-	-	-	-	-	-	
Prosimian	-	-	-	-	-	-	-	-	-	-	-	-	-	
New World monkey														
marmoset, tamarin	-	35	-	28	-	1	14	-	35	110	-	-	-	
Squirrel, owl, spider monkey	-	-	-	-	-	-	-	-	-	-	-	-	-	
Other New World monkey	-	-	-	-	-	-	-	-	-	-	-	-	-	

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

Species of animal	Field of research										Number of procedures		
	Anatomy	Physiology	Biochemistry	Psychology	Pathology	Immunology	Microbiology	Parasitology	Pharmacology	Pharmaceutical R&D	Therapeutics	Clinical medicine	Clinical surgery
Old World monkey													
Macaque	2	57	-	9	-	26	75	-	-	545	-	-	-
Baboon	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Old World monkey	-	-	-	-	-	-	-	-	-	-	-	-	-
Ape													
Gibbon	-	-	-	-	-	-	-	-	-	-	-	-	-
Great ape	-	-	-	-	-	-	-	-	-	-	-	-	-
Other mammal	-	-	-	-	649	-	-	-	-	-	-	-	-
Bird													
Domestic fowl (Gallus domesticus)	1,166	772	142	946	1,262	4,519	7,648	84,629	-	153	152	-	-
Turkey	-	-	-	-	440	-	366	1,028	-	664	-	-	-
Quail (<i>Coturnix coturnix</i>)	-	-	-	-	-	-	-	-	-	-	-	-	-
Quail (not <i>Coturnix coturnix</i>)	-	-	-	-	-	-	-	-	-	-	-	-	-
Other bird	7	66	-	492	-	457	213	-	-	-	-	-	-
Reptile													
Any reptilian species	-	30	-	-	-	-	-	-	-	-	-	-	-
Amphibian													
Any amphibian species	12,192	681	742	-	-	52	1,189	1,285	40	-	-	-	-
Fish													
Any fish species	107,757	140,517	-	2,178	1,221	2,418	5,067	6,240	-	104,543	228	-	-
Cephalopod													
Octopus vulgaris	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	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
Increase on 2007	53,492	157,939	-4,437	5,876	18,561	-14,399	410	-502	3,446	39,863	6,507	672	821
Percentage change from 2007	18%	56%	-12%	13%	38%	-3%	0%	-0%	6%	11%	31%	5%	41%
Percentage of total for 2008	11%	14%	1%	2%	2%	14%	3%	4%	2%	12%	1%	0%	0%
2007 Totals	291,751	282,427	37,088	45,291	48,990	460,169	94,618	122,584	55,064	349,414	20,704	14,814	2,014

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

Species of animal	Field of research											Number of procedures			
	Dentistry	Genetics	Molecular biology	Cancer research	Nutrition	Zoology	Botany	Animal science	Ecology	Animal welfare	Other	Tobacco (1)	Alcohol	Total	
Mammal															
Mouse	-	234,176	157,364	377,903	2,701	-	-	7,018	-	99	143,774	-	83	2,228,775	
Rat	-	2,305	2,683	5,283	3,605	-	2	-	-	138	4,309	-	114	235,528	
Guinea pig	-	-	-	-	-	-	-	80	-	-	-	-	-	22,120	
Hamster	-	-	-	-	64	319	-	-	-	-	-	-	-	1,839	
Gerbil	-	-	-	163	-	-	-	-	-	-	-	-	-	1,092	
Other rodent	-	-	-	-	-	257	-	-	-	24	-	-	-	675	
Rabbit	31	-	-	-	-	-	-	-	-	-	18	-	-	4,299	
Cat	-	-	-	-	83	-	-	-	-	-	18	-	-	314	
Dog	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Beagle	-	-	-	50	108	-	-	-	-	-	37	-	-	908	
Greyhound	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Other including cross-bred dogs	-	-	-	-	-	-	-	-	-	-	-	-	-	31	
Ferret	-	-	-	-	-	-	-	-	-	-	-	-	-	908	
Other carnivore	-	-	-	-	-	216	-	-	460	-	-	-	-	856	
Horse and other equids	-	4	-	-	-	-	-	-	-	-	-	-	-	9,343	
Pig	-	-	-	-	-	-	-	474	-	348	11	-	-	4,822	
Goat	-	-	-	-	-	-	-	-	-	-	-	-	-	489	
Sheep	-	695	-	-	441	-	-	2,908	-	37	-	-	-	35,468	
Cattle	-	-	-	-	110	-	-	177	-	-	-	-	-	1,312	
Deer	-	63	-	-	-	-	-	-	-	-	-	-	-	63	
Camelid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Other ungulate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Primate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Prosimian	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
New World monkey															
marmoset, tamarin	-	-	12	-	-	-	-	-	-	-	-	-	-	235	
Squirrel, owl, spider monkey	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Other New World monkey	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

(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 2008 Species of animal	Field of research										Number of procedures			
	Dentistry	Genetics	Molecular biology	Cancer research	Nutrition	Zoology	Botany	Animal science	Ecology	Animal welfare	Other	Tobacco (1)	Alcohol	Total
Old World monkey														
Macaque	-	-	-	-	-	-	-	-	-	-	-	-	-	714
Baboon	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Old World monkey	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ape														
Gibbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Great ape	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other mammal	-	6	44	-	-	-	-	-	279	-	-	-	-	978
Bird														
Domestic fowl (<i>Gallus domesticus</i>)	-	-	-	-	856	-	-	464	-	822	-	-	-	103,531
Turkey	-	-	-	-	-	-	-	-	-	-	-	-	-	2,498
Quail (<i>Coturnix coturnix</i>)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Quail (not <i>Coturnix coturnix</i>)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other bird	-	-	-	-	-	4,939	-	4	3,043	-	-	-	-	9,221
Reptile														
Any reptilian species	-	-	-	-	-	-	-	-	79	-	-	-	-	109
Amphibian														
Any amphibian species	-	13,756	129	1,474	-	46	5	-	1,083	-	-	-	-	32,674
Fish														
Any fish species	-	48,543	320	5,524	2,250	912	-	-	22,286	-	23,224	-	-	473,228
Cephalopod														
Octopus vulgaris	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	31	299,548	160,552	390,397	10,218	6,689	7	11,125	27,230	1,468	171,391	197	197	3,172,030
Increase on 2007	11	76,133	5,236	54,304	-1,875	2,074	-71	2,374	-63,189	-205	43,813	-	-46	386,808
Percentage change from 2007	55%	34%	3%	16%	-16%	45%	-91%	27%	-70%	-12%	34%	N/A	-19%	14%
Percentage of total for 2008	0%	9%	5%	12%	0%	0%	0%	0%	1%	0%	5%	0%	0%	100%
2007 Totals	20	223,415	155,316	336,093	12,093	4,615	78	8,751	90,419	1,673	127,578	-	243	2,785,222

(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 and field of research, page 1 of 4

Species of animal	Field of research											Number of animals		
	Anatomy	Physiology	Biochemistry	Psychology	Pathology	Immunology	Microbiology	Parasitology	Pharmacology	Pharmaceutical R&D	Therapeutics	Clinical medicine	Clinical surgery	
Mammal														
Mouse	213,501	254,247	29,310	35,246	57,677	424,045	41,673	25,892	31,458	150,266	23,839	9,321	230	
Rat	9,363	39,179	1,907	11,269	2,489	5,378	606	1,041	23,620	105,582	2,137	4,773	2,422	
Guinea pig	-	633	40	-	-	1,140	401	25	2,237	17,448	73	-	-	
Hamster	-	219	96	-	-	37	331	306	-	21	259	-	-	
Gerbil	-	1	-	-	-	18	-	352	-	542	16	-	-	
Other rodent	-	2	-	-	25	-	132	-	235	-	-	-	-	
Rabbit	25	662	14	28	59	1,692	475	96	23	711	169	61	12	
Cat	-	43	-	-	-	-	8	-	29	40	-	-	-	
Dog	-	-	-	-	-	-	-	-	-	-	-	-	-	
Beagle	-	-	-	-	-	6	-	-	-	300	-	3	-	
Greyhound	-	-	-	-	-	-	-	-	-	-	-	-	-	
Other including cross-bred dogs	-	-	-	-	-	-	-	-	-	-	-	31	-	
Ferret	9	81	3	41	-	161	531	-	23	59	-	-	-	
Other carnivore	-	6	-	87	-	-	-	-	3	-	-	-	-	
Horse and other equids	4	41	-	-	-	77	54	-	40	7	4	-	-	
Pig	134	347	6	11	3	2,585	302	40	24	129	229	80	59	
Goat	-	-	-	-	445	12	-	15	-	1	-	-	-	
Sheep	476	987	184	4	756	294	514	373	-	6	105	982	112	
Cattle	-	215	-	-	15	375	76	161	59	24	-	12	-	
Deer	-	-	-	-	-	-	-	-	-	-	-	-	-	
Camelid	-	-	-	-	-	-	-	-	-	-	-	-	-	
Other ungulate	-	-	-	-	-	-	-	-	-	-	-	-	-	
Primate	-	-	-	-	-	-	-	-	-	-	-	-	-	
Prosimian	-	-	-	-	-	-	-	-	-	-	-	-	-	
New World monkey														
marmoset, tamarin	-	-	-	-	-	-	-	-	-	-	-	-	-	
Squirrel, owl, spider monkey	-	32	-	28	-	1	14	-	27	37	-	-	-	
Other New World monkey	-	-	-	-	-	-	-	-	-	-	-	-	-	

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

Species of animal	Field of research											Number of animals		
	Anatomy	Physiology	Biochemistry	Psychology	Pathology	Immunology	Microbiology	Parasitology	Pharmacology	Pharmaceutical R&D	Therapeutics	Clinical medicine	Clinical surgery	
Old World monkey														
Macaque	2	55	-	9	-	25	65	-	-	16	-	-	-	
Baboon	-	-	-	-	-	-	-	-	-	-	-	-	-	
Other Old World monkey	-	-	-	-	-	-	-	-	-	-	-	-	-	
Ape														
Gibbon	-	-	-	-	-	-	-	-	-	-	-	-	-	
Great ape	-	-	-	-	-	-	-	-	-	-	-	-	-	
Other mammal	-	-	-	-	606	-	-	-	-	-	-	-	-	
Bird														
Domestic fowl (<i>Gallus domesticus</i>)	1,166	772	142	946	1,262	4,495	7,648	84,629	-	150	152	-	-	
Turkey	-	-	-	-	440	-	222	1,028	-	223	-	-	-	
Quail (<i>Coturnix coturnix</i>)	-	-	-	-	-	-	-	-	-	-	-	-	-	
Quail (not <i>Coturnix coturnix</i>)	-	-	-	-	-	-	-	-	-	-	-	-	-	
Other bird	7	56	-	406	-	286	213	-	-	-	-	-	-	
Reptile														
Any reptilian species	-	30	-	-	-	-	-	-	-	-	-	-	-	
Amphibian														
Any amphibian species	6,563	199	280	-	-	52	1,189	1,285	40	-	-	-	-	
Fish														
Any fish species	107,657	140,517	-	2,178	1,221	2,418	5,067	6,240	-	104,543	228	-	-	
Cephalopod	-	-	-	-	-	-	-	-	-	-	-	-	-	
Octopus vulgaris	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total	338,907	438,324	31,982	50,253	64,998	443,097	59,521	121,483	57,818	380,105	27,211	15,263	2,835	

Table 6a Animals used (non-toxicology), by species and field of research, page 3 of 4
Previously Table 5a

Species of animal	Field of research											Number of animals		
	Dentistry	Genetics	Molecular biology	Cancer research	Nutrition	Zoology	Botany	Animal science	Ecology	Animal welfare	Other	Tobacco(1)	Alcohol	Total
Mammal														
Mouse	-	234,073	157,340	376,374	2,701	-	-	7,018	-	99	143,774	-	83	2,218,167
Rat	-	2,305	2,683	5,259	3,605	-	2	-	-	138	4,309	-	114	228,181
Guinea pig	-	-	-	-	-	-	-	80	-	-	-	-	-	22,077
Hamster	-	-	-	-	64	51	-	-	-	-	-	-	-	1,384
Gerbil	-	-	-	163	-	-	-	-	-	-	-	-	-	1,092
Other rodent	-	-	-	-	-	257	-	-	-	24	-	-	-	675
Rabbit	31	-	-	-	-	-	-	-	-	-	14	-	-	4,072
Cat	-	-	-	-	10	-	-	-	-	-	-	-	-	130
Dog	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beagle	-	-	-	2	39	-	-	-	-	-	11	-	-	361
Greyhound	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other including cross-bred dogs	-	-	-	-	-	-	-	-	-	-	-	-	-	31
Ferret	-	-	-	-	-	-	-	-	-	-	-	-	-	908
Other carnivore	-	-	-	-	-	69	-	-	460	-	-	-	-	625
Horse and other equids	-	4	-	-	-	-	-	-	-	-	-	-	-	231
Pig	-	-	-	-	-	-	-	474	-	348	11	-	-	4,782
Goat	-	-	-	-	-	-	-	-	-	-	-	-	-	473
Sheep	-	695	-	-	431	-	-	2,876	-	37	-	-	-	8,832
Cattle	-	-	-	-	104	-	-	116	-	-	-	-	-	1,157
Deer	-	63	-	-	-	-	-	-	-	-	-	-	-	63
Camelid	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other ungulate	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Primate	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prosimian	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New World monkey														
marmoset, tamarin	-	-	-	-	-	-	-	-	-	-	-	-	-	139
Squirrel, owl, spider monkey	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other New World monkey	-	-	-	-	-	-	-	-	-	-	-	-	-	-

(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 and field of research, page 4 of 4

Species of animal	Field of research											Number of animals			
	Dentistry	Genetics	Molecular biology	Cancer research	Nutrition	Zoology	Botany	Animal science	Ecology	Animal welfare	Other	Tobacco(1)	Alcohol	Total	
Old World monkey															
Macaque	-	-	-	-	-	-	-	-	-	-	-	-	-	172	
Baboon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Other Old World monkey	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Ape															
Gibbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Great ape	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Other mammal	-	6	44	-	-	-	-	-	233	-	-	-	-	889	
Bird															
Domestic fowl (<i>Gallus domesticus</i>)															
Turkey	-	-	-	-	856	-	-	464	-	822	-	-	-	103,504	
Quail (<i>Coturnix coturnix</i>)	-	-	-	-	-	-	-	-	-	-	-	-	-	1,913	
Quail (not <i>Coturnix coturnix</i>)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Other bird	-	-	-	-	-	4,837	-	4	3,043	-	-	-	-	8,852	
Reptile															
Any reptilian species	-	-	-	-	-	-	-	-	79	-	-	-	-	109	
Amphibian															
Any amphibian species	-	13,619	74	351	-	46	5	-	1,083	-	-	-	-	24,786	
Fish															
Any fish species	-	48,543	320	5,524	1,998	852	-	-	22,286	-	23,224	-	-	472,816	
Cephalopod															
Octopus vulgaris	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total	31	299,308	160,461	387,673	9,808	6,112	7	11,032	27,184	1,468	171,343	-	197	3,106,421	

(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

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	26,325	5,351	10,534	-	3,675	3,045	97,658	2,082,187	2,228,775
Rat	1,095	288	407	-	247	37	17,767	215,687	235,528
Other rodent	874	577	-	-	-	95	457	23,723	25,726
Rabbit	-	66	-	-	51	1,302	321	2,559	4,299
Cat	-	-	-	-	-	-	-	314	314
Dog	-	-	-	-	-	-	299	640	939
Ferret	19	-	-	-	-	119	507	263	908
Other carnivore	-	-	-	-	-	-	45	811	856
Horse and other equids	-	-	-	-	-	-	6,570	2,773	9,343
Other ungulate	306	7	-	-	27	751	26,688	14,375	42,154
Primate									
New World monkey	-	-	-	-	-	-	44	191	235
Old World monkey	-	-	-	-	-	-	481	233	714
Other mammal									
Bird	84,837	-	-	-	-	688	3,216	26,509	115,250
Reptile / Amphibian	-	-	-	-	-	-	7,868	24,915	32,783
Fish	7,947	-	1,303	-	-	58	7,603	456,317	473,228
Total	121,403	6,289	12,244	-	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 on the website

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

Species of animal	Great Britain 2008										Number of procedures		
	Toxicology or other safety/efficacy evaluation										Finished cosmetics(2)	Cosmetics ingredients(2)	
	Pollution	Agriculture	Industry	Household	Food additives	Other foodstuffs	General safety/efficacy evaluation						
Mammal													
Mouse	533	1,803	5,351	132	106	7,550							
Rat	51	11,131	10,533	-	259	12							
Guinea pig	-	-	-	-	-	-							
Hamster	-	-	-	-	-	-							
Gerbil	-	-	-	-	-	-							
Other rodent	-	164	-	-	-	-							
Rabbit	-	330	1,241	-	6	-							
Cat	-	-	-	-	-	-							
Dog	-	-	-	-	-	-							
Beagle	-	116	8	-	-	32							
Greyhound	-	-	-	-	-	-							
Other including cross-bred dogs	-	-	-	-	-	-							
Ferret	-	-	-	-	-	-							
Other carnivore	-	-	-	-	-	-							
Horse and other equids	-	-	-	-	-	-							
Pig	-	62	-	-	-	-							
Goat	-	10	-	-	-	-							
Sheep	-	-	-	-	-	-							
Cattle	-	-	-	-	-	-							
Deer	-	-	-	-	-	-							
Camelid	-	-	-	-	-	-							
Other ungulate	-	-	-	-	-	-							
Primate	-	-	-	-	-	-							
Prosimian	-	-	-	-	-	-							
New World monkey													
marmoset, tamarin	-	-	-	-	-	-							
Squirrel, owl, spider monkey	-	-	-	-	-	-							
Other New World monkey	-	-	-	-	-	-							

(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 2008 Species of animal	Toxicology or other safety/efficacy evaluation							Number of procedures	
	General safety/efficacy evaluation							Finished cosmetics(2)	Cosmetics ingredients(2)
	Pollution	Agriculture	Industry	Household	Food additives	Other foodstuffs			
Old World monkey									
Macaque	-	-	-	-	-	-	-	-	-
Baboon	-	-	-	-	-	-	-	-	-
Other Old World monkey	-	-	-	-	-	-	-	-	-
Ape									
Gibbon	-	-	-	-	-	-	-	-	-
Great ape	-	-	-	-	-	-	-	-	-
Other mammal									
Bird									
Domestic fowl (<i>Gallus domesticus</i>)	-	319	28	-	-	-	-	-	-
Turkey	-	30	-	-	-	-	-	-	-
Quail (<i>Coturnix coturnix</i>)	-	-	-	-	-	-	-	-	-
Quail (not <i>Coturnix coturnix</i>)	-	424	2	-	-	-	-	-	-
Other bird	-	281	-	-	-	-	-	-	-
Reptile									
Any reptilian species	-	-	-	-	-	-	-	-	-
Amphibian									
Any amphibian species	-	-	-	-	-	-	-	-	-
Fish									
Any fish species	10,432	2,464	6,349	-	-	-	-	-	-
Cephalopod									
Octopus vulgaris	-	-	-	-	-	-	-	-	-
Total	11,016	17,134	23,512	132	371	7,594	-	-	-
Increase on 2007	-6,878	128	-5,446	131	-395	-786	-	-	-
Percentage change from 2007	-38%	1%	-19%	0%	-52%	-9%	N/A	N/A	N/A
Percentage of total for 2008	2%	4%	5%	0%	0%	2%	0%	0%	0%
2007 Totals	17,894	17,006	28,958	1	766	8,380	-	-	-

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

Species of animal	Pharmaceutical safety/efficacy evaluation						Toxicology or other safety/efficacy evaluation				Number of procedures			
	Pharmaceutical safety/efficacy evaluation						Toxicology or other safety/efficacy evaluation				Other purposes			Total
	Safety testing	Efficacy testing	Quality control	ADME and residue	Toxicology research	Tobacco safety(1)	Medical device safety	Method development	Other					
Mammal														
Mouse	40,419	9,800	107,829	11,517	918	-	161	2,364	1,346					189,829
Rat	73,207	407	1,845	15,717	1,007	-	-	3,657	2,016					119,842
Guinea pig	1,822	388	4,805	69	-	-	-	89	-					7,173
Hamster	873	576	-	10	-	-	-	-	-					1,459
Gerbil	-	-	-	-	-	-	-	-	-					-
Other rodent	-	-	-	-	-	-	-	-	27					191
Rabbit	8,279	136	2,151	81	-	-	217	305	15					12,761
Cat	46	-	-	-	-	-	-	-	-					46
Dog														
Beagle	3,742	-	77	887	-	-	-	304	-					5,166
Greyhound	-	-	-	-	-	-	-	-	-					-
Other including cross-bred dogs	-	-	-	-	-	-	-	-	-					-
Ferret	-	160	-	54	-	-	-	-	-					214
Other carnivore	296	112	-	-	-	-	-	-	-					408
Horse and other equids	22	-	-	-	-	-	-	-	-					22
Pig	673	948	10	211	20	-	-	34	44					2,002
Goat	-	-	-	-	-	-	-	-	-					10
Sheep	99	111	89	52	-	-	-	-	1					352
Cattle	169	760	17	44	-	-	-	-	-					990
Deer	-	-	-	-	-	-	-	-	-					-
Camelid	-	-	-	-	-	-	-	-	-					-
Other ungulate	-	-	-	-	-	-	-	-	-					-
Primate														
Prosimian	-	-	-	-	-	-	-	-	-					-
New World monkey														
marmoset, tamarin	63	-	-	-	-	-	-	-	-					133
Squirrel, owl, spider monkey	-	-	-	-	-	-	-	-	-					-
Other New World monkey	-	-	-	-	-	-	-	-	-					-

(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

Species of animal	Toxicology or other safety/efficacy evaluation										Number of procedures							
	Pharmaceutical safety/efficacy evaluation					Other purposes					Total	Total	Total					
	Safety testing	Efficacy testing	Quality control	ADME and residue	Toxicology research	Tobacco safety(1)	Medical device safety	Method development	Other									
Old World monkey																		
Macaque	2,576	-	3	536	-	-	-	-	384	-	-	-	17	3,516				
Baboon	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Other Old World monkey	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Ape																		
Gibbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Great ape	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Other mammal																		
Bird																		
Domestic fowl (Gallus domesticus)	706	5,340	691	92	-	-	6	-	-	-	-	-	-	7,182				
Turkey	-	-	-	90	-	-	-	-	-	-	-	-	-	120				
Quail (<i>Coturnix coturnix</i>)	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Quail (not <i>Coturnix coturnix</i>)	-	-	-	-	-	-	-	-	-	-	-	-	-	426				
Other bird	-	-	-	-	-	-	-	-	-	-	-	-	-	281				
Reptile																		
Any reptilian species	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Amphibian																		
Any amphibian species	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Fish																		
Any fish species	62,571	23,312	-	-	1,484	-	-	-	25,315	-	-	-	-	131,927				
Cephalopod																		
Octopus vulgaris	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Total	195,563	42,050	117,517	29,360	3,429	-	378	3,466	32,528	3,466	484,050	3,466	3,466	484,050				
Increase on 2007	27,154	22,593	16,769	-5,457	-3,291	-	-112	-399	23,680	-399	67,691	-399	-399	67,691				
Percentage change from 2007	16%	116%	17%	-16%	-49%	N/A	-23%	-10%	268%	-10%	16%	-10%	-10%	16%				
Percentage of total for 2008	40%	9%	24%	6%	1%	0%	0%	1%	7%	1%	100%	1%	1%	100%				
2007 Totals	168,409	19,457	100,748	34,817	6,720	-	490	3,865	8,848	3,865	416,359	3,865	3,865	416,359				

(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

Species of animal	Toxicology or other safety/efficacy evaluation										Number of animals		
	General safety/efficacy evaluation										Finished cosmetics(2)	Cosmetics ingredients(2)	
	Pollution	Agriculture	Industry	Household	Food additives	Other foodstuffs							
Mammal													
Mouse	533	1,803	5,351	132	106	7,550	-	-	-	-			
Rat	51	11,131	10,533	-	259	12	-	-	-	-			
Guinea pig	-	-	-	-	-	-	-	-	-	-			
Hamster	-	-	-	-	-	-	-	-	-	-			
Gerbil	-	-	-	-	-	-	-	-	-	-			
Other rodent	-	164	-	-	-	-	-	-	-	-			
Rabbit	-	330	1,241	-	6	-	-	-	-	-			
Cat	-	-	-	-	-	-	-	-	-	-			
Dog	-	-	-	-	-	-	-	-	-	-			
Beagle	-	116	8	-	-	32	-	-	-	-			
Greyhound	-	-	-	-	-	-	-	-	-	-			
Other including cross-bred dogs	-	-	-	-	-	-	-	-	-	-			
Ferret	-	-	-	-	-	-	-	-	-	-			
Other carnivore	-	-	-	-	-	-	-	-	-	-			
Horse and other equids	-	-	-	-	-	-	-	-	-	-			
Pig	-	62	-	-	-	-	-	-	-	-			
Goat	-	10	-	-	-	-	-	-	-	-			
Sheep	-	-	-	-	-	-	-	-	-	-			
Cattle	-	-	-	-	-	-	-	-	-	-			
Deer	-	-	-	-	-	-	-	-	-	-			
Camelid	-	-	-	-	-	-	-	-	-	-			
Other ungulate	-	-	-	-	-	-	-	-	-	-			
Primate	-	-	-	-	-	-	-	-	-	-			
Prosimian	-	-	-	-	-	-	-	-	-	-			
New World monkey	-	-	-	-	-	-	-	-	-	-			
marmoset, tamarin	-	-	-	-	-	-	-	-	-	-			
Squirrel, owl, spider monkey	-	-	-	-	-	-	-	-	-	-			
Other New World monkey	-	-	-	-	-	-	-	-	-	-			

(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

Species of animal	Toxicology or other safety/efficacy evaluation										Number of animals		
	General safety/efficacy evaluation										Finished cosmetics(2)	Cosmetics ingredients(2)	
	Pollution	Agriculture	Industry	Household	Food additives	Other foodstuffs							
Old World monkey													
Macaque	-	-	-	-	-	-	-	-	-	-	-	-	-
Baboon	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Old World monkey	-	-	-	-	-	-	-	-	-	-	-	-	-
Ape													
Gibbon	-	-	-	-	-	-	-	-	-	-	-	-	-
Great ape	-	-	-	-	-	-	-	-	-	-	-	-	-
Other mammal	-	-	-	-	-	-	-	-	-	-	-	-	-
Bird													
Domestic fowl (<i>Gallus domesticus</i>)	-	319	28	-	-	-	-	-	-	-	-	-	-
Turkey	-	30	-	-	-	-	-	-	-	-	-	-	-
Quail (<i>Coturnix coturnix</i>)	-	-	-	-	-	-	-	-	-	-	-	-	-
Quail (not <i>Coturnix coturnix</i>)	-	424	2	-	-	-	-	-	-	-	-	-	-
Other bird	-	268	-	-	-	-	-	-	-	-	-	-	-
Reptile													
Any reptilian species	-	-	-	-	-	-	-	-	-	-	-	-	-
Amphibian													
Any amphibian species	-	-	-	-	-	-	-	-	-	-	-	-	-
Fish													
Any fish species	10,432	2,464	6,349	-	-	-	-	-	-	-	-	-	-
Cephalopod													
Octopus vulgaris	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	11,016	17,121	23,512	132	371	7,594							

(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

Species of animal	Toxicology or other safety/efficacy evaluation										Number of animals			
	Pharmaceutical safety/efficacy evaluation					Other purposes					Total			
	Safety testing	Efficacy testing	Quality control	ADME and residue	Toxicology research	Tobacco safety(1)	Medical device safety	Method development	Other					
Mammal														
Mouse	40,416	9,800	107,829	11,517	918	-	161	2,353	1,346					189,815
Rat	73,155	407	1,845	15,717	1,007	-	-	3,651	2,013					119,781
Guinea pig	1,822	388	4,805	69	-	-	-	89	-					7,173
Hamster	873	576	-	10	-	-	-	-	-					1,459
Gerbil	-	-	-	-	-	-	-	-	-					-
Other rodent	-	-	-	-	-	-	-	-	27					191
Rabbit	5,633	136	196	81	-	-	25	181	15					7,844
Cat	46	-	-	-	-	-	-	-	-					46
Dog														
Beagle	3,317	-	71	152	-	-	-	183	-					3,879
Greyhound	-	-	-	-	-	-	-	-	-					-
Other including cross-bred dogs	-	-	-	-	-	-	-	-	-					-
Ferret	-	56	-	6	-	-	-	-	-					62
Other carnivore	296	27	-	-	-	-	-	-	-					323
Horse and other equids	21	-	-	-	-	-	-	-	-					21
Pig	600	948	10	184	20	-	-	34	32					1,890
Goat	-	-	-	-	-	-	-	-	-					10
Sheep	99	111	89	52	-	-	-	-	1					352
Cattle	169	760	17	44	-	-	-	-	-					990
Deer	-	-	-	-	-	-	-	-	-					-
Camelid	-	-	-	-	-	-	-	-	-					-
Other ungulate	-	-	-	-	-	-	-	-	-					-
Primate														
Prosimian	-	-	-	-	-	-	-	-	-					-
New World monkey														
marmoset, tamarin	53	-	-	-	-	-	-	70	-					123
Squirrel, owl, spider monkey	-	-	-	-	-	-	-	-	-					-
Other New World monkey	-	-	-	-	-	-	-	-	-					-

(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

Species of animal	Toxicology or other safety/efficacy evaluation										Number of animals									
	Pharmaceutical safety/efficacy evaluation					Other purposes					Total	Total	Total							
	Safety testing	Efficacy testing	Quality control	ADME and residue	Toxicology research	Tobacco safety(1)	Medical device safety	Method development	Other											
Old World monkey																				
Macaque	2,358	-	3	184	-	-	-	-	-	-	-	-	360	15	-	-	-	-	-	2,920
Baboon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Old World monkey	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ape																				
Gibbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Great ape	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other mammal																				
Bird																				
Domestic fowl (<i>Gallus domesticus</i>)	706	5,340	691	92	-	-	-	-	-	-	-	-	6	-	-	-	-	-	-	7,182
Turkey	-	-	-	90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	120
Quail (<i>Coturnix coturnix</i>)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Quail (not <i>Coturnix coturnix</i>)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	426
Other bird	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	268
Reptile																				
Any reptilian species	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amphibian																				
Any amphibian species	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fish																				
Any fish species	62,571	23,312	-	-	1,484	-	-	-	-	-	-	-	25,315	-	-	-	-	-	-	131,927
Cephalopod	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Octopus vulgaris	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	192,135	41,861	115,556	28,198	3,429	-	186	32,242	3,449	-	-	186	32,242	3,449	-	-	-	-	-	476,802

(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

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	Number of procedures	
							Non-legislative purposes	Total
Mammal								
Mouse	1,044	-	15,879	-	2,175	153,287	17,444	189,829
Rat	479	70	3,950	-	617	102,230	12,496	119,842
Other rodent	321	-	2,280	-	186	5,842	194	8,823
Rabbit	405	-	4,754	-	198	7,248	156	12,761
Cat	-	-	12	-	-	34	-	46
Dog	-	-	-	-	40	4,558	568	5,166
Ferret	-	-	-	-	-	8	206	214
Other carnivore	408	-	-	-	-	-	-	408
Horse and other equids	-	-	-	-	-	-	22	22
Other ungulate	26	-	1,401	-	32	1,725	170	3,354
Primate								
New World monkey	-	-	-	-	-	109	24	133
Old World monkey	-	-	-	-	-	3,426	90	3,516
Other mammal								
Bird	-	-	510	-	-	7,493	6	8,009
Reptile / Amphibian								
Fish	1,311	-	10,464	-	1,451	9,299	109,402	131,927
Total	3,994	70	39,250	-	4,699	295,259	140,778	484,050

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

Species of animal	Type of toxicological test or procedure										Number of procedures			
	Acute lethal toxicity	Acute lethal concentration	Acute limit setting	Acute non - lethal clinical sign	Subacute limit-setting or dose ranging	Subacute toxicity	Subchronic and chronic	Carcinogenicity	Genetic toxicology (includes mutagenicity)	Teratogenicity				
Mammal														
Mouse	86,696	1,521	9,143	1,564	3,495	2,072	3,584	5,659	3,077	544				
Rat	445	1,746	2,079	4,500	10,705	15,032	7,834	3,478	5,356	3,943				
Other rodent	-	27	-	22	10	198	80	-	-	-				
Rabbit	-	-	-	52	292	146	-	-	-	-				
Cat	-	-	-	-	-	-	-	-	-	-				3,635
Dog	-	-	-	159	456	1,614	1,207	-	-	-				
Ferret	-	-	-	-	-	-	-	-	-	-				
Other carnivore	-	-	-	-	-	-	-	-	-	-				
Horse and other equids	-	-	-	-	-	-	-	-	-	-				
Other ungulate	-	-	-	18	102	300	102	-	-	-				
Primate														
New World monkey	-	-	-	-	30	9	24	-	-	-				
Old World monkey	-	-	-	34	324	1,181	778	-	-	-				
Other mammal														
Bird	-	180	135	75	156	420	-	-	-	-				
Reptile / Amphibian	-	-	-	-	-	-	-	-	-	-				
Fish	-	5,903	66,486	-	968	2,430	7,530	-	-	-				364
Total	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

Species of animal	Type of toxicological test or procedure										Number of procedures				
	Other reproductive toxicity	In eyes	For skin irritation	For skin sensitisation	Toxicokinetics	Pyrogenicity	Biocompatibility	Enzyme induction for <i>in vitro</i> tests	Immunotoxicology	Other toxicology	Total				
Mammal															
Mouse	483	-	12	1,074	10,445	-	80	-	4,635	55,745	189,829				
Rat	29,488	-	-	-	13,025	-	42	142	200	21,827	119,842				
Other rodent	-	-	-	-	152	-	-	-	-	8,334	8,823				
Rabbit	86	479	740	-	44	6,752	28	-	-	507	12,761				
Cat	-	-	-	-	-	-	-	-	-	46	46				
Dog	2	-	-	-	549	-	-	-	-	1,179	5,166				
Ferret	-	-	-	-	-	-	-	-	-	214	214				
Other carnivore	-	-	-	-	-	-	-	-	-	408	408				
Horse and other equids	-	-	-	-	-	-	-	-	-	22	22				
Other ungulate	-	-	-	-	234	-	-	-	-	2,598	3,354				
Primate															
New World monkey	-	-	-	-	-	-	-	-	-	70	133				
Old World monkey	-	-	-	-	493	-	-	-	1	705	3,516				
Other mammal															
Bird	108	-	-	-	200	-	-	-	20	6,715	8,009				
Reptile / Amphibian															
Fish	2,909	-	-	-	926	-	-	-	-	44,411	131,927				
Total	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 put in place 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.
2. Operation of the Act is not a devolved responsibility in Great Britain, the Home Office administering the legislation in England, Scotland and Wales. The Act is separately administered in Northern Ireland, and animal use in Northern Ireland is detailed in separate statistical report.

Scope of the Act

3. The Act regulates 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'. '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. 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.
4. 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.
5. 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 Certificate (issued under the Medicines Act 1968).
6. 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

7. 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 (normally 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.
8. During 2008, 2,856 personal licences were granted and 2,210 were revoked. On 31 December 2008 there were 14,910 active licences. Personal licences continue to be in force until revoked, but they must be reviewed at least every five years.

Project Licences

9. 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. 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; indeed a project licence may not be issued if the scientific objectives can be achieved by means not involving the use of protected animals. The holder of a project licence undertakes overall responsibility for the scientific direction and control of the work and is responsible for making the statistical returns on which this

publication is based. New project licence applicants are required to complete an accredited training course before the licence is granted.

10. When making an application for a project licence the applicant nominates, and the Home Office assigns, an overall severity banding for 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.

11. It is not possible to lay down hard and fast rules about how the 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.

12. The following table details the number of project licences which were active on 31 December 2008, the number granted during 2008 and the number revoked during 2008 (normally 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

<i>Severity band</i>	<i>In force on 31 December 2008</i>		<i>Granted during 2008</i>		<i>Revoked during 2008</i>	
	Number	%	Number	%	Number	%
Mild	986	37	262	38	277	37
Moderate	1554	58	397	58	441	59
Substantial	50	2	19	3	12	1
Unclassified	62	2	8	1	11	1
Total	2652		686		741	

Designation of premises

13. 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 (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. 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.

14. There were 191 certificates of designation in force on 31 December 2008. Of these, 189 were registered as user establishments, 121 as breeding establishments and 66 as supplying establishments. These figures add up to more than the total number of establishments because a single establishment may be represented in more than one of the categories: for example, an establishment may be registered as both a breeder and user of animals.

15. Further information about the work of the Animals Scientific Procedures Division and Inspectorate can be found in the 2008 Annual Report of the Home Office Animals Scientific Procedures Division (ASPD) and Inspectorate (ASPI) at <http://scienceandresearch.homeoffice.gov.uk/animal-research/>.

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

Great Britain 2008

Type of designated establishment	Number of licence holders ⁽¹⁾ reporting countable ⁽²⁾ procedures, by number of procedures reported											Licencees reporting non-countable ⁽²⁾ procedures only	Number of licence holders ⁽¹⁾ reporting no procedures	Total licencees	Procedures	
	Number of procedures reported														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	Total							
Public health laboratories	3	3	3	1	1	1	1	2	15	1	8	1	24	15,686	0%	
Universities, medical schools	404	254	280	151	213	105	66	381	1,854	7	582	7	2,443	1,597,742	44%	
NHS hospitals	-	4	6	3	3	-	-	5	21	-	5	-	26	21,333	1%	
Government departments	16	12	9	5	9	5	1	14	71	-	29	-	100	99,234	3%	
Other public bodies	49	24	21	18	23	15	12	80	242	3	48	3	293	466,127	13%	
Non-profit-making organisations	11	6	9	6	4	5	2	24	67	-	24	-	91	128,056	4%	
Commercial organisations	49	20	31	16	31	14	19	129	309	3	84	3	396	1,327,902	36%	
Total	532	323	359	200	284	145	101	635	2,579	14	780	14	3,373	3,656,080	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
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, including the Policing Data Collection Section. We would also like to thank staff in the Animals (Scientific Procedures) Inspectorate (ASPI), for their assistance with the collection, processing and quality assurance processes involved in preparing this report. Last but not least, the contribution of licensees who provided the returns on which this report is based is acknowledged.

Contact information

The Home Office would welcome comments from users on how well this publication meets their needs, and on the options indicated at paragraph 11 of the Introductory Notes (page 4), and will consider any suggestions for improving it in future years. Comments and suggestions should be sent to:

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