Home Office

Statistics of Scientific Procedures on Living Animals Great Britain 2010

HC 1263
£10.25

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Statistics of Scientific Procedures on Living Animals

GREAT BRITAIN
2010

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

Ordered by the House of Commons
to be printed 13 July 2011

HC 1263 LONDON: The Stationery Office £10.25

Any enquiries regarding this publication should be sent to us at Home Office Statistics, 5th Floor, Peel Building, 2 Marsham Street, London, SW1P 4DF.

This publication is available for download at www.official-documents.gov.uk.
This document is also available from our website at
http://www.homeoffice.gov.uk/science-research/research-statistics/science/

ISBN: 9780102974089

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

ID P002439229 07/11

Printed on paper containing 75% recycled fibre content minimum.

Contents

Note: The '**Supplementary Tables**' and '**Time Series Tables**' and the '**User Guide to Home Office Statistics of Scientific Procedures on Living Animals**' can be found on the website at :- http://www.homeoffice.gov.uk/science-research/research-statistics/science/.

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Introductory Notes

The statistics in this publication relate to scientific procedures performed using living animals subject to the provisions of the Animals (Scientific Procedures) Act 1986, during the year 2010. The purpose of the publication is to meet the requirements of the Animals (Scientific Procedures) Act 1986 section 21(7) "The Secretary of State shall in each year publish and lay before Parliament such information as he considers appropriate with respect to the use of protected animals in the previous year for experimental or other scientific purposes". The system of control under the 1986 Act is explained in detail in Appendix A.

Confidentiality and Data quality

Detailed information on the work of individual project licence holders is not readily identifiable in this publication. Where a further breakdown of the 'other' species categories are not given in the commentary this is to safeguard the confidentiality of the establishment and the licence holder. The data provided remains provisional and subject to revision.

Symbols used in tables

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

Acknowledgements

This publication and the accompanying web tables have been prepared by staff in the Home Office Statistics unit of the Home Office Science Group. We are grateful for the support of colleagues in Policing Data Collection Section for data input, the Animals (Scientific Procedures) Inspectorate (ASPI) and colleagues in the licensing section of the Animals Scientific Procedures Division (ASPD), 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.

Further information available

Further information is available from the Internet site: http://homeoffice.gov.uk/science-research/research-statistics/science/ :-

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

The dates of forthcoming publications are pre-announced and can be found via the UK National Statistics Publication Hub: http://www.statistics.gov.uk/hub/index.html.

Home Office Responsible Statistician

David Blunt, Chief Statistician and Head of Profession for Statistics

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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.

Presentation – the figures given refer to the numbers of procedures that were started in 2010 (rather than the numbers of animals), compared with 2009, unless indicated otherwise. Most figures have been rounded to the nearest 1000 or 100 procedures or to two significant figures.

Summary

1. Just over 3.7 million scientific procedures were started in Great Britain in 2010, increasing 3% (+105,000). This was largely due to an increase to 1.6 million procedures (+87,000, +6%) in breeding to produce genetically modified (GM) animals and harmful mutants (HM), mainly mice (+77,000).

2. Excluding the breeding of GM and HM animals, the total number of procedures was broadly the same as in 2009 (a slight increase, of +18,000 or +1%, from 2.09 million to 2.10 million).

3. There were increases in numbers of procedures involving mice (+2%), non-human primates (+10% with new world monkeys +78% and old world monkeys -2%), birds (+12%) and fish (+23%). There were falls for most other species, for example rats (-9%), guinea pigs (-29%), cats (-32%), dogs (-2%), rabbits (-10%), horses & other equids (-5%), pigs (-15%).

4. There was a further fall (-11%) in the numbers of procedures for safety testing (toxicology) to 391,000, with a higher proportion carried out to meet more than one legislative/regulatory requirement (72% compared with 68% in 2009). Most toxicology procedures are carried out in the commercial sector where the number of procedures also fell (-4%).

5. The number of non-toxicology procedures increased 5% to 3.3 million, reflecting the higher numbers of procedures carried out in universities (+10%), particularly fundamental research. The increase for non-toxicology included further increases in cancer research (+8,700), immunological studies (+10,200), parasitology (+12,000) and pharmacology (+13,900) whilst pharmaceutical R&D continued to fall (-56,700).

6. There were 1.0 million more procedures than in 2000 (+37%) mostly accounted for by breeding to produce GM and HM animals (+921,000, of which mice +811,000). Excluding such breeding, the total number of procedures was slightly higher than in 2000 (+4% or +89,000).

(Source: Tables 1, 3, 6, 10, 19.)

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 (for further details see the Introductory Notes and the Form Notes in the 'User Guide to Home Office Statistics of Scientific Procedures on Living Animals').

Presentation – the figures given refer to the numbers of procedures that were started in 2010 (rather than the numbers of animals), compared with 2009, 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.

Commentary

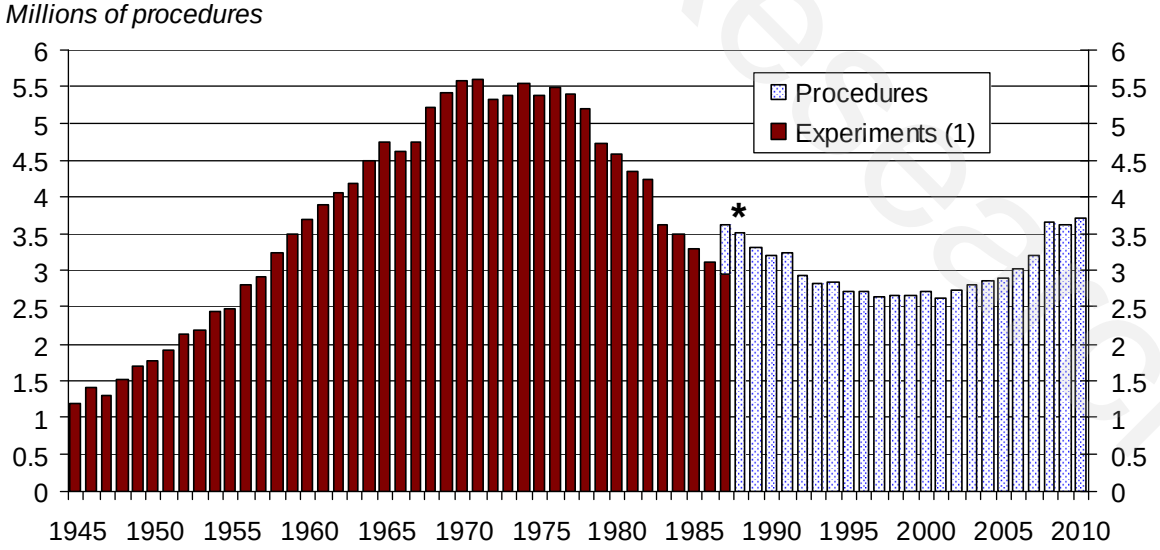
Procedures started in 2010 (Tables 1, 1a)

There were just over 3.7 million scientific procedures started in 2010, an increase of 105,000 (+3%) on 2009. Breeding of genetically modified (GM) animals or harmful mutants (HM) accounted for 1.6 million procedures (44% of the total). The total excluding such breeding was broadly the same (a slight increase of +1% or +18,000, from 2.09 million to 2.10 million). There were some 3.6 million animals used for the first time in procedures started in 2010 (Table 1a), this was an increase of 3% (+101,000) 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. The total number of procedures was over a third (+37% or +1.0 million) higher than in 2000, mostly accounted for by breeding to produce GM and HM animals (+921,000 higher, of which mice +811,000). Excluding such breeding, the total was slightly higher than in 2000 (+4% or +89,000).

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 1945-2010



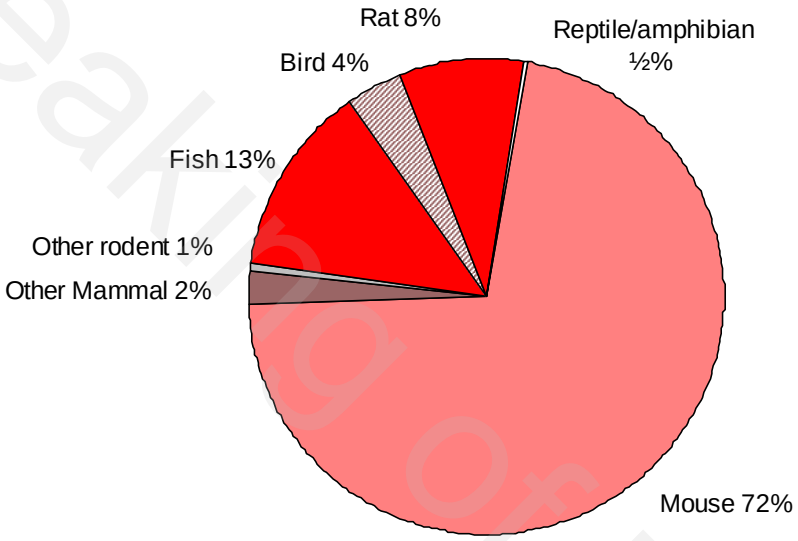
(1) Experiments under the 1876 Act or Scientific Procedures under the 1986 Act
* The 1987 total includes experiments under the 1876 Act as well as procedures under the 1986 Act

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

Overall numbers

- Mice (72%), fish (13%), rats (8%) and birds (4%) were involved in the largest numbers of procedures, similar to recent years.
- Domestic fowl accounted for ninety-one 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 10,700, slightly higher than in 2009 (10,500).

Figure 2: Procedures by species of animal, 2010



Increases

There were higher numbers of procedures using some species in 2010, notably:-

- Mice (+2%),
- Non human primates (+10% with new world monkeys +78% and old world monkeys -2%),
- Birds (+12%),
- Fish (+23%).

Decreases

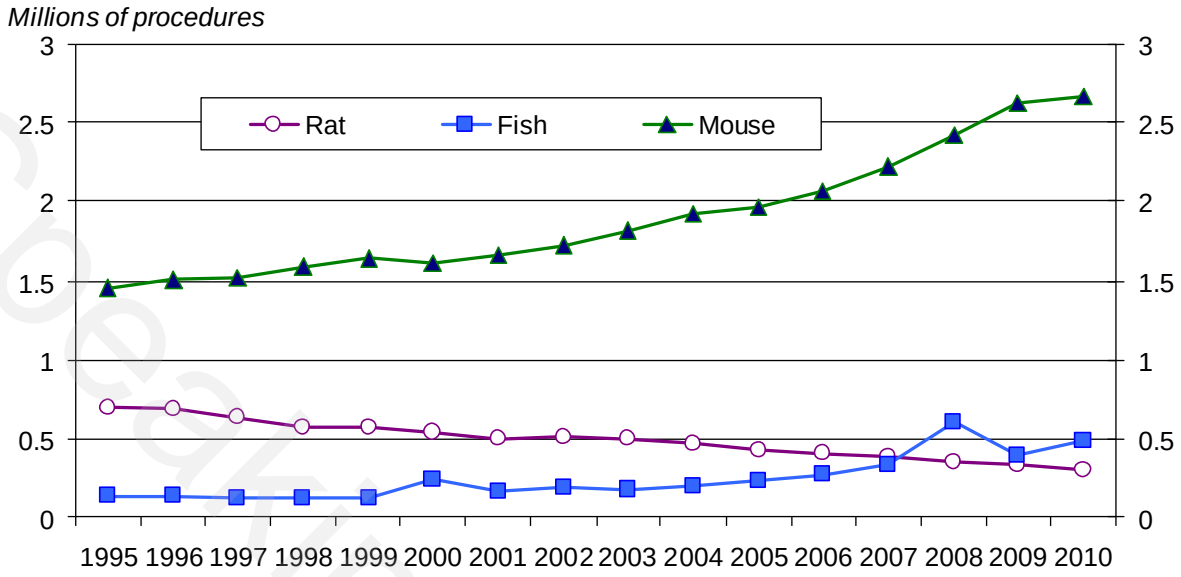
There were falls in numbers of procedures using other species in 2010, notably:-

- Rats (-9%),
- Guinea pigs (-29%),
- Cats (-32%),
- Dogs (-2%),
- Rabbits (-10%),
- Horses & other equids (-5%),
- Pigs (-15%),
- Sheep (-1%),
- Cattle (-18%),
- Amphibians (-30%).

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 has steadily increased. The number of

procedures using fish increased continuing the general upward trend shown since 2001. The proportion of total procedures accounted for by mice, rats and fish has steadily increased from around 84% in 1995 to 93% in 2010.

Figure 3: Procedures using mice, rats and fish 1995-2010



'Other' categories use-detail

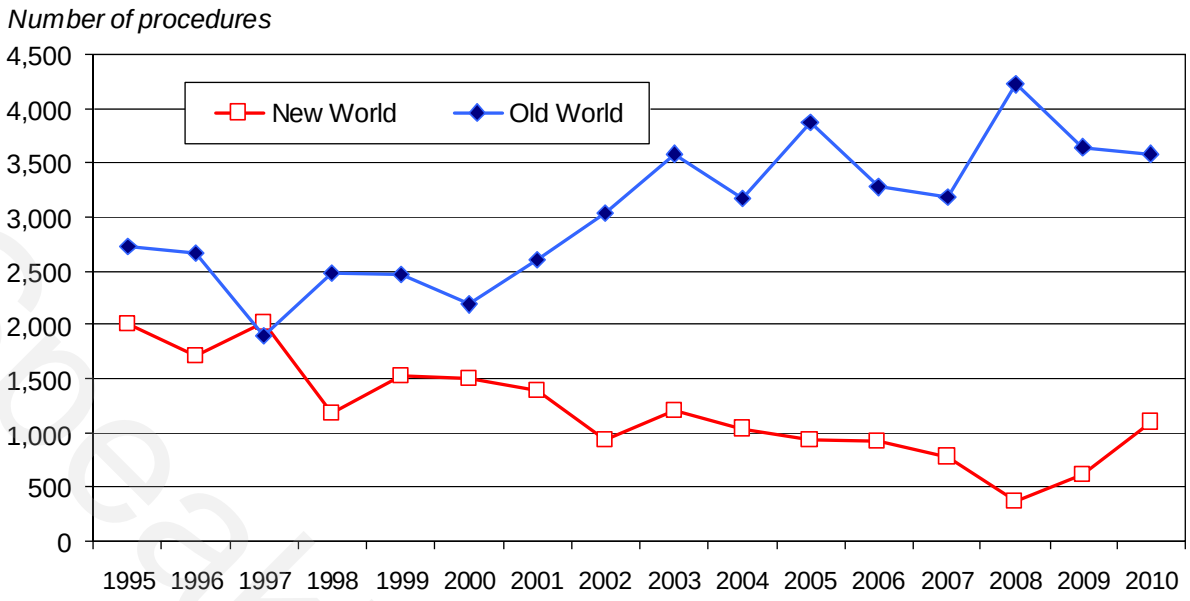
- The 'other carnivore' category included badgers, foxes and seals.
- The 'other mammals' category included shrews, bats, hares.
- 'Other rodents' included Field vole, wood mice, bank vole, field mice, Chinchilla, grey squirrel, cotton rat.
- 'Other birds' included various species of finches and tits, starlings, crows, ducks and geese (both captive and wild), pigeons, various wild seabirds, pied flycatcher, red jungle fowl.
- 'Other ungulate' included wild boar.

Primate use (Table 1 and 1a)

Figure 4 below shows the changes in procedures using old-world and new-world primates since 1995 (for details on primate species, see the 'User Guide to Home Office Statistics of Scientific Procedures on Living Animals'):-

- The number of procedures using new-world primates rose by 484 (+78%), and there were 176 more animals used.
- The number of procedures using old-world primates fell by 59 (-2%), and there was a fall of 342 animals used.
- 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 increased by 425 from 4,263 in 2009 to 4,688 in 2010 (+10%), the number of animals used fell, by 166 (from 2,815 in 2009 to 2,649 in 2010 or 6%), with slightly over 2,000 procedures in 2010 involving re-use of primates.

Figure 4: Procedures using non-human primates, 1995-2010



Species on which no procedures were started in 2010 (Table 1)

No procedures were performed using greyhounds, quail *Coturnix coturnix*, a number of primate species, and *Octopus vulgaris*. 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 'User Guide to Home Office Statistics of Scientific Procedures on Living Animals' (section on Form Notes).

Increases

There was an increase in the numbers of procedures for

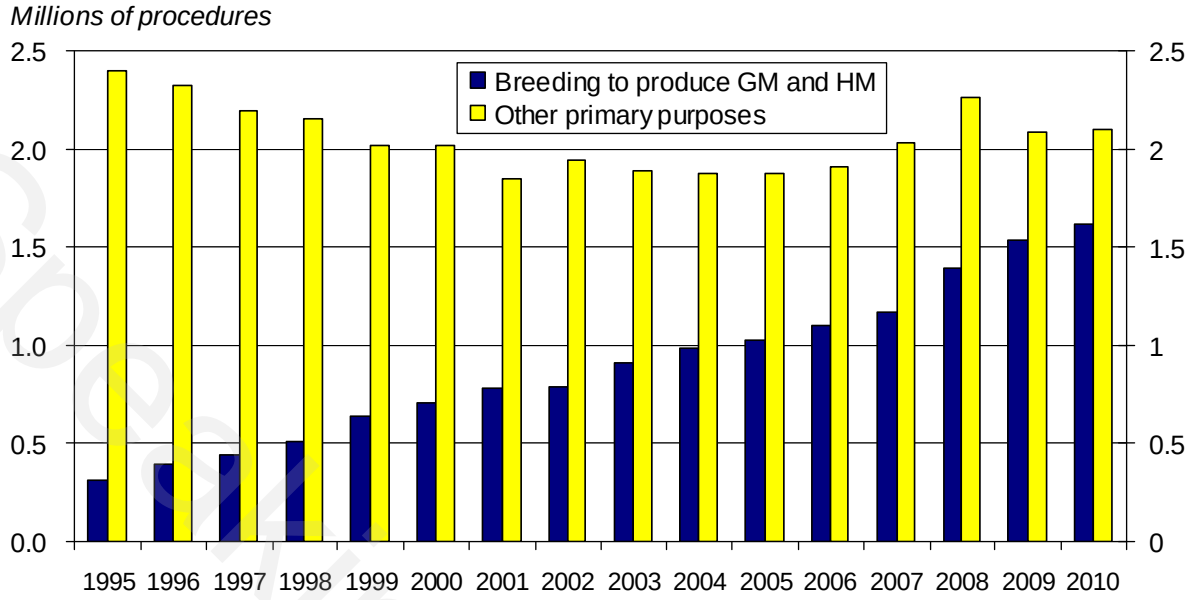
- breeding of GM or HM (+87,000 or +6%),
- fundamental biological research (+120,000 or +10%),
- veterinary medicine (+19,600, or +14%),
- protection of man, animals or environment (+2,900 or +4%).

Decreases

There were falls for

- human medicine/dentistry (-119,500 or -19%); and
- direct diagnosis (-5,600 or -11%).

Figure 5: Comparison of breeding to produce GM and HM animals, with other primary purposes, 1995-2010



Source (Table 2 and online Supplementary Tables 2.1, 2.2)

The majority (81% or 3.02 million) of the 3.7 million procedures started in 2010 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 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 2.99 million or 99 per cent of procedures using Schedule 2 listed species.
- Other EU countries were the source for Schedule 2 animals used in 11,100 procedures.
- Schedule 2 listed animals acquired from other sources (including Council of Europe countries who are signatories to ETS123) were used in 15,400 procedures; of these procedures eighty-one percent (12,500) involved mice or rats (of which the large majority, 9,200, used GM or HM animals).

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

Genetically 'normal' animals accounted for 1.7 million procedures (the same level as in 2009), slightly less than half (46%) of the total 3.7 million procedures. There were 400,000 procedures (11%) using HM animals and 1.6 million procedures (43%) using GM animals. There was an increase in procedures using GM animals (+88,000 or +6%) and in use of harmful mutants (+17,000 or +4%) and use of normal animals was stable (-120 or -0%).

Genetically 'normal' animals (Table 3)

The number of procedures using genetically 'normal' animals remained the same (1.72 million) with falls in use of mice (-47,700), rats (-25,400), guinea pigs (-5,500) balanced by increases for domestic fowl (+15,300) and fish (+68,000).

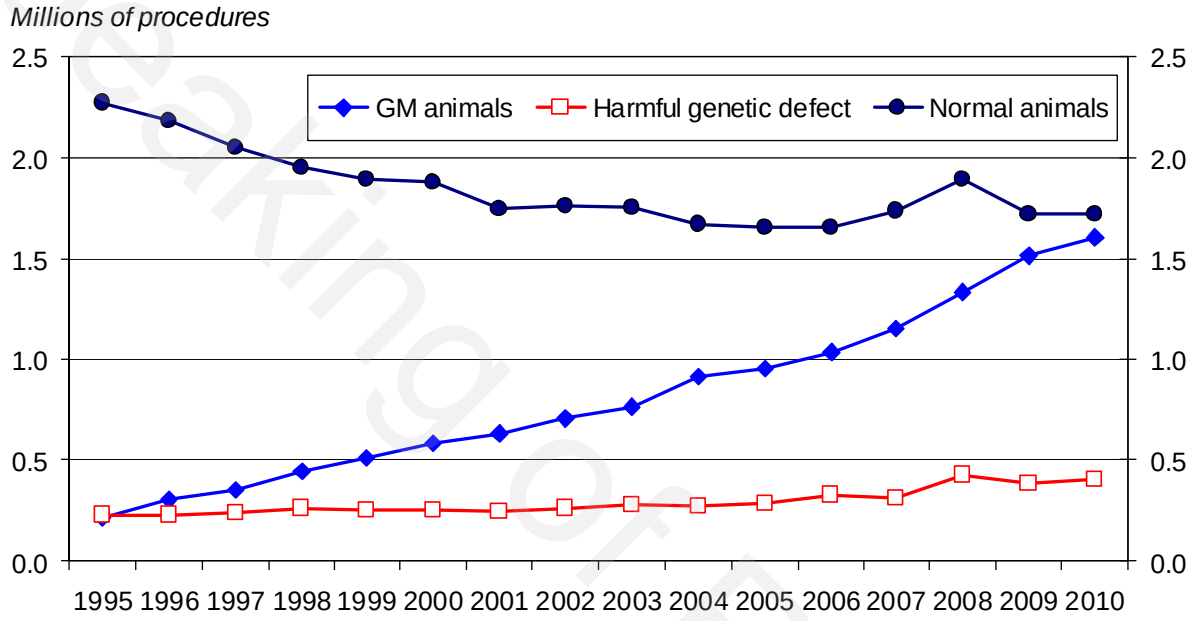
Animals with a harmful genetic defect (Table 3, online Supplementary Table 3.2)

The increase in procedures using HM animals (+17,100 or +4%) was a result of increases in use of mice (+6,000) and fish (+18,400) whilst use fell for rats (-2,600) and for amphibia (-4,700). The procedures using mice, rats and fish were mainly for maintaining breeding colonies, with the other primary purposes being fundamental biological research and applied studies.

Genetically modified animals (Table 3)

The increase (+88,200 or +6%) in procedures using genetically modified animals (GM) was attributable to higher use of mice in breeding procedures (+73,800 or +8%) and higher use of fish (+6,400 or +6%).

Figure 6: Procedures by genetic status of animal, 1995-2010



Target body system (Table 4)

Half (50%) of all procedures in 2010 were prospectively directed towards one particular body system:-

- The Immune system was the largest single category, accounting for 466,000 procedures (13%) - mainly mice (427,000).
- The Nervous system was the next largest with 377,000 (10%) 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 with no clear pattern.

Procedures conducted where the target body system was 'not relevant' accounted for 965,000 (26% of the total 3.7 million procedures), down 7,700 (-1%). The category for 'multiple' target body systems accounted for 895,000 procedures (24% of the total) increasing +19%.

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.

- A third (31%) of all procedures 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.
- The use of neuromuscular blocking agents (NMBA) was recorded in 3,120 procedures, all of which involved the use of general anaesthesia.

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

(Table 6)
Non-toxicology accounted for 3.3 million procedures, nine-tenths (89%) of the total 3.7 million procedures, and was slightly higher than in 2009 (+5%). The main areas were:- physiology (15% of such procedures), immunology (14%), cancer research (13%), anatomy (12%), genetics (10%), and pharmaceutical R&D (7%).

There were increases (as occurred in 2009) for immunology (+10,200), cancer research (+8,700), parasitology (+12,000) and pharmacology (+13,900) whilst similarly there were further falls for pharmaceutical R&D (-56,700).

Production of biological materials (Table 7)

In 2010 there were some 352,000 procedures, 19,900 (+6%) more than in 2009, were carried out to produce biological materials:-

- Thirty-six percent of these were for the production of infectious agents, (four percent of the total 3.3 million non-toxicology procedures), of which the most common species used were birds (78%) and mice (16%).
- Vectors, neoplasms and antibody production accounted for a further seven percent of procedures for production of biological materials; using a wide range of species.
- The remaining fifty-seven 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 methods fell back to 2,500 (-39% or -1,500) in 2009, and fell a further thirteen percent to 2,100 procedures in 2010.

Toxicology, other safety or efficacy evaluation

(Tables 9, 9a, 10, 11, online Supplementary Tables 12, 15, 16)

(Table 9 and online Time Series Table 25)

There were 391,000 procedures for toxicological or other safety/efficacy evaluation purposes, or just over one in ten (11%) of the total 3.7 million procedures. This represented a fall of eleven percent in toxicology procedures compared with 2009, which followed falls in toxicology in most recent years. Most (68%) toxicology procedures were for pharmaceutical safety and efficacy evaluation, and three quarters (75%) involved rodent species; while non-human primates accounted for less than one percent of such procedures.

(Table 10, online Time Series Table 21)

Four fifths of toxicological procedures (81% of 391,000) were carried out to conform to legal or regulatory requirements, with most of these (72% or 281,000 of the 391,000 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 requirements but a smaller proportion (59%) were to meet joint requirements.

Figure 7: Procedures (toxicology) by species of animal, 2010

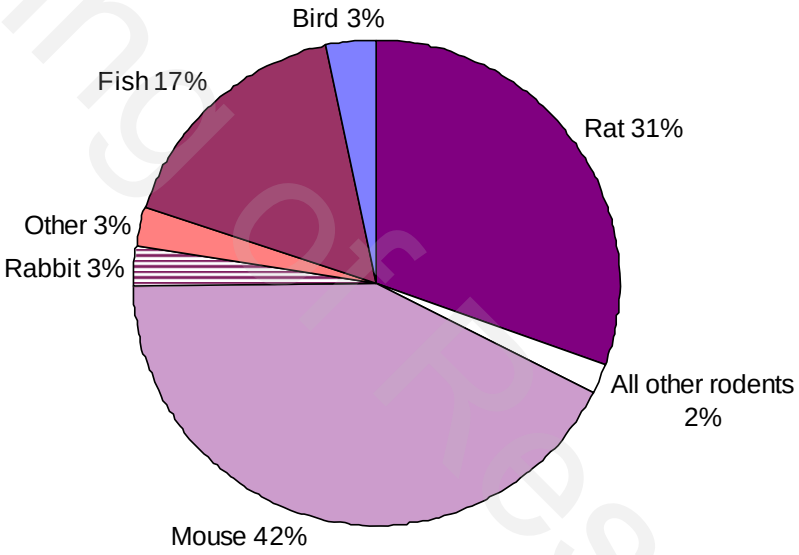
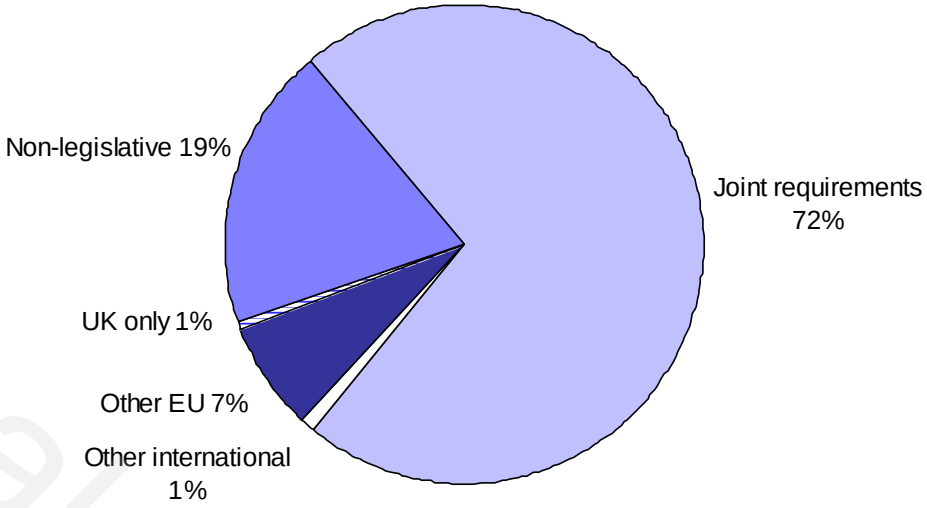


Figure 8: Procedures by legislative requirement (toxicology), 2010



Rodenticide trials

It is impracticable to collect accurate figures on the number of animals used in field trials of rodenticide substances. There was one return from a licensee which confirmed that such field trials occurred in 2010 as part of the work carried out under that license.

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 Form Notes section in 'User Guide to Home Office Statistics of Scientific Procedures on Living Animals'). There were 54 procedures performed using animals in this category in 2010; these involved wild birds in research relevant to those species.

Type of establishment (Table 19)

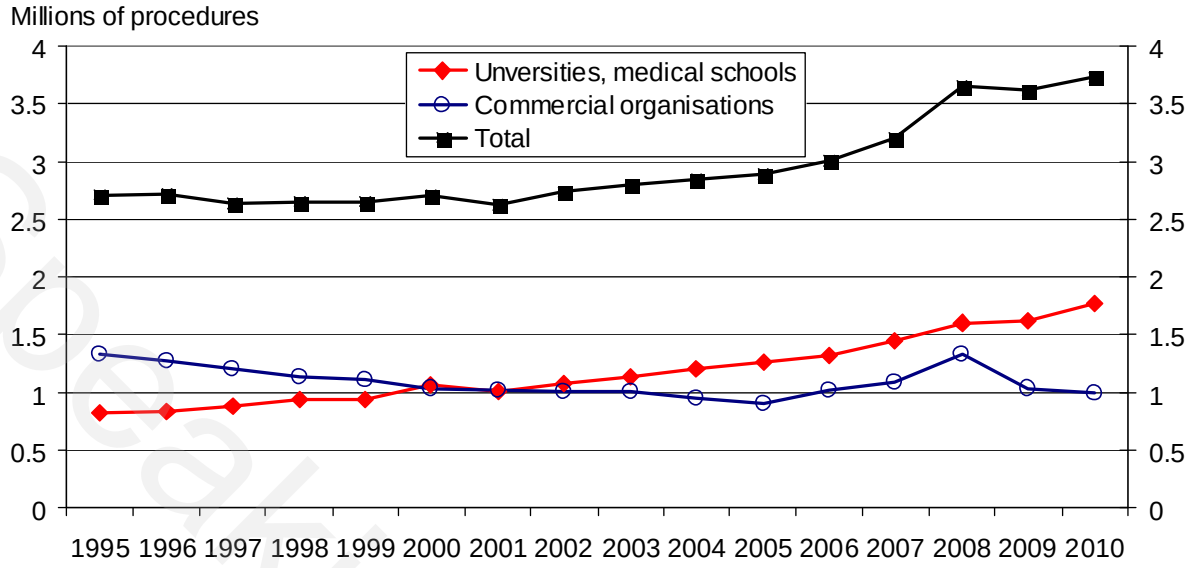
In 2010 commercial organizations accounted for 27% of the 3.7 million procedures and 11% of 3,143 project licences for which returns were received; the corresponding figures for universities were 48% and 73% respectively.

(online Time Series Table 23)
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 and fell further to 989,000 in 2010 (-4%).

The number of procedures carried out in the university sector has been increasing fairly steadily since the end of the 1980s, and increased again in 2010 (to 1.77 million, +10%).

The difference in trends between the commercial sector and the university sector is likely to reflect the increase in fundamental research using GM animals within universities, as well as the trend for lower numbers of procedures for toxicological purposes (with an increasing proportion of such procedures used to meet more than one requirement).

Figure 9 Procedures by establishment type 1995-2010



International comparisons (Table 1a and Commission report[1] Tables 1.0 and 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 is for 2008[2], of which some of the key points are:

- Based on the latest internationally comparable data, the total number of animals used for experiments in the 27 EU Member States in 20082 was just over 12.0 million. The total fell 1.7% compared with 2005 for the EU25 Member States .
- In France, the UK and Germany there were experiments using 2.33 million animals, 2.27 million animals, and 2.02 million animals respectively.
- No apes were used in experiments anywhere in the EU in 2008. A total of 9,569 non-human primates were used in experiments across the EU27; a third (35% or 3,354) of which were used in the UK.

The full report is available on the Commission's website http://ec.europa.eu/environment/chemicals/lab_animals/reports_en.htm.

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

[2] data for France related to 2007

Returns, Project licensees and designated places

(Appendix A Table 19)
Statistical returns are required each year from every person who holds a project licence for part or all of the year. For 2010 there were 3,143 licensees providing returns reporting either starting procedures (2,476 licensees, of which 14 reported only 'non-countable' procedures[1]) or reporting none (667 licensees).

There were 2,614 project licences in force at the end of 2010 compared with 2,658 at the end of 2009, following falls in most of the last few years. Similarly the number of certificates of designation in force authorizing places where work is carried out was 188 at the end of 2010 compared with 190 at the end of 2009, again after falls in recent years. The number of personal licences in force continued to increase, to 15,721 at the end of 2010, compared with 15,492 at the end of 2009.

Further information

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

Information about the Animal Procedures Committee can be found at
http://www.homeoffice.gov.uk/agencies-public-bodies/apc/

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

Information on public attitudes to animal testing is available from MORI at http://www.ipsos-mori.com/researchspecialisms/socialresearch/specareas/nhspublichealth/attitudestowardsanimalexperimentation.aspx

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

Tables

Form Notes, and detailed table notes providing details of the terms and classifications used ('User Guide to Home Office Statistics of Scientific Procedures on Living Animals'), and the '**Supplementary Tables**' and '**Time Series Tables**', can be found on the website at: http://homeoffice.gov.uk/science-research/research-statistics/science/

Definitions

All tables refer to numbers of scientific procedures started on adult animals in 2010, 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

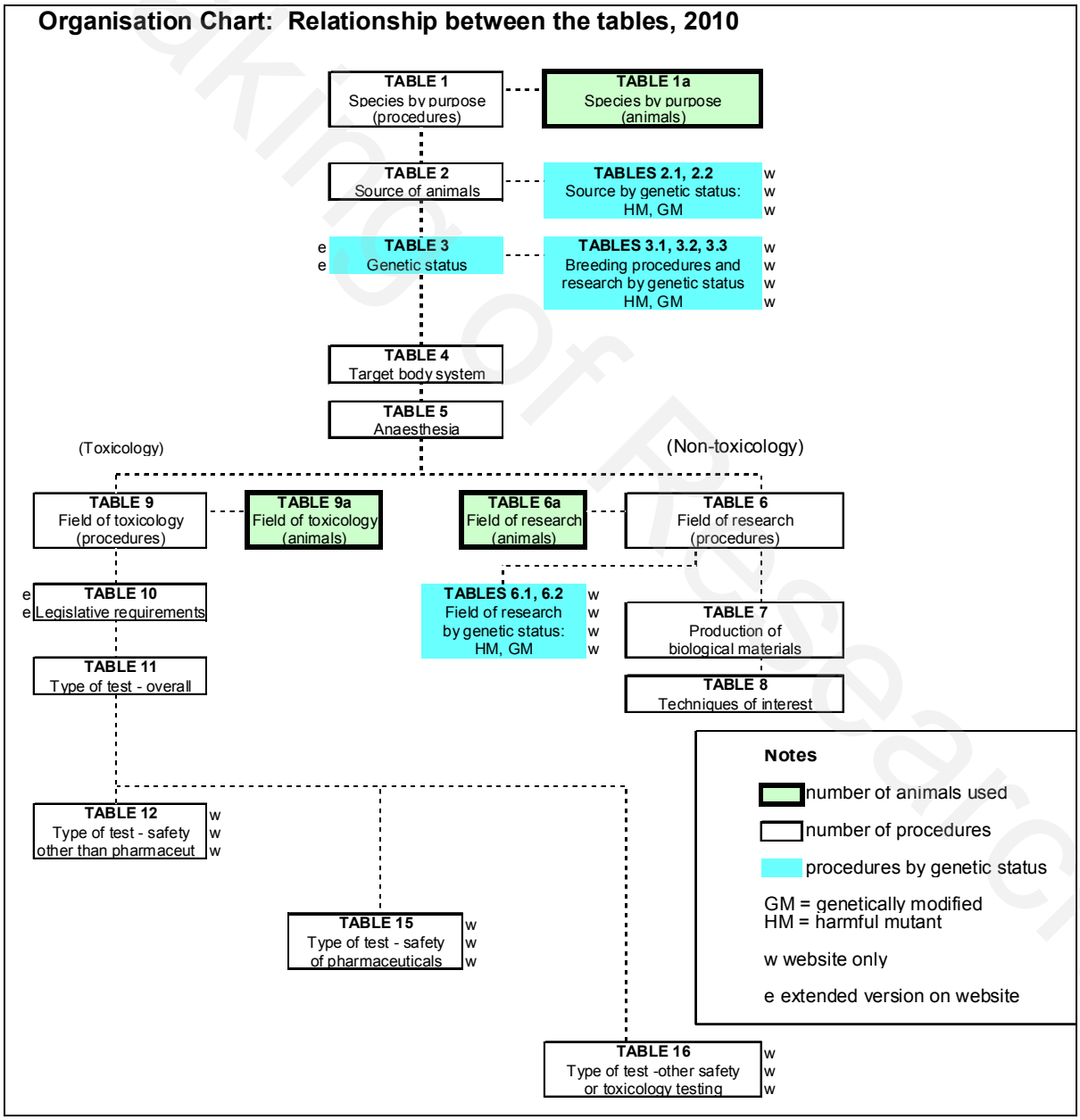


Table 1 Scientific procedures by species of animal and primary purpose of the procedure, page 1 of 2

Great Britain 2010 **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	832,801	322,304	12,515	21,340	953	-	-	4,103	1,476,051	**2,670,067**
Rat	90,530	165,822	101	33,810	654	677	-	6	13,539	**305,139**
Guinea pig	1,336	10,736	1,263	39	96	-	-	190	-	**13,660**
Hamster	853	2,751	478	61	-			-	-	**4,143**
Gerbil	560	-	-	-	-	-	-	-	-	**560**
Other rodent	909	5	64	566	-	-	-	-	-	**1,544**
Rabbit	1,310	8,463	2,239	1,191	12	-	-	1,574	44	**14,833**
Cat	13	-	174	-	-	-	-	-	-	**187**
Dog										
Beagle	285	5,235	82	93	-	-	-	-	-	**5,695**
Greyhound	-	-	-	-	-	-	-	-	-	**-**
Other including cross-bred dogs	-	-	86	1	-	-	-	-	-	**87**
Ferret	317	454	2	-	13	-	-	6	-	**792**
Other carnivore	374	-	75	322	-	-	-	-	-	**771**
Horse and other equids	130	2	151	32	-	-	-	8,009	-	**8,324**
Pig	923	1,168	1,075	9	-	-	-	-	-	**3,175**
Goat	1	2	4	10	-	-	-	10	-	**27**
Sheep	4,548	794	1,431	24	-	-	-	30,862	136	**37,795**
Cattle	2,433	45	974	121	6	-	-	6	-	**3,585**
Deer	59	-	-	3	-	-	-	-	-	**62**
Camelid	13	20	-	-	-	-	-	-	-	**33**
Other ungulate	-	-	-	11	-	-	-	-	-	**11**

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

Great Britain 2010 **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	289	814	-	-	-	-	-	-	-	**1,103**
Squirrel, owl, spider monkey	-	-	-	-	-	-	-	-	-	-
Other New World monkey	-	-	-	-	-	-	-	-	-	**-**
Old World monkey										
Macaque	270	2,894	4	417	-	-	-	-	-	**3,585**
Baboon	-	-	-	-	-	-	-	-	-	**-**
Other Old World monkey	-	-	-	-	-	-	-	-	-	**-**
Ape										
Gibbon	-	-	-	-	-	-	-	-	-	**-**
Great ape	-	-	-	-	-	-	-	-	-	**-**
Other mammal	812	-	-	402	-	-	-	-	-	**1,214**
Bird										
Domestic fowl (*Gallus domesticus*)	7,022	884	119,570	198	66	-	-	1,290	890	**129,920**
Turkey	448	191	1,696	25	-	-	-	186	-	**2,546**
Quail (*Coturnix coturnix*)	-	-	-	-	-	-	-	-	-	**-**
Quail (not *Coturnix coturnix*)	426	-	-	359	-	-	-	-	-	**785**
Other bird	7,756	-	-	562	-	-	-	465	-	**8,783**
Reptile - any reptilian species	860	-	29	-	-	-	-	-	-	**889**
Amphibian - any amphibian species	12,516	-	-	513	-	-	-	-	1,438	**14,467**
Fish - any fish species	326,709	804	18,469	15,688	360	-	-	-	128,914	**490,944**
Cephalopod - *Octopus vulgaris*	-	-	-	-	-	-	-	-	-	**-**
Total	**1,294,503**	**523,388**	**160,482**	**75,797**	**2,160**	**677**	**-**	**46,707**	**1,621,012**	**3,724,726**
Increase on 2009	120,211	-119,474	19,612	2,922	457	-11	0	-5,629	87,098	105,186
Percentage change from 2009	10%	-19%	14%	4%	27%	-2%	N/A	-11%	6%	3%
Percentage of total for 2010	35%	14%	4%	2%	0.1%	0.0%	0%	1%	44%	100%
2009 Totals	1,174,292	642,862	140,870	72,875	1,703	688	0	52,336	1,533,914	3,619,540

N/A = Not applicable

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

Great Britain 2010 **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	825,799	320,251	12,515	21,310	953	-	-	4,103	1,474,560	**2,659,491**
Rat	81,508	163,610	101	33,810	654	677	-	6	13,539	**293,905**
Guinea pig	1,336	10,714	1,263	39	96	-	-	138	-	**13,586**
Hamster	853	2,732	478	61	-	-	-	-	-	**4,124**
Gerbil	560	-	-	-	-	-	-	-	-	**560**
Other rodent	909	5	64	566	-	-	-	-	-	**1,544**
Rabbit	960	5,129	1,286	1,191	12	-	-	1,516	44	**10,138**
Cat	13	-	139	-	-	-	-	-	-	**152**
Dog										
Beagle	90	3,451	74	89	-	-	-	-	-	**3,704**
Greyhound	-	-	-	-	-	-	-	-	-	**-**
Other including cross-bred dogs	-	-	22	1	-	-	-	-	-	**23**
Ferret	317	389	2	-	13	-	-	6	-	**727**
Other carnivore	374	-	17	322	-	-	-	-	-	**713**
Horse and other equids	33	2	106	11	-	-	-	21	-	**173**
Pig	923	1,058	741	9	-	-	-	-	-	**2,731**
Goat	1	2	2	10	-	-	-	10	-	**25**
Sheep	4,458	694	1,073	8	-	-	-	1,064	136	**7,433**
Cattle	1,060	45	896	121	0	-	-	2	-	**2,124**
Deer	59	-	-	3	-	-	-	-	-	**62**
Camelid	13	20	-	-	-	-	-	-	-	**33**
Other ungulate	-	-	-	11	-	-	-	-	-	**11**

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

Great Britain 2010 **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	209	465	-	-	-	-	-	-	-	**674**
Squirrel, owl, spider monkey	-	-	-	-	-	-	-	-	-	**-**
Other New World monkey	-	-	-	-	-	-	-	-	-	**-**
Old World monkey										
Macaque	175	1,506	0	294	-	-	-	-	-	**1,975**
Baboon	-	-	-	-	-	-	-	-	-	**-**
Other Old World monkey	-	-	-	-	-	-	-	-	-	**-**
Ape										
Gibbon	-	-	-	-	-	-	-	-	-	**-**
Great ape	-	-	-	-	-	-	-	-	-	**-**
Other mammal	812	-	-	357	-	-	-	-	-	**1,169**
Bird										
Domestic fowl (*Gallus domesticus*)	7,022	884	119,570	198	66	-	-	1,290	890	**129,920**
Turkey	448	23	1,696	25	-	-	-	70	-	**2,262**
Quail (*Coturnix coturnix*)	-	-	-	-	-	-	-	-	-	**-**
Quail (not *Coturnix coturnix*)	426	-	-	359	-	-	-	-	-	**785**
Other bird	7,547	-	-	562	-	-	-	109	-	**8,218**
Reptile - any reptilian species	860	-	29	-	-	-	-	-	-	**889**
Amphibian - any amphibian species	4,841	-	-	513	-	-	-	-	965	**6,319**
Fish - any fish species	326,040	804	17,773	15,688	360	-	-	-	128,382	**489,047**
Cephalopod - *Octopus vulgaris*	-	-	-	-	-	-	-	-	-	-
Total	**1,267,646**	**511,784**	**157,847**	**75,558**	**2,154**	**677**	**-**	**8,335**	**1,618,516**	**3,642,517**
Increase on 2009	116,083	-116,372	18,426	2,952	451	-11	0	-5,695	85,431	101,265
Percentage change from 2009	10%	-19%	13%	4%	26%	-2%	N/A	-41%	6%	3%
Percentage of total for 2010	35%	14%	4%	2%	0.1%	0.0%	0%	0.2%	44%	100%
2009 Totals	1,151,563	628,156	139,421	72,606	1,703	688	0	14,030	1,533,085	3,541,252

N/A = Not applicable

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

Great Britain 2010 **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	2,112,496	539,082	-	6,395	60	12,034	-	**2,670,067**
Rat	41,577	260,625	12	2,547	54	324	-	**305,139**
Guinea pig	188	13,472	-	-	-	-	-	**13,660**
Hamster	304	2,564	-	1,275	-	-	-	**4,143**
Gerbil	371	2	-	-	128	59	-	**560**
Rabbit	5,015	9,366	-	172	-	280	-	**14,833**
Cat	22	24	50	85	-	6	-	**187**
Dog	1,449	3,540	29	448	-	316	-	**5,782**
Ferret	60	732	-	-	-	-	-	**792**
Pig (genetically modified)	-	-	-	-	-	-	-	**-**
Sheep (genetically modified)	21	7	-	-	-	-	-	**28**
Primate	1,316	1,117	-	138	-	2,117	-	**4,688**
Quail *(Coturnix coturnix)*	-	-	-	-	-	-	-	**-**
Animals not listed in Schedule 2	-	-	-	-	-	-	704,847	**704,847**
Total	**2,162,819**	**830,531**	**91**	**11,060**	**242**	**15,136**	**704,847**	**3,724,726**
Increase on 2009	48,177	-45,769	-54	-141	-20	3,867	99,126	105,186
Percentage change from 2009	2%	-5%	-37%	-1%	-8%	34%	16%	3%
Percentage of total for 2010	58%	22%	0.0%	0.3%	0.0%	0.4%	19%	100%
2009 Totals	2,114,642	876,300	145	11,201	262	11,269	605,721	3,619,540

Note. The total number of procedures using animals listed in schedule 2 was 3,019,879

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 2010 **Number of procedures**

Species of animal	Genetic status			Total
	Normal animal	Animal with harmful genetic	Genetically modified animal	
Mammal				
Mouse	843,760	337,542	1,488,765	**2,670,067**
Rat	287,760	13,559	3,820	**305,139**
Guinea pig	13,660	-	-	**13,660**
Hamster	4,143	-	-	**4,143**
Gerbil	560	-	-	**560**
Other rodent	1,544	-	-	**1,544**
Rabbit	14,802	-	31	**14,833**
Cat	187	-	-	**187**
Dog				
Beagle	5,695	-	-	**5,695**
Greyhound	-	-	-	**-**
Other inc cross-breds	87	-	-	**87**
Ferret	792	-	-	**792**
Other carnivore	771	-	-	**771**
Horse and other equids	8,324	-	-	**8,324**
Pig	3,175	-	-	**3,175**
Goat	27	-	-	**27**
Sheep	37,767	-	28	**37,795**
Cattle	3,585	-	-	**3,585**
Deer	62	-	-	**62**
Camelid	33	-	-	**33**
Other ungulate	11	-	-	**11**
Primate				
Prosimian	-	-	-	**-**
New World monkey				
marmoset, tamarin	1,103	-	-	**1,103**
Squirrel, owl, spider monkey	-	-	-	**-**
Other New World monkey	-	-	-	**-**
Old World monkey				
Macaque	3,585	-	-	**3,585**
Baboon	-	-	-	**-**
Other Old World monkey	-	-	-	**-**
Ape				
Gibbon	-	-	-	**-**
Great ape	-	-	-	**-**
Other mammal	1,214	-	-	**1,214**
Bird				
Domestic fowl (*Gallus domesticus*)	129,086	382	452	**129,920**
Turkey	2,546	-	-	**2,546**
Quail (*Coturnix coturnix*)	-	-	-	**-**
Quail (not *Coturnix coturnix*)	785	-	-	**785**
Other bird	8,783	-	-	**8,783**
Reptile	889	-	-	**889**
Amphibian	12,713	1,044	710	**14,467**
Fish	335,030	47,554	108,360	**490,944**
Cephalopod	-	-	-	**-**
Total	**1,722,479**	**400,081**	**1,602,166**	**3,724,726**
Percentage of total for 2010	46%	11%	43%	100%

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

Great Britain 2010 **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	58,372	83,211	275,422	39,676	59,292	54,788	39,314	220,990	426,709	63,424	598,396	750,473	**2,670,067**
Rat	21,834	18,752	80,951	2,985	8,882	1,082	2,293	31,453	5,586	8,909	73,886	48,526	**305,139**
All other rodents	6,368	1,561	988	164	721	109	30	50	3,545	187	4,296	1,888	**19,907**
Rabbit	23	855	32	290	113	657	117	1,327	3,241	581	5,886	1,711	**14,833**
Cat	-	-	61	6	28	16	-	-	-	-	-	76	**187**
Dog	79	492	25	-	79	-	-	14	-	-	3,009	2,084	**5,782**
Ferret	244	13	8	55	-	-	-	-	71	-	257	144	**792**
Other carnivore	-	53	-	-	-	-	-	9	-	-	75	634	**771**
Horse and other equids	69	31	-	-	36	-	2	9	105	5,659	61	2,352	**8,324**
Pig	21	227	152	18	380	203	24	-	741	18	803	588	**3,175**
Sheep	73	71	348	-	650	119	451	599	1,652	27,501	3,463	2,868	**37,795**
All other ungulates	69	114	73	-	1,880	24	-	23	794	27	476	238	**3,718**
Primate													
New World monkey	-	103	80	-	-	-	-	44	4	-	114	758	**1,103**
Old World monkey	84	104	81	16	-	-	-	-	8	75	1,496	1,721	**3,585**
All other mammals	-	-	138	17	-	319	-	-	-	-	8	732	**1,214**
Bird	201	1,470	986	450	6,753	70	25	359	3,251	105,482	14,741	8,246	**142,034**
Reptile	-	-	-	-	29	-	-	-	-	860	-	-	**889**
Amphibian	-	78	123	14	-	332	369	10,148	269	-	2,204	930	**14,467**
Fish	10	14,176	17,222	12,334	3,960	5,419	9,161	56,270	20,062	25,447	185,473	141,410	**490,944**
Total	**87,447**	**121,311**	**376,690**	**56,025**	**82,803**	**63,138**	**51,786**	**321,295**	**466,038**	**238,170**	**894,644**	**965,379**	**3,724,726**
Increase on 2009	-5,010	10,141	-20,330	4,333	-8,329	-5,728	-20,210	24,520	-17,561	11,321	139,749	-7,710	105,186
Percentage change from 2009	-5%	9%	-5%	8%	-9%	-8%	-28%	8%	-4%	5%	19%	-1%	3%
Percentage of total for 2010	2%	3%	10%	2%	2%	2%	1%	9%	13%	6%	24%	26%	100%
2009 Totals	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

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

Great Britain 2010 **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	1,940,626	387,768	193,419	94,711	53,543	**2,670,067**
Rat	157,277	94,545	1,183	27,158	24,976	**305,139**
All other rodents	10,232	5,132	199	3,086	1,258	**19,907**
Rabbit	7,975	752	2,626	1,729	1,751	**14,833**
Cat	96	68	16	-	7	**187**
Dog	4,589	359	276	328	230	**5,782**
Ferret	65	672	-	36	19	**792**
Other carnivore	205	566	-	-	-	**771**
Horse and other equids	218	-	8,106	-	-	**8,324**
Pig	2,326	488	-	18	343	**3,175**
Sheep	36,546	1,051	79	83	36	**37,795**
All other ungulates	3,535	62	104	14	3	**3,718**
Primate						
New World monkey	819	118	-	-	166	**1,103**
Old World monkey	3,145	361	-	52	27	**3,585**
All other mammals	855	4	342	-	13	**1,214**
Bird	42,216	352	-	98,583	883	**142,034**
Reptile	889	-	-	-	-	**889**
Amphibian	13,664	687	-	-	116	**14,467**
Fish	343,008	129,479	-	6,539	11,918	**490,944**
Total	**2,568,286**	**622,464**	**206,350**	**232,337**	**95,289**	**3,724,726**
Increase on 2009	154,441	2,398	-36,981	-24,809	10,137	105,186
Percentage change from 2009	6%	0%	-15%	-10%	12%	3%
Percentage of total for 2010	69%	17%	6%	6%	3%	100%
2009 Totals	2,413,845	620,066	243,331	257,146	85,152	3,619,540

Note. Neuromuscular blocking agents (NMBA) were used in 3,120 procedures in 2010. 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 2010 **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	247,839	322,369	39,198	36,686	68,332	444,491	37,111	27,408	46,814	136,093	19,080	10,663	727
Rat	5,056	32,615	681	12,145	2,216	3,538	951	530	25,432	78,273	2,210	5,602	1,067
Guinea pig	30	235	8	-	10	136	581	2	2,138	5,112	52	-	-
Hamster	-	188	-	-	30	224	1,465	227	-	-	254	42	-
Gerbil	-	10	-	-	-	18	188	331	-	-	13	-	-
Other rodent	-	8	-	-	57	-	142	73	-	5	-	-	-
Rabbit	18	541	300	-	36	1,397	508	65	98	1,641	142	39	-
Cat	-	61	-	-	-	-	-	4	-	-	6	-	-
Dog													
Beagle	-	-	-	-	-	-	-	-	-	871	-	-	-
Greyhound	-	-	-	-	-	-	-	-	-	-	-	-	-
Other including cross-bred dogs	-	-	-	-	-	-	-	-	-	-	-	-	-
Ferret	7	39	-	17	-	121	552	-	13	12	-	-	-
Other carnivore	-	-	-	9	-	-	-	-	30	-	-	-	-
Horse and other equids	-	38	-	-	-	95	8,088	-	32	-	2	31	-
Pig	34	87	-	169	23	231	304	-	59	65	236	80	56
Goat	-	1	-	-	-	14	-	-	-	2	-	-	-
Sheep	129	724	240	100	321	707	30,303	721	-	142	109	221	99
Cattle	-	73	-	-	-	673	82	199	8	-	-	-	-
Deer	-	-	-	-	-	-	-	-	-	-	-	-	-
Camelid	-	-	-	-	-	33	-	-	-	-	-	-	-
Other ungulate	-	-	-	11	-	-	-	-	-	-	-	-	-

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

Great Britain 2010 **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	-	96	9	27	13	98	-	-	50	606	16	-	-
Squirrel, owl, spider monkey	-	-	-	-	-	-	-	-	-	-	-	-	-
Other New World monkey	-	-	-	-	-	-	-	-	-	-	-	-	-
Old World monkey													
Macaque	6	43	14	67	-	59	101	-	-	375	-	-	8
Baboon	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Old World monkey	-	-	-	-	-	-	-	-	-	-	-	-	-
Ape													
Gibbon	-	-	-	-	-	-	-	-	-	-	-	-	-
Great ape	-	-	-	-	-	-	-	-	-	-	-	-	-
Other mammal	-	13	-	-	-	240	-	-	138	-	-	-	-
Bird													
Domestic fowl (*Gallus domesticus*)	724	576	15	576	-	780	7,064	100,675	-	480	-	832	-
Turkey	-	-	-	-	-	-	666	162	-	628	-	-	-
Quail (*Coturnix coturnix*)	-	-	-	-	-	-	-	-	-	-	-	-	-
Quail (spp. other than *Coturnix coturnix*)	-	159	-	66	-	-	-	-	-	-	-	-	-
Other bird	26	42	-	250	-	452	208	-	-	-	-	-	-
Reptile - any reptilian species	-	-	-	-	-	-	-	29	-	-	-	-	-
Amphibian - any amphibian species	8,822	601	768	-	-	-	1,895	-	18	350	-	-	-
Fish -any fish species	121,599	130,894	-	1,588	5,181	16,755	10,496	4,887	1,961	1,024	-	-	-
Cephalopod - Octopus vulgaris	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	**384,290**	**489,413**	**41,233**	**51,711**	**76,219**	**470,062**	**100,705**	**135,313**	**76,791**	**225,679**	**22,120**	**17,510**	**1,957**
Increase on 2009	6,913	136,746	-1,254	-5,756	7,079	10,163	7,658	11,959	13,874	-56,744	8,514	3,088	286
Percentage change from 2009	2%	39%	-3%	-10%	10%	2%	8%	10%	22%	-20%	63%	21%	17%
Percentage of total for 2010	12%	15%	1%	2%	2%	14%	3%	4%	2%	7%	1%	0.5%	0.1%
2009 Totals	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

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

Great Britain 2010 **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	114	296,663	165,659	422,441	2,839	-	-	2,852	-	160	176,391	-	129	**2,504,059**
Rat	-	1,026	3,021	5,049	1,695	-	5	-	-	150	4,183	-	40	**185,485**
Guinea pig	-	-	-	-	-	-	-	-	-	-	-	-	-	**8,304**
Hamster	-	-	-	40	-	-	-	-	-	-	-	-	-	**2,470**
Gerbil	-	-	-	-	-	-	-	-	-	-	-	-	-	**560**
Other rodent	-	-	-	-	512	-	-	-	597	-	-	-	-	**1,394**
Rabbit	-	14	-	4	-	-	2	2	-	-	2	-	-	**4,809**
Cat	-	-	16	-	28	-	-	-	-	-	-	-	-	**115**
Dog														
Beagle	-	-	-	6	-	-	-	-	-	-	-	-	-	**877**
Greyhound	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Other including cross-bred dogs	-	-	-	-	60	-	-	-	-	1	-	-	-	**61**
Ferret	-	-	-	-	-	-	-	-	-	-	-	-	-	**761**
Other carnivore	-	-	-	-	-	112	-	-	568	7	-	-	-	**726**
Horse and other equids	-	-	-	-	-	-	-	-	-	-	-	-	-	**8,286**
Pig	-	-	-	-	35	-	-	152	-	53	-	-	-	**1,584**
Goat	-	-	-	-	-	-	-	-	-	-	-	-	-	**17**
Sheep	-	242	-	146	39	-	-	2,427	-	330	455	-	-	**37,455**
Cattle	-	63	-	-	1,704	-	-	222	-	-	-	-	-	**3,024**
Deer	-	59	-	-	-	-	-	-	-	3	-	-	-	**62**
Camelid	-	-	-	-	-	-	-	-	-	-	-	-	-	**33**
Other ungulate	-	-	-	-	-	-	-	-	-	-	-	-	-	**11**

(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 2010 **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	-	16	4	-	-	-	-	-	-	-	-	-	-	**935**
Squirrel, owl, spider monkey	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Other New World monkey	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Old World monkey														
Macaque	-	-	-	-	-	-	-	-	-	-	-	-	-	**673**
Baboon	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Other Old World monkey	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Ape														
Gibbon	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Great ape	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Other mammal	-	98	4	-	-	-	-	-	693	28	-	-	-	**1,214**
Bird														
Domestic fowl (*Gallus domesticus*)	-	583	-	-	5,515	15	-	596	-	413	-	-	-	**118,844**
Turkey	-	-	-	-	-	-	-	-	-	18	-	-	-	**1,474**
Quail (*Coturnix coturnix*)	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Quail (spp. other than *Coturnix coturnix*)	-	-	-	-	-	201	-	-	-	-	-	-	-	**426**
Other bird	-	-	-	-	-	3,547	-	3	3,855	35	-	-	-	**8,418**
Reptile - any reptilian species	-	-	-	-	-	860	-	-	-	-	-	-	-	**889**
Amphibian - any amphibian species	-	73	87	1,281	-	-	2	-	538	32	-	-	-	**14,467**
Fish - any fish species	-	47,152	4,270	12,907	2,803	1,361	-	127	63,014	-	-	-	80	**426,099**
Cephalopod - *Octopus vulgaris*	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Total	**114**	**345,989**	**173,061**	**441,874**	**15,230**	**6,096**	**9**	**6,381**	**69,265**	**1,230**	**181,031**	**-**	**249**	**3,333,532**
Increase on 2009	49	-21,117	3,312	8,669	5,030	-1,916	-22	-992	-20,097	-108	36,965	0	-261	152,038
Percentage change from 2009	75%	-6%	2%	2%	49.3%	-24%	-71%	-13%	-22%	-8%	26%	N/A	-51%	5%
Percentage of total for 2010	0.0%	10%	5%	13%	0.5%	0.2%	0.0%	0.2%	2%	0.0%	5%	0%	0.0%	100%
2009 Totals	65	367,106	169,749	433,205	10,200	8,012	31	7,373	89,362	1,338	144,066	0	510	3,181,494

(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 2010 **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	246,953	321,489	39,125	36,472	67,911	440,738	37,091	27,376	46,217	133,945	19,080	10,520	727
Rat	5,056	32,591	681	11,417	2,160	3,538	951	418	25,182	69,430	2,144	5,256	1,067
Guinea pig	30	235	8	-	10	136	529	2	2,138	5,090	52	-	-
Hamster	-	188	-	-	30	224	1,465	227	-	-	254	42	-
Gerbil	-	10	-	-	-	18	188	331	-	-	13	-	-
Other rodent	-	8	-	-	57	-	142	73	-	5	-	-	-
Rabbit	18	533	3	-	36	1,397	450	9	98	1,641	133	39	-
Cat	-	41	-	-	-	-	-	4	-	-	6	-	-
Dog													
Beagle	-	-	-	-	-	-	-	-	-	213	-	-	-
Greyhound	-	-	-	-	-	-	-	-	-	-	-	-	-
Other including cross-bred dogs	-	-	-	-	-	-	-	-	-	-	-	-	-
Ferret	7	39	-	17	-	121	490	-	13	9	-	-	-
Other carnivore	-	-	-	9	-	-	-	-	1	-	-	-	-
Horse and other equids	-	29	-	-	-	8	85	-	11	-	2	-	-
Pig	34	87	-	169	23	185	304	-	59	65	224	80	56
Goat	-	1	-	-	-	12	-	-	-	2	-	-	-
Sheep	129	713	237	100	321	92	762	721	-	57	104	221	99
Cattle	-	38	-	-	-	572	82	175	8	-	-	-	-
Deer	-	-	-	-	-	-	-	-	-	-	-	-	-
Camelid	-	-	-	-	-	33	-	-	-	-	-	-	-
Other ungulate	-	-	-	11	-	-	-	-	-	-	-	-	-

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

Great Britain 2010 **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	-	73	-	27	13	52	-	-	50	340	16	-	-
Squirrel, owl, spider monkey	-	-	-	-	-	-	-	-	-	-	-	-	-
Other New World monkey	-	-	-	-	-	-	-	-	-	-	-	-	-
Old World monkey													
Macaque	6	23	4	29	-	40	89	-	-	64	-	-	4
Baboon	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Old World monkey	-	-	-	-	-	-	-	-	-	-	-	-	-
Ape													
Gibbon	-	-	-	-	-	-	-	-	-	-	-	-	-
Great ape	-	-	-	-	-	-	-	-	-	-	-	-	-
Other mammal	-	13	-	-	-	240	-	-	138	-	-	-	-
Bird													
Domestic fowl (Gallus domesticus)	724	576	15	576	-	780	7,064	100,675	-	480	-	832	-
Turkey	-	-	-	-	-	-	510	162	-	500	-	-	-
Quail (Coturnix coturnix)	-	-	-	-	-	-	-	-	-	-	-	-	-
Quail (spp,other than Coturnix coturnix)	-	159	-	66	-	-	-	-	-	-	-	-	-
Other bird	-	42	-	168	-	109	195	-	-	-	-	-	-
Reptile - any reptilian species	-	-	-	-	-	-	-	29	-	-	-	-	-
Amphibian - any amphibian species	2,931	165	218	-	-	-	1,895	-	18	44	-	-	-
Fish - any fish species	121,067	130,894	-	1,588	5,181	16,755	10,496	4,887	1,961	1,024	-	-	-
Cephalopod - *Octopus vulgaris*	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	**376,955**	**487,947**	**40,291**	**50,649**	**75,742**	**465,050**	**62,788**	**135,089**	**75,894**	**212,909**	**22,028**	**16,990**	**1,953**

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

Great Britain 2010 **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	114	296,459	165,453	421,486	2,839	-	-	2,852	-	160	176,391	-	129	**2,493,527**
Rat	-	1,026	3,021	5,029	1,695	-	5	-	-	150	4,183	-	40	**175,040**
Guinea pig	-	-	-	-	-	-	-	-	-	-	-	-	-	**8,230**
Hamster	-	-	-	40	-	-	-	-	-	-	-	-	-	**2,470**
Gerbil	-	-	-	-	-	-	-	-	-	-	-	-	-	**560**
Other rodent	-	-	-	-	512	-	-	-	597	-	-	-	-	**1,394**
Rabbit	-	14	-	4	-	-	2	2	-	-	2	-	-	**4,381**
Cat	-	-	16	-	18	-	-	-	-	-	-	-	-	**85**
Dog														
Beagle	-	-	-	-	-	-	-	-	-	-	-	-	-	**213**
Greyhound	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Other including cross-bred dogs	-	-	-	-	11	-	-	-	-	1	-	-	-	**12**
Ferret	-	-	-	-	-	-	-	-	-	-	-	-	-	**696**
Other carnivore	-	-	-	-	-	112	-	-	568	7	-	-	-	**697**
Horse and other equids	-	-	-	-	-	-	-	-	-	-	-	-	-	**135**
Pig	-	-	-	-	35	-	-	152	-	53	-	-	-	**1,526**
Goat	-	-	-	-	-	-	-	-	-	-	-	-	-	**15**
Sheep	-	242	-	146	39	-	-	2,335	-	330	455	-	-	**7,103**
Cattle	-	58	-	-	454	-	-	180	-	-	-	-	-	**1,567**
Deer	-	59	-	-	-	-	-	-	-	3	-	-	-	**62**
Camelid	-	-	-	-	-	-	-	-	-	-	-	-	-	**33**
Other ungulate	-	-	-	-	-	-	-	-	-	-	-	-	-	**11**

(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 2010 **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	-	16	-	-	-	-	-	-	-	-	-	-	-	**587**
Squirrel, owl, spider monkey	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Other New World monkey	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Old World monkey														
Macaque	-	-	-	-	-	-	-	-	-	-	-	-	-	**259**
Baboon	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Other Old World monkey	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Ape														
Gibbon	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Great ape	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Other mammal	-	98	4	-	-	-	-	-	648	28	-	-	-	**1,169**
Bird														
Domestic fowl (*Gallus domesticus*)	-	583	-	-	5,515	15	-	596	-	413	-	-	-	**118,844**
Turkey	-	-	-	-	-	-	-	-	-	18	-	-	-	**1,190**
Quail (*Coturnix coturnix*)	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Quail (spp,other than *Coturnix coturnix*)	-	-	-	-	-	201	-	-	-	-	-	-	-	**426**
Other bird	-	-	-	-	-	3,446	-	3	3,855	35	-	-	-	**7,853**
Reptile - any reptilian species	-	-	-	-	-	860	-	-	-	-	-	-	-	**889**
Amphibian - any amphibian species	-	39	87	383	-	-	1	-	538	-	-	-	-	**6,319**
Fish - any fish species	-	47,133	4,270	12,907	2,107	1,361	-	127	62,364	-	-	-	80	**424,202**
Cephalopod - *Octopus vulgaris*	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Total	**114**	**345,727**	**172,851**	**439,995**	**13,225**	**5,995**	**8**	**6,247**	**68,570**	**1,198**	**181,031**	**-**	**249**	**3,259,495**

(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 2010 **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	20,489	6,651	8,181	-	2,012	3,237	114,064	2,349,425	**2,504,059**
Rat	470	129	410	-	45	25	13,807	170,599	**185,485**
All other rodents	1,244	52	-	-	-	146	236	11,050	**12,728**
Rabbit	28	52	-	-	50	2,935	442	1,302	**4,809**
Cat	4	-	-	-	-	-	-	111	**115**
Dog	-	-	-	-	-	-	615	323	**938**
Ferret	-	-	-	-	-	105	317	339	**761**
Other carnivore	-	-	-	-	-	-	53	673	**726**
Horse and other equids	-	-	-	-	-	-	5,693	2,593	**8,286**
Pigs, sheep & all other ungulates	637	-	-	-	25	1,182	29,004	11,338	**42,186**
Primate									
New World monkey	-	-	-	-	-	-	583	352	**935**
Old World monkey	-	-	-	-	-	5	265	403	**673**
All other mammals	-	-	-	-	-	-	-	1,214	**1,214**
Bird	99,138	-	-	-	12	527	2,144	27,341	**129,162**
Reptile, Amphibian	-	-	-	-	-	-	7,517	7,839	**15,356**
Fish	5,313	-	-	-	-	55	24,415	396,316	**426,099**
Total	**127,323**	**6,884**	**8,591**	**-**	**2,144**	**8,217**	**199,155**	**2,981,218**	**3,333,532**
Increase on 2009	3,494	-234	-3,283	0	-316	316	19,890	132,171	152,038
Percentage change from 2009	3%	-3%	-28%	N/A	-13%	4%	11%	5%	4.8%
Percentage of total for 2010	4%	0.2%	0.3%	0%	0.1%	0.2%	6%	89%	100%
2009 Totals	123,829	7,118	11,874	0	2,460	7,901	179,265	2,849,047	3,181,494

(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 2010 **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	572	5,044	4,946	-	21	7,448	-	-
Rat	115	9,384	19,624	24	1,054	240	-	-
Guinea pig	-	-	-	-	-	-	-	-
Hamster	-	-	-	-	-	-	-	-
Gerbil	-	-	-	-	-	-	-	-
Other rodent	-	8	-	-	-	-	-	-
Rabbit	-	653	498	-	40	-	-	-
Cat	-	-	-	-	-	-	-	-
Dog								
Beagle	-	64	-	-	-	-	-	-
Greyhound	-	-	-	-	-	-	-	-
Other including cross-bred dogs	-	-	-	-	-	-	-	-
Ferret	-	-	-	-	-	-	-	-
Other carnivore	-	-	-	-	-	-	-	-
Horse, donkey and cross-bred equids	-	-	-	-	-	-	-	-
Pig	-	9	-	-	-	-	-	-
Goat	-	8	-	-	-	-	-	-
Sheep	-	-	-	-	-	-	-	-
Cattle	-	21	-	-	-	-	-	-
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 2010 **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)	-	138	-	-	-	-	-	-
Turkey	-	25	-	-	-	-	-	-
Quail (Coturnix coturnix)	-	-	-	-	-	-	-	-
Quail (spp,other than Coturnix coturnix)	-	359	-	-	-	-	-	-
Other bird	73	292	-	-	-	-	-	-
Reptile - any reptilian species	-	-	-	-	-	-	-	-
Amphibian - any amphibian species	-	-	-	-	-	-	-	-
Fish - any fish species	7,662	972	2,036	-	-	-	-	-
Total	**8,422**	**16,977**	**27,104**	**24**	**1,115**	**7,688**	**-**	**-**
Increase on 2009	-7,404	-2,000	8,735	24	214	-342	0	0
Percentage change from 2009	-47%	-11%	48%	N/A	24%	-4%	N/A	N/A
Percentage of total for 2010	2%	4%	7%	0%	0.3%	2%	0%	0%
2009 Totals	15,826	18,977	18,369	0	901	8,030	0	0

(2) Following a decision in 1998, procedures using animals in research on finished cosmetics and on cosmetic ingredients have not been allowed.
N/A = Not applicable

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

Great Britain 2010 **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	38,688	7,872	83,311	9,198	1,500	-	477	5,070	1,861	**166,008**
Rat	68,169	242	1,290	12,985	733	-	130	3,483	2,181	**119,654**
Guinea pig	1,050	12	4,107	-	55	-	39	93	-	**5,356**
Hamster	1,089	438	-	120	-	-	-	24	2	**1,673**
Gerbil	-	-	-	-	-	-	-	-	-	**-**
Other rodent	-	-	-	-	-	-	-	-	142	**150**
Rabbit	4,665	87	3,456	99	-	-	356	147	23	**10,024**
Cat	62	10	-	-	-	-	-	-	-	**72**
Dog										
Beagle	3,396	57	-	1,211	-	-	2	83	5	**4,818**
Greyhound	-	-	-	-	-	-	-	-	-	**-**
Other including cross-bred dogs	-	26	-	-	-	-	-	-	-	**26**
Ferret	-	20	-	11	-	-	-	-	-	**31**
Other carnivore	-	45	-	-	-	-	-	-	-	**45**
Horse and other equids	-	17	2	19	-	-	-	-	-	**38**
Pig	585	842	-	116	-	-	-	39	-	**1,591**
Goat	-	-	-	2	-	-	-	-	-	**10**
Sheep	115	11	80	64	-	-	70	-	-	**340**
Cattle	4	345	12	173	-	-	-	-	6	**561**
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 2010 **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	61	-	-	-	-	-	-	105	2	**168**
Squirrel, owl, spider monkey	-	-	-	-	-	-	-	-	-	**-**
Other New World monkey	-	-	-	-	-	-	-	-	-	**-**
Old World monkey										
Macaque	1,641	-	6	733	-	-	-	532	-	**2,912**
Baboon	-	-	-	-	-	-	-	-	-	**-**
Other Old World monkey	-	-	-	-	-	-	-	-	-	**-**
Ape										
Gibbon	-	-	-	-	-	-	-	-	-	**-**
Great Ape	-	-	-	-	-	-	-	-	-	**-**
Other mammal	-	-	-	-	-	-	-	-	-	**-**
Bird										
Domestic fowl (Gallus domesticus)	1,253	8,613	962	110	-	-	-	-	-	**11,076**
Turkey	495	528	-	24	-	-	-	-	-	**1,072**
Quail (Coturnix coturnix)	-	-	-	-	-	-	-	-	-	**-**
Quail (spp,other than Coturnix coturnix)	-	-	-	-	-	-	-	-	-	**359**
Other bird	-	-	-	-	-	-	-	-	-	**365**
Reptile - any reptilian species	-	-	-	-	-	-	-	-	-	**-**
Amphibian - any amphibian species	-	-	-	-	-	-	-	-	-	**-**
Fish - any fish species	638	7,227	-	60	35,568	-	-	10,682	-	**64,845**
Total	**121,911**	**26,392**	**93,226**	**24,925**	**37,856**	**-**	**1,074**	**20,258**	**4,222**	**391,194**
Increase on 2009	-34,580	-19,190	-17,856	-5,603	33,491	0	-367	-2,626	652	-46,852
Percentage change from 2009	-22%	-42%	-16%	-18%	767%	N/A	-25%	-11%	18%	-11%
Percentage of total for 2010	31%	7%	24%	6%	10%	0%	0.3%	5%	1%	100%
2009 Totals	156,491	45,582	111,082	30,528	4,365	0	1,441	22,884	3,570	438,046

(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 2010 **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	572	5,044	4,946	-	21	7,448	-	-
Rat	115	9,384	19,624	24	1,054	240	-	-
Guinea pig	-	-	-	-	-	-	-	-
Hamster	-	-	-	-	-	-	-	-
Gerbil	-	-	-	-	-	-	-	-
Other rodent	-	8	-	-	-	-	-	-
Rabbit	-	653	498	-	40	-	-	-
Cat	-	-	-	-	-	-	-	-
Dog								
Beagle	-	64	-	-	-	-	-	-
Greyhound	-	-	-	-	-	-	-	-
Other including cross-bred dogs	-	-	-	-	-	-	-	-
Ferret	-	-	-	-	-	-	-	-
Other carnivore	-	-	-	-	-	-	-	-
Horse and other equids	-	-	-	-	-	-	-	-
Pig	-	9	-	-	-	-	-	-
Goat	-	8	-	-	-	-	-	-
Sheep	-	-	-	-	-	-	-	-
Cattle	-	21	-	-	-	-	-	-
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 2010 **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*)	-	138	-	-	-	-	-	-
Turkey	-	25	-	-	-	-	-	-
Quail (*Coturnix coturnix*)	-	-	-	-	-	-	-	-
Quail (spp,other than *Coturnix coturnix*	-	359	-	-	-	-	-	-
Other bird	73	292	-	-	-	-	-	-
Reptile - any reptilian species	-	-	-	-	-	-	-	-
Amphibian - any amphibian species	-	-	-	-	-	-	-	-
Fish - any fish species	7,662	972	2,036	-	-	-	-	-
Cephalopod - *Octopus vulgaris*	-	-	-	-	-	-	-	-
Total	**8,422**	**16,977**	**27,104**	**24**	**1,115**	**7,688**	**-**	**-**

(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 2010 **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	38,688	7,872	83,311	9,198	1,500	-	477	5,026	1,861	**165,964**
Rat	67,456	242	1,290	12,985	733	-	130	3,408	2,180	**118,865**
Guinea pig	1,050	12	4,107	-	55	-	39	93	-	**5,356**
Hamster	1,089	438	-	120	-	-	-	5	2	**1,654**
Gerbil	-	-	-	-	-	-	-	-	-	**-**
Other rodent	-	-	-	-	-	-	-	-	142	**150**
Rabbit	2,836	87	1,280	99	-	-	240	1	23	**5,757**
Cat	57	10	-	-	-	-	-	-	-	**67**
Dog										
Beagle	3,155	49	-	183	-	-	2	34	4	**3,491**
Greyhound	-	-	-	-	-	-	-	-	-	**-**
Other including cross-bred dogs	-	11	-	-	-	-	-	-	-	**11**
Ferret	-	20	-	11	-	-	-	-	-	**31**
Other carnivore	-	16	-	-	-	-	-	-	-	**16**
Horse and other equids	-	17	2	19	-	-	-	-	-	**38**
Pig	544	554	-	76	-	-	-	22	-	**1,205**
Goat	-	-	-	2	-	-	-	-	-	**10**
Sheep	113	5	78	64	-	-	70	-	-	**330**
Cattle	4	345	12	173	-	-	-	-	2	**557**
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 2010 **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	47	-	-	-	-	-	-	40	-	**87**
Squirrel, owl, spider monkey	-	-	-	-	-	-	-	-	-	**-**
Other New World monkey	-	-	-	-	-	-	-	-	-	**-**
Old World monkey										
Macaque	1,233	-	-	150	-	-	-	333	-	**1,716**
Baboon	-	-	-	-	-	-	-	-	-	**-**
Other Old World monkey	-	-	-	-	-	-	-	-	-	**-**
Ape										
Gibbon	-	-	-	-	-	-	-	-	-	**-**
Great Ape	-	-	-	-	-	-	-	-	-	**-**
Other mammal	-	-	-	-	-	-	-	-	-	**-**
Bird										
Domestic fowl (Gallus domesticus)	1,253	8,613	962	110	-	-	-	-	-	**11,076**
Turkey	495	528	-	24	-	-	-	-	-	**1,072**
Quail (Coturnix coturnix)	-	-	-	-	-	-	-	-	-	**-**
Quail (spp,other than Coturnix coturnix)	-	-	-	-	-	-	-	-	-	**359**
Other bird	-	-	-	-	-	-	-	-	-	**365**
Reptile - any reptilian species	-	-	-	-	-	-	-	-	-	**-**
Amphibian - any amphibian species	-	-	-	-	-	-	-	-	-	**-**
Fish - any fish species	638	7,227	-	60	35,568	-	-	10,682	-	**64,845**
Cephalopod - *Octopus vulgaris*	-	-	-	-	-	-	-	-	-	**-**
Total	**118,658**	**26,046**	**91,042**	**23,274**	**37,856**	**-**	**958**	**19,644**	**4,214**	**383,022**

(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 2010 **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	1,048	-	14,179	17	2,745	139,136	8,883	**166,008**
Rat	576	-	1,650	15	463	107,871	9,079	**119,654**
All other rodents	94	-	1,197	-	644	5,033	211	**7,179**
Rabbit	243	-	3,241	5	92	6,241	202	**10,024**
Cat	-	-	60	-	-	12	-	**72**
Dog	26	-	82	24	4	4,108	600	**4,844**
Ferret	-	-	-	-	-	11	20	**31**
Other carnivore	45	-	-	-	-	-	-	**45**
Horse and other equids	-	-	19	-	-	19	-	**38**
Pigs, sheep & all other ungulates	-	14	866	-	103	1,458	61	**2,502**
Primate								
New World monkey	-	-	-	-	-	168	-	**168**
Old World monkey	-	-	-	-	-	2,859	53	**2,912**
All other mammals	-	-	-	-	-	-	-	**-**
Bird	73	-	3,368	-	24	9,300	107	**12,872**
Reptile / Amphibian	-	-	-	-	-	-	-	**-**
Fish	1,042	-	3,219	-	468	4,816	55,300	**64,845**
Total	**3,147**	**14**	**27,881**	**61**	**4,543**	**281,032**	**74,516**	**391,194**
Increase on 2009	-2,871	-64	-16,905	61	1,327	-16,089	-12,311	-46,852
Percentage change from 2009	-48%	-82%	-38%	N/A	41%	-5%	-14%	-11%
Percentage of total for 2010	1%	0.0%	7%	0%	1%	72%	19%	100%
2009 Totals	6,018	78	44,786	0	3,216	297,121	86,827	438,046

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 2010 **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	66,869	1,237	9,349	1,216	3,442	2,667	5,235	6,472	2,775	49
Rat	84	1,574	3,621	4,633	8,375	17,035	8,610	5,951	3,843	2,313
All other rodents	60	142	42	74	284	-	100	-	-	-
Rabbit	-	-	-	-	124	103	-	-	-	1,092
Cat	-	-	-	12	-	-	-	-	-	-
Dog	-	-	57	75	597	1,786	568	-	-	-
Ferret	-	-	-	-	-	-	-	-	-	-
Other carnivore	-	-	-	-	-	-	-	-	-	-
Horse and other equids	-	-	-	-	-	-	-	-	-	-
Pigs, sheep & all other ungulates	-	-	-	12	45	108	192	-	-	-
Primate										
New World monkey	-	-	-	-	-	59	-	-	-	-
Old World monkey	-	-	-	54	296	677	523	-	-	-
All other mammals	-	-	-	-	-	-	-	-	-	-
Bird	-	60	394	-	36	518	-	-	-	-
Reptile / Amphibian	-	-	-	-	-	-	-	-	-	-
Fish	42	4,023	2,009	-	324	835	1,460	-	-	-
Total	**67,055**	**7,036**	**15,472**	**6,076**	**13,523**	**23,788**	**16,688**	**12,423**	**6,618**	**3,454**
Increase on 2009	-13,146	-3,023	-26,395	120	1,301	1,791	2,159	1,857	-1,959	-1,912
Percentage change from 2009	-16%	-30%	-63%	2%	11%	8%	15%	18%	-23%	-36%
Percentage of total for 2010	17%	2%	4%	2%	3%	6%	4%	3%	2%	1%
2009 Totals	80,201	10,059	41,867	5,956	12,222	21,997	14,529	10,566	8,577	5,366

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

Great Britain 2010 **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	-	-	71	1,122	8,713	-	40	-	6,723	50,028	**166,008**
Rat	31,191	-	-	-	12,909	-	58	116	528	18,813	**119,654**
All other rodents	-	-	-	30	276	-	-	-	5	6,166	**7,179**
Rabbit	182	513	625	-	97	5,618	62	-	-	1,608	**10,024**
Cat	-	-	-	-	-	-	-	-	-	60	**72**
Dog	-	-	-	-	404	-	-	-	-	1,357	**4,844**
Ferret	-	-	-	-	-	-	-	-	-	31	**31**
Other carnivore	-	-	-	-	-	-	-	-	-	45	**45**
Horse and other equids	-	-	-	-	19	-	-	-	-	19	**38**
Pigs, sheep & all other ungulates	-	-	-	-	207	-	88	-	-	1,850	**2,502**
Primate											
New World monkey	-	-	-	-	-	-	-	-	-	109	**168**
Old World monkey	-	-	-	-	627	-	-	-	-	735	**2,912**
All other mammals	-	-	-	-	-	-	-	-	-	-	**-**
Bird	-	-	-	-	36	-	-	-	-	11,828	**12,872**
Reptile, amphibian	-	-	-	-	-	-	-	-	-	-	**-**
Fish	1,743	-	-	-	209	-	-	-	-	54,200	**64,845**
Total	**33,116**	**513**	**696**	**1,152**	**23,497**	**5,618**	**248**	**116**	**7,256**	**146,849**	**391,194**
Increase on 2009	-8,522	87	235	290	-1,413	-572	-275	-157	-963	3,645	-46,852
Percentage change from 2009	-20%	20%	51%	34%	-6%	-9%	-53%	-58%	-12%	2.5%	-11%
Percentage of total for 2010	8%	0.1%	0.2%	0.3%	6%	1%	0.1%	0.0%	2%	38%	100%
2009 Totals	41,638	426	461	862	24,910	6,190	523	273	8,219	143,204	438,046

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 2010 there were 15,721 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 2010, the number granted during 2010 and the number revoked during 2010 (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, 2010

Severity band	*In force on 31 December 2010*		*Granted during 2010*		*Revoked during 2010*	
	Number	%	Number	%	Number	%
Mild	931	36%	170	33%	192	36%
Moderate	1,578	60%	322	63%	307	58%
Substantial	54	2%	11	2%	10	2%
Unclassified	51	2%	12	2%	19	4%
Total	2,614		515		528	

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 188 certificates of designation in force on 31 December 2010. Of these, 186 were registered as user establishments, 119 as breeding establishments and 68 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 2010

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	3	1	1	3	1	1	0	3	13	2	6	21	7,252	*0%*
Universities, medical schools	382	188	236	242	152	106	80	416	1,802	5	487	2,294	1,773,270	*48%*
NHS hospitals	2	2	2	6	5	0	2	6	25	-	3	28	23,353	*1%*
Government departments	23	9	11	8	3	3	2	11	70	-	35	105	77,286	*2%*
Other public bodies	30	19	22	21	15	12	7	72	198	2	40	240	547,477	*15%*
Non-profit-making organisations	16	6	6	6	12	4	2	45	97	2	24	123	306,908	*8%*
Commercial organisations	35	14	25	25	24	12	18	104	257	3	72	332	989,180	*27%*
Total	491	239	303	311	212	138	111	657	2,462	14	667	3,143	3,724,726	*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.

Acknowledgements

This publication and the accompanying web tables have been prepared by staff in the Home Office Statistics unit of the Home Office Science Group. We are grateful for the support of colleagues in Policing Data Collection Section for data input, the Animals (Scientific Procedures) Inspectorate (ASPI) and colleagues in the licensing section of the Animals Scientific Procedures Division (ASPD), 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.

Further information available

Further information is available from the Internet site: http://homeoffice.gov.uk/science-research/research-statistics/science/ :-

- the 'User Guide to Home Office Statistics of Scientific Procedures on Living Animals' (a useful reference guide with explanatory notes for tables and classifications which are key to the production and presentation of the statistics).
- the 'Supplementary tables' and the 'Time Series Tables'.

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ISBN 978-0-10-297408-9