Home Office

BUILDING A SAFE, JUST AND TOLERANT SOCIETY

Statistics of Scientific Procedures on Living Animals Great Britain 2002

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HOME OFFICE

Statistics of Scientific Procedures on Living Animals

GREAT BRITAIN
2002

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STATISTICS OF SCIENTIFIC PROCEDURES ON LIVING ANIMALS GREAT BRITAIN 2002

INTRODUCTORY NOTES

1. The statistics in this publication relate to experiments or other scientific procedures on living animals which were subject to the provisions of the Animals (Scientific Procedures) Act 1986 during the year from 1 January 2002. The system of control under the 1986 Act is explained in detail in Appendix A. 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 Exemption granted under the Medicines Act 1968 are excluded from the controls of the 1986 Act. Statistics of scientific procedures on living animals are collected and published annually. They are structured to comply with European Union requirements, but the data provided are far more extensive than required by Europe.

Collection procedures

2. A return of scientific procedures is required each year from every person who holds a project licence for part or all of the year. The statistics are compiled from a detailed form returned by project licence holders at the end of each year, or on termination of the licence where this occurred during the year. A copy of the current form and the instructions relating to its completion can be found at Appendix B. This return, completed by each project licence holder, provides details of the species of animal used, the main purpose of the procedure and other details as described in paragraphs 12-19 below. In these statistics 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, this 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.

3. Licence holders are required, as a condition of their licence, to submit a return even if no work has been undertaken (nil returns). A list of licensees is drawn up by the licensing staff at the end of the year just prior to the start of the collection process, and a record is kept of all licensees from whom returns have been received so that those who fail to make a return can be reminded of their obligation under the Animals (Scientific Procedures) Act 1986. It is not always possible to obtain every single return even though failure to submit is likely to result in the licence being revoked.

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 per cent of all the returns expected, even though experience has shown that the missing returns are likely to be nil returns.

5. Details of the work of individual project licence holders are not identifiable in this publication.

Accuracy

6. Verification and subsequent publication of these statistics are done by the Research Development and Statistics Directorate (RDS) of the Home Office.

7. To complete the return, project licence holders were asked to classify their procedures. The current classification system dates from 1995 and was modified in 1999 in those areas relating to source of animals, production and breeding, toxicology and legislation. Fuller details are given in paragraphs 13, 14 (vii), 15, 16, 19 A (ii) and 19 B (ii) below. Licensees make returns by completing a form using specified codes. A full list of the codes used can be found in the copy of the form, at Appendix B. During the collection and verification process, forms that have been incorrectly coded are referred back to the licensees for correction. Incorrect coding might be either codes which are wrong (i.e. outside the appropriate code range for the particular row) or

which fail a cross-validation check (i.e. where two codes in different rows are incompatible).

8. Throughout the collection process and right up to the point of publication, the Animals (Scientific Procedures) Inspectorate (ASPI) scrutinise the returns and output tables to check that the returns are consistent with the terms of the licences which have been granted. This is done by means of special reports and tables, which are provided by RDS to ASPI. During this period Inspectors will contact licensees to discuss and confirm coding, and inform RDS of any amendments which may be necessary.

Description of statistical tables

9. Project licence holders were asked to answer 15 questions about the procedures performed (see form at Appendix B), 12 of which identify individual characteristics explained more fully in paragraphs 12-19 below. The flowchart on page 23 shows the relationship between the tables and the data in Part A.

10. Part B covers information on project licence holders, their place of employment and numbers of procedures.

11. Part C presents historical data for varying periods, depending on the table. For some tables, comparable figures are available only from 1995 onwards.

References to previous years' publications are given on page 88.

PART A TABLES - PROCEDURES IN 2002

The reorganisation of tables last year (2001) has been retained. As a result, previous tables 6, 7, 14 and 17 are no longer published. Although this leaves gaps in the table numbering, the existing numbering will be retained for the time being to preserve continuity from previous years.

Species of animal

12. All tables in Part A are classified by species of animal. The full classification is used in Tables 1, 5 and 10, but the other tables use a condensed classification. All the tables except 1a, 5a and 10a give the number of procedures. Tables 1a, 5a, and 10a give the actual number of animals used for the first, and usually only, time in 2002 classified according to their first use. The list of species or categories of animals is selective to avoid undue complications; when collective terms are used it is because previous experience suggests that the category will contain a relatively small number or because further breakdown is of little interest. In several of the tables, rows which are completely zero have been omitted and if a species is not mentioned it is because the row or rows pertaining to that species is blank.

Genetic status of animal

13. Tables 2 (source), 3 (genetic status), and 5 (non-toxicological work by field of research) are subdivided to give more information about animals with abnormal genetic constitutions. Table 2 shows procedures using all animals; Table 2.1 shows the number of procedures using animals with harmful (but naturally occurring) genetic defects and table 2.2 shows the number of procedures using genetically modified animals. Table 5 follows the same pattern. Table 3 is subdivided into three supplementary tables (3.1, 3.2 and 3.3) to present in detail the use of normal animals, animals with harmful mutations, and genetically modified animals respectively, in breeding programmes or research.

Primary purpose (Table 1)

14. The use of animals for regulated procedures is limited by section 5(3) of the Act to one of the following primary purposes:

(i) **fundamental biological research**; carried out with the primary intention of increasing knowledge of the structure, function and malfunction of man and other animals, or plants. Such studies may be aimed solely at an increase in knowledge, application of that knowledge being beyond the scope of the investigation, or with a view to providing a practical solution to a medical or veterinary problem once the issues are more clearly defined and understood. This category includes physiological, pathological, pharmacological, genetic and biochemical studies, including toxicological evaluation.

(ii) **applied studies - human medicine or dentistry, and veterinary medicine**; consisting of research into, development of and quality control of products or devices, including toxicological evaluation and safety or efficacy testing.

(iii) **protection of man, animals or the environment**; by toxicological or other safety or environmental evaluation. This category is intended to cater for toxicological work which is not related either to fundamental research or to the solution of medical and veterinary problems as such (see (i) and (ii) above), but also includes some non-toxicological procedures. This category is further divided into a number of subgroups (listed in Tables 10 and 10a). These are largely self-explanatory but the following notes may be helpful in understanding the figures:

(a) while any one substance may be used in industry or in the home, or may be an environmental pollutant, a herbicide or a pesticide, the project licence holder classifies the procedure in accordance with the particular context of the procedure and the expected primary use of the product;

(b) animal pesticides (as distinct from plant pesticides) are not included amongst the types of substances listed, because a substance intended to kill pests which infest or attack animals would be regarded as a veterinary product. These are included in the appropriate body-system group covered by primary purposes described in (ii) above;

(c) many of the procedures recorded under this category are required by UK law or by the laws and regulations of countries in which it is intended to use the substance concerned;

(d) the term 'food additives' covers substances deliberately added to food as preservatives, artificial colourants or flavouring agents but not studies on the nutritive value of food, accidental contamination or infection of food, or medicines administered to animals or humans in food.

(iv) **education and training;** these categories include procedures carried out under project licences for the purposes of education or training under the 1986 Act. They also include killing of animals by methods not included in Schedule 1 to the 1986 Act, if the killing takes place for educational purposes at a designated establishment. Such killing may be authorised to provide, for example, tissues subsequently used for education or training. The use of animals for the acquisition of manual skills is currently permitted only for training in microvascular surgery, and at present this is always carried out under general anaesthesia, without recovery.

(v) **forensic enquiries**; may refer to animal use in human or veterinary enquiries relevant to potential legal proceedings.

(vi) **direct diagnosis;** investigation of disease including investigating suspected poisoning. This caters for procedures carried out under the 1986 Act for the purpose of diagnosing disease in an individual human or animal patient or a group of such patients. There is no research function: these are essentially applied studies, predominantly involving the production of biological reagents, for example antibodies and clotting factors.

(vii) **breeding**; a category for recording the production and breeding of animals with harmful genetic defects, and genetically modified animals. The numbers recorded in this category include those animals which are identified as possessing a harmful mutation or are genetically modified, but not used subsequently on procedures which are recorded elsewhere in the tables. The numbers also include some genetically normal animals which were subjected to regulated procedures such as tissue sampling or hormonal administration for the purpose of regulated breeding programmes (see also Tables 3, 3.1, 3.2, 3.3).

Source of animals (Tables 2, 2.1, 2.2)

15. Sections 7 and 10(3) of the Act require, unless a specific exemption is granted, that certain animals, listed in Schedule 2 to the Act, be obtained from designated breeding or supplying establishments certified as such by the Secretary of State. The species so listed during 2001 were: mouse, rat, guinea-pig, hamster, gerbil, rabbit, cat, dog, ferret, primate and quail (*Coturnix coturnix*); also pigs (if genetically modified), and sheep (if genetically modified). Normal pigs and normal sheep remain outside the scope of this schedule. The source of these species is tabulated according to whether it is within the UK, within the remainder of the EU, within certain Council of Europe (but non-EU) countries who are signatories to convention ETS 123, or elsewhere. Animals which originate from non-designated sources, such as overseas breeding centres, but which are acquired by the project licence holder from a designated supplying establishment in the UK, are reported under the heading "Animals acquired from other designated breeding or supplying establishments in the UK."
Table 2 lists numbers of procedures by source of animal, as described above; tables 2.1 and 2.2 list procedures by source for animals with a harmful (but naturally-occurring) genetic defect, and genetically modified animals, respectively. In columns 3-6 of these tables, supplies of Schedule 2-listed species from non-designated sources in the UK, or from Europe or elsewhere, are subject to prior approval by the Home Office. Such supply would be justified on the basis of scientific need or lack of availability of appropriate animals from designated breeding or supplying establishments.

Stage of development, genetic status, and breeding (Tables 3, 3.1, 3.2, 3.3)

16. **Stage of development**
Details of procedures on animals in foetal, larval or embryonic form were collected but not shown in any of the published tables because it may be impracticable in some cases to count such procedures, e.g. a foetus resorbed during gestation, or fish fry which are very small and fast-moving.

Genetic status

Only the number of animals in which a harmful genetic defect actually manifested itself has been recorded for spontaneously arising mutants. All genetically modified animals are recorded. Additional information on counting animals in those categories is provided in Annex A at the end of Appendix B.

Table 3.1 shows the use of genetically normal animals in breeding programmes for both animals with harmful mutations and genetically modified animals. The number of procedures is shown for: normal animals used to generate founder genetically modified (GM) animals (which themselves will be further used in breeding programmes), normal animals within GM breeding colonies, and normal animals within breeding colonies of animals with naturally-occurring harmful mutations.

Tables 3.2 and 3.3 show the use of animals with harmful mutations and genetically modified animals respectively in breeding programmes or research. The structure of these two tables is similar. They show, respectively for harmful mutant and GM animals: procedures undertaken for maintenance of the breeding colony (i.e. primary purpose is shown as "breeding" and row 11 is coded B64 or B62 as appropriate); procedures undertaken for research analysis *post mortem* (primary purpose is *not* breeding, and row 11 coded B64 or B62, as above); further regulated procedures, following on from the breeding programme (row 11 coded B65 or B63); procedures used for production (row 11 coded B50-56); and procedures for toxicological (safety evaluation) purposes (row 11 coded A30-50). For an explanation of these codes, see Appendix B at the end of this publication.

Breeding

The breeding of animals with harmful genetic defects or genetically modified animals is a regulated procedure under a project licence. Animals which are identified as 'harmful mutants' or 'genetically modified' may be used for further breeding or used subsequently in procedures. The numbers also include some genetically normal animals which were subjected to regulated procedures such as tissue sampling or hormonal administration for the purpose of regulated breeding programmes.

The classifications of procedures concerned with breeding distinguish between:

(a) animals used to generate founder genetically modified animals for novel transgenic lines, chimeras or clones;
(b) genetically modified animals generated by recognised husbandry methods for maintenance of a breeding colony;
(c) genetically modified animals used in research programmes not concerned with breeding;
(d) animals with a harmful mutation generated by recognised husbandry methods for maintenance of breeding colonies;
(e) animals with a harmful mutation used in research programmes not concerned with breeding.

Fuller details of these classifications will be found in Appendix B at List B, row 11.

Target body system (Table 4a)

17. Some of the headings in the tables are self-explanatory but, for the others, further explanation is given below.

Abbreviated title	Description: studies in which interest centres on:
Nervous	The central or peripheral nervous systems, other than the special senses
Senses	Sight, hearing, smell, or taste
Alimentary	The alimentary (including liver) and excretory systems
Musculo-skeletal	The skeletal or muscle system
Immune and reticulo-endothelial	The understanding and operation of the immune system
Other system	A single body system not separately listed in the table
Multiple systems	More than one system of primary interest
System not relevant	The system or systems affected were not predictable or not relevant

Use of anaesthesia (Table 4b)

From the 2001 publication onwards, use of anaesthesia for both toxicological and non-toxicological procedures has been combined into one simplified table. It replaced tables 7 and 17 of previous years' publications.

18. The codes for anaesthesia distinguish procedures involving one or more stages in which there was anaesthesia with recovery, from procedures in which the only anaesthesia was terminal. They also include the use of local or regional anaesthesia. The categories are:

(a) no anaesthesia used throughout the procedure; this will include procedures without anaesthesia even where the subject animal may have been killed by use of an anaesthetic overdose at the end of the procedure. It also includes studies of potential anaesthetic agents;
(b) general anaesthesia with recovery;
(c) local or regional anaesthesia;
(d) general anaesthesia without recovery, at the end of the procedure only;
(e) general anaesthesia without recovery, throughout the procedure.

The killing of an animal by the administration of an overdose of an anaesthetic agent (a recognised humane way of disposal as cited in Schedule 1 of the Act) is not a regulated procedure and is not recorded as such in the above table.

The use of neuromuscular blocking agents (NMBA) is uncommon and for this reason such use is not shown in the table (except as a footnote), but is described in the text.

Type of procedure

19. The tables are divided into two groups:

(a) fundamental and applied studies other than toxicology (Tables 5-9);

(b) toxicity tests, or other safety or efficacy evaluation (Tables 10-17).

If the purpose was non-toxicological, the licensee was asked to specify the field of research, the nature of the procedure with regard to production and breeding and whether the technique was identified as being of particular interest.

If the purpose of the procedure was toxicological, the licensee was asked to report on the field of safety testing or efficacy evaluation, the type of test or procedure, and the legislative requirements (if any) under which the procedure was performed.

The two strands of reporting are mutually exclusive (as shown in the flowchart and appendix B) and it is not possible, for instance, to identify procedures using a technique of particular interest if the purpose of the procedure was toxicological.

A Fundamental and applied studies other than toxicology

This group of tables is sub-divided into three main areas of interest:

(i) **Field of research** (Tables 5, 5a, 5.1 and 5.2)

The headings are self-explanatory, but the following should be noted:

(a) pharmaceutical research and development excludes anti-cancer agents, where work is listed separately later in the table under 'cancer research';
(b) ecology excludes work done in toxicology and other safety evaluation;
(c) tobacco and alcohol research lists only those procedures done for research on the effects of tobacco or alcohol, and not those where these substances are used as experimental tools or standards; note also that tobacco *safety* procedures would be reported in table 10.

(ii) **Production of biological materials** (Table 8)

Production: procedures for production and maintenance of infectious agents (excluding those causing neoplasms);
procedures for production and maintenance of vectors, e.g. parasites;
procedures for production and maintenance of neoplasms;
the ascites model for the production of monoclonal antibodies;
initial immunisation for subsequent *in vitro* or *in vivo* production of monoclonal antibodies;
procedures for production of polyclonal antibodies;
procedures for production of other biological material, e.g. plasma, tissues.

(iii) **Techniques of particular interest** (Table 9)

This table provides a selective list which identifies those procedures in which a technique is of itself of particular interest as, for example, the application of a substance to the eye or exposure to ionising radiation. The procedures recorded in this table do not include those undertaken for toxicology or safety evaluation. However, few of these techniques would be used in routine regulatory toxicology or safety assessments.

B Toxicity tests, or other safety or efficacy evaluation

(i) **Safety and efficacy evaluation** (Tables 10, 10a)

Most of the subdivisions have been described in paragraph 10 (iii) above with regard to general safety or efficacy evaluation but the category also includes work done for pharmaceutical safety and efficacy evaluation, and some other purposes as follows:

efficacy evaluation (acute, subacute and chronic);
absorption, distribution, metabolism, excretion (ADME) and residue tests;
nutritional evaluation;
quality control;
toxicology research;
tobacco safety (note: tobacco *research* is recorded in Table 5 - see above);
medical device safety;
method development, and other tests.

(ii) **Legislative requirements** (Table 11)

This identifies medical/dental and veterinary categories which include procedures used in the initial development and selection of such products, those required to satisfy specific legislation (medical and non-medical) such as the Medicines Act 1968 and/or equivalent overseas or international legislation or regulations for purposes such as the intention of registration or the intention of presenting batch quality control data; and those carried out for other reasons. The legislation is divided into seven groups:

(a) United Kingdom legislation only;
(b) legislation specific to one EU country only (excluding the UK);
(c) general EU requirements, including the European Pharmacopoeia;
(d) non-EU member country of Council of Europe legislation;
(e) legislation of other countries;
(f) any combination of (a)-(e);
(g) purposes other than legislative requirements.

The following are examples of specific legislative requirements which may be included:

Medicines Act 1968;
Workplace safety, e.g. Health and Safety at Work Act 1974, COSHH Regulations;
Substances used in agriculture, e.g. Control of Pesticides Regulations 1986; EU Pesticides Directives;
Substances used in foodstuffs, e.g. Food Safety Act 1990.

(iii) **Specific types of toxicity tests** (Table 12)
acute and subacute dose ranging or limit setting lethal toxicity tests;
acute quantitative lethal toxicity tests;
acute and subacute non-lethal clinical sign toxicity tests;
subchronic and chronic toxicity tests;
carcinogen/teratogen/mutagen tests;
other reproductive toxicity tests;

tests for clinical signs in the eye;
tests for clinical signs on the skin, including irritation or sensitisation;
toxicokinetics, pyrogenicity, biocompatibility and other toxicology tests.

(iv) **Tables showing some selected work in greater detail**

There are three further tables which examine some aspects of toxicological work in greater detail (see appendix B for full details of the codes):

Table 13: non-pharmaceuticals (list A, row 10, codes A01-A06);
Table 15: pharmaceuticals (list A, row 10, codes A11-A14);
Table 16: other safety or toxicology (list A, row 10, codes A21-A25).

(Table 14 on cosmetic safety has been discontinued since all such use ceased prior to 1999.)

Tree tables (Tables 18a-h)

20. These show, by means of 'trees', how procedures carried out on certain species of animals which are of particular interest are broken down into their various categories. The species illustrated in this way are: cats, dogs, horses, new-world primates, old-world primates, and rabbits. Two further tables were introduced in 1999 to illustrate the use of genetically modified animals, and animals with harmful genetic defects.

PART B - PROJECT LICENCE HOLDERS AND DESIGNATED PLACES

Type of designated place (Table 19)

21. Project licence holders have been classified according to the type of designated place which was their main place of employment at the end of the year, although they could be licensed to carry out procedures at more than one place. Procedures have been classified according to the type of designated place of the project licence holder reporting them.

PART C - HISTORICAL AND TIME-SERIES TABLES

22. Tables 20-27 summarise some selected aspects of the annual statistics collected since the introduction of the Animals (Scientific Procedures) Act 1986 on 1 January 1987. For the reasons explained below, not all the tables refer to the same time period.

23. Some of the historical tables which appeared in publications prior to 1995 have been discontinued because of the lack of comparability with data for 1995 onwards, when the present system for collecting and presenting data was introduced. Footnotes are given in those tables which have been retained to explain aspects of the discontinuities.

24. Two tables (21 and 25) have been adapted to reflect the way data have been reorganised: Table 21 carries information about legislative requirements from 1995 only, because earlier data are no longer comparable, and Table 25 has replaced tobacco and alcohol safety data with data for pharmaceutical and other safety, but figures for earlier years are still shown because in this case data in the rest of the table are comparable.

25. Three tables show data only from 1995: Table 24 on non-toxicology procedures by field of research, Table 26 on procedures by primary purpose, and Table 27 on procedures by primary purpose and genetic status. There are no comparable figures for earlier years.

MAIN POINTS

- The number of scientific procedures started in 2002 was just over 2.73 million, a rise of about 110,000 (4.2 per cent) on 2001. Although there has been a significant reduction in the annual number of experiments or scientific procedures since 1976, this trend has levelled out in recent years, and currently numbers fluctuate year by year.

- Mice, rats and other rodents were used in the majority of procedures – 84 per cent of the total. Most of the remainder used birds (5 per cent of all procedures), and fish (7 per cent).

- Dogs, cats, horses and non-human primates, afforded special protection by the Act, were collectively used in less than 1 per cent of the procedures.

- The number of procedures using non-human primates was 3,977, almost identical to 2001, being just nine less than reported last year.

- Genetically normal animals were used in 1,763,000 regulated procedures representing 65 per cent of all procedures for 2002 (compared with 67 per cent in 2001 and 84 per cent in 1995).

- Genetically modified animals were used in 710,000 regulated procedures representing 26 per cent of all procedures for 2002 (compared with 24 per cent in 2001 and 8 per cent in 1995).

- Only 22 per cent of the genetically modified animals were used in regulated procedures other than the maintenance of breeding colonies. Sixty four per cent were used to maintain breeding colonies and an additional 15 per cent were used for further non-regulated scientific or experimental purposes.

- Species with harmful, but naturally-occurring, genetic mutations were used in 260,000 regulated procedures, representing 10 per cent of all procedures for 2002.

- Non-toxicological procedures accounted for about 82 per cent of the procedures carried out in 2002, with the main areas of use being for immunological studies and pharmaceutical research and development.

- Procedures for toxicological purposes accounted for 18 per cent of all procedures started in 2002. Of these about 61 per cent were for pharmacological safety and efficacy studies.

- The majority of toxicological procedures (87 per cent) were performed to conform to regulatory requirements.

- About 40 per cent 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 increased the animal welfare cost of the procedure.

- Over 99 per cent of procedures carried out on animals listed in Schedule 2 of the Act used animals acquired from designated sources in the United Kingdom.

- No procedures were performed in 2002 using the ascites model for monoclonal antibody production.

COMMENTARY

OVERALL PICTURE

Procedures started in 2002

The number of scientific procedures started in 2002 was just over 2.73 million (Table 1), a rise of about 110,000 (4.2 per cent) compared to 2001. Although there has been a significant reduction in the annual number of experiments or scientific procedures since 1976, this trend has levelled out in recent years and currently numbers fluctuate year by year. The overall level of scientific procedures is determined by a number of factors, including the economic climate and global trends in scientific endeavour.

Some 2.66 million animals were used for the first time in procedures started in 2002 (Table 1a). This was about 88,000 (3.4 per cent) more than in 2001, broadly reflecting the number of procedures started.

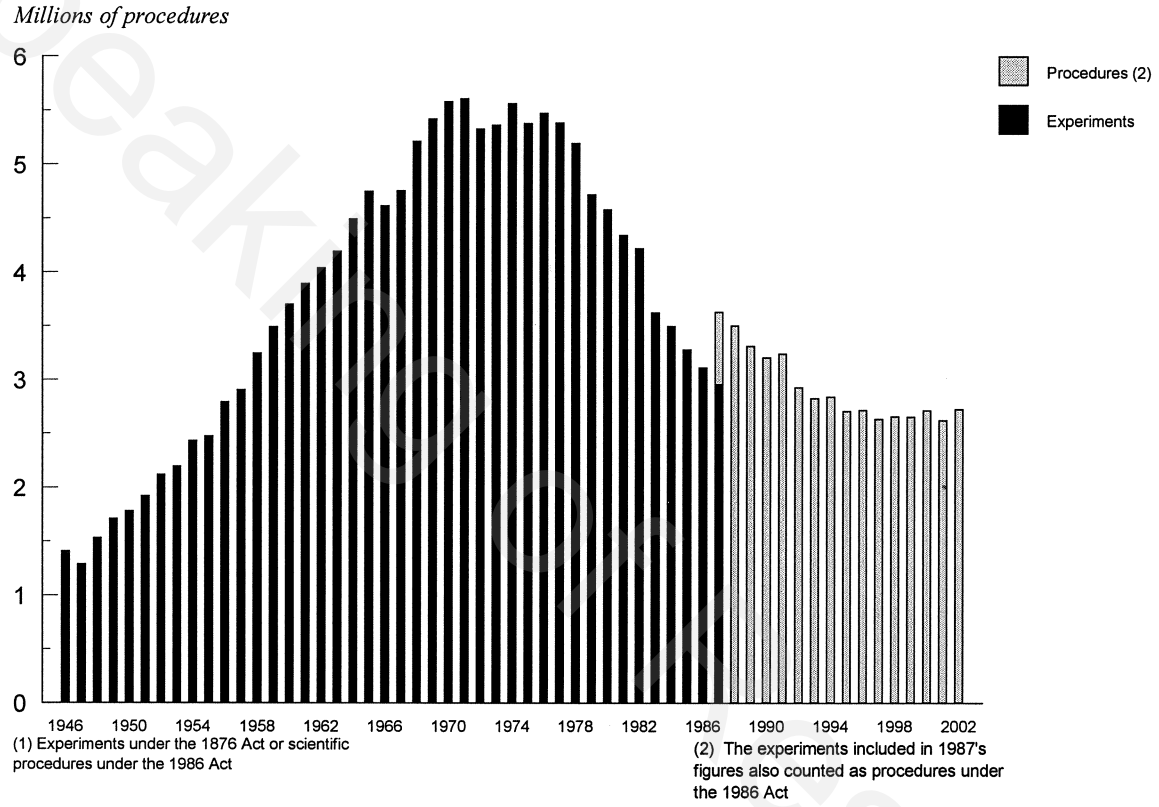


Figure 1: Experiments or procedures commenced each year, 1946-2002[(1)]

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

The species of animals involved in the largest numbers of procedures in 2002 were mice (63 per cent of procedures, the same as in 2001); rats (19 per cent, also the same as in 2001); guinea pigs (just under 2 per cent, similar to most recent years); birds (5 per cent, similar to 2001), fish (7 per cent), rabbits (1.1 per cent), and ungulates (2 per cent, reversing a temporary dip in 2001). The general return to previous levels in the use of farm animals was mainly due to the outbreak of foot and mouth disease in 2001, which curtailed research in that year by limiting the movement of animals.

Dogs (0.3 per cent of all procedures in 2002), cats (0.05 per cent) and non-human primates (0.14 per cent) were involved in relatively small numbers of procedures (a combined total of 13,336 in 2002), and the total use of these three groups fell by 175 procedures from 2001.

Despite the overall rise in the number of procedures in 2002, there were falls in procedures using many species (see below), but the principal increase in 2002 was in procedures involving mice (up 63,000),

mainly due to their increased use in fundamental biological research. Other species showing increases were sheep (up 15,000, domestic fowl (up 13,000), fish (up 11,000), rats (up 9,400) beagle dogs (up 400), squirrel monkeys, macaques, gerbils, cattle, pigs and reptiles.

There were also relatively small increases in procedures using some species classified as 'other' in 2002: the use of 'other' rodents was up 296, 'other' carnivores up 707, and 'other' mammals up 477. In 2002 the 'other carnivore' category included badgers, weasels, foxes and seals, all used for research relevant to those species. The increase in use of other carnivores was partly due to work on ecological and population studies. The 'other mammals' included species such as shrews, bats, voles and hares.

There were decreases in procedures using several species, but notably guinea pigs (down 2,700 procedures), rabbits (down 3,500), in both cases part of a long term trend; smaller declines were recorded in procedures using cats (down 185), non-beagle dogs (down 380), horses (down 800), marmosets and tamarins (down 420), birds other than domestic fowl (down 1,800).

No procedures were performed in 2002 on greyhound dogs, camelids, prosimians, baboons, Great Apes, gibbons, non-specified new-world primates and non-specified old-world primates, or *Octopus vulgaris*, the single cephalopod species protected by the Act. The Government stated in November 1997 that it would no longer issue licences to use Great Apes in scientific procedures. No Great Apes have been used since the current legislation (the 1986 Act) was introduced in 1987.

Where there was no use of a species, the species might not be listed in tables other than Tables 1, 1a, 5, 5a, 10 and 10a.

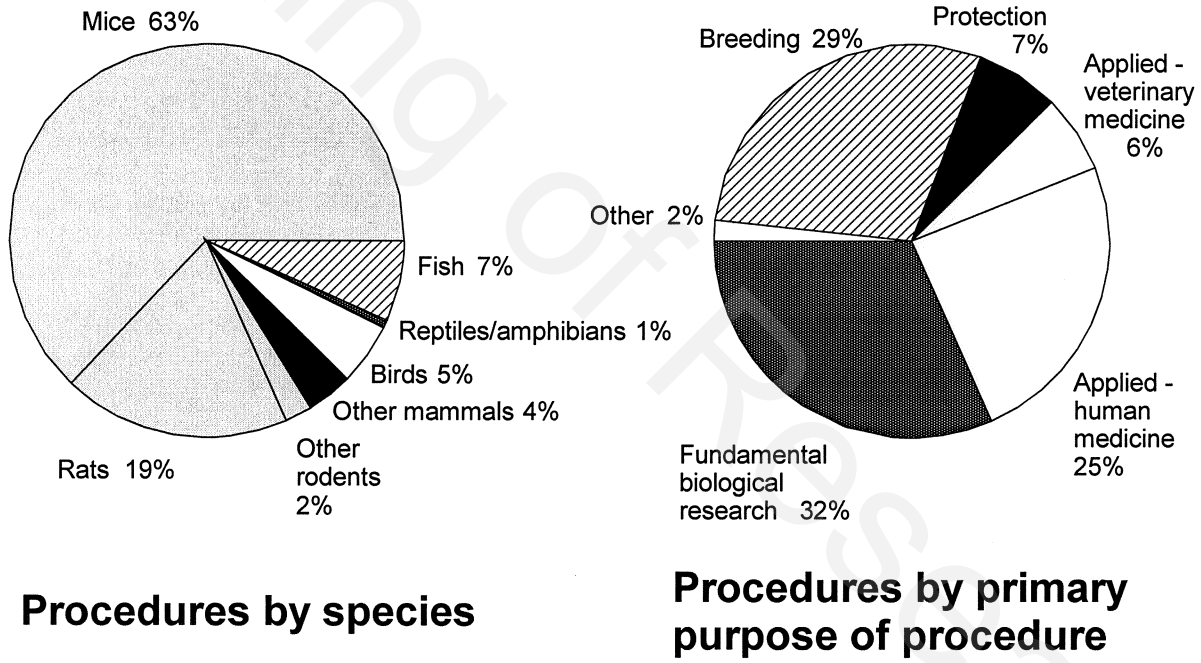


Figure 2: Procedures by species of animal and primary purpose of procedure, 2002

Primary purpose (Tables 1 and 1a, Tables 26 and 27, Figure 2)

In 2002, the main purposes for performing scientific procedures were for fundamental biological research, breeding, and applied studies into human medicine or dentistry. These accounted for 864,000 (32 per cent), 791,000 (29 per cent), and 670,000, (25 per cent) of the total number of procedures respectively. There were rises in fundamental biological research, up 86,000, or 11 per cent on 2001; procedures for the protection of man, animals or the environment, up 32,000 (21 per cent), and procedures undertaken for the direct diagnosis of disease, which rose by 6,800 or 20 per cent, reversing a downward trend for that category. Procedures for applied studies into human medicine were down 20,000 or 3 per cent. Numbers of procedures for fundamental biological research and applied studies in veterinary medicine have been fluctuating over the last seven years. Downward trends for education, training and forensic enquiries continued.

Source (Table 2, 2.1 and 2.2)

In 2002, 85 per cent of all procedures were performed on animals listed in Schedule 2 to the Act (mouse, rat, guinea pig, hamster, gerbil, rabbit, cat, dog, ferret, non-human primate, pigs (if genetically modified), sheep (if genetically modified), and quail).

In total, 99 per cent (2.31 million) of procedures carried out on animals listed in Schedule 2 used animals acquired from designated establishments in the United Kingdom, 56 per cent from the user's own establishment, and 43 per cent from another designated establishment. The number of procedures involving Schedule 2 listed animals obtained from sources outside the EU in 2001 rose by 3,800 to 13,200, and of these, almost all (13,000) were performed on animals obtained from outside Europe (68 per cent of which were mice). Acquisition from abroad is due to a lack of available animals of either a suitable strain or suitable health status for the particular purpose.

From Tables 2, 2.1 and 2.2 it can be seen that about a third of procedures on Schedule 2 listed species which were obtained from sources outside the UK were performed on either harmful mutant or genetically modified animals. They were almost all mice, and the remainder were rats. Eighty two per cent of harmful mutant and 94 per cent of genetically modified animals were obtained from within the licensee's own designated establishment.

Forty five per cent of all procedures performed on non-human primates used animals acquired from designated sources within the United Kingdom.

The use of animals in Schedule 2 acquired from non-designated sources in the UK was duly authorised as properly justified under Section 10(3) of the Act. The rodents, ferrets and rabbits from non-designated sources in the UK are mainly those involved in studies requiring animals from or in the wild.

The dogs from non-designated sources within the UK included all categories of dog except greyhound. The research programmes required animals representative of the general pet population which are not available from the usual designated sources, and which were used for studies relevant to the specific breed or type of dog. A shortfall in supply of appropriate dogs from designated suppliers in the UK has also led to increased importation.

Some 401,000 procedures, up 44,000 (12 per cent) on 2001, were performed on species not listed in Schedule 2. This number has shown fluctuations in recent years.

Genetic status (Table 3, 3.1, 3.2, 3.3, Table 27, figure 2A)

Genetically normal animals (Table 3, 3.1)

Just under two out of every three procedures started in 2002 involved normal animals; these were up 18,000 on 2001. In the slightly longer term, the use of genetically normal animals has decreased from 2.27 million in 1995 to 1.76 million, a drop of 22 per cent over this period. Table 3.1 shows normal animals used only in breeding programmes. Nearly all these animals were mice (99 per cent), the remainder being rats, sheep, fish, birds, amphibians, and dogs. Comparison with 2001 shows similar use to that year.

Animals with a naturally-occurring harmful genetic defect (Table 3, 3.2)

Some 260,000 procedures (9.5 per cent) started in 2002 involved animals with a naturally occurring harmful genetic defect, 13,000 more than in 2001. The animals were mostly mice (202,000 procedures), rats (33,000), and fish (24,000). Other than procedures associated with maintenance of breeding colonies, the work with mice and rats was split reasonably evenly between fundamental biological research and applied studies. The fish were used mainly for fundamental research. The 32 procedures involving dogs noted in this table as having harmful genetic defects, were for studies of naturally-occurring eye diseases relevant to both dogs and man. Table 3.2 shows that most harmful mutant animals used were again mice (78 per cent). Rats (13 per cent) and fish (9 per cent) account for most of the remainder. This table also shows that patterns of species use were very similar to those in 2001. About 61 per cent of these animals were used for maintenance of breeding colonies; fewer than one per cent were used in toxicology. An increase in procedures for maintenance of the breeding colony was accompanied also by increases in use for production and other non-breeding purposes.

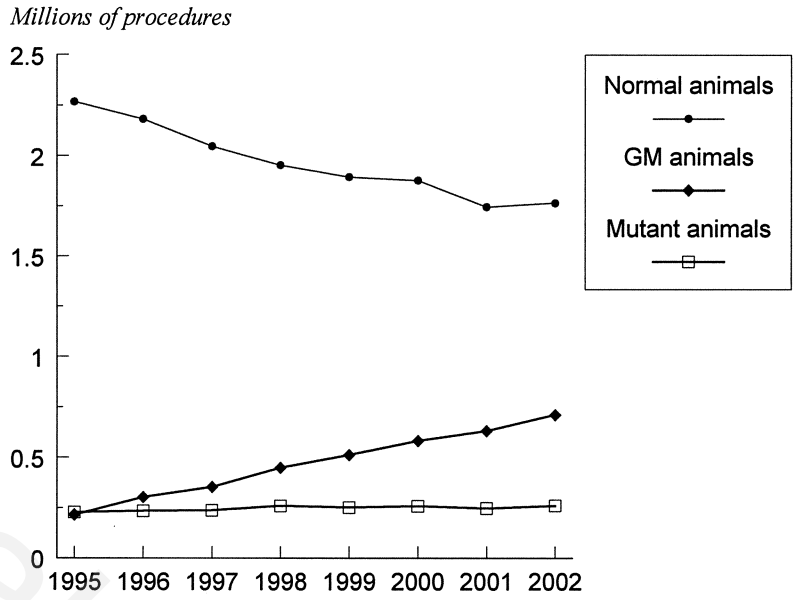


Figure 2A: Procedures involving normal, mutant, and genetically modified, animals, 1995-2002

Genetically modified animals (Table 3, 3.3)

The use of genetically modified (GM) animals was identified as a separate category for the first time in 1990; this category accounted for some 710,000 procedures in 2002, 79,000 (26 per cent) more than in 2001. More than a quarter of all procedures in 2002 involved genetically modified animals, and all but 17,400 of these procedures involved mice. Moreover, GM and mutant animals (see above) accounted for over half of all mouse use in 2002. There was an increase in GM mouse use across all areas, while rat use declined for both research and breeding. No GM pigs were used in 2002, and GM sheep use declined slightly, but there were rises in the number of procedures using GM birds (fowl), amphibians and fish. In contrast to the earlier slow rise in the use of animals with natural harmful genetic defects, the main regulated use of GM animals has more than trebled since 1995 and in percentage terms now represents about 26 per cent of all scientific procedures, compared with 8 per cent in 1995. This increase has however been offset by the decline in the use of genetically normal animals. Table 3.3 shows that the pattern of species and use of GM animals is broadly similar to last year, with increases in all areas except the use of rats, ungulates and rabbits, which has fallen. About 64 per cent of GM animals (451,000) were used to maintain the breeding colony only, and 15 per cent (106,000) used for further non-regulated scientific purposes. Fewer than one per cent were used in toxicology procedures. Nearly 98 per cent of all GM animals were mice, most of the remainder being fish.

Target body system (Table 4a)

In 2002, about 161,000 procedures (6 per cent of the total) were concerned with the respiratory or cardiovascular system or blood; 407,000 (15 per cent) with the nervous system or special senses; 76,000 (3 per cent) with the alimentary system (including the liver); 95,000 (3 per cent) with the skin, skeletal or muscle system; 190,000 (7 per cent) with reproduction; 480,000 (18 per cent) with the immune system; 179,000 (7 per cent) with a single other body system not already mentioned; and 444,000 procedures, a further 16 per cent, were aimed at more than one body system. The remaining 701,000 procedures, over one-quarter of all procedures, were those in which the body system or systems affected were not relevant. The proportion of procedures for the different target body systems is broadly similar to the use in recent years.

Use of anaesthesia (Table 4b, Table 22)

Procedures are permitted without anaesthesia or analgesic only when the administration of an anaesthetic or analgesic is judged to be more traumatic than the procedure itself, or when anaesthesia is incompatible

with the object of the procedure. About 60 per cent of procedures did not use anaesthesia. Local anaesthesia was used in 257,000 procedures (up 24,000 from the year 2001, about 9 per cent of the total), mainly in mice (243,000 – usually for tissue collection for genetic analysis), and various ungulates (8,000). Anaesthesia without recovery was used in 287,000 procedures, about 10.5 per cent of the total (up 18,000 from the year 2001).

Neuromuscular blocking agents (NMBA) were reported in less than one fifth of one per cent of procedures, all in conjunction with general anaesthesia. Seven out of every eight of these procedures were carried out under general anaesthesia without recovery. Nearly two thirds of these procedures were performed on rats.

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

The attention of readers is drawn to paragraph 15 of the introductory notes above where the method of recording procedures for toxicology and regulatory purposes, against those for non-toxicology purposes, is explained.

Some 2.25 million procedures, in which 2.18 million animals were used for the first time, were conducted for purposes of fundamental and applied studies other than toxicology, safety or other regulatory purposes in 2002. There was a rise of 80,000 in the number of such procedures and of 58,000 in the number of animals used, compared with 2001, reflecting the rise in the overall number of procedures. Some of this increase was due to the use of ungulates returning to its usual level (around 45-50 thousand procedures annually) after a dip to 26,000 in 2001. Of the procedures started in 2002, 1.54 million (68 per cent) were performed on mice and 341,000 (15 per cent) on rats; 127,000 (6 per cent) on birds (mainly domestic fowl) and 115,000 (5 per cent) on fish. A total of 2,100 procedures used dogs, 1,300 used cats and 1,100 used non-human primates.

Field of research (Table 5, 5a, 5.1 and 5.2, Table 24)

Of the various fields of research, the largest single category was immunology, which accounted for 424,000 procedures (19 per cent of all non-toxicology procedures), mainly on rodents, though a wide range of species was used. Pharmaceutical research and development (366,000) and cancer research (258,000) represented around 16 and 11 per cent of this total respectively; a range of species was used in pharmaceutical research, but mice and rats accounted for all but one per cent of the procedures carried out for cancer research. Anatomy, physiology, and parasitology were the only other fields where the number of procedures was greater than 5 per cent of all non-toxicology procedures. The main changes compared with 2001 were: immunology (up 32,000, a 19 per cent rise and following a strong upward trend); physiology (up 26,000), anatomy (up 19,000), parasitology (up 14,500), and genetics (up 21,500), all following upward trends; and microbiology and animal science (up 23,000 and 10,500) both reversing dips in 2001. Decreases were reported in procedures for pharmaceutical research and development (down 43,000 and following a long-term downward trend); also biochemistry (down 7,800), molecular biology (down 15,800), and cancer research (down 10,600), the last three of which show fluctuations in the numbers of procedures over the last several years.

Animals with harmful genetic defects (Table 5.1) were used across a wide range of disciplines, but none were used for clinical surgery, dentistry, zoology, botany, animal science, ecology, animal welfare and research related to the use of tobacco or alcohol. The principal disciplines for which such animals were used were: cancer research (63,000 or 24 per cent of all procedures involving animals with harmful mutations); immunology (34,800 or 13 per cent); anatomy (36,500 or 14 per cent); pharmaceutical research and development (27,000, 10.5 per cent), and 'other' use, i.e. disciplines not otherwise specified, 42,000 or 16 per cent.

There was a broadly similar spread of disciplines involving genetically modified animals (Table 5.2). The greatest use was for immunology (213,000 or 30 per cent of procedures using GM animals), cancer research (99,000 or 14 per cent) and anatomy, which includes developmental biology (96,000 or 13.5 per cent). Procedures for genetics (35,000) and molecular biology (56,000) both showed increases from 2001. No procedures using GM animals were performed for the disciplines of dentistry, zoology, botany, ecology, animal welfare, or tobacco research.

Production of biological materials (Table 8)

In 2002, some 315,000 procedures, 20,000 more than in 2001, were for the purposes of production of biological materials. About 40 per cent of these were for the production of infectious agents and, of this particular group, 69 per cent used birds and a further 26 per cent used mice. Vectors, neoplasms and polyclonal antibodies accounted for a further 12 per cent; here, rodents were the main animals used except for polyclonal antibody production, where rabbits or ungulates were also used. The remaining 47 per cent of production procedures were to obtain other biological material such as tissues or blood products, using a wide range of species.

In November 1997, the Government confirmed that the production of monoclonal antibodies by the ascites method could only be considered if *in vitro* attempts at production had failed, or the use of animals was justified for specific diagnostic or therapeutic products. The coding of the returns form was changed in 1999 to distinguish between procedures for the immunisation of animals used in monoclonal antibody production, (for which there are no generally applicable replacement alternatives), and those where the ascites model has been used. The immunisation method to produce tissues for *in vitro* use (using mostly mice) showed a modest fall of 489 to 4,320, continuing the downward trend. No procedures were performed during 2002 using the ascites model.

Techniques of particular interest (Table 9)

Among non-toxicological work, certain procedures have been identified as being of particular interest. These have been described above in paragraph 15A(iii) of the introductory notes. About 158,000 procedures, representing 7 per cent of non-toxicological procedures, fell into this category in 2002, about 6,000 more than the number reported in 2001. The number of these procedures has fluctuated from year to year but in 2002 was lower than since this category of procedure was separately identified in 1995. There were some increases, principally in procedures involving physical trauma (up 5,300) and inhalation (up 3,500 on 2001); but there were also decreases, including procedures involving interference with the brain (down 2,000) and aversive training (down 3,300). Inhalation and physical trauma procedures used mainly rodents. The physical trauma category included studies on conditions such as stroke and atherosclerosis.

TOXICOLOGY OR OTHER SAFETY OR EFFICACY EVALUATION

Purpose (Tables 10, 10a, Table 25)

Procedures for the purpose of toxicology or safety and efficacy evaluation accounted for 486,000, or just under 18 per cent, of the total number of procedures carried out in 2002. This was about 30,000 more than in 2001. This rise was almost exactly reflected in a similar rise in the number of animals used for the first time, to 473,000.

Of those procedures started in 2002, 181,000 (37 per cent) used mice; a further 169,000 (35 per cent) used rats, and other rodents were used in 23,500 procedures (5 per cent). Some 67,000 (14 per cent of the total) used fish; 20,000 used rabbits, birds were used in 11,000 procedures, and dogs (beagles) in 5,900. Other species accounted for just over 1 per cent of all toxicology procedures; 2,900 used non-human primates but only 57 used cats. Species for which there was a fall in the number of toxicological procedures in 2002 included: guinea pigs (down 5,200 or 19 per cent), rabbits (down 3,050 or 13 per cent), amphibians (down 1,150 or 51 per cent) and new-world primates (down 50 procedures or 18 per cent). There were some species with an increase in use: procedures on fish rose 12,500 (23 per cent); domestic fowl up 2,300 (29 per cent); mice and rats up 11 and 14 thousand respectively; cattle up 450 and old-world primates also up 450 (mainly for pharmaceutical safety and efficacy evaluation).

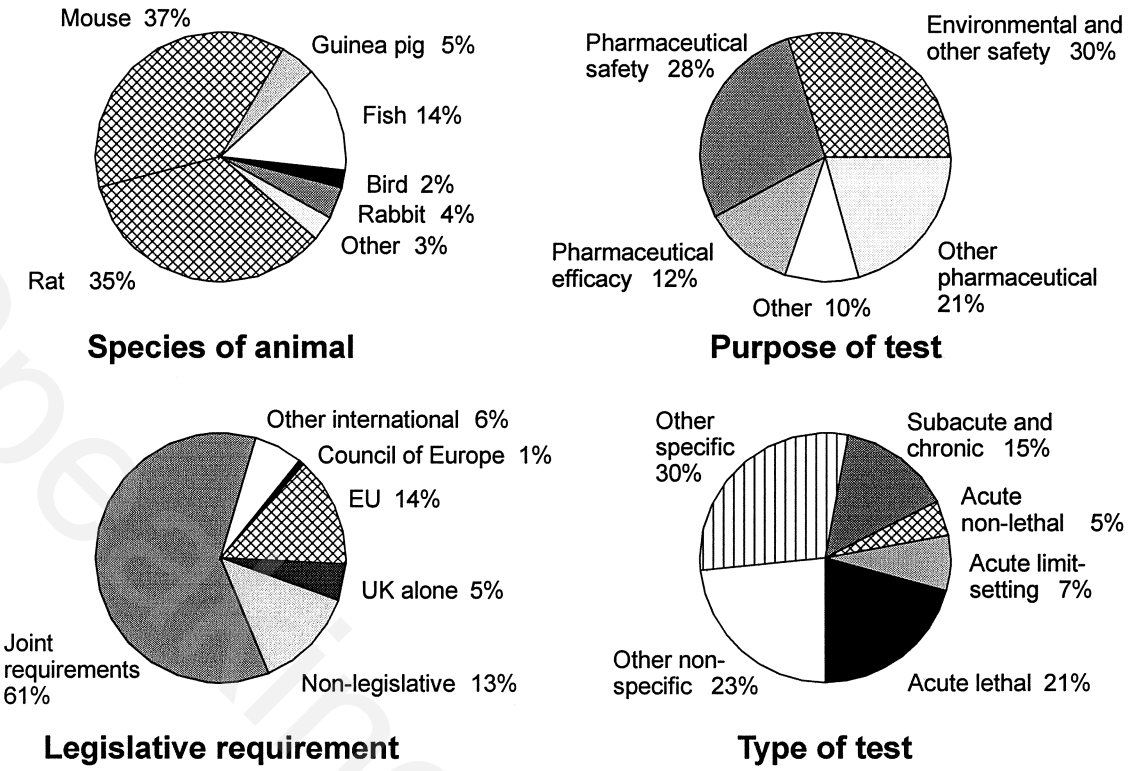


Figure 3: Procedures (toxicology) by species of animal, purpose of test, legislative requirement and type of test, 2002

Only about one in every 300 procedures involving genetically modified animals was carried out for toxicology, and all of the animals so used were mice (see Table 3.3). A broadly similar picture emerged in the case of animals with harmful genetic defects although in addition some rats were used (Table 3.2).

Safety, efficacy testing, and quality control of pharmaceutical products accounted for 55 per cent of toxicology procedures in 2002. The next most common purposes were safety evaluation of substances used in agriculture (57,000) and in industry (42,000), and evaluation of environmental pollution (38,000).

There were increases in most types of procedures, but particularly those concerned with the safety of substances used in agriculture (up 17,000), and pharmaceutical safety (up 15,000) and, to a lesser extent, efficacy testing (up 4,400), quality control (up 2,400), and toxicology research (up 4,800). A few categories showed a fall in the number of procedures; those for the safety of substances used in industry were down 10,500 (20 per cent); pharmaceutical ADME and residue testing, down 4,000, and 'other' toxicology, not defined elsewhere in the table (down 1,800).

In November 1997 the Government announced that no further licences would be issued for cosmetic finished-product testing, and that existing licences had been amended to exclude this type of work. This was extended in November 1998 to ingredients intended primarily for cosmetics. As a consequence no procedures were performed for either of these purposes in 2002. Since 1995 there has been no safety testing of tobacco or tobacco products and there are no licences in force authorising procedures of this kind.

Legislative requirements (Table 11, Table 21)

Of the total of 486,000 toxicology or safety procedures in 2002, 87 per cent were performed to comply with legislation or other regulations. Only 23,200 procedures (5 per cent) were performed to satisfy UK legislation alone; about 69,000 (14 per cent) were performed to satisfy the requirements of either a single EU country (excluding the UK) or the EU in general; a further 3,700 (1 per cent) to meet the requirements of Council of Europe countries outside the EU; and 30,500 (6 per cent) for other international legislation.

The majority of procedures performed to fulfil legislative requirements (295,000, or 61 per cent) were used to satisfy a combination of the above requirements. The remaining 64,000 procedures, 13 per cent of toxicology and safety work, were performed for purposes other than direct legislative or regulatory requirements.

Type of test (Tables 12, 13, 15, 16)

See explanatory notes for List A, Row 11 in Appendix C for more details of the type of test or procedure.

From 1999 the category of procedures relating to acute lethal toxicity tests was subdivided into: acute lethal (LD50), acute lethal concentration (LC50) and other types of acute limit-setting tests. In 2002 acute quantitative lethal toxicity tests accounted for 82,000 procedures or 17 per cent of all toxicology work. Tests were reported in this category for the following purposes: pharmaceutical safety, efficacy, and quality control; non-specific toxicity tests, and a smaller number of procedures for the safety of substances in agriculture and industry, and for method development. Very nearly all these procedures used mice. None of these tests was carried out according to OECD Guideline 401. Acute lethal concentration tests accounted for 19,100 procedures (4 per cent), and acute limit-setting lethal toxicity tests another 35,000 procedures (7 per cent). There was an overall increase in the use of procedures for acute safety testing from 147,000 in 2001 to 158,000 in 2002.

A further 51,000 (10.5 per cent) were carried out for subacute toxicity or limit-setting tests. This was 8,500 more than in 2001. Of the remainder, other, non-specified, toxicological tests (mainly using mice and rats) accounted for the greatest single proportion with 114,000 procedures (23 per cent of the total), a rise of about 13,500 on 2001. The present 'other' category is comprised mostly of procedures concerning pharmaceutical safety testing not otherwise described, other basic or applied toxicology research, and the acquisition of tissues for further *in vitro* studies.

There were about 10,900 procedures carried out on rabbits for pyrogenicity testing which will continue as a necessary safety test required by regulatory bodies as there is no validated alternative for the evaluation of non-crystalloid substances for intravenous injection into humans; a further 1,270 procedures carried out on rabbits to test for clinical signs in the eye (190 fewer than in 2001); 46,000 procedures (9.5 per cent), mainly on rats, to test for reproductive toxicity; and 15,800 procedures (3 per cent) on rodents to test for skin sensitisation, mainly on guinea pigs used for the safety testing of products used in agriculture and industry.

Further detailed analysis of safety testing is contained in Tables 13, 15 and 16. Each of these tables takes one of the three purposes shown in the columns in Table 11, and examines procedures by species by each of the types of test shown in the columns of Table 12. For example, Tables 13, 15 and 16 show that the 35,600 procedures carried out on rats for reproductive toxicity other than teratogenic testing (Table 12) is split between safety testing both of pharmaceuticals (see Table 15), and non-pharmaceuticals (Table 13). All three of these tables show a slight increase in the number of procedures against the comparable figures for 2001: non-pharmaceuticals up 8,800 (6 per cent), pharmaceutical safety up 17,700 (6 per cent) and other safety up 3,850 or 9 per cent.

Rodenticide trials

It is impractical to collect accurate figures on the number of animals affected in field trials of rodenticidal substances. No field trials were reported in 2002.

Use of animals in 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 the notes to the return form in Appendix C). The only procedures performed in 2002 on animals in this category were 77 procedures on wildfowl, directed towards the conservation of those species.

TREE TABLES (Tables 18a-h)

These tables show the relationship between the purpose of the procedures and the target body system for six species in which there is special interest (Tables 18a-f). The species presented in these tables are: cats, dogs, horses, new-world (non-human) primates, old-world (non-human) primates, and rabbits. Two further tables illustrate the use of genetically modified animals (Table 18g) and animals with a harmful genetic defect (Table 18h). Additional information on use is provided where appropriate.

RETURNS, PROJECT LICENSEES AND DESIGNATED PLACES

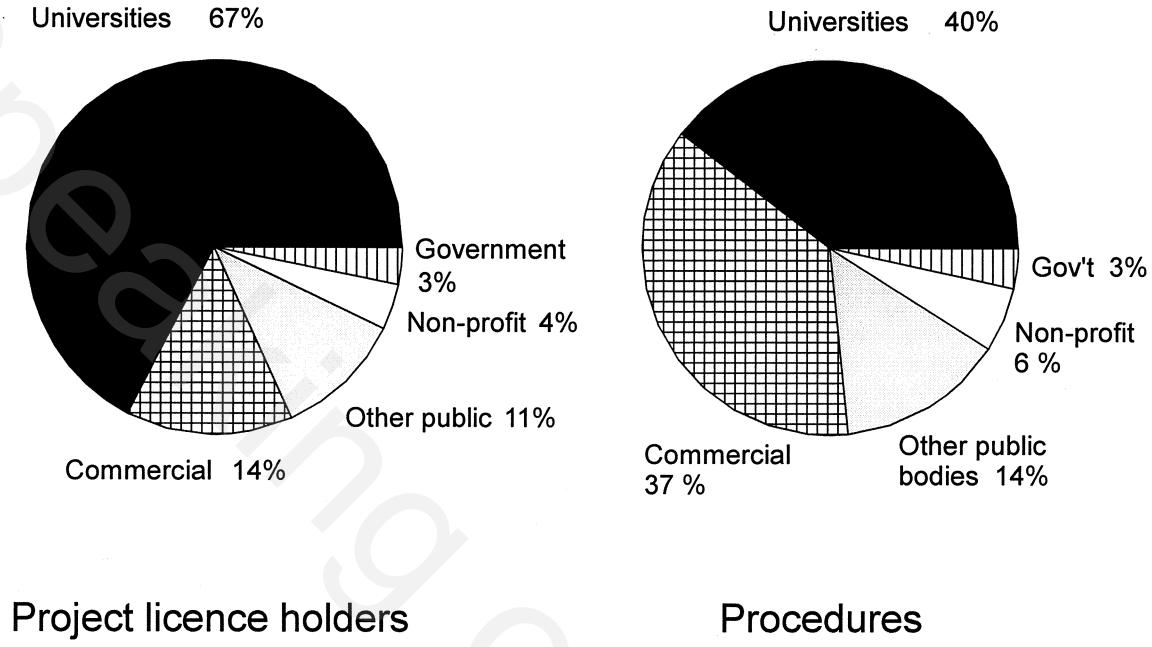


Figure 4: Project licence holders and procedures started in 2002, by type of designated place *(note: only those project licence holders reporting procedures in 2002 are included)*

Returns (Table 19)

Returns were received in respect of 3,999 project licences in 2002. Returns were received from every licensee. Just over 2,800 licensees reported starting procedures in 2002, some 50 more than in 2001. Of these, about 2,100 (74 per cent, similar to the proportion in 2001), reported starting more than 50 procedures. The holders of about 1,200 project licences (30 per cent of all licensees) reported starting no procedures in 2002 (Table 19). This was very similar to the position in 2001.

Project licensees and designated places (Table 19, Table 23, Figures 4 and 5)

Sixty seven per cent of the projects on which procedures were started were based at universities or other academic establishments (including medical schools) but they accounted for only just under 40 per cent of the number of procedures. Projects at commercial organisations reported 37 per cent of the procedures started in 2002, and accounted for 14 per cent of all projects reporting procedures (Table 19 and Figure 4).

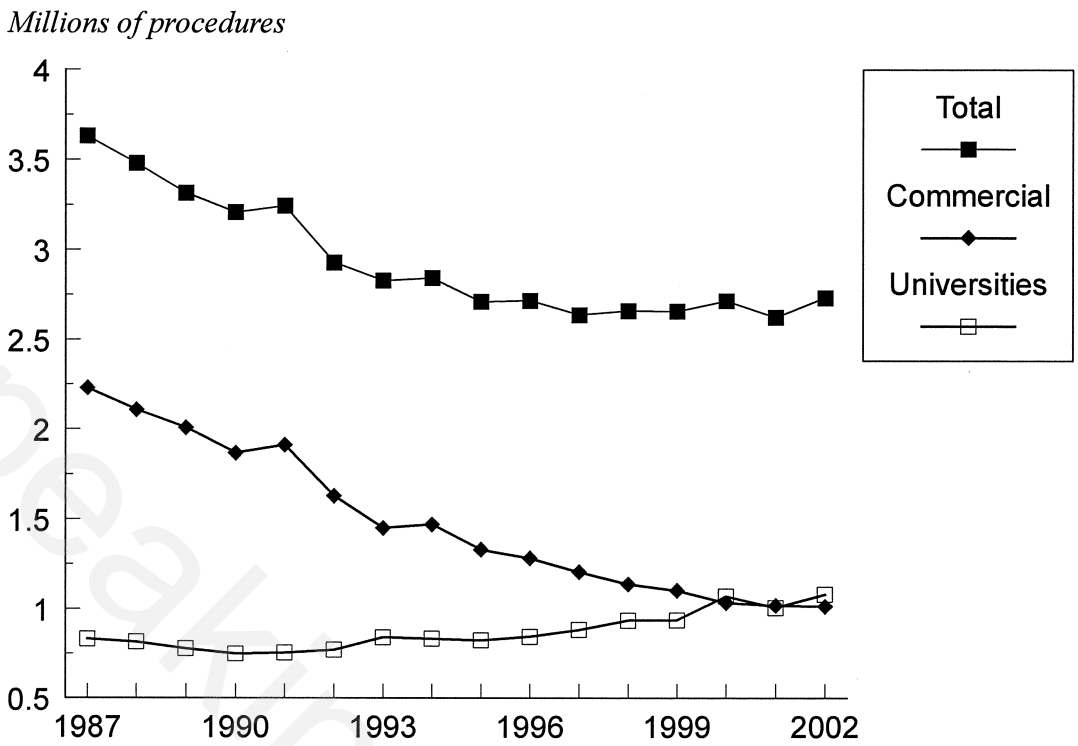


Figure 5: Procedures by type of establishment, 1987-2002. *The graph shows the two types of institution responsible for the largest number of procedures (and therefore have most impact on the overall number of procedures started each year).*

Throughout the period 1981 to 1992 university licensees performed between one-fifth and one-quarter of all experiments or procedures, but since 1992 this has slowly risen to nearly 40 per cent. The proportion of procedures carried out by commercial licensees has fallen from 60 per cent in 1987 to 37 per cent in 2002 (Table 23; see also Figure 5). The number of procedures reported by universities or other higher educational establishments overtook that reported by commercial organisations for the first time in 2000, and although it fell to just below the level reported by commercial firms in 2001, overtook it once again in 2002 (see Figure 5). The fall in the number of procedures carried out by commercial licensees has been largely responsible for the overall fall in the total number of procedures over recent years, but the rise in the number of procedures conducted in universities and non-governmental public bodies has contributed to the overall rise in the number of procedures in 2002 (see Table 23). The number of procedures started in public health laboratories has tended to fall in recent years; as have those in NHS hospitals (many of the latter are classified as university departments for the purposes of these statistics). There is an overall rising trend in procedures conducted in non-governmental public bodies, and there has been a recent rise in the not-for-profit sector.

Historical tables

Tables 20-27 (q.v.) show longer-term trends in scientific procedures.

Feedback

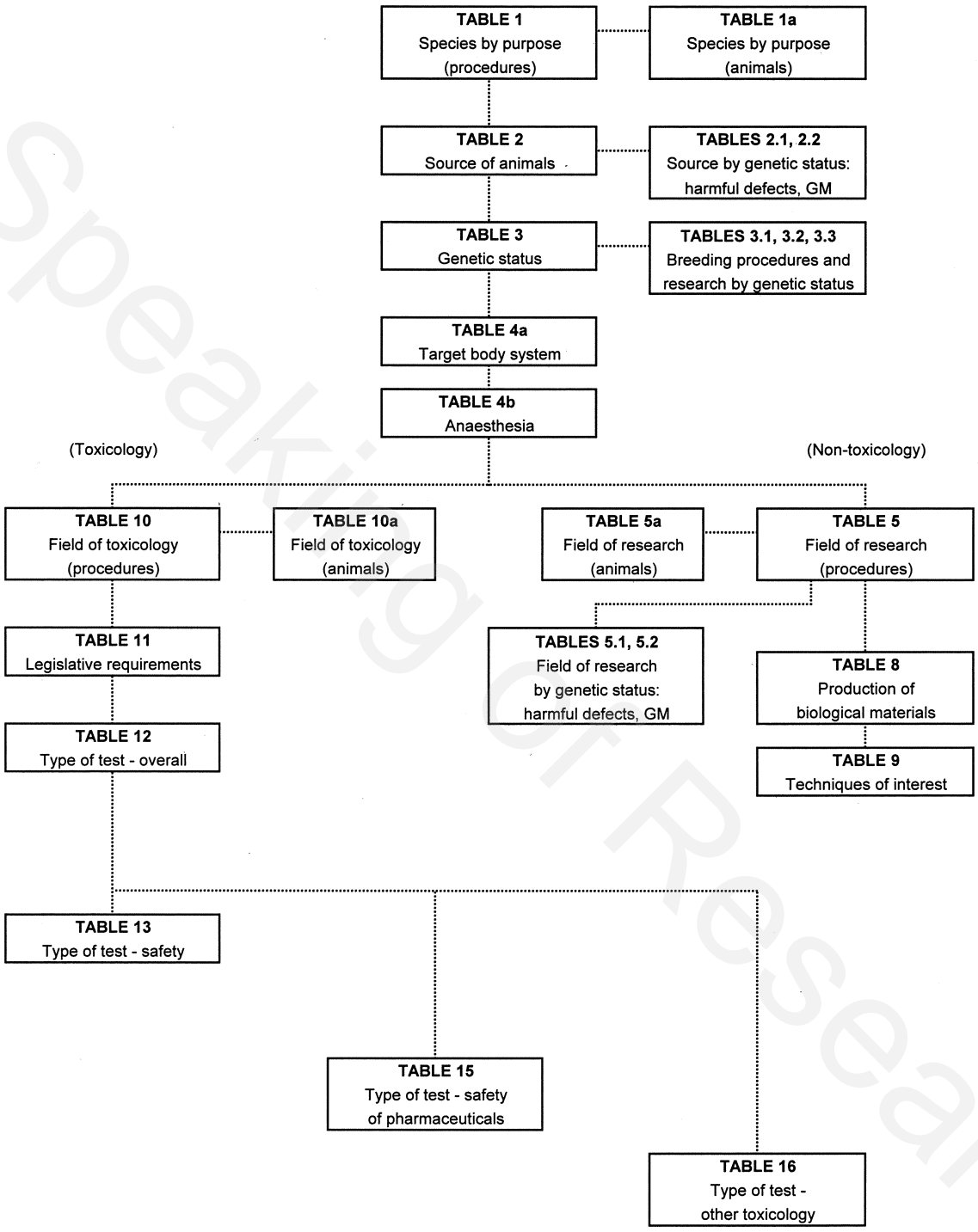
The Home Office would welcome comments from users on how well this publication meets their needs, and will consider any suggestions for improving it in future years. Comments and suggestions must be sent to the address below by 31 October 2003 if they are to be taken into account in time for the next publication (covering procedures started in 2003).

Comments should be sent to:

Research Development and Statistics Directorate,
Room 503, Allington Towers,
19 Allington Street
LONDON SW1E 5EB

or email: publications.rds@homeoffice.gsi.gov.uk

Organisation Chart: Relationship between the tables in part A, 2002



Notes

Tree tables and tables in parts B and C are separate from this relationship.
GM = genetically modified
Tables 6, 7, 14, and 17 have been discontinued as being either superfluous or having been superseded by other tables.

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

Great Britain 2002 — 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	
Mammal										
Mouse	568,653	347,776	19,717	31,002	1,621	-	-	5,638	745,846	1,720,253
Rat	138,365	260,033	3,068	81,190	955	1,040	-	34	24,962	509,647
Guinea pig	4,617	27,339	1,681	11,110	734	-	-	87	-	45,568
Hamster	2,829	823	2,332	235	-	-	-	7	14	6,240
Gerbil	1,742	3,068	-	-	11	-	-	10	-	4,831
Other rodent	2,509	-	688	155	-	-	-	-	-	3,352
Rabbit	3,284	16,559	1,513	3,941	118	-	-	4,325	540	30,280
Cat	277	-	1,118	-	-	-	-	-	-	1,395
Dog										
Beagle	131	6,306	158	870	-	-	-	199	-	7,664
Greyhound	-	-	-	-	-	-	-	-	-	-
Other including cross-bred dogs	46	4	234	-	-	-	-	-	16	300
Ferret	244	746	-	-	12	-	-	32	-	1,034
Other carnivore	955	-	709	91	-	-	-	-	-	1,755
Horse, donkey and cross-bred equids	533	-	611	-	12	-	19	6,827	-	8,002
Pig	5,318	425	845	20	-	-	-	1,845	-	8,453
Goat	138	29	158	5	-	-	-	25	-	355
Sheep	8,242	490	5,170	37	8	-	1	18,840	822	33,610
Cattle	5,055	3	1,502	140	-	-	-	68	-	6,768
Deer	72	-	-	-	-	-	-	-	-	72
Camelid	-	-	-	-	-	-	-	-	-	-
Other ungulate	-	-	-	8	-	-	-	-	-	8
Primate										
Prosimian	-	-	-	-	-	-	-	-	-	-
New World monkey										
marmoset, tamarin	336	553	-	-	-	-	-	32	-	921
Squirrel, owl, spider monkey	-	20	-	-	-	-	-	-	-	20
Other New World monkey	-	-	-	-	-	-	-	-	-	-

Table 1 Scientific procedures by species of animal and primary purpose of the procedure *(Continued)*

Great Britain 2002 — 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	
Old World monkey										
Macaque	189	2,766	-	79	-	-	-	2	-	3,036
Baboon	-	-	-	-	-	-	-	-	-	-
Other Old World monkey	-	-	-	-	-	-	-	-	-	-
Ape										
Gibbon	-	-	-	-	-	-	-	-	-	-
Great ape	-	-	-	-	-	-	-	-	-	-
Other mammal	605	-	21	627	-	-	-	-	-	1,253
Bird										
Domestic fowl (*Gallus domesticus*)	23,697	391	98,387	116	113	-	-	1,729	196	124,629
Turkey	185	50	3,146	-	-	-	-	91	-	3,472
Quail (*Coturnix coturnix*)	195	-	-	-	-	-	-	-	-	195
Quail (spp.other than *Coturnix coturnix*)	-	-	-	582	-	-	-	-	-	582
Other bird	4,725	-	677	3,274	-	-	-	793	-	9,469
Reptile										
Any reptilian species	137	2,103	-	-	-	-	-	-	-	2,240
Amphibian										
Any amphibian species	12,881	-	-	1,120	740	-	-	-	614	15,355
Fish										
Any fish species	78,317	462	33,231	51,024	-	-	-	750	18,169	181,953
Cephalopod										
Octopus vulgaris	-	-	-	-	-	-	-	-	-	-
Total	864,277	669,946	174,966	185,626	4,324	1,040	20	41,334	791,179	2,732,712

Table 1a Animals by species of animal and primary purpose of the procedure

Great Britain 2002

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	
Mammal										
Mouse	560,354	345,831	19,717	31,002	1,621	-	-	5,565	745,331	1,709,421
Rat	134,000	251,696	3,068	81,190	937	1,034	-	34	24,962	496,921
Guinea pig	4,599	26,173	1,681	11,110	121	-	-	62	-	43,746
Hamster	2,550	823	2,332	235	-	-	-	7	14	5,961
Gerbil	1,432	3,068	-	-	11	-	-	10	-	4,521
Other rodent	2,509	-	688	155	-	-	-	-	-	3,352
Rabbit	3,165	7,716	1,177	3,915	92	-	-	4,250	540	20,855
Cat	266	-	350	-	-	-	-	-	-	616
Dog										
Beagle	129	4,564	120	826	-	-	-	17	-	5,656
Greyhound	-	-	-	-	-	-	-	-	-	-
Other including cross-bred dogs	46	4	26	-	-	-	-	-	14	90
Ferret	231	746	-	-	12	-	-	32	-	1,021
Other carnivore	949	-	297	82	-	-	-	-	-	1,328
Horse, donkey and cross-bred equids	48	-	220	-	12	-	-	95	-	375
Pig	5,179	405	838	20	-	-	-	1,842	-	8,284
Goat	106	29	158	5	-	-		25	-	323
Sheep	7,872	417	5,047	37	8	-	1	1,011	698	15,091
Cattle	4,936	3	1,465	134	-	-	-	68	-	6,606
Deer	72	-	-	-	-	-	-	-	-	72
Camelid	-	-	-	-	-	-	-	-	-	-
Other ungulate	-	-	-	8	-	-	-	-	-	8
Primate										
Prosimian	-	-	-	-	-	-	-	-	-	-
New World monkey										
marmoset, tamarin	306	275	-	-	-	-	-	32	-	613
Squirrel, owl, spider monkey	-	-	-	-	-	-	-	-	-	-
Other New World monkey	-	-	-	-	-	-	-	-	-	-

Table 1a Animals by species of animal and primary purpose of the procedure *(Continued)*

Great Britain 2002 — 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	
Old World monkey										
Macaque	141	2,374	-	43	-	-	-	2	-	2,560
Baboon	-	-	-	-	-	-	-	-	-	-
Other Old World monkey	-	-	-	-	-	-	-	-	-	-
Ape										
Gibbon	-	-	-	-	-	-	-	-	-	-
Great ape	-	-	-	-	-	-	-	-	-	-
Other mammal	605	-	21	627	-	-	-	-	-	1,253
Bird										
Domestic fowl (*Gallus domesticus*)	23,201	391	98,387	80	113	-	-	1,695	196	124,063
Turkey	185	6	3,146	-	-	-	-	49	-	3,386
Quail (*Coturnix coturnix*)	195	-	-	-	-	-	-	-	-	195
Quail (spp,other than *Coturnix coturnix*)	-	-	-	582	-	-	-	-	-	582
	4,713	-	329	3,274	-	-	-	615	-	8,931
Reptile										
Any reptilian species	135	15	-	-	-	-	-	-	-	150
Amphibian										
Any amphibian species	6,462	-	-	1,120	731	-	-	-	614	8,927
Fish										
Any fish species	77,836	462	33,032	50,720	-	-	-	750	18,169	180,969
Cephalopod										
Octopus vulgaris	-	-	-	-	-	-	-	-	-	-
Total	842,222	644,998	172,099	185,165	3,658	1,034	1	16,161	790,538	2,655,876

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

Great Britain 2002 — 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	1,179,838	527,214	-	4,153	154	8,894	-	1,720,253
Rat	118,728	389,042	170	907	-	800	-	509,647
Guinea pig	592	43,919	-	996	-	61	-	45,568
Hamster	3,040	3,200	-	-	-	-	-	6,240
Gerbil	1,604	2,986	-	204	-	37	-	4,831
Rabbit	4,236	25,866	42	82	-	54	-	30,280
Cat	856	185	-	354	-	-	-	1,395
Dog	2,534	4,199	139	108	-	984	-	7,964
Ferret	211	779	13	-	-	31	-	1,034
Pig (genetically modified)	-	-	-	-	-	-	-	-
Sheep (genetically modified)	516	-	-	-	-	-	-	516
Primate	805	987	-	-	4	2,181	-	3,977
Quail *(Coturnix coturnix)*	-	195	-	-	-	-	-	195
Animals not listed	-	-	-	-	-	-	400,812	400,812
Total	1,312,960	998,572	364	6,804	158	13,042	400,812	2,732,712

Table 2.1 Scientific procedures by Schedule 2 listed species and source of animals (animals with a harmful genetic defect)

Great Britain 2002

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[1]	
Mouse	182,095	17,828	-	106	-	1,606	-	201,635
Rat	30,700	2,138	-	26	-	324	-	33,188
Guinea pig	-	-	-	-	-	-	-	-
Hamster	14	-	-	-	-	-	-	14
Gerbil	-	-	-	-	-	-	-	-
Rabbit	645	200	-	-	-	-	-	845
Cat	-	-	-	-	-	-	-	-
Dog	32	-	-	-	-	-	-	32
Ferret	-	-	-	-	-	-	-	-
Primate	-	-	-	-	-	-	-	-
Quail *(Coturnix coturnix)*	-	-	-	-	-	-	-	-
Animals not listed	-	-	-	-	-	-	24,184	24,184
Total	213,486	20,166	-	132	-	1,930	24,184	259,898

(1) The "animals not listed in Schedule 2" here were 102 domestic fowl and 24,082 fish.

Table 2.2 Scientific procedures by Schedule 2 listed species and source of animals (genetically modified animals)

Great Britain 2002

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 (1)	
Mouse	665,726	22,221	-	1,979	100	2,550	-	692,576
Rat	2,253	248	-	-	-	3	-	2,504
Guinea pig	-	-	-	-	-	-	-	-
Hamster	-	-	-	-	-	-	-	-
Gerbil	-	-	-	-	-	-	-	-
Rabbit	10	-	-	-	-	-	-	10
Cat	-	-	-	-	-	-	-	-
Dog	-	-	-	-	-	-	-	-
Ferret	-	-	-	-	-	-	-	-
Pig (genetically modified)	-	-	-	-	-	-	-	-
Sheep (genetically modified)	516	-	-	-	-	-	-	516
Primate	-	-	-	-	-	-	-	-
Quail *(Coturnix coturnix)*	-	-	-	-	-	-	-	-
Animals not listed	-	-	-	-	-	-	14,373	14,373
Total	668,505	22,469	-	1,979	100	2,553	14,373	709,979

(1) The "animals not listed in Schedule 2" here were 72 domestic fowl, 838 amphibians and 13,463 fish.

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

Great Britain 2002 — Number of procedures

Species of animal	Primary purpose of procedure	Genetic status			Total
		Normal animal	Animal with harmful genetic defect	Genetically modified animal	
Mouse	Fundamental biological research	314,928	42,767	210,958	568,653
	Applied studies	309,693	31,719	26,081	367,493
	Safety	30,764	-	238	31,002
	Other uses	7,248	3	8	7,259
	Breeding	163,409	127,146	455,291	745,846
	Total	826,042	201,635	692,576	1,720,253
Rat	Fundamental biological research	131,751	4,931	1,683	138,365
	Applied studies	257,346	5,657	98	263,101
	Safety	81,190	-	-	81,190
	Other uses	2,029	-	-	2,029
	Breeding	1,639	22,600	723	24,962
	Total	473,955	33,188	2,504	509,647
Guinea pig	Fundamental biological research	4,617	-	-	4,617
	Applied studies	29,020	-	-	29,020
	Safety	11,110	-	-	11,110
	Other uses	821	-	-	821
	Breeding	-	-	-	-
	Total	45,568	-	-	45,568
Hamster	Fundamental biological research	2,829	-	-	2,829
	Applied studies	3,155	-	-	3,155
	Safety	235	-	-	235
	Other uses	7	-	-	7
	Breeding	-	14	-	14
	Total	6,226	14	-	6,240
Gerbil	Fundamental biological research	1,742	-	-	1,742
	Applied studies	3,068	-	-	3,068
	Safety	-	-	-	-
	Other uses	21	-	-	21
	Breeding	-	-	-	-
	Total	4,831	-	-	4,831
Other rodent	Fundamental biological research	2,509	-	-	2,509
	Applied studies	688	-	-	688
	Safety	155	-	-	155
	Other uses	-	-	-	-
	Breeding	-	-	-	-
	Total	3,352	-	-	3,352
Rabbit	Fundamental biological research	3,274	-	10	3,284
	Applied studies	17,767	305	-	18,072
	Safety	3,941	-	-	3,941
	Other uses	4,443	-	-	4,443
	Breeding	-	540	-	540
	Total	29,425	845	10	30,280
Cat	Fundamental biological research	277	-	-	277
	Applied studies	1,118	-	-	1,118
	Safety	-	-	-	-
	Other uses	-	-	-	-
	Breeding	-	-	-	-
	Total	1,395	-	-	1,395
Dog - Beagle	Fundamental biological research	131	-	-	131
	Applied studies	6,464	-	-	6,464
	Safety	870	-	-	870
	Other uses	199	-	-	199
	Breeding	-	-	-	-
	Total	7,664	-	-	7,664
Dog - Other	Fundamental biological research	46	-	-	46
	Applied studies	219	19	-	238
	Safety	-	-	-	-
	Other uses	-	-	-	-
	Breeding	3	13	-	16
	Total	268	32	-	300
Ferret	Fundamental biological research	244	-	-	244
	Applied studies	746	-	-	746
	Safety	-	-	-	-
	Other uses	44	-	-	44
	Breeding	-	-	-	-
	Total	1,034	-	-	1,034

Table 3 Scientific procedures by species of animal, primary purpose and genetic status *(Continued)*

Great Britain 2002 — Number of procedures

Species of animal	Primary purpose of procedure	Genetic status			Total
		Normal animal	Animal with harmful genetic defect	Genetically modified animal	
Other Carnivore	Fundamental biological research	955	-	-	955
	Applied studies	709	-	-	709
	Safety	91	-	-	91
	Other uses	-	-	-	-
	Breeding	-	-	-	-
	Total	1,755	-	-	1,755
Horse, Donkey etc	Fundamental biological research	533	-	-	533
	Applied studies	611	-	-	611
	Safety	-	-	-	-
	Other uses	6,858	-	-	6,858
	Breeding	-	-	-	-
	Total	8,002	-	-	8,002
Pig	Fundamental biological research	5,318	-	-	5,318
	Applied studies	1,270	-	-	1,270
	Safety	20	-	-	20
	Other uses	1,845	-	-	1,845
	Breeding	-	-	-	-
	Total	8,453	-	-	8,453
Goat	Fundamental biological research	138	-	-	138
	Applied studies	187	-	-	187
	Safety	5	-	-	5
	Other uses	25	-	-	25
	Breeding	-	-	-	-
	Total	355	-	-	355
Sheep	Fundamental biological research	8,242	-	-	8,242
	Applied studies	5,660	-	-	5,660
	Safety	37	-	-	37
	Other uses	18,849	-	-	18,849
	Breeding	306	-	516	822
	Total	33,094	-	516	33,610
Cattle	Fundamental biological research	5,055	-	-	5,055
	Applied studies	1,505	-	-	1,505
	Safety	140	-	-	140
	Other uses	68	-	-	68
	Breeding	-	-	-	-
	Total	6,768	-	-	6,768
Deer	Fundamental biological research	72	-	-	72
	Applied studies	-	-	-	-
	Safety	-	-	-	-
	Other uses	-	-	-	-
	Breeding	-	-	-	-
	Total	72	-	-	72
Other Ungulate	Fundamental biological research	-	-	-	-
	Applied studies	-	-	-	-
	Safety	8	-	-	8
	Other uses	-	-	-	-
	Breeding	-	-	-	-
	Total	8	-	-	8
Marmoset, Tamarin	Fundamental biological research	336	-	-	336
	Applied studies	553	-	-	553
	Safety	-	-	-	-
	Other uses	32	-	-	32
	Breeding	-	-	-	-
	Total	921	-	-	921
Squirrel, Owl or Spider monkey	Fundamental biological research	-	-	-	-
	Applied studies	20	-	-	20
	Safety	-	-	-	-
	Other uses	-	-	-	-
	Breeding	-	-	-	-
	Total	20	-	-	20
Macaque	Fundamental biological research	189	-	-	189
	Applied studies	2,766	-	-	2,766
	Safety	79	-	-	79
	Other uses	2	-	-	2
	Breeding	-	-	-	-
	Total	3,036	-	-	3,036

Table 3 Scientific procedures by species of animal, primary purpose and genetic status *(Continued)*

Great Britain 2002 — Number of procedures

Species of animal	Primary purpose of procedure	Genetic status			Total
		Normal animal	Animal with harmful genetic defect	Genetically modified animal	
Other Mammal	Fundamental biological research	605	-	-	605
	Applied studies	21	-	-	21
	Safety	627	-	-	627
	Other uses	-	-	-	-
	Breeding	-	-	-	-
	Total	1,253	-	-	1,253
Domestic Fowl	Fundamental biological research	23,697	-	-	23,697
	Applied studies	98,778	-	-	98,778
	Safety	116	-	-	116
	Other uses	1,842	-	-	1,842
	Breeding	22	102	72	196
	Total	124,455	102	72	124,629
Turkey	Fundamental biological research	185	-	-	185
	Applied studies	3,196	-	-	3,196
	Safety	-	-	-	-
	Other uses	91	-	-	91
	Breeding	-	-	-	-
	Total	3,472	-	-	3,472
Quail (*Coturnix coturnix*)	Fundamental biological research	195	-	-	195
	Applied studies		-	-	-
	Safety	-	-	-	-
	Other uses	-	-	-	-
	Breeding	-	-	-	-
	Total	195	-	-	195
Quail (spp. other than *Coturnix coturnix*)	Fundamental biological research	-	-	-	-
	Applied studies	-	-	-	-
	Safety	582	-	-	582
	Other uses	-	-	-	-
	Breeding	-	-	-	-
	Total	582	-	-	582
Other bird	Fundamental biological research	4,725	-	-	4,725
	Applied studies	677	-	-	677
	Safety	3,274	-	-	3,274
	Other uses	793	-	-	793
	Breeding	-	-	-	-
	Total	9,469	-	-	9,469
Reptile	Fundamental biological research	137	-	-	137
	Applied studies	2,103	-	-	2,103
	Safety	-	-	-	-
	Other uses	-	-	-	-
	Breeding	-	-	-	-
	Total	2,240	-	-	2,240
Amphibian	Fundamental biological research	12,649	-	232	12,881
	Applied studies	-	-	-	-
	Safety	1,120	-	-	1,120
	Other uses	740	-	-	740
	Breeding	8	-	606	614
	Total	14,517	-	838	15,355
Fish	Fundamental biological research	59,327	16,079	2,911	78,317
	Applied studies	33,237	-	456	33,693
	Safety	51,024	-	-	51,024
	Other uses	750	-	-	750
	Breeding	70	8,003	10,096	18,169
	Total	144,408	24,082	13,463	181,953
All species	Fundamental biological research	584,706	63,777	215,794	864,277
	Applied studies	780,577	37,700	26,635	844,912
	Safety	185,388	-	238	185,626
	Other uses	46,707	3	8	46,718
	Breeding	165,457	158,418	467,304	791,179
TOTAL		1,762,835	259,898	709,979	2,732,712

Species not listed had no procedures

Table 3.1 Procedures using genetically normal animals for the production and breeding of genetically modified or harmful mutant animals

Great Britain 2002 — Number of procedures

Species of animal	Generation of founder genetically modified animals	Normal animals within genetically modified breeding colonies	Normal animals within harmful mutant breeding colonies	Totals
Mouse	64,810	91,885	6,714	163,409
Rat	826	733	80	1,639
Other Rodent	-	-	-	-
Rabbit	-	-	-	-
Cat	-	-	-	-
Dog	-	-	3	3
Ferret	-	-	-	-
Other Carnivore	-	-	-	-
Horse and other equids	-	-	-	-
Pig	-	-	-	-
Sheep	35	271	-	306
Other Ungulates	-	-	-	-
New World monkey	-	-	-	-
Old World monkey	-	-	-	-
Other Mammal	-	-	-	-
Bird	22	-	-	22
Reptile / Amphibian	8	-	-	8
Fish	70	-	-	70
Total	65,771	92,889	6,797	165,457

Table 3.2 Procedures using harmful mutant animals in breeding procedures or research

Great Britain 2002

Number of procedures

Species of animal	Maintenance of breeding colony	Used for further non-regulated scientific purpose (1)	Used in further regulated procedures	Used in production and other procedures (2)	Used in safety evaluation studies (3)	Totals
Mouse	127,146	12,007	35,961	25,515	1,006	201,635
Rat	22,600	903	6,432	3,052	201	33,188
Other Rodent	14	-	-	-	-	14
Rabbit	540	-	305	-	-	845
Cat	-	-	-	-	-	-
Dog	13	-	19	-	-	32
Ferret	-	-	-	-	-	-
Other Carnivore	-	-	-	-	-	-
Horse and other equids	-	-	-	-	-	-
Other Ungulates	-	-	-	-	-	-
New World monkey	-	-	-	-	-	-
Old World monkey	-	-	-	-	-	-
Other Mammal	-	-	-	-	-	-
Bird	102	-	-	-	-	102
Reptile / Amphibian	-	-	-	-	-	-
Fish	8,003	6,549	9,528	2	-	24,082
Total	158,418	19,459	52,245	28,569	1,207	259,898

(1) See Annex A of Appendix B

(2) Includes production of various biological materials (codes B50-B56 in Appendix B); also includes procedures not concerned with production (code B79)

(3) Reported using A codes in rows 10-12 (see Appendix B)

Table 3.3 Procedures using genetically modified animals in breeding procedures or research

Great Britain 2002 — Number of procedures

Species of animal	Generation of founder animals	Maintenance of breeding colony	Used for further non-regulated scientific purpose (1)	Used in further regulated procedures	Used in production and other procedures (2)	Used in safety evaluation studies (3)	Total
Mouse	13,281	442,703	102,648	76,081	56,324	1,539	692,576
Rat	152	571	679	245	857	-	2,504
Other Rodent	-	-	-	-	-	-	-
Rabbit	-	-	-	-	10	-	10
Cat	-	-	-	-	-	-	-
Dog	-	-	-	-	-	-	-
Ferret	-	-	-	-	-	-	-
Other Carnivore	-	-	-	-	-	-	-
Horse and other equids	-	-	-	-	-	-	-
Pig	-	-	-	-	-	-	-
Sheep	-	516	-	-	-	-	516
Other Ungulates	-	-	-	-	-	-	-
New World monkey	-	-	-	-	-	-	-
Old World monkey	-	-	-	-	-	-	-
Other Mammal	-	-	-	-	-	-	-
Bird	18	54	-	-	-	-	72
Reptile / Amphibian	179	431	-	61	167	-	838
Fish	2,906	7,190	2,327	-	1,040	-	13,463
Total	16,536	451,465	105,654	76,387	58,398	1,539	709,979

(1) See Annex A of Appendix B

(2) Includes production of various biological materials (codes B50-B56 in Appendix B); also includes procedures not concerned with production (code B79)

(3) Reported using A codes in rows 10-12 (see Appendix B)

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

Great Britain 2002

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	34,696	36,539	197,064	7,276	32,082	32,289	32,453	130,451	404,869	34,222	291,165	487,147	1,720,253
Rat	26,196	31,182	178,071	3,814	22,086	2,519	6,744	37,209	16,363	26,717	80,725	78,021	509,647
Other rodent	10,175	1,469	11,100	510	2,046	8,758	144	1,828	10,894	354	6,620	6,093	59,991
Rabbit	560	1,649	448	138	168	2,136	715	3,292	4,582	1,560	9,772	5,260	30,280
Cat	17	-	138	48	124	16	-	-	-	-	926	126	1,395
Dog	427	768	47	43	119	62	-	-	111	80	3,522	2,785	7,964
Ferret	619	109	157	102	-	-	-	-	47	-	-	-	1,034
Other carnivore	-	-	6	4	-	-	10	-	-	-	710	1,025	1,755
Horse, donkey and cross-bred equids	28	31	-	-	35	-	-	144	474	4,326	436	2,528	8,002
Other ungulate	1,582	4,272	1,482	-	2,355	389	747	1,462	5,270	17,066	6,115	8,526	49,266
Primate													
New World monkey	-	180	172	30	3	-	-	98	69	20	156	213	941
Old World monkey	25	93	407	11	5	-	-	33	280	-	953	1,229	3,036
Other mammal	-	-	141	23	27	956	-	31	-	-	75	-	1,253
Bird	2,007	4,344	5,309	130	12,893	36	2,011	402	9,732	89,162	2,916	9,405	138,347
Reptile, amphibian	-	328	110	130	2,103	-	729	9,728	34	-	1,037	3,396	17,595
Fish	3,634	28	150	213	2,137	2,994	1,525	5,343	27,290	5,222	38,559	94,858	181,953
Total	79,966	80,992	394,802	12,472	76,183	50,155	45,078	190,021	480,015	178,729	443,687	700,612	2,732,712

Table 4b Scientific procedures by species of animal and level of anaesthesia

Great Britain 2002 — 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	
Mouse	1,059,294	324,436	243,427	64,781	28,315	1,720,253
Rat	289,088	128,629	2,874	48,499	40,557	509,647
Other rodent	42,101	11,057	314	3,684	2,835	59,991
Rabbit	20,514	1,614	1,090	4,374	2,688	30,280
Cat	1,004	241	-	-	150	1,395
Dog	5,159	1,052	474	623	656	7,964
Ferret	327	553	-	33	121	1,034
Other carnivore	447	1,300	-	-	8	1,755
Horse and other equids	720	19	7,251	-	12	8,002
Other ungulates	44,414	2,704	980	296	872	49,266
New World monkey	652	131	-	111	47	941
Old World monkey	1,981	857	-	127	71	3,036
Other mammal	1,188	34	-	-	31	1,253
Bird	53,548	298	145	84,301	55	138,347
Reptile / Amphibian	14,661	1,875	-	224	835	17,595
Fish	99,673	79,424	-	2,588	268	181,953
Total	1,634,771	554,224	256,555	209,641	77,521	2,732,712

Neuromuscular blocking agents (NMBA) were used in 3,147 procedures in 2002. All of these procedures involved the use of general anaesthesia.

Table 5 Scientific procedures (non-toxicology) by species of animal and field of research

Great Britain 2002 — 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	154,064	100,314	17,377	16,072	39,941	380,203	43,416	37,277	30,355	170,223	12,190	3,738	280
Rat	16,178	44,527	10,759	15,381	4,914	11,873	774	3,694	31,067	167,372	3,880	3,834	2,170
Guinea pig	4	1,420	5	-	16	1,061	955	798	3,141	15,644	-	59	-
Hamster	40	490	77	54	-	1,827	-	1,578	-	446	5	-	32
Gerbil	3	74	-	1,201	-	88	40	266	-	3,068	-	-	-
Other rodent	-	4	-	38	-	5	-	20	-	-	-	-	-
Rabbit	48	1,421	327	-	504	3,718	726	82	209	2,341	73	60	55
Cat	14	113	-	-	15	63	62	13	46	233	10	25	-
Dog													
Beagle	-	43	-	-	-	81	-	-	10	1,529	-	-	-
Greyhound	-	-	-	-	-	-	-	-	-	-	-	-	-
Other including cross-bred dogs	-	-	-	-	-	-	-	-	47	-	15	-	-
Ferret	28	189	-	27	-	165	161	-	30	424	-	-	-
Other carnivore	-	4	-	4	-	-	-	-	-	-	-	-	-
Horse, donkey and cross-bred equids	12	190	-	-	-	400	6,884	-	373	17	-	4	-
Pig	20	227	36	794	24	1,339	547	42	45	50	167	254	52
Goat	-	76	-	-	-	40	-	154	-	-	-	26	-
Sheep	185	1,274	354	29	1,343	308	18,413	1,060	9	1,017	193	773	240
Cattle	-	611	-	-	49	514	883	2,704	-	36	-	7	-
Deer	-	14	-	-	-	-	-	-	-	-	-	-	-
Camelid	-	-	-	-	-	-	-	-	-	-	-	-	-
Other ungulate	-	-	-	-	-	-	-	-	-	-	-	-	-
Primate													
Prosimian	-	-	-	-	-	-	-	-	-	-	-	-	-
New World monkey													
marmoset, tamarin	2	93	-	129	-	33	3	-	54	368	-	-	4
Squirrel, owl, spider monkey	-	-	-	-	-	-	-	-	-	20	-	-	-
Other New World monkey	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 5 Scientific procedures (non-toxicology) by species of animal and field of research *(Continued)*

Great Britain 2002 — 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
Old World monkey													
Macaque	5	62	-	2	-	65	82	-	4	158	-	2	-
Baboon	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Old World monkey	-	-	-	-	-	-	-	-	-	-	-	-	-
Ape													
Gibbon	-	-	-	-	-	-	-	-	-	-	-	-	-
Great ape	-	-	-	-	-	-	-	-	-	-	-	-	-
Other mammal	-	88	-	-	-	1	-	-	132	-	-	-	-
Bird													
Domestic fowl (*Gallus domesticus*)	133	998	1,457	5,199	-	4,945	10,615	86,513	-	220	-	3	-
Turkey	97	-	-	-	-	4	527	88	-	2,110	-	-	-
Quail (*Coturnix coturnix*)	195	-	-	-	-	-	-	-	-	-	-	-	-
Quail (spp. other than *Coturnix coturnix*)	-	-	-	-	-	-	-	-	-	-	-	-	-
Other bird	8	473	-	157	-	1,294	89	-	-	-	-	-	-
Reptile													
Any reptilian species	-	35	-	-	-	-	-	-	-	-	-	-	-
Amphibian													
Any amphibian species	8,347	1,547	946	-	-	34	-	123	155	8	-	-	-
Fish													
Any fish species	36,078	22,543	227	555	10,437	15,570	8,757	2,209	-	462	1,349	-	-
Cephalopod													
Octopus vulgaris	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	215,461	176,830	31,565	39,642	57,243	423,631	92,934	136,621	65,677	365,746	17,882	8,785	2,833

Table 5 Scientific procedures (non-toxicology) by species of animal and field of research *(Continued)*

Great Britain 2002 — 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	Alcohol	
Mammal														
Mouse	-	98,379	88,202	249,974	1,033	-	9	13,949	84	70	80,231	-	1,676	1,539,057
Rat	-	2,798	3,549	6,645	2,166	-	16	43	-	63	8,623	-	654	340,980
Guinea pig	-	-	11	20	-	-	-	-	53	-	2	-	-	23,189
Hamster	-	-	355	8	261	85	-	-	-	-	-	-	-	5,258
Gerbil	-	-	-	91	-	-	-	-	-	-	-	-	-	4,831
Other rodent	-	-	-	-	244	10	-	688	2,166	48	-	-	-	3,223
Rabbit	-	-	44	79	-	56	30	54	127	21	568	-	-	10,543
Cat	-	-	-	-	744	-	-	-	-	-	-	-	-	1,338
Dog														
Beagle	-	8	-	56	16	-	-	-	-	-	52	-	-	1,795
Greyhound	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other including cross-bred dogs	-	12	-	-	218	-	-	-	-	-	8	-	-	300
Ferret	-	-	-	-	-	-	-	-	-	-	-	-	-	1,024
Other carnivore	-	327	-	-	-	191	-	27	1,185	11	-	-	-	1,749
Horse, donkey and cross-bred equids	-	-	-	-	-	-	-	20	-	28	-	-	-	7,928
Pig	-	233	2	8	-	-	-	3,523	-	117	-	-	-	7,480
Goat	-	-	-	-	50	-	-	-	-	-	-	-	-	346
Sheep	-	457	3	-	544	-	-	3,426	-	137	3,453	-	-	33,218
Cattle	-	32	-	-	255	-	-	279	209	2	-	-	-	5,581
Deer	-	58	-	-	-	-	-	-	-	-	-	-	-	72
Camelid	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other ungulate	-	-	-	-	-	-	-	-	8	-	-	-	-	8
Primate														
Prosimian	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New World monkey														
marmoset, tamarin	-	-	-	22	-	-	-	-	-	-	-	-	-	708
Squirrel, owl, spider monkey	-	-	-	-	-	-	-	-	-	-	-	-	-	20
Other New World monkey	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 5 Scientific procedures (non-toxicology) by species of animal and field of research *(Continued)*

Great Britain 2002 — 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	Alcohol	
Old World monkey														
Macaque	-	-	-	-	-	-	-	-	-	-	-	-	-	380
Baboon	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Old World monkey	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ape														
Gibbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Great ape	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other mammal	-	-	331	-	-	-	-	21	668	12	-	-	-	1,253
Bird														
Domestic fowl (*Gallus domesticus*)	-	1,431	2	-	2,344	-	-	-	-	658	-	-	-	114,518
Turkey	-	-	-	-	84	-	-	-	-	-	-	-	-	2,910
Quail (*Coturnix coturnix*)	-	-	-	-	-	-	-	-	-	-	-	-	-	195
Quail (spp. other than *Coturnix coturnix*)	-	-	-	-	-	-	-	-	96	-	-	-	-	96
Other bird	-	931	-	-	87	2,354	-	-	3,968	32	-	-	-	9,393
Reptile														
Any reptilian species	-	-	-	-	-	23	-	-	79	-	-	-	-	137
Amphibian														
Any amphibian species	-	92	351	1,242	-	634	6	-	780	-	-	-	-	14,265
Fish														
Any fish species	-	348	116	-	1,643	938	-	1,063	12,700	155	-	-	-	115,150
Cephalopod														
Octopus vulgaris	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	105,106	92,966	258,145	9,689	4,291	61	23,093	22,123	1,354	92,937	-	2,330	2,246,945

Table 5a Animals (non-toxicology) by species of animal and field of research

Great Britain 2002 — 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	153,807	100,003	17,304	16,072	39,790	377,120	43,416	34,881	30,252	169,545	12,137	3,611	280
Rat	15,915	44,511	10,759	12,414	4,914	11,873	774	3,394	30,744	159,115	3,880	3,633	2,170
Guinea pig	4	1,402	5	-	16	1,061	930	185	3,141	14,478	-	59	-
Hamster	40	490	77	54	-	1,827	-	1,349	-	446	5	-	32
Gerbil	3	74	-	891	-	88	40	266	-	3,068	-	-	-
Other rodent	-	4	-	38	-	5	-	20	-	-	-	-	-
Rabbit	48	1,399	312	-	504	3,712	673	46	209	2,314	73	60	55
Cat	14	113	-	-	15	57	61	2	46	165	-	25	-
Dog													
Beagle	-	43	-	-	-	81	-	-	10	572	-	-	-
Greyhound	-	-	-	-	-	-	-	-	-	-	-	-	-
Other including cross-bred dogs	-	-	-	-	-	-	-	-	47	-	15	-	-
Ferret	28	189	-	14	-	165	161	-	30	424	-	-	-
Other carnivore	-	4	-	-	-	-	-	-	-	-	-	-	-
Horse, donkey and cross-bred equids	12	42	-	-	-	88	100	-	9	17	-	4	-
Pig	20	224	36	794	24	1,339	547	42	45	47	167	254	52
Goat	-	44	-	-	-	40	-	154	-	-	-	26	-
Sheep	185	1,259	348	29	1,327	308	607	1,060	9	800	184	693	108
Cattle	-	533	-	-	49	503	883	2,704	-	36	-	7	-
Deer	-	14	-	-	-	-	-	-	-	-	-	-	-
Camelid	-	-	-	-	-	-	-	-	-	-	-	-	-
Other ungulate	-	-	-	-	-	-	-	-	-	-	-	-	-
Primate													
Prosimian	-	-	-	-	-	-	-	-	-	-	-	-	-
New World monkey													
marmoset, tamarin	2	67	-	125	-	33	3	-	54	96	-	-	4
Squirrel, owl, spider monkey	-	-	-	-	-	-	-	-	-	-	-	-	-
Other New World monkey	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 5a Animals (non-toxicology) by species of animal and field of research *(Continued)*

Great Britain 2002 — 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
Old World monkey													
Macaque	3	33	-	2	-	60	70	-	4	42	-	2	-
Baboon	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Old World monkey	-	-	-	-	-	-	-	-	-	-	-	-	-
Ape													
Gibbon	-	-	-	-	-	-	-	-	-	-	-	-	-
Great ape	-	-	-	-	-	-	-	-	-	-	-	-	-
Other mammal	-	88	-	-	-	1	-	-	132	-	-	-	-
Bird													
Domestic fowl (*Gallus domesticus*)	133	998	1,457	5,199	-	4,945	10,581	86,513	-	220	-	3	-
Turkey	97	-	-	-	-	4	483	88	-	2,068	-	-	-
Quail (*Coturnix coturnix*)	195	-	-	-	-	-	-	-	-	-	-	-	-
Quail (spp,other than *Coturnix coturnix*)	-	-	-	-	-	-	-	-	-	-	-	-	-
Other bird	8	473	-	157	-	849	89	-	-	-	-	-	-
Reptile													
Any reptilian species	-	35	-	-	-	-	-	-	-	-	-	-	-
Amphibian													
Any amphibian species	3,838	1,182	264	-	-	34	-	123	118	8	-	-	-
Fish													
Any fish species	36,078	22,543	227	554	10,437	15,570	8,757	2,209	-	462	1,349	-	-
Cephalopod													
Octopus vulgaris	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	210,430	175,767	30,789	36,343	57,076	419,763	68,175	133,036	64,850	353,923	17,810	8,377	2,701

Table 5a Animals (non-toxicology) by species of animal and field of research *(Continued)*

Great Britain 2002 — 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	Alcohol	
Mammal														
Mouse	-	98,359	87,921	246,782	960	-	9	13,949	84	70	80,231	-	1,676	1,528,259
Rat	-	2,798	3,548	6,603	1,914	-	16	43	-	63	8,599	-	654	328,334
Guinea pig	-	-	11	20	-	-	-	-	53	-	2	-	-	21,367
Hamster	-	-	355	8	261	35	-	-	-	-	-	-	-	4,979
Gerbil	-	-	-	91	-	-	-	-	-	-	-	-	-	4,521
Other rodent	-	-	-	-	244	10	-	688	2,166	48	-	-	-	3,223
Rabbit	-	-	44	79	-	2	30	54	103	19	560	-	-	10,296
Cat	-	-	-	-	75	-	-	-	-	-	-	-	-	573
Dog														
Beagle	-	8	-	22	-	-	-	-	-	-	9	-	-	745
Greyhound	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other including cross-bred dogs	-	10	-	-	10	-	-	-	-	-	8	-	-	90
Ferret	-	-	-	-	-	-	-	-	-	-	-	-	-	1,011
Other carnivore	-	327	-	-	-	191	-	27	762	11	-	-	-	1,322
Horse, donkey and cross-bred equids	-	-	-	-	-	-	-	20	-	9	-	-	-	301
Pig	-	231	2	8	-	-	-	3,389	-	117	-	-	-	7,338
Goat	-	-	-	-	50	-	-	-	-	-	-	-	-	314
Sheep	-	457	3	-	520	-	-	3,243	-	137	3,453	-	-	14,730
Cattle	-	32	-	-	232	-	-	266	209	2	-	-	-	5,456
Deer	-	58	-	-	-	-	-	-	-	-	-	-	-	72
Camelid	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other ungulate	-	-	-	-	-	-	-	-	8	-	-	-	-	8
Primate														
Prosimian	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New World monkey														
marmoset, tamarin	-	-	-	22	-	-	-	-	-	-	-	-	-	406
Squirrel, owl, spider monkey	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other New World monkey	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 5a Animals (non-toxicology) by species of animal and field of research *(Continued)*

Great Britain 2002 — 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	Alcohol	
Old World monkey														
Macaque	-	-	-	-	-	-	-	-	-	-	-	-	-	216
Baboon	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Old World monkey	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ape														
Gibbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Great ape	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Mammal	-	-	331	-	-	-	-	21	668	12	-	-	-	1,253
Bird														
Domestic fowl (*Gallus domesticus*)	-	935	2	-	2,344	-	-	-	-	622	-	-	-	113,952
Turkey	-	-	-	-	84	-	-	-	-	-	-	-	-	2,824
Quail (*Coturnix coturnix*)	-	-	-	-	-	-	-	-	-	-	-	-	-	195
Quail (spp,other than *Coturnix coturnix*)	-	-	-	-	-	-	-	-	96	-	-	-	-	96
Other bird	-	931	-	-	6	2,342	-	-	3,968	32	-	-	-	8,855
Reptile														
Any reptilian species	-	-	-	-	-	21	-	-	79	-	-	-	-	135
Amphibian														
Any amphibian species	-	92	305	453	-	634	6	-	780	-	-	-	-	7,837
Fish														
Any fish species	-	348	116	-	964	938	-	1,063	12,396	155	-	-	-	114,166
Cephalopod														
Octopus vulgaris	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	104,586	92,638	254,088	7,664	4,173	61	22,763	21,372	1,297	92,862	-	2,330	2,182,874

Table 5.1 Scientific procedures (non-toxicology) by species of animal and field of research (animals with a harmful genetic defect)

Great Britain 2002

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	11,597	12,727	1,170	17	3,900	33,972	634	412	126	19,529	640	173	-
Rat	793	4,983	3,925	492	289	863	-	72	336	7,401	-	2,037	-
Hamster	14	-	-	-	-	-	-	-	-	-	-	-	-
Other rodent	-	-	-	-	-	-	-	-	-	-	-	-	-
Rabbit	-	-	-	-	-	-	-	-	-	305	-	-	-
Dog													
Other including cross-bred dogs	-	-	-	-	-	-	-	-	-	-	15	-	-
Bird													
Domestic fowl (*Gallus domesticus*)	-	-	-	-	-	-	-	-	-	-	-	-	-
Fish													
Any fish species	24,082	-	-	-	-	-	-	-	-	-	-	-	-
Total	36,486	17,710	5,095	509	4,189	34,835	634	484	462	27,235	655	2,210	-

Table 5.1 *(Continued)*

Great Britain 2002

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	Alcohol	
Mammal														
Mouse	-	18,092	2,420	62,121	39	-	-	-	-	-	33,060	-	-	200,629
Rat	-	2,783	43	643	-	-	-	-	-	-	8,327	-	-	32,987
Hamster	-	-	-	-	-	-	-	-	-	-	-	-	-	14
Other rodent	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rabbit	-	-	-	-	-	-	-	-	-	-	540	-	-	845
Dog														
Other including cross-bred dogs	-	9	-	-	-	-	-	-	-	-	8	-	-	32
Bird														
Domestic fowl (*Gallus domesticus*)	-	102	-	-	-	-	-	-	-	-	-	-	-	102
Fish														
Any fish species	-	-	-	-	-	-	-	-	-	-	-	-	-	24,082
Total	-	20,986	2,463	62,764	39	-	-	-	-	-	41,935	-	-	258,691

Table 5.2 Scientific procedures (non-toxicology) by species of animal and field of research (genetically modified animals)

Great Britain 2002 — 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	83,334	61,717	11,767	9,582	14,015	213,428	7,194	720	7,673	34,031	2,942	902	-
Rat	343	1,140	33	-	74	-	-	-	6	74	-	-	24
Other rodent	-	-	-	-	-	-	-	-	-	-	-	-	-
Rabbit	-	-	-	-	10	-	-	-	-	-	-	-	-
Pig	-	-	-	-	-	-	-	-	-	-	-	-	-
Sheep	-	-	-	-	-	-	-	-	-	516	-	-	-
Bird													
Domestic fowl (*Gallus domesticus*)	-	-	-	-	-	-	-	-	-	-	-	-	-
Amphibian	-	-	-	-	-	-	-	-	-	-	-	-	-
Any amphibian species	731	15	-	-	-	-	-	-	-	-	-	-	-
Fish													
Any fish species	11,554	-	-	-	-	-	-	-	-	456	-	-	-
Total	95,962	62,872	11,800	9,582	14,099	213,428	7,194	720	7,679	35,077	2,942	902	24

Table 5.2 *(Continued)*

Great Britain 2002 — 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	Alcohol	
Mammal														
Mouse	-	34,370	55,432	99,314	48	-	-	11,718	-	-	42,677	-	173	691,037
Rat	-	12	798	-	-	-	-	-	-	-	-	-	-	2,504
Other rodent	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rabbit	-	-	-	-	-	-	-	-	-	-	-	-	-	10
Pig	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sheep	-	-	-	-	-	-	-	-	-	-	-	-	-	516
Bird														
Domestic fowl (*Gallus domesticus*)	-	72	-	-	-	-	-	-	-	-	-	-	-	72
Amphibian	-	-	-	-	-	-	-	-	-	-	-	-	-	
Any amphibian species	-	92	-	-	-	-	-	-	-	-	-	-	-	838
Fish														
Any fish species	-	300	90	-	-	-	-	1,063	-	-	-	-	-	13,463
Total	-	34,846	56,320	99,314	48	-	-	12,781	-	-	42,677	-	173	708,440

Table 8 Scientific procedures (non-toxicology) by species of animal and production of biological materials

Great Britain 2002 — 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		
Mouse	31,999	4,378	14,778	-	3,852	8,301	76,192	1,399,557	1,539,057
Rat	3,643	376	818	-	368	258	30,582	304,935	340,980
Other Rodent	1,361	1,219	8	-	22	649	844	32,398	36,501
Rabbit	19	114	-	-	55	4,882	878	4,595	10,543
Cat	2	11	-	-	-	26	-	1,299	1,338
Dog	-	-	-	-	-	-	737	1,358	2,095
Ferret	-	-	-	-	-	203	147	674	1,024
Other Carnivore	-	-	-	-	-	-	-	1,749	1,749
Horse and other equids	-	-	-	-	-	81	4,679	3,168	7,928
Other Ungulates	746	39	-	-	23	714	20,469	24,714	46,705
New World monkey	-	-	-	-	-	3	143	582	728
Old World monkey	-	-	-	-	-	-	65	315	380
Other Mammal	-	-	-	-	-	-	-	1,253	1,253
Bird	86,143	30	-	-	-	475	2,169	38,295	127,112
Reptile / Amphibian	-	-	-	-	-	-	7,388	7,014	14,402
Fish	820	-	-	-	-	222	4,192	109,916	115,150
Total	124,733	6,167	15,604	-	4,320	15,814	148,485	1,931,822	2,246,945

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

Table 9 Scientific procedures (non-toxicology) by species of animal and techniques of particular interest

Great Britain 2002

Number of procedures

Species of animal	Techniques of particular interest									All other techniques	Total
	Interference with organs of special sense	Injection into brain	Interference with brain	Psychological stress	Aversive training	Radiation	Inhalation	Thermal injury	Physical trauma		
Mouse	5,887	25,371	4,123	4,111	500	8,324	22,874	-	2,839	1,465,028	1,539,057
Rat	9,806	690	22,034	2,996	2,620	863	13,713	28	6,855	281,375	340,980
Other rodent	490	97	1,366	1,089	16	-	10,078	-	1,750	21,615	36,501
Rabbit	4	-	84	-	-	-	341	-	122	9,992	10,543
Cat	114	-	67	-	-	-	-	-	-	1,157	1,338
Dog	27	-	-	-	-	-	54	-	-	2,014	2,095
Ferret	75	-	-	-	-	-	298	-	-	651	1,024
Other carnivore	-	-	-	-	-	-	66	-	4	1,679	1,749
Horse and other equids	-	-	-	-	-	-	-	-	-	7,928	7,928
Other ungulates	-	39	510	-	-	12	61	-	173	45,910	46,705
New World monkey	14	-	119	-	-	-	-	-	-	595	728
Old World monkey	11	8	14	-	-	-	-	-	-	347	380
Other mammal	21	-	-	-	-	-	-	-	12	1,220	1,253
Bird	7	210	33	480	4,512	-	-	-	-	121,870	127,112
Reptile / Amphibian	84	-	680	-	-	-	-	-	14	13,624	14,402
Fish	88	-	9	1,128	-	-	-	-	-	113,925	115,150
Total	16,628	26,415	29,039	9,804	7,648	9,199	47,485	28	11,769	2,088,930	2,246,945

Table 10 Scientific procedures (toxicology) by species of animal and toxicological purpose

Great Britain 2002 — 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	Cosmetics ingredients
Mammal								
Mouse	127	6,168	4,943	112	526	-	-	-
Rat	115	39,867	21,246	277	4,509	166	-	-
Guinea pig	-	2,904	7,306	359	107	21	-	-
Hamster	-	179	-	-	-	-	-	-
Gerbil	-	-	-	-	-	-	-	-
Other rodent	64	-	-	-	-	-	-	-
Rabbit	12	1,139	2,433	210	31	-	-	-
Cat	-	-	-	-	-	-	-	-
Dog								
Beagle	-	440	40	-	54	-	-	-
Greyhound	-	-	-	-	-	-	-	-
Other including cross-bred dogs	-	-	-	-	-	-	-	-
Ferret	-	-	-	-	-	-	-	-
Other carnivore	-	-	-	-	-	-	-	-
Horse, donkey and cross-bred equids	-	31	-	-	-	-	-	-
Pig	-	37	-	-	-	-	-	-
Goat	-	5	-	-	-	-	-	-
Sheep	-	6	-	-	-	-	-	-
Cattle	-	190	-	-	-	-	-	-
Deer	-	-	-	-	-	-	-	-
Camelid	-	-	-	-	-	-	-	-
Other ungulate	-	-	-	-	-	-	-	-
Primate								
Prosimian	-	-	-	-	-	-	-	-
New World monkey								
marmoset, tamarin	-	-	-	-	-	-	-	-
Squirrel, owl, spider monkey	-	-	-	-	-	-	-	-
Other New World monkey	-	-	-	-	-	-	-	-

Table 10 Scientific procedures (toxicology) by species of animal and toxicological purpose *(Continued)*

Great Britain 2002 — 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	Cosmetics ingredients
Old World monkey								
Macaque	-	-	-	-	-	-	-	-
Baboon	-	-	-	-	-	-	-	-
Other Old World monkey	-	-	-	-	-	-	-	-
Ape								
Gibbon	-	-	-	-	-	-	-	-
Great Ape	-	-	-	-	-	-	-	-
Other mammal	-	-	-	-	-	-	-	-
Bird								
Domestic fowl (*Gallus domesticus*)	-	80	-	-	-	-	-	-
Turkey	-	-	-	-	-	-	-	-
Quail (*Coturnix coturnix*)	-	-	-	-	-	-	-	-
Quail (spp,other than *Coturnix coturnix*)	-	486	-	-	-	-	-	-
Other bird	-	76	-	-	-	-	-	-
Reptile								
Any reptilian species	-	-	-	-	-	-	-	-
Amphibian								
Any amphibian species	1,090	-	-	-	-	-	-	-
Fish								
Any fish species	36,806	6,196	6,312	74	-	-	-	-
Cephalopod								
Octopus vulgaris	-	-	-	-	-	-	-	-
Total	38,214	57,804	42,280	1,032	5,227	187	-	-

Table 10 Scientific procedures (toxicology) by species of animal and toxicological purpose *(Continued)*

Great Britain 2002 — 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	Medical device safety	Method development	Other	
Mammal										
Mouse	44,079	23,945	65,613	7,739	14,250	-	842	1,409	11,443	181,196
Rat	66,621	5,999	10	16,279	8,793	-	151	3,487	1,147	168,667
Guinea pig	2,899	2,886	4,663	100	137	-	823	174	-	22,379
Hamster	308	410	-	26	56	-	-	3	-	982
Gerbil	-	-	-	-	-	-	-	-	-	-
Other rodent	-	-	-	-	-	-	-	-	65	129
Rabbit	10,026	811	3,846	145	114	-	675	290	5	19,737
Cat	42	5	-	-	-	-	-	10	-	57
Dog										
Beagle	4,403	30	-	735	34	-	-	66	67	5,869
Greyhound	-	-	-	-	-	-	-	-	-	-
Other including cross-bred dogs	-	-	-	-	-	-	-	-	-	-
Ferret	-	-	10	-	-	-	-	-	-	10
Other carnivore	-	-	-	-	-	-	-	6	-	6
Horse, donkey and cross-bred equids	10	16	-	16	-	-	-	1	-	74
Pig	412	328	-	124	29	-	13	20	10	973
Goat	4	-	-	-	-	-	-	-	-	9
Sheep	175	39	74	88	-	-	10	-	-	392
Cattle	154	624	86	133	-	-	-	-	-	1,187
Deer	-	-	-	-	-	-	-	-	-	-
Camelid	-	-	-	-	-	-	-	-	-	-
Other ungulate	-	-	-	-	-	-	-	-	-	-
Primate										
Prosimian	-	-	-	-	-	-	-	-	-	-
New World monkey										
marmoset, tamarin	173	4	-	36	-	-	-	-	-	213
Squirrel, owl, spider monkey	-	-	-	-	-	-	-	-	-	-
Other New World monkey	-	-	-	-	-	-	-	-	-	-

Table 10 Scientific procedures (toxicology) by species of animal and toxicological purpose *(Continued)*

Great Britain 2002 — 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	Medical device safety	Method development	Other	
Old World monkey										
Macaque	2,168	30	-	312	-	-	-	86	60	2,656
Baboon	-	-	-	-	-	-	-	-	-	-
Other Old World monkey	-	-	-	-	-	-	-	-	-	-
Ape										
Gibbon	-	-	-	-	-	-	-	-	-	-
Great Ape	-	-	-	-	-	-	-	-	-	-
Other mammal	-	-	-	-	-	-	-	-	-	-
Bird										
Domestic fowl (Gallus domesticus)	2,598	7,050	245	138	-	-	-	-	-	10,111
Turkey	332	230	-	-	-	-	-	-	-	562
Quail (Coturnix coturnix)	-	-	-	-	-	-	-	-	-	-
Quail (spp,other than Coturnix coturnix)	-	-	-	-	-	-	-	-	-	486
Other bird	-	-	-	-	-	-	-	-	-	76
Reptile										
Any reptilian species	-	-	-	-	2,103	-	-	-	-	2,103
Amphibian										
Any amphibian species	-	-	-	-	-	-	-	-	-	1,090
Fish										
Any fish species	2,424	14,991	-	-	-	-	-	-	-	66,803
Cephalopod										
Octopus vulgaris	-	-	-	-	-	-	-	-	-	-
Total	136,828	57,398	74,547	25,871	25,516	-	2,514	5,552	12,797	485,767

Table 10a Animals (toxicology) by species of animal and toxicological purpose

Great Britain 2002 — 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	Cosmetics ingredients
Mammal								
Mouse	127	6,168	4,943	112	526	-	-	-
Rat	115	39,867	21,246	277	4,509	166	-	-
Guinea pig	-	2,904	7,306	359	107	21	-	-
Hamster	-	179	-	-	-	-	-	-
Gerbil	-	-	-	-	-	-	-	-
Other rodent	64	-	-	-	-	-	-	-
Rabbit	12	1,127	2,419	210	31	-	-	-
Cat	-	-	-	-	-	-	-	-
Dog								
Beagle	-	440	40	-	54	-	-	-
Greyhound	-	-	-	-	-	-	-	-
Other including cross-bred dogs	-	-	-	-	-	-	-	-
Ferret	-	-	-	-	-	-	-	-
Other carnivore	-	-	-	-	-	-	-	-
Horse, donkey and cross-bred equids	-	31	-	-	-	-	-	-
Pig	-	37	-	-	-	-	-	-
Goat	-	5	-	-	-	-	-	-
Sheep	-	6	-	-	-	-	-	-
Cattle	-	184	-	-	-	-	-	-
Deer	-	-	-	-	-	-	-	-
Camelid	-	-	-	-	-	-	-	-
Other ungulate	-	-	-	-	-	-	-	-
Primate								
Prosimian	-	-	-	-	-	-	-	-
New World monkey								
marmoset, tamarin	-	-	-	-	-	-	-	-
Squirrel, owl, spider monkey	-	-	-	-	-	-	-	-
Other New World monkey	-	-	-	-	-	-	-	-

Table 10a Animals (toxicology) by species of animal and toxicological purpose *(Continued)*

Great Britain 2002 — 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	Cosmetics ingredients
Old World monkey								
Macaque	-	-	-	-	-	-	-	-
Baboon	-	-	-	-	-	-	-	-
Other Old World monkey	-	-	-	-	-	-	-	-
Ape								
Gibbon	-	-	-	-	-	-	-	-
Great Ape	-	-	-	-	-	-	-	-
Other mammal	-	-	-	-	-	-	-	-
Bird								
Domestic fowl (*Gallus domesticus*)	-	80	-	-	-	-	-	-
Turkey	-	-	-	-	-	-	-	-
Quail (*Coturnix coturnix*)	-	-	-	-	-	-	-	-
Quail (spp,other than *Coturnix coturnix*)	-	486	-	-	-	-	-	-
Other bird	-	76	-	-	-	-	-	-
Reptile								
Any reptilian species	-	-	-	-	-	-	-	-
Amphibian								
Any amphibian species	1,090	-	-	-	-	-	-	-
Fish								
Any fish species	36,806	6,196	6,312	74	-	-	-	-
Cephalopod								
Octopus vulgaris	-	-	-	-	-	-	-	-
Total	38,214	57,786	42,266	1,032	5,227	187	-	-

Table 10a Animals (toxicology) by species of animal and toxicological purpose *(Continued)*

Great Britain 2002 — 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	Medical device safety	Method development	Other	
Mammal										
Mouse	44,053	23,945	65,613	7,739	14,250	-	842	1,401	11,443	181,162
Rat	66,541	5,999	10	16,279	8,793	-	151	3,487	1,147	168,587
Guinea pig	2,899	2,886	4,663	100	137	-	823	174	-	22,379
Hamster	308	410	-	26	56	-	-	3	-	982
Gerbil	-	-	-	-	-	-	-	-	-	-
Other rodent	-	-	-	-	-	-	-	-	65	129
Rabbit	4,936	716	256	145	114	-	298	290	5	10,559
Cat	36	-	-	-	-	-	-	7	-	43
Dog										
Beagle	3,985	30	-	279	34	-	-	16	33	4,911
Greyhound	-	-	-	-	-	-	-	-	-	-
Other including cross-bred dogs	-	-	-	-	-	-	-	-	-	-
Ferret	-	-	10	-	-	-	-	-	-	10
Other carnivore	-	-	-	-	-	-	-	6	-	6
Horse, donkey and cross-bred equids	10	16	-	16	-	-	-	1	-	74
Pig	406	328	-	118	29	-	13	8	7	946
Goat	4	-	-	-	-	-	-	-	-	9
Sheep	145	39	73	88	-	-	10	-	-	361
Cattle	154	594	85	133	-	-	-	-	-	1,150
Deer	-	-	-	-	-	-	-	-	-	-
Camelid	-	-	-	-	-	-	-	-	-	-
Other ungulate	-	-	-	-	-	-	-	-	-	-
Primate										
Prosimian	-	-	-	-	-	-	-	-	-	-
New World monkey										-
marmoset, tamarin	173	4	-	30	-	-	-	-	-	207
Squirrel, owl, spider monkey	-	-	-	-	-	-	-	-	-	-
Other New World monkey	-	-	-	-	-	-	-	-	-	-

Table 10a Animals (toxicology) by species of animal and toxicological purpose *(Continued)*

Great Britain 2002 — 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	Medical device safety	Method development	Other	
Old World monkey										
Macaque	2,058	30	-	155	-	-	-	45	56	2,344
Baboon	-	-	-	-	-	-	-	-	-	-
Other Old World monkey	-	-	-	-	-	-	-	-	-	-
Ape										
Gibbon	-	-	-	-	-	-	-	-	-	-
Great Ape	-	-	-	-	-	-	-	-	-	-
Other mammal	-	-	-	-	-	-	-	-	-	-
Bird										
Domestic fowl (*Gallus domesticus*)	2,598	7,050	245	138	-	-	-	-	-	10,111
Turkey	332	230	-	-	-	-	-	-	-	562
Quail (*Coturnix coturnix*)	-	-	-	-	-	-	-	-	-	-
Quail (spp,other than *Coturnix coturnix*)	-	-	-	-	-	-	-	-	-	486
Other bird	-	-	-	-	-	-	-	-	-	76
Reptile										
Any reptilian species	-	-	-	-	15	-	-	-	-	15
Amphibian										
Any amphibian species	-	-	-	-	-	-	-	-	-	1,090
Fish										
Any fish species	2,424	14,991	-	-	-	-	-	-	-	66,803
Cephalopod										
Octopus vulgaris	-	-	-	-	-	-	-	-	-	-
Total	131,062	57,268	70,955	25,246	23,428	-	2,137	5,438	12,756	473,002

Table 11 Scientific procedures (toxicology) by species of animal, type of legislation and toxicological purpose

Great Britain 2002

Number of procedures

Species	Legislative requirements	Toxicological purpose			Total
		Safety testing other than cosmetics	Pharmaceutical safety	Other safety / Toxicology	
Mouse	UK requirements only	827	5,482	374	6,683
	One EU country only (not UK)	92	87	-	179
	EU requirements, incl. European Pharmacopoeia	1,300	10,623	9,673	21,596
	Requirements of (non-EU) Council of Europe	-	-	141	141
	Requirements of other countries	1,391	673	284	2,348
	Any combination of above	5,719	109,718	1,743	117,180
	Non-legislative purposes	2,547	14,793	15,729	33,069
	Total	11,876	141,376	27,944	181,196
Rat	UK requirements only	674	90	-	764
	One EU country only (not UK)	337	88	-	425
	EU requirements, incl. European Pharmacopoeia	5,568	2,287	-	7,855
	Requirements of (non-EU) Council of Europe	324	1	1,450	1,775
	Requirements of other countries	17,349	417	629	18,395
	Any combination of above	39,365	81,018	2,350	122,733
	Non-legislative purposes	2,563	5,008	9,149	16,720
	Total	66,180	88,909	13,578	168,667
Other Rodent	UK requirements only	597	3,980	241	4,818
	One EU country only (not UK)	312	-	-	312
	EU requirements, incl. European Pharmacopoeia	902	3,548	79	4,529
	Requirements of (non-EU) Council of Europe	-	-	-	-
	Requirements of other countries	3,528	365	93	3,986
	Any combination of above	5,458	2,963	607	9,028
	Non-legislative purposes	143	436	238	817
	Total	10,940	11,292	1,258	23,490
Rabbit	UK requirements only	211	1,903	85	2,199
	One EU country only (not UK)	101	-	12	113
	EU requirements, incl. European Pharmacopoeia	538	6,765	12	7,315
	Requirements of (non-EU) Council of Europe	72	-	-	72
	Requirements of other countries	1,509	428	55	1,992
	Any combination of above	1,382	5,650	552	7,584
	Non-legislative purposes	12	82	368	462
	Total	3,825	14,828	1,084	19,737
Cat	UK requirements only	-	-	-	-
	One EU country only (not UK)	-	-	-	-
	EU requirements, incl. European Pharmacopoeia	-	24	-	24
	Requirements of (non-EU) Council of Europe	-	-	-	-
	Requirements of other countries	-	18	-	18
	Any combination of above	-	4	10	14
	Non-legislative purposes	-	1	-	1
	Total	-	47	10	57

Table 11 Scientific procedures (toxicology) by species of animal, type of legislation and toxicological purpose (Continued)

Great Britain 2002

Number of procedures

Species	Legislative requirements	Toxicological purpose			Total
		Safety testing other than cosmetics	Pharmaceutical safety	Other safety / Toxicology	
Dog	UK requirements only	-	26	-	26
	One EU country only (not UK)	-	-	-	-
	EU requirements, incl. European Pharmacopoeia	-	62	-	62
	Requirements of (non-EU) Council of Europe	10	-	-	10
	Requirements of other countries	10	32	-	42
	Any combination of above	496	4,872	147	5,515
	Non-legislative purposes	18	176	20	214
	Total	534	5,168	167	5,869
Ferret	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 above	-	10	-	10
	Non-legislative purposes	-	-	-	-
	Total	-	10	-	10
Other Carnivore	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 above	-	-	-	-
	Non-legislative purposes	-	-	6	6
	Total	-	-	6	6
Horse and other equids	UK requirements only	-	-	-	-
	One EU country only (not UK)	-	-	-	-
	EU requirements, incl. European Pharmacopoeia	31	26	-	57
	Requirements of (non-EU) Council of Europe	-	-	-	-
	Requirements of other countries	-	-	-	-
	Any combination of above	-	16	1	17
	Non-legislative purposes	-	-	-	-
	Total	31	42	1	74
Other Ungulates	UK requirements only	-	106	1	107
	One EU country only (not UK)	-	-	-	-
	EU requirements, incl. European Pharmacopoeia	191	810	-	1,001
	Requirements of (non-EU) Council of Europe	-	233	-	233
	Requirements of other countries	-	12	24	36
	Any combination of above	47	991	-	1,038
	Non-legislative purposes	-	89	57	146
	Total	238	2,241	82	2,561

Table 11 Scientific procedures (toxicology) by species of animal, type of legislation and toxicological purpose (Continued)

Great Britain 2002 — Number of procedures

Species	Legislative requirements	Toxicological purpose			Total
		Safety testing other than cosmetics	Pharmaceutical safety	Other safety / Toxicology	
New World monkey	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 above	-	209	-	209
	Non-legislative purposes	-	4	-	4
	Total	-	213	-	213
Old World monkey	UK requirements only	-	-	-	-
	One EU country only (not UK)	-	-	-	-
	EU requirements, incl. European Pharmacopoeia	-	362	-	362
	Requirements of (non-EU) Council of Europe	-	16	-	16
	Requirements of other countries	-	12	-	12
	Any combination of above	-	2,108	141	2,249
	Non-legislative purposes	-	12	5	17
	Total	-	2,510	146	2,656
Other Mammal	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 above	-	-	-	-
	Non-legislative purposes	-	-	-	-
	Total	-	-	-	-
Bird	UK requirements only	16	333	-	349
	One EU country only (not UK)	20	-	-	20
	EU requirements, incl. European Pharmacopoeia	60	2,375	-	2,435
	Requirements of (non-EU) Council of Europe	-	-	-	-
	Requirements of other countries	60	105	-	165
	Any combination of above	486	7,780	-	8,266
	Non-legislative purposes	-	-	-	-
	Total	642	10,593	-	11,235
Reptile / Amphibian	UK requirements only	-	-	2,103	2,103
	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 above	-	-	-	-
	Non-legislative purposes	1,090	-	-	1,090
	Total	1,090	-	2,103	3,193

Table 11 Scientific procedures (toxicology) by species of animal, type of legislation and toxicological purpose (Continued)

Great Britain 2002 — Number of procedures

Species	Legislative requirements	Toxicological purpose			Total
		Safety testing other than cosmetics	Pharmaceutical safety	Other safety / Toxicology	
Fish	UK requirements only	6,170	-	-	6,170
	One EU country only (not UK)	-	-	-	-
	EU requirements, incl. European Pharmacopoeia	8,632	14,290	-	22,922
	Requirements of (non-EU) Council of Europe	1,464	-	-	1,464
	Requirements of other countries	3,499	-	-	3,499
	Any combination of above	18,005	3,125	-	21,130
	Non-legislative purposes	11,618	-	-	11,618
	Total	49,388	17,415	-	66,803
Cephalopod	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 above	-	-	-	-
	Non-legislative purposes	-	-	-	-
	Total	-	-	-	-
All species	UK requirements only	8,495	11,920	2,804	23,219
	One EU country only (not UK)	862	175	12	1,049
	EU requirements, incl. European Pharmacopoeia	17,222	41,172	9,764	68,158
	Requirements of (non-EU) Council of Europe	1,870	250	1,591	3,711
	Requirements of other countries	27,346	2,062	1,085	30,493
	Any combination of above	70,958	218,464	5,551	294,973
	Non-legislative purposes	17,991	20,601	25,572	64,164
TOTAL		144,744	294,644	46,379	485,767

Table 12 Scientific procedures (toxicology) by species of animal and type of toxicological test: all purposes

Great Britain 2002

Number of procedures

Species of animal	Type of toxicological test or procedure									
	Acute lethal toxicity [1]	Acute lethal concentration [1]	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
Mouse	81,498	804	7,708	10,719	7,085	2,289	3,175	8,260	4,029	282
Rat	87	1,810	3,509	9,445	9,704	17,879	13,464	10,849	5,128	3,574
Other Rodent	-	65	643	860	112	70	-	-	-	-
Rabbit	-	-	70	39	187	86	152	-	-	3,312
Cat	-	-	-	-	-	-	-	-	-	-
Dog	-	-	6	79	770	1,577	1,726	-	-	-
Ferret	-	-	-	-	-	-	-	-	-	-
Other carnivore	-	-	-	-	-	-	-	-	-	-
Horse and other equids	-	-	-	-	-	-	-	-	-	-
Other ungulates	-	-	-	98	42	12	48	-	-	23
New World monkey	-	-	-	-	12	108	16	-	-	-
Old World monkey	-	-	-	26	244	775	682	-	-	-
Other Mammal	-	-	-	-	-	-	-	-	-	-
Bird	60	120	148	30	78	550	-	-	-	-
Reptile / Amphibian	-	-	-	-	1,080	-	-	-	-	-
Fish	-	16,285	22,813	860	2,678	5,738	359	-	80	-
Cephalopod	-	-	-	-	-	-	-	-	-	-
Total	81,645	19,084	34,897	22,156	21,992	29,084	19,622	19,109	9,237	7,191

Table 12 Scientific procedures (toxicology) by species of animal and type of toxicological test: all purposes *(Continued)*

Great Britain 2002

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 [2]	Immunotoxicology [2]	Other toxicology [2]	
Mouse	425	-	246	2,120	7,100	-	630	295	2,858	41,673	181,196
Rat	35,594	-	-	-	13,249	-	126	462	283	43,504	168,667
Other Rodent	-	-	197	13,638	194	-	-	-	138	7,573	23,490
Rabbit	135	1,271	1,922	-	177	10,872	177	-	14	1,323	19,737
Cat	-	-	-	-	-	-	-	-	-	57	57
Dog	-	-	-	-	449	-	-	-	-	1,262	5,869
Ferret	-	-	-	-	-	-	-	-	-	10	10
Other carnivore	-	-	-	-	-	-	-	-	-	6	6
Horse and other Equids	-	-	-	-	16	-	-	-	-	58	74
Other ungulates	-	-	13	-	344	-	10	-	290	1,681	2,561
New World Monkey	-	-	-	-	67	-	-	-	-	10	213
Old World Monkey	-	-	-	-	189	-	-	-	-	740	2,656
Other Mammal	-	-	-	-	-	-	-	-	-	-	-
Bird	120	-	-	-	118	-	-	-	-	10,011	11,235
Reptile / Amphibian	-	-	-	-	-	-	-	-	-	2,113	3,193
Fish	9,931	-	-	-	2,380	-	-	403	1,624	3,652	66,803
Cephalopod	-	-	-	-	-	-	-	-	-	-	-
Total	46,205	1,271	2,378	15,758	24,283	10,872	943	1,160	5,207	113,673	485,767

Table 13: Scientific procedures (toxicology) by species of animal and type of toxicological test: safety testing of substances other than pharmaceuticals

Great Britain 2002

Number of procedures

Species of animal	Type of toxicological test or procedure									
	Acute lethal toxicity [1]	Acute lethal concentration [1]	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
Mouse	-	-	138	863	120	-	620	3,207	1,586	60
Rat	87	1,155	3,178	6,165	2,544	4,672	4,698	5,240	1,468	1,098
Other Rodent	-	-	-	-	-	60	-	-	-	-
Rabbit	-	-	70	9	20	-	-	-	-	840
Dog	-	-	-	-	56	-	468	-	-	-
Horse and other equids	-	-	-	-	-	-	-	-	-	-
Other ungulates	-	-	-	-	-	-	-	-	-	-
Bird	60	120	148	-	78	-	-	-	-	-
Reptile / Amphibian	-	-	-	-	1,080	-	-	-	-	-
Fish	-	16,285	10,819	-	417	5,738	359	-	80	-
Total	147	17,560	14,353	7,037	4,315	10,470	6,145	8,447	3,134	1,998

Table 13: Scientific procedures (toxicology) by species of animal and type of toxicological test: safety testing of substances other than pharmaceuticals *(continued)*

Great Britain 2002

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 [2]	Immunotoxicology [2]	Other toxicology [2]	
Mouse	285	-	-	1,971	413	-	-	-	1,669	944	11,876
Rat	23,222	-	-	-	710	-	-	172	-	11,771	66,180
Other Rodent	-	-	-	10,662	119	-	-	-	-	99	10,940
Rabbit	-	1,178	1,696	-	-	-	-	-	12	-	3,825
Dog	-	-	-	-	-	-	-	-	-	10	534
Horse and other Equids	-	-	-	-	-	-	-	-	-	31	31
Other ungulates	-	-	-	-	135	-	-	-	-	103	238
Bird	120	-	-	-	60	-	-	-	-	56	642
Reptile / Amphibian	-	-	-	-	-	-	-	-	-	10	1,090
Fish	9,931	-	-	-	2,380	-	-	403	124	2,852	49,388
Total	33,558	1,178	1,696	12,633	3,817	-	-	575	1,805	15,876	144,744

Table 15: Scientific procedures (toxicology) by species of animal and type of toxicological test: safety testing of pharmaceuticals

Great Britain 2002

Number of procedures

Species of animal	Type of toxicological test or procedure									
	Acute lethal toxicity [1]	Acute lethal concentration [1]	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
Mouse	71,369	-	7,032	9,641	6,436	2,289	2,555	5,053	2,402	222
Rat	-	-	331	2,971	7,020	12,919	8,766	5,609	3,660	2,476
Other Rodent	-	-	530	860	112	10	-	-	-	-
Rabbit	-	-	-	27	167	86	152	-	-	2,400
Cat	-	-	-	-	-	-	-	-	-	-
Dog	-	-	6	77	712	1,577	1,226	-	-	-
Ferret	-	-	-	-	-	-	-	-	-	-
Horse and other equids	-	-	-	-	-	-	-	-	-	-
Other ungulates	-	-	-	98	42	12	48	-	-	23
New World monkey	-	-	-	-	12	108	16	-	-	-
Old World monkey	-	-	-	26	244	748	661	-	-	-
Bird	-	-	-	30	-	550	-	-	-	-
Fish	-	-	11,994	860	2,261	-	-	-	-	-
Total	71,369	-	19,893	14,590	17,006	18,299	13,424	10,662	6,062	5,121

Table 15: Scientific procedures (toxicology) by species of animal and type of toxicological test: safety testing of pharmaceuticals *(continued)*

Great Britain 2002

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 [2]	Immunotoxicology [2]	Other toxicology [2]	
Mouse	140	-	246	57	5,467	-	-	131	902	27,434	141,376
Rat	12,372	-	-	-	11,155	-	-	24	235	21,371	88,909
Other Rodent	-	-	197	1,979	19	-	-	-	138	7,447	11,292
Rabbit	135	78	104	-	69	10,514	-	-	-	1,096	14,828
Cat	-	-	-	-	-	-	-	-	-	47	47
Dog	-	-	-	-	447	-	-	-	-	1,123	5,168
Ferret	-	-	-	-	-	-	-	-	-	10	10
Horse and other Equids	-	-	-	-	16	-	-	-	-	26	42
Other ungulates	-	-	-	-	209	-	-	-	290	1,519	2,241
New World Monkey	-	-	-	-	67	-	-	-	-	10	213
Old World Monkey	-	-	-	-	189	-	-	-	-	642	2,510
Bird	-	-	-	-	58	-	-	-	-	9,955	10,593
Fish	-	-	-	-	-	-	-	-	1,500	800	17,415
Total	12,647	78	547	2,036	17,696	10,514	-	155	3,065	71,480	294,644

Table 16 Scientific procedures (toxicology) by species of animal and type of toxicological test: other safety or toxicology testing

Great Britain 2002

Number of procedures

Species of animal	Type of toxicological test or procedure									
	Acute lethal toxicity [1]	Acute lethal concentration [1]	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
Mouse	10,129	804	538	215	529	-	-	-	41	-
Rat	-	655	-	309	140	288	-	-	-	-
Other Rodent	-	65	113	-	-	-	-	-	-	-
Rabbit	-	-	-	3	-	-	-	-	-	72
Cat	-	-	-	-	-	-	-	-	-	-
Dog	-	-	-	2	2	-	32	-	-	-
Other carnivore	-	-	-	-	-	-	-	-	-	-
Horse and other equids	-	-	-	-	-	-	-	-	-	-
Other ungulates	-	-	-	-	-	-	-	-	-	-
Old World monkey	-	-	-	-	-	27	21	-	-	-
Reptile / Amphibian	-	-	-	-	-	-	-	-	-	-
Total	10,129	1,524	651	529	671	315	53	-	41	72

Table 16 Scientific procedures (toxicology) by species of animal and type of toxicological test: other safety or toxicology testing *(Continued)*

Great Britain 2002

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 [2]	Immunotoxicology [2]	Other toxicology [2]	
Mouse	-	-	-	92	1,220	-	630	164	287	13,295	27,944
Rat	-	-	-	-	1,384	-	126	266	48	10,362	13,578
Other Rodent	-	-	-	997	56	-	-	-	-	27	1,258
Rabbit	-	15	122	-	108	358	177	-	2	227	1,084
Cat	-	-	-	-	-	-	-	-	-	10	10
Dog	-	-	-	-	2	-	-	-	-	129	167
Other carnivore	-	-	-	-	-	-	-	-	-	6	6
Horse and other Equids	-	-	-	-	-	-	-	-	-	1	1
Other ungulates	-	-	13	-	-	-	10	-	-	59	82
Old World Monkey	-	-	-	-	-	-	-	-	-	98	146
Reptile / Amphibian	-	-	-	-	-	-	-	-	-	2,103	2,103
Total	-	15	135	1,089	2,770	358	943	430	337	26,317	46,379

Table 18a Tree table - scientific procedures involving cats, 2002

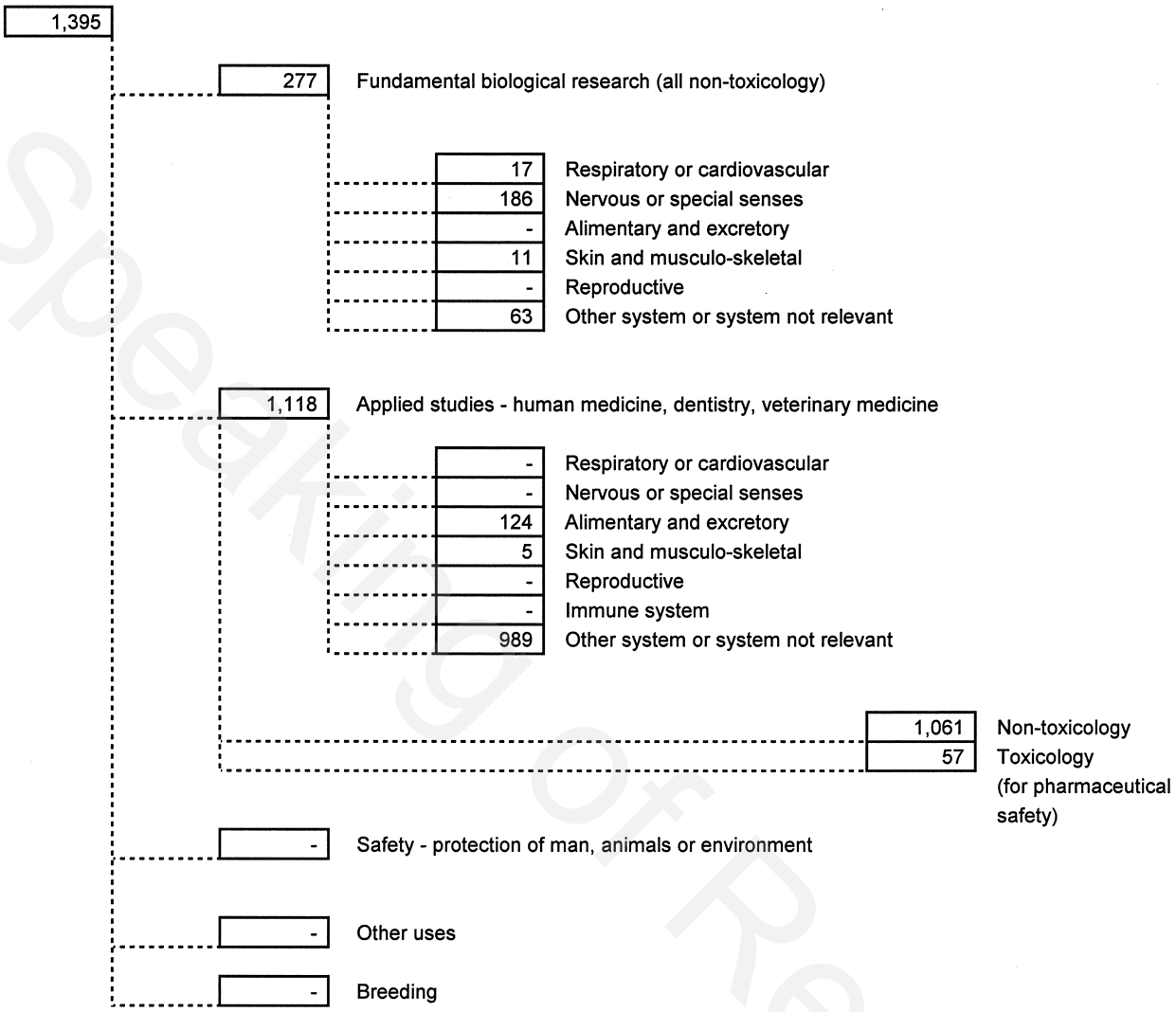


Table 18b Tree table - scientific procedures involving dogs, 2002

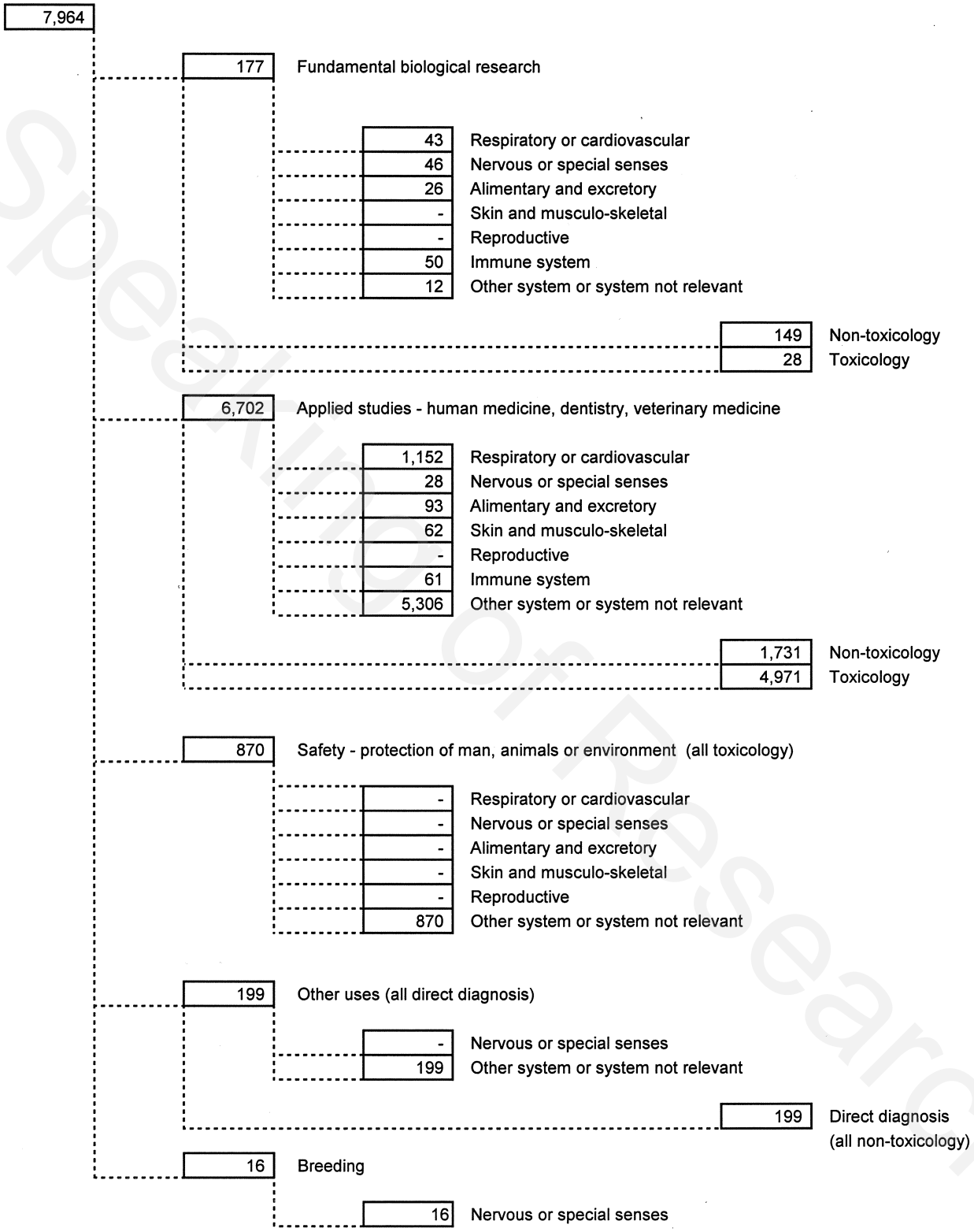


Table 18c Tree table - scientific procedures involving horses and other equids, 2002

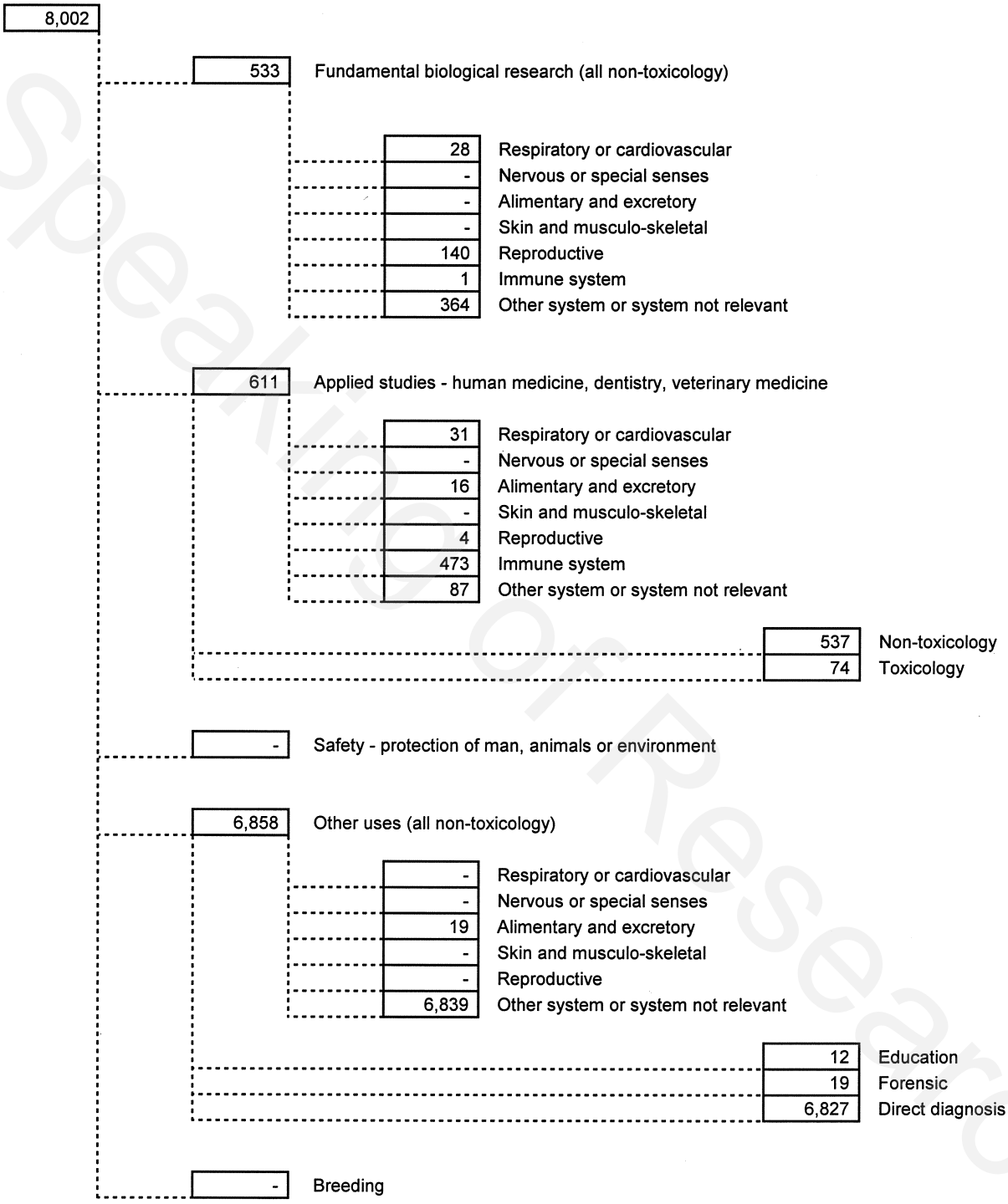


Table 18d Tree table - scientific procedures involving New World primates, 2002

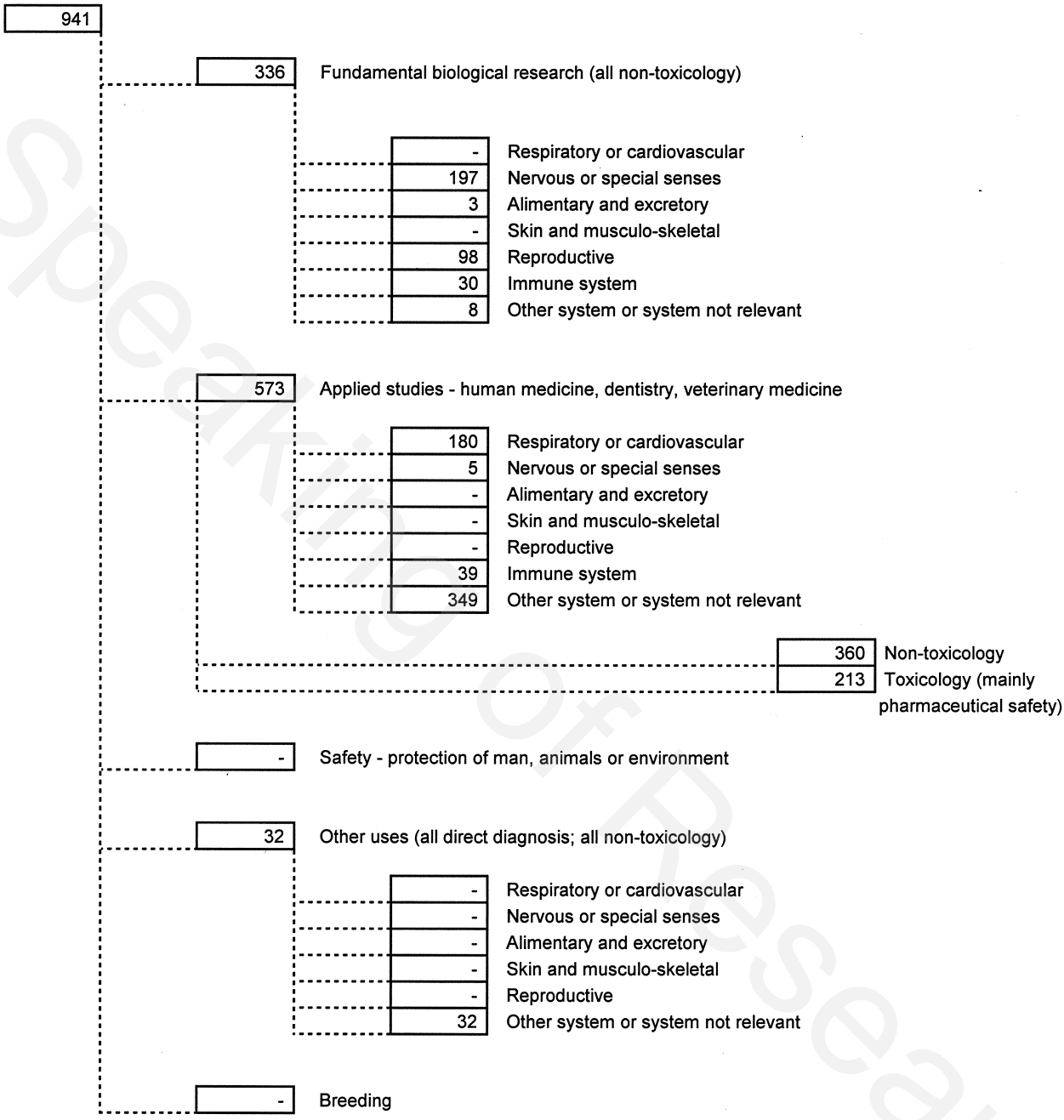


Table 18e Tree table - scientific procedures involving Old World primates, 2002

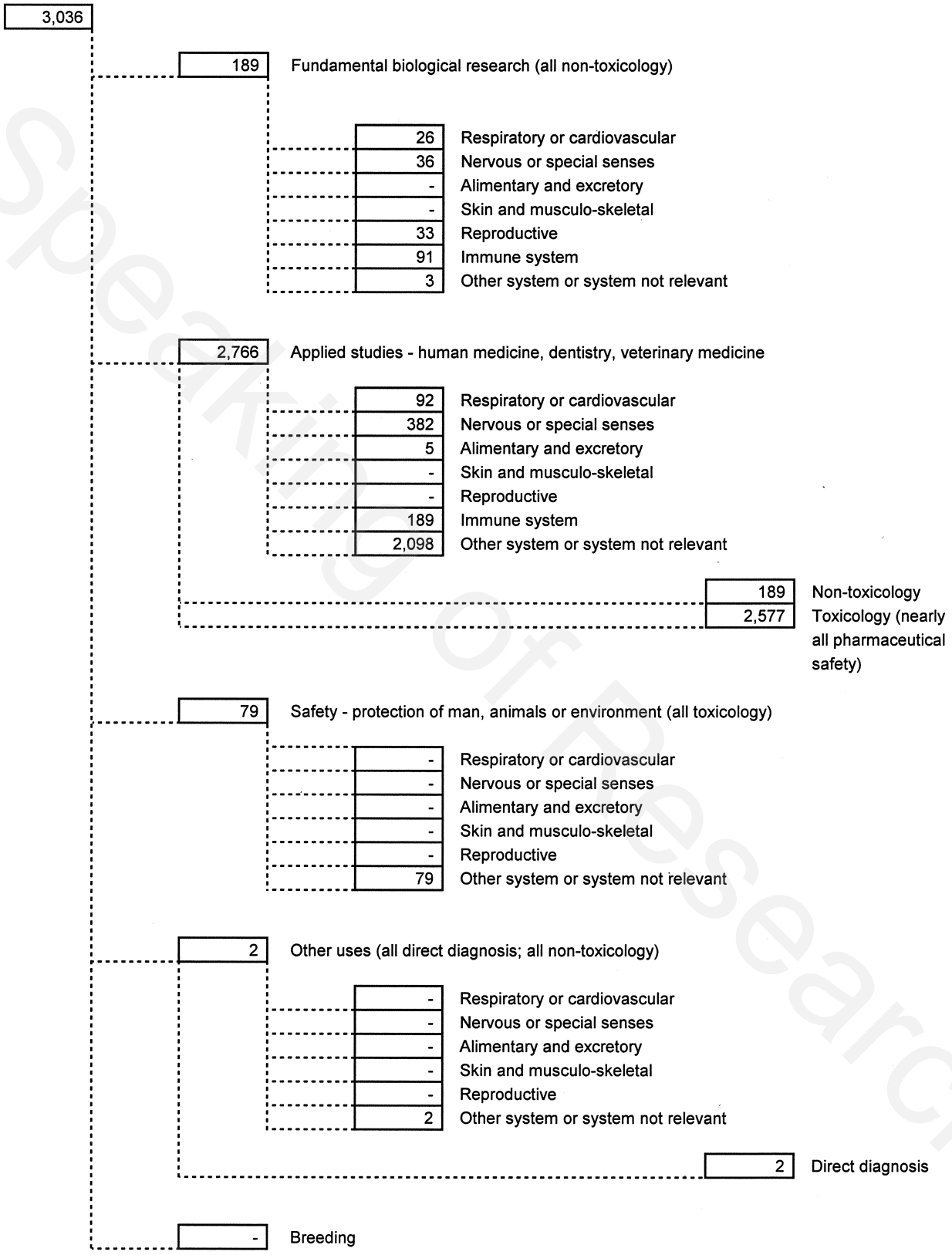


Table 18f Tree table - scientific procedures involving rabbits, 2002

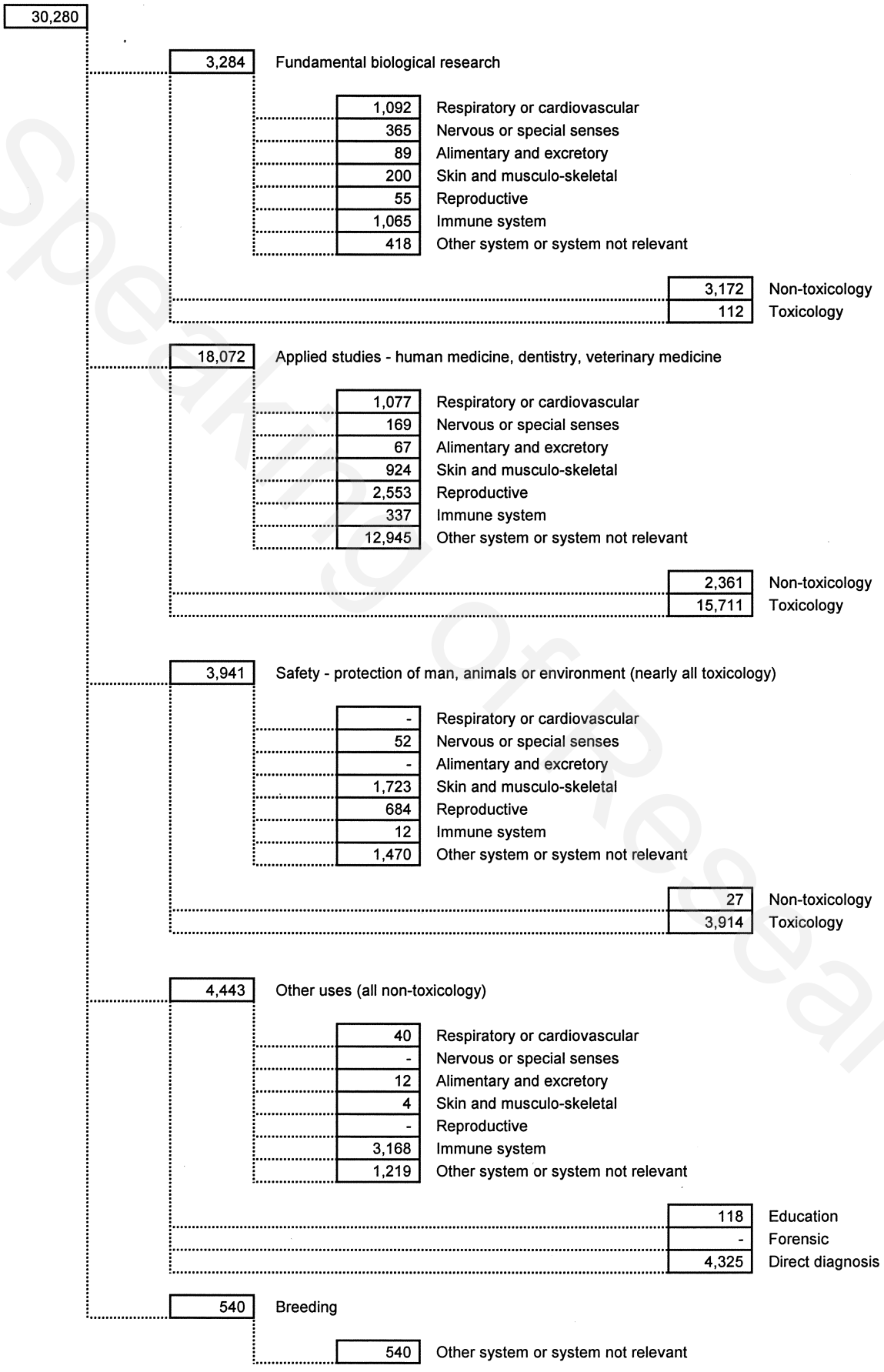


Table 18g Tree table - scientific procedures involving genetically modified animals, 2002

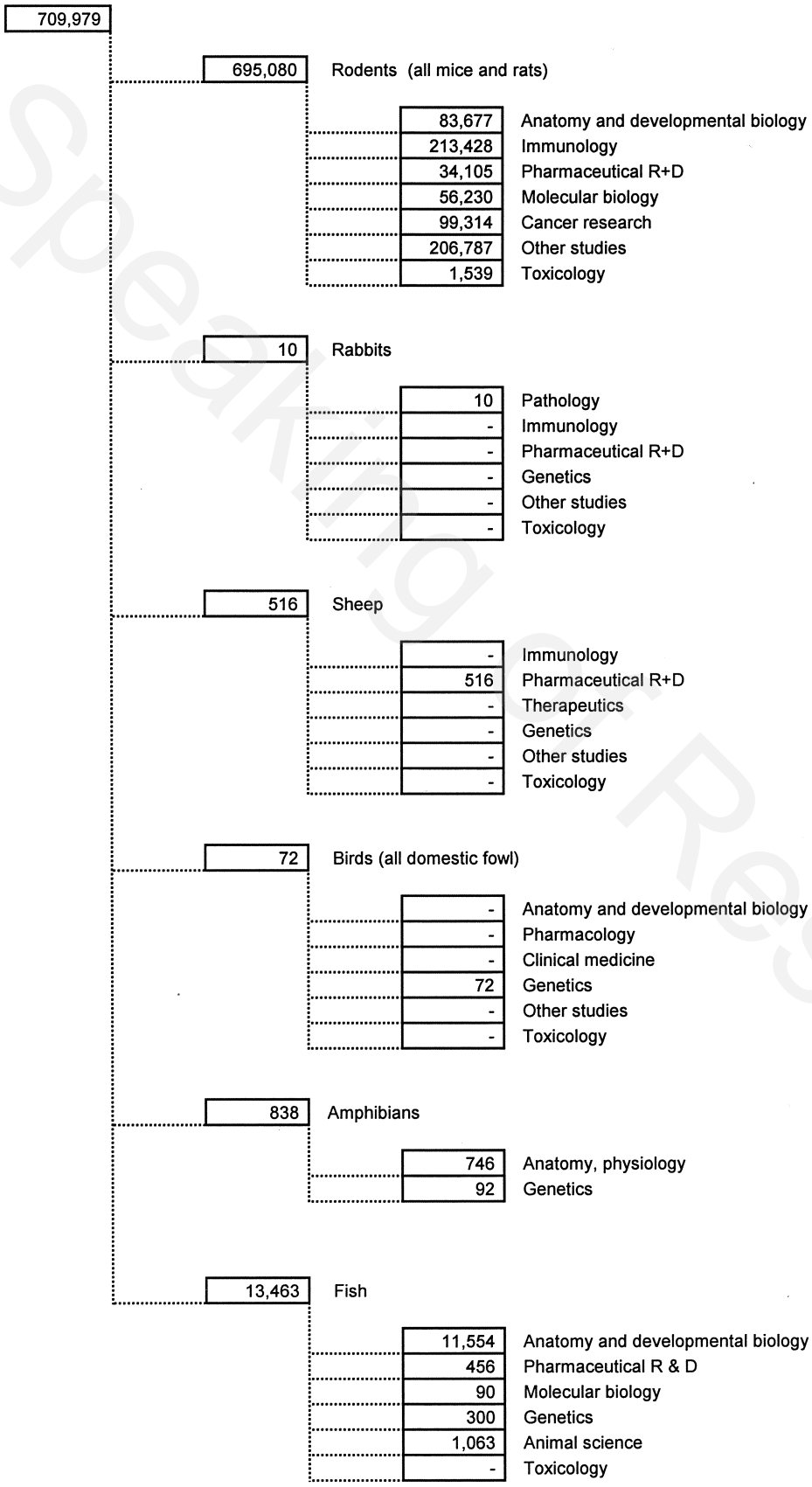
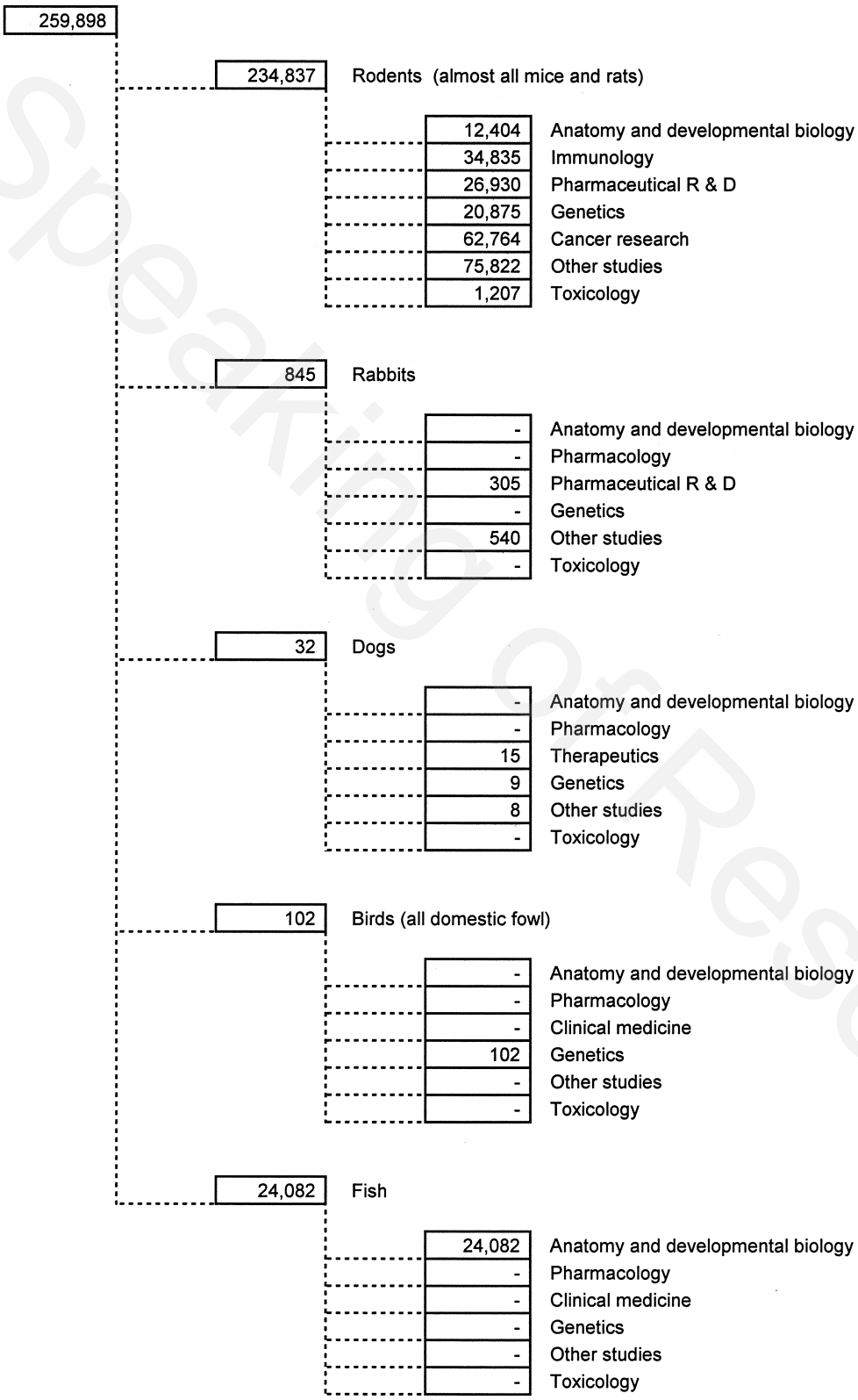


Table 18h Tree table - scientific procedures involving animals with a harmful genetic defect, 2002



Part B

Table 19 Project licence holders and scientific procedures by type of designated establishment

Great Britain 2002

Type of designated establishment	Number of licence holders[1] reporting procedures										Number of licence holders[1] reporting no procedures	Procedures	
	Number of procedures								Total	Not counted [2]		Total	Percentage
	1 to 50	51 to 100	101 to 200	201 to 400	401 to 600	601 to 800	801 to 1,000	More than 1,000					
Public health laboratories	9	3	3	3	1	1	3	3	26	3	4	16,554	0.6
Universities, medical schools	548	249	267	265	139	86	81	264	1,899	92	906	1,079,787	39.5
NHS hospitals	6	6	6	5	3	2	2	6	36	-	12	23,099	0.8
Government departments	28	11	10	6	10	6	1	17	89	4	32	94,077	3.4
Other public bodies	51	28	25	33	22	12	9	72	252	28	72	353,495	12.9
Non-profit making organisations	23	8	14	15	9	7	3	32	111	4	34	152,332	5.6
Commercial organisations	68	37	37	49	26	23	15	149	404	19	122	1,013,368	37.1
Total	733	342	362	376	210	137	114	543	2,817	150	1,182	2,732,712	100

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

(2) Details of procedures on immature forms (e.g. larvae or embryos) are collected but not counted (see introductory notes, paragraph 12)

Part C - historical

Table 20 Scientific procedures by species of animal, 1988-2002

Great Britain — Thousands of procedures

Species of animal	Scientific procedures														
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Mouse	1850.5	1744.9	1,636.3	1,698.9	1,449.0	1,457.3	1,475.0	1,454.9	1,502.1	1,517.9	1,590.8	1,641.9	1,607.0	1,657.7	1,720.3
Rat	860.4	882.3	891.5	881.7	833	819.7	755.9	694.4	688.8	636.7	575.9	567.0	535.0	500.2	509.6
Other rodent	184.1	171.8	162.5	152	131.5	138.2	141.1	134.2	125.2	103.3	93.1	81.4	71.5	61.6	60.0
Rabbit	131.8	113.4	89.8	81.5	79.5	70.5	68.8	61.2	53.6	45.0	37.5	41.4	39.7	33.7	30.3
Carnivore	20.5	21.4	19.3	17.6	17.1	15.3	14.1	15.1	15	12.7	11.9	13.9	11.6	11.6	12.1
Ungulate	38.1	34.8	34.8	31.1	34.4	33	32.2	55.3	60.3	60.0	68.0	63.6	63.0	37.4	57.3
Primate	6.3	5.3	5.3	4.5	5	5	5.2	4.7	4.4	3.9	3.7	4.0	3.7	4.0	4.0
Other mammal	0.4	0.2	0.8	1.3	1.3	2.5	3.2	1	0.8	0.8	0.9	0.5	0.5	0.8	1.3
Bird	269.5	252	245.6	226.7	220.3	116.4	189.6	140.4	113.9	120.8	141.2	106.0	124.2	126.9	138.3
Reptile/Amphibian	11.3	11.6	13.1	15	19	17.7	17.2	17.2	17.3	15.3	14.4	14.6	15.6	17.5	17.6
Fish	107.5	77.5	108	132	138.3	152.1	139.9	131.1	135.2	119.6	122.3	122.4	243.0	171.1	182.0
Cephalopod[1]	..	..	..	..	..	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	3,480.3	3,315.1	3,207.1	3,242.4	2,928.3	2,827.7	2,842.4	2,709.6	2,716.6	2,636.0	2,659.7	2,656.8	2,714.7	2,622.4	2,732.7

(1) *Octopus vulgaris*, from 1 October 1993.

Table 21 Scientific procedures (toxicology) by type of legislation, 1995-2002

Great Britain — Thousands of procedures

Legislative requirements	1995	1996	1997	1998	1999	2000	2001	2002
UK requirements only	42.3	25.4	21.9	39.2	37.3	26.2	24.5	23.2
Requirements of one EU country only (*1999 onwards*)					5.8	2.9	1.3	1.0
EU requirements	69.6	60.5	54.1	49.3	118.7	69.8	73.6	68.2
Requirements of non-EU Council of Europe country/ies					25.2	10.6	4.6	3.7
Other international requirements	48.0	38.2	24.5	25.7	33.9	29.2	30.6	30.5
Joint requirements (any combination of above)	399.9	441.1	415.0	355.5	247.5	242.1	255.1	295.0
Non-legislative purposes	117.5	155.0	109.6	94.8	74.7	74.1	65.7	64.2
Total	677.2	720.2	625.1	564.4	543.2	454.9	455.5	485.8

Table 22 Scientific procedures by use of anaesthesia, 1988-2002

Great Britain — Thousands of procedures

Level of anaesthesia	Scientific Procedures														
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
No anaesthesia throughout the procedure[1]	2213.1	2094.9	2,205.4	2,223.7	1,960.0	1,792.5	1,796.6	1,751.4	1767.1	1690.8	1723.6	1683.9	1636.3	1551.1	1634.8
Anaesthesia, with recovery, for part of procedure[2]	604.5	568.7	529.8	566.9	579.3	627	632.5	658.2	694.1	698.8	702.1	759.5	873.9	802.4	810.8
Terminal Anaesthesia[3]	662.7	651.5	472	451.9	388.9	408.2	413.3	300	255.4	246.4	233.9	213.3	204.5	268.9	287.2
Total	3480.3	3,315.1	3,207.1	3,242.4	2,928.3	2,827.7	2,842.4	2,709.6	2,716.6	2,636.0	2,659.4	2,656.8	2,714.7	2,622.4	2,732.7

(1) Includes some experiments in which the subject of the study is the anaesthetic agent itself.
(2) May be local, regional or general anaesthesia.
(3) At end of procedure or for whole procedure.

Table 23 Scientific procedures by type of designated establishment, 1988-2002

Great Britain — Thousands of procedures

Type of designated establishment[1]	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Public health laboratories	56.4	58.4	73.2	60.2	63.1	51.5	49.2	45.1	35.1	20.0	19.7	25.2	18.4	15.7	16.6
Unversities, medical schools	777.7	747.6	710.0	727.8	737.0	840.6	832.6	824.1	843.8	882.1	934.8	936.1	1,069.7	1,005.7	1,079.8
Polytechnics etc[2]	36.0	29.0	38.1	26.3	32.8										
NHS hospitals	89.6	92.7	89.6	76.5	80.1	75.8	83.3	94.4	94.3	71.1	75.0	70.1	40.1	28.3	23.1
Government departments	65.9	58.7	68.7	72.6	65.1	78.1	62.6	78.6	94.2	81.5	86.2	91.8	100.5	84.6	94.1
Other public bodies	231.6	217.5	229.2	244.0	217.8	240.5	259.9	235.5	248.4	259.2	287.9	312.6	338.2	309.2	353.5
Non-profit making organisations	115.7	103.8	132.1	124.0	104.7	91.4	85.8	102.6	118.9	117.7	119.4	119.5	115.0	161.4	152.3
Commercial organisations	2,107.4	2,007.3	1,866.2	1,910.9	1,627.7	1,449.9	1,469.1	1,329.4	1,281.8	1,204.3	1,136.6	1,101.6	1,032.8	1,017.7	1,013.4
Total	3,480.3	3,315.1	3,207.1	3,242.4	2,928.3	2,827.7	2,842.4	2,709.6	2,716.6	2,636.0	2,659.4	2,656.8	2,714.7	2,622.4	2,732.7

(1) For 1988, recorded on the basis of the registered or designated place which the licensees regarded as their main place of work at the time the returns were issued. A licensee may have commenced procedures at more than one registered or designated place during the year. For 1989 onwards, recorded on the basis of the designated place of the project licence holder at the time the returns were issued.
(2) Polytechnics all became universities during 1992. From 1993 onwards combined figures are given.

Table 24 Scientific procedures (non-toxicology) by field of research, 1995-2002

Great Britain — Thousands of procedures

Field of research	1995	1996	1997	1998	1999	2000	2001	2002
Psychology	28.4	31.0	38.8	33.1	33.9	106.9	37.9	39.6
Pharmaceutical R&D	567.6	504.2	501.5	470.1	481.9	446.7	408.9	365.7
Cancer research	262.6	257.8	300.9	293.3	267.0	258.4	268.8	258.1
Ecology	14.5	15.2	11.9	13.7	9.1	12.6	19.8	22.1
Tobacco	-[1]	0.0	0.0	0.0	0.0	0.1	-[1]	0.0
Alcohol	3.2	2.2	1.9	0.4	1.2	3.1	3.1	2.3
Other	1,156.0	1,185.8	1,155.8	1,284.7	1,320.5	1,432.0	1,428.4	1,558.9
Total	2,032.4	1,996.4	2,010.8	2,095.3	2,113.6	2,259.8	2,167.0	2,246.9

(1) Fewer than 50 procedures

Table 25 Scientific procedures (toxicology) for safety evaluation, 1992-2002

Great Britain — Thousands of procedures

	1992	1993	1994	1995[1]	1996	1997	1998	1999	2000	2001	2002
Protection of man, animal or the environment by toxicology or other safety evaluation:											
Environmental pollution	59.2	62.9	51.8	35.7	35.7	27.6	34.0	32.3	35.0	38.2	38.2
Substances used in agriculture	77	67.3	68.6	65.6	68.8	53.8	55.8	48.1	35.3	41.0	57.8
Substances used in industry	91.8	80.2	65.9	85.1	80.4	76.2	58.8	57.6	53.9	52.7	42.3
Substances used in the household	2.1	2.2	1.4	1.7	2.6	2.0	1.5	0.3	1.2	0.6	1.0
Foodstuffs and food additives	6.1	7.6	8.2	7.4	3.8	7.5	4.0	4.9	6.0	3.5	5.4
Cosmetics and toiletries	2.2	3.8	3.5	1.9	2.8	1.3	0.6	0.0	0.0	0.0	0.0
Tobacco	0.2	0	0.03	-[2]	..	..	..	..	..	..	..
Alcohol research	1.1	7.3	9.1	-[2]	..	..	..	..	..	..	..
Other safety evaluation	19	10.6	8.7	..	..	..	..	..	..	..	..
Pharmaceutical - safety, efficacy, ADME and residue	..	..	..	333.2	365.8	311.2	284.4	269.6	203.8	204.8	220.1
Pharmaceutical - quality control	..	..	..	83.8	84.3	77.8	74.0	85.6	70.9	72.2	74.5
Other purposes	..	..	..	62.7	76	67.7	51.4	44.7	48.8	42.5	46.4
Total	258.6	242	217.2	677.2	720.2	625.1	564.4	543.2	454.9	455.5	485.8

.. No comparable figures are available.
(1) Where series have been discontinued or a new series started, it is because there is little or no direct comparability between figures from previous years and the current year.
(2) In previous years, research on tobacco and alcohol was included, for historical reasons, in the "safety" categories. From 1995 onwards, they are in the non-toxicology tables.

Table 26 Scientific procedures by primary purpose, 1995-2002

Great Britain — Thousands of procedures

Primary purpose of the procedure	1995	1996	1997	1998	1999	2000	2001	2002
Fundamental biological research	841.2	884.8	829.4	894.9	803.8	872.8	778.7	864.3
Applied studies -								
human medicine or dentistry	1,073.3	1,012.2	945.4	847.3	836.2	739.0	689.9	669.9
veterinary medicine	199.2	144.1	160.1	181.3	169.6	190.7	182.2	175.0
Protection of man, animals or the environment	209.2	219.7	201.0	170.4	153.3	161.2	153.6	185.6
Education	7.1	6.7	5.9	6.3	5.5	4.7	4.6	4.3
Training	1.7	1.7	1.6	1.6	1.4	1.3	1.2	1.0
Forensic enquiries	0.1	0.1	0.1	0.1	0.1	-(1)	-(1)	-(1)
Direct diagnosis	65.0	55.8	55.5	52.0	47.8	45.3	34.5	41.3
Breeding	312.7	391.5	437.0	505.8	639.1	699.6	777.8	791.2
Total	2,709.6	2,716.6	2,636.0	2,659.7	2,656.8	2,714.7	2,622.4	2,732.7

(1) Fewer than 50 procedures

Table 27 Scientific procedures by primary purpose and genetic status, 1995-2002

Great Britain — Thousands of procedures

Primary purpose of procedure	1995	1996	1997	1998	1999	2000	2001	2002
Normal animal								
Fundamental biological research	713.1	724.8	656.2	664.1	621.5	653.2	560.9	584.7
Applied studies	1,219.2	1,101.1	1,043.8	969.4	937.9	857.7	810.5	780.6
Safety	208.9	219.0	200.8	170.1	153.3	161.1	153.5	185.4
Other uses	73.0	64.2	62.8	59.9	54.7	51.3	40.1	46.7
Breeding	53.5	72.2	83.0	89.2	126.7	152.8	179.8	165.5
Total	2,267.7	2,181.3	2,046.6	1,952.7	1,894.1	1,876.1	1,744.8	1,762.8
Animal with harmful genetic defect								
Fundamental biological research	53.8	43.9	43.3	57.5	55.1	54.5	46.8	63.8
Applied studies	40.7	41.0	50.1	42.7	42.9	50.8	44.6	37.7
Safety	0.2	0.7	0.3	-	-	-	(1)	-
Other uses	(1)	(1)	0.2	(1)	0.1	0.1	0.1	(1)
Breeding	131.9	148.0	142.8	159.1	152.9	151.5	155.3	158.4
Total	226.6	233.7	236.6	259.3	251.0	256.9	246.8	259.9
Genetically modified animal								
Fundamental biological research	74.3	116.2	129.9	173.2	127.2	165.1	171.0	215.8
Applied studies	12.7	14.2	11.7	16.5	24.9	21.2	17.0	26.6
Safety	0.1	-	-	0.3	-	0.1	0.1	0.2
Other uses	1.0	-	(1)	(1)	(1)	(1)	(1)	(1)
Breeding	127.2	171.2	211.1	257.6	359.5	395.4	442.7	467.3
Total	215.3	301.6	352.8	447.6	511.6	581.8	630.8	710.0
All animals								
Fundamental biological research	841.2	884.8	829.4	894.9	803.8	872.8	778.7	864.3
Applied studies	1,272.6	1,156.3	1,105.6	1,028.7	1,005.7	929.7	872.1	844.9
Safety	209.2	219.7	201.0	170.1	153.3	161.2	153.6	185.6
Other uses	74.0	64.2	63.0	59.9	54.9	51.4	40.3	46.7
Breeding	312.6	391.5	437.0	505.8	639.1	699.6	777.8	791.2
Total	2,709.6	2,716.6	2,636.0	2,659.7	2,656.8	2,714.7	2,622.4	2,732.7

(1) Fewer than 50 procedures

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 and the Home Office administers the legislation in Scotland, as well as England and Wales.

Scope of the Act

3. The 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'. '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 some 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 identification of animals for scientific purposes, if this causes no more than momentary pain or distress and no lasting harm; or clinical tests on animals for evaluating a veterinary product under authority of an Animal Test Exemption (issued under the Medicines Act 1968).

6. Two kinds of licence are required for all scientific 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 someone 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 2002, 2,596 personal licences were granted and 2,595 were revoked. On 31 December, 2002 there were 14,259 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 benefit (to humans, other animals or the environment) which is likely to accrue from the work. Adequate consideration must also have been given to the feasibility of using alternative methods not involving living 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 now required to complete an accredited training course before the licence is granted.

10. When making an application for a project licence, the applicant and the Home Office agree an overall severity banding for the project. There are three possible severity bandings: mild, moderate and substantial. A fourth band, unclassified, is used for procedures where the animal is 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 band should be determined. 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, 2002, the number granted during 2002 and the number revoked during 2002 (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

Severity band	*In force on 31/12/2002*		*Granted during 2002*		*Revoked during 2002*	
	Number	%	Number	%	Number	%
Mild	1,233	39	266	38	323	40
Moderate	1,768	56	389	56	423	53
Substantial	60	2	14	2	15	2
Unclassified	119	3	26	4	41	5
Total	3,180		695		802	

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 which breed certain types of animal (mouse, rat, guinea-pig, hamster, rabbit, dog, cat and primate) for use in scientific procedures ('breeding establishments'), and establishments which 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. The following table details the number of certificates of designation which were in force on 31 December, 2002, the number granted during 2002 and the number revoked during 2002. The figures are subdivided for different types of establishment.

Certificates of Designation

Establishment type	*In force on 31/12/2002*	*Granted during 2002*	*Revoked during 2002*
Commercial concern	89	2	8
Higher education	87	-	-
Quango	31	-	-
Government	10	1	-
Non-profit	14	-	-
NHS hospital	6	-	1
Public health	3	-	-
Total	240	3	9

15. Of the 240 certificates of designation active on 31 December 2002, 233 were registered as user establishments, 151 as breeding establishments and 70 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.

Guidance and Codes of Practice

16. In addition to these annual statistics, the Act requires the Home Secretary to publish and lay before Parliament guidance on the operation of the controls of the Act and codes of practice as to the care and accommodation of animals and their use in regulated procedures.

The following documents have been published and can also be found at the Home Office website:

(http://www.homeoffice.gov.uk/comrace/animals/index.html)

- Guidance on the operation of the Animals (Scientific Procedures) Act 1986 (latest version 2000; HC 321);
- Code of practice for the housing and care of animals used in scientific procedures (1989; HC 107);
- Code of practice for the housing and care of animals in designated breeding and supplying establishments (1995; HC 125);
- Code of Practice for the Humane Killing of Animals under Schedule 1 to the Animals (Scientific Procedures) Act 1986 (1997; HC193).
- Guidance on the Conduct of Regulatory Toxicology and Safety Evaluation Studies;
- Code of Practice for the housing and care of animals in designated breeding and supplying establishments:
- Supplement: Ferrets and Gerbils (laid before Parliament on 7 November 2001)

Further information is also available at the Home Office website:

- Information document on the handling of infringements under the 1986 Act (placed on website in June 2002)
- Supplementary Guidance to applicants for project licences: projects for educational purposes (September 2002)
- "Points to Consider" document entitled "Non-Rodent Selection in Pharmaceutical Toxicology" (produced by the Association of the British Pharmaceutical Industry in conjunction with the Home Office in August 2002)
- Home Office response to the report of the Expert Group on Efficient Regulation (October 2002)

Education and training

17. The Animals (Scientific Procedures) Act 1986 imposes clear responsibilities on persons with specific roles in relation to the care and use of animals in scientific procedures. These are elaborated further in the Home Office guidance on the operation of the Act (HC 321, The Stationery Office, 2000) as mentioned above. As the roles differ, it follows that the education and training required before assuming these responsibilities will differ:

- personal licence holders are responsible for the welfare of animals on which they carry out regulated procedures; applicants will be granted licences only if adequately trained to take on this responsibility and they will usually be required to work under supervision initially;
- project licences will be issued only to persons with appropriate qualifications to direct a programme of work which is well-justified and takes account of all reasonable possibilities for reducing the number of animals used, refining the procedures to reduce suffering and replacing animal procedures with alternatives which do not involve protected animals;
- holders of certificates of designation have responsibility not only for ensuring that the fabric and staffing of designated places are maintained to appropriate standards but also for ensuring that reasonable steps are taken to prevent unauthorised procedures being carried out and that adequate training facilities are available for all animal users.

18. Considerable progress has been made over recent years in providing appropriate training for those involved in research with animals. The training programmes for applicants for personal and project licences are described in Appendix F of the Guidance on the operation of the Animals (Scientific Procedures) Act 1986 (2000; HC 321). All training programmes are accredited under a scheme recognised by the Home Office. Accreditation seeks to achieve common and high standards for licensee training which will facilitate free movement of licensees within the UK and Europe as well as ensuring high standards in the use of animals for scientific purposes.

19. Satisfactory completion of an accredited course prior to application for a personal licence has been a requirement under Home Office policy since 1 April 1994. A similar requirement has applied to new applicants for project licences from 1 April 1995.

20. During 1995, mandatory training for Named Veterinary Surgeons was also introduced.

The acquisition and use of primates

21. During 1996, following recommendations made by the Animal Procedures Committee, new measures on the acquisition and use of non-human primates were introduced:

- the use of wild-caught primates was banned except where exceptional and specific justification can be established;
- specific justification must be made for the use of old world (as opposed to new world) primates;
- specific justification must be made for the use of old world primates in toxicological procedures of more than mild severity;
- approval for the acquisition of primates from overseas will only be given if the conditions at the breeding or supplying centre are acceptable to the Home Office; and
- each batch of animals acquired from overseas, or other non-designated, sources must be separately authorised and the transport arrangements approved by the Home Office.

22. A number of new administrative steps including additional record keeping requirements were introduced to ensure the effectiveness of these changes.

Animal Procedures Section

23. In Great Britain, the Animal Procedures Section in the Home Office enforces the provisions of the Act.

24. Administrative staff, operating the licensing system on behalf of the Secretary of State, process applications for new licences and certificates; process amendments to existing authorities; and revoke or vary licences and certificates as necessary. It is staff in the Animal Procedures Section (and neither Inspectors nor the Animal Procedures Committee) that grant, refuse, vary, revoke and suspend licences and certificates for the Secretary of State. The licensing team also administers the collection of annual fees from designated establishments and the collection of annual returns of procedures from project licence holders

25. On 31 December 2002, the administrative licensing section had a total complement of 21 staff and managers. Two licensing section posts were vacant. The licensing work was carried out at five regional offices: Cambridge, Dundee, London, Shrewsbury and Swindon.

26. Other staff in the Animal Procedures Section are the primary source of policy advice to Ministers on issues relating to the Act, including the preparation of responses to Parliamentary Questions and correspondence from MPs and the public about the use of animals in scientific procedures.

The Inspectorate

27. The Act provides for the appointment of Inspectors and describes their duties. Inspectors hold either a medical or veterinary qualification.

28. Inspectors assess all applications for new licences or amendments to existing licences in detail and advise the Home Secretary on how to ensure that only properly justified work is licensed. When assessing research proposals, the Inspector ensures that full consideration is given to alternatives, not only the *replacement* of procedures with others which do not use animals, but also the *reduction* of the number of animals used and the *refinement* of procedures to minimise pain and suffering. These are known as the 3Rs. Inspectors carry out visits, usually without notice, to establishments designated under the Act to inspect the premises and to ensure that the establishment's controls are adequate and that the terms and conditions of the licences issued under it are being observed.

29. Inspectors also advise the Home Secretary on policy matters connected with the operation of the Act and they are available to give advice and assistance to licensees and other personnel working under the Act.

30. At 31 December 2002, there were 25 inspectors in post. The distribution of inspectors was:

	Chief Inspector	Superintending Inspectors	Inspectors
London	1	1	5
Cambridge		1	2
Dundee		1	5
Shrewsbury		1	4
Swindon			4
Total	1	4	20

31. In 2002, the Inspectorate carried out 3,154 visits in addition to meeting demands for advice and assessment in connection with the issue and amendment of licences and the formulation of policy. Of these visits, 2,264 were for the purpose of inspection of designated establishments and work in progress. Sixty percent of the visits to designated departments were unannounced. The remaining 890 visits were for the purpose of maintaining scientific or professional skills, representing the Home Office or furthering Home Office policy.

Performance against Licensing Charter standards

32. Under the Licensing Charter, introduced in April 2000, the administrative licensing staff had a target to issue decisions on all types of applications within 10 days of receipt of the Inspector's recommendations. In 2002, 9,645 new licences or amendments to existing licences were granted, and over 99 per cent of these were processed within that time limit.

33. From April 2002, the Licensing Section and the Inspectorate were together committed, for the financial/business year 2002/03, to processing at least 85% of applications for project licences within 35 working days.

34. While data for a whole year is incomplete, data from 1 April 2002 to 31 December 2002, indicates that 75% of project licence applications were processed within the 35 day target .

The Animal Procedures Committee

35. The 1986 Act established the Animal Procedures Committee (APC), which has the duty of advising the Home Secretary on matters concerned with the Act and his functions under it. The Home Secretary may refer matters to the Committee, but the APC is also free to consider topics of its own choosing. The Committee is required in its consideration of any matter to have regard both to the legitimate requirements of science and industry and to the protection of animals against avoidable suffering and unnecessary use in scientific procedures. Each year, the Committee makes a report to the Home Secretary, which is laid before Parliament and published.

36. The Act requires that, excluding the Chairman, the Committee must have a minimum of 12 members; one must be a lawyer and at least two thirds must be medical practitioners, veterinary surgeons or have qualifications or experience in a biological subject. At least half of the members must not have held a licence under the Act within the last six years. The Home Secretary must also ensure that animal welfare interests are adequately represented.

Recent developments

37. On 24 April 2002 the Organisation for Economic Co-operation and Development (OECD) formally adopted Test Guideline 429, the murine local lymph node assay (LLNA). This is a more refined animal test for determining the skin sensitisation potential of substances than the previously accepted method, and it is likely to become the method of first choice for that purpose.

38. The animal procedures pages of the Home Office website were redesigned and expanded in June 2002. The aim is to make it more informative and user friendly, so as to encourage greater use of the available material.

39. The Report of the House of Lords Select Committee on Animals in Scientific Procedures was published on 24 July 2002 [HL 150-1]. It endorsed the continued regulated use of animals in scientific procedures and testing, and supported the principles underpinning the current regulatory system. It made a number of recommendations, principally aimed at introducing greater openness about use of animals for scientific purposes, at more being done to develop and promote alternatives to that use, and at reducing bureaucracy in the licensing system. Preparation of the Government response was put in hand for expected publication in early 2003. [The Government response was published on 20 January 2003: Cm 5729]

40. In August 2002 the Home Office co-sponsored and participated in the Fourth World Congress on Alternatives and Animal Use in the Life Sciences.

41. Plans were reported in last year's statistics publication to increase the complement of the Animals (Scientific Procedures) Inspectorate from 21 to 33. At the end of 2002 the complement had reached 25 (see Appendix B for further details).

SUMMARY OF INFRINGEMENTS

42. In the published statistics for 2000 details were given of new streamlined procedures for handling infringements. Action on 31 infringements was completed under these procedures in 2002, six less than last year's total.

Class One infringements

43. These involve minor breaches of licence or certificate conditions, which are not potential criminal offences, have no aggravating circumstances and no disputed facts.

44. Five Class One infringements were dealt with in the reporting period. All five arose in academic establishments.

Class Two infringements

45. These may include potential criminal offences, but are cases where it is clear from the circumstances that prosecution, variation of licence/certificate conditions or revocation action would not be appropriate. Formal admonition is generally the action taken against those responsible.

46. Fourteen Class Two infringements were dealt with in the reporting period. Commercial establishments were involved in seven, academic establishments in six, and a Quango in the one remaining.

Class Three infringements

47. These are the more serious cases, where training/re-training, variation, suspension or revocation of licences/certificates, or referral to the police for possible prosecution appear to be options. Any case where animal welfare may have been compromised must be treated as a Class Three infringement, and all such cases are referred to the Head of the Animal Procedures Licensing Section for consideration.

48. Twelve infringements in this category had action completed on them in the reporting period.

49. Seven were reported by licensees to the Home Office, three were discovered and reported by Inspectors, one was reported by the named animal care and welfare officer (NACWO), and one was discovered by the Home Office following publication of a scientific paper.

50. A total of 9 establishments had Class Three infringements reported. Academic establishments were involved in five, commercial establishments in two, and QUANGO's in two.

51. No licences were revoked during 2002.

Nature of Class Three Infringements

52. As in previous years, the nature of the infringements varied in severity. In four cases, regulated procedures were performed without appropriate personal licence authority in breach of section 3(a) of the 1986 Act; in three cases without appropriate project licence authority in breach of section 3(b); and in one case without either authority. In two cases there was inadequate supervision of animals; in one case animals were used at a site not specified on the licence; and one case involved the failure to notify staff of a fault with the animal support equipment.

Action taken

53. It should be borne in mind when reading the following paragraphs that any infringement case may involve more than one personal or project licence holder.

54. As a result of these infringements, 24 licence holders were admonished; 11 were required to attend relevant modules of an accredited training course; and 6 holders of certificates of designation were required to review the systems of control at their establishments in order to prevent recurrence.

55. Those admonished include personal and project licence holders, and holders of certificates of designation. They also include those who were additionally required to undergo training. Some of the certificate of designation holders were written to on more than one occasion, about more than one infringement, but were counted only once.

PREVIOUS RETURNS

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 Paper
2001	Cm 5581
2000	Cm 5244
1999	Cm 4841
1998	Cm 4418
1997	Cm 4025
1996	Cm 3722
1995	Cm 3516
1994	Cm 3012
1993	Cm 2746
1992	Cm 2356
1991	Cm 2023
1990	Cm 1574
1989	Cm 1152
1988	Cm 743
1987	Cm 515

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
1986	Cm 187
1985	Cmnd 9839
1984	Cmnd 9574
1983	Cmnd 9311
1982	Cmnd 8986
1981	Cmnd 8657
1980	Cmnd 8301
1979	Cmnd 8069
1978	Cmnd 7628
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".

APPENDIX B

Animals (Scientific Procedures) Act 1986

Return of procedures by project for 2002

OFFICIAL USE ONLY	
Serial Number	
Project licence number	
Establishment code	

Dear Project Licence Holder

This form sets out the arrangements for the 2002 annual return of statistics of regulated procedures conducted under the Animals (Scientific Procedures) Act 1986. It should be used to record procedures that were started during 2002.

If you are not the project licence holder for the project licence number displayed above, please return the form to the address below with an explanatory note. If you are the project licence holder please:-

- read and answer question 1 under SECTION 1. If the answer to the question is NO simply sign and date the form, giving a contact telephone number, and return it to the address below using the enclosed label. However if the answer is YES, please read the rest of this letter, accompanying notes, and code lists carefully before completing the form in black ink.
- **complete the form with care; this is a computer input document. This should avoid queries at a later date. PLEASE NOTE CAREFULLY THE CODING INSTRUCTIONS. THERE ARE SOME WORKED EXAMPLES ON PAGES 9 & 10.**
- Please discard any old coding instructions, and use only those instructions supplied with this form.
- after satisfying yourself that it has been completed accurately, sign and date the form, giving a contact telephone number and email address, and return it by **31 JANUARY 2003**, to:-

  Home Office
  Room 511, Allington Towers
  19 Allington Street
  LONDON SW1E 5EB

- under normal circumstances the form will not be accepted unless you, the project licence holder, sign SECTION 1. If this is not possible due, for example, to sickness or other unavoidable leave of absence, a note from the signatory to explain the circumstances should be attached.
- please retain a copy of this return in case of queries.

Thank you in advance for your care and attention.

Yours faithfully
DAVID WOOD
Animal Procedures and Coroners Unit
Community Policy Directorate

SECTION 1 (to be completed by the Project Licence Holder)

1. Have any procedures under the Animals (Scientific Procedures) Act 1986 under the project shown above been started during 2002?
   Enter "Y" for YES or "N" for NO ☐
2. If NO please sign below and return the form. If YES please complete SECTION 2 and check that the form has been completed in accordance with the instructions. Then sign below and return the form.

Declaration: I am satisfied that the information required by the Secretary of State under the conditions of my project licence has been supplied accurately in accordance with the instructions given.

Signature of project licence holder ..... **Date** .....

Name of signatory in BLOCK LETTERS .....

Contact telephone number ..... **Email address** .....

PPL NO: _____ FORM SERIAL NO: _____

Section 2 Select the appropriate codes by referring to the enclosed notes.		01	02	03	04
Species Which animals were used in the procedure?	**Row 1**				
CITES Is animal on the CITES list? (see notes)	**Row 2**				
Stage of Development What was the stage of development of the animal?	**Row 3**				
Genetic Status Were the animals genetically abnormal?	**Row 4**				
Source From where were the animals obatined?	**Row 5**				
Anaesthesia Were the animals anaesthetised?	**Row 6**				
NMBA Was an NMBA administered?	**Row 7**				
Primary Purpose What was the primary purpose of the procedure?	**Row 8**				
Body System What was the primary target body system for the procedure?	**Row 9**				
TOXICOLOGY **Purpose** Use List A / ***ALL WORK OTHER THAN TOXICOLOGY*** **Field of Research** Use List B	**Row 10**				
Type of Test Use List A / **Production** Use List B	**Row 11**				
Legislative Requirements Use List A / **Techniques** Use List B	**Row 12**				
Number of Procedures Enter the total number of procedures for each column	**Row 13**				
Number of animals used for the first time Enter the total number of animals used for the first time in regulated procedures	**Row 14**				
Number of animals Reused for the first time this year Enter the total number of animals reused for the first time this year in regulated procedures (see Notes) **If no animals were reused this should be set to zero**	**Row 15**				

PPL NO: FORM SERIAL NO:

05	06	07	08	09	10	11	12	13	14	15

PPL NO: FORM SERIAL NO:

16	17	18	19	20	21	22	23	24	25	26

GENERAL NOTES

1. It is a condition of every project licence that the project licence holder should make a return before 31 January of all regulated procedures on living animals commenced during each year. Only one reminder of this obligation will be sent.

2. Information subsequently published by the Home Office will not identify the work of any individual establishment or project licence holder.

3. If you hold more than one project licence, you will receive a separate return of procedures form for each licence. The project licence number is shown on the front of the form. Please take care to ensure that the work of personal licensees appears on the return of procedures form carrying the correct number. It is the responsibility of project licence holders to ensure that the work of all personal licensees performing regulated procedures on their project is included in their returns.

4. The form SHOULD NOT be used to notify changes in personal details. Such changes should be notified **separately** to your regional office or to:

   AP & CU, Room 511
   Home Office
   Allington Towers
   19 Allington Street
   LONDON SW1E 5EB

NOTES ON COMPLETING SECTION 2

5. Before completing SECTION 2 please study the section carefully and read the notes on Code Lists for each ROW. Be sure that you understand what is meant by:

   - CITES listed specifies, ROW 2
   - Schedule 2 listed species, ROW 5
   - Procedure, ROW 13

You may find it helpful to refer to paragraphs 2.6 to 2.33 of the Home Office Guidance on the Operation of the Animals (Scientific Procedures) Act 1986 (Published in March 2000 by HMSO, reference HC321) before completing this section. This Guidance is also available at www.homeoffice.gov.uk/ccpd/abcu.htm

6. If you have carried out any work using harmful mutant or genetically modified animals, you must read the whole of Annex A of the notes (on Page 8) carefully.

7. Complete SECTION 2 column by column in line with the sequence shown by the arrows. For each entry in a column (i.e. each box) select the most appropriate code from the code list for that ROW.

8. Do not enter more than one code in any box. Where a different set of codes is needed to describe fully the use of different groups of animals in a particular procedure, complete as many columns as necessary. If a mistake is made and alterations are necessary, strike out the whole column and complete a fresh one.

9. Each completed column should contain a unique combination of codes and record all the procedures for any animal or group of animals of the same species which are described by that particular combination of codes.

10. If your project requires more than 26 columns to describe it, please photocopy and complete SECTION 2 and attach the additional sheets to your return, making clear that they are additional sheets and that the project licence number appears on them.

11. Forms not completed in accordance with the guidance notes will be returned to the licence holder. Acceptance of the form in compliance with standard condition 10 of the licence will NOT be recorded until a properly completed form is received in the Home Office.

12. **Please consult your Inspector if you are uncertain how to complete the form correctly.**

CODE LISTS

ROW 1 : SPECIES

Select the appropriate code from the list below.

MAMMAL

R0 Use this code for rodenticide field trials only. There is no need to complete the rest of the column. You must provide a covering letter giving estimates of the numbers of each species which may have under gone pain, suffering, distress or lasting harm during the field trials.
R1 Mouse
R2 Rat
R3 Guinea-pig
R4 Hamster
R5 Gerbil
R9 Other rodent (*please append a note indicating species used*)
L1 Rabbit
C1 Cat
C2 Dog - beagle
C3 - greyhound
C4 - other including cross-bred dogs
C5 Ferret
C9 Other carnivore (*please append a note indicating species used*)
U1 Horse, donkey and cross-bred equids
U2 Pig
U3 Goat
U4 Sheep
U5 Cattle
U6 Deer
U7 Carmelid
U9 Other ungulate (*please append a note indicating species used*)

Primate

P1 - prosimian
- new world monkey
P2 - marmoset, tamarin
P3 - squirrel, owl or spider monkey
P4 - other new world monkey
- old world monkey
P5 - macaque
P6 - baboon
P7 - other old world monkey
- ape
P8 - gibbon
P9 - great ape
J9 Other Mammal (*please append a note indicating species used*)

BIRD

T1 Domestic fowl (Gallus domesticus)
T2 Turkey
T3 Quail (Coturnix coturnix)
T4 Quail (spp. other than C. coturnix)
T9 Other bird (*please append a note indicating species used*)

REPTILE

D1 Any reptilian species

AMPHIBIAN

M1 Any amphibian species

FISH

F1 Any fish species

CEPHALOPOD

F5 Octopus vulgaris

ROW 2 : SPECIES

Animals of endangered species 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(a)** are subject to special controls and information is required on their use. Most species and strains of animals used in the laboratories are not included in the CITES lists. Please consult your Inspector for further information.

Select the appropriate code from the list below.

1 the specifies used in this procedure is listed in Appendix 1 or Annex C.1.
0 the species is not so listed.

Some examples of CITES codes:

0 Common marmosets; macaca spp **except** *M. silenus*
1 Cotton top tamarins (*Saguinus oedipus*);
some birds of prey such as Peregrine falcon (*Falco peregrinus*)

ROW 3 : STAGE OF DEVELOPMENT

Select the appropriate code from the list below.

1 Adult animal, free-living (including neonatal and juvenile mammals and newly-hatched birds).
2 Larval/embryonic/foetal animal. DO NOT COUNT THESE ANIMALS – ENTER "0" IN ROWS 13, 14 AND 15.

ROW 4 : GENETIC STATUS

Select the most appropriate code from the list below

1 Normal animal
2 Animal with harmful genetic defect (e.g. harmful mutants)
3 Genetically modified animal (e.g. transgenic, knock-out).

Important guidance on coding and counting of harmful mutants or genetically modified animals is given in Annex A.

ROW 5 : SOURCE OF ANIMALS

Schedule 2 of the Act lists the following species: **mouse, rat, guinea-pig, hamster, gerbil, rabbit, dog, cat, ferret, primate and quail (Coturnix coturnix).**
Also: pigs, if genetically modified
sheep, if genetically modified

Enter:

0 If the species is **NOT** listed in schedule 2.

For **schedule 2 species** enter:-

1 If the animals were acquired from within own designated establishment.
2 If the animals were acquired from another designated establishment in the UK (e.g. a university; commercial breeder).
3 If the animals were acquired from non-designated sources in the UK.
4 If the animals were acquired from other countries **within** the EU other than the UK (See list at LIST A, ROW 12 below).
5 If the animals were acquired from member countries of the Council of Europe which are parties to convention ETS 123 (excluding EU member states). (See list below).
6 If the animals were acquired from other sources.

Non-EU ETS 123 countries (code 5 above)

Cyprus Switzerland
Norway Turkey

ROW 6 : ANAESTHESIA

Select the most appropriate numeric code from the list below.

0 No anaesthesia throughout the procedure.
Include procedures without anaesthesia which end by a Schedule 1 method of killing even if this consisted of an anaesthetic overdose. Use this code also for the study of potential anaesthetic agents.

1 General anaesthesia with recovery.
Used at any stage of the procedure irrespective of other uses of anaesthesia.

2 Local or regional anaesthesia.
Used at any stage of the procedure.

3 General anaesthesia without recovery.
Used at the end of a procedure which did not otherwise involve anaesthesia. (See note below).

4 General anaesthesia without recovery.
Used throughout the procedure.

NOTE

If the animal was killed by a method listed in Schedule 1 of the Act using an overdose of an anaesthetic agent, this was not part of the regulated procedure and should not be recorded as such.

ROW 7 : NEUROMUSCULAR BLOCKING AGENTS

Select the appropriate code from the list below.

0 No use of neuromuscular blocking agents (NMBA).

1 NMBA used during the procedure at some stage.

ROW 8 : PRIMARY PURPOSE OF THE PROCEDURE

Select the appropriate code from the list below.

1 **Fundamental biological research:**
studies of normal or abnormal structure or function of living organisms, organs, tissues, cells or other systems (including fundamental studies in toxicology).

2 **Applied studies – human medicine or dentistry:**
research, development or quality control of products or appliances including toxicological evaluation and safety or efficacy testing.

3 **Applied studies – veterinary medicine:**
research, development or quality control of products or appliances including toxicological evaluation and safety or efficacy testing.

4 **Protection of man, animals or environment by**
toxicological or other safety or environmental evaluation (excluding medical or veterinary products or appliances). This category is intended to cater for toxicological work which is not related either to fundamental research or to the solution of medical or veterinary problems as such. Ecological studies may be included here with the appropriate codes in Rows 10-12: A codes for toxicological testing or B codes for other investigative studies.

5 **Education**

6 **Training:**
use of animals in acquisition of manual skills is permitted in microsurgery training only.

7 **Forensic enquiries:**
human or veterinary.

8 **Direct diagnosis:**
procedures for specific detection of human or veterinary pathogens or production of diagnostic reagents.

9 **Breeding**
of harmful mutants or genetically modified animals.
Before selecting this code please read the guidance in Annex A. If using this code row 11 must be B61, B62, or B64.

ROW 9 : BODY SYSTEM

Select the code from the list below which most closely describes the primary target body system for the procedure.

01 Respiratory
02 Cardiovascular
03 Nervous (work directed towards central or peripheral nervous systems other than the special senses)
04 Special Senses (sight, hearing, smell, taste)
05 Alimentary (including liver) and Excretory
06 Skin
07 Musculo-skeletal
08 Reproductive
09 Immune and reticulo-endothelial
10 Other system (where the target was a single system not listed)
11 Multiple systems (where more than one system was of primary interest)
12 System not relevant (where the system or systems affected were not predictable or not relevant)

ROW 10, 11 & 12

Codes from EITHER list A OR LIST B should be used to complete these rows within a column. A mixture of A and B codes within a column is not permitted.

Use **list A** if the primary purpose of the procedure described in the column was a toxicological or other regulatory or safety purpose (including efficacy, quality control, ADME).

Use **list B** for any other primary purpose.

LIST A, ROW 10

TOXICOLOGY OR OTHER SAFETY OR EFFICACY EVALUATION

If the procedure was carried out for a toxicological or other safety-related purpose (including efficacy, quality control, or other regulatory purpose), select the most appropriate code from the list below.

A01 Environmental pollution
A02 Substances used in agriculture
A03 Substances used in industry
A04 Substances used in the household (see example (col. 2) on page 9)
A05 Food additives other than those administered in food for health purposes
A06 Foodstuffs other than additives
A07 Cosmetics and toiletries – finished products
A08 Cosmetics and toiletries – ingredients

Pharmaceutical safety/efficacy evaluation

A11 Safety testing
A12 Efficacy testing
A13 Quality control
A14 Absorption, Distribution, Metabolism and Excretion (ADME) and residue studies

Other purpose

A21 Fundamental research in toxicology
A22 Tobacco safety testing (inducing alternatives)
A23 Safety/Efficacy testing of medical appliances or devices
A24 Method development or validation
A25 Other toxicological purpose

LIST A, ROW 11

TYPE OF TEST OR PROCEDURE

If the procedure was carried out for a toxicological or other safety-related purpose (i.e. you have used a code from A01– A25 in Row 10), select the code from the list below which describes the procedure most accurately. The OECD test references are examples and are given only for guidance.

A30 Acute quantitative lethal toxicity test (LD50) (OECD 401).
Please append a note if the test was conducted as an LD50 test according to OECD 401.

A31 Acute quantitative lethal concentration tests (LC50) (OECD 403 or 203).

A32 Acute limit-setting (e.g. OECD 401), or dose-ranging lethal toxicity tests.

A33 Acute oral toxicity test (e.g. OECD 420, OECD 423, OECD 425). Includes such tests as Fixed Dose Procedure, Acute Toxic Class method, Up and Down method, Maximum Non-Lethal Dose or Maximum Tolerated Dose.

A34 Subacute limit-setting (e.g. OECD 407) or dose-ranging toxicity test (usually 14 to 28 days duration)

A35 Subacute quantitative toxicity test (e.g. OECD 407, 410). (usually 14 to 28 days duration).

A36 Subchronic and chronic toxicity tests (e.g. OECD 408, 409, 411, 413, 452) (tests for 90 days or more)

A37 Carcinogenicity tests (e.g. OECD 451)

A38 Genetic toxicology tests (e.g. OECD 474, 475) – includes mutagenicity tests and the Micronucleus test.

A39 Teratogenicity tests

A40 Other reproductive toxicity tests, including multigeneration studies

A41 Tests for clinical signs in eyes (e.g. OECD 405)

A42 Tests for skin irritation (e.g. OECD 404)

A43 Tests for skin sensitisation (e.g. OECD 406). **Please indicate if you have used either the Guinea Pig Maximisation Test or the Buehler Assay (OECD406).**

A44 Toxicokinetics (e.g. OECD 417)

A45 Pyrogenicity tests

A46 Biocompatibility tests

A47 Enzyme induction for *in vitro* tests

A48 Immunotoxicology tests

A50 Other toxicology tests – these other tests may include collection of normal tissues such as blood for *in vitro* work, and investigative procedures not compatible with other codes.

LIST A, ROW 12

LEGISLATIVE REQUIREMENTS

If the procedure was carried out for a toxicological or other safety-related purpose (i.e. you have used a code from A01 – A25 in row 10), select the code from the list below which most closely describes the legislative requirements for which the procedure was performed. Note that "legislative requirement" includes a requirement imposed by a product or manufacturing licence of the country concerned.

Where a test was intended to satisfy both UK and other requirements and involved more animals than the UK minimum requirements two columns should be used to describe the tests. The first column should record the number of animals used to satisfy UK requirements using Code A91 in Row 12 and the second column should show the remainder using the most appropriate Code (A92 or A93) in Row 12.

A91 Procedures performed to meet UK legislative requirements only

A92 Procedures performed to meet national legislation specific to only one EU member state, excluding the UK (see list below).

A93 Procedures performed to meet EU legislative requirements including European Pharmacopoeia

A94 Procedures performed to meet member country of Council of Europe (excluding EU) legislation (see list below)

A95 Procedures performed to meet legislative requirements of other countries e.g. USA, Japan

A96 Any combination of A91-A95 requirements

A97 Toxicity tests carried out for purposes other than meeting legislative requirements

Safety testing to satisfy HSE regulations or similar legislation in other countries should be classified as a legislative requirement choosing from codes A91-A96 as appropriate.

COUNTRY LIST FOR CODE A92 ABOVE AND CODE 4 IN ROW 5

(EU countries other than the UK)

Austria	**Germany**	**Netherlands**
Belgium	**Greece**	**Portugal**
Denmark	**Irish Republic**	**Spain**
Finland	**Italy**	**Sweden**
France	**Luxembourg**	

COUNTRY LIST FOR CODE A94 ABOVE

(Council of Europe nations other than EU)

Albania	**Hungary**	**Russian Federation**
Andorra	**Iceland**	**San Marino**
Armenia	**Latvia**	**Slovakia**
Azerbaijan	**Liechtenstein**	**Slovenia**
Bulgaria	**Lithuania**	**Switzerland**
Croatia	**Malta**	**Former Yugoslav Rep.of Macedonia**
Cyprus	**Moldova**	
Czech Republic	**Norway**	**Turkey**
Estonia	**Poland**	**Ukraine**
Georgia	**Romania**	

<u>REMEMBER</u>: Do not mix codes from lists A and B in a column.

LIST B, ROW 10

FUNDAMENTAL AND APPLIED STUDIES OTHER THAN TOXICOLOGY

If the procedure was carried out for a purpose other than toxicology or safety evaluation, select the code from the list below which best describes the **primary field of research.**

Any of these studies (e.g. clinical medicine, clinical surgery, pharmaceutical R and D, cancer research) may apply to either veterinary or medical science – the appropriate code for the primary purpose of the animal use would have been given in Row 8.

B01 Anatomy and developmental biology
B02 Physiology
B03 Biochemistry
B04 Psychology/Behaviour
B05 Pathology
B06 Immunology
B07 Microbiology
B08 Parasitology
B09 Pharmacology
B10 Pharmaceutical Research and Development except anti-cancer agents (code B17)
B11 Therapeutics
B12 Clinical Medicine
B13 Clinical Surgery including technique development
B14 Dentistry
B15 Genetics
B16 Molecular Biology
B17 Cancer Research including therapy
B18 Nutrition
B19 Zoology
B20 Botany and plant pathology
B21 Agricultural Animal Science not included in codes above
B22 Ecology and environmental studies other than toxicology or other safety evaluation
B23 Animal welfare studies not included in the codes above
B24 Other purpose – if you use this code you must provide a separate note describing the procedure
B31 Tobacco research
B32 Alcohol research
} Use these codes for research on tobacco or alcohol or their constituents. **Do not** use these codes for use of these substances as pharmacological tools or standards

LIST B, ROW 11

PRODUCTION AND BREEDING

If you used a code from B01 to B32 in Row 10, select a code from the list below which applies to the procedure described in this column.

Production of biological materials

B50 Ascites model for production of monoclonal antibodies
B51 Production and maintenance of infectious agents
B52 Production and maintenance of vectors (e.g. insects)
B53 Production and maintenance of neoplasms
B54 Initial immunisation for subsequent *in vitro* or *in vivo* production of monoclonal antibodies
B55 Production of polyclonal antibodies
B56 Production of other biological material (e.g. plasma, tissues)

Breeding

You should read Annex A on pages 8 and 9, as well as the example on page 10 to ensure correct use of the following codes.

B61 Animals used to generate founder **genetically modified** animals for novel transgenic lines, chimeras or clones – this includes normal animals used in such programmes, e.g. superovulation, vasectomy, pseudopregnant recipients, as well as those animals culled as not being of the appropriate genetic status, but which have undergone regulated biopsy procedures.

B62 **Genetically modified** animals generated by recognised husbandry methods for the maintenance of a breeding colony. This may include normal animals (which have undergone regulated biopsy procedures) produced by using heterozygote parents, as well as animals with a fate as set out in the revised Annex A, paragraph 2, attached.

B63 **Genetically modified** animals used in research programmes, where they underwent regulated procedures other than those required for a breeding programme, i.e. where the primary purpose was NOT breeding, i.e. Row 8 = 1-8. Normal or wild-type animals used as controls in such research and also subject to regulated procedures should be coded as 1 in Row 4 and codes B50-B56, or B79 as appropriate, in this list.

B64 **Harmful mutant** animals generated by recognised husbandry methods for maintenance of breeding colonies. This may include animals with a fate set out in the revised Annex A, paragraph 2, attached. Normal animals, which have not undergone any other regulated procedures, do not need to be accounted for – see Annex A, 1(i). Where harmful mutant animals have been crossbred with a GM line, the offspring should be reported as GM.

B65 **Harmful mutant** animals used in research programmes, where they underwent regulated procedures other than those required for a breeding programme, i.e. where the primary purpose was NOT breeding, i.e. Row 8 = 1-8. Normal or wild-type animals used as controls in such research and also subject to regulated procedures should be coded as 1 in Row 4 and codes B50-B56, or B79 as appropriate, in this list.

Other

B79 None of the above

LIST B, ROW 12

TECHNIQUES OF PARTICULAR INTEREST

If you used a code from B01 to B32 in Row 10, select a code from the list below which applies to the procedure described in this column.

B91 Direct interference with any part of the organs of special sense including the brain centres
B92 Direct injection of micro-organisms or material suspected of containing micro-organisms into the brain
B93 Other direct physical interference with the brain
B94 Induction of psychological stress integral to the procedure
B95 Use of aversive training stimuli
B96 Exposure to ionising radiation at doses intended to produce a potentially adverse effect on the animal
B97 Inhalation – DO NOT USE FOR FISH
B98 Thermal injury } where the study of such injury or trauma
B99 Physical trauma } was the purpose of the procedure
B00 None of the above

IMPORTANT NOTES ON RE-USE

ROWS 13 and 14

If your records show that the number of procedures carried out (Row 13) exceeds the number of animals used for the first time (Row 14), then animals have been re-used, as defined by Section 14 of the Act. Standard condition 5 of the project licence requires that there is express authority for the re-use of animals. Re-use will be authorised in your project licence either in sub-section (iv) or (vii) of a protocol in Section 19(b), OR as an additional condition to your project licence.

ROW 15

This row is needed to assess re-use as required by the Council of Europe. Report the number of animals re-used for the FIRST time during the reporting year. This will include animals used for the first time in the reporting year which have been re-used, as well as those animals used for the first time in previous years, and re-used for the first time during the reporting year.
For example: an animal is bled three times per year for the collection of normal blood.
In the first year the animal is used, it would be counted once in Row 14, three procedures would be recorded in Row 13, and one procedure in Row 15 for the first re-use.
In subsequent years, the figures would be Row 13=3, Row 14=0 and Row 15=1. See also the worked example in column 3 on page 9.

ROW 13 : NUMBER OF PROCEDURES CARRIED OUT ON ANIMALS

Each separate use of one animal counts as one procedure. Only procedures started during the year should be included. Procedures which have been reported in returns for previous years and have continued into the current reporting year should not be included.

Do not include foetal, larval or embryonic animals: enter '0' in row 13 for these animals. Also enter '0' in Row 13 if you have entered 'R0' in Row 1.

ROW 14 : NUMBER OF ANIMALS USED FOR THE FIRST TIME

Where animals are used in more than one separate procedure (i.e. reuse; see below) only the first use counts towards the total which you should enter in row 14. This is true whether or not the second and/or subsequent procedures are described in the same column or any other columns of the return or on another return.

If there is no re-use, the number of animals entered here will be the same as in row 13. See worked examples on pages 9 and 10.

If you have entered '0' in row 13, enter '0' in row 14.

Re-use. In general, if the same animal is being used as a matter of necessity, as in a series of regulated procedures for a particular purpose, this is not regarded as re-use. For example, where it is necessary to know how an animal responds to drugs A, B and C before interpreting its response to drug D, there is no choice and the successive use of the animal constitutes a single series of procedures without re-use. By contrast, if the procedures are unrelated or a different animal could equally well have been chosen for the second or subsequent procedures, use of the same animal is regarded as re-use. For example, if, by choice, repeated samples of normal blood were taken from a rabbit, but each sample could equally as well have come from a fresh rabbit, this would count as re-use and should be entered as such.

ROW 15 : NUMBER OF ANIMALS RE-USED FOR THE FIRST TIME IN THE CURRENT YEAR

Please read the guidance on re-use in the instructions above.

Please record here animals *re-used for the first time this year*, regardless of whether the first use of the animal was this year or any previous year.

If there is no re-use the number recorded here must be 0.

If you have entered 0 in Row 13, then this row must also be 0.
The sum of the values in Rows 14 and 15 must not exceed the value in Row 13.

ANNEX A

Coding and counting of animals with abnormal genetic constitution

To avoid the risk of double counting, the encoding of animals with harmful genetic defects (harmful mutants) and genetically modified animals (e.g. transgenic animals, knock-outs, chimeras and clones) (Row 4, codes 2 or 3) differs, depending on whether their use was limited to breeding procedures or whether they were subsequently used in other regulated procedures under project licence authority.

Mating is a regulated procedure under the terms of the Act if it may result in the creation of either harmful mutant or genetically modified animals which are protected by the Act. However the parents do not themselves suffer potential harm during mating. **Consequently, it is only the offspring which should be counted for the return of procedures in accordance with these notes.**

The harmful mutant or genetically modified parents (used only for breeding) should be reported once only, when they are originally created (see Section 3 below for imported animals). Genetically normal parents which have undergone no other regulated procedures should not be counted for the purposes of the annual statistics.

(i) For animals with harmful genetic defects (harmful mutants), only those animals in which the defect actually manifests itself (as denoted by genetic testing, coat colour or marking, or by direct observation) should be reported, using code 2 in Row 4. Normal animals which have been produced from the breeding programme and have NOT been subjected to any other regulated procedure (such as blood sampling), should not be reported.Where harmful mutant animals have been crossbred with a genetically modified line, the offspring should be reported as genetically modified.

(ii) For genetically modified animals:

- all animals used in procedures (e.g. vasectomy, superovulation, implantation) for the development of genetically modified animals should be recorded in Row 4 as code 1 (normal) or 3 (genetically modified), as appropriate: in Row 8 as code 9; in Row 11 as code B61. Note: Animals coded as B61 in Row 11 should always be coded 9 in Row 8.

- subsequently, during breeding of the established genetically modified line, only those animals identified as genetically modified should be recorded as such using code 3 in Row 4. Normal animals from the breeding programme should be recorded as code 1 in Row 4 only if further regulated procedures were carried out on those animals, e.g. biopsy procedures.

1. Animals which are used under project licence authority, for a purpose other than breeding.

These should be encoded and enumerated later when the necessary information is available on their primary use in a procedure other than breeding using the appropriate code from Row 8. This may mean that these animals are not reported in the year in which they are born.

Coding in **all rows** should reflect the further use in a regulated procedure, rather than the initial breeding:

(i) when their use for a scientific purpose consisted of what would otherwise have been non-regulated procedures (i.e. non-invasive observations, killing by a Schedule 1 method for dissection or *in vitro* study), then codes B62 or B64 should be used as appropriate in Row 11, and codes 1-8 in row 8.

(ii) if the use was a regulated procedure within the same project as that under which the animal was bred, the coding should reflect the particular purpose and use for that animal. For example, use of nude mice for maintenance of a neoplasm would be coded 2 in Row 4, code 1 – 8 in Row 8, and B53 in List B, Row 11. If there is no other suitable code in Row 11, use codes B63 or B65 as appropriate.

(iii) likewise, if an animal was transferred to a project other than the one under which it was bred, it should be reported there and the coding should reflect the purpose for which the animal was used in the project to which it was transferred. It should NOT be entered in the return of the project under which it was bred.

The assumption underlying these arrangements is that the objectives of procedures in (i), (ii) and (iii) above require the use of the animals with harmful genetic defects or genetic modifications; consequently they have not been re-used in procedures, as defined by Section 14 of the Act, and the recording and returning arrangements should reflect this. However any further use in regulated procedures beyond that described above may constitute re-use and would require appropriate coding and counting to reflect this (such re-use, of course, requires appropriate project licence authority – see "Important notes on re-use" at top right of Page 7).

2. Animals bred under project licence authority, but not used in further regulated procedures

The fact that such animals have been produced should be included in the returns using code 9 in Row 8 and appropriate codes from the B list in Rows 10 to 12. In Row 11, codes B62 and B64 should be used. In addition to the animals described at 1(i) above, B62 and B64 codes will include those animals which, for the reasons set out below, were not used for any specific scientific purpose beyond being bred:

(i) they died or were humanely killed as a result of the harmful genetic defect or the genetic manipulation;

(ii) they died or were humanely killed as a result of other causes, e.g. disease;

(iii) they were humanely killed a surplus to requirements;

(iv) they were retained for breeding;

(v) they were exported live to a place outside the jurisdiction of the Act (for which special permission must have been obtained from the Home Office).

3. Live animals from non-designated sources, usually imported, for use in breeding programmes authorised by project licence

Specific authority must have been obtained from the Home Office for such acquisition.

(i) If these animals were used only in non-harmful breeding procedures (as parents only) to procedure a new colony, they should be recorded once in the year in which they were obtained using code 9 for Row 8, and codes B62 or B64, as appropriate, in List B, Row 11.

(ii) Animals which go on to be used in other regulated procedures should be coded for that use as noted in Section 1 of Annex A above.

N.B. HARMFUL MUTANT AND GENETICALLY MODIFIED ANIMALS SHOULD BE REPORTED ONLY ONCE IN THEIR LIFETIME.

Examples (counting; re-use; and use of certain toxicology codes):

Column	1	2	3
Row 1	R2	R1	C1
Row 2	0	0	0
Row 3	1	1	1
Row 4	1	1	1
Row 5	2	2	2
Row 6	1	0	0
Row 7	0	0	0
Row 8	2	4	3
Row 9	11	12	05
Row 10	A14	A03	B18
Row 11	A50	A35	B79
Row 12	A96	A93	B00
Row 13	15	40	90
Row 14	15	40	50
Row 15	0	0	40

Column 1
Fifteen 8-week-old rats of normal genetic status were purchased from a commercial breeder in the UK for the following experiment. This required surgical implantation of vascular cannulae with recovery from general anesthesia, without the use of neuromuscular blocking agents. Subsequently the animals were dosed with a potential drug for cancer therapy and three timed blood samples are taken from the cannulae for a pharmacokinetic study. Finally the animals were killed by perfusion of fixative under general anaesthesia. The whole series of six interventional techniques were carried out for a particular purpose and were covered by the description in a single 19(b) protocol sheet of the project licence.

Column 2
40 genetically normal, six week old mice were purchased from a commercial breeder in the UK for use in a sub-acute quantitative toxicity test (28 days study) to provide data on a household product for a client of a contract toxicology company. The 28 day study was needed to fulfil the requirements for safety evaluation of the product during the manufacturing process when material needs to be moved in bulk, i.e. the testing is required under the regulations relating to the safety of substances used in industry for production within the EU, and consequently row 10 should be coded A03 (industry) and not A04 (household).

Column 3
A Company uses cats for the study of feline nutrition. The regulated procedures do not involve general anaesthesia and the project licence authorises re-use of the animals. Last year 40 new cats were purchased and used. This year 50 more cats were purchased from the same UK designated source and used. In the experiment recorded in Column 3 all 90 cats were used for a feeding study with subsequent blood sampling. The 50 cats purchased this year were used for the first time. The 40 cats used last year were re-used in this experiment for the first time during this new calendar year.

Further examples - breeding procedures

Columns 4 - 10

At the beginning of the calendar year, there are 10 pairs of genetically modified mice in a breeding colony for fundamental immunological research. The colony is maintained using heterozygote parents as homozygous offspring must be killed at five weeks of age due to an adverse phenotype. The breeding pairs had been included in the previous year's return for use in breeding procedures. During the course of the year 300 offspring are produced. All of these animals undergo local anaesthesia to remove the tip of the tail for genotyping.

Assuming a perfect Mendelian output, 75 animals are found to be homozygous and are killed by 5 weeks of age using a Schedule 1 method of killing. However, the tissues from 50 of the animals were used for in vitro cell culture and further relevant research (Column 4). The remaining 25 animals are returned for use in the breeding programme only (Column 5). Seventy five (75) animals are found not to express the genotype of interest and were culled by a Schedule 1 method of killing (Column 6). Of the remaining 150 heterozygote animals, 30 are retained as the future breeding nucleus (Column 7). Fifty (50) are used in further procedures involving general anaesthesia with recovery but without neuromuscular blockade for dosing and sampling under procedures in the project licence under which they were bred (Column 8). Another 50 are killed by perfusion under terminal general anaesthesia in accordance with the project licence (Column 9). Ten (10) animals are moved to the project licence of a collaborator in the UK in order to set up their own breeding colony. Ten (10) animals are exported, with appropriate Home Office authority, to a collaborator in another country (Column 10).

Note: the 20 animals of the original 10 pairs are not counted for the current calendar year. Also the 10 animals which were moved to the UK collaborator are not counted, as they should be returned under the project licence to which they have moved.

Column	4	5	6	7	8	9	10
Row 1	R1	R1	R1	R1	R1	R1	R1
Row 2	0	0	0	0	0	0	0
Row 3	1	1	1	1	1	1	1
Row 4	3	3	1	3	3	3	3
Row 5	1	1	1	1	1	1	1
Row 6	2	2	2	2	1	2	2
Row 7	0	0	0	0	0	0	0
Row 8	1	9	9	9	1	1	9
Row 9	09	09	09	09	09	09	09
Row 10	B06	B06	B06	B06	B06	B06	B06
Row 11	B62	B62	B62	B62	B63	B62	B62
Row 12	B00	B00	B00	B00	B00	B00	B00
Row 13	50	25	75	30	50	50	10
Row 14	50	25	75	30	50	50	10
Row 15	0	0	0	0	0	0	0

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