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Statistics of Scientific Procedures on Living Animals Northern Ireland 2013



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Prepared pursuant to section 21(7) of the Animals (Scientific Procedures) Act 1986 as adapted by section 29 of that Act

Speaking of Research

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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 2013. The system of control under the 1986 Act is explained in detail in the Appendix. Under this Act any scientific procedure carried out on any living vertebrate animal, or cephalopod, which may cause that animal pain, suffering, distress or lasting harm is a regulated procedure requiring licence authority. Recognised veterinary, agricultural or animal husbandry practice and the administration of medicines under an Animal Test Certificate granted under the Medicines Act 1968 are excluded from the controls of the Act. Statistics of scientific procedures on living animals are collected and published annually. They are structured to comply with European Union requirements.

Collection procedures

2. The statistics are compiled from, and largely based on, 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. 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 7-12 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 in 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 returnable 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 re-use of an animal is permitted are limited.
3. To complete the return, project licence holders were asked to classify their procedures. The current classification system dates from 1995 and is considerably more detailed than that used previously; further slight modifications were introduced for the 1999 statistics in the areas relating to source of animals, production and breeding, toxicology and legislation.
4. Details of the work of individual project licence holders are not identifiable in this publication.

Description of statistical tables

5. Project licence holders were asked to answer 15 questions about the procedures performed, 12 of which identified individual characteristics explained more fully in paragraphs 7-13 below.
6. Table 17 covers information on project licence holders, their place of employment and numbers of procedures.

Procedures in 2013

Species of animal

7. All the tables except 1a, 6a and 9a give the number of procedures. Tables 1a, 6a and 9a give the actual number of animals used for the first, and usually only time, and are classified according to their first use. The list of species or categories of animals is selective to avoid undue complications; where 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 completely blank.

Genetic status of animal

8. Tables 2 (source), 3 (genetic status), and 6 (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, as in publications for years before 1998.

Primary purpose (Table 1)

9. Use of animals for regulated procedures is limited by Section 5(3) of the Act to one of the following primary purposes:
 - (a) basic research;
 - (b) translational or applied research with one of the following aims—
 - (i) the avoidance, prevention, diagnosis or treatment of disease, ill-health or other abnormality, or their effects, in man, animals or plants;
 - (ii) the assessment, detection, regulation or modification of physiological conditions in man, animals or plants; or
 - (iii) the improvement of the welfare of animals or of the production conditions for animals reared for agricultural purposes;
 - (c) the development, manufacture or testing of the quality, effectiveness and safety of drugs, foodstuffs and feed-stuffs or any other substances or products, with one of the aims mentioned in paragraph (b);
 - (d) the protection of the natural environment in the interests of the health or welfare of man or animals;
 - (e) research aimed at preserving the species of animal subjected to regulated procedures as part of the programme of work;
 - (f) higher education or training for the acquisition, maintenance or improvement of vocational skills;
 - (g) forensic inquiries.

Source of animals (Table 2)

10. From 2013, Schedule 2c and 25(e) of the Act require, unless a specific exemption is granted, that certain animals, listed in Schedule 2 to the Act, have to be specifically bred for the use in regulated procedures. The species so listed are: mouse, rat, guinea-pig, hamster, rabbit, cat, dog, primate, quail, ferret, gerbil, frog, zebra fish and pigs and sheep if genetically modified

All Schedule 2 animals used in Northern Ireland procedures in 2013 were obtained from designated breeding establishments – as previously required under the act and therefore table 2 reflects this historic return. 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." In columns 4, 5 and 6 of the table, supplies of Schedule 2 listed species from non-designated sources in the UK, or from Europe or elsewhere, were subject to prior approval by the Department. Such supply was justified on the basis of scientific need or unavailability of appropriate animals from designated breeding or supplying establishments.

Stage of development and genetic status, and breeding (Table 3)

11. **Stage of development**

Details of procedures on immature forms were collected but not enumerated because it is 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 the harmful genetic mutation actually manifested itself has been recorded. All genetically modified animals are recorded.

Target body system (Tables 4)

12. 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

Type of procedure

13. This is divided into two groups:

- fundamental and applied studies other than toxicology (Tables 6-9);
- toxicity tests, or other safety or efficacy evaluation (Tables 9-16).

Licensees reporting procedures were asked to classify them depending on whether the procedure fell within (a) or (b) above.

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.

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.

The two strands of reporting are mutually exclusive 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 is sub-divided into four main areas of interest:

(i) **Field of research** (Table 6)

These 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) **Use of anaesthesia** (Table 5)

This also indicates whether or not a neuromuscular blocking agent (NMBA) was used. 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 to the Act) is not a regulated procedure and should not be recorded as such in the above table.

(iii) **Production of biological materials** (Table 7)

Production:

- Procedures for production and maintenance of infectious agents (excluding 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, eg plasma, tissues.

Breeding:

Breeding of animals with harmful genetic defects or genetically modified animals is a regulated procedure under a project licence. Recorded in this category are those animals which are identified as 'harmful' or 'genetically modified' but not used subsequently in 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. Furthermore, this category also includes some animals possessing harmful but naturally occurring genetic mutations, and some genetically modified animals, which have been used for purposes other than breeding but for which this category is most appropriate from the list on choices of the returns form.

The figures for breeding in table 7 do not match those reported in table 3: (see paragraph 10 above) incorporates all procedures and looks at the purpose of the procedure as coded in the return form, whilst table 7 includes only procedures for fundamental and applied studies other than toxicology, regulatory or safety evaluation, and the columns of that table reflect coding of the return form, for production and breeding.

(iv) **Techniques of particular interest** (Table 8)

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.

(b) **toxicity tests, or other safety or efficacy evaluation**

(i) **Safety and efficacy evaluation** (Tables 9, 9a)

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 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 10)

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 - eg Health and Safety at Work (Northern Ireland) Order 1978, COSHH Regulations;
- Substances used in agriculture - eg Control of Pesticides Regulations (Northern Ireland) 1987; EU Pesticides Directives;
- Substances used in foodstuffs - eg The Food Safety (Northern Ireland) Order 1991.

(iii) **Specific types of toxicity tests (Table 11)**

- 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 (12, 15 and 16), which examine safety testing of toxicological work in greater detail.

- table 13: substances other than pharmaceuticals
- table 15: pharmaceuticals
- table 16: other safety or toxicology

Project Licence Holders and Designated Places

Type of designated place (Table 17)

14. 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.

Commentary

15. The main features of the statistics for 2013 were:

- (a) The number of scientific procedures started was 19,860, an increase of 1361 from the previous year. (Tables 1, 2, 3 and 4)
- (b) The number of animals used for the first time was 18,638. This is in comparison to 17,445 used in 2012 (Table 1a).
- (c) The species of animals involved in the largest number of procedures in 2013 was mouse (61%), domestic fowl (11%), cattle (8%) and sheep (6%). Between 2012 and 2013 there was an increase in the number of procedures on domestic fowl (+1076), pigs (+559), fish (+431) and mice (+62) and a decrease in rat (-230), cattle (-206) and sheep (-185). There were no procedures carried out on primates (Tables 1 and 3).
- (d) Some 13,362 procedures started used animals acquired from designated establishments within the United Kingdom. There were no procedures started using animals acquired from non-designated sources in the United Kingdom. 116 procedures used animals acquired from sources within the EU (outside the UK), whilst 6,382 procedures used animals not listed in Schedule 2 to the Act (Table 2).
- (e) 3% (664) of procedures started involved animals with a harmful genetic mutation, (44 more than in 2012). There were 6,869 animals involved in genetically manipulated procedures. The majority of procedures started in 2013 (62%) involved normal animals (Table 3).
- (f) 3,823 procedures (19% of the total) were aimed at more than one body system. 3,517 (18%) concerned the immune and reticuloendothelial system, 3,355 procedures (17%) concerned the senses, 1,731 (9%) concerned the cardiovascular system and 1,445 (7%) concerned the respiratory system. Some 3,409 procedures (17%) were those in which the body system or systems affected were either not predictable or not relevant (Table 4).
- (g) Most procedures (67%) were so minor that the use of anaesthesia was not appropriate. The remaining 33% either used anaesthesia with recovery or were procedures in which the anaesthesia was terminal. The corresponding figures for 2012 were 67% and 33% respectively. (Table 5)
- (h) Among non-toxicological work, certain procedures have been identified as being of particular interest. Some 2,196 (12%) of the procedures started in 2013 used a technique identified on the code list to record these procedures. (Table 8)
- (i) Of the 19,860 procedures started, 6% concerned toxicology studies (Tables 9 - 16). The number of animals used in such work was 656 with pig (40%) being used in the largest numbers (Table 9a).
- (j) The 1,181 procedures (156 less than in 2012) involving toxicology were performed in order to comply with the provisions of one of the following Acts, Orders or equivalent overseas legislation: Medicines Act 1968, Health and Safety at Work (Northern Ireland) Order 1978, Agriculture (Poisonous Substances) Act (Northern Ireland) 1954, The Food Safety (Northern Ireland) Order 1991 or other legislation or regulations. Of these procedures, 96% were used in pharmaceutical safety testing (Table 10).

- (k) 53% of the projects on which procedures were started were based at universities (including medical schools) and they accounted for 66% of the procedures. Projects at non-profit making organisations accounted for 42% of the projects started, and 26% of procedures. Commercial concerns projects accounted for 5% of projects started and 8% of procedures. (Table 17)
- (l) Returns were received in respect of 122 project licences in 2013 (20 less than in 2012). Some project licence holders would have made two returns for 2013, one relating to the expiring licence and one to the successor licence. A total of 76 licences carried out procedures in 2013. (Table 17).
- (m) At the start of 2013, the number of personal licensees authorised to carry out regulated procedures under the Act was 590. An amendment to the Animal Scientific Procedures Act on 1 January 2013 necessitated the replacement of all existing licences in the UK. Within Northern Ireland this review of the database resulted in the cancellation of a large number of redundant licences (176). At 31 December 2013, the number of personal licensees authorised to carry out regulated procedures under the Act was 480 (Table 19).

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

Species of animal	Northern Ireland 2013	Primary purpose of the procedure						Number of procedures			
		Fundamental biological research	Applied studies – human medicine or dentistry	Applied studies – veterinary medicine	Protection of man, animals or environment	Education	Training	Forensic enquiries	Direct diagnosis	Breeding of GM or HM animals	
Mammal											
Mouse	6,508	2,111	340	15	-	-	-	-	70	3,167	12,211
Rat	630	353	-	-	-	-	-	-	12	-	995
Guinea pig	-	-	-	-	-	-	-	-	-	-	-
Syrian Hamster (<i>Mesocricetus auratus</i>)	-	-	20	-	-	-	-	-	-	-	20
Chinese Hamster (<i>Cricetulus griseus</i>)	-	-	-	-	-	-	-	-	-	-	-
Gerbil	-	-	-	-	-	-	-	-	-	-	-
Other rodent	-	-	-	-	-	-	-	-	-	-	-
Rabbit	1	27	64	-	-	-	-	-	-	-	92
Cat	-	-	87	-	-	-	-	-	-	-	87
Dog											
Beagle	-	-	73	-	-	-	-	-	-	-	73
Other including cross-bred dogs	-	-	-	-	-	-	-	-	-	-	-
Ferret	-	-	-	-	-	-	-	-	-	-	-
Other carnivore	-	-	-	-	11	-	-	-	-	-	11
Horse and other equids	-	-	12	-	-	-	-	-	-	-	12
Pig	346	52	554	55	-	-	-	-	-	-	1,007
Goat	-	-	-	-	-	-	-	-	-	-	-
Sheep	460	333	212	-	-	-	-	-	-	-	91
Cattle	915	-	553	3	-	-	-	-	-	-	151
Deer	-	-	-	-	-	-	-	-	-	-	-
Camelid	-	-	-	-	-	-	-	-	-	-	-
Other ungulate	-	-	-	-	-	-	-	-	-	-	-

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

Northern Ireland 2013		Number of procedures							
Species of animal	Fundamental biological research	Primary purpose of the procedure							
		Applied studies — human medicine or dentistry	Applied studies — veterinary medicine	Protection of man, animals or environment	Education	Training	Forensic enquiries	Direct diagnosis	Breeding of GM or HM animals
Primate									
New World monkey									
Marmoset and tamarin	-	-	-	-	-	-	-	-	-
Old World monkey									
Cynomolgus monkey (<i>Macaca fascicularis</i>)	-	-	-	-	-	-	-	-	-
Rhesus monkey (Macaca mulatta)	-	-	-	-	-	-	-	-	-
Other mammal	-	-	-	-	-	-	-	-	-
Bird									
Domestic fowl (<i>Gallus domesticus</i>)	1,428	-	430	45	-	-	192	-	2,095
Turkey	-	-	-	-	-	-	-	-	-
Common quail (<i>Coturnix coturnix</i>)	-	-	-	-	-	-	-	-	-
Other quail (<i>not Coturnix coturnix</i>)	-	-	-	-	-	-	-	-	-
Other bird	-	-	-	-	-	-	-	-	-
Reptile — any reptilian species	-	-	-	-	-	-	-	-	-
Amphibian									
Common frog (<i>Rana temporaria</i>)	-	-	-	-	-	-	-	-	-
Northern leopard frog (<i>Rana pipiens</i>)	-	-	-	-	-	-	-	-	-
African clawed frog (<i>Xenopus laevis</i>)	-	-	-	-	-	-	-	-	-
Western clawed frog (<i>Xenopus tropicalis</i>)	-	-	-	-	-	-	-	-	-
Other amphibian	-	18	-	-	-	-	-	-	18
Fish									
Zebra fish	-	-	-	-	-	-	-	-	-
Other fish	32	-	380	109	-	-	-	-	521
Cephalopod	-	-	-	-	-	-	-	-	-
Total	10,320	2,894	2,725	238	-	-	516	3,167	19,860

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

Species of animal	Northern Ireland 2013	Primary purpose of the procedure						Number of procedures			
		Fundamental biological research	Applied studies — human medicine or dentistry	Applied studies — veterinary medicine	Protection of man, animals or environment	Education	Training	Forensic enquiries	Direct diagnosis	Breeding of GM or HM animals	
Mammal											
Mouse	6,508	2,111	340	15	-	-	-	-	70	3,167	12,211
Rat	630	353	-	-	-	-	-	-	12	-	995
Guinea pig	-	-	-	-	-	-	-	-	-	-	-
Syrian Hamster (<i>Mesocricetus auratus</i>)	-	-	20	-	-	-	-	-	-	-	20
Chinese Hamster (<i>Cricetulus griseus</i>)	-	-	-	-	-	-	-	-	-	-	-
Gerbil	-	-	-	-	-	-	-	-	-	-	-
Other rodent	-	-	-	-	-	-	-	-	-	-	-
Rabbit	1	27	64	-	-	-	-	-	-	-	92
Cat	-	-	-	-	-	-	-	-	-	-	-
Dog	-	-	-	-	-	-	-	-	-	-	-
Beagle	-	-	-	-	-	-	-	-	-	-	-
Other including cross-bred dogs	-	-	-	-	-	-	-	-	-	-	-
Ferret	-	-	-	-	-	-	-	-	-	-	-
Other carnivore	-	-	-	-	11	-	-	-	-	-	11
Horse and other equids	-	-	12	-	-	-	-	-	-	-	12
Pig	346	52	506	55	-	-	-	-	-	-	959
Goat	-	-	-	-	-	-	-	-	-	-	-
Sheep	268	333	181	-	-	-	-	-	8	-	790
Cattle	614	-	247	3	-	-	-	-	50	-	914
Deer	-	-	-	-	-	-	-	-	-	-	-
Camelid	-	-	-	-	-	-	-	-	-	-	-
Other ungulate	-	-	-	-	-	-	-	-	-	-	-

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

Northern Ireland 2013		Primary purpose of the procedure						Number of procedures			
		Fundamental biological research	Applied studies — human medicine or dentistry	Applied studies — veterinary medicine	Protection of man, animals or environment	Education	Training	Forensic enquiries	Direct diagnosis	Breeding of GM or HM animals	
Primate											
New World monkey											
Marmoset and tamarin	-	-	-	-	-	-	-	-	-	-	-
Old World monkey											
Cynomolgus monkey (<i>Macaca fascicularis</i>)	-	-	-	-	-	-	-	-	-	-	-
Rhesus monkey (Macaca mulatta)	-	-	-	-	-	-	-	-	-	-	-
Other mammal	-	-	-	-	-	-	-	-	-	-	-
Bird											
Domestic fowl (<i>Gallus domesticus</i>)	1,428	-	430	45	-	-	-	192	-	2,095	-
Turkey	-	-	-	-	-	-	-	-	-	-	-
Common quail (<i>Coturnix coturnix</i>)	-	-	-	-	-	-	-	-	-	-	-
Other quail (<i>not Coturnix coturnix</i>)	-	-	-	-	-	-	-	-	-	-	-
Other bird	-	-	-	-	-	-	-	-	-	-	-
Reptile — any reptilian species	-	-	-	-	-	-	-	-	-	-	-
Amphibian											
Common frog (<i>Rana temporaria</i>)	-	-	-	-	-	-	-	-	-	-	-
Northern leopard frog (<i>Rana pipiens</i>)	-	-	-	-	-	-	-	-	-	-	-
African clawed frog (<i>Xenopus laevis</i>)	-	-	-	-	-	-	-	-	-	-	-
Western clawed frog (<i>Xenopus tropicalis</i>)	-	-	-	-	-	-	-	-	-	-	-
Other amphibian	-	18	-	-	-	-	-	-	-	18	-
Fish											
Zebra fish	-	-	-	-	-	-	-	-	-	-	-
Other fish	32	-	380	109	-	-	-	-	-	521	-
Cephalopod	-	-	-	-	-	-	-	-	-	-	-
Total	9,827	2,894	2,180	238	-	-	-	332	3,167	18,638	

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

Species of animal	Source				Number of procedures
	Animals acquired from within own designated establishment	Animals acquired from another designated breeding or supplying establishment in the UK	Animals acquired from non-designated sources in the UK	"Animals acquired from Council of Europe countries who are signatories to ETS123"	
Mouse	9,338	2,795	-	78	-
Rat	253	720	-	22	-
Guinea pig	-	-	-	-	-
Hamster	-	20	-	-	20
Gerbil	-	-	-	-	-
Rabbit	64	28	-	-	92
Cat	71	-	-	16	-
Dog	73	-	-	-	73
Ferret	-	-	-	-	-
Pig (genetically modified)	-	-	-	-	-
Sheep (genetically modified)	-	-	-	-	-
Primate	-	-	-	-	-
Quail (<i>Coturnix coturnix</i>)	-	-	-	-	-
Amphibian (<i>Rana temporaria/pipiens</i> & <i>Xenopus laevis/tropicalis</i>)	-	-	-	-	-
Zebra fish	-	-	-	-	-
Animals not listed in Schedule 2	-	-	-	-	6,382
Total	9,799	3,563	-	116	19,860

Table 3 Scientific procedures by species of animal, primary purpose and genetic status, page 1 of 2

Northern Ireland 2013				Number of procedures	
Species of animal	Primary purpose of procedure	Genetic status			Total
		Normal animal	Animal with harmful genetic mutation	Genetically modified animal	
Mouse	Fundamental biological research	2,882	204	3,422	6,508
	Applied studies	1,427	211	813	2,451
	Safety	15	-	-	15
	Other uses	70	-	-	70
	Breeding of GM or HM	284	249	2,634	3,167
	Total	4,678	664	6,869	12,211
Rat	Fundamental biological research	630	-	-	630
	Applied studies	353	-	-	353
	Safety	-	-	-	-
	Other uses	12	-	-	12
	Breeding of GM or HM	-	-	-	-
	Total	995	-	-	995
Rabbit	Fundamental biological research	1	-	-	1
	Applied studies	91	-	-	91
	Safety	-	-	-	-
	Other uses	-	-	-	-
	Breeding of GM or HM	-	-	-	-
	Total	92	-	-	92
Sheep	Fundamental biological research	460	-	-	460
	Applied studies	545	-	-	545
	Safety	-	-	-	-
	Other uses	91	-	-	91
	Breeding of GM or HM	-	-	-	-
	Total	1,096	-	-	1,096
Domestic fowl	Fundamental biological research	1,428	-	-	1,428
	Applied studies	430	-	-	430
	Safety	45	-	-	45
	Other uses	192	-	-	192
	Breeding of GM or HM	-	-	-	-
	Total	2,095	-	-	2,095

Table 3 Scientific procedures by species of animal, primary purpose and genetic status, page 2 of 2

Northern Ireland 2013		Genetic status			Number of procedures
Species of animal	Primary purpose of procedure	Normal animal	Animal with harmful genetic mutation	Genetically modified animal	Total
Amphibian	Fundamental biological research	-	-	-	-
	Applied studies	18	-	-	18
	Safety	-	-	-	-
	Other uses	-	-	-	-
	Breeding of GM or HM	-	-	-	-
	Total	18	-	-	18
Fish	Fundamental biological research	32	-	-	32
	Applied studies	380	-	-	380
	Safety	109	-	-	109
	Other uses	-	-	-	-
	Breeding of GM or HM	-	-	-	-
	Total	521	-	-	521
All species	Fundamental biological research	6,694	204	3,422	10,320
	Applied studies	4,595	211	813	5,619
	Safety	238	-	-	238
	Other uses	516	-	-	516
	Breeding of GM or HM	284	249	2,634	3,167
	Total	12,327	664	6,869	19,860

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

Northern Ireland 2013		Body systems							Number of procedures				
		Respiratory	Nervous	Special senses	Alimentary	Skin	Musculo-skeletal	Reproductive	Immune and reticulo-endothelial	Other system	Multiple systems	System not relevant	
Species of animal													
Mammal													
Mouse	1,419	873	369	3,007	11	30	-	172	2,796	1,143	2,100	291	12,211
Rat	26	22	-	348	97	30	137	-	12	-	323	-	995
All other rodents	-	-	-	-	-	-	-	-	20	-	-	-	20
Rabbit	-	-	-	-	-	-	-	28	-	64	-	-	92
Cat	-	-	-	-	-	-	-	-	-	-	-	-	87
Dog	-	-	-	-	-	-	-	-	-	-	-	-	73
Ferret	-	-	-	-	-	-	-	-	-	-	-	-	-
Other carnivore	-	-	-	-	-	-	-	-	-	-	-	-	11
Horse and other equids	-	-	-	-	-	-	-	-	-	-	-	-	12
Pig	-	52	-	-	-	-	-	-	-	341	-	-	12
Sheep	-	483	-	-	68	-	-	-	-	-	557	398	1,007
All other ungulates	-	109	-	-	1	-	-	-	276	54	463	719	1,622
New World monkey	-	-	-	-	-	-	-	-	-	-	-	-	-
Old World monkey	-	-	-	-	-	-	-	-	-	-	-	-	-
All other mammals	-	-	-	-	-	-	-	-	-	-	-	-	-
Bird	-	192	-	-	422	-	-	-	8	-	-	1,473	2,095
Reptile	-	-	-	-	-	-	-	-	-	-	-	-	-
Amphibian	-	-	-	-	-	-	-	-	-	-	-	-	18
Fish	-	-	-	-	-	-	-	-	-	380	141	521	
Total	1,445	1,731	369	3,355	599	78	165	172	3,517	1,197	3,823	3,409	19,860

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

Northern Ireland 2013						Number of procedures
Species of animal	No anaesthesia	Type of anaesthesia				Total
		General anaesthesia, with recovery	Local anaesthesia	General anaesthesia at end of procedure, without recovery	General anaesthesia throughout, without recovery	
Mammal						
Mouse	6,995	4,280	470	429	37	12,211
Rat	160	588	30	217	-	995
All other rodents	-	20	-	-	-	20
Rabbit	4	27	-	59	2	92
Cat	36	51	-	-	-	87
Dog	73	-	-	-	-	73
Ferret	-	-	-	-	-	-
Other carnivore	-	11	-	-	-	11
Horse and other equids	12	-	-	-	-	12
Pig	955	-	-	-	52	1,007
Sheep	1,088	-	-	8	-	1,096
All other ungulates	1,622	-	-	-	-	1,622
Primate						
New World monkey	-	-	-	-	-	-
Old World monkey	-	-	-	-	-	-
All other mammals	-	-	-	-	-	-
Bird	1,895	-	-	200	-	2,095
Reptile	-	-	-	-	-	-
Amphibian	18	-	-	-	-	18
Fish	412	109	-	-	-	521
Total	13,270	5,086	500	913	91	19,860

No neuromuscular blocking agents (NMBA) were used in 2012.

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

Northern Ireland 2013		Field of research										Number of procedures													
Species of animal	Anatomy	Physiology		Bio-chemistry		Psychology		Pathology		Immunology		Micro-biology		Parasitology		Pharmacology		Pharmaceutical R&D		Therapeutics		Clinical medicine		Clinical surgery	
		Mammal																							
Mouse	424	1,837	-	178	1,862	4,854	-	44	30	336	810	70	-	-	-	-	-	-	-	-	-	-	-		
Rat	-	-	-	-	60	12	26	97	-	541	-	-	-	-	-	-	-	-	-	-	-	-	137		
Guinea pig	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Syrian Hamster (<i>Mesocricetus auratus</i>)	-	-	-	-	-	-	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Chinese Hamster (<i>Cricetulus griseus</i>)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Gerbil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Other rodent	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Rabbit	-	-	-	-	-	-	12	-	-	-	-	-	-	-	-	-	-	-	27	-	1	-	-		
Cat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Dog	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Beagle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Other including cross-bred dogs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Ferret	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Other carnivore	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Horse and other equids	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Pig	-	-	-	-	32	-	243	-	-	-	-	-	-	-	-	-	-	-	52	-	-	-	-		
Goat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Sheep	-	-	-	-	-	-	-	-	-	91	68	-	-	-	-	-	-	-	333	-	-	-	-		
Cattle	-	-	-	-	-	-	-	-	-	151	-	-	-	-	-	-	-	-	28	-	-	-	-		
Deer	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Camelid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Other ungulate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

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

Northern Ireland 2013		Field of research										Number of procedures		
Species of animal	Field of research	Anatomy	Physiology	Bio-chemistry	Psy-chotherapy	Pathology	Immun-ology	Micro-biology	Para-sitology	Pharma-cology	Pharma-ceutical R&D	Thera-peutics	Clinical medicine	Clinical surgery
Primate														
New World monkey		-	-	-	-	-	-	-	-	-	-	-	-	-
Marmoset and tamarin		-	-	-	-	-	-	-	-	-	-	-	-	-
Old World monkey														
Cynomolgus monkey (<i>Macaca fascicularis</i>)		-	-	-	-	-	-	-	-	-	-	-	-	-
Rhesus monkey (<i>Macaca mulatta</i>)		-	-	-	-	-	-	-	-	-	-	-	-	-
Other mammal		-	-	-	-	-	-	-	-	-	-	-	-	-
Bird														
Domestic fowl (<i>Gallus domesticus</i>)		-	-	-	-	-	-	-	-	-	-	-	-	-
Turkey		-	-	-	-	-	-	-	-	-	-	-	-	-
Common quail (<i>Coturnix coturnix</i>)		-	-	-	-	-	-	-	-	-	-	-	-	-
Other quail (<i>not Coturnix coturnix</i>)		-	-	-	-	-	-	-	-	-	-	-	-	-
Other bird		-	-	-	-	-	-	-	-	-	-	-	-	-
Reptile — any reptilian species		-	-	-	-	-	-	-	-	-	-	-	-	-
Amphibian														
Common frog (<i>Rana temporaria</i>)		-	-	-	-	-	-	-	-	-	-	-	-	-
Northern leopard frog (<i>Rana pipiens</i>)		-	-	-	-	-	-	-	-	-	-	-	-	-
African clawed frog (<i>Xenopus laevis</i>)		-	-	-	-	-	-	-	-	-	-	-	-	-
Western clawed frog (<i>Xenopus tropicalis</i>)		-	-	-	-	-	-	-	-	-	-	-	-	-
Other amphibian		-	-	-	-	-	-	-	-	-	-	18	-	-
Fish														
Zebra fish		-	-	-	-	-	-	-	-	-	-	-	-	-
Other fish		-	-	-	-	32	-	-	-	-	380	-	-	-
Cephalopod		-	-	-	-	-	-	-	-	-	-	-	-	-
Total	424	1,837	-	242	1,922	5,141	882	209	30	1,303	837	455	138	
Increase on 2012	-429,995	-429,072	-45,141	-39,848	-72,985	-570,621	-93,531	-144,262	-64,166	-202,484	-20,600	-22,817	-2,650	
Percentage change from 2012	-100%	-100%	-100%	-99%	-97%	-99%	-99%	-100%	-100%	-99%	-96%	-98%	-95%	
Percentage of total for 2013	2%	10%	0%	1%	10%	28%	5%	1%	0%	7%	4%	2.4%	0.7%	
2012 Totals	430,419	430,909	45,141	40,090	74,907	575,762	94,413	144,471	64,196	203,787	21,437	23,272	2,788	

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

Northern Ireland 2013		Field of research										Number of procedures					
		Dentistry	Genetics	Molecular biology	Cancer research	Nutrition	Zoology	Botany	Animal science	Ecology	Animal welfare	Other	Tobacco (i)	Alcohol			
Species of animal	Mammal																
Mouse	-	-	254	1,433	30	-	-	-	-	-	-	-	-	-	12,162		
Rat	-	-	122	-	-	-	-	-	-	-	-	-	-	-	995		
Guinea pig	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Syrian Hamster (<i>Mesocricetus auratus</i>)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20		
Chinese Hamster (<i>Cricetulus griseus</i>)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Gerbil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Other rodent	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Rabbit	-	-	52	-	-	-	-	-	-	-	-	-	-	-	92		
Cat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12		
Dog	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12		
Beagle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8		
Other including cross-bred dogs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Ferret	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Other carnivore	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11		
Horse and other equids	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12		
Pig	-	-	-	-	314	-	-	-	-	-	55	-	-	-	696		
Goat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Sheep	-	-	8	-	392	-	-	-	-	-	48	-	-	-	940		
Cattle	-	-	194	-	-	-	-	-	-	-	724	-	-	-	1,097		
Deer	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Camelid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Other ungulate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

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

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

Northern Ireland 2013		Field of research										Number of procedures			
Species of animal		Dentistry	Genetics	Molecular biology	Cancer research	Nutrition	Zoology	Botany	Animal science	Ecology	Animal welfare	Other	Tobacco ⁽¹⁾	Alcohol	Total
Primate															
New World monkey		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marmoset and tamarin		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Old World monkey															
Cynomolgus monkey (<i>Macaca fascicularis</i>)		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rhesus monkey (<i>Macaca mulatta</i>)		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other mammal		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bird															
Domestic fowl (<i>Gallus domesticus</i>)		-	8	-	1,428	-	-	-	45	-	-	-	-	-	2,095
Turkey		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Common quail (<i>Coturnix coturnix</i>)		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other quail (<i>not Coturnix coturnix</i>)		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other bird		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reptile — any reptilian species		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amphibian															
Common frog (<i>Rana temporaria</i>)		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Northern leopard frog (<i>Rana pipiens</i>)		-	-	-	-	-	-	-	-	-	-	-	-	-	-
African clawed frog (<i>Xenopus laevis</i>)		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Western clawed frog (<i>Xenopus tropicalis</i>)		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other amphibian		-	-	-	-	-	-	-	-	-	-	-	-	-	18
Fish															-
Zebra fish		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other fish		-	-	-	-	-	-	-	-	-	-	-	-	-	521
Cephalopod		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total		-	-	638	1,433	2,164	-	-	872	120	-	32	-	-	18,679

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

Northern Ireland 2013		Field of research						Number of procedures		
Species of animal	Field of research	Pathology	Immunology	Microbiology	Parasitology	Pharmacology	Pharmaceutical R&D	Therapeutics	Clinical medicine	Clinical surgery
		1,862	4,854	-	44	30	336	810	70	-
Mouse		60	12	26	97	-	541	-	-	137
Rat		-	-	-	-	-	-	-	-	-
Guinea pig		-	-	-	-	-	-	-	-	-
Syrian Hamster (<i>Mesocricetus auratus</i>)		-	20	-	-	-	-	-	-	-
Chinese Hamster (<i>Cricetulus griseus</i>)		-	-	-	-	-	-	-	-	-
Gerbil		-	-	-	-	-	-	-	-	-
Other rodent		-	-	-	-	-	-	-	-	-
Rabbit		-	12	-	-	-	-	27	1	-
Cat		-	-	-	-	-	-	-	-	-
Dog		-	-	-	-	-	-	-	-	-
Beagle		-	-	-	-	-	-	-	-	-
Other including cross-bred dogs		-	-	-	-	-	-	-	-	-
Ferret		-	-	-	-	-	-	-	-	-
Other carnivore		-	-	-	-	-	-	-	-	-
Horse and other equids		-	-	-	-	-	-	-	-	-
Pig		-	243	-	-	-	-	-	52	-
Goat		-	-	-	-	-	-	-	-	-
Sheep		-	8	68	-	-	-	-	333	-
Cattle		-	50	-	-	28	-	-	-	-
Deer		-	-	-	-	-	-	-	-	-
Camelid		-	-	-	-	-	-	-	-	-
Other ungulate		-	-	-	-	-	-	-	-	-

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

Northern Ireland 2013		Field of research						Number of procedures		
Species of animal		Pathology	Immunology	Microbiology	Parasitology	Pharmacology	Pharmaceutical R&D	Therapeutics	Clinical medicine	Clinical surgery
Primate										
New World monkey										
Marmoset and tamarin	-	-	-	-	-	-	-	-	-	-
Old World monkey										
Cynomolgus monkey (<i>Macaca fascicularis</i>)	-	-	-	-	-	-	-	-	-	-
Rhesus monkey (<i>Macaca mulatta</i>)	-	-	-	-	-	-	-	-	-	-
Other mammal	-	-	-	-	-	-	-	-	-	-
Bird										
Domestic fowl (<i>Gallus domesticus</i>)	-	-	-	-	-	-	-	-	-	-
Turkey	-	-	-	-	-	-	-	-	-	-
Common quail (<i>Coturnix coturnix</i>)	-	-	-	-	-	-	-	-	-	-
Other quail (<i>not Coturnix coturnix</i>)	-	-	-	-	-	-	-	-	-	-
Other bird	-	-	-	-	-	-	-	-	-	-
Reptile — any reptilian species	-	-	-	-	-	-	-	-	-	-
Amphibian										
Common frog (<i>Rana temporaria</i>)	-	-	-	-	-	-	-	-	-	-
Northern leopard frog (<i>Rana pipiens</i>)	-	-	-	-	-	-	-	-	-	-
African clawed frog (<i>Xenopus laevis</i>)	-	-	-	-	-	-	-	-	-	-
Western clawed frog (<i>Xenopus tropicalis</i>)	-	-	-	-	-	-	-	-	-	-
Other amphibian	-	-	-	-	-	-	-	18	-	-
Fish										
Zebra fish	-	-	-	-	-	-	-	-	-	-
Other fish	-	-	-	-	-	-	380	-	-	-
Cephalopod	-	-	-	-	-	-	-	-	-	-
Total	1,922	5,141	698	209	30	1,303	837	455	138	138

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

Northern Ireland 2013		Field of research						Number of procedures			
Species of animal	Mammal	Nutrition	Zoology	Botany	Animal science	Ecology	Animal welfare	Other	Tobacco ⁽¹⁾	Alcohol	Total
Mouse	30	-	-	-	-	-	-	-	-	-	12,162
Rat	-	-	-	-	-	-	-	-	-	-	995
Guinea pig	-	-	-	-	-	-	-	-	-	-	-
Syrian Hamster (<i>Mesocricetus auratus</i>)	-	-	-	-	-	-	-	-	-	-	20
Chinese Hamster (<i>Cricetulus griseus</i>)	-	-	-	-	-	-	-	-	-	-	-
Gerbil	-	-	-	-	-	-	-	-	-	-	-
Other rodent	-	-	-	-	-	-	-	-	-	-	-
Rabbit	-	-	-	-	-	-	-	-	-	-	92
Cat	-	-	-	-	-	-	-	-	-	-	-
Dog	-	-	-	-	-	-	-	-	-	-	-
Beagle	-	-	-	-	-	-	-	-	-	-	-
Other including cross-bred dogs	-	-	-	-	-	-	-	-	-	-	-
Ferret	-	-	-	-	-	-	-	-	-	-	-
Other carnivore	-	-	-	-	-	-	-	-	-	-	11
Horse and other equids	-	-	-	-	-	-	-	-	12	-	12
Pig	314	-	-	-	55	-	-	-	-	-	696
Goat	-	-	-	-	-	-	-	-	-	-	-
Sheep	200	-	-	-	48	-	-	-	-	-	665
Cattle	-	-	-	-	423	-	-	-	-	-	695
Deer	-	-	-	-	-	-	-	-	-	-	-
Camelid	-	-	-	-	-	-	-	-	-	-	-
Other ungulate	-	-	-	-	-	-	-	-	-	-	-

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

Northern Ireland 2013		Field of research						Number of procedures			
Species of animal		Nutrition	Zoology	Botany	Animal science	Ecology	Animal welfare	Other	Tobacco ⁽¹⁾	Alcohol	Total
Primate											
New World monkey		-	-	-	-	-	-	-	-	-	-
Marmoset and tamarin		-	-	-	-	-	-	-	-	-	-
Old World monkey											
Cynomolgus monkey (<i>Macaca fascicularis</i>)		-	-	-	-	-	-	-	-	-	-
Rhesus monkey (<i>Macaca mulatta</i>)		-	-	-	-	-	-	-	-	-	-
Other mammal		-	-	-	-	-	-	-	-	-	-
Bird		-	-	-	-	-	-	-	-	-	-
Domestic fowl (<i>Gallus domesticus</i>)		1,428	-	-	45	-	-	-	-	-	2,095
Turkey		-	-	-	-	-	-	-	-	-	-
Common quail (<i>Coturnix coturnix</i>)		-	-	-	-	-	-	-	-	-	-
Other quail (<i>not Coturnix coturnix</i>)		-	-	-	-	-	-	-	-	-	-
Other bird		-	-	-	-	-	-	-	-	-	-
Reptile — any reptilian species		-	-	-	-	-	-	-	-	-	-
Amphibian											
Common frog (<i>Rana temporaria</i>)		-	-	-	-	-	-	-	-	-	-
Northern leopard frog (<i>Rana pipiens</i>)		-	-	-	-	-	-	-	-	-	-
African clawed frog (<i>Xenopus laevis</i>)		-	-	-	-	-	-	-	-	-	-
Western clawed frog (<i>Xenopus tropicalis</i>)		-	-	-	-	-	-	-	-	-	-
Other amphibian		-	-	-	-	-	-	-	-	-	18
Fish											
Zebra fish		-	-	-	-	-	-	-	-	-	-
Other fish		-	-	-	-	-	-	-	-	-	521
Cephalopod		-	-	-	-	-	-	-	-	-	-
Total		1,972	-	-	571	120	-	12	-	-	17,982

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

Northern Ireland 2013		Field of research						Number of procedures	
Species of animal	Infectious agents	Vectors	Neoplasms	Monodonal antibodies (ascites model)	"Monoclonal antibodies (initial immunisation)"	Polyclonal antibodies	Other biological materials	Other ⁽ⁿ⁾	Total
Mammal									
Mouse	44	-	730	-	118	-	371	10,899	12,162
Rat	97	-	-	-	12	-	284	602	995
All other rodents	20	-	-	-	-	-	-	-	20
Rabbit	-	-	-	-	62	3	27	92	
Cat	-	-	-	-	-	-	-	12	12
Dog	-	-	-	-	-	-	-	8	8
Ferret	-	-	-	-	-	-	-	-	-
Other carnivore	-	-	-	-	-	-	-	11	11
Horse and other equids	-	-	-	-	-	-	-	12	12
Pigs, sheep & all other ungulates	-	-	-	-	341	380	2,012	2,733	
Primate									
New World monkey	-	-	-	-	-	-	-	-	-
Old World monkey	-	-	-	-	-	-	-	-	-
All other mammals	-	-	-	-	-	-	-	-	-
Bird	422	-	-	-	8	237	1,428	2,095	
Reptile, Amphibian	-	-	-	-	-	-	18	-	18
Fish	-	-	-	-	-	-	-	521	521
Total	583	-	730	-	130	411	1,293	15,532	18,679

Table 8 Scientific procedures (non-toxicology) by species of animal and techniques of particular interest

Species of animal	Field of research						Number of procedures				
	Interference with organs of special sense	Injection into brain	Interference with brain	Psycho-logical stress	Aversive training	Radiation	Inhalation	Thermal injury	Physical trauma	All other techniques	Total
Mammal											
Mouse	1,487	-	30	-	-	272	110	-	-	10,263	12,162
Rat	271	-	-	-	-	26	-	-	-	698	995
All other rodents	-	-	-	-	-	-	-	-	-	20	20
Rabbit	-	-	-	-	-	-	-	-	-	92	92
Cat	-	-	-	-	-	-	-	-	-	12	12
Dog	-	-	-	-	-	-	-	-	-	8	8
Ferret	-	-	-	-	-	-	-	-	-	-	-
Other carnivore	-	-	-	-	-	-	-	-	-	11	11
Horse and other equids	-	-	-	-	-	-	-	-	-	12	12
Pigs, sheep & all other ungulates	-	-	-	-	-	-	-	-	-	2,733	2,733
Primate	-	-	-	-	-	-	-	-	-	-	-
New World monkey	-	-	-	-	-	-	-	-	-	-	-
Old World monkey	-	-	-	-	-	-	-	-	-	-	-
All other mammals	-	-	-	-	-	-	-	-	-	-	-
Bird	-	-	-	-	-	-	-	-	-	2,095	2,095
Reptile, Amphibian	-	-	-	-	-	-	-	-	-	18	18
Fish	-	-	-	-	-	-	-	-	-	521	521
Total	1,758	-	30	-	-	272	136	-	-	16,483	18,679

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

Northern Ireland 2013		Toxicology or other safety/efficacy evaluation						Number of procedures	
Species of animal		General safety/efficacy evaluation				Finished cosmetics ⁽²⁾		Cosmetics ingredients ⁽²⁾	
		Pollution	Agriculture	Industry	Household	Food additives	Other foodstuffs		
Mammal									
Mouse	-	-	-	-	-	-	15	-	
Rat	-	-	-	-	-	-	-	-	
Guinea pig	-	-	-	-	-	-	-	-	
Syrian Hamster (<i>Mesocricetus auratus</i>)	-	-	-	-	-	-	-	-	
Chinese Hamster (<i>Cricetulus griseus</i>)	-	-	-	-	-	-	-	-	
Gerbil	-	-	-	-	-	-	-	-	
Other rodent	-	-	-	-	-	-	-	-	
Rabbit	-	-	-	-	-	-	-	-	
Cat	-	-	-	-	-	-	-	-	
Dog	-	-	-	-	-	-	-	-	
Beagle	-	-	-	-	-	-	-	-	
Other including cross-bred dogs	-	-	-	-	-	-	-	-	
Ferret	-	-	-	-	-	-	-	-	
Other carnivore	-	-	-	-	-	-	-	-	
Horse and other equids	-	-	-	-	-	-	-	-	
Pig	-	-	-	-	-	-	-	-	
Goat	-	-	-	-	-	-	-	-	
Sheep	-	-	-	-	-	-	-	-	
Cattle	-	-	-	-	-	-	-	-	
Deer	-	-	-	-	-	-	-	-	
Camelid	-	-	-	-	-	-	-	-	
Other ungulate	-	-	-	-	-	-	-	-	

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

Northern Ireland 2013		Toxicology or other safety/efficacy evaluation						Number of procedures	
Species of animal		General safety/efficacy evaluation				Toxicology or other safety/efficacy evaluation			
		Pollution	Agriculture	Industry	Household	Food additives	Other foodstuffs	Finished cosmetics ⁽²⁾	Cosmetics ingredients ⁽²⁾
Primate									
New World monkey		-			-			-	-
Marmoset and tamarin		-			-			-	-
Old World monkey									
Cynomolgus monkey (<i>Macaca fascicularis</i>)		-		-	-			-	-
Rhesus monkey (<i>Macaca mulatta</i>)		-		-	-			-	-
Other mammal		-		-	-			-	-
Bird									
Domestic fowl (<i>Gallus domesticus</i>)		-		-	-			-	-
Turkey		-		-	-			-	-
Common quail (<i>Coturnix coturnix</i>)		-		-	-			-	-
Other quail (not <i>Coturnix coturnix</i>)		-		-	-			-	-
Other bird		-		-	-			-	-
Reptile — any reptilian species		-		-	-			-	-
Amphibian									
Common frog (<i>Rana temporaria</i>)		-		-	-			-	-
Northern leopard frog (<i>Rana pipiens</i>)		-		-	-			-	-
African clawed frog (<i>Xenopus laevis</i>)		-		-	-			-	-
Western clawed frog (<i>Xenopus tropicalis</i>)		-		-	-			-	-
Other amphibian		-		-	-			-	-
Fish									
Zebra fish		-		-	-			-	-
Other fish		-		-	-			-	-
Total		-		-	-			15	-

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

Northern Ireland 2013		Toxicology or other safety/efficacy evaluation							Number of procedures		
Species of animal	Safety testing	General safety/efficacy evaluation			Toxicology or research			Other purposes			
		Efficacy testing	Quality control	ADME and residue	Toxicology research	Tobacco safety ⁽¹⁾	Medical device safety	Method development	Other	Total	
Mammal											
Mouse	-	-	-	-	-	-	-	-	34	49	
Rat	-	-	-	-	-	-	-	-	-	-	
Guinea pig	-	-	-	-	-	-	-	-	-	-	
Syrian Hamster (<i>Mesocricetus auratus</i>)	-	-	-	-	-	-	-	-	-	-	
Chinese Hamster (<i>Cricetulus griseus</i>)	-	-	-	-	-	-	-	-	-	-	
Gerbil	-	-	-	-	-	-	-	-	-	-	
Other rodent	-	-	-	-	-	-	-	-	-	-	
Rabbit	-	-	-	-	-	-	-	-	-	-	
Cat	-	-	-	75	-	-	-	-	75	-	
Dog											
Beagle	4	-	61	-	-	-	-	-	65	-	
Other including cross-bred dogs	-	-	-	-	-	-	-	-	-	-	
Ferret	-	-	-	-	-	-	-	-	-	-	
Other carnivore	-	-	-	-	-	-	-	-	-	-	
Horse and other equids	-	-	-	-	-	-	-	-	-	-	
Pig	136	76	-	99	-	-	-	-	311	-	
Goat	-	-	-	-	-	-	-	-	-	-	
Sheep	20	-	-	136	-	-	-	-	156	-	
Cattle	196	34	-	295	-	-	-	-	525	-	
Deer	-	-	-	-	-	-	-	-	-	-	
Camelid	-	-	-	-	-	-	-	-	-	-	
Other ungulate	-	-	-	-	-	-	-	-	-	-	

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

Northern Ireland 2013		Toxicology or other safety/efficacy evaluation							Number of procedures		
Species of animal	General safety/efficacy evaluation	Other purposes					Method development	Medical device safety	Other	Total	
		Efficacy testing	Quality control	ADME and residue	Toxicology research	Tobacco safety ⁽¹⁾					
Primate											
New World monkey	-	-	-	-	-	-	-	-	-	-	
Marmoset and tamarin	-	-	-	-	-	-	-	-	-	-	
Old World monkey											
Cynomolgus monkey (<i>Macaca fascicularis</i>)	-	-	-	-	-	-	-	-	-	-	
Rhesus monkey (<i>Macaca mulatta</i>)	-	-	-	-	-	-	-	-	-	-	
Other mammal	-	-	-	-	-	-	-	-	-	-	
Bird											
Domestic fowl (<i>Gallus domesticus</i>)	-	-	-	-	-	-	-	-	-	-	
Turkey	-	-	-	-	-	-	-	-	-	-	
Common quail (<i>Coturnix coturnix</i>)	-	-	-	-	-	-	-	-	-	-	
Other quail (<i>not Coturnix coturnix</i>)	-	-	-	-	-	-	-	-	-	-	
Other bird	-	-	-	-	-	-	-	-	-	-	
Reptile — any reptilian species	-	-	-	-	-	-	-	-	-	-	
Amphibian											
Common frog (<i>Rana temporaria</i>)	-	-	-	-	-	-	-	-	-	-	
Northern leopard frog (<i>Rana pipiens</i>)	-	-	-	-	-	-	-	-	-	-	
African clawed frog (<i>Xenopus laevis</i>)	-	-	-	-	-	-	-	-	-	-	
Western clawed frog (<i>Xenopus tropicalis</i>)	-	-	-	-	-	-	-	-	-	-	
Other amphibian	-	-	-	-	-	-	-	-	-	-	
Fish											
Zebra fish	-	-	-	-	-	-	-	-	-	-	
Other fish	-	-	-	-	-	-	-	-	-	-	
Total	356	110	-	666	-	-	-	-	34	1,181	

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

Northern Ireland 2013		Toxicology or other safety/efficacy evaluation						Number of procedures	
Species of animal		General safety/efficacy evaluation				Finished cosmetics ⁽²⁾		Cosmetics ingredients ⁽²⁾	
		Pollution	Agriculture	Industry	Household	Food additives	Other foodstuffs		
Mammal									
Mouse	-	-	-	-	-	-	15	-	
Rat	-	-	-	-	-	-	-	-	
Guinea pig	-	-	-	-	-	-	-	-	
Syrian Hamster (<i>Mesocricetus auratus</i>)	-	-	-	-	-	-	-	-	
Chinese Hamster (<i>Cricetulus griseus</i>)	-	-	-	-	-	-	-	-	
Gerbil	-	-	-	-	-	-	-	-	
Other rodent	-	-	-	-	-	-	-	-	
Rabbit	-	-	-	-	-	-	-	-	
Cat	-	-	-	-	-	-	-	-	
Dog	-	-	-	-	-	-	-	-	
Beagle	-	-	-	-	-	-	-	-	
Other including cross-bred dogs	-	-	-	-	-	-	-	-	
Ferret	-	-	-	-	-	-	-	-	
Other carnivore	-	-	-	-	-	-	-	-	
Horse and other equids	-	-	-	-	-	-	-	-	
Pig	-	-	-	-	-	-	-	-	
Goat	-	-	-	-	-	-	-	-	
Sheep	-	-	-	-	-	-	-	-	
Cattle	-	-	-	-	-	-	-	-	
Deer	-	-	-	-	-	-	-	-	
Camelid	-	-	-	-	-	-	-	-	
Other ungulate	-	-	-	-	-	-	-	-	

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

Northern Ireland 2013		Toxicology or other safety/efficacy evaluation						Number of procedures	
Species of animal		General safety/efficacy evaluation				Toxicology or other safety/efficacy evaluation			
		Pollution	Agriculture	Industry	Household	Food additives	Other foodstuffs	Finished cosmetics ⁽²⁾	Cosmetics ingredients ⁽²⁾
Primate									
New World monkey		-	-	-	-	-	-	-	-
Marmoset and tamarin		-	-	-	-	-	-	-	-
Old World monkey		-	-	-	-	-	-	-	-
Cynomolgus monkey (<i>Macaca fascicularis</i>)		-	-	-	-	-	-	-	-
Rhesus monkey (<i>Macaca mulatta</i>)		-	-	-	-	-	-	-	-
Other mammal		-	-	-	-	-	-	-	-
Bird									
Domestic fowl (<i>Gallus domesticus</i>)		-	-	-	-	-	-	-	-
Turkey		-	-	-	-	-	-	-	-
Common quail (<i>Coturnix coturnix</i>)		-	-	-	-	-	-	-	-
Other quail (not <i>Coturnix coturnix</i>)		-	-	-	-	-	-	-	-
Other bird		-	-	-	-	-	-	-	-
Reptile — any reptilian species		-	-	-	-	-	-	-	-
Amphibian									
Common frog (<i>Rana temporaria</i>)		-	-	-	-	-	-	-	-
Northern leopard frog (<i>Rana pipiens</i>)		-	-	-	-	-	-	-	-
African clawed frog (<i>Xenopus laevis</i>)		-	-	-	-	-	-	-	-
Western clawed frog (<i>Xenopus tropicalis</i>)		-	-	-	-	-	-	-	-
Other amphibian		-	-	-	-	-	-	-	-
Fish									
Zebra fish		-	-	-	-	-	-	-	-
Other fish		-	-	-	-	-	-	-	-
Cephalopod		-	-	-	-	-	-	-	-
Total		-	-	-	-	-	-	15	-

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

Northern Ireland 2013		Toxicology or other safety/efficacy evaluation							Number of procedures		
Species of animal	Safety testing	General safety/efficacy evaluation			Toxicology or research			Other purposes			
		Efficacy testing	Quality control	ADME and residue	Toxicology research	Tobacco safety ⁽¹⁾	Medical device safety	Method development	Other	Total	
Mammal											
Mouse	-	-	-	-	-	-	-	-	34	49	
Rat	-	-	-	-	-	-	-	-	-	-	
Guinea pig	-	-	-	-	-	-	-	-	-	-	
Syrian Hamster (<i>Mesocricetus auratus</i>)	-	-	-	-	-	-	-	-	-	-	
Chinese Hamster (<i>Cricetulus griseus</i>)	-	-	-	-	-	-	-	-	-	-	
Gerbil	-	-	-	-	-	-	-	-	-	-	
Other rodent	-	-	-	-	-	-	-	-	-	-	
Rabbit	-	-	-	-	-	-	-	-	-	-	
Cat	-	-	-	-	-	-	-	-	-	-	
Dog	-	-	-	-	-	-	-	-	-	-	
Beagle	-	-	-	-	-	-	-	-	-	-	
Other including cross-bred dogs		-	-	-	-	-	-	-	-	-	
Ferret	-	-	-	-	-	-	-	-	-	-	
Other carnivore	-	-	-	-	-	-	-	-	-	-	
Horse and other equids	-	-	-	-	-	-	-	-	-	-	
Pig	97	76	-	-	-	90	-	-	-	263	
Goat	-	-	-	-	-	-	-	-	-	-	
Sheep	10	-	-	-	-	115	-	-	-	125	
Cattle	102	21	-	-	-	96	-	-	-	219	
Deer	-	-	-	-	-	-	-	-	-	-	
Camelid	-	-	-	-	-	-	-	-	-	-	
Other ungulate	-	-	-	-	-	-	-	-	-	-	

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

Northern Ireland 2013		Toxicology or other safety/efficacy evaluation							Number of procedures		
Species of animal	General safety/efficacy evaluation	Other purposes					Method development	Medical device safety	Other	Total	
		Efficacy testing	Quality control	ADME and residue	Toxicology research	Tobacco safety ⁽¹⁾					
Primate											
New World monkey	-	-	-	-	-	-	-	-	-	-	
Marmoset and tamarin	-	-	-	-	-	-	-	-	-	-	
Old World monkey											
Cynomolgus monkey (<i>Macaca fascicularis</i>)	-	-	-	-	-	-	-	-	-	-	
Rhesus monkey (<i>Macaca mulatta</i>)	-	-	-	-	-	-	-	-	-	-	
Other mammal	-	-	-	-	-	-	-	-	-	-	
Bird											
Domestic fowl (<i>Gallus domesticus</i>)	-	-	-	-	-	-	-	-	-	-	
Turkey	-	-	-	-	-	-	-	-	-	-	
Common quail (<i>Coturnix coturnix</i>)	-	-	-	-	-	-	-	-	-	-	
Other quail (not <i>Coturnix coturnix</i>)	-	-	-	-	-	-	-	-	-	-	
Other bird	-	-	-	-	-	-	-	-	-	-	
Reptile — any reptilian species	-	-	-	-	-	-	-	-	-	-	
Amphibian											
Common frog (<i>Rana temporaria</i>)	-	-	-	-	-	-	-	-	-	-	
Northern leopard frog (<i>Rana pipiens</i>)	-	-	-	-	-	-	-	-	-	-	
African clawed frog (<i>Xenopus laevis</i>)	-	-	-	-	-	-	-	-	-	-	
Western clawed frog (<i>Xenopus tropicalis</i>)	-	-	-	-	-	-	-	-	-	-	
Other amphibian	-	-	-	-	-	-	-	-	-	-	
Fish											
Zebra fish	-	-	-	-	-	-	-	-	-	-	
Other fish	-	-	-	-	-	-	-	-	-	-	
Cephalopod	-	-	-	-	-	-	-	-	-	-	
Total	209	97					301			34	656

Table 10 Scientific procedures (toxicology) by species of animal, type of legislation and toxicological purpose (page 1 of 4)

Northern Ireland 2013		Number of procedures			
Species	Legislative requirements	Toxicological purpose			Total
		Safety testing	Pharma-ceutical safety	Other safety / Toxicology	
Mouse	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	15	-	-	15
	Non-legislative purposes	-	-	34	34
	Total	15	-	34	49
Rat	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 other rodents	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	-	-	-	-
Rabbit	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	-	-	-	-
Cat	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	-	75	-	75
	Non-legislative purposes	-	-	-	-
	Total	-	75	-	75

Table 10 Scientific procedures (toxicology) by species of animal, type of legislation and toxicological purpose (page 2 of 4)

Northern Ireland 2013				Number of procedures	
Species	Legislative requirements	Toxicological purpose			Total
		Safety testing	Pharma-ceutical safety	Other safety / Toxicology	
Dog	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	-	65	-	65
	Non-legislative purposes	-	-	-	-
	Total	-	65	-	65
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	-	-	-	-
	Non-legislative purposes	-	-	-	-
	Total	-	-	-	-
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	-	-	-	-
	Total	-	-	-	-
Horse and other equids	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	-	-	-	-
Pigs, sheep & all other ungulates	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	-	992	-	992
	Non-legislative purposes	-	-	-	-
	Total	-	992	-	992

Table 10 Scientific procedures (toxicology) by species of animal, type of legislation and toxicological purpose (page 3 of 4)

Northern Ireland 2013		Number of procedures			
Species	Legislative requirements	Toxicological purpose			Total
		Safety testing	Pharma-ceutical 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	-	-	-	-
	Non-legislative purposes	-	-	-	-
	Total	-	-	-	-
Old 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	-	-	-	-
	Non-legislative purposes	-	-	-	-
	Total	-	-	-	-
All other mammals	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	-	-	-	-
	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	-	-	-	-
Reptile/Amphibian	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	-	-	-	-

Table 10 Scientific procedures (toxicology) by species of animal, type of legislation and toxicological purpose (page 4 of 4)

Northern Ireland 2013		Number of procedures			
Species	Legislative requirements	Toxicological purpose			Total
		Safety testing	Pharma-ceutical safety	Other safety / Toxicology	
Fish	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	-	-	-	-
	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	15	1,132	-	1,147
	Non-legislative purposes	-	-	34	34
	Total	15	1,132	34	1,181

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

Northern Ireland 2013		Number of procedures						
Species of animal	Acute lethal toxicity	Type of toxicological test or procedure					Genetic toxicology (includes mutagenicity)	Teratogenicity
		Acute limit setting	Acute non-lethal clinical sign	Subacute limit-setting or dose ranging	Subacute toxicity	Subchronic and chronic		
Mammal								
Mouse	-	-	-	-	-	-	-	-
Rat	-	-	-	-	-	-	-	-
All other rodents	-	-	-	-	-	-	-	-
Rabbit	-	-	-	-	-	-	-	-
Cat	-	-	-	-	-	-	-	-
Dog	-	-	-	-	-	-	-	-
Ferret	-	-	-	-	-	-	-	-
Other carnivore	-	-	-	-	-	-	-	-
Horse and other equids	-	-	-	-	-	-	-	-
Pigs, sheep & all other ungulates	-	-	-	-	-	-	-	-
Primate								
New World monkey	-	-	-	-	-	-	-	-
Old World monkey	-	-	-	-	-	-	-	-
All other mammals	-	-	-	-	-	-	-	-
Bird	-	-	-	-	-	-	-	-
Reptile, amphibian	-	-	-	-	-	-	-	-
Fish	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-	-

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

Species of animal	Type of toxicological test or procedure							Number of procedures
	Other reproductive toxicity	In eyes	For skin irritation	For skin sensitisation	Toxicokinetics	Pyrogenicity	Biocompatibility	
Mammal								
Mouse	-	-	-	-	-	-	-	49
Rat	-	-	-	-	-	-	-	-
All other rodents	-	-	-	-	-	-	-	-
Rabbit	-	-	-	-	-	-	-	-
Cat	-	-	-	-	-	-	-	75
Dog	-	-	-	-	-	-	-	65
Ferret	-	-	-	-	-	-	-	-
Other carnivore	-	-	-	-	-	-	-	-
Horse and other equids	-	-	-	-	-	-	-	-
Pigs, sheep & all other ungulates	-	-	-	-	-	-	-	992
Primate	-	-	-	-	-	-	-	-
New World monkey	-	-	-	-	-	-	-	-
Old World monkey	-	-	-	-	-	-	-	-
All other mammals	-	-	-	-	-	-	-	-
Bird	-	-	-	-	-	-	-	-
Reptile, amphibian	-	-	-	-	-	-	-	-
Fish	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-	1,181
								1,181

Table 12 Scientific procedures (toxicology) by species of animal and type of toxicological test: safety testing of substances other than pharmaceuticals ,
page 1 of 2

Species of animal	Type of toxicological test or procedure						Number of procedures
	Acute lethal toxicity	Acute lethal concentration	Acute limit setting	Acute non-lethal clinical sign	Subacute limit-setting or dose ranging	Subacute toxicity	
Northern Ireland 2013							
Mouse	-	-	-	-	-	-	-
Rat	-	-	-	-	-	-	-
All other rodents	-	-	-	-	-	-	-
Rabbit	-	-	-	-	-	-	-
Dog	-	-	-	-	-	-	-
Horse and other equids	-	-	-	-	-	-	-
Pigs, sheep & all other ungulates	-	-	-	-	-	-	-
All other mammals	-	-	-	-	-	-	-
Bird	-	-	-	-	-	-	-
Reptile/Amphibian	-	-	-	-	-	-	-
Fish	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-

Table 12 Scientific procedures (toxicology) by species of animal and type of toxicological test: safety testing of substances other than pharmaceuticals,
page 1 of 2

Species of animal	Type of toxicological test or procedure							Number of procedures		
	Other reproductive toxicity	In eyes	For skin irritation	For skin sensitisation	Toxico-kinetics	Bio-compatibility	Enzyme induction for <i>in vitro</i> tests	Immuno-toxicology	Other toxicology	
Mouse	-	-	-	-	-	-	-	-	15	15
Rat	-	-	-	-	-	-	-	-	-	-
All other rodents	-	-	-	-	-	-	-	-	-	-
Rabbit	-	-	-	-	-	-	-	-	-	-
Dog	-	-	-	-	-	-	-	-	-	-
Horse and other equids	-	-	-	-	-	-	-	-	-	-
Pigs, sheep & all other ungulates	-	-	-	-	-	-	-	-	-	-
All other mammals	-	-	-	-	-	-	-	-	-	-
Bird	-	-	-	-	-	-	-	-	-	-
Reptile/Amphibian	-	-	-	-	-	-	-	-	-	-
Fish	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-	-	15	15

Table 15 Scientific procedures (toxicology) by species of animal and type of toxicological test: safety testing of pharmaceuticals , page 1 of 2

Northern Ireland 2013		Type of toxicological test or procedure						Number of procedures		
Species of animal	Acute lethal toxicity	Acute lethal concentration	Acute limit setting	Acute non-lethal clinical sign	Subacute limit-setting or dose ranging	Subacute toxicity	Subchronic and chronic	Carcinogenicity	Genetic toxicology (includes mutagenicity)	Teratogenicity
Mouse	-	-	-	-	-	-	-	-	-	-
Rat	-	-	-	-	-	-	-	-	-	-
All other rodents	-	-	-	-	-	-	-	-	-	-
Rabbit	-	-	-	-	-	-	-	-	-	-
Cat	-	-	-	-	-	-	-	-	-	-
Dog	-	-	-	-	-	-	-	-	-	-
Ferret	-	-	-	-	-	-	-	-	-	-
Other carnivore	-	-	-	-	-	-	-	-	-	-
Horse and other equids	-	-	-	-	-	-	-	-	-	-
Pigs, sheep & all other ungulates	-	-	-	-	-	-	-	-	-	-
New World monkey	-	-	-	-	-	-	-	-	-	-
Old World monkey	-	-	-	-	-	-	-	-	-	-
All other mammals	-	-	-	-	-	-	-	-	-	-
Bird	-	-	-	-	-	-	-	-	-	-
Reptile/Amphibian	-	-	-	-	-	-	-	-	-	-
Fish	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-	-	-	-

Table 15 Scientific procedures (toxicology) by species of animal and type of toxicological test: safety testing of pharmaceuticals, page 2 of 2

Species of animal	Type of toxicological test or procedure							Number of procedures
	Other reproductive toxicity	In eyes	For skin irritation	For skin sensitisation	Toxicokinetics	Pyrogenicity	Bio-compatibility	
Mouse	-	-	-	-	-	-	-	-
Rat	-	-	-	-	-	-	-	-
All other rodents	-	-	-	-	-	-	-	-
Rabbit	-	-	-	-	-	-	-	-
Cat	-	-	-	-	-	-	-	75
Dog	-	-	-	-	-	-	-	65
Ferret	-	-	-	-	-	-	-	-
Other carnivore	-	-	-	-	-	-	-	-
Horse and other equids	-	-	-	-	-	-	-	-
Pigs, sheep & all other ungulates	-	-	-	-	-	-	-	992
New World monkey	-	-	-	-	-	-	-	-
Old World monkey	-	-	-	-	-	-	-	-
All other mammals	-	-	-	-	-	-	-	-
Bird	-	-	-	-	-	-	-	-
Reptile/Amphibian	-	-	-	-	-	-	-	-
Fish	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-	1,132
								1,132

Table 16 Scientific procedures (toxicology) by species of animal and type of toxicological test: other safety or toxicology testing , page 1 of 2

Northern Ireland 2013		Type of toxicological test or procedure							Number of procedures	
Species of animal	Acute lethal toxicity	Acute lethal concentration	Acute limit setting	Acute non-lethal clinical sign	Subacute limit-setting or dose ranging	Subacute toxicity	Subchronic and chronic	Carcinogenicity	Genetic toxicology (includes mutagenicity)	Teratogenicity
									Number of procedures	
Mouse	-	-	-	-	-	-	-	-	-	-
Rat	-	-	-	-	-	-	-	-	-	-
All other rodents	-	-	-	-	-	-	-	-	-	-
Rabbit	-	-	-	-	-	-	-	-	-	-
Cat	-	-	-	-	-	-	-	-	-	-
Dog	-	-	-	-	-	-	-	-	-	-
Other carnivore	-	-	-	-	-	-	-	-	-	-
Horse and other equids	-	-	-	-	-	-	-	-	-	-
Pigs, sheep & all other ungulates	-	-	-	-	-	-	-	-	-	-
New World monkey	-	-	-	-	-	-	-	-	-	-
Old World monkey	-	-	-	-	-	-	-	-	-	-
Bird	-	-	-	-	-	-	-	-	-	-
Reptile/Amphibian	-	-	-	-	-	-	-	-	-	-
Fish	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-	-	-	-

Table 16 Scientific procedures (toxicology) by species of animal and type of toxicological test: other safety or toxicology testing, page 2 of 2

Species of animal	Type of toxicological test or procedure							Number of procedures
	Other reproductive toxicity	In eyes	For skin irritation	For skin sensitisation	Toxicokinetics	Pyrogenicity	Bio-compatibility	
Mouse	-	-	-	-	-	-	-	34
Rat	-	-	-	-	-	-	-	-
All other rodents	-	-	-	-	-	-	-	-
Rabbit	-	-	-	-	-	-	-	-
Cat	-	-	-	-	-	-	-	75
Dog	-	-	-	-	-	-	-	65
Other carnivore	-	-	-	-	-	-	-	-
Horse and other equids	-	-	-	-	-	-	-	-
Pigs, sheep & all other ungulates	-	-	-	-	-	-	-	-
New World monkey	-	-	-	-	-	-	-	-
Old World monkey	-	-	-	-	-	-	-	-
Bird	-	-	-	-	-	-	-	-
Reptile/Amphibian	-	-	-	-	-	-	-	-
Fish	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	34	34
								1,132

Table 17 Project licence holders and scientific procedures by type of designated establishment

Northern Ireland 2013		Number of procedures			
Type of designated establishment	Project licences reporting procedures ⁽¹⁾	Project licences reporting no procedures	Total number of project licenses	Total number of procedures	
Universities (including medical schools)	40	25	65	13,084	
Government departments	-	-	-	-	-
Non-profit making organisations	32	17	49	5,240	
Commercial concerns	4	4	8	1,536	
Total	76	46	122		19,860

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

Table 18 Designated establishments: 2003-2013

Northern Ireland	Number of designated places at 31 December									
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Scientific procedure establishments	5	5	5	5	5	5	5	5	5	4
Scientific procedure and breeding establishments	0	0	0	0	0	0	0	0	0	0
Scientific procedure breeding and supplying establishments	6	5	5	5	5	3	3	3	3	4
Scientific procedure and supplying establishments	0	0	0	0	0	0	0	0	0	0
Breeding and supplying establishments	0	1	1	1	1	1	1	1	1	1
Total designated places	11	11	11	11	11	9	9	9	9	9

Table 19 Personal Licensees: 2003-2013

Northern Ireland - Number of personal licences at 31 December										
2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
624	501	535	607	523	561	565	585	582	590	480

Appendix

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.

Scope of the Act

2. 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 all cephalopods. The definition extends to foetal, larval or embryonic forms which 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.
3. 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.
4. 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 Certificate (issued under the Medicines Act 1968).

Project and Personal Licences

5. 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.
6. A project licence is granted when the Department of Health, Social Services and Public Safety (hereinafter referred to as the Department) 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.

7. A personal licence is the Department'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 licence need the endorsement of their establishment's Named Training and Competence Officer (NTCO). Satisfactory completion of an accredited training course is also required before a personal licence is issued.

Licensing of establishments

8. Except where otherwise authorised in a project licence (eg for field work at a specified place and time), any place where work is carried out under the Act must be licenced as a scientific procedure establishment. Since January 1990, establishments which breed certain types of animal (including 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') hold breeding and establishment licences. Quail was added to the list of species in 1993.

Licenced establishments are required to appoint the following named persons:

- Named Animal Care and Welfare Office (NACWO)
- Named Veterinary Surgeon (NVS)
- Named Training and Competence Officer (NTCO)
- Named Information Officer (NIO)
- Named Compliance Officer (NCO)

The Inspectorate

9. The Act gives statutory recognition to the Animals (Scientific Procedures) Inspectorate and describes the Inspectors' duties. Inspectors hold either medical or veterinary qualifications.
10. Inspectors assess all applications for new licences or amendments to existing licences in detail and advise the Department on how to ensure that only properly justified work is licensed. When assessing research proposals, the Inspectorate 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, mainly 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.
11. Inspectors also advise the Department 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.
12. During 2013 the Inspectorate made 110 visits to establishments.

The Animals in Science Committee (ASC)

13. The Animals in Science Committee is an advisory non-departmental public body of the Home Office. The Animals in Science Committee was established by the Animals (Scientific Procedures) Act 1986 as amended to comply with Directive EU 2010/63/EU which came into force on the 1st January 2013. Article 49 of this Directive requires each EU country to set up a National Committee for the Protection of Animals used for Scientific Purposes. In the UK the committee is known as the Animals in Science Committee and has superseded the Animal Procedures Committee.

The Animals in Science Committee is responsible for providing impartial, balanced and objective advice to the Secretary of State, to animal welfare bodies and within the European Union on issues relating to the Animals (Scientific Procedures) Act 1986 as amended.

The Animals in Science Committee roles are

- to advise the Secretary of State on all matters concerning the use of animals in scientific procedures
- to advise animal welfare bodies on sharing best practice within the UK and
- by exchanging information within the European Union to co-ordinate best practice

Guidance, Codes of Practice and Statistics

15. In addition to these annual statistics, the Act requires that there be published and laid 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. Four such documents have been published:

- Guidance on the operation of the Animals (Scientific Procedures) Act 1986 (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); and
- Code of Practice for the Humane Killing of Animals under Schedule 1 to the Animals (Scientific Procedures) Act 1986 (1997; HC 193).

The Home Office published a draft revised Code of Practice on their website in February 2013. This confirms the mandatory accommodation and care requirements which must be met with effect of the amended legislation coming into force on 1 January 2013. The definitive Code of Practice will be laid before Parliament in accordance with ASPA section 21 after consulting the Animals in Science Committee and will then replace the draft code of Practice on the GOV.UK website.

Education and training

16. 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 published in March 2014 <https://www.gov.uk/government/publications/operation-of-aspa>. 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 establishment licences 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.

17. European Directive 2010/63/EU requires that staff are adequately trained to carry out procedures on animals; design procedures and projects; take care of or kill animals. All training programmes are accredited under a scheme recognised by the Department. Accreditation seeks to achieve common and high standards for licensee training.

Throughout 2013, the Home Office has worked with all EU member states towards developing a common framework for training which will be used throughout the EU to facilitate free movement of licensees within the UK and Europe as well as ensuring high standards in the use of animals for scientific purposes.

18. Satisfactory completion of an accredited course prior to application for a personal licence has been a requirement under Departmental policy since 1 April 1994. The same requirement has applied to new applicants for project licences from 1 April 1995.

19. During 1995, mandatory training for Named Veterinary Surgeons was introduced and in 2004 mandatory training was introduced for Named Animal Care and Welfare Officers.

Performance against code of practice standards

20. The licensing team works to specific targets set out in the draft Code of Practice. The Code of Practice requires new personal licences, certificates and amendments to be issued within 20 working days. Project licences will be considered and issued/refused within 40 working days from receipt of application, unless the application involves a complex or multidisciplinary programme in which case the process may be extended by a further 15 working days (3 weeks).

21. 536 licences, amendments and cancellations were processed during 2013. One hundred percent (100%) were processed within the targets.

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