



Code of Practice for the Supply of Rodents in Research

Introduction and MRC Policy

The MRC has developed a policy on the supply of animals with the overall aim of avoiding the breeding, maintenance or culling of excess numbers of animals whilst meeting scientists' reasonable expectations for a ready supply of appropriate animals. This policy is directed at the MRC's own staff, but will also be relevant to those working in Universities.

The MRC's position is that the avoidable production of surplus animals that have no assigned use is not ethical, nor is it in line with good scientific management practice.

A specific research project may require tightly specified animals in terms of appropriate species, genetic variety, sex, weight, pathogen status or other relevant characteristic. Meeting reasonable, fully justified requirements of this type may result in the unavoidable breeding and maintenance of animals that have no scientific use, but the scientific benefits of using the highly specified animals should be expected to outweigh the ethical costs.

However, scientists must avoid making their specifications for animals excessively narrow in relation to what is required scientifically, and to manage their requirements with foresight.

Animals identified as being surplus to scientific need will be killed humanely, in accordance with the law. Numbers are recorded in each Institute/Unit.

In the case of rodents, MRC scientists and the managers of Biological Services facilities are expected to adhere to this code of practice in planning their experiments, in deciding what animals to use, in ordering them, and in managing their supply. The Council may from time to time ask independent organisations such as the National Centre for the 3Rs (NC3Rs) to audit the implementation of this code of practice. Guidance for other species will be developed in due course.

Many strategies exist within MRC Institutes and Units to meet the scientific requirements for the supply of rodents whilst minimising the production of animals that are not required for scientific use or the maintenance of breeding colonies. This Code of Practice draws these strategies together, setting out the issues which Institutes and Units should consider to ensure the production of rodents that are not subsequently used for research purposes, breeding or archiving models is minimised.

Records & Reporting

The Certificate Holders at MRC Institutes and Units that breed, supply and use both conventional and genetically-altered rodents for experimental use are responsible for the maintenance of definitive, contemporary records of the source, use and disposal of all protected animals bred or obtained for use, supplied for use, or used in regulated procedures. Such records account for each protected animal and provide full and accurate details of the type of animal, age, the numbers and types of animals allocated as breeding stock, held for supply or use, and the project licence to which the animal was issued. The records also include details of disposal – whether an animal was killed by an appropriate method listed in Schedule 1 or other method authorised in the Certificate of Designation;

whether on welfare grounds; for harvesting tissues for experimental or other scientific purposes; as surplus to requirements; due to death from other causes; or supplied to another designated establishment. All of the records above are retained for at least five years after the death of an animal and are available for scrutiny by a Home Office Inspector on request. The information contained in these records is also used by establishments to monitor and continuously improve standards and practices – for example, to allow the prompt identification and early resolution of incidental welfare problems and to minimise animal wastage by better matching breeding programmes to likely demand.

Much of the above paragraph is extracted from the Home Office Guidance on the Operation of the Animals (Scientific Procedures) Act 1986¹ and demonstrates the legal requirement to take all practicable approaches to ensure minimum wastage. It also offers a number of practical suggestions to minimise production of surplus animals that have no assigned scientific or husbandry use.

Head office has an annual requirement for data from each Unit of numbers of animals used that are **non-returnable** under the Act, most of which will be non-GM animals. This data will be sought at the same time as Units make their returns to the Home Office. (Units will also be expected to be able to provide, if required, more detailed numeric breakdowns of such animals, against the categories in the Act.)

The Facility Managers Group will audit data on avoidable surplus breeding, biennially, in order to spread best practice.

Role of the Ethical Review Process (ERP)

The local Ethical Review Process (ERP) of each MRC establishment is central to the analysis of supply and demand and monitoring trends in use. There is a legal requirement that the ERP regularly reviews an establishment's managerial systems, procedures and protocols where these bear on the proper use of animals and also to undertake retrospective project reviews and ensure application of the 3Rs² to all projects requiring the use of animals. In addition, the Animal Procedures Committee reports annually on the Statistics of Scientific Procedures on Living Animals. (The report published in May 2005³, highlighted the importance of the ERP in targeting local efforts to implement and monitor the effectiveness of production strategies for breeding and supplying rodents.)

Approach and Rationale of this Code of Practice

This Code of Practice does not intend to be prescriptive about the approaches to ensure that supply of rodents does not exceed demand. Rather, it should be used in conjunction with a number of reports including the 1998 LASA Task Force report⁴, and the more recent APC report⁵, in identifying good practices in assessing, evaluating and auditing breeding programmes for both conventional and genetically-altered stocks of rodents.

Key elements

1 Planning and Communication

The importance of regular communication between scientific laboratories and facility staff cannot be overemphasised. This must be inclusive of the ERP as well as an ongoing dialogue through formal and informal meetings, e.g.:

- Project Planning discussions to establish lead time(s), feasibility, costing and time scales;

¹ Home Office Guidance on the Operation of the Animals (Scientific Procedures) Act 1986

² Replacement, reduction and refinement

³ The Animal Procedures Committee - The Statistics of Scientific Procedures on Living Animals, May 2005.

⁴ The Production and Disposition of Laboratory Rodents surplus to the Requirements for Scientific Procedures: The Report of a LASA Task Force Meeting, 12 June 1998

⁵ Report of the Animal Procedures Committee 2003 – The Control of Surplus Laboratory Animals (Overbreeding)

- Progress discussions, to include estimated completion of project(s);
- Review discussions, to audit requirements for regular standing orders;
- Strategy discussions, to include breeding schemes, troubleshooting, ideas for sharing and archiving;
- Attendance and presentation of work in different fora.

User groups should also work towards use and application of common/standard nomenclature.

2 Archiving Models

Owing to the extent of use of genetically-altered models, it is important to consider archiving and dissemination of strains by cryopreservation and reproductive technologies. This is important not only for the protection of a strain against physical disaster (such as fire or flood), disease or genetic contamination or drift, but also to prevent unnecessary maintenance of infrequently used strains or lines of rodents. To archive a rodent line, however, requires the use of additional animals for provision of frozen tissue and gametes and in the restoration and subsequent expansion of models. Each line, therefore, requires individual consideration of the best reduction strategy. All cryopreservation and subsequent recovery techniques generate breeding and an increase in numbers, albeit not indefinitely; therefore, the longer-term plans and uses of a rodent line must be carefully assessed prior to archiving. The following are strongly encouraged:

- Cryopreservation of embryos, sperm, tissues, DNA etc.;
- Access to records of available cryopreserved strains, with details of the nature of the strain and future husbandry requirements;
- Use of national resources and common databases to identify and locate useful strains⁶ and ensuring use of correct nomenclature.

3 Sharing Models and Resources

There are a number of ways in which models and resources can be shared within and between establishments to prevent unnecessary breeding and to reduce the need to specifically breed or order animals. These include:

- Coordinating the harvesting of tissues and organs to meet the needs of multiple users to ensure best and maximal use;
- Where possible, centralising the breeding of commonly used strains within a facility if multiple users had requirements for the same strain, e.g. reporter lines;
- The provision of local services for the generation of novel genetically-manipulated rodents is more effective and efficient; using skilled technicians who routinely carry out transgenic techniques results in a greater output of new models and the use of fewer animals;
- Use of national resources (see above);
- Communication within and between MRC Units and Institutes, and also with other breeders and holders of animals;
- Consideration of supply from other sources including other establishments and commercial breeders;
- Consideration of conducting small scale pilot studies, before breeding large numbers of stock.

4 Training

In addition to the statutory training requirements, formal and on-the-job training are essential in the effective management of breeding colonies and coordinating scientific projects. Regular training for facility staff and scientific users should include the following:

- Good record keeping;
- Data capture and analysis;

⁶ E.g. International Mouse Strain Resource: <http://www.informatics.jax.org/imsr/index.jsp>

- Basic breeding and husbandry performance statistics;
- Experimental planning to ensure statistical relevance.

5 Alternative Uses of Rodents

Where some breeding of surpluses cannot be avoided, there may be alternative uses that should be considered to make use of these animals. These include the supply to zoos, wildlife sanctuaries and reptile breeders with cadavers as animal food. (In this case, if surplus dead animals were not provided by laboratories, a larger number of other animals than otherwise would need to be bred specially for this purpose.) In circumstances where there is no alternative use, the surplus animals will be killed and disposed of according to legal requirements.

Summary

There are a wide variety of reasons why animals produced may become surplus to requirements. Some surplus will be inevitable, particularly with the increasing use of genetically-altered animals, but must be justifiable within the circumstances in which it arises. The MRC therefore expects that MRC Institutes and Units will adhere to the above guidance, as well as regularly reviewing and auditing breeding numbers locally, to further reduce surplus breeding and ensure cost-benefit analysis of animals bred and maintained for possible use in research.