

# Purchasing and breeding laboratory animals

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## 1 Introduction

Utrecht University (UU) and the University Medical Centre Utrecht (UMC Utrecht) purchase and breed laboratory animals that are used in experiments. The practice of purchasing and breeding laboratory animals can be optimised to safeguard the animals' welfare, minimise the number of surplus animals and improve the quality of research. This policy document outlines the framework for doing so. The policy is based on, among other things, 2 parts<sup>1,2</sup> of the recommendations *Genetically modified animals killed in stock* by the Netherlands National Committee for the Protection of Animals Used for Scientific Purposes (NCad), although it is emphatically not limited to *only* genetically modified animals.

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<sup>1</sup> *Genetically modified animals killed in stock*, NCad, 2015

<sup>2</sup> *Genetisch gemodificeerde dieren, Dood of gedood voor gebruik in fok of dierproef, deel 2*, NCad, 2018

## 2 Purpose

The purpose of this policy is to:

- establish frameworks for purchasing laboratory animals
- establish frameworks for breeding laboratory animals in-house at UU and UMC Utrecht
- ensure optimal matching of supply and demand of animals bred in-house at UU and UMC Utrecht
- safeguard the welfare of animals involved in breeding programmes
- ensure that unique breeding lines are kept for the sake of science and society
- be consistent with national policy

## 3 Scope

The policy for purchasing and breeding laboratory animals is binding for employees of UU and the UMC Utrecht. External parties who depend on UU and/or UMC Utrecht for their acquisition and breeding of laboratory animals are expected to comply with this policy. Exceptions can only be made in consultation with the Animal Welfare Body Utrecht (AWB Utrecht).

The policy applies to all *purchased* laboratory animals. With regard to breeding, it applies to all species of mice, rats and rabbits. For breeding of other species, specific agreements for each species will be made with the users.

## 4 General guidelines

### 4.1 Purchase or breeding

UU and UMC Utrecht use the 'no, unless...' principle when choosing between purchasing or breeding. If a species of animal is available for purchase elsewhere, then the animals in principle will be purchased from this supplier and not bred in-house. Only in exceptional cases, and after consultation with the AWB Utrecht, can commercially available animals be bred in-house.<sup>3</sup>

The restriction above does not apply if the breeding itself is part of a study, for example if the study uses embryos or unweaned young.

The facility where the animals are housed can set additional requirements for the animals to be purchased, related to practical, logistical, or zootechnical conditions, such as a microbial status.

The following additional requirements apply to rodents:

- Purchase is only possible if a particular species, strain, breed, or specific genotype is readily available from an accredited commercial laboratory animal supplier listed as a preferred supplier.<sup>4</sup>

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<sup>3</sup> If the document refers to coordination with the AWB Utrecht, external parties must coordinate with their responsible AWB.

<sup>4</sup> A preferred supplier is on a list of commercial suppliers meeting the facility's requirements with regard to microbial status and other factors, that are included in the audit programme of the facility's critical suppliers.

- In exceptional cases, rodents may be acquired from other external sources. In this case, strict requirements for import apply. Depending on their health status, they may be acquired under strict confinement conditions as part of a single short-duration experiment.
- For the import of a line that will be bred in-house, it is preferable to purchase sperm or eggs (fertilised or non-fertilised) over a breeding pair from which the line will be bred after rederivation. This entails working with specialised commercial parties.

## 4.2 Project licence and work protocol

### 4.2.1 Purchasing of animals

Purchasing animals is only permitted on the basis of a work protocol for the use of the animals in experiments, approved by the AWB Utrecht. Exceptions to this rule can only be made with the approval of the AWB Utrecht.

Exceptions to the above are:

- animals being acquired as part of health monitoring;
- animals being acquired as part of setting up or refreshing a breeding line. Note: there must be a breeding protocol (see 5.3).

### 4.2.2 Starting and maintaining lines

Starting and/or maintaining a line by means of breeding is only permitted if there is a demonstrable prospect of continuation or progress of a project, for example based on a CCD project licence or the approval of the project by a funding body or scientific committee. This information is to be incorporated in the breeding protocol (see 5.3). If these are animals bred with a likely harmful phenotype, there must always be a project licence for the *breeding* of the animals.

### 4.2.3 Maintenance and expansion colonies

Scaling up a breeding line to expand the colony is only permitted on the basis of a valid project licence and a work protocol for use of the animals approved by the AWB. Exceptions to this rule can only be made after approval by the AWB Utrecht. If the approval of a work protocol has expired, the line will be scaled down for maintenance breeding.

### 4.2.4 Situations in which breeding is part of the study

Breeding animals as part of a study, for example one exposing pregnant animals to test substances, or a study conducted using embryos or unweaned young animals, is only permitted based on a valid project licence and a work protocol approved by the AWB for the use of the animals.

## 5 Specific guidelines for breeding mice, rats and rabbits

### 5.1 Breeding coordinators

In accordance with the NCad recommendations,<sup>1</sup> the UU and UMC Utrecht have designated breeding coordinators for all facilities where animals are bred. Each researcher works out the details of every line with their breeding coordinator. It is assumed that every line is managed by the breeding

coordinator. In cases where researchers still breed their animals themselves, they are obligated to incorporate the recommendations of the breeding coordinator in their methods.

## 5.2 Communication and coordination

Communication between researcher, breeding coordinator and AWB Utrecht will take place at regular times, as a minimum at the following points:

- Before breeding begins, agreements about the line are laid down in the breeding protocol. A distinction must be made between a protocol for a line with and without a likely harmful phenotype. The forms can be found [here](#). Researchers may only breed animals on the basis of a breeding protocol approved by the AWB Utrecht.
- At least once a year, the breeding coordinator will check the breeding results, stock of animals and other matters may affect the breeding results. The breeding coordinator will communicate with the researcher if necessary. The researcher is expected to follow the breeding coordinator's recommendations resulting from this check.
- During the year, the AWB Utrecht will perform random breeding audits.
- The utility and the necessity of each line will be evaluated annually during the registration meeting between laboratory animal coordinator, breeding coordinator and AWB Utrecht.

## 5.3 Breeding efficiency and animal welfare

The breeding protocol will contain detailed information for optimally ensuring efficient breeding and the welfare of both parents and offspring. At a minimum, these details will include information about:

- A guarantee that the project will take place;
- The number of breeder animals with which and the way in which the line will be started, including details about housing and care;
- For both breeding males and females, the age of starting and terminating breeding;
- Duration of single housing periods for breeding males (see also the [policy on single housing](#));
- The use of buddies to avoid single housing;
- Method for killing pregnant females, or if applicable, allowing them to give birth;
- Method of killing offspring before weaning age;
- Age and method of genotyping;
- Number of offspring to be bred and expected number of surplus animals produced;
- If breeding animals with a likely harmful phenotype, any variant agreements.

## 5.4 Surplus animals

Breeding laboratory animals always creates a surplus of animals. The breeding programme will be set up so as to minimise the number of surplus animals. Agreements about how to do this will be laid down in the breeding protocol.

Whenever possible, surplus animals will be put to meaningful use in current projects. They can be used in education, as sentinel animals or to supply tissues and organs. Stocks of and demand for surplus animals will be coordinated as well as possible through the AWB Utrecht (see [policy on surplus laboratory animals, reuse and re-homing](#)).

## 5.5 Continuation or cryopreservation

If the offspring of a line are not used for study for a definite or indefinite period of time, the researcher will decide whether to continue the line or cryopreserve it, in consultation with the breeding coordinator and the AWB Utrecht. The following need to be considered when making the decision: the uniqueness of the line in question, the expected period of time before the line will be used again and lastly, the number of surplus animals that a maintenance colony produces versus the number of animals necessary to cryopreserve the line and restart breeding from cryopreserved embryos. This involves cooperation with commercial specialized parties.

## 5.6 Back up of unique lines

The starting point of UU and UMC Utrecht is that every effort is made to ensure that the continuation of a unique line is guaranteed at all times and that this line remains available for future use within or outside your own institution, even after the end of the breeding. Therefore, the researcher who breeds a unique line is obliged to back up this line by cryopreservation at an early stage of the breeding.

## 5.7 Supplying third parties

UU and UMC Utrecht are not commercial breeders. Therefore, supplying animals bred by these institutions to third parties is only permitted under the following conditions:

- There is a single request, such as to supply the third party until its own breeding line is running, or
- A cooperation agreement in which UU or UMC Utrecht is actively involved as a partner, but the research takes place at the third party's facility.

Systematically supplying animals to third parties outside the facility where the animals are bred, where there is no collaboration or where there is a commercial aim, is not permitted.

If animals are supplied to third parties, the researcher will ascertain beforehand that the recipient has the proper licences, that the animals (and their health status) will be accepted by the recipient, and that the transport of animals meets all legal requirements.

## 6 Long-term perspective

This policy describes the way in which UU and UMC Utrecht currently handle purchasing and breeding laboratory animals. However, UU and UMC Utrecht are aware that this field is continually developing and are continually alert to developments that can improve the quality of research, as well as the 3Rs. This policy will therefore be evaluated and updated if necessary, at least every 3 years. Currently we are working on implementation of the following subjects in relation to this policy:

- Developing and making available a database of genetically modified lines of mice and rats bred in Utrecht, which may potentially be expanded to the national level.
- Initiating a national or international database enabling exchanges of tissue.
- Researching the possibility of bringing genetically modified lines bred by more than one national/international facility together with a commercial preferred supplier.

- Identifying the presence of back-ups of lines bred by UU and UMC Utrecht and developing a proportional strategy with regard to achieving a back-up for unique lines.

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