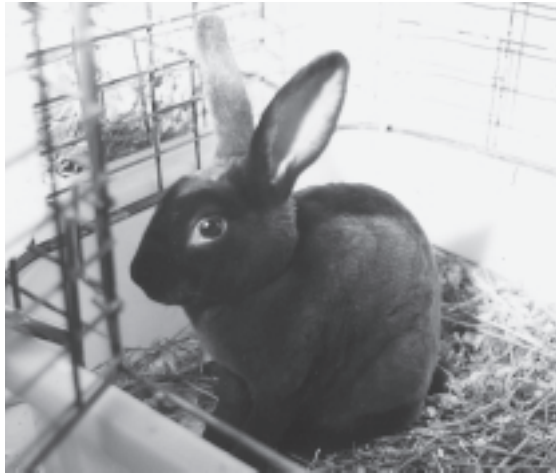


Rabbits



Scientific name: Oryctolagus cuniculus

Varietal range difference

The rabbit was once classified as a rodent but, because of a second pair of incisors on the upper jaw and no canines, rabbits are now classified in the family *Leporidae*. There are a variety of rabbit breeds, divided into three main groups:

- Californian and New Zealand White rabbit, large size, 2–5 kg, bred for meat and research.
- Smaller breeds, up to 2 kg, from Holland and Poland, used as pets and as research animals.
- Long haired Angora varieties.

Physical attributes

Size: Depends on country of origin.

Weight: New Zealand White rabbits are large, approx. 2–5 kg. Smaller varieties average approximately 2 kg.

Age at adult size: Male: 6–10 months
Female: 5–9 months

Average life span: Normally 5–8 years. Some have survived for 12 years under ideal conditions.

Weight at birth: 30–100 g

Gestation period: 30–32 days.

Number of offspring: 4–9, litter size is determined by birth weight.

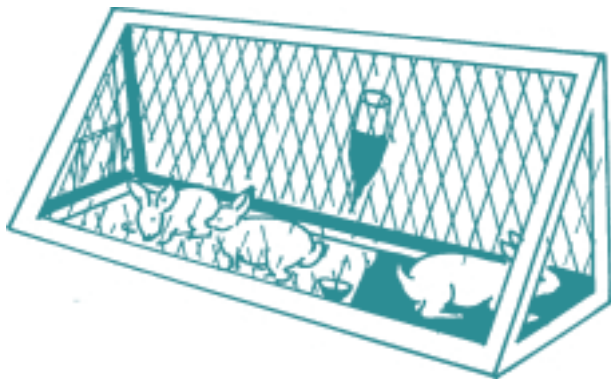
Weaning age: 42–56 days

Range of breeding ages: 4–36 months. On average, rabbits breed four times each year.

Healthy characteristics: Body temperature: 38–39°C
Heart rate: 180 beats per minute
Respiration rate: 50–55 per minute.

Environment

Rabbits may be housed intensively indoors or in less intensive conditions outdoors, with access to fresh grazing. An example of an outdoor hutch system is the amended “Morant” system, which provides a mix of grazing area and solid floor.



The amended “Morant” system has a partial solid floor

Whether keeping rabbits intensively or in an outdoor system, the housing area must be kept clean. Rabbits become agitated if their cage is unclean or moved frequently.

Rabbits kept indoors should be housed in a well lit and ventilated area, away from draughts, fumes and noise, and at a temperature between 10 and 25°C. For optimum health and well-being, however, the average temperature should be kept between 15 and 21°C. Rabbits are extremely susceptible to excess humidity. They should not be placed in the following positions:

- near windows, especially during winter or midsummer
- in direct sunlight
- in draughts from ventilators, windows or doors
- in fumes of any kind, over or near heaters
- where access is difficult.

Space

Rabbits require a floor area according to the animal’s size. The Model Code of Practice for the Welfare of Animals, *Intensive Husbandry of Rabbits*, describes the minimum space requirements for rabbits as follows:

Doe and litter to 5 weeks of age	0.56 m total area
Doe and litter to 8 weeks of age	0.74 m total area

Rabbits 5–12 weeks of age	0.07 m per rabbit
Rabbits 12 weeks and over, other than those used for breeding, in cages or other areas in which several rabbits are kept	0.18 m per rabbit
Adult does and bucks for breeding	0.56 m per rabbit

These space requirements refer to medium-sized rabbits. Where larger or smaller sized rabbits are involved, space allowances should be adjusted appropriate to the relative body size. Cages for rabbits over 12 weeks old should not be less than 45 cm high and should be of sufficient height to allow rabbits to sit upright with their ears fully erect.

Note that these are minimum space requirements for rabbits kept in intensive conditions where animals are monitored twice daily. It is recommended that rabbits kept in schools be given more space.

Overcrowding must be avoided at all times as aggression will begin after three months of age. Overcrowding also causes large losses in body weight and problems with liver, spleen and kidney. In crowded situations, the young tend to be born stunted.

Movement and exercise

The normal mode of movement is hopping. To enable rabbits to hop, the floor space must be large enough or elevated areas provided.

Temperature

Avoid moving rabbits frequently from indoors to outdoors, particularly if this results in extreme changes of temperature.

Shelter

If rabbits are housed outdoors, hutches provide protection from adverse weather. These may be wooden or metallic. Aluminium is preferable to galvanised iron as it is more resistant to urine and has a longer life. Extreme care must be taken so that predators such as dogs, cats, owls and goannas do not frighten the rabbits and cause stress. Rabbits must be housed indoors at night.

The floor of the rabbit's housing should be a combination of wire mesh and a solid area such as a piece of wood or rubber mat. Mesh wiring is used to prevent the rabbit burrowing and being released into the environment. To assist with *myxomatosis* control, mosquito screening is advisable.

In intensive housing systems, *hepatic coccidiosis* may occur if rabbits are kept on a total solid floor. Cage floors must have mesh wire for ease of cleaning and portability. To minimise problems with rabbits catching hocks in the mesh, suggested mesh sizes are 19 by 19 mm for adults and 13 by 13 mm for kittens. The mesh wire should be woven or flat. An area of solid floor should also be provided for the rabbit to sit upon. This may be a piece of wood or a rubber mat.

As rabbits eliminate large amounts of faeces and urine, cleanliness is imperative at all times. Cages must be cleaned every second day except when a new litter is born. The litter must not be disturbed for approximately one week to prevent the doe from eating her young. Shortly after weaning, separate the young does and bucks as they are capable of reproducing at an early age.

Bedding

Straw, coarse sawdust or softwood shavings are suitable. If metal hutches are used, a wooden nesting box with straw is required for breeding. Do not use wicker baskets as they are gnawed easily. Approximately one week before parturition (birth), the doe will pull fur from her body to line the nesting area. Bedding and refuse must not be composted but should be either burnt or wrapped in newspaper and disposed of properly. Hutches should be disinfected weekly, then rinsed thoroughly.

Food and water requirements

Rabbits should be provided with an ad lib supply of rabbit pellets. A small amount of good quality hay or well-washed vegetables are recommended as a supplement.

A clean, fresh and reliable supply of water is necessary. In the last stage of pregnancy, and while lactating, does require extra food and water.

Handling

Rabbits need to be handled calmly and with care to prevent distress and injury to the animal and the handler. Well-designed refuges assist with catching. If rabbits hide under structures, such as elevated shelves or nest boxes, the design should allow them to be reached and restrained easily.

Normal behaviour

Healthy rabbits have sleek coats, clear, bright eyes and alert ears. The ears are used for cooling the body as well as for hearing. Rabbits consume large amounts of food. They have powerful rear limbs, which may cause painful scratches if the animal is not properly restrained.

It is recommended that rabbits be kept with a mate. In order to control breeding while providing companionship, suggested mates include two compatible females, two desexed males or a female with a desexed male.

Rabbits housed in wire cages may catch and injure limbs or develop hock sores. Even though rabbits can sit for hours, or even days, without signs of distress, inactive animals should be checked for injury.

Extreme temperature changes will affect rabbits and they become stressed at temperatures greater than 27°C. Other causes of stress are overcrowding and exposure to predators such as cats, dogs, owls, foxes and goannas.

Disease prevention

Disease control methods and internal and external parasite control programs should be developed in consultation with a veterinarian or NSW Agriculture officer. All activities must be documented in the appropriate records.

Signs of illness

The first sign noticed is a change in the animal's natural demeanour. It may be listless or lethargic. Closer examinations may show variations in:

- body temperature
- gastrointestinal function, e.g. diarrhoea, weight loss or loss of appetite

- urogenital function such as abortion, infertility or abnormal discharges
- respiratory function, e.g. persistent coughing, gasping or panting; or

evidence of:

- skin condition such as lesions or abnormal growths
- a tucked up appearance, stiff gait or abnormal posture, patchy coat or loss of hair
- excessive scratching or rubbing
- swollen joints or limping
- dribbling.

A failure to thrive or grow is another sign of illness. If unable to identify and correct the cause of ill-health, assistance should be sought from a veterinarian who is familiar with rabbits. Any signs of illness or injury, and treatments given, should be documented in the appropriate records.

Euthanasia

In the case of an animal becoming so sick, diseased or injured that recovery is unlikely or undesirable on humane grounds, then euthanasia must be arranged with a local veterinarian.

Disposal

A disposal plan needs to be considered before using an animal in any program.

Suggested resources

Web sites

The Australian and New Zealand Council for the Care of Animals in Research and Teaching (ANZCCART):

www.adelaide.edu.au/ANZCCART/front/animalfact.htm

Agriculture and Resource Management Council of Australian and New Zealand (ARMCANZ):

http://www.affa.gov.au/docs/operating_environment/armcanz/home.html

NSW Agriculture:

<http://www.agric.nsw.gov.au/reader/4893>

RSPCA:

<http://www.rspca.org.au>

SCARM technical reports:

http://www.affa.gov.au/docs/operating_environment/armcanz/scarm.html

The Universities Federation for Animal Welfare (UFAW):

<http://www.ufaw.org.uk>

Printed texts

Gendron K. (2000) *The Rabbit Handbook*, Barron's Pet Handbook, New York.

NSW Agriculture, *Agfacts: Information sheets*, Australia.

Contacts

Rural Lands Protection Board

NSW Agriculture

Local council

Local farm supplies trader

Approved activities: rabbits

Please note:

The categories of activities are explained in Table 2, on page 16, in Part A of these guidelines.

The letters and numbers used in approved activities correspond to those detailed in Table 3, Description of Activities, on pages 17–19 of Part A of these guidelines.

A. Very low impact activity

- **Observation of the normal behaviour of animals (Category 1)**

A trained and regularly-handled rabbit will hop quietly around a room. Keep the class at a reasonable distance from the rabbit and avoid sudden noise or movement. A rabbit can inflict painful scratches if stressed, so some care is necessary. If the animal panics, do not continue the observation period.

A rabbit is a relatively clean animal. During an observation period, it may be allowed to move freely around the classroom as long as the door is shut.

B. Low impact activities

- **Breeding of rabbits in the classroom (Category 2)**
Rabbits may **not** be bred for the purpose of dissection.
- **Capture, restraint and handling (Category 2)**
A rabbit can be easily captured and handled if movements are calm and confident. Do not allow too many students to attempt to handle the animal at one time.

The correct method of handling a rabbit is to grasp the skin at the back of its neck firmly but gently with one hand, and to support the rump with the other hand. A rabbit will sense any insecurity in the handler and may struggle, possibly breaking its back or scratching the handler. A rabbit must never be picked up by the ears or by the hind legs as it will probably break its back.



Correct method for picking up and holding a rabbit

For larger rabbits, the handler should grasp the ears and the skin at the back of the neck with one hand and support the rump with other hand.



For carrying animals long distances, head and eyes are concealed in the elbow of the handler

C. Non-invasive measurement of

1. **body weight (Category 2)**
2. **body condition (Category 2)**
3. **growth (Category 2)**
4. **body proportions (Category 2)**
5. **pulse or blood flow (Category 2)**
6. **respiration (Category 2)**

It is possible to set up a weight–age and size–age chart for a number of rabbits and monitor them over a period of 10 weeks. Use a pre-weighed container of appropriate size and a triple beam balance or a bucket balance to determine the weight. A measuring tape can be used to determine overall length, girth, and size of skull. When measuring a rabbit's dimensions, care should be taken not to exert too much pressure on the trunk, particularly of pregnant females.

G. Standard husbandry activities

1. **administering treatments**

topical (Category 3)

Lice and fleas can be controlled by dusting the animals with insecticide powder suitable for use on pets.

2. **coat care and grooming (Category 2)**

In laboratory and school situations, a rabbit's claws grow continually and need to be cut regularly by an experienced handler. Care must be taken *not* to cut blood vessels. Angora rabbits need their fur clipped at regular intervals. This activity should be carried out in a way that does not stress the rabbit. Cuts and scratches should be treated with antiseptic creams or powders.