UQBR SOP 37 – Animal Husbandry – Rabbits
AEC Reviewed: July 2018

REQUIREMENT:

1. To ensure that the requirements and regulations as set out by the following are met as far as practicable:
    - AEU UQ
    - The Code
    - OGTR
    - Department of Agriculture and Water Resources (DAgWR)
    - QLD Workplace Health and Safety, and
    - UQ OH&S

2. To standardise practice for all UQBR staff and researchers within UQBR facilities.

3. Annual review is required to maintain best practice and usability of this SOP.

RESPONSIBILITY:

It is the responsibility of the individual performing animal handling procedures and techniques to ensure they have been assessed as competent.

Please Note:
This UQ Biological Resources (UQBR) SOP expands upon UQ Animal Ethics Unit SOPs. This document outlines the procedures followed by UQBR and should not be referenced in Animal Ethics Applications.

No changes or deviations from this SOP are to occur unless the Director of UQBR gives prior authorisation.

NB: The use of (*) indicates this statement is dependent on the facility procedures
NB: The use of (**) indicates this statement is dependent on AEC Approvals

1.0 Purpose:

1.1. To promote the responsible care and use of animals

2.0 Scope:

2.1 Rabbits may show pain and distress differently and often the initial signs of pain, distress or illness can be subtle. These guidelines have been developed to ensure all animals displaying signs of abnormal behaviour are treated as soon as possible.

2.2 In addition, general guidelines for accepted research and institutional husbandry and care have been outlined within this document.

3.0 Responsibilities:

3.1 Institutions using rabbits for scientific purposes are responsible for responding effectively to recommendations of the Institution's Animal Ethics Committee to ensure that facilities are appropriate to the maintenance of well-being and health of the rabbits (NSW DPI Guideline 18, 2003).

3.2 The Chief Investigator/teacher should ensure that the extent of personnel/staff supervision is compatible with the level of competence of each person and the responsibilities they are given in relation to rabbit care and management (NSW DPI Guideline 18, 2003).

3.3 Circumstances with the potential to have an adverse impact on the wellbeing of an animal must be identified. Experimental and non-experimental causes must be considered, including acquisition and breeding, capture, transport, housing and care, social and physical environment, handling, restraint, sample collection, non-surgical procedures, anaesthesia, surgical procedures, genetic modification, humane killing and provisions for the animal at the conclusion of their use (Clause 3.1.2, The Code, 8th Ed).

4.0 Definitions:

4.1 Investigator – is considered the owner of their AEC-approved research animals. They have personal responsibility for all matters that relate to the wellbeing of animals that they use, including housing husbandry and care. This responsibility extends throughout the period of use approved by the AEC until provisions are made for the animal at the conclusion of their use (The Code, 8th Ed).

4.2 PPE - Personal Protective Equipment

4.3 Zoonosis - A disease naturally transmissible between animals and people.

5.0 Procedures:

5.1 Acquisition of rabbits

5.1.1 Outsourced rabbits selected for research should be healthy and in good condition prior to entering the holding colony

5.1.2 Upon ordering rabbits, commercial suppliers should be given specific order requirements.

5.1.3 All Rabbits must be examined for abnormalities during a quarantine period and reported as per UQBR SOP 22 Veterinary Care Protocol

5.2 Transport

5.2.1 Transport and unfamiliar sounds and vibrations both cause increase in respiration rate of rabbits that may take time to return to normal.

5.2.3 Where possible, it is recommended that rabbits are rested on feed, water and a bottle with electrolytes following transportation prior to research procedures as specified by an AEC.

5.2.4 Rabbits need to be closely monitored as differences in food and water systems may cause a reluctance to eat and drink

5.2.5 Transport containers should be appropriately secured due to rabbits being a pest species in Queensland and to prevent escape e.g. use zip ties.

Consideration

5.2.2 The provision of hay (not chaff) for shelter during transport may be used to decrease stress (NSW DPI Guideline 18, 2003).

5.3 Rabbit Arrivals

Refer to UQBR SOP 32b Unpacking received Rodents to ensure unpacking procedures are followed and animals are checked for health on arrival

5.3.1 Any incoming animals entering the breeding colony must undergo a quarantine period whereby health monitoring is required.

5.3.2 Rabbits should be micro-chipped in a timely manner after arrival to comply with the Pest Permit Conditions.

5.3.3 Details of animal arrivals must be updated in the Pest Log

5.4 Housing

5.4.1 Rabbits may be housed in floor pens or commercially available rabbit caging

5.4.2 Ideal living areas for rabbits incorporate open space with shelters using a deep litter bedding system (NSW DPI Guideline 18, 2003).

5.4.3 Rabbits should not be housed individually without AEC approval on the basis of strong scientific evidence (NSW DPI Guideline 18, 2003).

5.4.4 Required floor areas differ for breeding groups versus adults groups. Recent literature suggests larger floor areas compared with earlier recommendations.

Recommended minimum floor areas, adapted from VIC DPI (2004).

Table 2. RABBITS: Housing Space Minimum Standards

Cages or Pens:

Single or group housing or breeding animals	Animal weight* (kg)	Min. floor area ** (cm² per animal)	Min height *** (cm)
Single	<2	2000	***
	2-4	4000	
	4-6	5400	
	>6	6000	
Group	<2	1300	***
	2-4	2600	
	4-6	3300	
	>6	4000	
Female + litter	Any weight	9300 per female + litter	***

* The animal weight provides an indication of the age and activity of the rabbits which is the important determinant of space requirements.

** Minimum area includes the area of any shelving in the animal enclosure that doesn't reduce the total available area. Enclosures must be wide and long enough to permit rabbits to lie fully outstretched ie. minimum of 80cm clear space in at least one direction, and to provide a clear area to facilitate 1-3 complete hops for normal exercise requirements.

*** The minimum height must refer to a cage/pen high enough for rabbits to stand upright unhindered (ie with ears not touching the roof).

5.4.5 Enclosure height must be sufficient to contain rabbits in floor pens and allow the animals to see approaching persons. The NSW DPI Guideline 18 (2003) recommends covered pens have a minimum height of 100cm and uncovered pens have a minimum height of 1.25 metres.

5.4.6 UQBR commonly uses commercially available wood shavings and hay as a floor substrate. Wood shavings and hay are preferably steam/heat treated and from appropriate wood species to aid in absorption. The hay softens the floor substrate and allows for burrowing.

5.4.7 The provision of shelter is provided by using hay and plastic housing to provide for privacy and a space to retreat. Shelters should be non-toxic, easy to clean and disinfected.

5.4.8 Where hay is used for shelter or dietary requirements autoclaving prior to use is required within UQBR to decrease the introduction of pathogens into a facility.

5.4.9 Rabbits are social animals and should be housed to allow social interaction. Establishing social structures is important where group housing is used and when new groups are formed to assist social stability (NSW DPI Guideline 18 2003).

5.4.10 Rabbits may be given straw, cardboard boxes, hard rubber toys or wooden chews to encourage natural gnawing behaviour where appropriate for the experimental protocol.

5.5 Feed and water regimen

5.5.1 Rabbits are generally fed a pelleted diet with a crude fiber such as hay.

5.5.2 They may be supplemented with leafy green vegetables such as lettuce, cabbage and kale. Excessive feeding of vegetables may cause gastrointestinal upsets.

5.5.4 Rabbits should have feed and water provided ad libitum. Automatic watering system require daily inspections to ensure systems are operating correctly.

5.5.6 Rabbits practice coprophagy producing two different pellets.

5.5.7 Rabbits are prone to anorexia following procedures. Monitoring to ensure they have resumed eating is required.

5.6 Cleaning regimen

5.6.1 Regular cleaning is recommended to reduce build-up of faeces and keep floor areas dry.

5.6.2 Cleaning of floor or cage environment is completed weekly or more frequently with daily spot cleaning completed as required.

5.6.3 Cleaning of cages and floor pens should be performed with total replacement of bedding substrates at specified intervals or when new batches of animals are introduced.

5.6.4 Environmental contamination with cleaning products or other chemicals should be avoided.

5.6.5 Disinfection of used cage items to decrease contamination is required.

Floor Pen Cleaning Procedure

EQUIPMENT

- PPE: Hair net, P2 mask, gloves, protective eye wear, lab coat, enclosed foot wear, Shoe covers
- Long handled broom
- Long handled rake
- Plastic light weight shovel
- Long handled mop and bucket
- HEPA filtered vacuum cleaner
- Long handled dust pan and brush
- Hay
- Wood shavings
- Replacement water bottles and feed hoppers
- Rubbish bins and bin liners (extras for replacement)
- 70% Ethanol
- Disinfectant
- 240L bin for animal waste

PREPARATION

- Prepare all items ready for floor pen cleaning – spray into room where required
- Ensure consumable levels are adequate and stocked ready for use
- Ensure administration items are positioned for easy use during cage change

PROCEDURE

1. Ensure you are wearing all appropriate PPE
2. Transfer each rabbit from its pen to a clean pen/holding area whilst checking:
    - Number of animals – if incorrect investigate and alert supervisor
    - Sex – if incorrect investigate and alert supervisor
    - Health – if concerned follow UQBR SOP 22 Veterinary Care Protocol
3. Rake bedding into a pile. Use the shovel to place all dirty bedding into 240L bin

4. Use the HEPA filtered vacuum to remove smaller debris. Vacuum bags and HEPA filteres will require periodic replacement
5. Empty and clean feed hoppers and water bottles
6. Mop floor with disinfectant in hot potable water OR remove plastic lining and replace
7. Allow floor to dry
8. Fill floor pen with clean bedding substrate – wood shavings followed by hay
9. Return rabbits to their pen

Cage Cleaning Procedure

PREPARATION

- Spray all items ready for cage cleaning with disinfectant e.g.
  - Matching cage
  - Tray
  - Water bottles
  - Feed hoppers or
  - Complete rack replacement with disinfectant
- Ensure consumable levels are adequate and stocked ready for use e.g. bedding in trays
- Ensure administration items are positioned for easy use during cage change
- Wheel complete rack into room – 2 person task

PROCEDURE

1. Ensure you are wearing all appropriate PPE
2. Transfer each rabbit individually with cage card and micro-chip ID to the same location on the new rack (if required) whilst checking:
   - Number of animals – if incorrect investigate and alert supervisor
   - Sex – if incorrect investigate and alert supervisor
   - Health – if concerned follow UQBR Veterinary Care Protocol
3. Remove used trays from the rack and knock-out bedding material into bin
4. Replace trays with replacement tray filled with clean bedding (if replacing only trays)
5. Hose trays against the wall over the drain area within the wash room, stacking against the wall to dry
6. Used cage bases are transferred to the wash room if they require cleaning
   - Soak in a deep sink to loosen debris (Cleaning will remove all debris. Chemical or mechanical methods may be required)
   - Hose and stack on trolley to dry
7. Once trays are dry chip-up ready for next cage change
8. Hose the dirty rack and leave to dry ready for next cleaning cycle if doing a complete rack replacement
9. Vacuum floors with the hepa filter vacuum cleaner
10. Mop the floors using disinfectant diluted with hot potable water

11. Clean down benches and trolleys
12. Record activity in facility records

5.7 Environment

5.7.1 UQBR provides a daily automatic light cycle for rabbits.

5.7.2 Use of a radio for white noise should not be used at high volumes. The value of this practice is not yet confirmed.

5.7.3 The recommended air temperature range for rabbits is 15-24°C (VIC DPI 2004). UQBR keep rabbit rooms at 18-24°C.

5.7.4 Recommended relative humidity is 40-60% (VIC DPI 2004)

5.7.5 Recommended lighting should be sufficient to complete observations e.g. < 350 Lux (VIC DPI 2004).

5.8 Animal Restraint

5.8.1 Rabbits may be fearful of capture and handling. They should be handled quietly and regularly to reduce fear.

5.8.2 To alleviate capture stress use a darkened retreat area from which to capture rabbits

5.8.3 Rabbits are fragile and have a weak skeletal system and strong musculature. Care should be taken when holding or restraining. Rabbits are at a higher risk of breaking their backs during handling or restraint due to this.

a. Place one hand under torso
b. Place second hand under the hind quarters to provide support
c. Pull the rabbit close to your body for support

When releasing a rabbit into a pen or cage ensure the rabbit is facing the wall of the enclosure to prevent running from the technician and kicking out.

5.9 Sexing

5.9.1 Restrain the rabbit appropriately

5.9.2 Determine sex by:

- Shape of genital opening ('I' female and 'O' male).
- If gentle pressure is applied the penis may protrude in males
- Presence of testicles in males when old enough
- Shorter anogenital distance in Females compares to Males
- If you are unsure of the sex when observing a single animal, then compare the anogenital distance between 2 or more animals until you can see the difference.

5.10 Animal Checks

5.10.1 Daily animal health and wellbing checks are undertaken. Feed hoppers are checked and cleared of debris. (Replace feed hoppers with clean spares as required)

- Topping fresh food,
- Empty and refill water bottles. (Automatic watering systems require testing to ensure the system is working correctly
- Room temperature and humidity logs are completed
- Complete room log/observation logs

5.11 Euthanasia

The method of euthanasia is AEC project dependent and is generally completed by the UQBR Veterinarian or under the supervision of a Veterinarian. Lethal injection by Pentobarbitone is most common.

5.12 Assess Animal Health

Refer to UQBR SOP Veterinary Care protocol

5.13 Identify Pregnancy

5.13.1 Visually assess the doe for pregnancy by assessing the flanks for bulging or roundness.

5.13.2 When the female is not visibly pregnant the abdomen may be palpated by gently feeling the abdomen for small 'lumps', at the researchers request.

5.13.3 Animal weight can be an indication of pregnancy. This method requires tracking from the time of mating.

5.14 Assess Oestrus

The female does not have an oestrus cycle as they require stimulation from mating to ovulate.

5.15 Perform Necropsy

Refer to UQBR Guideline 4 Post Mortem Checklist

5.16 Weaning

Rabbits are generally weaned at 5-8 weeks of age. Seek guidance from supervisor and project specifications.

5.17 Provide care for sick or recovering animals

Refer to UQBR SOP 22 Veterinary Care Protocol

5.18. UQBR Pest Permit

UQBR Holds a Pest Permit, this includes approval to hold rabbits within selected Facilities. The pest log for each individual facility should be updated to include the Micro-chip #, Sex, and relevant details as soon as possible.

Department of Agriculture and Fisheries

Biosecurity Act 2014

Scientific Research (restricted matter)

Permit No. PRID000296

Under Section 208 of the Biosecurity Act 2014, permission is granted to the Permit Holder to deal with the Restricted Matter for the Purpose and subject to the Conditions (if any) set out below:

Permit holder: University of Queensland Biological Resources

Term:

This permit has effect from Monday, 10 April 2017 and expires (unless earlier renewed, cancelled or suspended) on Friday, 10 April 2020

Location(s):

Climate Building #1017 Long Pocket Campus, St. Lucia Queensland 4072

Purpose: For the purpose of conducting scientific research generally:
To Introduce, feed and keep the restricted matter; and

UQBR has an Approved Pest Permit

6.0 Zoonotic Potential

6.1 Zoonotic diseases can spread through close contact with infected animals or contact with contaminated bedding and equipment.

6.2 Good personal hygiene, wearing protective clothing and maintaining healthy animals minimises the risk of animal-borne diseases infecting people (DAFF, QLD).

6.6 Tetanus vaccinations are required to be current when working with all animals.

7.0 Considerations

Nil

8.0 Safety

1. All accidents, injury or near misses are to be reported immediately to the Facility Manager and recorded on a UQ OHS Incident Report Form.
2. In the event of a spill follow the facility emergency spill procedures
3. Ensure you have read the risk assessment and SDS for the disinfectant you are using

9.0 References

1. Animal Care and Protection Act 2001 (Qld): https://www.legislation.qld.gov.au/LEGISLTN/CURRENT/A/AnimalCaPrA01.pdf
2. Australian code for the care and use of animals for scientific purposes (8th Edition, NHMRC 2013): https://www.nhmrc.gov.au/guidelines/publications/ea28
3. Code of Practice for the Housing and Care of Laboratory Mice, Rats, Guinea Pigs and Rabbits (DPI, Vic 2004): http://www.depi.vic.gov.au/agriculture-and-food/animal-health-and-welfare/animal-welfare/animal-welfare-legislation/victorian-codes-of-practice-for-animal-welfare/code-of-practice-for-the-housing-and-care-of-laboratory-mice,-rats,-guinea-pigs-and-rabbits
4. Department of Agriculture and Fisheries (DAF): https://www.daf.qld.gov.au/
5. Guidelines to promote the wellbeing of animals used for scientific purposes (NHMRC, 2008): https://www.nhmrc.gov.au/_files_nhmrc/publications/attachments/ea18.pdf
6. NSW DPI Guidelines for the Housing of Rabbits in Scientific Institutions Guideline 18 August 2003: http://www.animalethics.org.au/__data/assets/pdf_file/0013/222511/housing-rabbits-scientific-institutions.pdf
7. OGTR PC2 work requirements and regulations: http://www.ogtr.gov.au
8. QLD WH&S Act 2011: https://www.worksafe.qld.gov.au/laws-and-compliance/workplace-health-and-safety-laws/laws-and-legislation/work-health-and-safety-act-2011
9. UQ Animal Ethics Unit SOPs: http://www.uq.edu.au/research/integrity-compliance/animal-forms-sops
10. UQ OHS Unit: http://www.uq.edu.au/ohs/
11. UQ OHS Incident Report Form: http://www.uq.edu.au/ohs/index.html?page=141331
12. UQBR SOPs: V:UQBR/SOPs/Common/UQBR SOPs and http://biological-resources.uq.edu.au/secure/uqbr-sops
13. Zoonoses, Queensland Government Department of Agriculture, Fisheries and Forestry: http://www.daff.qld.gov.au/animal-industries/animal-health-and-diseases/zoonoses