



Australian Government

Assessment Requirements for ACMATE505 Carry out advanced breeding procedures

Release: 2

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Modification History

Release	Comments
Release 2	This version released with ACM Animal Care and Management Training Package Version 3.0.
Release 1	This version released with ACM Animal Care and Management Training Package Version 1.0.

Performance Evidence

An individual demonstrating competency must satisfy all of the elements and performance criteria in this unit.

There must be evidence that the individual has:

- planned, prepared and carried out advanced breeding procedures on at least two occasions
- reviewed, revised, maintained and updated records according to regulatory and project documentation requirements.

Knowledge Evidence

An individual must be able to demonstrate the knowledge required to perform the tasks outlined in the elements and performance criteria of this unit. This includes knowledge of:

- key principles of genetics:
 - Mendelian genetics, including punnet squares
 - differences between inbred/outbred; backcross/intercross; knock-in, knock-out; transgenic
 - genetic drift
 - maintenance of integrity of genetic lines
 - common pedigrees
 - differences between background strains
 - basics of Cre-lox recombination
- mediated genome editing – mosaicism in Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR)
- hemizygote, sex (x) linked breeding
- principles and practices of advanced breeding procedures, including:

- anatomical and physiological structures and functions related to reproductive health and wellbeing of commonly held animals
- artificial insemination procedures relevant to different scenarios, including cryopreservation and in vitro fertilisation (IVF) techniques
- types of genetic modifications
- functions and requirements of a breeding colony
- oestrus cycles of a range of species, including representative poly-oestrus, mono-oestrus and induced ovulation species
- range of mating systems, behaviour and methods appropriate to the species
- reproductive cycles
- emergency techniques for birthing difficulties, including caesareans
- post-weaning management
- terminology and nomenclature related to animal reproductive anatomy and physiology, and genetics
- animal welfare and ethics related to breeding, covering:
 - 3Rs – replacement, reduction and refinement
- organisational policies and operating procedures, including:
 - emergency procedures for birthing difficulties
 - safe animal handling techniques during mating and in breeding programs
 - record keeping requirements, including types of information that need to be kept on birthing and fostering processes
 - workplace hygiene methods, disinfection, sterilisation and aseptic techniques
- key requirements of the Australian Code for the Care and Use of Animals for Scientific Purposes relating to breeding
- relevant state or territory legislation and regulations relating to the practice of veterinary science, workplace health and safety and animal welfare and research, including:
 - Office of the Gene Technology Regulator
 - National Health and Medical Research Council (NHMRC)
 - Department of Agriculture.

Assessment Conditions

Assessment of skills must take place under the following conditions:

- physical conditions:
 - an animal technology laboratory or an environment which accurately represents workplace conditions.
- resources, equipment and materials:
 - breeding animals
 - animal breeding records.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volumes, including Implementation Guides, are available at VETNet: -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b75f4b23-54c9-4cc9-a5db-d3502d154103>