Modification history

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

| ACMATE505 | Carry out advanced breeding procedures |
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| Application | This unit of competency describes the skills and knowledge required to establish breeding programs for multiple generation production lines, select and prepare animals for breeding, and implement breeding and post-mating procedures.  The unit applies to individuals who work as animal technicians in research and teaching facilities that are required to breed animals for scientific purposes. Work is performed according to the institution's breeding program and standard operating procedures and requires a sound, effective working knowledge of genetics.  No occupational licensing, legislative or certification requirements apply to this unit at the time of publication.  NOTE: The terms 'occupational health and safety' (OHS) and 'work health and safety' (WHS) generally have the same meaning in the workplace. In jurisdictions where the national model WHS legislation has not been implemented, RTOs must contextualise the unit of competency by referring to current OHS legislative requirements. |
| Prerequisite Unit | Nil |
| Unit Sector | Animal Technology (ATE) |

| Elements | Performance Criteria |
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| Elements describe the essential outcomes. | Performance criteria describe the performance needed to demonstrate achievement of the element. |
| 1. Establish breeding programs for production lines | 1.1 Comply with institutional policies, procedures and protocols set by the Animal Ethics Committee (AEC) and relevant legislation, including WHS, at all times  1.2 Relate genetic diversity principles to breeding program requirements  1.3 Design and establish breeding programs for multiple generation production lines  1.4 Confirm design and develop data collection record systems  1.5 Review and modify institutional standard operating procedures for breeding programs |
| 2. Select animals and prepare for breeding | 2.1 Identify and confirm breeding program for specific production line requirements and production schedules  2.2 Select and monitor animals for mating to determine the current stage of their reproductive cycle  2.3 Monitor females for stages of oestrus cycle and identify those that are ready for mating  2.4 Place animals selected for mating in an appropriate environment |
| 3. Implement breeding procedures | 3.1 Select and apply appropriate mating systems and methods according to the breeding program  3.2 Monitor animals during and after the mating period to determine whether mating has been successful |
| 4. Perform post-mating procedures | 4.1 Monitor animals for signs of parturition and eggs for signs of hatching  4.2 Plan fostering arrangements or caesarean re-derivations  4.3 Assess quality of offspring according to the required quality parameters of the breeding program  4.4 Identify, sex and wean offspring according to the breeding program  4.5 Carry out post-weaning management according to the breeding program  4.6 Maintain breeding records according to the breeding program and institutional policies and procedures  4.7 Review and modify breeding program outcomes for future production runs |
| 5. Name and record animals | 5.1 Identify types of animals  5.2 Establish the correct genetic names of animals by gathering information and seeking guidance from the relevant nomenclature committee and scientists  5.3 Register strain names if appropriate |

| Foundation Skills  This section describes those language, literacy, numeracy and employment skills that are essential for performance in this unit of competency but are not explicit in the performance criteria. | |
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| Skill | Description |
| Reading | * Analyse documentation to review breeding program outcomes * Analyse information to assist in the identification of animals |
| Learning | * Plan and organise complex tasks, identifying possible risks and accessing assistance where required |

| Unit Mapping Information | | | |
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| Code and title current version | Code and title previous version | Comments | Equivalence status |
| ACMATE505 Carry out advanced breeding procedures | ACMATE505A Carry out advanced breeding procedures | Updated to meet Standards for Training Packages | Equivalent unit |

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| Links | Companion Volumes, including Implementation Guides, are available at VETNet: <https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=b75f4b23-54c9-4cc9-a5db-d3502d154103> |

| TITLE | Assessment requirements for ACMATE505 Carry out advanced breeding procedures |
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| 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 carried out advanced breeding procedures on at least two occasions, including having:   * established breeding programs for multiple generation production lines according to institutional policies and procedures, including AEC and legislative requirements * selected animals for breeding and applied appropriate breeding systems and mating methods and performed appropriate post-mating procedures according to the breeding program and institutional standard operating procedures * identified and recorded animal type and genetic and strain names * reviewed, revised, maintained and updated records according to regulatory and project documentation requirements. | |

| Knowledge Evidence |
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| 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:   * principles and practices of advanced breeding procedures * anatomical and physiological structures and functions related to animal reproductive health and wellbeing of commonly held animals * anatomical and physiological terminology, and glossary of terms and nomenclature related to animal reproduction * differences between knock-in, knock-out, transgenic and genetic drift lines * artificial insemination procedures, including cryopreservation techniques * common diseases, ailments, injuries and other impacts on animal health and wellbeing and characteristics of healthy, sick or distressed animals * common pedigrees * effective knowledge of genetics, including principles, common terminology and nomenclature * functions and requirements of a breeding colony * knock-out and transgenic technology * organisational policies and safe operating procedures, including WHS and emergency procedures * oestrus cycles of a range of species, including representative polyoestrus, mono-oestrus and induced ovulation species * animal welfare and ethics * post-weaning management * range of mating systems, behaviour and methods appropriate to the species * recordkeeping requirements, including types of information that need to be kept on birthing and fostering processes * reproductive cycles * safe animal handling techniques, including approved handling methods during mating and breeding programs * workplace hygiene standards, disinfectants, cleaning agents, cleaning techniques and cleaning equipment and materials * relevant codes of practice, such as the Australian Code of Practice for the Care and Use of Animals for Scientific Purposes * relevant state or territory legislation and regulations relating to the practice of veterinary science, workplace health and safety and animal welfare and research, including the Office of the Gene Technology Regulator and the National Health and Medical Research Council (NHMRC). |

| Assessment Conditions |
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| Assessment of skills must take place under the following conditions:   * physical conditions: * an animal technology laboratory * resources, equipment and materials: * a range of breeding animals.   Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards. |

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