



Australian Government

Department of Education, Employment and Workplace Relations

ACMGAS304A Carry out simple breeding procedures

Revision Number: 1

ACMGAS304A Carry out simple breeding procedures

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit of competency covers the process of planning mating and breeding, parturition or hatching and weaning of animals under supervision. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.
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Application of the Unit

Application of the unit	This unit is applicable to animal keepers and carers who are expected to perform tasks under supervision. In addition to legal and ethical responsibilities, all units of competency in the ACM10 Animal Care and Management Training Package have the requirement for animals to be handled gently and calmly. The individual is required to exhibit appropriate care for animals so that stress and discomfort is minimised.
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Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.
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Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Select animals for breeding	1.1. Basic principles of genetics are identified and related to breeding program requirements. 1.2. Breeding program requirements are identified and clarified with supervisor. 1.3. Animals for mating are selected in accordance with the requirements of the breeding program, animal welfare regulations and ethical practice principles and approved by the supervisor. 1.4. Examination and tests are scheduled, as required, to confirm suitability of selected animals for breeding program. 1.5. Individual animals are monitored to determine the current stage of their reproductive cycle.
2. Implement breeding procedures	2.1. OHS risks associated with working with animals and breeding programs are identified and options for managing the risk are evaluated and preparations are made in case of emergency. 2.2. Animals selected for mating are placed in an appropriate environment. 2.3. Appropriate breeding systems are applied in accordance with the breeding program. 2.4. Appropriate mating methods are applied in accordance with the breeding program and supervisor's instructions. 2.5. Animals are monitored during and after the mating period to determine successful mating.
3. Monitor post-mating progress	3.1. Changes in behaviour and condition are observed and documented, where appropriate, in breeding females to determine possible pregnancy. 3.2. Examinations and tests are scheduled, if appropriate, to determine pregnancy. 3.3. Hatching or parturition dates are estimated and documented.
4. Prepare for and assist with birth or hatching	4.1. Suitable media are provided to assist with the birth or hatching. 4.2. Signs of hatching or parturition are identified and potential problems reported to supervisor. 4.3. Appropriate monitoring is provided to ensure the safe birth or hatching of young animals. 4.4. Offspring are identified, sexed, measured and results

ELEMENT	PERFORMANCE CRITERIA
	documented. 4.5. Mother and offspring are monitored to ensure appropriate bonding, feeding and activity behaviours are observed and problems are reported to supervisor.
5. Wean animals	5.1. Offspring diets are modified in preparation for weaning. 5.2. Vaccinations, other medications and permanent identification protocols are scheduled as required. 5.3. Weaning process is selected and implemented in accordance with workplace protocols. 5.4. Post-weaning management is carried out in accordance with the breeding program and the supervisor's instructions. 5.5. Breeding records are updated. 5.6. Breeding outcomes are assessed and updates are recommended to supervisor for inclusion in the workplace breeding plan.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- care for neonates and juveniles
- employ safe, humane and environmentally responsible organisational systems and procedures when working with and handling animals and feed
- evaluate behaviour, signs and objective measures that may indicate animal health is at risk
- maintain the highest standards of hygiene and infection control at all times to reduce the risk of infection and cross-infection
- prepare facilities and appropriate environments for breeding animals, embryo development, hatching or parturition and nursing animals
- recognise courtship, copulation, combat and signs of behavioural and physical changes associated with reproduction
- literacy skills to read and follow organisational policies and procedures, including occupational health and safety (OHS); breeding programs; infection control and waste management procedures; and record details and information accurately and legibly
- oral communication skills/language to fulfill the job role as specified by the organisation, including questioning, active listening, asking for clarification and seeking advice from supervisor
- interpersonal skills to work with others and relate to people from a range of cultural, social and religious backgrounds and with a range of physical and mental abilities
- numeracy skills to estimate, calculate and record routine workplace measures
- problem-solving skills to use available resources and prioritise daily tasks
- use personal protective clothing and equipment correctly
- use safe manual handling techniques and/or equipment
- use safe waste handling and disposal procedures.

Required knowledge

- anatomical and physiological structures and functions related to animal reproductive health and wellbeing of commonly held animals
- anatomical and physiological terminology, glossary of terms and nomenclature related to animal reproduction
- basic principles of genetics
- best breeding systems, methods and traits to produce the best possible production rates, health and wellbeing of animals related to species concerned
- commonly used genetic terms and concepts, including phenotype, genotype, cell differentiation and genetic integrity
- functions and requirements of a breeding colony where relevant

REQUIRED SKILLS AND KNOWLEDGE

- housing requirements for mother and young of relevant species
- mating behaviour of commonly held animals
- natural breeding behaviours and biology, including seasonal and non-seasonality of reproduction
- nutrition and health requirements of commonly held animals at different stages of their life and reproductive cycle
- normal and abnormal animal behaviour
- organisation policies and procedures, including OHS and emergency procedures and breeding plan
- principles of animal welfare and ethics
- purpose of different aspects of breeding data and records
- methods used to measure, interpret and record animals weight and other objective measures of animal health
- relevant OHS and animal welfare legislative requirements and codes of practice
- reproductive terminology
- safe work practices
- signs of animal well being, illness, injury or other health compromise issues
- weaning procedures
- workplace hygiene standards, disinfectants, cleaning agents, cleaning techniques and cleaning equipment and materials.

Evidence Guide

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment

Critical aspects for assessment and evidence required to demonstrate competency in this unit

The evidence required to demonstrate competence in this unit must be relevant to workplace operations and satisfy all of the requirements of the performance criteria, required skills and knowledge and the range statement of this unit. Assessors should ensure that candidates can:

- follow requirements of breeding program to produce the required species and strains
- monitor and observe animals and report on breeding cycle
- communicate effectively with supervisor and follow instructions
- carry out breeding, hatching or parturition and weaning procedures in accordance with organisations policies and procedures
- carry out post-weaning management
- maintain accurate breeding program and animal health-related records.

The skills and knowledge required to carry out simple breeding procedures must be transferable to a range of work environments and contexts and include the ability to deal with unplanned events.

Context of and specific resources for assessment

Assessment of this unit is to be practical in nature and will be most appropriately assessed in an animal care industry sector workplace in which candidates are working or in a situation that reproduces normal work conditions. This can include work with native, exotic or domestic animals in large or small animal care or research facilities and/or situations.

There must be access to a range of animals relevant to the work role as well as the required information, equipment and/or resources to enable one to demonstrate competence.

EVIDENCE GUIDE	
Method of assessment	To ensure consistency in one's performance, competency should be demonstrated, to industry defined standards, on more than one occasion over a period of time in order to cover a variety of circumstances, cases and responsibilities and where possible, over a number of assessment activities. The assessment strategy must include practical skills assessment. Suggested strategies for this unit are: • written and/or oral assessment of candidate's required knowledge • observed, documented and first-hand testimonial evidence of candidate's application of practical tasks • simulation exercises that reproduce normal work conditions • case studies • third-party evidence • workplace documentation • portfolio. This unit may be assessed in a holistic way with other units of competency relevant to the industry sector, workplace and job role.
Guidance information for assessment	Assessment methods should reflect workplace demands (e.g. literacy and numeracy demands) and the needs of particular target groups (e.g. people with disabilities, Aboriginal and Torres Strait Islander people, women, people with a language background other than English, youth and people from low socioeconomic backgrounds).

Range Statement

RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Basic principles of genetics may include:

- chromosomes
- genes
- inheritance
- punnet squares
- commonly used genetic terms and concepts including:
 - cell differentiation
 - genetic integrity
 - genotype
 - phenotype.

Breeding program may include:

- information about:
 - number of breeders required
 - selection criteria for breeders and retiring breeders
 - breeding system to be used:
 - backcross
 - inbred
 - outbred
 - genotype
 - mating system to be used
 - fostering requirements
 - identification system to be used
 - record systems to be used:
 - books
 - cards
 - computer
- data to be collected about:
 - parent information
 - generation development (e.g. litter numbers, numbers born and sex ratios)
 - sex and weaning rates.

RANGE STATEMENT	
<i>Animals</i> may include:	• animals commonly encountered within the industry workplace: • birds • dogs, cats and horses • fish, amphibians and reptiles • invertebrates • small animals (e.g. rabbits, rodents, ferrets and guinea pigs) • food-producing animals (e.g. cattle, pigs and sheep) • wildlife or exotic mammals • in an animal technology environment on most occasions the animal species will be common laboratory animals: • guinea pigs • mice • rabbits • rats.
<i>Animal welfare</i> and <i>ethical practice principles</i> include:	• adhering to local, state or territory and federal animal welfare legislation requirements • adhering to the responsible care and use of animals by providing for its needs in a reasonable way: • adequate food and water • appropriate accommodation or living conditions • handling animals humanely • the display of normal behavioural patterns • treatment of disease and injury • providing standards for animal care and use that: • achieve a reasonable balance between the welfare of animals and the interests of people whose livelihood is dependent on animals • allow for the effect of advancements in scientific knowledge about animal biology and changes in community expectations about practices involving animals • protect animals from unjustifiable, unnecessary, or unreasonable pain (i.e.

RANGE STATEMENT	
	cruelty).
Animals may be monitored to determine current reproductive cycle status through:	• ongoing observation to identify specific indicators: • evidence of mating • forms of animal communication: • specific breeding calls • olfactory signals • identification of oestrus • sexual behaviour: • aggression between males • copulation • courtship rituals • nesting • preening • their visual appearance • relevant signs in the male and female reproductive cycle: • changes in dietary habits • fattening up • metamorphosis in amphibians • oestrus • parturition • puberty.
OHS risks when working with animals may include:	• animal bites, envenomation, kicks, scratches and crush injuries • biological hazardous waste and sharps disposal • handling of chemicals and medicines • gas leakage • inhalation of aerosol particles • introduction or separation of animals during breeding program • intraocular contamination • manual handling including carrying, lifting and shifting • needle pricks and cuts from other sharps • release of infective agents (animal and human) • slippery or uneven work surfaces • zoonoses.
Appropriate environment for	• the species involved and the specific

RANGE STATEMENT	
mating may consider:	requirements of the breeding program: • consideration of appropriate housing for mother • day or night cycle • humidity and temperature • photoperiod • providing suitable media for fertilisation • reduced noise or light • screening and/or privacy • seasonal effects • separation of animal from other animals • simulated natural habitat • special dietary requirements.
Breeding systems and mating methods may include:	• breeding systems: • cross breeding • inbreeding and controlled outbreeding • mating methods: • paired mating • stud mating • the harem system.
Suitable media to assist with birth or hatching may include:	• materials or substrates for: • nesting • egg laying and/or incubation.
Signs of hatching or parturition may include:	• evidence of labour or preparation for birth: • breaking through the shell • change in appearance of egg colour • laboured breathing • milk let down • nest making • pushing • territorial behaviour • vaginal discharge.
Monitoring may include:	• implementation of a 24-hour watch • checking egg viability.
Post-weaning management may include:	• supplement feeding • identification of future breeding animals

RANGE STATEMENT	
	• health checks • immunisation requirements • recording observations.
Breeding records may include:	• date of birth • numbers born, stillborn, missing or found dead • sexes born • numbers weaned • growth weight • strain and genotype information.

Unit Sector(s)

Unit sector	General animal studies
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Competency field

Competency field	
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Co-requisite units

Co-requisite units		