Modification history

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| Release | Comments |
| Release 2 | This version released with AHC Agriculture, Horticulture and Conservation and Land Management Training Package Version 3.0. |
| Release 1 | This version released with AHC Agriculture, Horticulture and Conservation and Land Management Training Package Version 1.0. |

| AHCBEK402 | Perform queen bee artificial insemination |
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| Application | This unit of competency describes the skills and knowledge required to determine suitable method for artificial breeding objectives and develop a program to collect semen from drone honey bees and artificially inseminate a queen bee.  The unit applies to advanced beekeepers who analyse information and exercise judgement to complete specialised bee breeding activities They work autonomously and have accountability for the work of others. They research, analyse, design and communicate solutions to a range of complex problems.  State and Territory legislation, regulations and Local Government by-laws apply in some jurisdictions to beehive ownership and compliance with biosecurity codes of practice.  No other occupational licensing or certification requirements are known to apply to this unit at the time of publication. |
| Prerequisite Unit | Nil |
| Unit Sector | Beekeeping (BEK) |

| 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. Determine breeding method | 1.1 Review options for artificial breeding to determine the most suitable and affordable method in line with breeding objectives  1.2 Select an artificial breeding option according to workplace breeding program and queen and drone management program  1.3 Identify, source and arrange resource requirements for breeding program  1.4 Prepare program schedules based on available resources  1.5 Identify work health and safety hazards and hygiene practices, assess risks and implement control measures  1.6 Select, ensure serviceability and use personal protective equipment during insemination process |
| 2. Implement breeding method | 2.1 Obtain genetic material ensuring its health, reliability and legitimacy according to required bee characteristics and breeding objectives  2.2 Receive, check and store genetic material to ensure maximum viability and program outcomes  2.3 Manage rearing times to ensure age and condition of breeding bees occurs according to schedule  2.4 Collect semen from drones according to workplace hygiene and collection procedures  2.5 Prepare queen and inseminate ensuring minimal risk of contamination according to workplace protocols  2.6 Place queen in a colony of suitable strength and monitor colony development and health according to workplace procedures |
| 3. Monitor and maintain program | 3.1 Review adjustments in genetic material transfer practices to inform future breeding programs  3.2 Document results of breeding genetic material transfer programs  3.3 Calculate and use success rates from breeding objectives to determine success of artificial insemination program  3.4 Identify and record modifications to queen and drone management program to assist continuous improvement processes |

| 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 | * Critically analyses documentation and records and consolidate information to determine requirements for a bee breeding program |
| Writing | * Documents outcomes and changes to breeding programs using industry relevant terminology |
| Numeracy | * Performs mathematical calculations to analyse queen and hive performance following breeding program |
| Navigate the world of work | * Takes full responsibility for following policies, procedures and legislative requirements for safety and hygiene |
| Get the work done | * Accepts responsibility for planning and sequencing bee breeding tasks and workload |

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| Unit Mapping Information | | | |
| Code and title current version | Code and title previous version | Comments | Equivalence status |
| AHCBEK402 Perform queen bee artificial insemination | AHCBEK402 Perform queen bee artificial insemination | Updated to meet Standards for Training Packages  Minor changes to Performance Criteria for clarity | 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=c6399549-9c62-4a5e-bf1a-524b2322cf72 |

| TITLE | Assessment requirements for AHCBEK402 Perform queen be artificial insemination |
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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 demonstrated artificial insemination on at least one occasion including:   * reviewed options and developed artificial breeding objectives * selected and scheduled an artificial breeding option for breeding program * obtained resources and determined artificial insemination activities * identified hazards and risks and implemented control measures * selected and used appropriate personal protective equipment * obtained and ensured genetic material complied with breeding characteristics and objectives * received, checked and stored genetic materials to ensure maximum viability * ensured queen and drone maturity and breeding cycles aligned * prepared queen and drone honey bees for artificial insemination * used appropriate techniques to extract semen from drones and inseminate queens * complied with required hygiene practices * introduced inseminated queen bees to new hive and monitored progress and success * still need clarity on 3.1 and 3.2 * maintained records in relation to an artificial insemination program. | |

| 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 artificial insemination of queen honey bees * anatomy and physiology of reproductive organs and reproductive process in queen and drone honey bees * genetics and inheritance for bee characteristics required in genetic material including: * honey bee health * abnormalities * productivity * habit * artificial breeding methods and the benefits and limitations * identification systems for queen and drone honey bees and semen * physical resource requirements for artificial insemination practices * safe handling and transportation of bees and genetic material * artificial insemination policies and recording and reporting requirements * preparation requirements for artificial insemination * semen collection and preparation processes. |

| Assessment Conditions |
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| Assessment of skills must take place under the following conditions:   * physical conditions: * a suitable laboratory or an environment that accurately represents workplace conditions * resources, equipment and materials: * live queen bees and donor drones * tools and equipment for collecting sperm and inseminating queens * personal protective equipment for hygiene and safety * specifications: * workplace procedures for laboratory operations * workplace specifications for breeding requirements   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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