Modification history

| 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 |
| --- | --- |
| Application | This unit of competency describes the skills and knowledge required to determine 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 a range of specialised activities and demonstrate thorough understanding of bee breeding. They have accountability for the work of others and analyse, design and communicate solutions to a range of complex problems.  No occupational licensing, legislative 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 |
| --- | --- |
| 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 Confirm and ensure serviceability of personal protective equipment for personnel involved in program |
| 2. Implement breeding method | 2.1 Obtain genetic material ensuring its reliability and legitimacy  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 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. | |
| Skills | 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 |

| Unit mapping information | | | |
| --- | --- | --- | --- |
| Code and title current version | Code and title previous version | Comments | Equivalence status |
| AHCBEK402 Perform queen bee artificial insemination | AHCBEK402A Perform queen bee artificial insemination | Updated to meet Standards for Training Packages  Minor changes to Performance Criteria for clarity | Equivalent unit |

|  |  |
| --- | --- |
| Links | Companion Volumes, including Implementation Guides, are available at VETNet: https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=c6399549-9c62-4a5e-bf1a-524b2322cf72 |

| Assessment requirements | |
| --- | --- |
| AHCBEK402 | Perform queen be artificial insemination |
| 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 with at least 2 different strains of bee including:   * reviewed options and developed artificial breeding objectives * selected and scheduled a breeding program * obtained resources and determined artificial insemination activities * ensured queen and drone cycles matched * 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 * maintained records in relation to an artificial insemination program. | |

| 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:   * 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 of bee characteristics including honey bee health and abnormalities * artificial breeding methods and the benefits and limitations of methods used * identification systems for queen and drone honey bees and semen * physical resource requirements and how to safely handle and transport bees * artificial insemination policies and recording and reporting requirements * preparation requirements for artificial insemination * semen collection and homogenising processes. |

| Assessment conditions |
| --- |
| Assessment of skills must take place under the following conditions:   * physical conditions: * skills must be demonstrated in a suitable laboratory or an environment that accurately represents workplace conditions * resources, equipment and materials: * live queen bees and donor drones * use of specific tools and equipment for collecting sperm and inseminating queens * use of specific items of personal protective equipment for hygiene and safety * specifications: * use of specific workplace documents such as procedures and processes * use of 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. |

|  |  |
| --- | --- |
| Links | Companion Volumes, including Implementation Guides, are available at VETNet: https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=c6399549-9c62-4a5e-bf1a-524b2322cf72 |