

Modification history

Release	Comments
Release 1	This version released with SFI Seafood Industry Training Package Version 1.0.

SFIAQU512	Develop and implement an aquaculture genetic breeding program
Application	<p>This unit of competency describes the skills and knowledge required to develop and implement a genetic breeding program, including determining breeding objectives and broodstock or progeny selection criteria, and managing and evaluating the program.</p> <p>This unit applies to individuals who have technical and management responsibilities for the breeding program and hatchery operations in an aquaculture facility.</p> <p>No occupational licensing, legislative or certification requirements apply to this unit at the time of publication.</p>
Prerequisite Unit	Nil
Unit Sector	Aquaculture (AQU)

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Determine breeding objectives	1.1 Determine breeding program requirements taking into account the capacity of the facility, relevant characteristics of cultured or held stock, the role of the hatchery in the sector and marketing and production plans 1.2 Interpret and use breeding and production records as the base line for a breeding program 1.3 Establish the economic feasibility of breeding objectives by assessing workplace and industry financial information 1.4 Determine selection aims or goals according to workplace or customer requirements and knowledge of genetic basis of traits
2. Determine and apply selection criteria	2.1 Determine visual, objective and quantitative methods of good stock selection 2.2 Establish criteria for female and male selection 2.3 Cull broodstock that fail to meet selection criteria 2.4 Identify broodstock and genetic material, send samples for analysis by external laboratory, receive results and assess genetic and disease implications
3. Manage the breeding program	3.1 Plan and manage breeding facilities to meet veterinary guidelines, broodstock requirements and genetic program structure 3.2 Implement broodstock maturation or spawning treatments, where applicable 3.3 Determine fertilisation and progeny rearing strategy according to breeding objectives 3.4 Select stock for sale according to the breeding program and environmental protection permit requirements 3.5 Select replacement broodstock according to the breeding program

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
4. Evaluate the breeding program	4.1 Gather and analyse data from stock selection and sales to determine the success of the breeding program against its objectives 4.2 Review breeding objectives and update if required due to changed circumstance or additional information 4.3 Research mechanisation or automation of process or activity, including the use of specialised contract services and recommendations made to management 4.4 Document breeding plan and detail all procedures, updating any changes in the breeding objectives 4.5 Direct personnel on the implementation of the breeding plan

Foundation Skills	
<i>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.</i>	
Skill	Description
Reading	<ul style="list-style-type: none"> Research and extract genetic breeding information from a range of technical sources Analyse business plans and sales information
Writing	<ul style="list-style-type: none"> Prepare plans and procedures using workplace formats and clear instructional language Maintain operational and financial records
Numeracy	<ul style="list-style-type: none"> Estimate genetic parameters and calculate genetic gain Quantify phenotypes in female and male broodstock Analyse patterns and trends relating to stock, costs and sales figures
Oral communication	<ul style="list-style-type: none"> Participate in verbal exchanges to explain information clearly using language appropriate for the audience
Navigate the world of work	<ul style="list-style-type: none"> Work independently and collectively within broad parameters taking responsibility for plans, decisions and outcomes relating to aquaculture genetic breeding program
Interact with others	<ul style="list-style-type: none"> Liaise collaboratively with others taking a leadership role on occasion Select and use appropriate communication protocols and conventions when sharing information with others
Get the work done	<ul style="list-style-type: none"> Plan, schedule and coordinate multiple activities and resources related to the genetic breeding program, monitoring actions against stated goals, adjusting plans and resources to cope with contingencies Use systematic, analytical processes to identify and solve problems and make decisions on a wide range of factors relating to the genetic breeding program Use workplace digital systems and tools to access, record, analyse and present information and data relevant to genetic breeding program

Unit Mapping Information			
Code and title current version	Code and title previous version	Comments	Equivalence status
SFIAQU512 Develop and implement an aquaculture genetic breeding program		New unit	No equivalent unit

Links	Companion Volumes, including Implementation Guides, are available at VETNet:
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	https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=e31d8c6b-1608-4d77-9f71-9ee749456273
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TITLE	Assessment requirements for SFIAQU512 Develop and implement an aquaculture genetic breeding program
Performance Evidence	
<p>An individual demonstrating competency must satisfy all the elements and performance criteria of this unit. There must be evidence that the individual has developed and implemented at least one genetic breeding program for an aquaculture organisation including:</p> <ul style="list-style-type: none"> • researching requirements for the genetic breeding program • developing breeding strategy and setting breeding objectives • managing genetic breeding program <ul style="list-style-type: none"> • select suitable broodstock and genetic material • plan and manage breeding facilities • implement maturation or spawning treatments • assessing economic and production effectiveness of the program. 	
Knowledge Evidence	
<p>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:</p> <ul style="list-style-type: none"> • breeding methods for culture stock • life cycle biology of culture stock • quantitative and qualitative traits of species or stock • species or stock traits for selection and improvement • types, features and pros and cons of breeding programs • economic or market factors impacting on the genetic breeding program • assessment criteria to determine effectiveness of breeding strategies. 	
Assessment Conditions	
<p>Assessment of this unit of competency must take place under the following conditions:</p> <ul style="list-style-type: none"> • physical conditions: <ul style="list-style-type: none"> • skills must be demonstrated in an aquaculture workplace or an environment that accurately represents workplace conditions • resources, equipment and materials: <ul style="list-style-type: none"> • broodstock for breeding program • holding structures for spawning or breeding activities • monitoring equipment and sampling kits • technology for researching and preparing and presenting information • specifications: <ul style="list-style-type: none"> • workplace business plan and budget. <p>Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.</p>	
Links	Companion Volumes, including Implementation Guides, are available at VETNet: https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=e31d8c6b-1608-4d77-9f71-9ee749456273