

Modification history

Release	Comments
Release 1	This version released with AHC Agriculture, Horticulture and Conservation and Land Management Training Package Version 5.0.

AHCBAC5XX	Design and manage a crop and pasture nutrition program
Application	<p>This unit of competency describes the skills and knowledge required to analyse characteristics, determine nutrient requirements, design a nutrient management plan, and monitor and evaluate a crop and pasture nutrition program.</p> <p>The unit applies to individuals who apply specialised skills and knowledge to the design and management of a crop and pasture nutrition program, and take personal responsibility and exercise autonomy in undertaking complex work. They analyse and synthesise information and analyse, design and communicate solutions to sometimes complex problems.</p> <p>All work must be carried out to comply with workplace procedures, health and safety in the workplace requirements, legislative and regulatory requirements, and sustainability and biosecurity practices.</p> <p>No licensing, legislative or certification requirements apply to this unit at the time of publication.</p>
Prerequisite Unit	Nil
Unit Sector	Broad acre cropping (BAC)

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. Analyse regional and site characteristics	1.1 Review workplace crop and pasture production plan in consultation with land manager to determine production, economic output and environmental goals for assessment and development of nutrition program 1.2 Access and review climate, environmental and site data 1.3 Determine soil, plant and water tests for plant species and climatic conditions according to industry accepted standards and workplace requirements 1.4 Develop soil, plant and water testing program which includes sampling, field testing, off-site analysis, task responsibilities, scheduling and desired information outcomes 1.5 Implement and monitor testing program 1.6 Supervise liaison with outside testing agencies and take remedial action where necessary 1.7 Determine characteristics, condition and nutritional status of soil and plant species under production by analysing and comparing data against industry accepted standards
2. Determine plant production system nutrient requirements	2.1 Identify plant nutrition requirements during growing cycle and conditions according to species from published data, historical records, current site data, experience and workplace guidelines 2.2 Develop a program to achieve appropriate soil conditions and nutrient availability for plant production according to workplace crop and pasture production plan 2.3 Calculate capital and maintenance nutrient applications using nutrient planning tools 2.4 Determine potential seasonal variations requirements 2.5 Document nutrition 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>
3. Design a nutrient management plan	3.1 Identify criteria for determining and selecting fertiliser and soil amendment products 3.2 Calculate application rates according to soil, plant and water test results, plant requirements, growth stage, manufacturer specifications and workplace crop and pasture production plan 3.3 Select application methods and timings to ensure effective and efficient product formulation and minimise loss 3.4 Identify and cost resources, tools, equipment and machinery cost requirements for program and confirm availability of suppliers, contractors and appropriate personnel 3.5 Calculate cost effective unit cost, total costs and estimated returns of soil management and amendment, and provision of plant nutrients 3.6 Identify and assess workplace health and safety, and environmental hazards and risks, and environmental and biosecurity impacts of nutrition program 3.7 Develop and document workplace health and safety, and environmental and biosecurity controls to minimise risks, impacts and poor nutrient management practices according to workplace environmental and biosecurity procedures 3.8 Identify and apply applicable legislation and regulations compliance requirements 3.9 Document workplace nutrient management plan
4. Monitor and evaluate nutrition program	4.1 Monitor and evaluate nutrition testing program implementation and results, and produce according to industry accepted standards and workplace requirements 4.2 Review and refine nutrition program in response to changing conditions 4.3 Identify non-compliance with documented nutrient management plan and determine remedial actions 4.4 Document remedial action to improve plant nutrition and report to relevant personnel 4.5 Record nutrient program results and incorporate changes to nutrient management plan and nutrition program for future season application

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"> Identify and interpret information regarding requirements for crop and pasture nutrition program and nutrient management plan
Writing	<ul style="list-style-type: none"> Develop a nutrition program and nutrient management plan
Oral communication	<ul style="list-style-type: none"> Initiate discussions with suppliers, contractors and appropriate personnel using clear language to confirm their availability Use clear communications with relevant personnel to discuss and report plant nutrition remedial action
Numeracy	<ul style="list-style-type: none"> Calculate fertiliser and soil amendment application rates Calculate resources, tools, equipment and machinery cost Calculate soil management and amendment, and plant nutrient unit and total cost, and estimated returns

Unit Mapping Information			
Code and title current version	Code and title previous version	Comments	Equivalence status
AHCBAC5XX Design and manage a crop and pasture nutrition program	(VU21627 Design and manage a crop and pasture nutrition program)	New unit	No 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
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TITLE	Assessment requirements for AHCBAC5XX Design and manage a crop and pasture nutrition program
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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 designed and managed a crop and pasture nutrition program on at least one occasion and has:

- reviewed and analysed workplace crop and pasture production plan, findings on plant structure, biology and nutritional requirements, nutrients available from fertilisers, soils and soil amendments
- calculated fertiliser and soil amendment application rates
- identified nutrition program resources, tools, equipment and machinery requirements and calculated cost and estimated returns
- applied relevant workplace health and safety, and environmental and biosecurity legislation, regulations and workplace procedures
- developed and documented relevant workplace health and safety, and environmental and biosecurity controls to minimise risks, impacts and poor nutrient management practices
- identified and complied with legislation and regulation requirements applicable to designing and managing a crop and pasture nutrition program
- documented a nutrition program and nutrition management plan, including remedial actions.

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:

- workplace crop and pasture production plan
- characteristics of soil and uses of soil amendments and additives to enhance available nutrition for specific crops
- plant nutritional requirements of selected crop species
- characteristics of plants at various growth stages, including nutritional requirements and demands
- identification of local pastures, crops and weeds at various growth stages
- common and compound fertiliser products, and soil ameliorants available to workplaces, including analysis, solubility, salt index, application rates, method, timing and costs
- plant structure and physiology including basic biochemical pathways
- methods of nutrient uptake by plants and favourable conditions for effective uptake to occur
- nutrients and water required by plants grown within workplace and effects of nutrient deficiency and toxicity on individual plant species and varieties, including visual symptoms
- organic matter, pests and disease, and nutrient interactions in soil and nutrient cycle
- processes and techniques for preparing, costing and documenting a plant nutrition program
- nutrient interactions in soil including the nutrient cycle, the influence of organic matter, pests and disease, and availability and mobility of nutrients, including macro and micro elements, to plants
- site evaluation techniques, including methods of sampling and analysing soils and other growth media
- soil amendments commonly required to treat soil problems experienced by workplace
- workplace health and safety, and environmental and biosecurity legislation, regulations and workplace procedures relevant to designing and managing a crop and pasture nutrition program
- legislation and regulation requirements relevant to designing and managing a crop and pasture nutrition program.

Assessment Conditions

Assessment of skills must take place under the following conditions:

- physical conditions:
 - a workplace setting or an environment that accurately represents workplace conditions
- resources, equipment and materials:
 - climate, environmental and current site data
 - species published data and historical records
 - soil, plant and water samples and testing equipment
 - plant identification keys and booklets
 - test results
 - soil amendment product specifications and performance data

Assessment Conditions	
<ul style="list-style-type: none">• fertiliser labels, product cards and material safety data sheets (MSDS)• specifications:<ul style="list-style-type: none">• workplace crop and pasture production plan• workplace health and safety, and environmental and biosecurity legislation, regulations and workplace procedures relevant to designing and managing a crop and pasture nutrition program• legislation and regulation requirements relevant to designing and managing a crop and pasture nutrition program• relationships:<ul style="list-style-type: none">• staff, managers, suppliers, contractors, consultants, appropriate personnel and customers• timeframes:<ul style="list-style-type: none">• according to the job requirements. <p>Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.</p>	
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