Australian Government

AHCHYD501A Develop a plan for a hydroponic system

Release 2

INDUSTRY SKILLS COUNCILS
Creating Australia's Future

AHCHYD501A Develop a plan for a hydroponic system

Modification History

Release	TP Version	Comment
2	AHC10v8	Corrected typographical error in required skills and knowledge
1	AHC10	Initial release

Unit Descriptor

Unit descriptor	This unit covers the process of designing a hydroponic system and describes the standard required to: research the growing requirements, risks and returns of the proposed crop; survey the site for suitability and environmental impacts, and gain approvals; select or design s system and customise it for the site and purpose; develop a design plan including costings, specifications and on-site procedures and schedules.

Application of the Unit

Application of the unit	This unit applies to those who design systems for hydroponic production of horticultural crops.

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Not Applicable

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
1. Carry out preliminary research	1.1. Type of crop to be grown is researched based on sound marketing principles 1.2. The growing requirements of the crop are researched based on sound horticultural practices 1.3. The associated risks of growing a particular crop are established based on sound horticultural practices 1.4. Estimated yield and crop turnover time is calculated from historical data and research statistics 1.5. Quantity of the plants to be grown is determined based on a cost benefit analysis
2. Assess the suitability of a site	2.1. The physical characteristics of the site are assessed 2.2. The proximity of the site to markets is ascertained and assessed 2.3. Legal requirements in relation to the site and the development of a hydroponic farm are identified 2.4. The environmental implications of developing a hydroponic farm on the site are identified and considered
3. Select the required system	3.1. Main types of hydroponic systems are researched 3.2. Analysis is carried out on each type of system for the chosen crops 3.3. A cost/benefit analysis is carried out on each system for each type of crop required 3.4. The type of hydroponic system to be installed is determined
4. Design the hydroponic system	4.1. The water collection and storage system is selected and documented on the plan 4.2. The irrigation system and components are selected according to the required volume of water and flow rate 4.3. The fertigation system is selected and documented 4.4. The dimensions of the controlled environment structure are determined following full consideration of the relevant factors 4.5. Environmental control system is determined and specifications documented on the plan
5. Prepare and document the design	5.1. A design plan drawn to scale is developed, which can be readily interpreted and understood 5.2. Specifications and detailed costings are determined with the help of experts, if required

ELEMENT	PERFORMANCE CRITERIA
	5.3. Detailed on-site procedures and schedules required for production are developed and documented 5.4. Documentation is presented to the client or management for final approval

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills
• develop a plan for a hydroponic system • organise information derived from the research process in a written report • draw a scaled design by hand and/or on computer • use a range of financial analysis tools to determine viability of the system • use literacy skills to fulfil job roles as required by the organisation - the level of skill may range from reading and understanding documentation to completion of written reports • use oral communication skills/language competence to fulfil the job role as specified by the organisation including questioning, active listening, asking for clarification, negotiating solutions and responding to a range of views • use numeracy skills to estimate, calculate and record complex workplace measures • use 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
Required knowledge
• advantages and disadvantages of the different equipment used in hydroponic systems • technical requirements and operating parameters of recirculated and non-recirculated systems • media choices, their properties and enterprise specifications • legislation and regulations relating to the establishment of a hydroponic system • an awareness of the environmental implications of the disposal of chemicals or chemical containers, and the drainage of high nutrient effluent

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 competency in this unit must be relevant to workplace operations and satisfy holistically all of the requirements of the performance criteria and required skills and knowledge and include achievement of the following: • research the growing requirements, risks and returns of the proposed crop • survey the site for suitability and environmental impacts, and gain approvals • select or design a system and customise it for the site and purpose • develop a design plan including costings, specifications and on-site procedures and schedules.
Context of and specific resources for assessment	Competency requires the application of work practices under work conditions. Selection and use of resources for some worksites may differ due to the regional or enterprise circumstances.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole.	

Hydroponic systems may include:	• recirculating such as:
	  • gravity fed
	  • non-recirculating systems.

Unit Sector(s)

Unit sector	Hydroponics

Co-requisite units

Co-requisite units		

Competency field

Competency field	