

Competency Standards for Caribbean Vocational Qualifications (CVQ)

CCAGH20206 Level II Crop Production

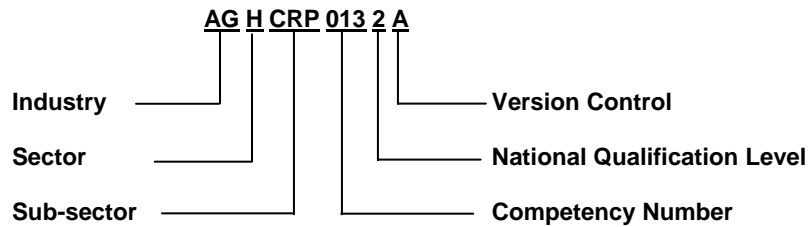
Unit Number	Unit Title	Mandatory/ Elective	Hours
AGGCOR0001A	Meet industry requirements	Mandatory	10
AGGCOR0011B	Maintain the work environment	Mandatory	10
AGGCOR0021A	Observe workplace health and safety requirement	Mandatory	10
AGGCOR0031A	Plan and organise work	Mandatory	10
AGGCOR0041A	Use hazardous substances safely	Mandatory	10
AGGCOR0051A	Follow emergency procedures	Mandatory	10
AGGCOR0061A	Implement pest control programme	Mandatory	25
AGGCOR0091A	Operate farm machinery and equipment	Mandatory	25
AGGCOR0081A	Apply first aid	Mandatory	10
ITICOR0011A	Carry out data entry and retrieval procedures	Mandatory	40
AGGCOR0101A	Carry out measurement and calculations	Mandatory	20
AGHCRP0001A	Prepare land for planting	Mandatory	20
AGHCRP0011A	Provide propagation support	Mandatory	15
AGHCRP0021A	Prepare and establish planting materials	Mandatory	15
AGHCRP0031B	Plant a crop by hand (manual)	Mandatory	10
AGHCRP0041A	Maintain a planted area	Mandatory	20
AGHCRP0051A	Maintain nursery plants	Mandatory	20
AGGCOR0012A	Use and maintain agricultural chemicals	Mandatory	45
AGGCOR0022A	Observe environmental workplace practices	Mandatory	30
AGGCOR0032A	Communicate in the workplace	Mandatory	30
AGHCRP0002A	Perform propagation activities	Mandatory	50
AGHFAM0022A	Install irrigation systems	Mandatory	30
AGHFAM0042A	Install drainage systems	Mandatory	30
AGHCRP0192A	Treat pest	Mandatory	50
AGHCRP0082B	Support crop harvesting	Mandatory	50
AGHCRP0092A	Perform post harvest operations	Mandatory	50
AGHCRP0182A	Establish and maintain vegetable crops	Mandatory	40
AGHCRP0102A	Establish and maintain root and tuber crops	Mandatory	40
AGHCRP0112A	Establish and maintain pulse and grain	Mandatory	40
AGHCRP0142A	Establish and maintain condiments	Mandatory	40
AGETOM0042A	Operate farm tractor with implements	Mandatory	50
AGHCRP0162A	Manage weeds	Mandatory	30
AGMMCH0002A	Sell products and services	Elective	10
AGMMCH0012A	Operate point of sale systems	Elective	15
AGHCRP0132A	Install and maintain hydroponic systems	Elective	50
AGHCRP0172A	Implement a propagation plan	Elective	30
AGHCRP0013A	Identify and manage soil types	Elective	30
AGHCRP0023A	Develop crop nutrition programme	Elective	40
AGHCRP0033A	Implement an integrated pest management programme	Elective	35
BSBSBM0012A	Craft personal entrepreneurial strategy	Elective	50

To achieve this qualification all Mandatory competency standards and a minimum of any two (2) Level 2 and any two (2) Level 3 electives must be achieved.

Nominal Training Hours (Institutional Delivery) include total hours of Mandatory competencies and electives selected.

Legend to Unit Code

Example: AGHCRP0132A



KEY: AGG – General Agriculture COR – Mandatory; BSB – Business Services (Business)
SMB – Small Business Management; CRP – Crop Production; MCH – Merchandizing
ITI – Information Technology (Industry); AGM - Agriculture Merchandizing;
AG – Agriculture (Industry); FAM – Farm Maintenance; AGE – Agriculture Equipment;
TOM – Tractor Operations & Maintenance;

AGGCOR0001A: Meet industry requirements

Competency Descriptor:

This unit deals with the skills and knowledge required to meet the basic requirements for employment in Agriculture.

Competency Field: Agriculture

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Agree with employment condition	1.1	Employment documentation is checked for compliance with agreed terms and conditions.
		1.2	Employment conditions are checked to ensure currency is maintained.
2.	Meet workplace employment requirements	2.1	Industry developments are promoted in workplace context to improve quality, productivity and conditions.
		2.2	Work practices comply with codes of practice and workplace expectations.
		2.3	Faults and abnormalities in the workplace are recognised and reported to the appropriate person.
		2.4	Dress and personal requirements comply with workplace standards and Occupational Health & Safety (OHS).
		2.5	Agreed outcomes are met through completion of workplace routines and specific instructions.
3.	Observe and record in the workplace	3.1	Issues and events occurring in the workplace on a daily basis and which may require attention are identified.
		3.2	Information is recorded accurately and in the required format.
		3.3	Communication technology relevant to the enterprise is used under supervision.

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| 4. Interact with others in the workplaces | 4.1 | Issues or events requiring action or attention are reported to supervisor with the level of detail laid down in workplace instructions. |
| | 4.2 | Queries are stated clearly, courteously and concisely. |
| | 4.3 | Telephone messages are taken accurately, information recorded appropriately and calls redirected to other staff efficiently. |
| | 4.4 | Work instructions are clarified where necessary and concerns are raised promptly with the supervisor. |
| | 4.5 | A positive attitude is maintained in interacting with others. |
| 5. Work in a team | 5.1 | Allocated tasks are identified and completed within defined time-lines. |
| | 5.2 | Assistance is actively sought by approaching other team members when difficulties arise. |
| | 5.3 | Feedback provided by others in the working groups is acknowledged. |
| | 5.4 | Appropriate lines of communication with supervisors and peers are demonstrated according to enterprise policy. |
| | 5.5 | Support and tolerance are offered and provided to colleagues. |
| | 5.6 | Participation in team problem solving activities is demonstrated. |
| 6. Meet, greet and direct clients and customers | 6.1 | Client is greeted in line with enterprise policy. |
| | 6.2 | Questioning and active listening is used to elicit client needs. |
| | 6.3 | Clients with special needs are referred or redirected as required. |
| | 6.4 | A positive attitude is maintained in interacting with clients and customers. |

- 6.5 Telephone is answered promptly, calls re-directed to appropriate person or messages recorded according to enterprise policy.

RANGE STATEMENT

This unit of competency should be demonstrated in accordance with the enterprise's terms and conditions which may include :

- relevant awards
- employment contracts
- workplace requirements orally or in writing
- work ethics
- personal grooming and hygiene policy policies and procedures
- enterprise position description (delegated responsibilities)
- organisational structure of enterprise

Industry developments may include:

- implications of technology changes on employment
- industry environment
- changes in market conditions

• Actions may include:

- reporting
- rectifying faults
- prevention of damage, such as reporting of machinery problems before they become major
- fixing minor problems such as water leaks, damage to fences

Legislation, codes and national standards relevant to the workplace may include:

- Labour laws of Jamaica
- Pesticide control authority regulations (PCA)
- National Environmental Protection Agency (NEPA)
- Occupational Health & Safety (OHS)
- Hygiene requirements
- First Aid regulations/requirements

Work practices may include:

- care of equipment
- handling of products
- materials and crops
- farm operations
- maintaining time books, diaries and other records

Communication technology may include:

- Faxes
- Answering machines
- Telephone networks, cellular phone, intercom system, two-way radio
- electronic mail (e-mail)
- simple/basic interaction with computers
- Customers include those with special needs

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to apply knowledge and skills of industry requirements in an agricultural related enterprise.

(1) Critical Aspects of Evidence

Evidence should include a demonstrated ability to:

- consistently follow supervisor's instructions and apply industry requirements in an agricultural setting in the appropriate context and to the level acceptable by the enterprise
- report and record within established routines using methods and procedures that are predictable

(2) Pre-requisite Relationship of Units

- AGGCOR0031A Plan and organize work

(3) Underpinning Knowledge and Skills

Knowledge

Knowledge of:

- trade and professional ethics
- industry awards and conditions
- employer's expectations
- sources of information for industry
- labour laws of Jamaica
- basic contract law
- enterprise's established policies and procedures
- impact of technology on industry
- obligation of employers to employees
- obligation of employees to employer
- enterprise policy in relation to greeting and assisting clients and customers
- location of enterprise layout and resources
- communication technology and systems used by the enterprise
- questioning and listening techniques
- effective interpersonal skills
- verbal and non-verbal communication skills
- communication strategies and techniques
- system-related problems and human-related problems
- calculate wages including statutory deductions

Skills

The ability to:

- understand and comply with employment conditions
- apply trade and professional ethics
- meet workplace employment requirements
- use appropriate communication strategies and techniques
- identify faults and abnormalities in the workplace
- reports faults and abnormalities in the workplace
- complete assigned tasks
- observe and record in the workplace
- interact with others in the workplace
- work in a team
- meet, greet and direct clients and customers
- maintain personal presentation
- apply basic contract law

(4) Resource Implications

The following resources should be made available:

- Job description and/or employment contract
- Enterprises policies and procedures

(4) Method of Assessment

Evidence may be gained in a variety of ways including:

- observation
- oral questioning/written test
- supporting statement from supervisor/manager manager

(5) Context of Assessment

This unit must be assessed through practical demonstration on-the-job or in a simulated workplace agricultural environment.

The underpinning knowledge may be assessed off-the-job with the use of written or verbal items

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
<ul style="list-style-type: none"> • Carries out established processes • Makes judgement of quality using given criteria 	<ul style="list-style-type: none"> • Manages process • Selects the criteria for the evaluation process 	<ul style="list-style-type: none"> • Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collecting, analysing and organising ideas and information	Level 1	
Communicating ideas and information	Level 1	
Planning and organising activities	Level 1	
Working with others and in teams	Level 1	
Use mathematical ideas & techniques	Level 1	
Solve problems	Level 1	
Using technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

AGGCOR0011B: Maintain the work environment

Competency Descriptor:

This unit deals with the skills and knowledge required to keep the workplace place including workshops, tool sheds and planted areas tidy and safely maintained.

Competency Field: Agriculture

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Maintain a clean and efficient workplace	1.1	Appropriate tools are selected and used safely.
		1.2	Waste and used materials are removed and placed in disposal containers specified by the enterprise.
		1.3	Floors, benches and other flat work surfaces are swept, washed and treated according to enterprise guidelines.
		1.4	Work areas are tidied and material stored neatly and according to enterprise guidelines.
2.	Adopt safe working practices	2.1	Work habits (including personal hygiene) reflect knowledge and understanding of Occupational Health & Safety (OHS) responsibilities.
		2.2	Protective clothing is worn and safety equipment is used according to enterprise safety plan/policy.
		2.3	The work environment is kept tidy and free of hazards according to enterprise safety plan/policy.
		2.4	Dangers and hazards within the workplace are recognised and reported to the appropriate person
		2.5	Manual handling techniques when lifting or moving heavy loads conform to Occupational Health & Safety (OHS) guidelines.
3.	Use hand tools, machinery and equipment	3.1	Tools, machinery and equipment are used to manufacturers or enterprise specifications.
		3.2	Manufacturers and enterprise safety requirements are followed.
		3.3	Unsafe or faulty tools, machinery and equipment are identified and segregated for repair or replacement.

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| 4 | Maintain structures and surroundings | 3.4 | Tools, machinery and equipment are cleaned and stored according to company policy. |
| | | 4.1 | Structures are repaired to enterprise standards and according to supervisor's directions. |
| | | 4.2 | Surroundings are maintained according to enterprise requirements. |
| | | 4.3 | Structural damage and deterioration are reported to enterprise requirements. |

RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency, allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables may be present for this particular unit.

This unit of competency should be demonstrated in accordance with the enterprise's :

- policies and procedures in regard to the maintenance of sites
- designated operating hours

Legislation, codes and national standards relevant to the workplace may include:

- Labour laws of Jamaica
- Pesticide control authority regulations
- Occupational Health & Safety (OHS)
- Hygiene requirements
- First Aid regulations/requirements

Tools and equipment may include:

- hand tools
- machinery and equipment in workshops or on-site inclusive of hand motor mowers, brush cutters, vacuum cleaners and blowers, high pressure air, water cleaners, pruning equipment and hoses

Structures may include:

- buildings, roads, tracks, soil conservation works, trellises, shelters, shade cloth, bird netting, hail netting, glass houses, yards, fences, drying racks and irrigation systems

Dangers may include:

- fire, electricity, natural objects (trees and landforms etc), water, plant, machinery, vehicles, chemicals

Planted areas may include:

- display beds, treed areas, shrubberies

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to apply knowledge and skills to a limited range of maintenance tasks and roles.

(1) Critical Aspects of Evidence

- consistently follow supervisor's instructions
- perform maintenance tasks to the enterprise standard
- report and record within established routines
- apply OHS procedures

(2) Pre-requisite Relationship of Units

- Nil

(3) Underpinning Knowledge and Skills

Knowledge

Knowledge of:

- OHS rules and regulations for the workplace
- machinery assessment practices for safe use
- maintenance tasks for a worksite
- enterprise policy relevant to the job

Skills

The ability to:

- maintain a clean and efficient workplace
- use hand tools, machinery and equipment
- maintain structures and surroundings

(4) Resource Implications

- on the job agriculture work place environment

(5) Method of Assessment

This unit of competency may be assessed in conjunction with other units.

To achieve consistency of performance, evidence should be collected over a set period of time, which is sufficient to include dealings with an appropriate range of maintenance tasks.

(6) Context of Assessment

This unit must be assessed through practical demonstration on-the-job or in a simulated workplace environment.

The underpinning knowledge may be assessed off-the-job with the use of written or verbal items inclusive of short answer, extended essay items project or portfolio.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
<ul style="list-style-type: none"> Carries out established processes Makes judgement of quality using given criteria 	<ul style="list-style-type: none"> Manages process Selects the criteria for the evaluation process 	<ul style="list-style-type: none"> Establishes principles and procedures Evaluates and reshapes process Establishes criteria for evaluation

Collecting, analysing and organising ideas and information	Level 1	
Communicating ideas and information	Level 1	
Planning and organising activities	Level 1	
Working with others and in teams	Level 1	
Use mathematical ideas & techniques	Level 1	
Solve problems	Level 1	
Using technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

AGGCOR0021A: Observe workplace health and safety requirement

Competency Descriptor:

This unit deals with the skills and knowledge required by workers to meet workplace occupational health and safety requirements.

Competency Field: Agriculture

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Maintain a clean and efficient workplace	1.1	Basic safety checks are undertaken before operation of all machinery and vehicles and hazards are reported to the appropriate supervisor
		1.2	Work for which protective clothing or equipment is required is identified and the appropriate protective clothing or equipment is used in performing these duties in accordance with workplace policy.
		1.3	Prior to performing manual handling jobs, risk is assessed and work is carried out according to currently recommended safe practice.
		1.4	Risks to bystanders are recognized and action is taken to reduce risk associated with jobs in the workplace
		1.5	All procedures and work instructions for controlling risk are followed closely.
2.	Render appropriate emergency procedures	2.1	Individuals maintain the necessary knowledge of and ability to follow procedures for dealing with accidents, fires and emergencies, including communicating location and directions to emergency.
		2.2	Emergency procedures are followed to company standards and workplace requirements.
		2.3	Emergency equipment is used in accordance with manufacturers' specifications and workplace requirements.
3.	Participate in arrangements for maintaining health and safety of all people in the workplace	3.1	Appropriate authorities are notified according to company policy.
		3.2	Contributions are made to the on going monitoring and reporting of all aspects of (OHS).

RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency, allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables may be present for this particular unit.

This unit of competency should be demonstrated:

- in accordance with the enterprise's policies and procedures for maintaining health and safety at the workplace

Legislation, codes and national standards relevant to the workplace may include:

- Labour laws of Jamaica
- Pesticide control authority regulations
- Occupational Health & Safety (OHS)
- Hygiene requirements
- First Aid regulations/requirements

Hazardous manual handling tasks include:

- moving
- lifting
- carrying bags, drums, cartons
- shovelling
- loading materials
- pulling
- pushing
- up-ending materials
- chipping weeds
- picking fruit or vegetables

This unit of competency should be demonstrated in accordance with the enterprise's :

Hazards in the workplace include:

- plant and machinery operation and maintenance
- vehicles including motorcycles
- noise
- chemicals
- manual handling
- dust
- solar radiation
- natural hazards in trees (thorns and spines)
- electricity
- waterways

Protective clothing or equipment is required for:

- noise associated with plant and machinery
- pesticides
- dust
- work in the sun

Risk to bystanders include:

- run-over and injury associated with vehicles and machinery
- exposure to noise

Workplace procedures will include:

- hazard policies and procedures
- emergency policies and procedures
- procedures for use of personal protective clothing and equipment
- hazard identification and issue resolution procedures
- job procedures and work instructions

Workers may include:

- permanently employed workers
- casual workers
- seasonal workers
- people visiting the workplace.
- contract workers

OHS emergencies in the workplace may include:

- electrocution
- fire
- flood
- chemical spills
- serious injury associated with tractors
- machines
- vehicles

Other individuals may include:

- people visiting the workplace

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to apply of knowledge and skills to a limited range maintenance tasks and roles.

(1) Critical Aspects of Evidence

- Evidence should include a demonstrated ability to consistently follow supervisor's instructions and use methods and procedures that are predictable to perform a limited range of maintenance roles in the appropriate context and to the level acceptable by the enterprise.
- The work is likely to be under direct supervision with regular checking. Reporting and recording is undertaken within established routines using methods and procedures that are predictable. There is a specified range of duties and contexts where the choice of actions required will be made quite clear by the supervisor.

(2) Pre-requisite Relationship of Units

- Nil

(3) Underpinning Knowledge and SkillsKnowledge

Knowledge of:

- significant hazards in the workplace
- local emergency services
- personal hygiene and fitness requirements

Skills

The ability to:

- follow workplace procedure for hazard identification and risk control
- act in an emergency
- maintain health and fitness
- render first aid

(4) Resource Implications

The following resources should be made available:

(4) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision and when the student/ apprentice is able to successfully perform all the required Performance Criteria relevant to the Unit in a workplace or simulated farm environment, within commercially acceptable timeframes.

Competencies in this unit may be demonstrated concurrently.

(6) Context of Assessment

This unit must be assessed through practical demonstration on-the-job or in a simulated workplace environment requiring until competency is achieved. /*

The underpinning knowledge may be assessed off-the-job with the use of written or verbal items inclusive of short answer, extended essay items project or portfolio.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
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Communicating ideas and information	Level 1	
Planning and organising activities	Level 1	
Working with others and in teams	Level 1	
Use mathematical ideas & techniques	Level 1	
Solve problems	Level 1	
Using technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

AGGCOR0031A: Plan and organise work

Competency Descriptor:

This unit deals with the skills and knowledge required to keep the workplace place including workshops, tool sheds and planted areas tidy and safely maintained. This unit describes the daily planning that is required of workers in regard to work duties. It includes the organisation of tools and equipment and the recording of information about the job at hand.

Competency Field: Agriculture

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Communicate verbally within the workplace	1.1	Interpretation is consistent with the schedule and tasks defined.
		1.2	A number of work activities are integrated.
		1.3	Priorities are established consistent with workplace requirements.
2.	Plan and manage time	2.1	Arrival at the workplace at the allocated time in punctual.
		2.2	Workplace activities, allocated tasks and workplace priorities are discussed with the supervisor.
		2.3	A daily schedule for completing activities and allocated tasks is drawn up including priorities, allocated start times, estimation of completion times and materials, equipment and assistance required for completion.
		2.4	Work time and personal time are allocated to appropriate work and study situations.
3.	Respond to problems as they arise	3.1	Priorities are established consistent with workplace requirements.
		3.2	Response maintains a quality outcome, minimizes impact on work schedules and reflects accurate knowledge of products and processes used in the workplace.

RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency, allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables may be present for this particular unit.

Work activities may include:

- daily routines, periodic routines, ad hoc activities.

Problems which may arise include:

- colleague absence
- personal illness
- emergency situations
- natural disasters

Legislation, codes and national standards relevant to the workplace may include:

- Labour laws of Jamaica.
- Pesticide control authority regulations.
- Occupational Health & Safety (OHS).
- Hygiene requirements.
- First Aid regulations/requirements.

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to plan and organize assigned tasks.

(1) Critical Aspects of Evidence

- evidence should include a demonstrated ability to consistently follow supervisor's instructions
- plan and organise assigned tasks to the level acceptable by the enterprise
- report and record within established routines using methods and procedures that are predictable

(2) Pre-requisite Relationship of Units

- AGGCOR0001A Meet industry requirement
- AGGCOR0021A Observe workplace health and safety requirement
- AGGCOR0051A Follow in emergency

(3) Underpinning Knowledge and SkillsKnowledge

Knowledge of:

- products and processes used in the workplace
- time management skills
- enterprise's policy for using and storing tools
- verbal and non-verbal communication skills
- how to complete forms
- basic report writing
- problem solving skills
- estimate duration of time to perform assigned tasks

Skills

The ability to:

- interpret work schedules
- organize materials and equipment
- respond to problems as they arise
- prepare work plan
- follow instructions

(4) Resource Implications

- written or verbal instructions
- work activity within worker's span of responsibility
- relevant tools and equipments

(4) Method of Assessment

This unit of competency may be assessed in conjunction with other units.

To achieve consistency of performance, evidence should be collected over a set period of time, which is sufficient to include dealings with an appropriate range and under a variety of situations.

(6) Context of Assessment

This unit must be assessed through practical demonstration on-the-job or in a simulated farm/nursery/agriculture-merchandising environment.

The underpinning knowledge may be assessed off-the-job with the use of written or verbal items inclusive of short answer, extended essay items project or portfolio.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
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Use mathematical ideas & techniques	Level 1	
Solve problems	Level 1	
Using technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

AGGCOR0041A: Use hazardous substances safely

Competency Descriptor:

This unit deals with the skills and knowledge required to handle hazardous substances in the workplace.

Competency Field: Agriculture

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Handle hazardous substances	1.1	Specific hazardous substance is identified from the label and applicable manufacturer's safety data sheet.
		1.2	Selected hazardous substance is handled in safe containers or packages under instruction from the supervisor or manager.
2.	Store hazardous substances	2.1	Storage for hazardous substances is checked for compliance with industry standards in line with instructions.
		2.2	Regular participation in the conduct of safety audits maximises the individual's awareness of safety issues
		2.3	Required hazardous substances are estimated and industry standard storage conditions established according to instructions.
3.	Transport hazardous substances	3.1	Transport mode and procedures are established in consultation with the manager or supervisor as instructed.
		3.2	Hazardous substances are loaded or decanted into secure containers or packaging in line with work programs.
		3.3	Load is secured or sealed to ensure safety and eliminate spillage according to enterprise policy.
		3.4	Transport of hazardous substances is completed in line with established procedures and movements recorded according to enterprise policy.
4.	Use hazardous substances	4.1	Personal protective equipment suited to the task is selected and fitted or worn.
		4.2	Selected hazardous substance is removed from storage and utilised in accordance with the label instructions and workplace requirements.

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| | 4.3 | Containers and unused hazardous substances are disposed of in accordance with established workplace procedures. |
| 5. Act in emergency situations with hazardous substances | 5.1 | Emergency incidence is notified to appropriate authorities in the workplace. |
| | 5.2 | Clear identification of the nature of the emergency is established in consultation with the workplace supervisor. |
| | 5.3 | Direction is sought from the supervisor or workplace notices to establish the role of the individual in the emergency. |

RANGE STATEMENT

This unit of competency should be demonstrated in accordance with the enterprise's:

- policies and procedures in regard to the handling of hazardous substances
- protocols for record keeping
- provision of personal protective equipment
- instructions to personnel
- record of governing legislation
- designated operating hours

Handling and using hazardous substances may include:

- spraying
- use of application equipment
- decanting liquids
- refueling
- transport and cartage
- use of industrial gases

Legislation, codes and national standards relevant to the workplace may include:

- Labour laws of Jamaica.
- Pesticide control authority regulations.
- Occupational Health & Safety (OHS).
- Hygiene requirements.
- First Aid regulations/requirements.

Hazardous substances may includes:

- fuels and oils
- welding and LP gases in the workshop
- fumigants
- pesticides and weedicides
- baits
- coolants and refrigerants
- human medicines and treatments
- alkaline and caustic substances
- acids
- detergents & wetting agents

Suitable or industry standard storage conditions may include:

- security systems
- elevated storage
- fans and ventilation
- drainage systems
- separation of incompatible materials
- caution signs as required and workplace notices

Emergency situations may include:

- spilt fuels or other substances
- use of incorrect substances
- fire
- contact with skin or eyes
- leaking or damaged containers
- explosion
- mixing of incompatible materials
- contamination of water supplies and container disposal problems

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to apply the relevant knowledge and skills when performing tasks involving the use of hazardous substances.

(1) Critical Aspects of Evidence

Evidence should include a demonstrated ability to:

- consistently follow supervisor's instructions
- use methods and procedures that are predictable when handling hazardous substances in the workplace, in the appropriate context and to the level acceptable by the enterprise
- report and record within established routines using methods
- work as a part of a team
- identify hazardous substances from label and applicable manufacturer's data sheets

(2) Pre-requisite Relationship of Units

- AGGCOR0021A Observe workplace health and safety requirement
- AGGCOR0051A Follow emergency procedures

(3) Underpinning Knowledge and SkillsKnowledge

Knowledge of:

- Occupational Health & Safety (OHS) rules and regulations for the workplace
- machinery assessment practices for safe use
- maintenance tasks for a worksite
- enterprise policy relevant to the job
- types of hazardous substances
- caution symbols for hazardous substances
- storage and transportation requirements for various categories of hazardous substances
- procedures for handling hazardous substances
- verbal and non-verbal communication skills
- write incident report
- measure and calculate length, area, volume
- ratio and proportion
- decimals
- basic stock taking

Skills

The ability to:

- maintain a clean and efficient workplace
- use hand tools, machinery and equipment
- maintain structures and surroundings
- read and interpret manufacturer's labels and data sheets
- measure and calculate length, area, volume
- calculate ratios
- apply OHS procedures for handling hazardous substances
- maintain stock data
- write incident report
- apply verbal and non-verbal communication skills

(4) Resource Implications

The following resources should be made available:

- real or simulated workplace environment
- tasks involving the use of hazardous substances
- hazardous

(5) Method of Assessment

This unit of competency may be assessed in conjunction with other units that form part of a job role or function.

In order to achieve consistency of performance, evidence should be collected over a period of time, which is sufficient to include dealings with an appropriate range of hazardous substances.

(6) Context of Assessment

This unit must be assessed through practical demonstration on-the-job or in a simulated workplace environment.

The underpinning knowledge may be assessed off the job with the use of written or verbal items.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
<ul style="list-style-type: none"> Carries out established processes Makes judgement of quality using given criteria 	<ul style="list-style-type: none"> Manages process Selects the criteria for the evaluation process 	<ul style="list-style-type: none"> Establishes principles and procedures Evaluates and reshapes process Establishes criteria for evaluation

Collecting, analysing and organising ideas and information	Level 1	
Communicating ideas and information	Level 1	
Planning and organising activities	Level 1	
Working with others and in teams	Level 1	
Use mathematical ideas & techniques	Level 1	
Solve problems	Level 1	
Using technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

AGGCOR0051A: Follow emergency procedures

Competency Descriptor:

This unit deals with the skills and knowledge required by workers to respond to workplace emergencies such as fire and other dangerous situations and render first aid in the workplace.

Competency Field: Agriculture

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Minimise emergency situations	1.1	Appropriate actions are taken to maximise safety and minimise health hazards in the workshop and on site.
		1.2	Machinery handling and actions minimise risks to all personnel.
		1.3	Regular checks of the environs are carried out to minimise potential hazards.
2.	Plan for emergencies	2.1	Contingency plans are understood and activated for emergencies in compliance with enterprise policies.
		2.2	Regular checks of the environs are carried out to minimise potential hazards.
		2.3	Personal responsibilities are carried out in emergency situations and practice drills.
		2.4	Evaluation procedures are implemented to company standards.
3.	Act as instructed in emergencies	3.1	Contingency plans are activated for emergencies in compliance with safety procedures.
		3.2	Emergency procedures are carried out as required by established workplace policy.
4.	Implement fire prevention and control	4.1	Fire hazards are minimised as specified in workshop and fuelling procedures.
		4.2	Appropriate fire extinguishers and fire fighting plant are used in fire situations and the appropriate authority is notified according to specified procedures.
		4.3	Evacuation procedures are implemented as instructed according to workplace policy.

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| 5. | Render First Aid | 5.1 | First aid appropriate to the incident is correctly applied. |
| | | 5.2 | The patient is monitored whilst awaiting professional or para-medical support. |

RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency, allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables may be present for this particular unit.

Emergency situations may include:

- power failure
- quarantine breakdown
- fire, flood, storms
- heart failure
- breathing stopped and serious personal injury.

Legislation, codes and national standards relevant to the workplace may include:

- Labour laws of Jamaica
- Pesticide control authority regulations
- Occupational Health & Safety (OHS)
- Hygiene requirements
- First Aid regulations/requirements

Emergency equipment may include:

- first aid kits
- fire extinguishers
- emergency power generators
- chemical spillage kits

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to apply knowledge and skills to the emergency situations outlined in the range statement.

(1) Critical Aspects of Evidence

Evidence should include a demonstrated ability to:

- consistently follow supervisor's instructions
- use emergency methods and procedures to respond to workplace emergency to the level acceptable by the enterprise
- activate contingency plans for emergency according to company standards
- report and record within established routines

(2) Pre-requisite Relationship of Units

- AGGCOR0021A Observe workplace health and safety requirement

(3) Underpinning Knowledge and SkillsKnowledge

Knowledge of:

- sources of human injury
- basic concept of duty of care
- specific Acts and Regulations relating to emergency situations
- First Aid procedures for burns, heart attack, fainting, severe bleeding, open wound chemical burn, sprain, strain and electrical shocks
- fire safety measures
- types of fire extinguishers
- incident report

Skills

The ability to:

- minimise emergency situations
- plan for emergencies
- act as instructed in emergencies
- implement fire prevention and control
- render first aid as required
- apply fire safety measures
- write incident report

(4) Resource Implications

- a simulated work environment
- first aid kit
- fire extinguishers

(5) Method of Assessment

In order to achieve consistency of performance, evidence should be collected over a set period of time, which is sufficient to include dealings with an appropriate range of emergency situations

(6) Context of Assessment

This unit must be assessed through practical demonstration on-the-job or in a simulated workplace.

The underpinning knowledge may be assessed off-the-job with the use of written or verbal items.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
<ul style="list-style-type: none"> Carries out established processes Makes judgement of quality using given criteria 	<ul style="list-style-type: none"> Manages process Selects the criteria for the evaluation process 	<ul style="list-style-type: none"> Establishes principles and procedures Evaluates and reshapes process Establishes criteria for evaluation

Collecting, analysing and organising ideas and information	Level 1	
Communicating ideas and information	Level 1	
Planning and organising activities	Level 1	
Working with others and in teams	Level 1	
Use mathematical ideas & techniques	Level 1	
Solve problems	Level 1	
Using technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

AGGCOR0061A: Implement pest control programme

Competency Descriptor:

This unit deals with the skills and knowledge required to implement pest control programmes on farms, gardens, plant nurseries, flower shops and other farm merchandise enterprises.

Competency Field: Agriculture

ELEMENT OF COMPETENCY PERFORMANCE CRITERIA

1. Identify pest infestation	1.1	Evidence of pest infestation is identified.
	1.2	Stage of pest life cycle is determined.
	1.3	Severity and extent of infestation and damage is assessed.
	1.4	Problems requiring immediate attention are recognised and actions taken as required by enterprise policy.
	1.5	Pest infestation and damage is reported to enterprise.
2. Prepare equipment for controlling pests	2.1	Pre-operation checks and services of pest control equipment are completed to industry standards and relevant legislation.
	2.2	Personal protective equipment/clothing is fitted according to industry/enterprise requirements.
	2.3	Safeguards are employed to ensure that targeted pest are controlled and all other species remain unharmed.
3. Undertake pest and disease treatment.	3.1	Tools and equipment are prepared and used according to supervisor's instructions.
	3.2	Treatments are prepared and administered according to supervisor's instructions and manufacturer's guidelines.
	3.3	Work practices employed minimises damage to non-target plants/animals.
	3.4	Enterprise regulations are observed.
4. Dispose of pest and control agents	4.1	Vertebrate pest carcasses and other specified pest are disposed of to industry requirements.

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| | 4.2 | Control agents are removed and disposed of to industry requirements. |
| 5. Keep records | 5.1 | Details on pest or disease infestations are gathered and documented according to enterprise/industry policy. |
| | 5.2 | Treatment regimes are documented and results are recorded according to enterprise policy. |
| | 5.3 | Information is updated and reviewed as appropriate and according to enterprise policy. |
| | 5.4 | Records are maintained according to enterprise guidelines. |

RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency, allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables may be present for this particular unit.

This unit of competency should be demonstrated in accordance with the :

- Pesticide Control Authority regulations

Agents used in the prevention/ control treatment can include:

- insecticides and vermifuges
- vaccines and medicines
- poisons and baits
- biologically active agents
- growth regulators
- mechanical mean including shooting

Legislation, codes and national standards relevant to the workplace may include:

- Environmental Foundation of Jamaica.
- Pesticide Control Authority.
- OHS and hygiene requirements.
- First Aid regulations/requirements.

OHS issues that impact upon the performance of this unit:

- safe manual handling systems and procedures
- safe systems and procedures for outdoor work, including protection from solar radiation
- safe systems and procedures for handling farm chemicals
- selection, use and maintenance of personal protective
- equipment/clothing

Common pests or disease may include:

- fungus
- insects
- weeds
- rodents
- bacteria
- virus
- nematodes

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to identify pest and diseases that affects crops and livestock and to effectively control and manage their population.

(1) Critical Aspects of Evidence

Evidence should include a demonstrated ability:

- to positively identify harmful pest and of plants and animals
- to determine ways to control these pest
- to use methods that are least damaging to environment
- consistently follow supervisor's instructions
- activate contingency plans for emergency relating to control pests according to company standards
- report and record within established routines

(2) Pre-requisite Relationship of Units

This unit should be assessed after the completion of or in conjunction with

- AGGCOR0041A Use hazardous substances safely

(3) Underpinning Knowledge and SkillsKnowledge

Knowledge of:

- pests affecting animals and plants
- disease transmitted by various pests
- activity of agents used
- agent application
- characteristics of common pest
- chemical control measures
- non-chemical and cultural control techniques
- integrating chemical and non-chemical control measures
- mode of action of different groups of chemicals
- life cycle of pests
- stages of infestation
- infestation characteristics of common pests and diseases of the region
- manufacturer's instruction related to the handling of pest control agents
- complete record
- use verbal and non –verbal communication skills
- calculate and measure length, area, volume, time
- apply ratio and proportion, fraction and decimal
- OHS and First aid regulations

Skills

The ability to:

- follow supervisor's instructions
- administer different types of farm chemicals
- use biological controls
- implement control programs based on epidemiology
- report and record of pest control activities
- identify pest and diseases
- apply non-chemical and environmental control measures
- maintain related records
- interpret manufacturer's instruction for handling pest control agents
- perform related calculations
- apply verbal and non verbal communication
- apply OHS and first aid regulations

(4) Resource Implications

The following resources should be made available:

- real or simulate work environment
- application equipment
- agricultural chemicals/biological agents
- plants and animals

(5) Method of Assessment

In order to achieve consistency of performance, evidence should be collected over a set period of time, which is sufficient to include dealing with an appropriate range of pest infestations in a variety of situations.

(6) Context of Assessment

This unit must be assessed through practical demonstration on-the-job dealing with agricultural/veterinary chemicals and biological agents.

The underpinning knowledge may be assessed off-the-job with the use of written or verbal items inclusive of multiple choice, short answer or project.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
<ul style="list-style-type: none"> • Carries out established processes • Makes judgement of quality using given criteria 	<ul style="list-style-type: none"> • Manages process • Selects the criteria for the evaluation process 	<ul style="list-style-type: none"> • Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collecting, analysing and organising ideas and information	Level 1	
Communicating ideas and information	Level 1	
Planning and organising activities	Level 1	
Working with others and in teams	Level 1	
Use mathematical ideas & techniques	Level 1	
Solve problems	Level 1	
Using technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

AGGCOR0091A: Operate farm machinery and equipment

Competency Descriptor:

This unit deals with the skills and knowledge required to operate farm machinery and equipment.

Competency Field: Agriculture - Equipment

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Check equipment before use	1.1	Pre-start checks of engines and motors are completed to enterprise requirements.
		1.2	Faults or malfunctions are corrected and/or reported to enterprise requirements.
2.	Operate equipment safely	2.1	All safe operating practices and legal requirements are observed.
		2.2	All controls are used safely and appropriately.
		2.3	The equipment is used without damage to it, property structures or surfaces.
		2.4	Hazards are recognised and appropriate operating conditions are observed.
		2.5	The equipment is re-fuelled when needed or appropriate.
		2.6	Damage and /or faults to any part of the equipment are reported promptly according to workplace requirements.
3.	Clean and store equipment	3.1	Equipment is cleaned and stored after use to enterprise requirements.
		3.2	Equipment use is recorded to enterprise requirements.

RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency, allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables may be present for this particular unit.

This unit of competency should be demonstrated in accordance with the:

- policies and procedures in regard to the operation of farm equipment

Enterprise specifications may include:

- pre-operation checks
- standards of operation
- policies and routines relating to wear and damage
- safeguards
- reporting routines

Operator factors include:

- risk taking behaviour
- physical/developmental limitations
- clothing

Environmental hazards include:

- Broken ground
- cultivation
- hidden objects
- gullies
- creek beds
- sloping ground

Mechanical hazards associated with equipment include:

- noise
- vibration

Legislation, codes and national standards relevant to the workplace may include:

- OHS and hygiene requirements.
- First Aid regulations/requirements.

Equipment may include:

- chain saws, bush cutter
- stationary engines
- pumps
- irrigation equipment
- solar and wind powered equipment
- chaffing machine
- shredder

- taking passengers
- fatigue

Routine daily safety checks may include an assessment of:

- mechanical hazards
- belts, gauges
- chains and drives
- power take off equipment and guards
- spark arresters and fire safety

Routine daily service requirements may include:

- fluid levels
- belt replacement
- air cleaners
- fuel and lubrication

Weather related conditions:

- wet
- cold
- heat

Operational standards may include:

- pre-operational checks
- standards of operation
- storage and usage of fuels and lubricants
- safeguards
- reporting routines

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to safely and efficiently operate farm equipment and to properly clean and store after use.

(1) Critical Aspects of Evidence

Evidence should include a demonstrated ability to:

- operate equipment safely
- manually handle equipment appropriately
- apply OHS procedures
- consistently follow supervisor's instructions
- activate contingency plans for emergency relating to the use of equipment
- report and record within established routines

(2) Pre-requisite Relationship of Units

- Nil

(3) Underpinning Knowledge and SkillsKnowledge

Knowledge of:

- the main functions of a range of farm equipment
- the safety features and hazards of a range of farm equipment
- the controls and their functions of a range of farm equipment
- the meaning of ratios, metric units and the concept of percentages
- OHS procedures for various equipment
- enterprise procedures for safe use of machinery and equipment
- relevant OHS requirements for storage of equipment
- verb and non verbal communication

Skills

The ability to:

- identify the controls and their functions of a range of farm equipment and machinery
- read, comprehend and discuss information and write simple statements
- add, subtract, multiply and divide whole numbers, decimals and fractions
- demonstrate emergency procedures in the operation of machinery and equipment

(4) Resource Implications

The following resources should be made available:

- basic farm machinery and equipment e.g. lawn mower, chain saw, edge trimmer, water pump
- fuel
- lubricants

(5) Method of Assessment

Competency shall be assessed through direct observation and questions related to underpinning knowledge.

Competencies in this unit may be demonstrated concurrently.

(6) Context of Assessment

This unit must be assessed through practical demonstration on-the-job dealing with a range of farm equipment and machinery.

The underpinning knowledge may be assessed off the job with the use of written or verbal items

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
<ul style="list-style-type: none"> Carries out established processes Makes judgement of quality using given criteria 	<ul style="list-style-type: none"> Manages process Selects the criteria for the evaluation process 	<ul style="list-style-type: none"> Establishes principles and procedures Evaluates and reshapes process Establishes criteria for evaluation

Collecting, analysing and organising ideas and information	Level 1	
Communicating ideas and information	Level 1	
Planning and organising activities	Level 1	
Working with others and in teams	Level 1	
Use mathematical ideas & techniques	Level 1	
Solve problems	Level 1	
Using technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

AGGCOR0081A:**Apply first aid**

Competency Descriptor:

This unit deals with the skills and knowledge required to identify the need for and the application of first aid until the arrival of medically qualified personnel or the evacuation of the patient.

Competency Field: Agriculture

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Identify the need for first aid	1.1	Initial assessment is made of extent and nature of first aid required from personal observation and/or witness reports.
		1.2	Initial assessment is reported to personnel/emergency services in accordance with workplace procedures.
2.	Ensure the safety of patient and carer	2.1	Hygiene is maintained for protection of patient and carer.
		2.2	Hazards to the patient and carer are identified and appropriate action is taken to prevent further injury to either party.
		2.3	Patient is made as comfortable as possible and reassured by word, manner and actions.
3.	Assess patient and apply first aid	3.1	Patient is assessed against the DRABC (danger, response, airway, breathing, ventilation and circulation) model.
		3.2	Vital signs are measured, recorded and any changes noted and reported as appropriate.
		3.3	Treatment appropriate to the patient's injuries is provided in accordance with recognised first aid techniques.
		3.4	First aid equipment is operated/applied in accordance with recognised procedures and standards.
		3.5	Patient's condition is monitored and reported as required by workplace procedures, with treatment being modified as appropriate.
		3.6	Treatment is maintained until qualified medical assistants assume responsibility or until the patient is evacuated.
		3.7	Provide additional assistance as requested by medical/emergency services personnel.

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| | 3.8 | Details of first aid administered are reported in accordance with workplace procedures. |
| 4. Complete work | 4.1 | First aid equipment is recovered (if practical), cleaned, inspected/tested, refurbished, replaced and stored as appropriate. |
| | 4.2 | Medical waste is disposed of in accordance with workplace requirements. |
| | 4.3 | Equipment faults are rectified and reported in accordance with workplace procedures. |
| | 4.4 | Documentation is completed as required by legislative, regulatory and workplace requirements. |

RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency, allowing for differences between school-shops and workplaces. It relates to the unit as a whole and facilitates holistic assessment.

First aid is that assistance given to a patient who has suffered an injury or illness in the workplace. It is that assistance which is deemed necessary to attempt to resuscitate, stabilise and/or treat the patient until qualified medical personnel assume responsibility or until the patient is evacuated for appropriate medical treatment.

Work is carried out in accordance with statutory obligations, relevant health regulations and organisation insurance requirements.

Work may be conducted without supervision and guidance.

The following variables may be present for this particular unit.

First aid may include:

- cardio-pulmonary resuscitation (CPR)
- bleeding control
- spinal injury care
- basic patient management
- stabilising fractures

First aid equipment

May include:

- first aid kit
- personal protective equipment
- stretcher (may be improvised)

The provision of first aid and workplace responsibilities is to conform to:

- OH&S requirements
- material safety management systems
- hazardous substances and dangerous requirements
- safe operating procedures

Relevant information may include:

- OH&S and environmental requirements relating to hazards in the workplace
- obligations under relevant safety and health regulations
- local medical and emergency services
- provisions relating to roles and responsibilities of health and safety representatives and/or occupational health and safety committees

Emergency services may include support provided by:

- ambulance
- police
- fire personnel and equipment

Designated personnel may include:

- supervisors
- managers
- team leaders
- first aid attendants/other medically trained staff
- specified Occupational Health and Safety personnel
- other persons authorised or nominated by the school or industry to perform, approve, inspect and direct specified work

Work involves:

- assessing situations
- identifying appropriate control measures
- awareness of emergency services responsibilities and responsiveness
- treating injuries
- maintaining equipment

Relevant workplace policies and procedures may include:

- risk management policies and procedures
- first aid procedures
- safe manual handling and lifting procedures
- emergency, fire and accident procedures
- materials safety procedures
- personal safety procedures
- procedures for the use of personal protective equipment
- job procedures and work instructions

Personal protective equipment may include:

- safety glasses/goggles
- hair nets
- ear muffs/plugs
- gloves
- footwear
- protective clothing

EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Range Statement.

(1) Critical Aspects of Evidence

Accurately follow workplace procedures for reporting injuries/illnesses and providing first aid in the workplace.

Identify and respond to injuries/illnesses occurring in the workplace.

Apply emergency response first aid.

Provide appropriate treatment to and monitor patient's condition.

Accurately report and document injuries and illnesses and treatment provided.

(2) Pre-requisite Relationship of Units

Pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge

Knowledge of:

- Workplace procedures and requirements for the treatment of workplace injuries/illnesses.
- Reporting responsibilities and requirements.

The provision of first aid including:

- systems of the body (respiratory, skeletal, digestive, circulatory, nervous, urinary, skin)
- causes and management of unconsciousness
- priorities for life support (DRABC model)
- resuscitation techniques
- bleeding control and laceration treatment
- patient assessment
- principles of initial patient management
- management and treatment of fractures and soft tissue injuries
- management and treatment of burns

Skills

The ability to:

- collect, organise and analyse information related to workplace health and safety systems and procedures and the application of these to work situations
- communicate ideas and information on workplace safety issues including the treating and recording/reporting of workplace incidents/accidents/illnesses and interpersonal communication with casualties
- plan and organise activities including the inspection of first aid support facilities and treatment areas to ensure their completeness, adequacy, equipment and serviceability
- work with others and in a team to promote an awareness of first aid within the workplace and its provision when required
- use mathematical ideas and techniques to correctly complete measurements and calculations associated with assessment, treatment and monitoring of patient's condition
- use problem solving skills to assess and determine treatments and priorities in providing first aid to a patient
- use the workplace technology related to the reporting, recording and responding to workplace injuries and illnesses

(4) Resource Implications

- first aid kit, stretchers and medical/first aid facility
- enterprise health and safety policies and procedures
- personal protective equipment
- patients

(5) Method of Assessment

Assessment should be by direct observation of tasks and questioning on underpinning knowledge.

Assessment may be conducted in conjunction with assessment of other relevant units of competency.

(6) Context of Assessment

Assessment may occur on the job or in a workplace simulated facility with relevant equipment, work instructions, casualties and urgency.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
<ul style="list-style-type: none"> Carries out established processes Makes judgement of quality using given criteria 	<ul style="list-style-type: none"> Manages process Selects the criteria for the evaluation process 	<ul style="list-style-type: none"> Establishes principles and procedures Evaluates and reshapes process Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level -	
Solve problems	Level 2	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

ITICOR0011A: Carry out data entry and retrieval procedures

Competency Descriptor:

This unit deals with the skills and knowledge required to operate computer, to enter, manipulate and retrieve data and to access information and communicate via the Internet.

Competency Field:

Information Technology and Communications - Operations

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Initiate computer system	1.1	Equipment and work environment are correctly checked for readiness to perform scheduled tasks.
		1.2	The hardware components of the computer and their functions are correctly identified.
		1.3	Equipment is powered up correctly.
		1.4	Access codes are correctly applied.
		1.5	Appropriate software is selected or loaded from the menu.
2.	Enter data	2.1	Types of data for entry correctly identified and collected.
		2.2	Input devices selected and used are appropriate for the intended operations.
		2.3	Manipulative procedures of Input device conform to established practices.
		2.4	Keyboard/mouse is operated within the designated speed and accuracy requirements.
		2.5	Computer files are correctly located or new files are created, named and saved.
		2.6	Data is accurately entered in the appropriate files using specified procedure and format.
		2.7	Data entered is validated in accordance with specified procedures.

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- 2.8 Anomalous results are corrected or reported in accordance with specified procedures.
 - 2.9 Back-up made in accordance with operating procedures.
 - 3. Retrieve data
 - 3.1 The identity and source of information are established.
 - 3.2 Authority to access data is obtained where required.
 - 3.3 Files and data are correctly located and accessed.
 - 3.4 Integrity and confidentiality of data are maintained.
 - 3.5 The relevant reports or information is retrieved, using approved procedure.
 - 3.6 Formats to retrieved report or information conform to requirements.
 - 3.7 Copy of the data is printed where required.
 - 4. Amend data
 - 4.1 Source of data/information for amendment is established.
 - 4.2 Data to be amended is correctly located within the file.
 - 4.3 The correct data/Information is entered, changed or deleted using appropriate input device and approved procedures.
 - 4.4 The Integrity of data is maintained.
 - 5. Use document layout and data format facilities
 - 5.1 Requirements for document are verified where necessary.
 - 5.2 The given format and layout are appropriately applied.
 - 5.3 Facilities to achieve the desired format and layout are correctly identified, accessed and used.
 - 5.4 Data manipulating facilities are used correctly.
 - 5.5 Format reflects accuracy and completeness.

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| 6. | Monitor the operation of equipment | 6.1 | The system is monitored to ensure correct operation of tasks. |
| | | 6.2 | Routine system messages are promptly and correctly dealt with. |
| | | 6.3 | Non-routine messages are promptly referred in accordance with operating requirements. |
| | | 6.4 | Error conditions within level of authority are dealt with promptly, and uncorrected errors are promptly reported. |
| | | 6.5 | Output devices and materials are monitored for quality. |
| 7. | Access and transmit information via the Internet | 7.1 | Access to the Internet is gained in accordance with the provider's operating procedures. |
| | | 7.2 | Evidence of the ability to negotiate web sites to locate and access specified information and other services is efficiently demonstrated. |
| | | 7.3 | E-Mail is sent and retrieved competently. |
| 8. | Close down computer system | 8.1 | The correct shut down sequence is followed. |
| | | 8.2 | Problem with shutting down computer is reported promptly. |
| | | 8.3 | All safety and protective procedures are observed. |
| | | 8.4 | The system integrity and security are preserved. |
| 9. | Maintain computer equipment | 9.1 | Cleaning materials and/or solutions used meet specified recommendation. |
| | | 9.2 | The equipment is cleaned as directed. |
| | | 9.3 | Wear and faults identified are promptly reported to the appropriate personnel. |

RANGE STATEMENT

This unit applies to activities associated with essential operations linked to using and maintaining basic computer equipment.

Equipment:

- install supplied computer
- install supplied peripherals

Work environment:

- equipment
- furniture
- cabling
- power supply

Input devices:

- keyboard
- mouse
- scanner
- microphone
- camera

Data:

- textual
- numerical
- graphical

Software systems to include for:

- word processing
- spread sheet
- internet access

File operations:

Naming, updating, archiving, traversing field and records in database, use of search, sort, print

Files save on:

- network
- magnetic media
- personal PC

Maintenance:

- cleaning: enclosures, screen, input devices, output devices
- checking cables, etc

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to accurately carry out basic data entry and retrieval operations on a computer system in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- Initiate the use on the equipment.
- Use document layout and data format facilities.
- Locate and access data.
- Use file operations.
- Manipulate input devices.
- Key-in and format reports.
- Access to the internet.

(2) Pre-requisite Relationship of Units

- Nil

(3) Underpinning Knowledge and SkillsKnowledge

Knowledge of:

- safety for working with and around computers
- computer hardware and software systems
- procedure for initiating and closing down computer
- the operation of the data entry
 - management system
- methods of locating files
- organisation's standards applicable to
 - accessing files
- files operations and their applications
- file operation in database setting
- creating, locating and saving files
- using input devices
- using data checking devices
- formatting functions of software
- layout function of software
- graphic productions and manipulation
- regard for accuracy and security of
 - information
- functions on the internet

Skills

The ability to:

- identify computer hardware
- manipulate data input devices
- access data
- use file operations
- key-in and format reports and letters
- retrieve data
- amend data
- print data
- save data
- search and receive data from the internet
- send and receive E-Mail

(4) Resource Implications

Files saved on network, magnetic media, and personal Computer

Input devices: Keyboard, mouse, other selection devices

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision with regular checks, but may include some autonomy when working as part of a team.

Competencies in this unit may be determined concurrently. Assessment must be in accordance with the performance criteria.

(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
<ul style="list-style-type: none"> Carries out established processes Makes judgement of quality using given criteria 	<ul style="list-style-type: none"> Manages process Selects the criteria for the evaluation process 	<ul style="list-style-type: none"> Establishes principles and procedures Evaluates and reshapes process Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level -	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level -	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

AGGCOR0101A: Carry out measurement and calculations

Competency Descriptor:

This unit deals with the skills and knowledge required to perform related calculations and applies to all individuals working in the agriculture industry.

Competency Field: Agriculture

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Apply the four basic rules of calculation	1.1	Simple calculations are correctly performed using the four basic arithmetic rules- addition, subtraction, multiplication and division.
		1.2	An understanding of the concept of angles is correctly demonstrated.
		1.3	Simple calculation involving time, volume and length are correctly calculated.
2.	Perform basic calculations involving fractions and decimals	2.1	Simple calculations are performed involving fractions and decimals.
3.	Perform basic calculations involving percentages	3.1	Simple calculations involving profit and loss, and discounts are correctly performed.
4.	Perform basic calculations involving proportions	4.1	Simple calculations involving ratios are correctly performed.
5.	Use measurement instruments	5.1	Measurement taken to 100 % accuracy.
		5.2	Used measurement instruments according to manufacturer's/supervisor's instructions.
		5.3	Observed indicator lines and/or manufacturer's and supervisor's instructions when using pre-measured products.

RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency, allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables may be present for this particular unit.

Calculations may be mental/using pen and paper/calculator/cash register. All problems should have appropriate applications to the agriculture industry and relate to the normal operation in this environment.

Calculations may include:

- ratio and proportion
- percentages – profit and loss, discounts
- fractions and decimals
- addition and subtraction eg. stock count
- time intervals

EVIDENCE GUIDE

Competency is to be demonstrated by individual computations in accordance with the performance criteria and as related to the work environment.

(1) Critical Aspects of Evidence

This unit could be assessed alone or in conjunction with any other units addressing the safety, materials handling, recording and reporting; associated with the computations being performed or other units requiring the exercise of the skills and knowledge covered by this unit.

During assessment the individual will:

- take responsibility for the quality of their own work
- perform computations in accordance with standard principles
- perform computations accurately
- use accepted mathematical procedures, practices, processes and workplace procedures

(2) Pre-requisite Relationship of Units

- Nil

(3) Underpinning Knowledge and SkillsKnowledge

Knowledge of:

- numbers and basic arithmetic operations
- percentages
- fractions and decimals
- ratio and proportion
- costing
- interpretation of measurement and calculations
- data relative to the agriculture industry
- basic measurement of angles
- basic stock valuation

Skills

The ability to:

- measure using specified instruments
- interpret measurements and calculations
- perform work related calculations
- communicate effectively
- calculate mentally
- use calculate and/or cash register
- count stock

(4) Resource Implications

The candidate will be provided with:

- all tools, equipment, materials and documentation required where necessary
- any relevant workplace procedures
- any relevant product, manufacturing specifications and or prices
- any relevant codes, standards, manuals and reference materials or tables

(5) Method of Assessment

The candidate will be required to orally, or in writing or by any other methods of communication:

- answer questions put by the assessor

Assessor must be satisfied that the candidate can competently and consistently perform all elements of the unit as specified by the criteria, including required knowledge.

(6) Context of Assessment

This unit may be assessed on the job, off the job or a combination of both. The competencies covered by this unit should be demonstrated by an individual working alone. The assessment environment should not disadvantage the candidate.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
<ul style="list-style-type: none"> Carries out established processes Makes judgement of quality using given criteria 	<ul style="list-style-type: none"> Manages process Selects the criteria for the evaluation process 	<ul style="list-style-type: none"> Establishes principles and procedures Evaluates and reshapes process Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

AGHCRP0001A: Prepare land for planting

Competency Descriptor:

This unit deals with the skills and knowledge required to prepare land for planting.

Competency Field: Agriculture - Horticulture

ELEMENT OF COMPETENCY PERFORMANCE CRITERIA

1. Prepare for the use of mechanical aids in land preparation.	1.1	Fuel, maintenance supplies and tools are provided on site for equipment operators in line with supervisors' instructions and contractor requirements.
	1.2	Related farm activities are completed as instructed.
2. Prepare for the use of manual aids in land preparation	2.1	Appropriate hand tools are selected and checked.
	2.2	Related farm activities are completed as instructed.
3. Implement soil conditioning measure	3.1	Selected appropriate soil conditioning treatment.
	3.2	Transported soil conditioner to the area to be treated.
	3.3	Added soil conditioner as instructed.
4. Complete environmental maintenance tasks	4.1	Non-toxic waste and works debris are disposed of in line with farm policy and environmental standards.
	4.2	Tree planting is completed in line with site planning documentation.
	4.3	Removals of stick and debris or manual excavations are carried out as instructed by supervisor.
	4.4	Vegetation and erosion control structures established in line with property plans.
	4.5	Weeds are chopped, stumped or spot sprayed, as instructed.

RANGE STATEMENT

This unit of competency should be demonstrated in accordance with:

- the enterprise policies and procedures for land preparation
- steps involved in the preparation of land for cultivation taking into consideration erosion control

On-site OHS procedures may include:

- provision of protective clothing and equipment
- provision of appropriate fire fighting equipment for field operation of machinery and equipment
- checks for hazardous substances
- provision of safety devices
- safe storage of toxic chemicals in accordance with Pesticide Control Authority regulations

Manually constructed excavations may include:

- post holes
- small pits
- trenches
- compost pit or heap
- drains

Relevant OHS hazards identification, risk assessment and risk control measures include:

- systems and procedures for the safe operation and maintenance of machinery and ride-on vehicles
- safe manual handling systems and procedures
- safe systems and procedures for storage, handling and transportation of hazardous substances (petroleum products etc)
- hazardous land forms identified and all employees notified. These include gullies, cliffs, protruding rocks, or any land form that has potential to cause an accident
- protection from hazardous noise
- protection from organic and other dusts
- safe systems and procedures for outdoor work, including protection from solar radiation
- selection, use and maintenance of relevant personal protective clothing and equipment

Legislation, codes and national standards relevant to the workplace may include:

- National Environmental Protection Agency Jamaica (NEPA)
- OHS and hygiene requirements
- First Aid regulations/requirements

Non-toxic waste may include:

- fuel containers
- cardboard and degradable containers
- some packaging materials
- faulty and worn-out parts

Basic field duties may include:

- land clearing, cultivation, spraying, forking
- planting, stumping, chopping, digging, ploughing
- seedbed preparation

Erosion control measures may include:

- terracing
- contour cropping
- channel drains
- check dams
- strip cropping
- mulching and gully basins

Equipment used may include:

- hand and power tools
- maintenance supplies
- fuels and oils
- fencing equipment

EVIDENCE GUIDE

Competency is to be demonstrated in aspects of soil types in Jamaica and land preparation activities.

(1) Critical Aspects of Evidence

Evidence should include a demonstrated ability to:

- perform all requirements of land preparation efficiently with minimum damage to soil structure
- provide necessary requirements to protect the soil from erosion
- provide for maintenance of the environment and to ensure little or no damage to biotic factors
- support field operations to ensure completion in a timely and efficient manner
- consistently follow supervisor's instructions
- use methods and procedures that are predictable when sowing plant materials
- report and record within established routines

(2) Pre-requisite Relationship of Units

This unit should be assessed after the completion of or in conjunction with

- AGGCOR0011A Maintain the work environment
- AGGCOR0021A Observe workplace health and safety requirement

(3) Underpinning Knowledge and SkillsKnowledge

Knowledge of:

- relevant NEPA and PCA regulations
- the rights and responsibilities of employers and employees under the labour law
- OHS legislation
- land clearing, cultivation, spraying, forking
- planting related to soil conservation measures, stumping, chopping, digging, ploughing
- seedbed preparation
- procedures for excavating post holes, small pits, trenches, compost pit or heap, drains
- soil erosion and conservation practices
- erosion control measures including: terracing, contour cropping, channel drains, check dams, strip cropping, mulching
- factors influencing soil formation
- soil formation process
- types of soil
- composition and properties of soil
- soil profile
- composition and properties of soil
- types of soil conditioners
- procedures for applying soil conditioner
- verbal and non-verbal communication skills
- measurement and calculation of length, area, volume, ratio and proportion

Skills

The ability to:

- communicate appropriately with other farm personnel
- complete field duties to industry requirement inclusive of land clearing, ploughing, harrowing
- prepare land for planting
- prepare compost
- sterilize soil
- prepare seedbeds and seed boxes
- identify soil texture by touch
- use appropriate measures to prevent soil loss
- construct and fill/pack a compost heap/pit
- use verbal and non-verbal communication

(4) Resource Implications

The following resources should be made available:

- various equipment and tools used in land preparation
- plot of land
- different types of soil
- materials for compost

(5) Method of Assessment

Competency should be assessed while tasks are undertaken and should involve.

- observation of work processes at intervals when the land is being prepared
- questioning related to underpinning knowledge

(6) Context of Assessment

This unit must be assessed through practical demonstration on-the-job dealing with different aspects of land preparation for cultivation. Emphasis should also be placed on soil conservation methods practiced in Jamaica.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
<ul style="list-style-type: none"> • Carries out established processes • Makes judgement of quality using given criteria 	<ul style="list-style-type: none"> • Manages process • Selects the criteria for the evaluation process 	<ul style="list-style-type: none"> • Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collecting, analysing and organising ideas and information	Level 1	
Communicating ideas and information	Level 1	
Planning and organising activities	Level 1	
Working with others and in teams	Level 1	
Use mathematical ideas & techniques	Level 1	
Solve problems	Level 1	
Using technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

AGHCRP0011A: Provide propagation support

Competency Descriptor:

This unit deals with the knowledge and skills required by assistants to plant propagators in the production nursery sector.

Competency Field: Agriculture - Horticulture

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Provide maintenance tasks to parent plants	1.1	Water is applied to parent plants according to daily watering plan.
		1.2	Fertiliser is applied according to enterprise guideline
		1.3	The hygiene of the propagation area is maintained, tools are sterilised and rubbish and litter are removed and disposed of according to enterprise policy.
		1.4	Parent plants and surroundings are maintained in a clean and tidy fashion according to enterprise guidelines.
		1.5	Weeds are removed from around cultivated plants according to supervisor's instructions.
		1.6	Changes in parent plant appearance or emergence of pests or diseases are reported to the appropriate person according to enterprise guidelines.
2.	Prepare materials for propagation	2.1	Containers for propagation are prepared according to supervisors guidelines.
		2.2	Cleaning procedures are performed and hygiene practices followed according to enterprise guidelines.
3.	Place propagation materials at propagation site(s)	3.1	Propagation material is obtained from parent stock, and transported to propagation site according to supervisor's instructions.
		3.2	Plants are placed in accordance with the pattern and spacing designated by the supervisor.
		3.3	Hygiene practices are followed according to enterprise guidelines.
		3.4	Safe lifting techniques employed and manual handling techniques are efficient according to enterprise Occupational Health and Safety guidelines.

RANGE STATEMENT

Legislation, codes and national standards relevant to the workplace may include:

- Labour laws of Jamaica.
- Pesticide control authority regulations.
- Occupational Health & Safety (OHS).
- Hygiene requirements.
- First Aid regulations/requirements

Equipment used in the propagation process may include:

- wheelbarrow, trolley, mechanical trolley
- secateurs, media trays, water spray container
- rubbish bins, budding knives, tying materials, propagation knives

The preparation of planting containers may include:

- sterilizing trays and tools
- gathering trays and containers
- locating and collecting media
- filling containers with media

Parent plants may include:

- plants that are hardy
- on-site
- in ground or containerised

Propagation methods may include:

- sexual methods – sowing seeds
- asexual methods – cuttings, layering, grafting, budding, suckers

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to apply the knowledge and skills required to provide propagation support in a horticulture enterprise.

(1) Critical Aspects of Evidence

- consistently follow supervisor's instructions
- report and record within established routines
- prepared propagation materials and equipment as directed
- select vegetative material of good quality and appropriate size for propagation
- maintain parent plant as directed
- maintain the hygiene of parent plant, equipment and surroundings

(2) Pre-requisite Relationship of Units

- AGGCOR0011A Maintain the work environment
- AGGCOR0031A Plan and organise work
- AGGCOR0061A Implement pest control programme
- AGHCRP0041A Maintain a planted area

(3) Underpinning Knowledge and SkillsKnowledge

Knowledge of:

- handling techniques for different plant types
- methods used to prepare different plant types for propagation
- basic hygiene practices in plant production
- conditions for successful plant establishment
- plant classification
- plant physiology
- photosynthesis, respiration, translocation, absorption, transpiration
- vegetative organs and their functions
- the effects of moisture, light, aeration, temperature and pathogenic organisms on propagated plants
- types of soil and soil science
- pests and diseases affecting plants
- plant propagation methods
- plant growth regulators
- crop support components
- procedures for measuring length
- procedures for calculating area, volume, ratio and proportion
- records keeping
- verbal and non verbal communication skills
- OHS regulations and procedures
- First aid procedures

Skills

The ability to:

- prepare materials for propagation
- maintain parent plant
- maintain the hygiene of parent stock, equipment and environment
- install crop support components where necessary
- identify pests and diseases affecting plants
- apply OHS regulations and procedures
- apply First aid procedures
- measure length
- calculate area, volume, ratio and proportion
- complete records
- apply verbal and non verbal communication skills

(4) Resource Implications

The following resources should be made available:

- vegetative materials/parent stock
- tools and materials used in propagating plants

(4) Method of Assessment

Evidence should be collected over a set period of time through direct observation intermittent checking and questioning related to underpinning knowledge. This should include dealing with an appropriate range of crops and planting techniques.

Competencies in this unit may be demonstrated concurrently.

(6) Context of Assessment

This unit must be assessed through practical demonstration on-the-job.

The underpinning knowledge may be assessed off-the-job with the use of written or verbal items.

CRITICAL EMPLOYABILITY SKILLS

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Levels of Competency		
Level 1.	Level 2.	Level 3.
<ul style="list-style-type: none"> Carries out established processes Makes judgement of quality using given criteria 	<ul style="list-style-type: none"> Manages process Selects the criteria for the evaluation process 	<ul style="list-style-type: none"> Establishes principles and procedures Evaluates and reshapes process Establishes criteria for evaluation

Collecting, analysing and organising ideas and information	Level 1	
Communicating ideas and information	Level 1	
Planning and organising activities	Level 1	
Working with others and in teams	Level 1	
Use mathematical ideas & techniques	Level 1	
Solve problems	Level 1	
Using technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

AGHCRP0021A Prepare and establish planting materials

Competency Descriptor:

This unit describes the process of supporting the sowing of plant materials such as seeds, plugs, crowns, canes, eyes, bulbs or other similar plant material for flower, fruit or vegetable production.

Competency Field: Agriculture- Horticulture

ELEMENT OF COMPETENCY PERFORMANCE CRITERIA

1. Prepare growing media	1.1	Growing media is prepared as directed.
	1.2	Tools are chosen appropriate to the task being undertaken, used according to guidelines and safe working practices are employed.
	1.3	Cleaning procedures are performed and hygiene practices followed according to enterprise guidelines.
	1.4	Work areas are tidied and material stored neatly and according to enterprise guidelines.
2. Select material for planting	2.1	Plant material is selected which is sound, of defined size and suitable vigour for use in the planting process as directed.
	2.2	Work practices are employed which minimize plant damage.
3. Prepare plant products for planting	3.1	Material is prepared neatly, cleanly and evenly to the defined size.
	3.2	Storage procedures and hygiene practices are followed according to enterprise guidelines.
4. Insert plant products into growing area	4.1	Tools are chosen appropriate to the task being undertaken, used according to guidelines and safe working practices are employed.
	4.2	Work practices are employed which minimise plant damage.
	4.3	Placement, spacing depth, orientation and technique used are according to planting method and species requirements.
	4.4	Growing media covering is even, and to the required depth and compaction.

- 4.5 Water and fertilisers are applied evenly and in volumes specified by supervisor.
- 4.6 Tool and equipment cleaning and storage procedures are performed and hygiene practices followed according to enterprise guidelines.

RANGE STATEMENT

Legislation, codes and national standards relevant to the workplace may include:

- Labour laws of Jamaica.
- Pesticide control authority regulations.
- Occupational Health & Safety (OHS).
- Hygiene requirements.
- First Aid regulations/requirements

Planting materials may include:

- seedlings, seeds, foliage, bulbs
- trees
- fruit and vegetables
- vegetative materials

Planting methods may include:

- hand planting
- assisting with mechanical planting

This unit of competency should be demonstrated in accordance with the enterprise's standards for sowing seeds:

- growing media
- prepared media including hydroponic systems, field soils, containerised media, seed bed, foam, jiffy pots, non-soil medium

Plant preparation may include:

- trimming
- washing
- dipping

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to apply knowledge and skills when sowing plant materials

(1) Critical Aspects of Evidence

Evidence should include a demonstrated ability to:

- consistently follow supervisor's instructions
- use methods and procedures that are predictable when sowing plant materials
- report and record within established routines
- growing media is prepared as directed
- select vegetable material of good quality and appropriate size for planting
- use appropriate planting techniques

(2) Pre-requisite Relationship of Units

- AGGCOR0021A Observe workplace health and safety requirement
- AGHCRP0001A Prepare land for planting
- AGHCRP0011A Provide propagation support

(3) Underpinning Knowledge and SkillsKnowledge

Knowledge of:

- plant classification
- vegetative organs and their functions
- types of seeds
- types of growing media
- handling techniques for different seed and vegetative materials
- basic techniques of media preparation
- basic methods of sowing plant products
- germination
- photosynthesis, translocation, respiration and absorption
- the effect of moisture, temperature, aeration, light and pathogenic organisms on plants
- pests and diseases affecting plants
- hygiene practices in plant handling
- procedures for measuring length
- procedures for calculating area, volume, ratio and proportion
- records keeping
- verbal and non verbal communication skills
- OHS regulations and procedures
- First aid procedures

SkillsThe ability to

- identify vegetative materials
- sow various vegetative materials
- prepare growing media as directed
- handle vegetative materials appropriately
- identify plant pests and diseases
- apply OHS regulations and procedures
- apply First aid procedures
- measure length
- calculate area, volume, ratio and proportion
- complete records
- apply verbal and non verbal communication skills

(4) Resource Implications

- seedbeds/seed boxes
- vegetative materials
- hand tools used in sowing plant materials
- irrigation system

(4) Method of Assessment

Evidence should be collected over a set period of time through direct observation and questioning related to underpinning knowledge. This should include dealing with an appropriate range of plant materials and sowing techniques.

Competencies in this unit may be demonstrated concurrently.

(6) Context of Assessment

This unit must be assessed through practical demonstration on-the-job.

The underpinning knowledge may be assessed off-the-job with the use of written or verbal items.

CRITICAL EMPLOYABILITY SKILLS

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Levels of Competency		
Level 1.	Level 2.	Level 3.
<ul style="list-style-type: none"> Carries out established processes Makes judgement of quality using given criteria 	<ul style="list-style-type: none"> Manages process Selects the criteria for the evaluation process 	<ul style="list-style-type: none"> Establishes principles and procedures Evaluates and reshapes process Establishes criteria for evaluation

Collecting, analysing and organising ideas and information	Level 1	
Communicating ideas and information	Level 1	
Planning and organising activities	Level 1	
Working with others and in teams	Level 1	
Use mathematical ideas & techniques	Level 1	
Solve problems	Level 1	
Using technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

AGHCRP0031B: Plant a crop by hand (manual)

Competency Descriptor:

This unit deals with the knowledge and skills required to plant fruit or vegetable crop; flower, bare rooted or containerised plants; seeds, seedlings, cuttings, or bulbs manually, according to local, regional and international protocols.

Competency Field: Agriculture - Horticulture

ELEMENT OF COMPETENCY PERFORMANCE CRITERIA

1. Line field	1.1	Tools appropriate to the task being undertaken are selected and used according to guidelines, and safe working practices.
	1.2	Planting distance and arrangement determined according to crop requirements
	1.3	Field inspected and direction of rows determined according to agronomic and environmental specifications.
	1.4	Planting distances measured according to specifications.
	1.5	Markers used to indicate position of plant in field according to enterprise practice.
2. Prepare planting hole	2.1	Tools appropriate to the task being undertaken are selected and used according to guidelines, and safe working practices.
	2.2	Planting holes are prepared to the specified dimensions as directed by management.
	2.3	Soil is moistened according to company policy and plant requirements.
	2.4	Organic matter/fertilizer is added to hole as directed.
3. Prepare planting material	3.1	Tools appropriate to the task being undertaken are selected and used according to guidelines, and safe working practices.
	3.2	Plant material of prescribed characteristics selected for use in the planting process.
	3.3	Media in seedbed/tray treated according to directions from management before lifting of seedlings.

-
- 3.4 Seedlings lifted and treated according to enterprise practice.
 - 3.5 Plants are kept cool and moist to avoid the roots drying according to enterprise practice.
 - 3.6 Planting material is inspected, screened and sorted according to company policy.
 - 4. Plant the crop
 - 4.1 Tools appropriate to the task being undertaken are selected and used according to guidelines, and safe working practices.
 - 4.2 Plants are placed in holes at a depth and angle specified by company policy.
 - 4.3 Plant placement, depth, orientation and planting technique are in line with prescribed planting method and species.
 - 4.4 Mulch, as appropriate, is applied as directed by supervisor and to the standard acceptable by the enterprise.
 - 4.5 Post-planting treatments are completed in accordance with supervisors' instructions.
 - 4.6 Work practices employed cause no plant damage.
 - 4.7 Tool and equipment are cleaned and stored using hygiene practices specified in enterprise guidelines.
 - 5. Install crop support components
 - 5.1 Tools, machinery and equipment appropriate to the task being undertaken are selected and used according to guidelines, and safe working practices.
 - 5.2 Where necessary, supports are placed and tensioned as defined by supervisors' specifications.
 - 5.3 Construction methods employed are according to plans and specifications.
 - 5.4 Tools, machinery and equipment are cleaned and stored according to company policy.
 - 6. Keep accurate records
 - 6.1 Activities are accurately documented and reported according to company policies.
 - 6.2 Records are kept current.

RANGE STATEMENT

The range of variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training assessment requirements may depend on the work situations and available resources.

The following variables may be present for this particular unit:

Crops may include:

- fruit
- vegetables
- foliage crops
- flowers
- bulbs
- essential oil crops
- other

Legislation, codes and national standards relevant to the workplace may include:

- Labour laws of Jamaica.
- Pesticide control authority regulations.
- Occupational Health & Safety (OHS).
- Hygiene requirements.
- First Aid regulations/requirements.

Plant preparation may include:

- trimming
- washing
- dipping or dusting
- puddling
- shading

Growing container, equipment and materials may include:

- trays, pots, bags, seed beds,
- water jets, secateurs, plastic or crocus
- cord

Specified dimensions may include:

- depth
- width
- pattern (arrangement)
- spacing

Planting materials may include:

- seeds
- cuttings
- division
- seedlings (ball of earth or bare rooted)

Tools, machinery and equipment may include:

- Forks
- Machete
- Spades
- Lifters
- Shovel
- Tape measure
- Weed whacker

EVIDENCE GUIDE

Each Unit of Competency has an Evidence Guide, which relates directly to the Performance Criteria and the Range Statements. Its purpose is to guide assessment of the unit of competency in the workplace or a training programme. The following components provide information to assist this purpose.

These relate to particular knowledge and skills that are considered essential to demonstrate competency in this unit.

Competency is to be demonstrated by the ability to apply of knowledge and skills when planting crops by hand.

(1) Critical Aspects of Evidence

The following ability should be demonstrated by the candidate:

- use methods and procedures that are predictable when planting crops by hand
- report and record within established routines
- prepare planting hole as directed
- select vegetative material of good quality and appropriate size for planting
- use appropriate planting techniques
- install crop support components where necessary

(2) Pre-requisite Relationship of Units

- AGGCOR0021A Observe workplace health and safety requirement
- AGGCOR0031A Plan and organize work
- AGHCRP0001A Prepare land for planting

(3) Underpinning Knowledge and Skills

Knowledge

Knowledge of:

- handling techniques for different plant types
- basic hygiene practices in plant production
- conditions for successful plant establishment
- differing crop planting requirements
- plant classification
- plant physiology (photosynthesis, respiration, translocation, absorption, transpiration)
- vegetative organs and their functions
- germination of seeds
- transplanting seedlings
- methods for establishing crops
- field planting arrangement
- spatial requirements for various classes of crops
- pests and diseases affecting plants
- crop support components

Underpinning Knowledge and Skills (Cont'd)Knowledge

Knowledge of:

- procedures for measuring length
- procedures for calculating area, volume, ratio and proportion
- records keeping
- verbal and non verbal communication skills
- OHS regulations and procedures
- First aid procedures

Skills

The ability to:

- prepare seed beds/trays
- line out field for planting
- prepare planting hole
- prepare planting material
- plant crops
- install crop support components where necessary
- identify pests and diseases affecting plants
- apply OHS regulations and procedures
- apply First Aid procedures
- measure length
- calculate area, volume, ratio and proportion
- complete records
- apply verbal and non verbal communication skills
- prepare potting mixture

(4) Resource Implications

The following resources should be made available:

- plot of land
- seeds and vegetative plant materials
- hand tools used in the planting of crops
- irrigation system
- measuring devices
- cord and strings
- pesticides
- containers
- pesticides
- seed trays and benches
- potted mixture

(4) Method of Assessment

Evidence should be collected over a set period of time through direct observation and questioning related to underpinning knowledge. This should include dealing with an appropriate range of crops and planting techniques.

Competencies in this unit may be demonstrated concurrently.

(6) Context of Assessment

This unit must be assessed through practical demonstration on-the-job or in a simulated workplace environment.

The underpinning knowledge may be assessed off-the-job with the use of written or verbal items.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
<ul style="list-style-type: none"> Carries out established processes Makes judgement of quality using given criteria 	<ul style="list-style-type: none"> Manages process Selects the criteria for the evaluation process 	<ul style="list-style-type: none"> Establishes principles and procedures Evaluates and reshapes process Establishes criteria for evaluation

Collecting, analysing and organising ideas and information	Level 2	
Communicating ideas and information	Level 1	
Planning and organising activities	Level 1	
Working with others and in teams	Level 1	
Use mathematical ideas & techniques	Level 2	
Solve problems	Level 1	
Using technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

AGHCRP0041A: Maintain a planted area

Competency Descriptor:

This unit describes the provision of basic maintenance to a growing crop.

Competency Field: Agriculture - Horticulture

ELEMENT OF COMPETENCY PERFORMANCE CRITERIA

1.	Install crop support components	1.1	Tools appropriate to the task are selected, used according to guidelines and safe working practices are employed.
		1.2	Supports are placed and tensioned as defined by supervisors' specifications.
		1.3	Construction methods employed in accordance with plans and specifications.
2.	Care for growing plant stock	2.1	Plant stock treatments are carried out neatly, cleanly and in a fashion which causes them no disturbance.
		2.2	Crop support components are adjusted and/or repaired according to supervisors' instructions.
3.	Tend to growing media	3.1	Fertiliser is spread evenly and at rates specified by supervisor.
		3.2	Weed removal and soil cultivation is carried out in accordance with the requirements of the crop and soil conditions.
		3.3	Safe equipment operation and work practices ensure compliance with Occupational Health & Safety (OHS) regulations.
4.	Place irrigation system and components	4.1	Irrigation components are located according to supervisors' specifications.
		4.2	Irrigation components are assembled and connected securely and the system operation tested according to supervisors specifications.
5.	Water established plants	5.1	Water is applied to plants at the rate and volume defined by supervisor.
		5.2	Equipment is drained of all excess water, cleaned and stored according to manufacturer's instructions.

6. Weed planted area	6.1	Weeds to be removed are identified according to instructions from supervisor.
	6.2	Weeds are removed from planted area without disturbance to adjacent plants.
	6.3	Weeds are stacked, processed and disposed of according to enterprise guidelines.
	6.4	Site is cleaned according to enterprise guidelines.
7. Clean structures and features	7.1	Debris is removed and sorted according to enterprise guidelines.
	7.2	Items are cleaned according to maintenance program details.
	7.3	Material is disposed of according to enterprise guidelines.
8. Prepare compost pit/heap	8.1	Area for compost pit or heap is prepared at designated site or as directed by supervisor.
	8.2	Material for filling for compost pit/heap.
9. Maintain plants in healthy condition	9.1	Fertiliser is applied evenly at the rate defined by supervisor and according to manufacturer's instructions.
	9.2	Tools chosen are appropriate to the task being undertaken, used according to manufacturer's guidelines and Occupational Health & Safety (OHS) regulations.
	9.3	Dead, diseased and damaged plants are treated according to supervisor's instructions.
	9.4	Implement pest control activities according to enterprise requirement.
	9.5	Tools and equipment are cleaned, maintained and stored consistent with manufacturer's specifications and enterprise guidelines.

RANGE STATEMENT

Plant products may include:

- flowers
- vegetables
- fruit
- foliage

This unit of competency should be demonstrated in accordance with the enterprise's :

- policies and procedures in regard to the maintenance of a planted area

Basic maintenance includes:

- mowing coarse grass and ancillary grassed areas
- weeding
- hand watering display beds
- cleaning park or garden facilities
- mulch and mould plants
- fertilize plants
- pest control

Legislation, codes and national standards relevant to the workplace may include:

- Labour laws of Jamaica.
- Pesticide control authority regulations.
- Occupational Health & Safety (OHS).
- Hygiene requirements.
- First Aid regulations/requirements

Support components includes:

- stake
- brace
- trellis
- arbour

Equipment used includes:

- personal protective equipment
- hoses, motorised blowers, hand edging tools
- spades, forks, rakes, hoes, brooms, knives
- trowels, wheelbarrows, hand tools

Plants may include:

- trees
- shrubs
- ground covers both native and exotic

Processing of weeds includes:

- composting
- bagging and removal
- burying

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to apply of knowledge and skills to a limited range maintenance tasks to growing plants.

(1) Critical Aspects of Evidence

- consistently follow supervisor's instructions
- use methods and procedures that are predictable when planting crops by hand
- report and record within established routines
- install crop support components
- care for growing stock
- irrigate established plants appropriately
- weed planted area without damage to plants
- clean support structures and other structure in planted area
- maintain plants in an healthy condition

(2) Pre-requisite Relationship of Units

- AGGCOR0021A Observe workplace health and safety requirement
- AGGCOR0031A Plan and organize work
- AGGCOR0041A Use hazardous substances safely

(3) Underpinning Knowledge and SkillsKnowledge

Knowledge of:

- maintenance activities for different crops
- manual handling guidelines
- types and range of annual and perennial weeds
- procedures for weeding, thinning, moulding, mulching
- water requirements of plants
- correct care and use of equipment, scheduled maintenance and repair
- crop support systems and their erection
- methods and reasons of treating growing stock including pruning and disbudding techniques
- water application techniques
- types of fertilizer
- fertiliser application methods
- pest control methods
- plant's use of fertilisers
- competition by weeds for water, nutrients and light
- procedures for measuring length
- procedures for calculating area, volume, ratio and proportion
- records keeping
- verbal and non verbal communication skills
- OHS regulations and procedures
- First aid procedures

Skills

The ability to:

- weed planted areas
- water established plants
- clean structures and features
- install crop support components
- care for growing stock
- tend to growing media
- fertilize plants
- identify and control pest
- place irrigation systems and components
- apply First aid procedures
- measure length
- calculate area, volume, ratio and proportion
- complete records
- apply verbal and non verbal communication skills

(4) Resource Implications

- plot with a variety of growing crops
- irrigation system
- equipment and materials for maintaining crops

(5) Method of Assessment

Evidence may be collected in a variety of ways including:

- direct observation
- oral questioning
- written test
- authenticated assessments and/or assignments from relevant training courses
- supporting statement from supervisor or previous employer

Competencies in this unit may be demonstrated concurrently.

(7) Context of Assessment

This unit must be assessed through practical demonstration on-the-job or in a simulated workplace environment requiring until competency is achieved.

The underpinning knowledge may be assessed off-the-job with the use of written or verbal items.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
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Collecting, analysing and organising ideas and information	Level 1	
Communicating ideas and information	Level 1	
Planning and organising activities	Level 1	
Working with others and in teams	Level 1	
Use mathematical ideas & techniques	Level 1	
Solve problems	Level 1	
Using technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

AGHCRP0051A: Maintain nursery plants

Competency Descriptor:

This unit describes basic plant maintenance duties in either a retail or production nursery. It refers generally to the maintenance of containerized plants but may include other nursery plant stock.

Competency Field: Agriculture

ELEMENT OF COMPETENCY PERFORMANCE CRITERIA

1. Maintain nursery plants	1.1	Plants are watered evenly and to the saturation level according to supervisor's instructions.
	1.2	Plants are staked, mulched and fertilised as directed.
	1.3	Plants checked to ensure they are upright and water can efficiently wet the media according to supervisor's instructions.
2. Clean up a growing site	2.1	Weeds are removed from around cultivated plants according to supervisor's instructions.
	2.2	Rubbish and litter are removed and pots, surroundings and presentation areas are maintained in a clean and tidy fashion according to enterprise guidelines.
	2.3	Tools are chosen appropriate to the task being undertaken, and used according to guidelines, and safe working practices.
3. Treat plants	3.1	Volume and method of treatment is delivered according to supervisors instructions.
	3.2	Intervention methods are undertaken to assist plant growth according to supervisor's instructions.
	3.3	Equipment operation and work practices conform to enterprise Occupational Health and Safety guidelines.
	3.4	Tool and equipment cleaning and storage procedures are performed and hygiene practices are followed according to enterprise guidelines.
4. Transfer potted material	4.1	Plants are placed appropriately according to the pattern and at the spacing designated by the supervisor.
	4.2	Safe lifting techniques and efficient manual handling techniques are employed according to enterprise guidelines.

RANGE STATEMENT

Legislation, codes and national standards relevant to the workplace may include:

- Labour laws of Jamaica.
- Pesticide control authority regulations.
- Occupational Health & Safety (OHS).
- Hygiene requirements.
- First Aid regulations/requirements

Intervention methods include:

- aeration
- removing dead material
- spacing and thinning

Nursery plants include:

- containerised, balled and bagged
- in-ground, hydroponic
- aquatic and stock plants
- seedlings, bulbs, corms
- tubers, woody
- perennial, annual

Treatments may include:

- pesticides
- fungicides
- fertiliser

Fitting water components may include:

- coupling hoses

Tools and equipment include:

- wheelbarrows, trolleys
- motorised trolleys
- secateurs, media trays
- water spray container
- dibblers, rubbish bins
- a variety of containers

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to apply knowledge and skills to a limited range maintenance tasks and roles.

(1) Critical Aspects of Evidence

Evidence should include a demonstrated ability to:

- consistently follow supervisor's instructions
- report and record within established routines
- water plants are watered evenly to the required saturation level
- provide required support is provided for the plants
- clean-up growing sites are cleaned up
- remove weed planted re removed without damage to stock
- clean support structures and other structure in planted area
- prepare containerised plants are prepared to specification

(2) Pre-requisite Relationship of Units

- AGGCOR0021A Observe workplace health and safety requirement
- AGGCOR0041A Use hazardous substances safely
- AGHCRP0051A Maintain a planted area

(3) Underpinning Knowledge and SkillsKnowledge

Knowledge of:

- use and maintenance of hand tools
- Occupational Health & Safety (OHS) guidelines and principles
- principles and practices of effective display bed presentation
- maintenance activities for different crops
- manual handling guidelines/techniques
- types and range of annual and perennial weeds
- procedures for weeding, thinning, moulding, mulching
- water requirements of plants
- correct care and use of equipment,
- crop support systems and their erection
- methods and reasons of treating growing stock including pruning and disbudding techniques
- water application techniques
- types of fertilizer
- fertiliser application methods
- plant use of fertilisers
- competition by weeds for water, nutrients and light
- procedures for measuring length
- procedures for calculating area, volume, ratio and proportion
- records keeping
- verbal and non verbal communication skills
- OHS regulations and procedures
- First aid procedures

Skills

The ability to:

- water plants
- clean up a growing site
- treat plants
- transfer potted material stock
- clean structures and features
- install crop support components
- care for growing stock
- tend to growing media
- place irrigation systems and components
- apply First aid procedures
- measure length
- calculate area, volume, ratio and proportion
- complete records
- apply verbal and non verbal communication skills

(4) Resource Implications

The following resources should be made available:

- plant nursery
- materials and equipment for maintaining nursery plants

(5) Method of Assessment

In order to achieve consistency of performance, evidence should be collected over a set period of time, which is sufficient to include dealing with a variety of nursery plants

(6) Context of Assessment

This unit must be assessed through practical demonstration on-the-job or in a simulated workplace environment requiring until competency is achieved.

The underpinning knowledge may be assessed off-the-job with the use of written or verbal items.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
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Collecting, analysing and organising ideas and information	Level 1	
Communicating ideas and information	Level 1	
Planning and organising activities	Level 1	
Working with others and in teams	Level 1	
Use mathematical ideas & techniques	Level 1	
Solve problems	Level 1	
Using technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

AGGCOR0012A: Use and maintain agricultural chemicals

Competency Descriptor:

This unit deals with the skills and knowledge required to select, prepare and use agricultural chemicals, to clean up after use and to properly dispose of these chemicals.

Competency Field: Agriculture

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Select chemicals appropriate to the identified problem	1.1	Selected chemicals consistent with label specifications with regard to dosage and application rates.
		1.2	Selected chemicals are cost effective and minimise adverse effect on the environment
		1.3	Hazards of available chemicals to health and safety (levels of toxicity) identified and the associated risks assessed and the level of OHS risk is taken into consideration when selecting chemical for use.
2	Select, check and maintain application and personal protective equipment for chemicals	2.1	Application equipment selected, prepared and adjusted for use according to industry and establishment practices.
		2.2	Personal protective clothing/equipment selected, prepared and adjusted for use according to established practice.
		2.3	Damaged, worn or malfunctions of equipment identified and repaired/replaced or reported to the appropriate person according to established practice.
		2.4	Pre and post-operational checks/maintenance on application equipment carried out according to establishment practice.
3	Prepare chemicals for application	3.1	Mixing procedures comply with label direction and enterprise policy and or relevant authorities.
		3.2	The quantity and quality of the water determined as well as the compatibility of the chemicals.
		3.3	Measurement of substances complies with label directions and accepted industry or enterprise practices.

- 3.4 Appropriate personal protective equipment used to industry or enterprise standard.
- 3.5 Safe working practices employed and regulations/ legislations relevant to the situation and mixing site observed.
- 4 Apply chemical
 - 4.1 Weather conditions assessed as suitable for the application of selected chemical.
 - 4.2 Potential and existing hazards identified and minimized in a manner consistent with accepted industry practices and/or reported to supervisor or appropriate authority.
 - 4.3 The work area maintained at an acceptable industry standard and appropriate steps taken to ensure public safety.
 - 4.4 Safe working practices determined and employed according to enterprise policy.
 - 4.5 Regulations/legislations relevant to the situation observed according to industry and enterprise policy.
 - 4.6 Application equipment is used to accurately and effectively apply the required dose to the target.
 - 4.7 All necessary recording should be done in accordance with enterprise policy, legislative requirements and industry practice.
 - 4.8 Re-entry, withholding and replanting/restocking periods observed as determined by label directions and establishment practices.
 - 4.9 Appropriate warning signs erected.
- 5 Implement correct procedures for chemical spill/leak
 - 5.1 Chemical spill/leak contained and isolated as determined by regulatory authorities.
 - 5.2 Chemical formulation identified and appropriate decontamination method carried out according to enterprise and industry requirements.
 - 5.3 Chemical cleaned up and disposed of according to label directions and regulatory authorities.
 - 5.4 Appropriate authorities notified.

		5.5	The extent of the spillage/leak assessed and appropriate report developed.
6	Empty and clean chemical and personal protective equipment and containers after use	6.1	Appropriate clean up methods selected and used to clean application equipment and tools consistent with label directions, industry and enterprise policy.
		6.2	Disposal of containers and unused chemicals consistent with health, safety and environmental legislation, label directions, industry and enterprise policies.
		6.3	Safe working practices employed and regulations/legislations relevant to the situation are observed.
7	Keep appropriate records	7.1	Selected chemicals recorded according to organizational policy.
		7.2	Maintain accurate record of usage according to enterprise standard.
		7.3	Maintained accurate record of disposal of unused/spill chemical and empty containers.

RANGE STATEMENT

This unit of competency should be demonstrated in accordance with the:

- policies and procedures in regard to the preparation and use of agricultural chemicals
- policies and procedures in regards to the clean up of chemical spill/leak, personal protective clothing and work area
- policies and procedures in regards to the disposal of chemical and chemical containers

Legislation, codes and national standards relevant to the workplace may come from:

- Jamaica Livestock Association
- Jamaica Agricultural Society
- Ministry of Agriculture/RADA
- National Environmental Protection Agency-NEPA
- Environmental Foundation of Jamaica-EFJ
- Pesticide Control Authority-PCA
- Local health regulations
- OHS and hygiene requirements
- First Aid regulations/requirements
- Other statutory bodies

Safe working practice may include:

- identifying hazard levels
- handling, mixing and applying chemicals
- use personal protective equipment
- identifying appropriate weather conditions for application
- adhering to legal requirements
- reading and interpreting a chemical label
- disposal of chemicals

Control methods may include:

- chemical
- mechanical/physical
- biological
- cultural (hygiene, husbandry, time of planting)
- genetic
- quarantine/regulatory

Types of chemicals may include:

- insecticides
- herbicides
- fungicides
- nematicides
- vaccines
- bactericides
- rodenticides
- growth regulators
- bio-agents
- pheromones
- acaricides
- fertilizers

Biological agents may include:

- viruses
- bacteria
- fungi
- nematodes
- pheromones
- plants
- insects
- pleuro pneumonia-like organisms

Types of formulation may include:

- gases
- baits
- pellets
- liquid concentrations
- powder
- suspension concentrates
- emulsifiable concentrates
- granules
- fumigants
- ointment

Application equipment may include:

- knapsack sprayer
- hand pump
- boom sprayer
- mist blower
- airplane (crop dusting)
- needle/syringes
- dip tank
- spray race
- injectors
- flip pan
- wick and rope wiper
- ultra low volume applicator

Equipment checks may include:

- nozzle/hose
- respirator cartridges
- tractor cabin filters
- drench and injection equipment
- plunge dips
- engines
- pumps and filters
- personal protective equipment
- check valves

Calculations include:

- determining quantity of chemical needed:
- to fill vat
- apply per acre/hectare
- dose per animal
- dilution rate
- volume of spray mixture

Application methods may include:

- spraying
- dusting
- dipping
- fertigation
- injecting
- oral
- wiping
- broadcasting
- bonding
- incorporating

Personal protective equipment may include:

- boots
- overalls/apron
- chemical resistant gloves
- respirator
- hat
- goggles

Tools and equipment may include:

- assorted hand tools
- measuring jugs and cylinders
- scales
- mixing buckets/containers
- syringes
- dip tank
- tank/drums

Method of clean up may include:

- decontamination of equipment with soap, detergent etc.
- appropriate material to absorb spill
- chemical treatment of spill area
- wash down of spill area
- triple rinsing of empty containers
- burying/burning (according to label directions)
- liming

OHS issues that impact upon the performance of this unit include:

- safe systems and procedures for mixing and applying agricultural chemicals
- safe handling, mixing and applying systems and procedures
- selection use and maintenance of relevant personal protective equipment
- safe systems and procedures for handling farm chemicals
- OHS legislation, relevant regulations and codes of practice
- Safe operation and maintenance of farm machinery and equipment
- Regulations and/or codes of practice pertaining to hazardous substances
- Regulations and/or codes of practice pertaining to plant and animals

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to:

- determine chemicals appropriate to their situation
- maintain application equipment and personal protective clothing
- select and calibrate appropriate application equipment
- prepare chemicals
- notify appropriate authorities of a chemical spill
- clean up following the application of chemicals
- record/report the application/usage of chemicals both verbally and written and maintain details of such records

Competency should also be seen in the ability to apply first aid procedures required for the use of farm chemicals, to know the paths of entry of poisons whether human or the environment and to practice safety during the use and application of agriculture chemicals..

(1) Critical Aspects of Evidence

Evidence should include a demonstrated ability to efficiently and consistently select and apply agriculture chemicals, clean up after using chemicals and to properly record/report on the use of agriculture chemicals.

(2) Pre-requisite Relationship of Units

- Nil

(3) Underpinning Knowledge and SkillsKnowledge

Knowledge of:

- the use of agricultural chemicals
- personal protective equipment
- safe handling and disposal of agricultural chemicals
- practices required during the use of agricultural chemicals to protect the environment (including water bodies and irrigation channels)
- portals of entry of poisons into the body and methods of limiting exposure to the chemicals.
- first aid procedures
- the responsibilities of the user of agricultural and/or veterinary chemicals including the risk of misuse
- importance of information provided on a label of an agricultural chemical container
- agricultural chemicals classified as dangerous goods
- relative toxicity of agricultural chemicals (LD₅₀)

Skills

The ability to:

- determine and select appropriate chemical and application equipment for the situation
- safely and competently mix and handle chemicals.
- operate within all relevant legislative and environmental constraints
- interpret chemical labels and labeling standards
- ensure all safety and environmental considerations are observed
- maintain and clean chemical equipment according to established industry standards
- calmly and efficiently cope with clean up procedures
- calmly and efficiently deal with emergencies
- work in an environmentally safe manner
- carry out stock taking and maintain orderly and accurate records of chemicals and their usage

(4) Resource Implications

The following resources should be made available:

- different types of agricultural/veterinary chemicals
- different species of plants and animals
- application equipment
- measuring and mixing tools and equipment
- water
- soap and disinfectant
- tools: broom, mop, shovel, etc.
- absorbent material such as sawdust
- stationery
- computer
- telephone/facsimile
- cold room/chill room
- shelves

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision and when the student/ apprentice is able to successfully perform all the required Performance Criteria relevant to the Unit in an acceptable time frame.

Competencies in this unit may be demonstrated concurrently using actual performance, equipment working to establishment standards and through work reports and interviews.

(6) Context of Assessment

This unit must be assessed through practical demonstration on-the-job dealing with agricultural/veterinary chemicals. The underpinning knowledge may be assessed off-the-job with the use of written or verbal items inclusive of short answer or project.

CRITICAL EMPLOYABILITY SKILLS

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Level 1.	Level 2.	Level 3.
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Collecting, analysing and organising ideas and information	Level 2	
Communicating ideas and information	Level 2	
Planning and organising activities	Level 2	
Working with others and in teams	Level 1	
Use mathematical ideas & techniques	Level 2	
Solve problems	Level 2	
Using technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

AGGCOR0022A Observe environmental workplace practices

Competency Descriptor:

This covers the process of observing and practising positive environmental work attitudes. It requires the ability to follow workplace directions and instructions, recognize basic environmental hazards and threats and communicate accurately.

Competency Field: Agriculture

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Follow environmental workplace practices	1.1	Examine elements of workplace activities, products, services or physical resources with potential beneficial or harmful effects on the environment.
		1.2	Identify workplace practices and procedures with potential significant environmental impacts.
		1.3	Determine the likely environmental impacts that may arise from each workplace practice.
		1.4	Recognize and follow relevant legislations, codes, and national standards that impact on workplace environmental practices.
2.	Design ways to improve environmental work practices.	2.1	Make relevant suggestions to designated personnel for improvements to workplace practices in as much as is possible.
		2.2	Gather information on workplace environmental improvement projects
		2.3	Develop an understanding of workplace improvement practices that are useful.
		2.4	Discuss environmental workplace practices with colleagues and designated personnel.
3.	Develop an environmental workplace policy.	3.1	Determine specific targets and objectives of the environmental policy.
		3.2	Keep proper records of improvement in environmental practices at the workplace.
		3.3	Identify alternative interventions to support workplace practices.

- 3.4 Make suitable decisions by agreeing on most appropriate interventions.
- 4. Develop an environmental management program
 - 4.1 Identify various executable activities.
 - 4.2 Delegated responsibilities to various persons.
 - 4.3 Determined timeliness of each activity.
 - 4.4 Conduct close monitoring of workplace activities.
- 5. Recognize and report on a potential environmental threat
 - 5.1 Signs and symptoms of potential environmental threats identified and recognized.
 - 5.2 Disseminate information about observations of a potential environmental threat to relevant authorities.
 - 5.3 Location and extent of potential environmental threat recorded accurately.
 - 5.4 Completed reports on environmental threats according to enterprise guidelines.
- 6. Prepare and maintain environmental records
 - 6.1 Environmental progress reports prepared according to establishment in industry policies.
 - 6.2 Communicated environmental progress.
- 7. Report on progress of environmental program
 - 7.1 Prepared accurate environmental records according to enterprise guidelines.
 - 7.2 Completed environmental records in a manner such that they are legible, identifiable and traceable to the activity, product or service involved.
 - 7.3 Maintained records in such a way that they are readily retrievable and protected against damage, deterioration or loss.
 - 7.4 Kept accurate records of environmental progress.
 - 7.5 Stored environmental records securely in a form that is accessible to all members of staff for reporting purposes.

RANGE STATEMENT

The range of variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training assessment requirements may depend on the work situations and available resources.

Recognize and follow environmental management programs. This may include:

- That a person will acknowledge that environmental impacts, hazards and risks exist and that they have a responsibility to work in a manner which will minimize the impact on the environment within the guidelines established by the workplace.

Workplace procedures and work instructions include:

- Written procedures or work instructions for environmental hazard and risk identification.
- Avoiding or minimizing environmental risks.
- Improving environmental performance.
- Waste minimization and sorting.
- Environmental monitoring
- Signs and labels (e.g., chemical labels)
- Emergency procedures
- Hazard and incident recording and reporting procedures and environmental data recording and reporting procedures.
- Verbal instructions from persons with responsibility related to environmental work practices are also included in this definition.

Legislation, codes, and national standards may include:

- Award and enterprise agreements
- Relevant environmental legislation from all levels of government, (NEPA), international agreements and relevant industry Codes of Practice.

Designated personnel may include:

- Managers
- Supervisors
- People who are responsible for work area or those who may be assigned to act as a mentor/ trainer to a person under instruction.

Environmental threat or problems may include

- Animals, plants and diseases.
- Unauthorized changes in land use
- Fire risks and hazards
- Illicit dumping

Environmental threats and hazards may include:

- Spills
- Leaks
- Pollution
- Planned and unplanned emissions
- Soil compaction
- Disturbance and erosion
- Accidents and disposal of waste
- Damage or disruption to ecosystems resulting from work practices.
- Erection of illicit structures/buildings
- Illicit mining, drilling, blasting
- Blocking/changing water courses

Suggestions may include:

- ideas generated to minimize risk and associated hazards
- strategies to minimize waste
- measures to conserve primary materials.
- efficient utilization of raw materials.
- improvement in habitat resources.
- reduction in soil disturbance
- proper waste disposal strategies
- reduction of waste
- water quality- pollution and contamination
- energy use and efficiency
- protection of biodiversity
habitat protection and reduction of habitat alteration
- conservation of natural resources
- air quality

Workplace strategies to environmental practices may include:

Preventing and minimizing the production of pollutants (e.g., discharges to air, land and water, Hazardous waste)

- Improvement in workplace management practices (avoid substituting the use of a hose for a broom, purchasing environmentally friendly products (raw materials, cleaning agents)
- Composting, recycling materials, conservation practices

Signs or symptoms of a potential environmental threat may include:

- observation of the presence of weeds, insects, animals, or chemicals
- damage caused to plants, animals, or the environment.
- changes in the physical and physiological functions of plants and animals.
- erosion of soils
- soils suspended in water
- accumulation of salts

Inappropriate human interaction on the environment may include:

- habitat alteration and habitat destruction
- disruption in animal behaviour and territorial use
- illicit land clearing activities
- seed collection
- fuel wood collection

Charcoal burning

- destruction of nest and nestlings
- egg collection
- land degradation and contamination
- noise

Inappropriate burning

Environmental policies may include the following:

- reduction of waste and proper waste management
- sustainability of agreed policies
- integrated pest management- insects, weed, animals
- land management and habitat conservation
- resource conservation
- energy use (solar, wind, hydro)
- green house gas emissions
- chemical, equipment and plant use
- raw material purchase and use

Environmental resources may include:

- environmental data
- maintenance and inspection reports.
- incident or accident reports
- complaints from the public

EVIDENCE GUIDE

Competency is to be demonstrated by effectively observing environmental workplace practices in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

- Observe and contribute to positive environmental work practices.
- Follow workplace directions and instructions.
- Recognize basic environmental hazards and threats and communicate accurately with supervisors and workplace colleagues
- Awareness of relevant environmental legislation, policies and communicate accurately with supervisors and workplace colleagues
- Keep simple records
- Improve environmental performance, and environmental issues in regard to water catchments, air, noise, ecosystems, habitat, and efficient use of resources, sustainability and waste minimization.
- Determine how to obtain the needed management support for an environmental management program.

(2) Pre-requisite Relationship of Units

- Nil

(3) Underpinning Knowledge and Skills

Knowledge

Knowledge of:

- Relevant legislation from all levels of government on environmental issues.
- Relevant environmental policies and workplace / industry practices and procedures..
- Environmental issues, especially in regard to water catchments, air, noise, ecosystems, habitat, and efficient use of resources, sustainability and waste minimization.
- Potential environmental threats and problems relevant to a given region and occupation.
- General workplace practices and their potential impact on the environment.
- Potential consequences of departure from specified operating procedures

Skills

The ability to:

- Communicate with supervisors and workplace colleagues.
- Recognize basic environmental hazards and threats.
- Follow workplace directions and instructions.
- Keep simple records
- Reduce pollution
- Prevent pollution
- Monitor and measure progress
- Develop solutions and corrective actions
- Specify accountability and responsibilities of organization's management, onsite service providers and contractors for environmental protection program,

(4) Resource Implications

Assessment requires access to a range of opportunities defined in the range of variables. These may include:

- reduction of waste
- availability of land
- accessibility to technical expertise
- environmental training

(5) Method of Assessment

In order to ensure consistency in performance and identified situational variables it will be necessary to collect evidence across a range of clients.

Evidence may be gathered in various ways including the following:

- Careful scrutiny of records
- Interrogation- oral/ written.
- Assessments based on training offered and or other relevant means of assessments.
- Supervisors/Employers statement of support

The whole activity can be made flexible by assessing more than one element or unit of competency at the same time if the appropriate situation occurs in workplace or an appropriate simulated situation occurs in workplace or an appropriate simulated situation is designed.

(6) Context of Assessment

Competency should be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
<ul style="list-style-type: none"> Carries out established processes Makes judgement of quality using given criteria 	<ul style="list-style-type: none"> Manages process Selects the criteria for the evaluation process 	<ul style="list-style-type: none"> Establishes principles and procedures Evaluates and reshapes process Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 2	
Use technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

AGGCOR0032A: Communicate in the workplace

Competency Descriptor:

This unit deals with the skills and knowledge required to communicate effectively within the organization and to carry out the necessary duties to ensure proper running of the unit.

Competency Field: Agriculture

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Communicate in the workplace	1.1	Formal and informal lines of communication are developed for use within the organization.
		1.2	Appropriate methods of communication are selected and used for the transfer of information both within and outside the unit.
		1.3	Communication is clear and compatible with the needs of the situation.
		1.4	Barriers to effective communication are diagnosed and minimized and/or eliminated.
		1.5	Body language and verbal cuing techniques are used in facilitating communication, where necessary.
2	Inform individuals and group	2.1	Group dynamics and group techniques are utilized in information sharing and development of communication links within the workplace and to outside agencies.
		2.2	Telephone and other appropriate communication systems are used to develop linkages and provide clear and relevant advice and information.
3	Apply written skills in workplace communication	3.1	Written material in the form of business letters, memoranda and summary reports are prepared in an appropriate manner according to enterprise standards and accepted convention.
		3.2	Structure and content of business correspondence, both manually and with word processing, reflect the requirements of current business practice.
		3.3	Spelling, grammar and punctuation is correct and used in accordance with recognised standards of communication in the business place.

RANGE STATEMENT

This unit of competency should be demonstrated in accordance with the :

- policies and procedures in regard to the transfer of information within the unit network

Legislation, codes and national standards relevant to the workplace may include:

- Jamaica Livestock Association
- Jamaica Agricultural Society
- Jamaica Farmers Association
- Local health regulations
- OHS and hygiene requirements
- First Aid regulations/requirements

The unit network may include:

- unit team members
- suppliers of feed and other materials
- veterinary surgeons
- operations management
- government departments and agencies
- Ministry of Agriculture
- Jamaica Farmers Association
- local farmers
- market outlets for produce
- relevant unions
- private consultants

Appropriate communications may include the use of:

- telephones
- mobile phones
- two-way radio
- paging systems
- answering machines/voice mail
- facsimile
- face-to-face contact
- e-mail
- internet
- word processing
- letters
- memorandum

OHS issues that impact upon the performance of this unit include:

- communication with all relevant personnel regarding identified hazards and agreed risk control measures
- communication in emergency situations to ensure the health and safety of all people
- safe manual handling systems and procedures
- safe systems and procedures to protect against electrical hazards

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to effectively gather information and pass on information to other team members and supervisors in the workplace.

Competency should also be seen in the ability to select the most appropriate method of communication to suit the situation and to ensure that sending and receiving of information occurred.

(1) Critical Aspects of Evidence

Evidence should include a demonstrated ability to efficiently and consistently communicate and know how to communicate to achieve competency in the workplace.

(2) Pre-requisite Relationship of Units

- Nil

(3) Underpinning Knowledge and Skills

Knowledge

Knowledge of:

- The agriculture industry network
- industry developments and issues
- relevant interview techniques
- safe working practices
- gathering information
- organizing and selecting method of communication
- types of communication
- methods of communication

Skills

The ability to:

- interface with the full range of industry personnel
- critically observe and report accurately on the full range of industry issues
- disseminating information correctly
- select and use suitable method of communication
- drawing conclusions
- making clear and accurate notes and diagrams
- transmitting findings to appropriate authorities for consideration
- communicate formally and informally
- use different communication equipment/technique
- communicate by writing/orally
- use computer to communicate effectively

(4) Resource Implications

The following resources should be made available:

- different methods of communication
- communication equipment/material
- stationery
- computer

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision and when the student/ apprentice is able to successfully perform all the required Performance Criteria relevant to the Unit in an acceptable time frame.

Competencies in this unit may be demonstrated concurrently.

(6) Context of Assessment

This unit must be assessed through practical demonstration on-the-job dealing with communication within the workplace and to locations outside of the unit(which may be on or off the farm). The underpinning knowledge may be assessed off-the-job with the use of written or verbal items inclusive of short answer or project.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
<ul style="list-style-type: none"> Carries out established processes Makes judgement of quality using given criteria 	<ul style="list-style-type: none"> Manages process Selects the criteria for the evaluation process 	<ul style="list-style-type: none"> Establishes principles and procedures Evaluates and reshapes process Establishes criteria for evaluation

Collecting, analysing and organising ideas and information	Level 2	
Communicating ideas and information	Level 2	
Planning and organising activities	Level 2	
Working with others and in teams	Level 2	
Use mathematical ideas & techniques	Level 1	
Solve problems	Level 2	
Using technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

AGHCRP0002A: Perform propagation activities

Competency Descriptor:

This unit describes the operation of vegetative propagation undertaken principally in commercial production nurseries and in some large gardening operations where nursery facilities are available.

Competency Field: Agriculture - Horticulture

ELEMENT OF COMPETENCY PERFORMANCE CRITERIA

1. Collect propagation materials	1.1	Parent plant is prepared and collection method employed suitable to species and according to enterprise guidelines and supervisors instructions.
	1.2	Maximum viability of propagated material is maintained by conditioning and storage according to the requirements of the species.
	1.3	Tools are chosen appropriate to the task being undertaken, used according to enterprise guidelines, and safe working practices are employed.
2. Propagate plants	2.1	Pre-planting treatment is applied and/or carried out appropriate to the propagation method and species according to enterprise policy and supervisors instructions.
	2.2	Placement and depth comply with requirements of the planting method and species.
	2.3	Seeds are handled in a way that minimise damage and maximise viability.
	2.4	Water and nutrients are applied to suit the media conditions, plant requirements and propagation techniques employed, and according to manufacturers instructions.
	2.5	Labels and identification are correct and applied according to enterprise guideline.
	2.6	Remedial action is taken, as specified in planting program, to control pests and diseases.
	2.7	Records are completed accurately and at the required time according to enterprise guidelines.

- 2.8 Tools are chosen appropriate to the task being undertaken, used according to guidelines, and safe working practices are employed.
- 2.9 Tool and equipment cleaning and storage procedures are performed, and hygiene practices are followed according to enterprise guidelines.

RANGE STATEMENT

Legislation, codes and national standards relevant to the workplace may include:

- Labour laws of Jamaica.
- Pesticide control authority regulations.
- Occupational Health & Safety (OHS).
- Hygiene requirements.
- First Aid regulations/requirements

Label information may include:

- date
- species
- variety
- cultivar

Propagation may include:

- seed - (small seed sown in modules and pricked out or sown in seedbeds by hand)
- cuttings - (hardwood stem
- semi-ripe stem, leaf, root
- simple layering
- growing on tissue cultured plants
- division or splitting
- grafting and budding

Records may include:

- required by legislation
- required for management purposes

Equipment required for potting up may include:

- pots
- media ready
- growing-on site ready to receive newly-potted plants
- refuse bins

Activities may include:

- pricking out
- potting on
- re-potting

Reasons for re-potting may include:

- root reduction into same-size pot
- pot selection
- replace part of media (fresh nutrition)
- leaf reduction
- shaping

Plants may include:

- potted plants for display

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to apply of knowledge and skills to the propagation of plants using a variety of methods.

(1) Critical Aspects of Evidence

Evidence should include a demonstrated ability to:

- consistently follow supervisor's instructions
- report and record within established routines
- prepare parent plant and propagation materials to enterprise standards
- use a variety of methods to propagate plants of different species
- select and use tools appropriate to propagation method
- store propagation materials appropriately
- label propagated plants according to enterprise standards

(2) Pre-requisite Relationship of Units

- AGGCOR0031A Plan and organize work
- AGGOR0041A Use hazardous substances safely
- AGGCOR0061A Implement pest control programme
- AGHCRP0011A Provide propagation support
- AGHCRP0021A Prepare and establish planting materials

(3) Underpinning Knowledge and Skills

Knowledge

Knowledge of:

- basic principles and practice in the
- promotion of plant growth
- handling techniques for different plant types
- methods used to prepare different plant types for propagation
- basic hygiene practices in plant production
- conditions for successful plant establishment
- plant classification
- plant physiology
- photosynthesis, respiration, translocation, absorption, transpiration
- vegetative organs and their functions
- the effects of moisture, light, aeration, temperature and pathogenic organisms on propagated plants
- types of soil and soil science
- pests and diseases affecting plants
- plant propagation methods
- plant growth regulators
- basic propagation techniques

Underpinning Knowledge and Skills (Cont'd)Knowledge

Knowledge of:

- correct conditioning and storage procedures
- growing media
- nursery hygiene
- plant growth and development, impact of external influences
- plant nutrition programs
- plant recognition
- crop support components
- procedures for measuring length
- procedures for calculating area, volume, ratio and proportion
- records keeping
- verbal and non verbal communication skills
- OHS regulations and procedures
- First aid procedures

Skills

The ability to:

- prepare materials for propagation
- maintain parent plant
- maintain the hygiene of parent stock, equipment and environment
- install crop support components where necessary
- identify pests and diseases affecting plants
- apply OHS regulations and procedures
- apply First aid procedures
- measure length
- calculate area, volume, ratio and proportion
- complete records
- apply verbal and non verbal communication skills

(4) Resource Implications

The following resources should be made available:

- vegetative materials/parent stock
- tools and materials used in propagating plants

(4) Method of Assessment

Evidence should be collected over a set period of time through direct observation, intermittent checking and questioning related to underpinning knowledge. This should include dealing with an appropriate range of crops and planting techniques.

Competencies in this unit may be demonstrated concurrently.

(6) Context of Assessment

This unit must be assessed through practical demonstration on-the-job.

The underpinning knowledge may be assessed off-the-job with the use of written or verbal items inclusive of short answer, extended essay items project or portfolio.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
<ul style="list-style-type: none"> Carries out established processes Makes judgement of quality using given criteria 	<ul style="list-style-type: none"> Manages process Selects the criteria for the evaluation process 	<ul style="list-style-type: none"> Establishes principles and procedures Evaluates and reshapes process Establishes criteria for evaluation

Collecting, analysing and organising ideas and information	Level 1	
Communicating ideas and information	Level 1	
Planning and organising activities	Level 1	
Working with others and in teams	Level 1	
Use mathematical ideas & techniques	Level 1	
Solve problems	Level 1	
Using technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

AGHFAM0022A: Install irrigation systems

Competency Descriptor:

This competency standard covers the process of installing micro-irrigation systems under routine supervision.

Competency Field: Agriculture - Horticulture

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1 Prepare tools and materials for installation work	1.1 Materials, tools, equipment and machinery are selected according to irrigation design requirements and supervisors instructions. 1.2 The site for installation of the micro-irrigation system is identified according to the site and irrigation system plans and enterprise work procedures. 1.3 Parts and equipment delivered to site are checked according to system drawings and specifications. 1.4 Water supply is checked to ensure that it is compatible with system specifications.
2 Set out and prepare site	2.1 Measurement and marking out of irrigation lines are undertaken as directed by supervisor. 2.2 Equipment operation and work practices conform with enterprise and legislative OHS requirements. 2.3 Pre-operational and safety checks are carried out on tools, equipment and machinery according to manufacturers specifications and enterprise work procedures. 2.4 OHS hazards are identified, risks assessed, controls implemented and reported to the supervisor. 2.5 Suitable safety and personal protective equipment (PPE) are selected, used and maintained
3 Install irrigation components	3.1 Work is undertaken according to plan and supervisors instructions. 3.2 Components are assembled and connected according to plan, joints are completed and tested.

- | | | | |
|---|-------------------------------|-----|---|
| | | 3.3 | A clean and safe work area is maintained while installation work is carried out. |
| | | 3.4 | Tools are chosen appropriate to the task being undertaken and used according to guidelines and safe working practices are employed. |
| 4 | Complete installation work | 4.1 | Earthworks are finished off to plan specifications and enterprise work procedures. |
| | | 4.2 | The site is restored and waste material is removed from the site and disposed of in an environmentally aware and safe manner according to enterprise work procedures. |
| | | 4.3 | Tools, equipment and machinery are cleaned, maintained and stored according to enterprise work procedures. |
| | | 4.4 | System is flushed and commissioned as directed. |
| | | 4.5 | Operating faults are identified and reported to supervisor and/or corrective actions taken. |
| 5 | Make arrangement for drainage | 5.1 | Foot drains are properly laid out |
| | | 5.2 | Ensured no restriction to exit water way |
| | | 5.3 | Blockages are reported |

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed.

The scope of variables chosen in training and assessment requirements may depend on the work situations available.

Tools, equipment and machinery may include:

- surveying and levelling equipment such as automatic level, laser level, dumpy level, Cowley level, staff, boning rods, pegs
- notebook
- pencil
- calculator

Irrigation systems may include:

- low pressure micro-sprays
- drippers

Hand tools may include:

- rakes
- shovels
- spades
- rollers
- wheelbarrows
- hoses and hose fittings

Machinery may include:

- bobcats

Machinery may include:

- ditch diggers
- backhoes
- front-end loaders
- graders
- mechanical rollers
- trucks

Safety equipment may include:

- signage and barriers

PPE may include:

- hat
- boots
- overalls
- gloves
- goggles
- respirator or face mask
- face guard
- hearing protection
- sunscreen lotion
- hard hat

Enterprise work procedures may include:

- supervisors oral or written instructions
- installation program
- enterprise Standard Operating Procedures (SOP)
- specifications
- routine maintenance schedules
- work notes
- product labels and Material Safety Data Sheets (MSDS)
- manufacturers service specifications and operators manuals
- waste disposal
- recycling and re-use guidelines
- OHS procedures

- hydraulic trailers
- tractors
- 3-point linkage equipment
- pumps and pump fittings
- welding tools appropriate to the irrigation system

Irrigation equipment may include:

- pumps
- delivery equipment
- system controllers

Water supplies may be:

- underground
- mains or surface storage including fixtures such as dams, bores, windmills, tanks, and channels

OHS requirements may include:

- identifying hazards; assessing risks and implementing controls
- cleaning, maintaining and storing tools, equipment and machinery
- appropriate use of PPE including sun protection
- safe operation of tools, equipment and machinery
- safe handling, use and storage of chemicals and hazardous substances
- correct manual handling
- basic first aid
- personal hygiene, and reporting problems to supervisors

Maintaining a clean and safe work environment may include:

- disabling unused tools, equipment and machinery and storing neatly out of the way of installation activities
- safely storing materials on site
- using signage and safety barriers during and removing after construction activities are completed
- swiftly and efficiently removing and processing debris and waste from the work area

Waste material may include:

- unused construction and excavated materials
- plant debris
- litter and broken components.

Waste may be removed to designated areas for:

- recycling
- reuse
- return to the manufacturer or disposal

Exit water way may include:

- drain
- pipe
- calverts

EVIDENCE GUIDE

Competency is to be demonstrated by effectively installing irrigation systems in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

- Prepare for installation
- Set out the installation works
- Install and test the irrigation system
- Clean up the site.

(2) Pre-requisite Relationship of Units

- Nil

(3) Underpinning Knowledge and SkillsKnowledge

Knowledge of:

- methods and techniques of micro-irrigation
- components of an micro-irrigation system
- characteristics and operation of joints, valves and sprinkler components
- operation of pumps and water flow rates
- behaviour of water on varying terrain and soil types
- soil water retention testing techniques
- enterprise OHS procedures
- drainage technique/systems

Skills

The ability to:

- organise equipment and materials for installation work
- set out and prepare site
- install irrigation components
- complete installation work
- communicate with work team members, supervisors, contractors and consultants
- determine drainage hazards
- install drainage system

(4) Resource Implications

- Hand tools
- Pipes and fittings
- Emitters (Nozzles), Lances
- Pump
- Strainer/Filter
- Valves
- Manufacturer's manual

(5) Method of Assessment

In order to ensure consistency in performance and identified situational variables it will be necessary to collect evidence across a range of clients.

Evidence may be collected in a variety of ways including:

- Review record
- Questioning - oral/written
- Authenticated assessments and/or assignments from relevant training courses
- Supporting statement from supervisor or previous employer

It may be possible to assess more than one element or unit of competency at the same time if the appropriate situation occurs in workplace or an appropriate simulated situation is designed.

(6) Context of Assessment

Competency should be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
<ul style="list-style-type: none"> Carries out established processes Makes judgement of quality using given criteria 	<ul style="list-style-type: none"> Manages process Selects the criteria for the evaluation process 	<ul style="list-style-type: none"> Establishes principles and procedures Evaluates and reshapes process Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 2	
Use technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

AGHFAM0042A: Install drainage systems

Competency Descriptor:

This competency standard covers the process of installing surface and/or subsurface drainage systems.

Competency Field: Agriculture

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Prepare for drainage system installation activities	1.1 Materials, tools, equipment and machinery are selected according to drainage system design requirements and enterprise work procedures. 1.2 Pre-operational and safety checks are carried out on tools, equipment and machinery according to manufacturers specifications and enterprise work procedures. 1.3 OHS hazards are identified, risks assessed, controls implemented and reported to the supervisor. 1.4 Suitable safety and personal protective equipment (PPE) are selected.
2. Prepare the site for installation of drainage system	2.1 Symbols and terminology are interpreted to ensure the concept of the drainage system plan is clearly understood according to industry practice. 2.2 Survey, measurement and marking out of the site and confirmation of soil characteristics relevant to the planned drainage system are completed according to plan specifications and enterprise work procedures. 2.3 Layout of services is identified, depths checked against the site or drainage system plan and discrepancies are reported to the supervisor and the relevant authority
3. Undertake installation of drainage system	3.1 Installation of the drainage system is undertaken according to OHS requirements and with due consideration of the environmental implications and relevant legislation and regulations. 3.2 Excavations are completed without damage to services, facilities, features and established plants according to plan are executed according to specification and enterprise work procedures. 3.3 The drainage system is installed according to the drainage system plan and enterprise work procedures.

- 3.4 A clean and safe work area is maintained throughout the installation processes.
 - 3.5 The drainage system is tested for configuration, flow rates and capacity consistent with the drainage system plan and according to enterprise work procedures.
 - 3.6 The supervisor is consulted and remedial action is taken when the drainage system operation does not meet the plan specifications.
 4. Complete installation of drainage system
 - 4.1 Earthworks are finished off to the plan specifications and enterprise work procedures.
 - 4.2 The site is restored and waste material is removed from the site and disposed of in an environmentally aware and safe manner according to enterprise work procedures.
 - 4.3 Tools, equipment and machinery are cleaned, maintained and stored according to enterprise work procedures.
 - 4.4 Work outcomes are recorded or reported to the supervisor according to enterprise work procedures.

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

Drainage systems may include:

- surface drains
- culverts
- mole drains
- sand slit
- sub-surface traps
- pit and trap systems
- dune and swale systems
- reed beds
- water-recycling pumps and baffles

Enterprise work procedures may include:

- supervisors oral or written instructions
- installation program
- enterprise standard operating procedures (SOPs)
- specifications
- routine maintenance schedules
- work notes
- product labels and Material Safety Data Sheets (MSDS)
- manufacturers service specifications and operators manuals
- waste disposal
- recycling and re-use guidelines
- OHS procedures

Materials may include:

- drainage system components
- glues
- welds
- construction materials for drain surfaces and slopes
- backfill materials

Tools, equipment and machinery may include:

- automatic level
- laser level
- dumpy level
- staff
- boning rods
- pegs
- notebook
- pencil and calculator
- rakes
- shovels
- spades
- rollers
- wheelbarrows
- hoses and hose fittings
- ditch digger
- backhoes
- front-end loaders
- graders
- mechanical rollers
- trucks
- hydraulic trailers
- tractors and 3-point linkage equipment
- pumps and pump fittings
- welding tools appropriate to the drainage system
- small skid steer tractor
- fitting tools

OHS hazards may include:

- disturbance or interruption of services
- solar radiation
- dust
- noise
- soil and waterborne micro-organisms
- chemicals and hazardous substances
- manual handling
- moving vehicles
- machinery and machinery parts
- uneven surfaces and flying and falling objects

PPE may include:

- hat
- boots
- overalls
- gloves
- goggles
- respirator or face mask
- face guard
- hearing protection
- sunscreen lotion
- hard hat

Environmental implications may include:

- restructuring and creation of slopes for drainage purposes
- enabling the enterprise to store and recycle storm and grey water for re-use within the enterprise, thereby reducing detrimental impacts on the external environment such as salinisation, waterlogging and erosion

Safety equipment may include:

- signage and barriers

OHS requirements may include:

- identifying hazards
- assessing risks and implementing controls
- cleaning
- maintaining and storing tools, equipment and machinery
- appropriate use of PPE including sun protection
- safe operation of tools, equipment and machinery
- safe handling, use and storage of chemicals and hazardous substances
- correct manual handling
- basic first aid
- personal hygiene
- reporting problems to supervisors

Clean and safe work area may be maintained by:

- disabling unused tools, equipment and machinery and storing neatly out of the way of installation activities
- safely storing materials on site
- using signage and safety barriers during construction and removing them after activities are completed
- removing and processing debris and waste from the work area

Services to be located may include:

- water supply
- gas lines
- power (electricity)
- telecommunications
- irrigation
- stormwater and drainage

Waste may be removed to designated areas for:

- recycling
- reuse
- return to the manufacturer or disposal

Waste material may include:

- unused construction and excavated materials, and plant debris
- litter and broken components
- mulched or composted
- plastic
- metal

Paper-based materials may be:

- recycled
- re-used
- returned to the manufacturer or disposed of according to enterprise work procedures

EVIDENCE GUIDE

Competency is to be demonstrated by effectively installing drainage systems in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

Evidence should include a demonstrated ability to:

- Prepare for installation activities
- Set out, survey, test and excavate the installation site
- Install and test the drainage system
- Clean up the installation site

(2) Pre-requisite Relationship of Units

- Nil

(3) Underpinning Knowledge and Skills

Knowledge

Knowledge of:

- the purposes of drainage systems and the application of drainage system plans to the physical situation
- drain types, components and installation techniques
- environmental impacts of irrigation and drainage systems
- soil characteristics
- enterprise OHS procedures

Underpinning Knowledge and Skills Cont's

Skills

The ability to:

- communicate with work team members, supervisors, contractors and consultants
- interpret site specifications and drainage system plans
- measure materials and site
- level and align earthworks
- use equipment, tools and machinery
- implement and follow relevant enterprise OHS and environmental policies and procedures
- installation of drainage system
- test drainage system configuration

(4) Resource Implications

- Personal protective equipment
- Hand tools
- Building plans
- Ladders
- Plungers

(5) Method of Assessment

In order to ensure consistency in performance and identified situational variables it will be necessary to collect evidence across a range of clients.

Evidence may be collected in a variety of ways including:

- Review record
- Questioning - oral/written
- Authenticated assessments and/or assignments from relevant training courses
- Supporting statement from supervisor or previous employer

It may be possible to assess more than one element or unit of competency at the same time if the appropriate situation occurs in workplace or an appropriate simulated situation is designed.

(6) Context of Assessment

Competency should be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
<ul style="list-style-type: none"> Carries out established processes Makes judgement of quality using given criteria 	<ul style="list-style-type: none"> Manages process Selects the criteria for the evaluation process 	<ul style="list-style-type: none"> Establishes principles and procedures Evaluates and reshapes process Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 2	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 2	
Use technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

AGHCRP0192A: Treat pest

Competency Descriptor:

This competency standard covers the process of animal pests and disease control using appropriate management according to local, national, regional, and international protocols.

Competency Field: Agriculture - Horticulture

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Recognise pests and diseases.	1.1 Clinical signs of pest and disease infestations identified. Damage classified according to agent, and management strategy. 1.2 Infestations reported to supervisor and appropriate control measures taken according to supervisors' instructions and enterprise policy.
2. Undertake pest and disease treatment.	2.1 Tools and equipment prepared and used according to supervisor' instructions and manufacturers guidelines. 2.2 Suitable personal protective equipment (PPE) selected and used. 2.3 Treatments prepared according to supervisors' instructions and manufacturers guidelines. 2.4 Treatments administered according to enterprise guidelines and species requirements.
3. Clean and store equipment as required	3.1 Equipment cleaned and prepared for storage as necessary. 3.2 Equipment loaded for transport safely, if necessary, in accordance with OHS practices. 3.3 Equipment stored, as required, in accordance with enterprise policy and procedures.
4. Keep records	4.1 Details on pest or disease infestation gathered and documented. 4.2 Treatment regimes documented and results tabulated according to enterprise policy. 4.3 Information updated and reviewed as appropriate and records maintained according to enterprise guidelines.

RANGE STATEMENT

The Range Statement explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

OHS requirements may include:

- use and storage of farm chemicals
- protection against chemical residues including that in/on foliage, water, soil and other items
- identifying hazards; assessing risks and implementing controls
- cleaning, maintaining and storing tools, equipment and machinery
- appropriate use of PPE including sun protection
- safe operation of tools, equipment and machinery
- safe handling, use and storage of chemicals and hazardous substances
- correct manual handling
- basic first aid
- personal hygiene, and reporting problems to supervisors

PPE may include:

- hat
- boots
- overalls
- gloves
- goggles
- respirator or face mask
- face guard
- hearing protection

Pest and diseases may be treated with:

- Insecticides
- Fungicides
- Bactericides
- Nematicides
- Cultural control

Other types of pest may include:

- mites
- nematodes
- slugs & snails

Insects may be:

- sucking insects
- chewing insects

Causes of diseases may include:

- bacteria
- fungus

Tools, equipment and machinery may include:

- motor sprayer
- knapsack sprayer
- mixing drum
- calculator
- measuring instruments

Application may be:

- Mechanized
- non mechanized

EVIDENCE GUIDE

Competency is to be demonstrated by effectively treating pest and disease in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

Evidence should include a demonstrated ability to:

- identification of various types of pest damage
- identification of disease symptoms
- development of management plan
- implement plan
- clean and restore equipment
- keep accurate records

(2) Pre-requisite Relationship of Units

- Nil

(2) Underpinning Knowledge and Skills

Knowledge

Knowledge of:

- characteristics of common pest and diseases
- chemical control measures
- non-chemical and cultural control techniques
- integrating chemical and non-chemical control measures
- how to determine areas volume, rates and proportion
- mode of action of different group of chemicals
- infestation characteristics of common pest and diseases of the enterprise/region
- enterprise ohs procedures
- characteristics of common pest and diseases
- chemical control measures
- non-chemical and cultural control techniques
- integrating chemical and non-chemical control measures

Skills

The ability to:

- identify pest and diseases
- apply non-chemical and environmental control measures
- keep records
- calculate rates proportions, areas volumes as required
- identify pests and diseases
- apply non-chemical and environmental control measures
- keep records

(4) Resource Implications

The following resources should be made available:

- pesticides
- application equipment
- personal protective equipment
- water
- microscope/hand lens

(5) Method of Assessment

In order to ensure consistency in performance and identified situational variables it will be necessary to collect evidence across a range of clients.

Evidence may be collected in a variety of ways including:

- Review record
- Questioning - oral/written
- Authenticated assessments and/or assignments from relevant training courses
- Supporting statement from supervisor or previous employer

It may be possible to assess more than one element or unit of competency at the same time if the appropriate situation occurs in workplace or an appropriate simulated situation is designed.

(6) Context of Assessment

Competency should be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
<ul style="list-style-type: none"> Carries out established processes Makes judgement of quality using given criteria 	<ul style="list-style-type: none"> Manages process Selects the criteria for the evaluation process 	<ul style="list-style-type: none"> Establishes principles and procedures Evaluates and reshapes process Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 2	
Use technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

AGHCRP0082B: Support crop harvesting

Competency Descriptor:

This unit deals with the skills and knowledge required to perform routine assessment of crops and determine readiness for harvesting. It also encompasses the basic manual crop picking, sorting and/or grading in the field prior to delivery to packing shed.

Competency Field: Agriculture

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Perform routine assessment of plant products for harvesting	1.1	The calendar date from flowering to predicted harvest is calculated.
		1.2	The estimated maturity date is forecasted.
		1.3	Observations are made against established characteristics of cultivars to determine harvest.
		1.4	Observations are reported to supervisor according to enterprise policy.
2.	Harvest the crop	2.1	Crop selected for harvesting conforms to enterprise standards for maturity, quality and health.
		2.2	Work practices employed for harvesting minimised plant damage.
		2.3	Work practices employed reflect efficient use of time, material resources and labour.
		2.4	Harvesting procedures are carried out according to company policy.
		2.5	Equipment is prepared, used, cleaned and maintained according to company standards.
		2.6	Problems encountered are reported according to enterprise policy.
		2.7	Field harvest records are maintained according to company policies.
3.	Apply pre-grading procedures	3.1	Containers are distributed at strategic locations throughout the field.
		3.2	In field transport of produce from plant to container are done to preserve quality of produce.

- | | | | |
|----|---------------------------------------|-----|--|
| | | 3.3 | Containers are packed to specifications to avoid damage during transport. |
| | | 3.4 | Containers are transported to packing/grading stations. |
| 4 | Grade and pack harvest produce | 4.1 | Crops are sorted and graded according to enterprise policy and industry standards. |
| | | 4.2 | Appropriate containers are selected and prepared for the packaging of the produce. |
| | | 4.3 | Products are packed to prevent bruise/damage according to enterprise requirements. |
| 5. | Transport the crop | 5.1 | Containers are labelled according to company policy. |
| | | 5.2 | Containers are moved in a manner which minimises damage to product. |
| | | 5.3 | Temperature of product is maintained at the levels set by industry. |
| | | 5.4 | Containers are maintained in good condition. |
| 6. | Perform post harvest field sanitation | 6.1 | Discarded plant material is collected to maintain field hygiene according to enterprise standards. |
| | | 6.2 | Diseased and/or rotten plant material is disposed of according to enterprise standards. |
| | | 6.3 | Suspected problems are reported according to company policy. |

RANGE STATEMENT

Problems may include:

- equipment failure
- pests
- diseases
- unhealthy plants
- improper handling techniques

Harvesting procedures may include:

- equipment usage
- selection standards
- removing rotten or immature produce
- out of type variants
- taking due care of produce

Produce can include:

- flowers
- bulbs
- tubers
- foliage crops
- fruits
- vegetables and condiments
- grains and pulses
- root and tubers
- semi permanent crops
- permanent crops

Legislation, codes and national standards relevant to the workplace may include:

- Labour laws of Jamaica
- Pesticide control authority regulations
- Occupational Health & Safety (OHS)
- Hygiene requirements
- First Aid regulations/requirements

Harvesting equipment and supplies may include:

- snips
- knives
- gloves
- bags
- containers (trays, boxes & bulk bin, buckets)
- ladders
- picking poles
- tractor with harvester

Company policies may include:

- handling techniques
- grades of crop required
- channels of communication
- harvesting procedures
- hygiene standards
- use of chemical standards
- selection criteria

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to apply of knowledge and skills to a range of harvesting tasks and roles.

(1) Critical Aspects of Evidence

Evidence should include a demonstrated ability to:

- recognize the optimum time of harvest for a crop
- determine maturity of crop according to published characteristics of cultivars
- make realistic forecast for date of harvesting
- apply correct and efficient harvesting techniques
- consistently follow supervisor's instructions
- transport produce to packing/storage area without damage to produce
- report and record within established routines

(2) Pre-requisite Relationship of Units

- AGGCOR0011A Maintain the work environment
- AGGCOR0031A Plan and organize work

(4) Underpinning Knowledge and SkillsKnowledge

Knowledge of:

- the basic attributes of plant produce
- the desired quality of produce to be harvested
- maturity index for different crops
- methods of harvesting different crops
- problems resulting from early /late harvesting
- methods used to remove field heat
- harvesting techniques appropriate for specific crops
- bundling and packing techniques
- grading and sorting techniques
- relevant Occupational Health & Safety (OHS) and transport regulations
- transportation of produce
- procedures for measuring length
- procedures for calculating area, volume, ratio and proportion
- time management skills
- record keeping
- verbal and non verbal communication
- first aid procedures
- field hygiene/sanitation
- types of packaging containers
- infield labelling of containers

Skills

The ability to:

- determine crop maturity
- harvest the produce
- transport produce
- remove field heat from produce
- sort and grade produce
- store produce
- apply Occupational Health & Safety (OHS) regulations
- apply procedures for measuring length
- apply procedures for calculating area, volume, ratio and proportion
- apply time management skills
- maintain records
- apply first aid procedures
- maintain hygiene of produce
- communicate both verbally and non-verbally
- package and stack produce

(4) Resource Implications

The following resources should be made available:

- crops to be harvested
- harvesting tools for various crops
- containers for harvesting
- transport
- packing/grading station
- dump site
- company policy and procedure manual

(5) Method of Assessment

Evidence should be collected over a set period of time through direct observation and questioning related to underpinning knowledge. This should include dealing with an appropriate range of produce and harvesting techniques.

Competencies in this unit may be demonstrated concurrently.

(6) Context of Assessment

This unit must be assessed through practical demonstration on-the-job

The underpinning knowledge may be assessed off-the-job with the use of written or verbal items inclusive of short answer, extended essay items project or portfolio.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
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Collecting, analysing and organising ideas and information	Level 2	
Communicating ideas and information	Level 1	
Planning and organising activities	Level 1	
Working with others and in teams	Level 1	
Use mathematical ideas & techniques	Level 1	
Solve problems	Level 1	
Using technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

AGHCRP0092A: Perform post harvest operations

Competency Descriptor:

This unit deals with the skills and knowledge required to carry out post harvest operations in a horticultural enterprise. It covers field transport, grading, and packing of harvested crops.

Competency Field: Agriculture - Horticulture

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Transport produce	1.1	Field handling practices and equipment used reflect industry best practice.
		1.2	Sorting practices which minimise damage to product are utilised in line with enterprise standards.
2.	Clean plant products	2.1	Product is washed, foreign material and dirt removed, and excess leaves stripped and/or trimmed as directed.
		2.2	Material is dried as directed according to enterprise standards.
3.	Determine market specifications prior to packaging	3.1	Colour, weight and dimension specifications of produce used by industry are determined according to enterprise policy.
		3.2	Specifications relating to the amount of blemishes on produce used by industry are determined.
4.	Grade, label and treat produce	4.1	Crop is graded and labelled according to market requirements and supervisors instructions.
		4.2	Post-harvest treatments are applied according to company policy.
		4.3	Plants that do not meet enterprise quality specifications are identified and disposed of according to enterprise policy
5.	Pack produce	5.1	Appropriate container for the produce is selected according to the market requirements and enterprise policy.
		5.2	Correct filling techniques used for specific containers according to industry, and supervisor's instruction.
		5.3	Wraps and lids are applied and containers are labelled to meet industry and client requirements.

6. Store plant products	6.1	Produce is stored as directed.
	6.2	The storage facility's monitoring gauges are read accurately and efficiently
	6.3	Abnormal readings are reported to the supervisor according to company policy.
	6.4	The condition of stored produce is checked randomly and abnormal readings are reported to the supervisor according to company policy.
	6.5	Work practices are economical, methodical and meet established work schedules.
	6.6	Manual handling techniques when lifting or moving heavy loads conform to enterprise Occupational Health & Safety (OHS) guidelines.
7. Maintain storage and grading facility hygiene levels	7.1	Damaged produce and broken containers are removed from the storage facility.
	7.2	Containers are cleaned to a level of hygiene acceptable to industry standards.
	7.3	The storage facility is cleaned without damaging monitoring or refrigeration equipment.

RANGE STATEMENT

Legislation, codes and national standards relevant to the workplace may include:

- Labour laws of Jamaica.
- Pesticide control authority regulations.
- Occupational Health & Safety (OHS).
- Hygiene requirements.
- First Aid regulations/requirements

Containers may include:

- bulk bins
- boxes
- trays
- bags
- baskets
- crates

This unit of competency should be demonstrated in accordance with the enterprise's :

- policies and procedures for contaminants, grades of crops required, temperatures ranges and quality assurance

Other materials/equipment may include:

- packaging /cushioning materials
- scales
- labels
- secateurs
- molten wax
- storage space/room

Plant products may include:

- flowers
- foliage
- bulbs
- fruits
- vegetables
- herbs
- tubers
- roots
- condiments
- grains
- pulses

Processes may include:

- cleaning
- washing
- brushing
- sorting
- grading
- labeling

Treatment may include:

- dipping
- spraying
- waxing

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to apply of knowledge and skills to a range of post harvesting tasks and roles.

(1) Critical Aspects of Evidence

Evidence should include a demonstrated ability to:

- grade, label and treat produce according to market specification
- use efficient methods to pack and store produce
- apply correct and efficient guidelines for the storage of produce
- monitor the storage facility
- consistently follow supervisor's instructions
- report and record within established routines

(2) Pre-requisite Relationship of Units

- AGHCRP0082A Support crop harvesting

(3) Underpinning Knowledge and SkillsKnowledge

Knowledge of:

- re-harvest and post harvest handling techniques
- problems resulting from early or late harvesting
- field handling and transport methods relevant to different enterprise crops
- post-harvest treatments
- safe use of hazardous substances used in post harvest operations
- OHS principles relating to lifting heavy objects
- enterprise quality procedures
- industry standards for packaging
- procedures for measuring length
- procedures for calculating area, volume, ratio and proportion
- time management skills
- records keeping
- verbal and non verbal communication skills
- OHS regulations and procedures
- First aid procedures
- packing techniques for different crops
- methods of packing
- types of packing materials and containers
- requirements for cooling various crop products
- storage techniques and principles
- methods/techniques of storing different crops

Skills

The ability to:

- transport produce
- grade label and treat produce
- pack produce
- clean produce
- administer re-hydration treatment
- store products
- apply procedures for measuring length
- apply procedures for calculating area, volume, ratio and proportion
- apply time management skills
- maintain records
- apply verbal and non verbal communication skills
- apply OHS regulations and procedures
- apply First aid procedures

(4) Resource Implications

The following resources should be made available:

- harvested crops
- packing area/shed
- storage facility with appropriate storage environment and equipment

(5) Method of Assessment

Evidence should be collected over a period of time through direct observation and questioning related to underpinning knowledge. This should include dealing with an appropriate range of produce and post harvesting techniques

Competencies in this unit may be demonstrated concurrently.

(6) Context of Assessment

This unit must be assessed through practical demonstration on-the-job or in a simulated workplace environment requiring until competency is achieved.

The underpinning knowledge may be assessed off-the-job with the use of written or verbal items inclusive of short answer, extended essay items project or portfolio.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
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Collecting, analysing and organising ideas and information	Level 1
Communicating ideas and information	Level 1
Planning and organising activities	Level 1
Working with others and in teams	Level 1
Use mathematical ideas & techniques	Level 1
Solve problems	Level 1
Using technology	Level 1

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

AGHCRP0182A: Establish and maintain vegetable crops

Competency Descriptor:

This unit covers the knowledge and skills required to successfully establish and maintain a wide range of vegetable crops according to local, regional and global protocol.

Competency Field: Agriculture – Horticulture

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Prepare soil	1.1	Land inspected and surface impediments removed according to industry and environmental policies.
		1.2	Land treated and soil prepared according to terrain, available implement, and crop requirements.
		1.3	Preparation done to provide suitable tilth for germination of seeds and development of healthy seedling.
		1.4	Ridges and furrows spaced at intervals to optimise canopy cover by crop.
2	Select planting materials	2.1	Seeds selected based on size, plumpness, conformity to kind and variety, and freedom from damage and infestation.
		2.2	Seedlings selected based on vigour, size, and conformity to varietal characteristics.
		2.3	Planting materials handled in manner to preserve growth potential.
3	Establish crop	3.1	Seeds planted at required spacing and depth, and then covered.
		3.2	Seedbeds/trays watered adequately to facilitate lifting of seedling and minimising damage.
		3.3	Holes made in soil at required depth, and row spacing to receive seedlings.
		3.4	Fertiliser/manure placed to sides of holes and covered with thin layer of soil.
		3.5	Seedlings graded according to size, and grouped for block planting.

-
- 3.6 Seedlings inserted carefully, and soil pressed firmly to make adequate contact with roots (anchorage).
 - 3.7 Seeds/seedlings watered to initiate/maintain growth.
 - 4 Nourish crop
 - 4.1 Crop nutrient requirement determined according to soil characteristics, crop demands, and established system of production.
 - 4.2 Fertiliser materials procured to supply primary and secondary plant nutrients according to crop requirement and industry policy.
 - 4.3 Calculations made to determine amounts of materials to apply per hectare/plant according to recommendations and crop requirements.
 - 4.4 Fertiliser materials applied uniformly to soil using recommended method and implement according to organisation and industry policies.
 - 5 Protect crop
 - 5.1 Fields inspected and monitored regularly to determine types and infestation/infection level at each site.
 - 5.2 Pest infestation/infection identified, and levels of damage assessed according to enterprise and industry policies.
 - 5.3 Losses in yield, quality and income estimated based on levels of damage, cost of control measure, and value of crop saved, in accordance with enterprise policy.
 - 5.4 Pest management strategy developed and implemented in accordance with enterprise, industry, and regulatory policies.
 - 6 Conserve soil
 - 6.1 Slopes 10-25 percent terraced to facilitate mechanical soil preparation and minimise soil loss according to industry and environmental policies.
 - 6.2 Grass or other appropriate mulch applied to reduce impact of raindrops on bare soil.
 - 6.3 Waterways constructed to divert water flow around slopes, then down slope via structures designed to control erosion.
 - 7 Irrigate crop
 - 7.1 Irrigation components located, connected securely, and the system tested.
 - 7.2 Drainage components located, and path cleared to allow free movement of waste water

- 7.3 Water applied to crop at required rate using appropriate method.
- 7.4 System monitored to ensure compliance
- 7.5 System shut-down as soon as desired soil saturation achieved, and components cleaned and stored.

RANGE STATEMENTS

Vegetable crops may include:

- tomato
- cucumber
- squash
- cabbage
- callaloo
- lettuce
- carrot
- turnip
- radish
- sweet pepper
- pumpkin
- pak choi
- mushroom

Land treatment may include:

- levelling
- stone and stump removal
- terracing
- construction of soil conservation structures

Fertiliser materials may include:

- organic
- inorganic types

Organic types (manures) may include:

- animal manures
- green manures
- compost
- mulches

Legislations, codes and national standards relevant to the workplace may include:

- Jamaica Farmers Association
- Local health regulations
- Operational Health and Safety requirements
- First Aid regulations/ requirements
- Bureau of Standards

Soil may be prepared as:

- individual mounds (ridges)
- continuous banks

Crop may be established by:

- direct seeding into well prepared soil
- by transplanting

Seeds may be germinated and grown to:

- seedling stage in seed trays
- seed cups
- seed beds

Animal manures may include:

- poultry
- pig
- cattle
- horse
- other forms of farmyard wastes

Inorganic fertilizers may be:

- simple/straight carrier
- mixed
- compound/complex carrier

Erosion control may include:

- terraces
- diversion drains
- artificial waterways
- individual basins

Types of erosion may include:

- stream bank
- splash
- gully
- rill
- sheet
- soil slippage

Crop Protection tactics include:

- resistant varieties
- crop rotation
- other cultural means
- chemical pesticides
- mechanical means
- biological means

Primary plant nutrients are nitrogen, phosphorus, potassium:

- Secondary plant nutrients calcium, magnesium, sulphur

Infestation of viruses and bacteria may reduce:

- Marketability of produce

Land preparation equipment may include:

- ploughs
- cultivators
- harrows
- cultivators
- seed planters

Seed beds may be:

- rained
- sunken

Irrigation methods may include:

- drip
- sprinkler
- furrow

Methods of fertilizer application may include:

- top dressing
- side dressing
- broadcasting
- banding

Insects may cause damage by:

- chewing
- cutting
- sucking
- piercing

Pests of vegetables may be bacteria, fungi, nematodes, insects

EVIDENCE GUIDE

(1) Critical Aspects and Evidence

Evidence should include a demonstrated ability to

- identify vegetable crops and their environmental requirements
- prepare, select, establish, nourish and protect vegetable crops

(2) Pre-requisite Relationship of Units

- Nil

(3) Underpinning Knowledge and Skills

Knowledge

Knowledge of:

- vegetables grown in the region
- climatic and soil requirement of each type of vegetable crop
- pests affecting vegetable crops and their management practices
- types of fertiliser materials, and how to apply them
- types of irrigation and drainage systems
- selecting planting materials
- planting techniques
- soil conservation practices
- how to determine areas, volumes, rates and proportions

Skill

The ability to:

- identify vegetable crops grown in the region
- locate and prepare soil suitable for each vegetable crop
- manage pests affecting vegetable crops
- apply fertiliser materials safely
- apply water to crop, and remove excess as necessary
- establish vegetable crops
- prevent soil erosion
- calculate rate, proportions, areas, volumes as required

(4) Resource Implications

- fertiliser materials
- planting materials
- application equipment
- personal protective equipment
- anchorage/substrate
- light
- irrigation and drainage components
- soil conservation structures
- water

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision and when the student/ apprentice is able to successfully perform all the required Performance Criteria relevant to the Unit in an acceptable time frame.

Competencies in this unit may be demonstrated concurrently using actual performance, equipment working to establishment standards and through work reports and interviews

(6) Context of Assessment

This unit must be assessed through practical demonstration on-the-job dealing with the establishment and maintenance of vegetable crops. The underpinning knowledge may be assessed off the job with the use of written or verbal items inclusive of short answer or project.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
<ul style="list-style-type: none"> Carries out established processes Makes judgement of quality using given criteria 	<ul style="list-style-type: none"> Manages process Selects the criteria for the evaluation process 	<ul style="list-style-type: none"> Establishes principles and procedures Evaluates and reshapes process Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 2	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 2	
Use technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

AGHCRP0102A: Establish and maintain root and tuber crops

Competency Descriptor:

This unit covers the knowledge and skills required to successfully establish and maintain root and tuber crops in accordance with established local, regional and international protocol.

Competency Field: Agriculture - Horticulture

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Prepare soil	1.1 Land inspected and surface impediments removed according to industry and environmental policies. 1.2 Land treated and soil prepared according to terrain, available implement, and crop requirements. 1.3 Preparation done with adequate room to facilitate development of storage structures below ground. 1.4 Banks and mounds spaced at intervals to optimise canopy cover by crop.
2. Select planting materials	2.1 Preferred type of planting materials selected according to established practice. 2.2 Select planting material base on age and location on plant according to established practice. 2.3 Recommended length or weight of material used to facilitate optimal amount and quality yield according to market requirement. 2.4 Pre treatment done to enhance germination and rapid establishment according to established practice.
3. Establish crop	3.1 Preferred type of planting material used to seed crop according to established practice. 3.2 Planting occurs at time (season) most appropriate for rapid growth of seed materials. 3.3 Planting material set out at depth, angle, and spacing according to established practice. 3.4 Crop support structures installed according to established practice.

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| 4. | Nourish crop | 4.1 Crop nutrient requirement determined according to soil and plant characteristic, and established system of production. |
| | | 4.2 Fertiliser materials procured to supply primary and secondary plant nutrients according to crop requirement. |
| | | 4.3 Calculations made to determine amounts of materials to apply per hectare according to recommendations and crop requirements. |
| | | 4.4 Fertiliser materials applied uniformly to soil using recommended method and implement. |
| 5. | Manage pests | 5.1 Fields inspected and monitored regularly to determine types and infestation/infection level at each site. |
| | | 5.2 Pest infestation/infection identified and levels of damage assessed according to enterprise and industry policies. |
| | | 5.3 Losses in yield, quality and income estimated based on levels of damage, cost of control measure, and value of crop saved, in accordance with enterprise policy. |
| | | 5.4 Pest management strategy developed and implemented in accordance with enterprise, industry, and regulatory policies |
| 6 | Conserve soil (control erosion) | 6.1 Slopes 10-25 percent terraced to facilitate mechanical soil preparation and minimise soil loss according to industry and environmental policies. |
| | | 6.2 Grass or other appropriate mulch applied to reduce impact of raindrops on bare soil. |
| | | 6.3 Waterways constructed to divert water flow around slopes, then down slope via structures designed to control erosion. |
| 7. | Remove excess soil moisture | 7.1 Drainage components located, and path cleared to allow free movement of waste water |
| | | 7.2 Drainage system checked for proper functioning according to enterprise and industry policies. |
| | | 7.3 Slope and size of drainage components adequate to remove excess water and prevent flooding or erosion in accordance with crop requirement, enterprise, and industry policies. |
| | | 7.4 Water removed to designated area in accordance with enterprise, industry, and environmental policies. |

RANGE STATEMENTS

<p>Legislations, codes and national standards relevant to the workplace may include:</p> <ul style="list-style-type: none"> • Jamaica Farmers Association • Local health regulations • Operational Health and Safety requirements • First Aid regulations/ requirements • Bureau of Standards 	<p>Root and tuber crops may include:</p> <ul style="list-style-type: none"> • yam • sweet potato • cassava • white (Irish) potato • edible aroids
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<p>Land treatment may include:</p> <ul style="list-style-type: none"> • levelling • stone and stump removal • terracing • construction of soil conservation • drainage structures 	<p>Edible aroids may include:</p> <ul style="list-style-type: none"> • dasheen • coco • eddo
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Placing of seed material may be:

- vertical
- angled
- horizontal

Crop support structures may be:

- stake
- trellis

Diseases may include:

- anthracnose
- wilt
- white mould
- rust
- root rots

Organic types (manures) may include:

- animal manures
- green manures
- compost
- mulches

Insect pests may include:

- weevil bore
- stem shoot fly

Fertiliser materials may include:

- organic
- inorganic types

Preferred types of planting materials may include:

- 45 cm stem cuttings (cassava),
- bulbils (yam),
- setts (yam, irish potato, aroids),
- corms,
- cormels & stem cuttings consisting of apical portion of corm and basal portion of stem petiole (aroids),
- 30 cm vine tip cuttings (sweet potato)
- Yam may be spaced 90 cm x 90 cm
- Cassava spaced 90 cm x 90 cm
- Aroids spaced 45 cm x 75 cm small sp. (dasheen); and 60 cm x 75 cm large (coco)
- Sweet potato spaced at 30 cm x 75 cm
- Irish potato spaced at 30 cm x 75 cm

Soil may be prepared as:

- individual mounds (ridges)
- continuous banks

Animal manures may include:

- poultry
- pig
- cattle
- horse
- other forms of farmyard wastes

Yam types may be:

- soft (st Vincent, renta, sweet);
- hard (yellow, negro, lucea, tau).

Sweet potato types may be:

- Yellow
- Red
- Cream
- White
- pink

Crop protection equipment may include:

- Sprayers
- Dusters
- Wipers
- Injectors

Other pests include:

- nematode

Inorganic fertilizers may be:

- simple/straight carrier;
- mixed,
- compound/complex carrier

Land preparation equipment may include:

- Ploughs
- Harrows
- Cultivators
- Seed planters
- ridgers

Cassava types may be:

- Sweet
- bitter

EVIDENCE GUIDE

(1) Critical Aspects and Evidence

Evidence should include a demonstrated ability to

- identify root and tuber crops and their environmental requirements
- prepare, select, establish, nourish and protect root and tuber crops

(2) Pre-requisite Relationship of Units

- Nil

(3) Underpinning Knowledge and SkillsKnowledge

Knowledge of:

- Land preparation methods for various crops in various production systems
- Climatic and soil requirement for various crops
- Types of planting materials used to establish crops
- Establishment procedures for commercial crop production
- Types, methods and sources of plant nutrients
- Pests affecting commercial crops and the management tactics used
- Causes, and types of soil erosion, and methods used to prevent it
- Installation and maintenance of drainage systems
- How to determine areas, volumes, rates and proportions

Skill

The ability to:

- Select land suitable for the production of root crops
- Apply pre till treatment to land
- Prepare soils to grow root crops
- Choose preferred planting materials to establish root crops
- Establish root crops in various production systems
- Select crop nutrient materials
- Apply crop nutrient materials
- Identify various pests
- Manage pests in commercial crop production
- Identify soil loss situations
- Apply soil conservation practices
- Remove excess water from crops
- Calculate rate, proportions, areas, volumes as required

(4) Resource Implications

- fertiliser materials
- planting materials
- application equipment
- personal protective equipment
- irrigation and drainage components
- soil conservation structures
- water
- anchorage/substrate
- light

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision and when the student/ apprentice is able to successfully perform all the required Performance Criteria relevant to the Unit in an acceptable time frame.

Competencies in this unit may be demonstrated concurrently using actual performance, equipment working to establishment standards and through work reports and interviews

(6) Context of Assessment

This unit must be assessed through practical demonstration on-the-job dealing with the establishment and maintenance of root and tuber crops. The underpinning knowledge may be assessed off the job with the use of written or verbal items inclusive of short answer or project.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
<ul style="list-style-type: none"> Carries out established processes Makes judgement of quality using given criteria 	<ul style="list-style-type: none"> Manage process Select the criteria for the evaluation process 	<ul style="list-style-type: none"> Establishes principles and procedures Evaluates and reshapes process Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 3	
Use technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

AGHCRP0112A: Establish and maintain pulse and grain

Competency Descriptor:

This unit covers the knowledge and skills required to successfully establish and maintain pulse and grain crops in accordance with established local, regional and international protocol.

Competency Field: Agriculture - Horticulture

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Prepare soil	1.1 Land inspected and surface impediments removed according to industry and environmental policies. 1.2 Land treated and soil prepared according to terrain, available implement, and crop requirements. 1.3 Preparation done to provide tilth suitable for germination of seeds and development of healthy seedling. 1.4 Ridges and furrows spaced at intervals to optimise canopy cover by crop.
2. Select planting materials	2.1 Seeds selected based on size, plumpness, conformity to kind and variety, and freedom from damage and infestation. 2.2 Seedlings (rice) selected based on vigour, size, and conformity to varietal characteristics. 2.3 Planting materials handled in manner to preserve growth potential.
3. Establish crop	3.1 Seed planter adjusted to ensure that seeds are planted at required spacing and depth, and then covered. 3.2 Seeds placed in soil at required depth and row spacing. 3.3 Seedlings delivered at required depth and spacing. 3.4 Fertiliser/manure placed appropriately and covered with thin layer of soil. 3.5 Seeds watered to initiate growth.

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| 4. | Nourish crop | 4.1 Crop nutrient requirement determined according to soil and plant characteristic, and established system of production. |
| | | 4.2 Fertiliser materials procured to supply primary and secondary plant nutrients according to crop requirement and industry policy. |
| | | 4.3 Calculations made to determine amounts of materials to apply per hectare according to recommendations and crop requirements. |
| | | 4.4 Fertiliser materials applied uniformly to soil using recommended method and implement according to organisation and industry policies. |
| 5. | Protect crop | 5.1 Fields inspected and monitored regularly to determine types and infestation/infection level at each site. |
| | | 5.2 Pest infestation/infection identified, and levels of damage assessed according to enterprise and industry policies |
| | | 5.3 Losses in yield, quality and income estimated based on levels of damage, cost of control measure, and value of crop saved, in accordance with enterprise policy |
| | | 5.4 Pest management strategy developed and implemented in accordance with enterprise, industry, and regulatory policies |
| 6. | Conserve soil (control erosion) | 6.1 Slopes 10-25 percent terraced to facilitate mechanical soil preparation and minimise soil loss according to industry and environmental policies. |
| | | 6.2 Grass or other appropriate mulch applied to reduce impact of raindrops on bare soil. |
| | | 6.3 Waterways constructed to divert water flow around slopes, then down slope via structures designed to control erosion. |
| 7. | Irrigate crop | 7.1 Irrigation components located, connected securely, and the system tested. |
| | | 7.2 Drainage components located, and path cleared to allow free movement of waste water |
| | | 7.3 Water applied to crop at required rate using appropriate method. |

- 7.4 System monitored to ensure compliance with organisation and environmental policies.
- 7.5 System shut-down as soon as desired soil saturation achieved, and components cleaned and stored according to manufacturers and organisational policies.

RANGE STATEMENTS

Legislations, codes and national standards relevant to the workplace may include:

- Jamaica Farmers Association
- Local health regulations
- Operational Health and Safety requirements
- First Aid regulations/ requirements
- Bureau of Standards

Grain crops may include:

- corn
- rice
- sorghum

Insect pests of pulses may include:

- pod borers
- leaf hoppers
- white flies

Diseases of pulses may include:

- mosaic (bean, yellow)
- rust

Insect pests of cereals may include:

- stem and stalk borers
- weevils
- bugs
- beetles
- caterpillars

Soil may be prepared as:

- individual mounds (ridges)
- continuous banks

Land treatment may include:

- levelling
- stone and stump removal
- terracing
- construction of soil conservation structures

Fertiliser materials may include:

- organic
- inorganic types

Organic types (manures) may include:

- animal manures,
- green manures,
- compost, mulches

Animal manures may include:

- poultry
- pig
- cattle
- horse
- other forms of farmyard wastes

Diseases of cereals may be:

- rust
- smut
- blast
- anthracnose

Irrigation methods may include:

- drip
- sprinkler
- furrow (flood)

Types of erosion may include:

- stream bank
- splash
- gully
- rill
- sheet
- soil slippage

Primary plant nutrients are:

- nitrogen
- phosphorus
- potassium

Secondary plant nutrients may be:

- calcium
- magnesium
- sulphur

Land preparation equipment may include:

- Ploughs
- Harrows
- Cultivators
- Seed planters
- ridgers

Inorganic fertilizers may be:

- simple/straight carrier
- mixed
- compound/complex carrier

Erosion control may include:

- terraces
- diversion drains,
- artificial waterways
- individual basins

Methods of fertilizer application may include:

- top dressing,
- side dressing,
- broadcasting,
- banding

Crop Protection tactics may include:

- resistant varieties
- crop rotation
- other cultural means,
- chemical pesticides
- mechanical means,
- biological means

Pulse crops may include:

- gungo (pigeon) peas
- kidney beans
- cowpeas
- peanut
- broad beans
- sweet peas
- soybean

EVIDENCE GUIDE

(1) Critical Aspects and Evidence

Evidence should include a demonstrated ability to

- identify pulse and grain crops and their environmental requirements
- prepare, select, establish, nourish and protect pulse and grain crops

(2) Pre-requisite Relationship of Units

- Nil

(3) Underpinning Knowledge and Skills

Knowledge

Knowledge of:

- pulse crops grown in the region
- grain crops grown in the region
- environmental requirements for cereals and pulses
- pests affecting pulse and grain crops and their management practices
- types of fertiliser materials, and how to apply them
- types of irrigation and drainage systems
- selecting planting materials
- planting techniques
- soil conservation practices
- how to determine areas, volumes, rates and proportions

Skill

The ability to:

- identify pulse crops
- identify cereal crops
- locate and prepare soil suitable for each pulse and cereal crop
- manage pests affecting cereal and pulse crops
- apply fertiliser materials safely
- apply water to crop, and remove excess as necessary
- establish cereal and pulse crops
- prevent soil erosion
- calculate rate, proportions, areas, volumes as required

(4) Resource Implications

- fertiliser materials
- planting materials
- application equipment
- personal protective equipment
- irrigation and drainage components
- soil conservation structures
- water
- anchorage/substrate
- light

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision and when the student/ apprentice is able to successfully perform all the required Performance Criteria relevant to the Unit in an acceptable time frame.

Competencies in this unit may be demonstrated concurrently using actual performance, equipment working to establishment standards and through work reports and interviews

(6) Context of Assessment

This unit must be assessed through practical demonstration on-the-job dealing with the establishment and maintenance of pulse and grain crops. The underpinning knowledge may be assessed off the job with the use of written or verbal items inclusive of short answer or project.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
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Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 2	
Use technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

AGHCRP0142A: Establish and maintain condiments

Competency Descriptor:

This unit covers the knowledge and skills required to successfully establish and maintain a wide range of condiments in accordance with local, regional and global protocols.

Competency Field: Agriculture – Horticulture

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Prepare soil	1.1 Land inspected and surface impediments removed according to industry and environmental policies. 1.2 Land treated and soil prepared according to terrain, available implement, and crop requirements. 1.3 Preparation done to provide suitable tilth for germination of seeds and development of healthy seedling. 1.4 Ridges and furrows spaced at intervals to optimise canopy cover by crop.
2. Select planting materials	2.1 Seeds selected based on size, plumpness, conformity to kind and variety, and freedom from damage and infestation. 2.2 Seedlings selected based on vigour, size, and conformity to varietal characteristics. 2.3 Sprigs and setts selected according to age, vigour, location on plant. 2.4 Planting materials handled in manner to preserve growth potential.
3. Establish crop	3.1 Preferred type of planting material used to establish crop according to established practice. 3.2 Planting occurs at time (season) most appropriate for rapid growth of seed materials. 3.3 Layout adapted to facilitate cultural practices and harvesting. 3.4 Holes made at required depth in soil to receive planting materials.

- 3.5 Fertiliser/manure placed to sides of holes and covered with thin layer of soil.
- 3.6 Planting materials graded according to size and type, and grouped for block planting.
- 3.7 Planting materials inserted carefully, and soil pressed firmly to make adequate contact.
- 3.8 Holes watered to initiate/maintain growth.
- 4. Nourish crop
 - 4.1 Crop nutrient requirement determined according to soil characteristics, crop demands, and established system of production.
 - 4.2 Fertiliser materials procured to supply primary and secondary plant nutrients according to crop requirement and industry policy.
 - 4.3 Calculations made to determine amounts of materials to apply per hectare/plant according to recommendations and crop requirements.
 - 4.4 Fertiliser materials applied uniformly to soil using recommended method and implement according to organisation and industry policies.
- 5. Protects crop
 - 5.1 Fields inspected and monitored regularly to determine types and infestation/infection level at each site.
 - 5.2 Pest infestation/infection identified and levels of damage assessed according to enterprise and industry policies.
 - 5.3 Losses in yield, quality and income estimated based on levels of damage, cost of control measure, and value of crop saved, in accordance with enterprise policy.
 - 5.4 Pest management strategy developed and implemented in accordance with enterprise, industry, and regulatory policies.
- 6. Conserve soil
 - 6.1 Slopes 10-25 percent terraced to facilitate mechanical soil preparation and minimise soil loss according to industry and environmental policies.
 - 6.2 Grass or other appropriate mulch applied to reduce impact of raindrops on bare soil.

- 6.3 Waterways constructed to divert water flow around slopes, then down slope via structures designed to control erosion.
7. Irrigate crop
- 7.1 Irrigation components located, connected securely, and the system tested.
- 7.2 Drainage components located, and path cleared to allow free movement of wastewater.
- 7.3 Water applied to crop at required rate using appropriate method.
- 7.4 System monitored to ensure compliance with organisation and environmental policies.
- 7.5 System shut-down as soon as desired soil saturation achieved, and components cleaned and stored according to manufacturers and organisational policies.

RANGE STATEMENTS

Condiments may include”

- Eskillion
 - Chives
 - Onion
 - Garlic
 - Thyme
 - Basil
 - Paprika
 - shallot rosemary
 - marjoram
 - pepper
 - dill, many others
- Soil may be prepared as individual mounds (ridges), or continuous banks.
 - Land treatment may include levelling, stone and stump removal, terracing; construction of soil conservation structures
 - Fertiliser materials may include organic or inorganic types
 - Organic types (manures) may include animal manures, green manures, compost, mulches
 - Animal manures may include poultry, pig, cattle, horse, or other forms of farmyard wastes
 - Inorganic fertilizers may be simple/straight carrier; mixed, compound/complex carrier
- Erosion control may include terraces, diversion drains, artificial waterways, individual basins
 - Types of erosion may include stream bank, splash, gully, rill, sheet, soil slippage.
 - Irrigation methods may include drip, sprinkler, micro sprinkler, furrow
 - Methods of fertilizer application may include top dressing, side dressing, broadcasting, banding
 - Crop Protection tactics include resistant varieties, crop rotation and other cultural means, chemical pesticides, mechanical means, and biological means.

- Primary plant nutrients are nitrogen, phosphorus, potassium
- Secondary plant nutrients calcium, magnesium, sulphur

N.B. pimento, cinnamon, nutmeg, annatto as products fit in this group, but plant structure fits in with permanent crops.

EVIDENCE GUIDE

(1) Critical Aspects and Evidence

Evidence should include a demonstrated ability to

- identify condiments and their environmental requirements
- prepare, select, establish, nourish and protect condiments

(2) Pre-requisite Relationship of Units

- Nil

(3) Underpinning Knowledge and Skills

Knowledge

Knowledge of:

- plant propagation techniques
- field layout for various crops
- selection of planting materials
- condiments used in the region
- environmental requirements for each type of condiment
- pests and their management
- types of fertiliser materials and how to apply them
- soil conservation practices
- irrigation and drainage systems
- how to determine areas, volumes, rates and proportions

Skill

The ability to:

- select soils to grow each type of condiment
- prepare soils to meet needs of type of condiment
- determine planting materials used to establish condiments
- select preferred planting material
- prepare planting materials
- lay out field and prepare planting holes
- establish condiments
- maintain condiments
- manage pests
- nourish condiments
- prevent soil erosion
- calculate rate, proportions, areas, volumes

(4) Resource Implications

The following resources should be made available:

- Setts
- plantlets
- seedlings/seeds
- fertilisers
- manures
- irrigation equipment
- hand tools
- pesticides
- application equipment

(5) Method of Assessment

In order to ensure consistency in performance and identified situational variables it will be necessary to collect evidence across a range of situations.

Evidence may be collected in a variety of ways including:

- direct observation
- oral questioning
- authenticated assessments and/or assignments from relevant training courses
- review of records, reports, etc

It may be possible to assess more than one element or unit of competency at the same time if the appropriate situation occurs in workplace or an appropriate simulated situation is designed.

(6) Context of Assessment

This unit should be assessed either on the job for a range of conditions over a number of assessment situations. Assessment should be while tasks are undertaken either individually or as part of a team under limited supervision

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
<ul style="list-style-type: none"> Carries out established processes Makes judgement of quality using given criteria 	<ul style="list-style-type: none"> Manages process Selects the criteria for the evaluation process 	<ul style="list-style-type: none"> Establishes principles and procedures Evaluates and reshapes process Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 3	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 3	
Use technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

AGETOM0042A: Operate farm tractor with implements

Competency Descriptor:

This unit covers the starting and operating procedures of rubber or metal wheel tractor while observing all statutory requirements for travelling on any public road.

Competency Field: Agriculture - Equipment

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Adjust tractor wheel width	1.1	Tractor is jacked up sufficiently and properly secured before removing wheels.
		1.2	Wheels are spaced as far as is practical in order to increase base line stability and reduce side overturns.
		1.3	Wheels are spaced according to the specifications provided.
2.	Adjust tractor track tension	2.1	Tracks are inspected and the tensions are checked for the extent of the deviation.
		2.2	Tensions outside of the allowable limit are corrected by adjusting the tracks as required.
		2.3	Further inspection of the track is made by moving the tractor forward and backward and noting the response of the tract.
3.	Mount and start tractor	3.1	Tractor is mounted using the three points of contact configuration.
		3.2	Steps provided are used to mount the tractor.
		3.3	Tractor is started only from the operator's platform and while in a seating position.
		3.4	Adequate ventilation is provided by opening windows and doors when the tractor is started indoors.
		3.5	Tractor is preheated if necessary.
		3.6	Tractor is started according to the operating manual/manufacturer's instructions.

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| | 3.7 | The engine is allowed to warm up to operating range before putting load on machine. |
| | 3.8 | Oil pressure is allowed to build up before tractor is driven. |
| | 3.9 | Operator is in total control of the tractor. |
| 4. Stop tractor | 4.1 | The PTO lever is set in neutral and attachments (if any) lowered to the ground. |
| | 4.2 | Engine is disengaged after tractor is brought to a complete halt and parking brake is engaged. |
| | 4.3 | Tractor is preferably stopped on level ground; in the event of stopping on a hill tractor is positioned at right angle to the slope. |
| | 4.4 | Wheels are securely blocked if tractor is on any kind of grade/slope. |
| 5. Check gauges and signal lights | 5.1 | Indicator lights, pressure and temperature gauges are all checked and are in proper working condition. |
| 6. Check free play in brake and clutch pedals | 6.1 | In the event that there is no free play in the clutch or brake, it is reported immediately. |
| | 6.2 | Free play of more than 1.5" (3.81 cm) and 2" (5.08cm) in the clutch and brake respectively is reported promptly. |
| 7. Attach, manoeuvre and detach trailer or trailed implement | 7.1 | Tractor is positioned to facilitate attachment of implement. |
| | 7.2 | Implement is attached and adjusted according to the requirements of the application. |
| 8. Operate tractor under various conditions | 8.1 | Extreme caution is exercised in areas with limited space. |
| | 8.2 | The use of warning signals and appropriate speed are maintained during operations. |
| 9. Operate tractor and manipulate attachment controls while compensating for terrain and obstacles | 9.1 | Tractor is operated in low range. |

- 9.2 Negotiation of the tractor is done with the implement in mind.
 - 9.3 Operator assesses terrain before commencing operations.
 - 9.4 Operator correctly interprets the performance of the tractor on the surface and makes the appropriate adjustments.
 - 9.5 Driving through deep contours and on steep contour is avoided as much as possible.
10. Plough soil
- 10.1 The condition of the land to be ploughed is carefully assessed and the best approach to achieve the level of preparation necessary is agreed.
 - 10.2 The tractor, tillage equipment and operation deemed to be most appropriate, given the field condition are recommended.
 - 10.3 Plough is attached and aligned.
 - 10.4 Method/approach to ploughing is appropriate for the terrain, minimize, soil erosion, does not overload and or de-stabilize tractor.
 - 10.5 On flat land direction of ploughing follows the longest side of the field, and field is as level as possible after ploughing (no ridges).
 - 10.6 On sloping lands, ploughing follows given contours.
11. Harrow and refine soil
- 11.1 The condition of the land to be harrowed/refined is carefully assessed.
 - 11.2 The tractor and tillage equipment deemed to be most appropriate, given the field condition are recommended.
 - 11.3 Harrowing implement is attached and aligned.
 - 11.4 The field is assessed and the best approach to achieve the level of preparation necessary is agreed.

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|-----|--|--|--|
| | 11.5 | Method/approach to harrowing/refining is appropriate for the terrain, minimize, soil erosion, does not overload and or destabilize tractor. | |
| | 11.6 | On flat land, direction of harrowing/refining follows the longest side of the field, and field is as level as possible after harrowing/refining (no ridges). | |
| | 11.7 | On sloping land, harrowing/refining follows given contours. | |
| 12. | Carry out periodic inspection of tractor | 12.1 | Tractor is stopped at intervals during work and inspected for signs of loose, missing or damaged parts. |
| | | 12.2 | Implement/attachments and field/ground are checked to ensure the required performance is being achieved. |
| 13. | Fertilize soil | 13.1 | The capacity of the hydraulic system is not overloaded. |
| | | 13.2 | The condition of the field and the height of the crop are assessed to determine the best unit for the job. |
| | | 13.3 | The gear that engages the engine and produces the PTO output required for the correct fertilization rate is engaged. |
| | | 13.4 | The feed gates are correctly adjusted to give the required amount of fertilizer per hectare. |
| 14. | Mow pasture | 14.1 | Unfamiliar areas, especially near gullies and river banks are properly checked out. |
| | | 14.2 | Height and density of the grass is assessed and height of cutter is adjusted accordingly. |
| | | 14.3 | Implement and PTO are engaged and grass is cut in a manner that ensures the cut grass remains separate from uncut grass. |
| | | 14.4 | PTO is disengaged and implement is raised while tractor is reversing. |
| | | 14.5 | Grass is not cut while tractor is reversing. |

- 15. Harvest crop
 - 15.1 Tractor, carts and other equipment are made harvest ready well in advance.
 - 15.2 Equipment sizes and capacities are appropriate to handle the hectares to be harvested.
 - 15.3 Harvest equipment are handled at the optimum settings and speeds to ensure the desired efficiency.
- 16. Drive tractor on highway
 - 16.1 All statutory requirements for travelling on the highway are observed.
 - 16.2 Brake pedals are locked together to ensure straight-line stops.
 - 16.3 In the event that attachments are being transported they are secured, properly mounted and the tractor is adequately counter weighted.
 - 16.4 While driving operator pulls over and allows normal traffic to proceed.
 - 16.5 An adequate stopping distance is maintained at all times.
 - 16.6 Curves and turns are negotiated with due consideration for the tractor's turning radius.
 - 16.7 The engine's compression is used to assist the braking of the tractor especially when descending a slope.
- 17. Park and shut off tractor
 - 17.1 Tractor is parked on level ground.
 - 17.2 In the event that it is necessary to park on a grade, the tractor is positioned at right angle to the slope.
 - 17.3 Wheels are blocked securely when the tractor is on any grade.
 - 17.4 PTO lever is put in neutral and attachment is lowered to the ground.

- 17.5 Engine shut off using the appropriate mechanism and the parking brake is engaged.
- 17.6 The steps and handholds are used to dismount the tractor.

RANGE STATEMENT

Specifications may include:

- track spacing based on crop being grown

Three points of contact configuration may include:

- 2 hands, 1 leg
- 1 hand, 2 legs

Implement may include:

- harrow: disk ridger, trencher
- ploughs: mouldboard, disk, chisel/ripper
- cultivator: spring tine, rotary tillers/hoes, rakes
- planters: seed planter

Terrain may include:

- steep, undulating, flat, irregular, rocky, swampy/marshy

Operation may include:

- sub-soiling, ripping

Alignment may include:

- front to back
- side to side

Track adjuster method may include:

- manual; hydraulic

Warning signals may include:

- flashing lights, horn

- seedling planter
- spreader: fertilizer, manure, mulches
- other categories: posthole digger, bale handler
- rock picker, scrapers for landscape grading, boom sprayer
- mower

Response may include:

- adjust controls – turning down slope
- deferred activity

Types of plough may include:

- mouldboard, chisel, disk

Ploughing approach may include:

- casting pattern
- gathering pattern

Ploughing direction may include:

- east to west, then north to south
- clockwise circular then anticlockwise circular

Harrowing implements may include:

- disks (offset, tandem), spring tooth harrows, tine cultivators, packers, cult packers, rolling baskets

Implement may include:

- brush cutter (rotary blade cutter), sickle-bar blade cutter, chain or flail mower

Harvesting equipment may include:

- mowers- cutter bar mowers, rotary mowers
- combine harvester, stalk harvester
- adaptations of the basic mower unit

Shutting off mechanism may include:

- turning the key
- pulling shut off lever

Assessing the land may include:

- ball test

Type of unit may include:

- single drive
- double drive

Harvesting methods may include:

- manual and mechanical
- mechanical

Statutory equipment may include:

- escorting vehicle, clearance flags, lights and warning signals

EVIDENCE GUIDE

Competency is to be demonstrated by effectively starting and operating a tractor under various conditions, with or without implements while adhering to statutory requirement for travelling on any road.

(1) Critical Aspects and Evidence

Evidence of competency should be demonstrated by effectively:

- adjusting tractor wheel width and track tension
- mounting and start tractor
- bringing tractor to a complete halt
- checking gauges, signal lights, free play in brake and clutch pedals
- attaching, manoeuvring and detaching trailer or trailed implement
- operating tractor under various condition and manipulate attachment control while compensating for terrain obstacle
- ploughing, harrowing, refining and fertilising soil
- carrying out periodic inspection of tractor
- mowing pasture and harvesting crop
- driving tractor on highway
- parking and shutting off the tractor

(2) Pre-requisite Relationship of Units

- Nil

(3) Underpinning Knowledge and SkillsKnowledge

Knowledge of:

- relationship between tractor settings and land preparation and cultivation considerations
- effect of tyre pressure on the tractor efficiency and stability of the tractor
- ballast management, tyre inflation pressure and tract efficiency
- the effect of ballasting and tyre pressures on soil compaction
- characteristics of primary and secondary tillage systems and their applications
- possible negative effects of primary and secondary tillage on the soil and ways to counter these effects
- soil types and conditions
- tractor operations and soil erosion
- tractor operations and subsoil compaction
- regulations governing slow moving vehicles (SMVs)

Skills

The ability to:

- safely utilizes the various components and controls of tractors
- check and confirm operational status of tractor
- set and secure equipment for operation
- carry out periodic inspection of tractor
- attach implements to tractor
- assess condition of field and height of crop to determine best unit for the job
- use engine compression to assist the braking of the tractor when descending a slope
- use the appropriate mechanism to shut off engine

(4) Resource Implications

Resources should include the following:

- farm tractor
- a range of trailed/mounted equipment
- farm/public road

(5) Method of Assessment

In order to ensure consistency in performance and identified situational variables it will be necessary to collect evidence across a range of situations.

Evidence may be collected in a variety of ways including:

- review of daily plan
- direct observation
- questioning – oral \ written
- interview – supervisors, peers, children
- authenticated assessments and/or assignments from relevant training courses
- supporting statement from supervisor or previous employer

(6) Context of Assessment

- This unit must be assessed through practical demonstration using farm tractor and trailed/mounted equipment.
- The underpinning knowledge may be assessed using written or oral questioning technique inclusive of multiple choice, short answers or project.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
<ul style="list-style-type: none"> • Carries out established processes • Makes judgement of quality using given criteria 	<ul style="list-style-type: none"> • Manages process • Selects the criteria for the evaluation process 	<ul style="list-style-type: none"> • Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 2	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 2	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

AGHCRP0162A: Manage weeds

Competency Descriptor:

The skills and knowledge required to management weeds in environmental friendly manner according to local, regional and global protocol.

Competency Field: Agriculture – Horticulture

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Identify weed infestation	1.1 Evidence of weed infestation identified. 1.2 Stage of weed growth determined. 1.3 Types of weeds identified. 1.4 Method of management determined.
2. Prepare equipment/machinery	2.1 Pre-operational checks done on equipment/machinery. 2.2 Personal protective equipment fitted. 2.3 Safeguards engaged to ensure management of targeted weeds and minimal damage to non-target interests.
3. Undertake weed management	3.1 Tools, equipment, and chemicals prepared according to supervisor's instructions. 3.2 Treatment administered according to supervisor's instructions, manufacturer's recommendations, and regulatory standards. 3.3 Work practices conform to organisation, environmental, and industry policies.
4. Clean equipment/machinery	4.1 Residues from equipment/machinery disposed of according to organisation and legislative policies. 4.2 Equipment/machinery cleansed before returned to storage according to organisation policy.
5. Keep accurate records	5.1 Details of weed infestation documented according to organisation and industry policies. 5.2 Treatment specifics documented. 5.3 Information reviewed and updated as appropriate. 5.4 Records maintained and made available.

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|----|--------------------------------------|-----|--|
| 6. | Evaluate/inspect effect of treatment | 6.1 | Treated area surveyed and effectiveness of treatment determined. |
| | | 6.2 | Areas of failure marked for repeat action. |
| | | 6.3 | Time and method of treatment determined for repeat action. |
| | | 6.4 | Supervisor notified about effectiveness of weed management. |

RANGE STATEMENTS

Equipment and machinery may include:

- machetes
- hoes
- hand cultivators
- rotary hoes
- tine cultivators
- ploughs
- harrows
- boom sprayers
- knapsack sprayers
- hand sprayers
- wipers
- dusters
- emitters, etc.

Weeds include:

- grass
- broadleaf
- sedge
- parasitic plants
- economic plants growing in undesired location; outmoded variety of a crop growing among improved ones

Chemical management may include:

- spraying
- dusting
- wiping
- broadcasting
- incorporating

Form of weed may be:

- runner
- stolon
- rhizome
- corm
- twiner
- herb

Methods of management includes:

- manual
- mechanical
- cultural
- biological
- an integration of methods

Weed life cycle include:

- annual
- biennial
- perennial with hard or soft stem

Personal protective equipment may include:

- gloves
- hard shoes
- rubber shoes
- helmet
- dust mask
- chemical resistant respirator
- overall or apron

Chemicals may include:

- herbicides
- stickers
- surfactants
- spreaders
- emulsifiers

Mechanical management of weeds may include:

- moulding
- harrowing
- tining
- rotovating

Action of herbicide may be:

- systemic
- residual or contact
- selective or general

Manual weed management may include:

- cutlassing,
- hoeing,
- physical removal

Biological weed management includes:

- grazing
- growing plants that have domineering effect on weed

Cultural weed management may include:

- using optimal row and inter row spacing;
- establish crop by transplant instead of seeds; mulching

EVIDENCE GUIDE

(1) Critical Aspects and Evidence

Evidence should include a demonstrated ability to:

- Identify, classify and manage weeds at a tolerable level within various crop enterprises

(2) Pre-requisite Relationship of Units

- Nil

(3) Underpinning Knowledge and SkillsKnowledge

Knowledge of:

- characteristics of grasses, broadleaf, sedges
- methods used to manage weeds
- characteristics of weed plants
- equipment, tools, machinery used to manage weeds
- chemicals used to manage weeds
- calibration of spray equipment
- maintenance needs of equipment, tool, and machinery
- factors contributing to failure in weed management programme
- methods of evaluating effectiveness of weed management programme
- record keeping
- basic mathematical functions

Skill

The ability to:

- identify weed infestation problems
- identify types of plants regarded as weeds
- identify stages of weed growth cycle
- identify weak links in growth cycle
- determine management strategy according to weak link
- check tools, equipment, and machinery for working condition
- calibrate application equipment
- fit personal protective equipment
- implement weed management plan
- cleanse tools, equipment, machinery
- dispose of agro-chemical residues safely
- handle hazardous materials safely
- keep accurate and updated records
- evaluate effectiveness of weed management programme
- do basic mathematics relating to areas, volume, length, width, rate, proportion

(4) Resource Implications

- field containing range of weeds
- application equipment
- farm tractor
- range of herbicides and associated agro chemicals
- tillage equipment
- measuring devices (tape, scale, cup)
- personal protective equipment

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision and when the student/ apprentice is able to successfully perform all the required Performance Criteria relevant to the Unit in an acceptable time frame.

Competencies in this unit may be demonstrated concurrently using actual performance, equipment working to establishment standards and through work reports and interviews

(6) Context of Assessment

This unit must be assessed through practical demonstration on-the-job dealing with the management of weeds. The underpinning knowledge may be assessed off the job with the use of written or verbal items inclusive of short answer or project.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
<ul style="list-style-type: none"> Carries out established processes Makes judgement of quality using given criteria 	<ul style="list-style-type: none"> Manages process Selects the criteria for the evaluation process 	<ul style="list-style-type: none"> Establishes principles and procedures Evaluates and reshapes process Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 2	
Use technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

AGMMCH0002A: Sell products and services

Competency Descriptor:

This unit involves the use of sales techniques and encompasses the key selling skills from approaching the customer to closing the sale. It requires a basic level of product knowledge.

Competency Field: Agriculture/Retail Operations

ELEMENT OF COMPETENCY PERFORMANCE CRITERIA

1.	Apply Product Knowledge	1.1	Knowledge of the use and application of relevant products and services demonstrated.
		1.2	Experienced sales staff or product information guide consulted to increase product knowledge.
2.	Approach Customer	2.1	Timing of customer approach determined and applied.
		2.2	Effective sales approach identified and applied.
		2.3	Positive impression conveyed to arouse customer interest.
		2.4	Knowledge of customer buying behaviour demonstrated.
		2.5	Customer focused on specific merchandise.
3.	Gather Information	3.1	Questioning techniques applied to determine customer buying motives.
		3.2	Listening skills used to determine customer requirements.
		3.3	Non-verbal communication cues interpreted and clarified.
		3.4	Customers identified by name where possible.
4.	Sell Benefits	4.1	Customer needs matched to appropriate products and services.
		4.2	Knowledge of products' features and benefits communicated clearly to customers.
		4.3	Product use and safety requirements described to customers.
		4.4	Customers referred to appropriate product specialist as required.
		4.5	Routine customer questions are answered accurately and honestly or referred to more experienced senior sales staff.

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| 5. | Overcome Objections | 5.1 | Customer objections identified and accepted. |
| | | 5.2 | Objections categorised into price, time and merchandise characteristics. |
| | | 5.3 | Solutions offered according to store policy. |
| | | 5.4 | Problem solving applied to overcome customer objections. |
| 6. | Close Sale | 6.1 | Customer buying signals monitored, identified and responded to appropriately. |
| | | 6.2 | Customer encouraged to make purchase decisions. |
| | | 6.3 | Appropriate method of closing sale selected and applied. |
| 7. | Maximise Sales Opportunities | 7.1 | Opportunities for making additional sales recognized and applied. |
| | | 7.2 | Customer advised of complementary products or services according to customer's identified need. |
| | | 7.3 | Personal sales outcomes reviewed to maximise future sales. |

RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency, allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables may be present for this particular unit.

Routine customer questions about merchandise may include:

- price
- price reductions
- quality
- usage

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to sell products and services in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects of Evidence

- applying product knowledge and using an appropriate sales approach to sell the benefits of products, overcome objections and close sales
- using questioning, listening and observation skills to accurately determine customer requirements
- consistently applying store policies and procedures, in regard to selling products and services
- maximising sales opportunities according to store policies and procedures
- consistently applying industry codes of practice, relevant legislation and statutory requirements in regard to selling products and services
- evaluating personal sales performance to maximise future sales

(2) Pre-requisite Relationship of Units

- Nil

(3) Underpinning Knowledge and Skills

Knowledge

Knowledge of:

- store policies and procedures, in regard to:
 - selling products and services
 - allocated duties and responsibilities
- store merchandise and service range
- specific product knowledge for area/section
- basic operational knowledge of relevant:
 - statutory requirements, including consumer protection law (Fair Trading Commission)
 - industry codes of practice,
 - Non-Government consumer organizations

Skills

The ability to:

- verbal and non verbal communications
- questioning/listening/observation
- handling difficult customers
- negotiating
- problem solving
- sales performance appreciation

(4) Resource Implications

All resources must be provided for the assessment. If workplace based, the resources should relate specifically to store policies, procedures and range of stock and equipment. If an off the job or simulated work environment is used then resources should be generic and be applicable to a wide variety of stores/work environments. Resources may include:

A real or simulated retail environment.

Access to a range of customers with different requirements (real or simulated).

Relevant documentation, such as:

- stock/inventory/price lists
- sales order forms
- store policy and procedures manuals

A range of merchandise and products appropriate to the retail workplace.

Product labels and sources of product information.

(5) Method of Assessment

Competency is demonstrated by performance of all stated criteria according to the range of variables applicable to the workplace.

Evidence should be gathered attesting to the achievement of competence by the candidate to the standard required for each element in this unit of competency.

Evidence is best gathered using the products, processes and procedures of the individual workplace context as the means by which the candidate achieves retail industry competencies.

In order to ensure consistency of performance, evidence should be collected over a set period of time which is sufficient to include dealings with an appropriate range and variety of retail situations.

Assessment activities may also include written or verbal short answer testing, multiple choice testing, practical exercises, role plays, research/project work or observation of practical demonstration.

(6) Context of Assessment

Elements of competency contain both theoretical and practical components. The theoretical components may be assessed off the job. The practical components should be assessed either in a work or simulated work environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
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Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 2	
Use technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

AGMMCH0012A: Operate point of sale systems

Competency Descriptor:

This unit involves operations at the point of sale area. It encompasses procedures for use of point of sale equipment and for completing a sales transaction in a retail nursery or farm store.

Competency Field: Agriculture/Retail Services

ELEMENT OF COMPETENCY PERFORMANCE CRITERIA

1. Operate Point of Sale Equipment	1.1	Point of sale equipment operated according to design specifications.
	1.2	Point of sale terminal opened and closed according to store procedure.
	1.3	Point of sale terminal cleared and tender transferred according to store procedure.
	1.4	Cash handled according to store security procedures.
	1.5	Supplies of change in point of sale terminal maintained according to store policy.
	1.6	Active point of sale terminals attended according to store policy.
	1.7	Records completed for transaction errors according to store policy.
	1.8	Adequate supplies of docketts, vouchers and point of sale documents maintained.
	1.9	Customers informed of delays in the point of sales operation.
2. Perform Point of Sale Transactions	2.1	Point of sale transactions completed according to store policy.
	2.2	Store procedures identified and correctly applied in respect of cash and non-cash transactions.
	2.3	Store procedures identified and applied in regard to exchanges and returns.
	2.4	Goods moved through point of sale area efficiently and with attention to fragility and packaging.
	2.5	Information entered into point of sale equipment accurately.

	2.6	Price/total/amount of cash received stated verbally to customer.
	2.7	Correct change tendered.
3. Complete Sales	3.1	Customer order forms, invoices, receipts completed accurately.
	3.2	Customer delivery requirements identified and processed accurately, without undue delay.
	3.3	Sales transactions processed without undue delay or customers directed to point of sale terminals according to store policy.
4. Wrap and Pack Goods	4.1	Adequate supplies of wrapping material or bags maintained/requested.
	4.2	Appropriate packaging material selected.
	4.3	Merchandise wrapped neatly and effectively where required.
	4.4	Items packed safely to avoid damage in transit, and labels attached where required.
	4.5	Transfer of merchandise for parcel pick-up or other delivery methods arranged if required.

RANGE STATEMENTS

The Range Statement provides advice to interpret the scope and context of this unit of competency, allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables may be present for this particular unit.

Customers may include:

- regular and new customers
- people from a range of social, cultural or ethnic backgrounds and physical and mental abilities
- point of sale equipment may be manual or electronic

Store policies and procedures in regard to:

- operation of point of sale equipment
- security
- sales transactions

Store facilities in regard to:

- customer service
- size
- type
- location of store
- wrapping techniques may vary
- according to merchandise range

Point of sale transactions may include:

- cash transactions
- non-cash transactions such as cheques, credit cards, smart cards, lay-by, credits and returns and gift vouchers

Staffing may include:

- Full-time, part-time or casual staff

Handling techniques may vary according to stock characteristics and industry codes of practice

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to effectively communicate in the workplace in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

Evidence should include a demonstrated ability to:

- operate Point of Sale equipment according to manufacturers' instructions and store policies and procedures
- apply store policies and procedures in regard to cash handling and point of sale transactions, according to the range statement
- process sales transaction information responsibly and accurately according to store policies and procedures
- apply store policies and procedures in regard to the handling, packing and wrapping of goods/merchandise
- demonstrate Literacy skills in regard to written sales and delivery documentation
- demonstrate Numeracy skills in regard to handling cash

(2) Pre-requisite Relationship of Units

- Nil

(3) Underpinning Knowledge and SkillsKnowledge

Knowledge of:

- store policies and procedures, in regard to:
 - customer service
 - point of sale procedures/transactions
 - allocated duties and responsibilities
 - processing information
- range of services provided by the store
- stock availability
- basic operational knowledge of relevant:
 - legislation and statutory requirements, including consumer protection law
- operational skills and techniques in:
 - questioning/listening
 - verbal and non verbal communication
 - following set routines and procedures
 - dealing with different types of transactions
 - wrapping and packing techniques
 - store bag checking procedures
 - merchandise handling techniques
- knowledge of cash and non cash handling procedures, including:
 - opening and closing point of sale terminal
 - clearance of terminal and transference of tender
 - maintenance of cash float
 - tendering of change
 - counting cash
 - calculating non-cash documents
 - balancing point of sale terminal
 - recording takings
 - security of cash and non-cash transactions change required and denominations of change
 - credit cards
 - gift vouchers
 - lay by
 - credits, credit notes and returns
 - cheques / travellers cheques
 - customer accounts
 - functions and procedures for operating Point of Sale equipment, including:
 - registers
 - numerical display boards

Underpinning Knowledge and Skills (Cont'd)Knowledge

Knowledge of:

- calculators
- electronic scales
- scanners
- credit cards
- lay by
- credits and returns
- cheques / travellers cheques
- customer accounts
- COD

Skill

Ability to:

- Use a range of communication/electronic equipment
- Read and understand product information
- Read and understand store policies and procedures
- Record information
- Operate point of sale equipment
- Perform point of sale transactions
- Complete sales
- Wrap and pack goods

(4) Resource Implications

The following resources should be made available:

Resources may include:

- a real or simulated retail environment
- relevant documentation, such as:
 - financial transaction dockets/slips
 - stock/inventory/price lists
 - store policy and procedure manuals
 - a range of Point of Sale equipment and materials

(5) Method of Assessment

Evidence is best gathered using the products, processes and procedures of the individual workplace context.

Evidence should be collected over a set period of time which is sufficient to include dealings with an appropriate range and variety of retail situations.

Method of Assessment (Cont'd)

Evidence should be gathered attesting to the achievement of competence by the candidate to the standard required for each element and unit of competency.

The theoretical components may be assessed off the job.

The practical components should be assessed either in a work or simulated work environment. Assessment activities may include any one or a combination of the following: written or verbal short answer testing, multiple choice testing, practical exercises, role plays, research/project work or observation of practical demonstration.

(6) Context of Assessment

This unit may be assessed on or off-the-job. Assessment should include practical demonstration either on-the-job or in a simulated workplace environment. This should be supported by assessment of underpinning knowledge.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
<ul style="list-style-type: none"> Carries out established processes Makes judgement of quality using given criteria 	<ul style="list-style-type: none"> Manages process Selects the criteria for the evaluation process 	<ul style="list-style-type: none"> Establishes principles and procedures Evaluates and reshapes process Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 2	
Use technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

AGHCRP0132A: Install and maintain hydroponic systems

Competency Descriptor:

This competency standard covers the process of installing hydroponic systems under supervision.

Competency Field:

Agriculture - Horticulture

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Prepare tools and materials for installation work	1.1 The site for installation of system identified according to system plans and enterprise work procedures. 1.2 Materials, tools, equipment and machinery selected according to design requirements and supervisors instructions. 1.3 Parts and equipment delivered, checked according to system drawings and specifications. 1.4 Water supply checked to ensure that it is compatible with system specifications.
2. Set out and prepare components	2.1 Measurement and marking out of irrigation lines undertaken as directed by supervisor. 2.2 Equipment operation and work practices conformed to enterprise and legislative OHS requirements. 2.3 Pre-operational and safety checks carried out on tools, equipment and machinery according to manufacturers specifications and enterprise work procedures. 2.4 OHS hazards identified, risks assessed, controls implemented and reported to the supervisor. 2.5 Suitable safety and personal protective equipment (PPE) selected, used and maintained.
3. Install hydroponic components	3.1 Work undertaken according to plan and supervisors instructions. 3.2 Components assembled according to plan, joints are completed and tested. 3.3 A clean and safe work area maintained while installation work is carried out.

- 3.4 Tools chosen appropriate to the task being undertaken, and used according to guidelines and safe working practices are employed.
- 4. Complete installation work
 - 4.1 The site restored and waste material removed from the site and disposed of in an environmentally aware and safe manner according to enterprise work procedures.
 - 4.2 Tools, equipment and machinery cleaned, maintained and stored according to enterprise work procedures.
 - 4.3 System flushed and commissioned as directed.
 - 4.4 Operating faults identified and reported to supervisor and/or corrective actions taken.
- 5. Maintain system
 - 5.1 Check timer and fertiliser pump for proper calibration.
 - 5.2 Fertiliser distributed to plant root system in prescribed proportion.
 - 5.3 Fertiliser medium replaced according to enterprise policy and procedures.
 - 5.4 Light and ventilation maintained at required level.
 - 5.5 Plant root monitored to prevent blockage of pipe systems.
 - 5.6 Hygienic and pest management conditions maintained to prevent any disease or insect infestation.

RANGE STATEMENT

The Range Statement explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

Tools, equipment and machinery may include:

- Pvc pipes
- notebook
- pencil
- calculator
- greenhouse
- translucent plastic
- fertilisers
- water pump
- insecticides
- peat

Irrigation systems may include:

- low pressure micro-sprays
- drippers

Enterprise work procedures may include:

- supervisors oral or written instructions
- installation program
- enterprise Standard Operating Procedures (SOP)
- specifications
- routine maintenance schedules
- work notes
- product labels and Material Safety Data Sheets (MSDS)
- manufacturers service specifications and operators manuals
- waste disposal
- recycling and re-use guidelines
- OHS procedures

Hand tools may include:

- rakes
- shovels
- spades
- wheelbarrows
- hoses and hose fittings

Water supplies may be:

- underground
- mains or surface storage including fixtures such as dams, bores, windmills, tanks, and channels

Irrigation equipment may include:

- pumps
- delivery equipment
- system controllers

OHS requirements may include:

- identifying hazards; assessing risks and implementing controls
- cleaning, maintaining and storing tools, equipment and machinery
- appropriate use of PPE including sun protection
- safe operation of tools, equipment and machinery
- safe handling, use and storage of chemicals and hazardous substances
- correct manual handling
- basic first aid
- personal hygiene, and reporting problems to supervisors

PPE may include:

- hat
- boots
- overalls
- gloves
- goggles
- respirator or face mask
- face guard
- hearing protection
- sunscreen lotion
- hard hat
-

Waste may be removed to designated areas for:

- recycling
- reuse
- return to the manufacturer
- safe disposal

Waste material may include:

- unused construction and excavated materials
- plant debris
- litter and broken components

Non soil material include:

- Peat
- Peat mix
- Rock wool

Maintaining a clean and safe work environment may include:

- disabling unused tools, equipment and machinery and storing neatly out of the way of installation activities
- safely storing materials on site
- swiftly and efficiently removing and processing debris and waste from the work area

EVIDENCE GUIDE

Competency is to be demonstrated by effectively installing and maintaining hydroponic systems in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

Evidence should include a demonstrated ability to:

- Prepare for installation
- Set out the installation works
- Install and test the system
- Clean up the site.
- Maintain system to obtain maximum efficiency

(2) Pre-requisite Relationship of Units

- Nil

(3) Underpinning Knowledge and Skills

Knowledge

Knowledge of:

- methods and techniques of micro-irrigation
- components of an micro-irrigation system
- pest affecting vegetable crop and their management practices
- types of fertiliser material, and how to apply them
- operation of pumps and water flow rates
- how to determine areas volume, rates and proportion
- enterprise ohs procedures

Skills

The ability to:

- organise equipment and materials for installation work
- set out and prepare site
- install irrigation components
- manage pests affecting vegetable
- apply liquid fertiliser safely
- calculate rates proportions, areas volumes as required

(4) Resource Implications

The following resources should be made available:

- Pvc pipes
- Non soil rooting medium
- Water
- Fertilizer material
- Greenhouse

(5) Method of Assessment

In order to ensure consistency in performance and identified situational variables it will be necessary to collect evidence across a range of clients.

Evidence may be collected in a variety of ways including:

- Review record
- Questioning - oral/written
- Authenticated assessments and/or assignments from relevant training courses
- Supporting statement from supervisor or previous employer

It may be possible to assess more than one element or unit of competency at the same time if the appropriate situation occurs in workplace or an appropriate simulated situation is designed.

(6) Context of Assessment

Competency should be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
<ul style="list-style-type: none"> • Carries out established processes • Makes judgement of quality using given criteria 	<ul style="list-style-type: none"> • Manages process • Selects the criteria for the evaluation process 	<ul style="list-style-type: none"> • Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 2	
Use technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

AGHCRP0172A **Implement a propagation plan**

Competency Descriptor:

This competency standard covers the process of plant propagation by both sexual and asexual methods.

Competency Field: Agriculture

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Prepare for propagation activities	1.1	Workplace information interpreted and tasks organised to achieve daily work routine within time constraints.
		1.2	Tools, equipment and machinery selected according to propagation method and enterprise work procedures.
		1.3	Growing environment prepared to suit species and propagation method.
		1.4	Hygiene practices implemented according to enterprise guidelines.
		1.5	OHS hazards identified, risks assessed, controls implemented and reported to the supervisor.
2.	Select propagation material	2.1	Parent plant identified and selected according to health, vigour and desired characteristics.
		2.2	Propagation material selected and collected according to the propagation method, and species.
		2.3	Conditioning and storage requirements established to ensure maximum viability of propagating material.
3.	Prepare propagating media	3.1	Medium components selected according to manufacturer directions, enterprise guidelines, propagation method and plant needs.
		3.2	Propagation medium tested to ensure the product complies with medium specifications.
		3.3	Media and components handled according to OHS requirements.
		3.4	Storage requirements for the unused propagation media selected.

- | | | | |
|----|---------------------------------|-----|--|
| 4. | Propagate | 4.1 | Propagation material prepared according to the propagation method and species. |
| | | 4.2 | Propagation techniques performed according to plant species and enterprise guidelines. |
| | | 4.3 | Plants handled in a way that minimises damage. |
| | | 4.4 | After care applied to suit the media conditions, plant requirements and propagation techniques employed. |
| 5. | Complete propagation operations | 5.1 | Ensure work site cleaned according to hygiene requirements. |
| | | 5.2 | Waste collected and disposed of or recycled to minimise damage to the external environment in accordance with enterprise guidelines. |
| | | 5.3 | Records completed accurately and at the required time according to enterprise guidelines. |

RANGE STATEMENT

Propagation may include:

- sexual and asexual methods of propagation, including tissue culture

Tools and equipment may include:

- secateurs
- knives and other cutting instruments
- sharpening stone
- linear measure
- grafting machine
- plastic containers and trays
- scalpel
- laminar flow cabinet
- autoclave
- alcohol
- vermiculite boxes
- wheelbarrow
- trolley
- mechanical trolley
- shovel
- water spray container
- dibblers and rubbish bins

Preparation may include:

- setting temperatures control, setting wind machines, and setting humidity levels

Work procedures will be based on sound horticultural principles and practices and may include:

- supervisor's oral or written instructions, propagation program, enterprise standard operating procedures (SOPs)
- specifications, production schedules
- routine maintenance schedules, work notes, product labels, and Material Safety Data Sheets (MSDSs)
- Integrated Pest Management (IPM) programs
- manufacturers' service specifications and operator's manuals
- waste disposal, recycling and re-use guidelines
- OHS procedures

Hygiene practices may include:

- storing different types of media separately to avoid cross contamination
- cleaning and disinfecting work areas
- tools and equipment between batches
- access restrictions
- and footbaths

Propagation material may include:

- seeds
- cuttings
- spores
- rootstock
- scion
- buds
- separations/divisions
- tissue cultures
- corms
- rhizomes, and plantlets

Media should be stored in facilities that prevent infestation:

- by root rot organisms
- on surfaces and in areas that exclude run-off water
- contamination by soil and other contaminated materials
- in bins, trailers and trolleys

Preparing propagation material may include:

- applying hormones
- fungicides
- soaking buds
- hot water treatment of cuttings
- disbudding
- hydration
- grading
- cold/moist stratification
- rehydration
- heat or chemical disinfestation
- breaking seed coat
- cleaning
- scarification
- division and sterilisation

OHS hazards may include:

- using hazardous substances
- using sharp tools and equipment
- slippery uneven surfaces
- and manual handling

Conditioning and storage requirements for propagation materials may include:

- bundling
- packing and labelling
- and controlling environmental parameters such as moisture
- air
- humidity and temperature

OHS legislation details steps that need to be followed when dealing with hazardous substances. Steps may apply to:

- labelling, MSDSs
- equipment used for handling pot media
- composts and other organic material
- potting areas
- and appropriate safety equipment

Propagation techniques may include:

- seed
- cuttings
- layering
- growing on tissue cultured plants
- division or splitting
- budding, grafting
- spores and cloning

After care may include:

- application of preventative fungicides
- fertilisers
- pruning
- water and nutrients

Records may include:

- date
- number of plants propagated
- source material used
- variety
- clone
- batch number
- and treatments applied

Propagating media may include:

- sand, potting mix, agar, gravel, scoria, rock wool, gro-wool, sawdust, pine bark, perlite, vermiculite, and water (hydroponics)

Waste may include:

- pots
- discarded propagation material
- media waste and chemicals

Waste may be:

- recyclable
- re-useable
- returnable
- or require garbage or toxic handling procedures

Tests may include:

- pH, drainage, aeration, salinity, nitrate levels, water repellance, hormone levels and types, nutrient levels, and sterility

EVIDENCE GUIDE

Competency is to be demonstrated by implementing a propagation plan in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

Evidence should include a demonstrated ability to:

- prepare for propagation activities
- select material and media for propagation
- propagate plants
- keep accurate record of inventory
- carry out after care procedures

(2) Pre-requisite Relationship of Units

- Nil

(3) Underpinning Knowledge and SkillsKnowledge

Knowledge of:

- quality specifications for parent plants and propagation materials
- enterprise and industry hygiene standards required for propagation activities
- common problems that may occur while performing propagation activities in a controlled environment, and preventative/corrective action that may apply
- propagation techniques required for a range of plants
- aftercare requirements for a range of propagated plants
- testing methods applied to propagation media and environment
- preferred types of propagation media for different species

Skills

The ability to:

- liaise with other work areas and customers
- identify and assess hazards in the work area
- recognize and rectify problems and anomalies with parent plants, propagation material, propagation media, equipment and materials
- apply propagation techniques for a range of plants
- prepare, mix and use chemicals as required
- interpret and apply specifications and industry codes of practice
- test propagation media and environment
- carry out after care procedures
- develop and maintain accurate records
- properly handle waste

(4) Resource Implications

The following resources should be provided:

- propagation material
- propagation tools and equipment
- industry standards manuals

(5) Method of Assessment

In order to ensure consistency in performance and identified situational variables it will be necessary to collect evidence across a range of situations.

Evidence may be collected in a variety of ways including:

- review of daily plan
- direct observation
- questioning – oral \ written
- interview – supervisors, peers, children
- authenticated assessments and/or assignments from relevant training courses
- supporting statement from supervisor or previous employer

It may be possible to assess more than one element or unit of competency at the same time if the appropriate situation occurs in workplace or an appropriate simulated situation is designed.

(6) Context of Assessment

This unit could be assessed either on the job or off the job through an appropriate workplace simulation for a range of conditions over a number of assessment situations. Assessment should be while tasks are undertaken either individually or as part of a team under limited supervision.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
<ul style="list-style-type: none"> Carries out established processes Makes judgement of quality using given criteria 	<ul style="list-style-type: none"> Manages process Selects the criteria for the evaluation process 	<ul style="list-style-type: none"> Establishes principles and procedures Evaluates and reshapes process Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 2	
Use technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

AGHCRP0013A: Identify and manage soil types

Competency Descriptor:

This unit deals with the knowledge and skills required to identify and manage various soil types according to enterprise and industry policy, regulations and standards.

Competency Field: Agriculture - Horticulture

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Examine soil	1.1 Topsoil examined to determine adequacy for water movement and root penetration. 1.2 Soil examined when moist, and while crop growing. 1.3 Top 300 mm examined by taking spadeful of soil at 10-15 sites including points at headlands and along boundaries. 1.4 Ease of penetration by spade gives good indication of soil condition. 1.5 Soil loose, friable with well developed roots that explore the profile. 1.6 Problem areas examined to determine special treatment to be applied. 1.7 Pits dug and subsoil examined at 300 – 500 mm depths. 1.8 Exposed soil surfaces pricked with knife or trowel to check resistance as indication of plough pan. 1.9 Subsoiling done to rearrange and open cracks below plough layer.
2. Determine soil classes	2.1 Sample of moist soil rubbed between thumb and fingers and particle estimated according to feel. 2.2 Samples taken at 10-15 spots, bulked, then sub-sampled and submitted to laboratory for determination of sand, silt, and clay percentages. 2.3 Percentage of each particle plotted on Textural Triangle and textural class determined.

- 3. Maintain soil structure
 - 3.1 Soil tilled at moisture content and at a frequency that maintains arrangement of particles.
 - 3.2 Loose, dusty soil supplied with organic materials to facilitate formation of crumb and increase ability to hold water and plant nutrients.
- 4. Manage clay soils
 - 4.1 Artificial drainage installed for use during wet season to facilitate suitability for cultivation.
 - 4.2 Selected and grown crops that are not affected by excess moisture, periodic flooding, and poor aeration and are good at improving poor soils.
 - 4.3 Minimum, reduced, or no-till system used to prepare seed bed.
 - 4.4 Land remains covered with crop or crop residues to prevent direct impact of raindrops on soil.
 - 4.5 Amendments used to keep soil in pH balance.
 - 4.6 Subsoiling done at frequency and depth to improve percolation and reduce ponding in topsoil.
 - 4.7 Drainage system maintained in condition that facilitates water removal from land.
- 5. Manage sandy soils
 - 5.1 Organic manures applied regularly to aid moisture and nutrient retention, and structural development.
 - 5.2 Drought-tolerant crops selected and grown.
 - 5.3 Fertilisers applied to replenish leached nutrients and prevent widespread manifestations of deficiencies.
 - 5.4 Establishment done early in growing season to extract maximum benefits from water supply.
 - 5.5 Supplemental moisture provided through installed irrigation system.
 - 5.6 Crops rotated in sequence to avoid root damage from nematodes and other soil pests.
 - 5.7 Soil conservation structures installed at appropriate points and maintained in serviceable conditions.

- 6. Manage peat soil
 - 6.1 Artificial drainage installed and used during wet season to facilitate access, infrastructure development and reclamation.
 - 6.2 Activities sequenced and monitored to reduce traffic due to low load bearing capacity of soil.
 - 6.3 Burning avoided to conserve highly combustible humic matter and preserve integrity of soil.
 - 6.4 Fertilisers applied to replenish leached nutrients and prevent widespread manifestations of deficiencies.
 - 6.5 Crops not affected by excess moisture, periodic flooding, and poor aeration and are good at improving poor soils selected and grown.
 - 6.6 Soil not allowed to dry out to avoid irreversible shrinkage to the high volume of organic materials.
 - 6.7 Drainage system maintained in condition that facilitates water removal from land.
- 7. Manage silt soils
 - 7.1 Organic manures applied at frequencies and in amounts to facilitate aggregate stability.
 - 7.2 Land remains covered with crop or crop residues to prevent direct impact of raindrops on soil and subsequent breakdown of aggregates.
 - 7.3 Land tilled in manner and frequency that prevents fine surface tilt and permits aeration.
 - 7.4 Soil watered in a manner that prevents separation of particles leading to surface sealing when wet, and flaking when dry.
 - 7.5 Drainage system installed and maintained in serviceable condition.
 - 7.6 Crops transplanted into field where possible to safeguard against poor seedling emergence and ensure adequate crop stand.

RANGE STATEMENT

The Range Statement explains the scope and context of the unit of competency allowing for differences within work places. The scope of variables chosen for training and assessment requirements will depend on the particular work situation.

Soil physical properties may include:

- texture
- structure
- colour
- soil components
- pore space
- air

Soil solid components may include:

- gravel
- sand
- silt
- clay
- organic matter

Soil components may include:

- solid
- liquid
- gas
- biotic

Soil functions to:

- anchor plants
- supply water and nutrients
- provides air for breathing of roots

Soils may be classed according to texture as:

- loamy
- sandy
- silty
- clayey
- combinations of these

Soil chemical properties may include:

- mineral composition
- reaction (pH)
- soluble salts
- anions
- cations

Agents of soil formation may be:

- physical
- chemical
- biological
- Clay particles influence soil to greatest extent
- Soil with more than 35% clay is classed as clay
- Types of fertilisers straight, simple; mixed, complex
- Loam has 20% clay and about equal amounts of sand and silt

Types of organic manures include refuse from:

- cattle
- poultry
- sheep
- goat
- horse
- pig
- bat

Parent materials may include:

- many types of rocks
- materials deposited by water
- ice, and wind
- organic materials

Soil moisture condition may be:

- wet
- moist
- dry

Method of fertiliser application may be:

- banding,
- broadcasting
- side dressing
- incorporation

Soil containing more than 50% organic matter may be:

- peat
- muck

EVIDENCE GUIDE

(1) Critical Aspects of Evidence

Candidate should effectively demonstrate the ability to:

- Examine soil and determine its textual class
- Manage soils according to textual classification

(2) Pre-requisite Relationship of Units

- Nil

(3) Underpinning Knowledge and Skills

Knowledge

Knowledge of:

- the nature and function of soil
- soil formation process
- soil physical properties
- soil chemical properties
- soil components/constituents
- soil moisture and its classification
- soil nutrient status
- types of organic materials
- types and methods of fertilisation
- types and methods of irrigation and drainage
- basic calculation of rates, quantities, proportions etc.

Skills

The ability to :

- determine the nature and function of soil
- determine soil formation process
- determine and manage soil physical properties
- determine and manage soil chemical properties
- determine and manage soil components/constituents
- determine and manage soil moisture and its classification
- determine and manage soil nutrient status
- determine and manage types of organic materials
- determine and manage types and methods of fertilisation
- determine and manage types and methods of irrigation and drainage
- compute areas, volumes, rates, quantities and proportions

(4) Resource Implications

The following resources should be made available:

- various soils
- soil augur
- spade
- tension meter
- penetrometer
- bucket
- pocket knife
- core
- pH meter
- fertilisers and manures

(5) Method of Assessment

In order to ensure consistency in performance and identified situational variables it will be necessary to collect evidence across a range of clients.

Evidence may be collected in a variety of ways including:

- review of daily plan
- direct observation
- questioning –oral /written
- interview
- authenticated assessments and/or assignments from relevant training courses
- supporting statement from supervisor or previous employer

It may be possible to assess more than one element or unit of competency at the same time if the appropriate situation occurs in workplace or an appropriate simulated situation is designed.

(6) Context of Assessment

This unit must be assessed through practical demonstration on-the-job dealing with the identification and management of soil types. The underpinning knowledge may be assessed off the job with the use of written or verbal items inclusive of short answer or project.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
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Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 3	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 3	
Use technology	Level 3	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

AGHCRP0023A: **Develop crop nutrition programme**

Competency Descriptor:

The knowledge, skills, and competencies required to develop, implement, and evaluate a crop nutrition programme according to enterprise and industry policy, regulations and standards.

Competency Field: Agriculture – Horticulture

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Test soil	1.1 Soil sample truly represents field from which taken. 1.2 Between 10 and 15 samples taken per hectare at 10-15 cm and 15-30 cm depths. 1.3 Samples from each field bulked by depth taken, air dried, crushed and sub-sample extracted and sent to laboratory. 1.4 Indicators used to determine acid, neutral, alkaline soil. 1.5 Soil pH determines crop grown and type of fertiliser material used on each soil.
2. Irrigate crop	2.1 Irrigation system and components placed to wet plants efficiently. 2.2 Drainage system checked for proper functioning. 2.3 Water applied with great care ensuring infiltration and percolation. 2.4 System shut-down after degree of wetness achieved.
3. Support plants	3.1 Plant established in medium capable of supporting growth, according to enterprise and industry policies. 3.2 Plant anchored and held in best position to receive sunlight. 3.3 Maintained conditions favourable for development of crop.

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|----|------------------------|-----|--|
| 4. | Source plant nutrients | 4.1 | Recommendations of soil test used to determine nutrients to supply. |
| | | 4.2 | Complex fertiliser materials procured to supply primary and secondary plant nutrients. |
| | | 4.3 | Simple fertiliser materials procured to supply trace nutrients. |
| 5. | Apply plant nutrients | 5.1 | Calculations made to determine amount of fertiliser to apply per hectare. |
| | | 5.2 | Applicator calibrated to deliver amount and type of fertiliser as calculated. |
| | | 5.3 | Organic manures broadcasted uniformly over soil and worked in by ploughing and harrowing according to industry policy. |
| | | 5.4 | Inorganic plant nutrients applied between rows of crops established on beds. |
| | | 5.5 | Inorganic plant nutrients applied on top of soil in pastures, and in crops growing without distinct row arrangements. |
| | | 5.6 | Inorganic plant nutrients applied in bands around trees, or as semi-circle on upper half when grown on slopes. |
| | | 5.7 | Liquid fertilisers applied in irrigation water in drip tubes. |
| 6. | Control erosion | 6.1 | Water run-off potential assessed before soil preparation. |
| | | 6.2 | Rows orientated around slopes. |
| | | 6.3 | Structures to prevent erosion erected, and soil cover adequate to prevent detachment. |
| 7. | Monitor crop response | 7.1 | Tissue sample taken and treated. |
| | | 7.2 | Plants observed for abnormal colouration associated with nutrients. |
| | | 7.3 | Growth parameters taken and recorded. |
| | | 7.4 | Amendments applied to soil to maintain pH and nutrient availability. |

8.	Aerate soil	8.1	Soil drained to field capacity to comply with requirements for optimum crop growth according to enterprise and industry policies.
		8.2	Soil tilled to break clods and surface seal to allow respiration of roots.
9.	Eliminate limiting factors	9.1	Essential nutrients supplied in form available for crop use.
		9.2	Low rainfall supplemented by irrigation before crop shows moisture stress.
		9.3	Nutrients supplied in balanced proportions eliminate antagonism, according to enterprise and industry policies.
		9.4	Maintained environmental conditions conducive to nutrient uptake and utilisation, and plant growth.
10.	Assess yield	10.1	Crop harvested in manner that minimises loss or damage to product.
		10.2	Achieve quantity of acceptable yield for crop under existing conditions.
		10.3	Achieve quality yield to makes product competitive on market.
		10.4	Economic returns achieved from nutrition programme.

RANGE STATEMENTS

Crop may include:

- pasture
- vegetables
- grains and cereals
- roots and tubers
- permanent and semi-permanent
- other non-traditional
- horticultural

Secondary plant nutrients are:

- calcium
- magnesium
- sulphur

Fertilizers may be simple/straight carrier; mixed, compound or complex carrier

Organic manures added to soils may include:

- animal manures, green manures, compost, mulches

Trace minerals are:

- iron
- manganese
- copper
- boron
- molybdenum
- zinc
- chlorine

Growth media may include:

- soil
- peat
- perlite
- sphagnum moss

Soil may be:

- acidic
- neutral
- alkaline

Types of erosion may include:

- stream bank
- splash
- gully
- rill
- sheet
- soil slippage

Animal manures may include:

- poultry
- pig
- cattle
- horse
- or other forms of farmyard wastes

Primary plant nutrients are:

- nitrogen
- phosphorus
- potassium

Methods of fertilizer application may include:

- top dressing
- side dressing
- broadcasting
- banding
- injection
- fertigation

Irrigation methods may include:

- drip
- sprinkler
- furrow

Nutrients derived from air and water are:

- carbon
- hydrogen
- oxygen

Erosion control may include:

- terraces
- diversion drains
- artificial waterways
- individual basins

Limiting factor may be:

- nutrient
- moisture
- acidity
- humidity
- temperature

Nutrient carries may include:

- urea
- sulphate of ammonia
- super phosphate
- muriate of potash

Evidence Guide

(1) Critical Aspects and Evidence

Evidence should include a demonstrated ability to:

- test soil
- develop procedures to sustain nutrients for crop production

(2) Pre-requisite Relationship of Units

- Nil

(3) Underpinning Knowledge and Skills

Knowledge

Knowledge of:

- soil testing procedures
- crop environmental requirements
- functions of soil/growth media
- nutrient requirements of crop plants
- sources of plant nutrients
- methods of fertiliser application
- erosion control methods
- crop responses to fertilisers
- soil tillage, irrigation and drainage
- factors limiting crop production
- yield potential of crops
- types of crops
- how to determine areas, volumes, rates and proportions

Skill

The ability to:

- sample soil and tissue
- irrigate and drain soil
- procure fertilisers and manures
- apply fertilisers and manures
- control soil erosion
- observe, measure, and record crop growth parameters
- grow crop successfully and economically
- identify crops
- calculate areas, volume, rates, proportions, ratios

(4) Resource Implications

The following resources should be made available:

- pH meter
- tension meter
- fertiliser materials
- hand tools
- various crops
- measuring tape and caliper

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision and when the student/ apprentice is able to successfully perform all the required Performance Criteria relevant to the Unit in an acceptable time frame.

Competencies in this unit may be demonstrated concurrently using actual performance, equipment working to establishment standards and through work reports and interviews

(6) Context of Assessment

This unit must be assessed through practical demonstration on-the-job dealing with the development of crop nutrition programmes. The underpinning knowledge may be assessed off the job with the use of written or verbal items inclusive of short answer or project.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
<ul style="list-style-type: none"> Carries out established processes Makes judgement of quality using given criteria 	<ul style="list-style-type: none"> Manages process Selects the criteria for the evaluation process 	<ul style="list-style-type: none"> Establishes principles and procedures Evaluates and reshapes process Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 3	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 3	
Use technology	Level 3	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

AGHCRP0033A: Implement an integrated pest management programme

Competency Descriptor:

This unit covers the knowledge and skills required to assess pest situation, determine the need for control, develop suitable control strategy, and implement it successfully according to enterprise and industry policy, standards and regulations.

Competency Field: Agriculture

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Identify pests	1.1	Features of pest clearly outlined and developed according to category, enterprise and scientific procedures.
		1.2	Life cycles of pests developed and studied according to category and enterprise.
		1.3	Destructive phase of pest identified and documented according to scientific procedures.
		1.4	Susceptible phase of pest life cycle identified and documented according to host and scientific procedures.
2.	Review pest control methods	2.1	Procedures for pest control outlined according to category, enterprise and scientific procedures.
		2.2	Susceptible phase linked to control strategy according to enterprise and scientific procedures.
3.	Identify agro ecosystem	3.1	Environmental factors and their role in sustaining pest population identified according to pest category and crop.
		3.2	Plants grown in zone clearly identified and studied according to enterprise and production systems.
		3.3	Soil management and crop cultivation practices done to sustain low pest damage.
		3.4	Changes to composition of ecosystem due to agricultural practices noted according to enterprise and pest category.
		3.5	Beneficial organisms identified and recorded according to category of pest suppressed.
		3.6	System of production identified and its relationship to pest population and damage determined.

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| 4. | Regulate pest population | 4.1 | Resident pest population determined according to birth, death and migration rates. |
| | | 4.2 | Economic threshold and injury levels determined according to pest population and value of crop. |
| | | 4.3 | Pest complex and economic pest determined according to type and level of damage. |
| 5. | Evaluate need for pest control | 5.1 | Pest infestation identified, and levels of damage assessed. |
| | | 5.2 | Susceptible stage of life cycle identified, and appropriate control strategy determined. |
| | | 5.3 | Losses in yield, quality and income estimated based on levels of damage, cost of control measure, and value of crop saved. |
| | | 5.4 | Pest control strategy developed in accordance with enterprise, industry, and regulatory policies. |
| 6. | Apply management principles | 6.1 | Overall strategic plan established according to industry and regulatory policies. |
| | | 6.2 | Activities arranged, and resources allocated according to strategic plan. |
| | | 6.3 | Performance measured according to industry and regulatory standards and policies. |
| | | 6.4 | Progress monitored and corrective actions taken as appropriate. |
| 7. | Implement pest control programme | 7.1 | Emergencies recognised and immediate actions taken. |
| | | 7.2 | Tools and equipment prepared, calibrated, and used according to manufacturers' recommendations. |
| | | 7.3 | Personal protective equipment worn. |
| | | 7.4 | Agrochemicals appropriately selected, maintained, and safely used according to manufacturers' recommendations. |
| | | 7.5 | Appropriate safeguards used to ensure control of targeted pests with minimal harm to non-target organisms. |
| | | 7.6 | Work environment maintained in acceptable state according to industry and regulatory policies. |

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| | 7.7 | Proper warning signs erected and re-entry/withholding periods observed. |
| | 7.8 | Non-chemical methods used when and where appropriate. |
| 8. Keep accurate records | 8.1 | Details of infestations collected, documented and maintained. |
| | 8.2 | Details of treatment documented and results analysed. |
| | 8.3 | Information and records updated as appropriate. |
| 9. Justify need for Integrated Pest Management (IPM) | 9.1 | Recognised the toxic nature of synthetic pesticides and potential for development of resistance. |
| | 9.2 | Recognised the disruption of ecological balance by killing beneficial and other non-target organisms. |
| | 9.3 | Recognised that organic farming is big business, and it practices mitigate against using manufactured pesticides. |
| | 9.4 | Recognised that each control strategy has a weakness and not appropriate for all occasions. |
| | 9.5 | Recognised that pest problems arise from manipulation of environment to sustain complex agricultural practices. |
| 10. Develop IPM principle | 10.1 | Principles and philosophies of IPM carefully studied and understood. |
| | 10.2 | Traditional pest control strategies merged into IPM programme. |
| | 10.3 | Recognition that many pests play important roles in environment, and continuous management vital to efficient agricultural production. |
| | 10.4 | Recognition that disease and insect problems cannot be eliminated, only managed economically at acceptable levels. |
| | 10.5 | Recognition that pest management requires knowledge of enemies, battleground, and host (pest, environment, crop). |

RANGE STATEMENTS

Chemicals may include:

- fungicides
- repellents
- fumigants
- disinfectants
- antifeedants
- growth regulators
- hormones
- insecticides
- vitamins
- herbicides
- nematicides

Pest may include:

- bacteria
- fungi
- insects
- parasitic plants
- nematodes
- other arthropods
- viruses
- weeds
- phytoplasmas
- rodents

Legislations, codes and national standards relevant to the workplace may include:

- Jamaica Farmers Association
- Local health regulations
- Operational Health and Safety requirements
- First Aid regulations/ requirements
- Bureau of Standards

Pest Management strategy may be:

- manual
- chemical
- physical
- biological
- cultural
- integrated

Weeds may include:

- broad leaf
- grass
- sedge
- vines
- parasitic plants

Biological control agents may be:

- parasites
- predators
- microbes/pathogens
- genetic resistance

Other pests may include:

- rodents
- slugs & snails
- birds
- monkeys
- deers
- squirrels

Action of chemicals may be:

- systemic
- contact residual
- protectant
- curative
- therapeutic
- stomach poison

Pests may inhabit:

- soil
- leaves
- stems
- other animals

Pests may be:

- ecto-parasitic
- endo-parasitic

Disease may include:

- blights
- cankers
- rots
- leaf spots
- wilts
- galls
- root knots
- mildews
- stunts
- yellows

Environment may include:

- air
- soil
- water
- flora
- fauna
- solar radiation
- humidity
- altitude
- other biotic and abiotic agents

Spray equipment may include:

- boom sprayer
- knapsack sprayer
- pneumatic sprayer
- atomiser
- ULVA
- wipers
- dusters
- spray race

Feeding by animal pests may be:

- on leaves
- stems
- roots
- fruits
- animals

Insects may be:

- bugs
- beetles
- flies
- wasps
- antibiotics
- fertilisers
- acaricides
- anticoagulants
- pheromones

Crop may include:

- vegetables
- pulse & cereal grains
- root & stem tubers
- semi-permanent & permanent
- forages
- condiments & spices
- horticultural
- agro-forest

Method of application may include:

- banding
- broadcasting
- drenching
- dipping
- injecting
- incorporating
- ground application
- aerial application

Environment may include:

- weather
- food
- shelter
- plants
- animals

Feeding habits may be:

- piercing & sucking
- biting & chewing
- rasping

Disease may be:

- soil borne
- airborne

Pests may be classified as:

- soil pests
- foliar pests

EVIDENCE GUIDE

(1) Critical Aspects and Evidence

Evidence should include a demonstrated ability to:

- Identify categories of pest, their damage and to implement intervention strategies as required

(2) Pre-requisite Relationship of Units

- Nil

(3) Underpinning Knowledge and Skills

Knowledge

Knowledge of:

- population dynamics and pest life cycles
- major pests/pest complex for each crop
- economic threshold and injury levels
- evaluating pest control needs
- identifying features of the different pests
- identifying features of diseases and insect damage
- pest management practices
- parasites, predators, and prey
- mode of action of agrochemicals
- classes of agrochemicals
- safety in the use of agrochemicals
- equipment and methods of applying
- chemicals
- non-chemical pest control methods

Skill

The ability to:

- determine pest damage
- monitor pest populations
- establish economic threshold and damage levels
- identify damage caused by each category of pest
- identify and classify pest damage
- develop pest control programmes
- select most suitable control strategy
- select chemicals to control each type of pest
- determine pest life cycle
- determine susceptible stage in pest development
- carry out pest control appropriately
- cleanse and store application equipment

Underpinning Knowledge and Skills (Cont'd)Knowledge

Knowledge of:

- need for integrated pest management
- philosophy of integrated pest management
- general management principles
- regulatory bodies and their policies
- chemical companies and other products
- how to determine areas, volumes, rates and proportions

Skill

The ability to:

- apply management principle to pest control programme
- calculate rate, proportions, areas, volumes as required

(4) Resource Implications

- crop enterprise
- hand lense
- application equipment
- microscope
- replica of pest damage
- replica of pest life cycle stages
- various agro-chemicals

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision and when the student/ apprentice is able to successfully perform all the required Performance Criteria relevant to the Unit in an acceptable time frame.

Competencies in this unit may be demonstrated concurrently using actual performance, equipment working to establishment standards and through work reports and interviews

(6) Context of Assessment

This unit must be assessed through practical demonstration on-the-job dealing with the assessment and implementation of integrated pest management system. The underpinning knowledge may be assessed off the job with the use of written or verbal items inclusive of short answer or project.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
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Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

BSBSBM0012A: Craft personal entrepreneurial strategy

Competency Descriptor:

This unit deals with the skills and knowledge required to craft an entrepreneurial strategy that fits with the attitudes, behaviours, management competencies and experience necessary for entrepreneurs to meet the requirements and demands of a specific opportunity.

Competency Field:

Small Business Operations

ELEMENT OF COMPETENCY PERFORMANCE CRITERIA

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Demonstrate knowledge of the nature of entrepreneurship	1.1 Concepts associated with entrepreneurship are clearly defined. 1.2 Factors, which influence entrepreneurship in and outside of Jamaica, are correctly identified and explained. 1.3 The importance of entrepreneurship to economic development and employment is explained clearly. 1.4 The findings of research conducted on entrepreneurial ventures and successes in the Caribbean region are clearly presented in an appropriate format. 1.5 Differences between wage employment and entrepreneurial ventures are correctly stated.
2. Identify and assess entrepreneurial characteristics	2.1 Relevant research is carried out and required entrepreneurial characteristics identified. 2.2 Entrepreneurial characteristics identified are assessed and ranked. 2.3 An understanding of the process and discipline that enable an individual to evaluate and shape choices and to initiate effective action is correctly demonstrated. 2.4 Factors that will help an entrepreneur to manage the risk and uncertainties of the future, while maintaining a future orientated frame of mind, are identified.
3. Develop self-assessment profile	3.1 Self-assessment tools/methods to identify personal entrepreneurial potential are identified and properly used. 3.2 The ability to apply creativity, problem-solving techniques and principles to solve business related problems are demonstrated.

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- 3.3 Feedback from others for the purpose of becoming aware of blind spots and for reinforcing or changing existing perceptions of strengths/ weaknesses is appropriately obtained.
4. Craft an entrepreneurial strategy
- 4.1 A profile of the past that includes accomplishments and preferences in terms of life and work styles, coupled with a look into the future and an identification of what one would like to do is developed.
- 4.2 Commitment, determination and perseverance; orientation towards goals; taking initiative and accepting personal responsibility; recognizing management competencies and identifying areas for development are determined.
- 4.3 Written guidelines to obtain feedback that is solicited, honest, straightforward, and helpful but not all positive or negative are developed to facilitate reviews.
- 4.4 Framework and process for setting goals which demand time, self-discipline, commitment, dedication and practice are developed.
- 4.5 Goals established are specific and concrete, measurable, relate to time, realistic and attainable.
- 4.6 Priorities, including identifying conflicts and trade-offs and how these may be resolved are established.
- 4.7 Potential problems, obstacles and risks in meeting goals are identified.
- 4.8 Specified action steps that are to be performed in order to accomplish goals are identified.
- 4.9 The method by which results will be measured is indicated.
- 4.10 Milestones for reviewing progress and tying these to specific dates on a calendar are established.
- 4.11 Sources of help to obtain resources are identified.
- 4.12 Evidence of the ability to review process and periodically revise goals is demonstrated.

RANGE STATEMENT

At this stage of the entrepreneurial process the entrepreneur must be able to conduct a self-assessment profile, examine the frame work for self assessment, develop a personal entrepreneurial strategy, identify data to be collected in the self-assessment process and learn about receiving feedback and setting goals.

Concepts associated to include:

- risk
- entrepreneurship
- macro-screening
- micro-screening
- competition
- wage employment

The entrepreneur must be able to:

- understand the extreme complexity in predicting or aligning him/herself to specific careers in an environment of constant change
- determine the kind of entrepreneur he or she wants to become based on attitudes, behaviours, competencies, experience and how these fit with the requirements and demands for a specific opportunity
- evaluate thoroughly his or her attraction to entrepreneurship
- effectively develop personal plan
- utilize available information that will enhance his or her ability to achieve success

Influencing factors to include:

- market conditions
- markets – demand/supply
- global trends
- level of economic activities
- funding
- economic stability
- social stability
- resources availability

The entrepreneur may encounter setbacks if the planning process is not effectively pursued.

Pitfalls may include:

- proceeding without effective planning which may result in commitment to uncertainty
- personal plans fail for the same reasons as business plans including frustration if the plan appears not to be working immediately and the challenges of changing behaviour from an activity-oriented routine to one that is goal oriented
- developing plans that fail to anticipate obstacles, and those that lack progress commitment to a premature path with the desirability of flexibility can lead to disaster
- milestones and reviews

EVIDENCE GUIDE

Competency is to be demonstrated when the entrepreneur is able to undertake a personal entrepreneurial assessment exercise to determine if he or she possesses the necessary credentials to be a successful entrepreneur. This stage of the entrepreneurial process is critical since experience has shown that the founder is one of the deciding forces if the venture is to succeed and prosper.

(1) Critical Aspects of Evidence

The entrepreneur will be assessed by his/her action in developing an orchestrated plan in order to effectively pursue the business concept.

(2) Pre-requisite Relationship of Units

- Nil

(3) Underpinning Knowledge and Skills

Knowledge

Knowledge of:

- personal entrepreneurial profile systems
- effective management systems: marketing, operations/productions, finance, administration, law
- how to measure feedback
- the method of developing a personal plan
 - and a business plan
- understanding the difference between entrepreneurial culture and management culture

Skills

The ability to:

- determine barriers to entrepreneurship
- minimize exposure to risk
- exploit any available resource pool
- tailor reward systems to meet a particular situation
- effectively plan and execute activities
- use computer technology to undertake assessments

(4) Resource Implications

The following resources should be made available:

Personal computer with access to the Internet and appropriate software that will enable one to conduct the necessary analysis using the Internet.

(5) Method of Assessment

A useful method of assessment is to determine if the venture can stand up to the test of critical evaluation.

(6) Context of Assessment

This stage of the entrepreneurial process is assessed when comparisons are made between actual outcomes and plans/projections.

CRITICAL EMPLOYABILITY SKILLS

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Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

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