MANGOSTEEN PRODUCTION LEVEL II

AGRICULTURE, FORESTRY AND FISHERY SECTOR

TECHNICAL EDUCATION AND SKILLS DEVELOPMENT AUTHORITY
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COMPETENCY STANDARDS FOR

MANGOSTEEN PRODUCTION LEVEL II

SECTION 1   MANGOSTEEN PRODUCTION LEVEL II QUALIFICATION

The **MANGOSTEEN PRODUCTION LEVEL II** Qualification consists competencies that a person must achieve to produce mangosteen from seeds to fruits.

The units of competency comprising this qualification include the following:

CODE NO.	BASIC COMPETENCIES
400311210	Participate in workplace communication
400311211	Work in team environment
400311212	Solve/address general workplace problems
400311213	Develop career and life decisions
400311214	Contribute to workplace innovation
400311215	Present relevant information
400311216	Practice occupational safety and health policies and procedures
400311217	Exercise efficient and effective sustainable practices in the workplace
400311218	Practice entrepreneurial skills in the workplace
CODE NO.	**COMMON COMPETENCIES**
AFF321201	Apply safety measures in farm operations
AFF321202	Use farm tools and equipment
AFF321203	Perform estimation and basic calculation
CODE NO.	**CORE COMPETENCIES**
ABAFF1204704611301	Establish Orchard
ABAFF1204704611302	Harvest Produce
ABAFF1204704611303	Market Produce

A person who has achieved this Qualification is competent to be:
- Mangosteen Grower
- Mangosteen Farmer
- Mangosteen Harvester

SECTION 2 COMPETENCY STANDARDS

These guidelines are set to provide the Technical Vocational Education and Training (TVET) providers with information and other important requirements to consider when designing training programs for **MANGOSTEEN PRODUCTION LEVEL II**.

BASIC COMPETENCIES

UNIT OF COMPETENCY	:	PARTICIPATE IN WORKPLACE COMMUNICATION
UNIT CODE	:	400311210
UNIT DESCRIPTOR	:	This unit covers the knowledge, skills and attitudes required to gather, interpret and convey information in response to workplace requirements.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Obtain and convey workplace information	1.1 Specific and relevant information is accessed from **appropriate sources**. 1.2 Effective questioning, active listening and speaking skills are used to gather and convey information. 1.3 Appropriate **medium** is used to transfer information and ideas. 1.4 Appropriate non-verbal communication is used. 1.5 Appropriate lines of communication with supervisors and colleagues are identified and followed. 1.6 Defined workplace procedures for the location and **storage** of information are used. 1.7 Personal interaction is carried out clearly and concisely.	1.1 Effective verbal and nonverbal communication 1.2 Different modes of communication 1.3 Medium of communication in the workplace 1.4 Organizational policies 1.5 Communication procedures and systems 1.6 Lines of Communication 1.7 Technology relevant to the enterprise and the individual's work responsibilities 1.8 Workplace etiquette	1.1 Following simple spoken language 1.2 Performing routine workplace duties following simple written notices 1.3 Participating in workplace meetings and discussions 1.4 Preparing work-related documents 1.5 Estimating, calculating and recording routine workplace measures 1.6 Relating/ Interacting with people of various levels in the workplace 1.7 Gathering and providing basic information in response to workplace requirements 1.8 Basic business writing skills 1.9 Interpersonal skills in the workplace 1.10 Active-listening skills

2. Perform duties following workplace instructions	2.1 Written notices and instructions are read and interpreted in accordance with organizational guidelines. 2.2 Routine written instructions are followed based on established procedures. 2.3 Feedback is given to workplace supervisor based instructions/ information received. 2.4 **Workplace interactions** are conducted in a courteous manner. 2.5 Where necessary, clarifications about routine workplace procedures and matters concerning conditions of employment are sought and asked from **appropriate sources**. 2.6 Meetings outcomes are interpreted and implemented.	2.1 Effective verbal and non-verbal communication 2.2 Different modes of communication 2.3 Medium of communication in the workplace 2.4 Organizational/ Workplace policies 2.5 Communication procedures and systems 2.6 Lines of communication 2.7 Technology relevant to the enterprise and the individual's work responsibilities 2.8 Effective questioning techniques (clarifying and probing) 2.9 Workplace etiquette	2.1 Following simple spoken instructions 2.2 Performing routine workplace duties following simple written notices 2.3 Participating in workplace meetings and discussions 2.4 Completing work- related documents 2.5 Estimating, calculating and recording routine workplace measures 2.6 Relating/ Responding to people of various levels in the workplace 2.7 Gathering and providing information in response to workplace requirements 2.8 Basic questioning/querying 2.9 Skills in reading for information 2.10 Skills in locating
3. Complete relevant work- related documents	3.1 Range of **forms** relating to conditions of employment are completed accurately and legibly. 3.2 Workplace data is recorded on standard workplace forms and documents. 3.3 Errors in recording information on forms/ documents are identified and acted upon. 3.4 Reporting requirements to the supervisor are completed according to organizational guidelines.	3.1 Effective verbal and non-verbal communication 3.2 Different modes of communication 3.3 Workplace forms and documents 3.4 Organizational/ Workplace policies 3.5 Communication procedures and systems 3.6 Technology relevant to the enterprise and the individual's work responsibilities	3.1 Completing work- related documents 3.2 Applying operations of addition, subtraction, division and multiplication 3.3 Gathering and providing information in response to workplace requirements 3.4 Effective record keeping skills

RANGE OF VARIABLES

VARIABLE	RANGE
1. Appropriate sources	May include: 1.1 Team members 1.2 Supervisor/Department Head 1.3 Suppliers 1.4 Trade personnel 1.5 Local government 1.6 Industry bodies
2. Medium	May include: 2.1 Memorandum 2.2 Circular 2.3 Notice 2.4 Information dissemination 2.5 Follow-up or verbal instructions 2.6 Face-to-face communication 2.7 Electronic media (disk files, cyberspace)
3. Storage	May include: 3.1 Manual filing system 3.2 Computer-based filing system
4. Workplace interactions	May include: 4.1 Face-to-face 4.2 Telephone 4.3 Electronic and two-way radio 4.4 Written including electronic means, memos, instruction and forms 4.5 Non-verbal including gestures, signals, signs and diagrams
5. Forms	May include: 5.1 HR/Personnel forms, telephone message forms, safety reports

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Prepared written communication following standard format of the organization 1.2 Accessed information using workplace communication equipment/systems 1.3 Made use of relevant terms as an aid to transfer information effectively 1.4 Conveyed information effectively adopting formal or informal communication
2. Resource Implications	The following resources should be provided: 2.1 Fax machine 2.2 Telephone 2.3 Notebook 2.4 Writing materials 2.5 Computer with Internet connection
3. Method of Assessment	Competency in this unit must be assessed through: 3.1 Demonstration with oral questioning 3.2 Interview 3.3 Written test 3.4 Third-party report
4. Context of Assessment	4.1 Competency may be assessed individually in the actual workplace or through an accredited institution

UNIT OF COMPETENCY	:	WORK IN TEAM ENVIRONMENT
UNIT CODE	:	400311211
UNIT DESCRIPTOR	:	This unit covers the skills, knowledge and attitudes to identify one's roles and responsibilities as a member of a team.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Describe team role and scope	1.1 The role and objective of the team is identified from available sources of information. 1.2 Team parameters, reporting relationships and responsibilities are identified from team discussions and appropriate external sources.	1.1 Group structure 1.2 Group development 1.3 Sources of information	1.1 Communicating with others, appropriately consistent with the culture of the workplace 1.2 Developing ways in improving work structure and performing respective roles in the group or organization
2. Identify one's role and responsibility within a team	2.1 Individual roles and responsibilities within the team environment are identified. 2.2 Roles and objectives of the team are identified from available sources of information. 2.3 Team parameters, reporting relationships and responsibilities are identified based on team discussions and appropriate external sources.	2.1 Team roles and objectives 2.2 Team structure and parameters 2.3 Team development 2.4 Sources of information	2.1 Communicating with others, appropriately consistent with the culture of the workplace 2.2 Developing ways in improving work structure and performing respective roles in the group or organization
3. Work as a team member	3.1 Effective and appropriate forms of communications are used and interactions undertaken with team members based on company practices. 3.2 Effective and appropriate contributions made to complement team activities and objectives, based on workplace context.	3.1 Communication Process 3.2 Workplace communication protocol 3.3 Team planning and decision making 3.4 Team thinking 3.5 Team roles 3.6 Process of team development 3.7 Workplace context	3.1 Communicating appropriately, consistent with the culture of the workplace 3.2 Interacting effectively with others 3.3 Deciding as an individual and as a group using group think strategies and techniques

	3.3 Protocols in reporting are observed based on standard company practices. 3.4 Contribute to the development of team work plans based on an understanding of the team's role and objectives.		3.4 Contributing to Resolution of issues and concerns

RANGE OF VARIABLES

VARIABLE	RANGE
1. Role and objective of team	May include: 1.1 Work activities in a team environment with enterprise or specific sector 1.2 Limited discretion, initiative and judgement may be demonstrated on the job, either individually or in a team environment
2. Sources of information	May include: 2.1 Standard operating and/or other workplace procedures 2.2 Job procedures 2.3 Machine/equipment manufacturer's specifications and instructions 2.4 Organizational or external personnel 2.5 Client/supplier instructions 2.6 Quality standards 2.7 OHS and environmental standards
3. Workplace context	May include: 3.1 Work procedures and practices 3.2 Conditions of work environments 3.3 Legislation and industrial agreements 3.4 Standard work practice including the storage, safe handling and disposal of chemicals 3.5 Safety, environmental, housekeeping and quality guidelines

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Worked in a team to complete workplace activity 1.2 Worked effectively with others 1.3 Conveyed information in written or oral form 1.4 Selected and used appropriate workplace language 1.5 Followed designated work plan for the job
2. Resource Implications	The following resources should be provided: 2.1 Access to relevant workplace or appropriately simulated environment where assessment can take place 2.2 Materials relevant to the proposed activity or tasks
3. Method of Assessment	Competency in this unit must be assessed through: 3.1 Role play involving the participation of individual member to the attainment of organizational goal 3.2 Case studies and scenarios as a basis for discussion of issues and strategies in teamwork 3.3 Socio-drama and socio-metric methods 3.4 Sensitivity techniques 3.5 Written Test
4. Context of Assessment	4.1 Competency may be assessed in workplace or in a simulated workplace setting 4.2 Assessment shall be observed while task are being undertaken whether individually or in group

UNIT OF COMPETENCY	:	**SOLVE/ADDRESS GENERAL WORKPLACE PROBLEMS**
UNIT CODE	:	**400311212**
UNIT DESCRIPTOR	:	This unit covers the knowledge, skills and attitudes required to apply problem-solving techniques to determine the origin of problems and plan for their resolution. It also includes addressing procedural problems through documentation, and referral.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Identify routine problems	1.1 Routine problems or procedural problem areas are identified. 1.2 Problems to be investigated are defined and determined. 1.3 Current conditions of the problem are identified and documented.	1.1 Current industry hardware and software products and services 1.2 Industry maintenance, service and helpdesk practices, processes and procedures 1.3 Industry standard diagnostic tools 1.4 Malfunctions and resolutions	1.1 Identifying current industry hardware and software products and services 1.2 Identifying current industry maintenance, services and helpdesk practices, processes and procedures. 1.3 Identifying current industry standard diagnostic tools 1.4 Describing common malfunctions and resolutions. 1.5 Determining the root cause of a routine malfunction
2. Look for solutions to routine problems	2.1 Potential solutions to problems are identified. 2.2 Recommendations about possible solutions are developed, documented, ranked and presented to the appropriate person for decision.	2.1 Current industry hardware and software products and services 2.2 Industry service and helpdesk practices, processes and procedures 2.3 Operating systems 2.4 Industry standard diagnostic tools 2.5 Malfunctions and resolutions. 2.6 Root cause analysis	2.1 Identifying current industry hardware and software products and services 2.2 Identifying services and helpdesk practices processes and procedures. 2.3 Identifying operating system 2.4 Identifying current industry standard diagnostic tools

			2.5 Describing common malfunctions and resolutions. 2.6 Determining the root cause of a routine malfunction
3. Recommend solutions to problems	3.1 Implementation of solutions are planned. 3.2 Evaluation of implemented solutions are planned. 3.3 Recommended solutions are documented and submitted to appropriate person for confirmation.	3.1 Standard procedures 3.2 Documentation produce	3.1 Producing documentation that recommends solutions to problems 3.2 Following established procedures

RANGE OF VARIABLES

VARIABLE	RANGE
1. Problems/Procedural Problem	May include: 1.1 Routine/non – routine processes and quality problems 1.2 Equipment selection, availability and failure 1.3 Teamwork and work allocation problem 1.4 Safety and emergency situations and incidents 1.5 Work-related problems outside of own work area
2. Appropriate person	May include: 2.1 Supervisor or manager 2.2 Peers/work colleagues 2.3 Other members of the organization
3. Document	May include: 3.1 Electronic mail 3.2 Briefing notes 3.3 Written report 3.4 Evaluation report
4. Plan	May include: 4.1 Priority requirements 4.2 Coordination and feedback requirements 4.3 Safety requirements 4.4 Risk assessment 4.5 Environmental requirements

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Determined the root cause of a routine problem 1.2 Identified solutions to procedural problems. 1.3 Produced documentation that recommends solutions to problems. 1.4 Followed established procedures. 1.5 Referred unresolved problems to support persons.
2. Resource Implications	Assessment will require access to a workplace over an extended period, or a suitable method of gathering evidence of operating ability over a range of situations.
3. Method of Assessment	Competency in this unit must be assessed through: 3.1 Case Formulation 3.2 Life Narrative Inquiry 3.3 Standardized test The unit will be assessed in a holistic manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations, which will include disruptions to normal, smooth operation. Simulation may be required to allow for timely assessment of parts of this unit of competency. Simulation should be based on the actual workplace and will include walk through of the relevant competency components.
4. Context of Assessment	4.1 Competency may be assessed individually in the actual workplace or simulation environment in TESDA accredited institutions.

UNIT OF COMPETENCY	:	DEVELOP CAREER AND LIFE DECISIONS
UNIT CODE	:	400311213
UNIT DESCRIPTOR	:	This unit covers the knowledge, skills, and attitudes in managing one's emotions, developing reflective practice, and boosting self-confidence and developing self-regulation.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Manage one's emotion	1.1 Self-management strategies are identified. 1.2 Skills to work independently and to show initiative, to be conscientious, and persevering in the face of setbacks and frustrations are developed. 1.3 Techniques for effectively handling negative emotions and unpleasant situations in the workplace are examined.	1.1 Self-management strategies that assist in regulating behavior and achieving personal and learning goals (e.g. Nine self management strategies according to Robert Kelley) 1.2 Enablers and barriers in achieving personal and career goals 1.3 Techniques in handling negative emotions and unpleasant situations in the workplace such as frustration, anger, worry, anxiety, etc.	1.1 Managing properly one's emotions and recognizing situations that cannot be changed and accept them and remain professional 1.2 Developing self discipline, working independently and showing initiative to achieve personal and career goals 1.3 Showing confidence, and resilience in the face of setbacks and frustrations and other negative emotions and unpleasant situations in the workplace
2. Develop reflective practice	2.1 Personal strengths and achievements, based on self assessment strategies and teacher feedback are contemplated. 2.2 Progress when seeking and responding to feedback from teachers to assist them in consolidating strengths, addressing weaknesses and fulfilling their potential are monitored. 2.3 Outcomes of personal and academic challenges by reflecting on previous problem	2.1 Basic SWOT analysis 2.2 Strategies to improve one's attitude in the workplace 2.3 Gibbs' Reflective Cycle/Model (Description, Feelings, Evaluation, Analysis, Conclusion, and Action plan)	2.1 Using the basic SWOT analysis as self assessment strategy 2.2 Developing reflective practice through realization of limitations, likes/ dislikes; through showing of self confidence 2.3 Demonstrating self-acceptance and being able to accept challenges

	solving and decision making strategies and feedback from peers and teachers are predicted.		
3. Boost self confidence and develop self regulation	3.1 Efforts for continuous self improvement are demonstrated. 3.2 Counter-productive tendencies at work are eliminated. 3.3 Positive outlook in life is maintained.	3.1 Four components of self-regulation based on SelfRegulation Theory (SRT) 3.2 Personality development concepts 3.3 Self-help concepts (e. g., 7 Habits by Stephen Covey, transactional analysis, psychospiritual concepts)	3.1 Performing effective communication skills – reading, writing, conversing skills 3.2 Showing affective skills – flexibility, adaptability, etc. 3.3 Self-assessment for determining one's strengths and weaknesses

RANGE OF VARIABLES

VARIABLE	RANGE
1. Self-management strategies	May include: 1.1 Seeking assistance in the form of job coaching or mentoring 1.2 Continuing dialogue to tackle workplace grievances 1.3 Collective negotiation/bargaining for better working conditions 1.4 Share your goals to improve with a trusted co worker or supervisor 1.5 Make a negativity log of every instance when you catch yourself complaining to others 1.6 Make lists and schedules for necessary activities
2. Unpleasant situation	May include: 2.1 Job burn-out 2.2 Drug dependence 2.3 Sulking

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Express emotions appropriately 1.2 Work independently and show initiative 1.3 Consistently demonstrate self-confidence and self discipline
2. Resource Implications	The following resources should be provided: 2.1 Access to workplace and resources 2.2 Case studies
3. Method of Assessment	Competency in this unit may be assessed through: 3.1 Demonstration or simulation with oral questioning 3.2 Case problems involving work improvement and sustainability issues 3.3 Third-party report
4. Context of Assessment	4.1 Competency assessment may occur in workplace or any appropriately simulated environment

UNIT OF COMPETENCY	:	CONTRIBUTE TO WORKPLACE INNOVATION
UNIT CODE	:	400311214
UNIT DESCRIPTOR	:	This unit covers the knowledge, skills and attitudes required to make a proactive and positive contribution to workplace innovation.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Identify opportunities to do things better	1.1 Opportunities for improvement are identified proactively in their own area of work. 1.2 Information is gathered and reviewed which may be relevant to ideas and which might assist in gaining support for ideas.	1.1 Roles of individuals in suggesting and making improvements. 1.2 Positive impacts and challenges in innovation. 1.3 Types of changes and responsibility. 1.4 Seven habits of highly effective people.	1.1 Identifying opportunities to improve and to do things better. Involvement 1.2 Identifying the positive impacts and the challenges of change and innovation 1.3 Identifying examples of the types of changes that are within and outside own scope of responsibility
2. Discuss and develop ideas with others	2.1 People who could provide input to ideas for improvements are identified. 2.2 Ways of approaching people to begin sharing ideas are selected. 2.3 Meeting is set with relevant people. 2.4 Ideas for follow up are reviewed and selected based on feedback. 2.5 Critical inquiry method is used to discuss and develop ideas with others.	2.1 Roles of individuals in suggesting and making improvements 2.2 Positive impacts and challenges in innovation 2.3 Types of changes and responsibility. 2.4 Seven habits of highly effective people	2.1 Identifying opportunities to improve and to do things better. Involvement 2.2 Identifying the positive impacts and the challenges of change and innovation 2.3 Providing examples of the types of changes that are within and outside own scope of responsibility 2.4 Communicating ideas for change through small group discussions and meetings
3. Integrate ideas for change in the workplace	3.1 Critical inquiry method is used to integrate different ideas	3.1 Roles of individuals in suggesting and making improvements	3.1 Identifying opportunities to improve and to do

	for change of key people. 3.2 Summarizing, analyzing and generalizing skills are used to extract salient points in the pool of ideas. 3.3 Reporting skills are likewise used to communicate results. 3.4 Current Issues and concerns on the systems, processes and procedures, as well as the need for simple innovative practices are identified.	3.2 Positive impacts and challenges in innovation 3.3 Types of changes and responsibility 3.4 Seven habits of highly effective people 3.5 Basic research skills analysis, psychospiritual concepts)	things better. Involvement 3.2 Identifying the positive impacts and the challenges of change and innovation 3.3 Providing examples of the types of changes that are within and outside own scope of responsibility 3.4 Communicating ideas for change through small group discussions and meetings 3.5 Demonstrating skills in analysis and interpretation of data

RANGE OF VARIABLES

VARIABLE	RANGE
1. Opportunities for improvement	May include: 1.1 Systems 1.2 Processes 1.3 Procedures 1.4 Protocols 1.5 Codes 1.6 Practices
2. Information	May include: 2.1 Workplace communication problems 2.2 Performance evaluation results 2.3 Team dynamics issues and concerns 2.4 Challenges on return of investment 2.5 New tools, processes and procedures 2.6 New people in the organization
3. People who could provide input	May include: 3.1 Leaders 3.2 Managers 3.3 Specialists 3.4 Associates 3.5 Researchers 3.6 Supervisors 3.7 Staff 3.8 Consultants (external) 3.9 People outside the organization in the same field or similar expertise/industry 3.10 Clients
4. Critical inquiry method	May include: 4.1 Preparation 4.2 Discussion 4.3 Clarification of goals 4.4 Negotiate towards a Win-Win outcome 4.5 Agreement 4.6 Implementation of a course of action 4.7 Effective verbal communication. See our pages: Verbal Communication and Effective Speaking 4.8 Listening 4.9 Reducing misunderstandings is a key part of effective negotiation 4.10 Rapport Building 4.11 Problem Solving 4.12 Decision Making 4.13 Assertiveness 4.14 Dealing with Difficult Situations
5. Reporting skills	May include: 5.1 Data management 5.2 Coding 5.3 Data analysis and interpretation 5.4 Coherent writing 5.5 Speaking

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Identified opportunities to do things better. 1.2 Discussed and developed ideas with others on how to contribute to workplace innovation. 1.3 Integrated ideas for change in the workplace. 1.4 Analyzed and reported rooms for innovation and learning in the workplace.
2. Resource Implications	The following resources should be provided: 2.1 Pens, papers and writing implements 2.2 Cartolina 2.3 Manila papers
3. Method of Assessment	Competency in this unit may be assessed through: 3.1 Psychological and behavioral Interviews 3.2 Performance Evaluation 3.3 Life Narrative Inquiry 3.4 Review of portfolios of evidence and third-party workplace reports of on-the-job performance 3.5 Sensitivity analysis 3.6 Organizational analysis 3.7 Standardized assessment of character strengths and virtues applied
4. Context of Assessment	4.1 Competency may be assessed individually in the actual workplace or simulation environment in TESDA accredited institutions.

UNIT OF COMPETENCY	:	PRESENT RELEVANT INFORMATION
UNIT CODE	:	400311215
UNIT DESCRIPTOR	:	This unit covers the knowledge, skills and attitudes required to present data/information appropriately.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Gather data/ information	1.1 Evidence, facts and information are collected. 1.2 Evaluation, terms of reference and conditions are reviewed to determine whether data/information falls within project scope.	1.1 Organizational protocols 1.2 Confidentiality 1.3 Accuracy 1.4 Business mathematics and statistics 1.5 Data analysis techniques/procedures 1.6 Reporting requirements to a range of audiences 1.7 Legislation, policy and procedures relating to the conduct of evaluations 1.8 Organizational values, ethics and codes of conduct	1.1 Describing organizational protocols relating to client liaison 1.2 Protecting confidentiality 1.3 Describing accuracy 1.4 Computing business mathematics and statistics 1.5 Describing data analysis techniques/ procedures 1.6 Reporting requirements to a range of audiences 1.7 Stating legislation, policy and procedures relating to the conduct of evaluations 1.8 Stating organizational values, ethics and codes of conduct
2. Assess gathered data/ information	2.1 Validity of data/ information is assessed. 2.2 Analysis techniques are applied to assess data/ information. 2.3 Trends and anomalies are identified. 2.4 Data analysis techniques and procedures are documented. 2.5 Recommendations are made on areas of possible improvement.	2.1 Business mathematics and statistics 2.2 Data analysis techniques/ procedures 2.3 Reporting requirements to a range of audiences 2.4 Legislation, policy and procedures relating to the conduct of evaluations 2.5 Organisational values, ethics and codes of conduct	2.1 Computing business mathematics and statistics 2.2 Describing data analysis techniques/ procedures 2.3 Reporting requirements to a range of audiences 2.4 Stating legislation, policy and procedures relating to the conduct of evaluations

			2.5 Stating organisational values, ethics and codes of conduct
3. Record and present information	3.1 Studied data/ information are recorded. 3.2 Recommendations are analysed for action to ensure they are compatible with the project's scope and terms of reference. 3.3 Interim and final reports are analysed and outcomes are compared to the criteria established at the outset. 3.4 Findings are presented to stakeholders.	3.1 Data analysis techniques/ procedures 3.2 Reporting requirements to a range of audiences 3.3 Legislation, policy and procedures relating to the conduct of evaluations 3.4 Organisational values, ethics and codes of conduct	3.1 Describing data analysis techniques/ procedures 3.2 Reporting requirements to a range of audiences 3.3 Stating legislation, policy and procedures relating to the conduct of evaluations 3.4 Stating organisational values, ethics and codes of conduct practices

RANGE OF VARIABLES

VARIABLE	RANGE
1. Data analysis techniques	May include: 1.1 Domain analysis 1.2 Content analysis 1.3 Comparison technique

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Determine data / information 1.2 Studied and applied gathered data/information 1.3 Recorded and studied data/information These aspects may be best assessed using a range of scenarios as a stimulus with a walk-through forming part of the response. These assessment activities should include a range of problems, including new, unusual and improbable situations that may have happened.
2. Resource Implications	Specific resources for assessment 2.1 Evidence of competent performance should be obtained by observing an individual in an information management role within the workplace or operational or simulated environment.
3. Method of Assessment	Competency in this unit may be assessed through: 3.1 Written Test 3.2 Interview 3.3 Portfolio The unit will be assessed in a holistic manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations, which will include disruptions to normal, smooth operation. Simulation may be required to allow for timely assessment of parts of this unit of competency. Simulation should be based on the actual workplace and will include walk through of the relevant competency components.
4. Context of Assessment	4.1 In all workplaces, it may be appropriate to assess this unit concurrently with relevant teamwork or operation units.

UNIT OF COMPETENCY	:	**PRACTICE OCCUPATIONAL SAFETY AND HEALTH POLICIES AND PROCEDURES**
UNIT CODE	:	**400311216**
UNIT DESCRIPTOR	:	This unit covers the knowledge, skills and attitudes required to identify OSH compliance requirements, prepare OSH requirements for compliance, perform tasks in accordance with relevant OSH policies and procedures.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Identify OSH compliance requirements	1.1 Relevant OSH requirements, regulations, policies and procedures are identified in accordance with workplace policies and procedures. 1.2 OSH activity nonconformities are conveyed to appropriate personnel. 1.3 OSH preventive and control requirements are identified in accordance with OSH work policies and procedures.	1.1 OSH preventive and control requirements 1.2 Hierarchy of Controls 1.3 Hazard Prevention and Control 1.4 General OSH principles 1.5 Work standards and procedures 1.6 Safe handling procedures of tools, equipment and materials 1.7 Standard emergency plan and procedures in the workplace	1.1 Communication skills 1.2 Interpersonal skills 1.3 Critical thinking skills 1.4 Observation skills
2. Prepare OSH requirements for compliance	2.1 OSH work activity material, tools and equipment requirements are identified in accordance with workplace policies and procedures. 2.2 Required OSH materials, tools and equipment are acquired in accordance with workplace policies and procedures. 2.3 Required OSH materials, tools and equipment are arranged/ placed in accordance with OSH work standards.	2.1 Resources necessary to execute hierarchy of controls 2.2 General OSH principles 2.3 Work standards and procedures 2.4 Safe handling procedures of tools, equipment and materials 2.5 Different OSH control measures	2.1 Communication skills 2.2 Estimation skills 2.3 Interpersonal skills 2.4 Critical thinking skills 2.5 Observation skills 2.6 Material, tool and equipment identification skills
3. Perform tasks in accordance with	3.1 Relevant OSH work procedures are	3.1 OSH work standards	3.1 Communication skills

relevant OSH policies and procedures	identified in accordance with workplace policies and procedures. 3.2 Work Activities are executed in accordance with OSH work standards. 3.3 Non-compliance work activities are reported to appropriate personnel.	3.2 Industry related work activities 3.3 General OSH principles 3.4 OSH Violations Non-compliance work activities	3.2 Interpersonal skills 3.3 Troubleshooting skills 3.4 Critical thinking skills 3.5 Observation skills

RANGE OF VARIABLES

VARIABLE	RANGE
1. OSH Requirements, Regulations, Policies and Procedures	May include: .1 Clean Air Act 1.2 Building code 1.3 National Electrical and Fire Safety Codes 1.4 Waste management statutes and rules 1.5 Permit to Operate 1.6 Philippine Occupational Safety and Health Standards 1.7 Department Order No. 13 (Construction Safety and Health) 1.8 ECC regulations
2. Appropriate Personnel	May include: 2.1 Manager 2.2 Safety Officer 2.3 EHS Offices 2.4 Supervisors 2.5 Team Leaders 2.6 Administrators 2.7 Stakeholders 2.8 Government Official 2.9 Key Personnel 2.10 Specialists 2.11 Himself
3. OSH Preventive and Control Requirements	May include: 3.1 Resources needed for removing hazard effectively 3.2 Resources needed for substitution or replacement 3.3 Resources needed to establishing engineering controls 3.4 Resources needed for enforcing administrative controls 3.5 Personal Protective equipment
4. Non OSH-Compliance Work Activities	May include non-compliance or observance of the following safety measures: 4.1 Violations that may lead to serious physical harm or death 4.2 Fall Protection 4.3 Hazard Communication 4.4 Respiratory Protection 4.5 Power Industrial Trucks 4.6 Lockout/Tag-out 4.7 Working at heights (use of ladder, scaffolding) 4.8 Electrical Wiring Methods 4.9 Machine Guarding 4.10 Electrical General Requirements 4.11 Asbestos work requirements 4.12 Excavations work requirements

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Convey OSH work non-conformities to appropriate personnel 1.2 Identify OSH preventive and control requirements in accordance with OSH work policies and procedures 1.3 Identify OSH work activity material, tools and equipment requirements in accordance with workplace policies and procedures 1.4 Arrange/Place required OSH materials, tools and equipment in accordance with OSH work standards 1.5 Execute work activities in accordance with OSH work standards 1.6 Report OSH activity non-compliance work activities to appropriate personnel
2. Resource Implications	The following resources should be provided: 2.1 Facilities, materials tools and equipment necessary for the activity
3. Method of Assessment	Competency in this unit may be assessed through: 3.1 Observation/Demonstration with oral questioning 3.2 Third party report
4. Context of Assessment	4.1 Competency may be assessed in the workplace or in a simulated workplace setting

UNIT OF COMPETENCY	:	**EXERCISE EFFICIENT AND EFFECTIVE SUSTAINABLE PRACTICES IN THE WORKPLACE**
UNIT CODE	:	**400311217**
UNIT DESCRIPTOR	:	This unit covers knowledge, skills and attitude to identify the efficiency and effectiveness of resource utilization, determine causes of inefficiency and/or ineffectiveness of resource utilization and Convey inefficient and ineffective environmental practices.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Identify the efficiency and effectiveness of resource utilization	1.1 Required resource utilization in the workplace is measured using appropriate techniques. 1.2 Data is recorded in accordance with workplace protocol. 1.3 Recorded data are compared to determine the efficiency and effectiveness of resource utilization according to established environmental work procedures.	1.1 Importance of Environmental Literacy 1.2 Environmental Work Procedures 1.3 Waste Minimization 1.4 Efficient Energy Consumptions	1.1 Recording Skills 1.2 Writing Skills 1.3 Innovation Skills
2. Determine causes of inefficiency and/or ineffectiveness of resource utilization	2.1 Potential causes of inefficiency and/or ineffectiveness are listed. 2.2 Causes of inefficiency and/or ineffectiveness are identified through deductive reasoning. 2.3 Identified causes of inefficiency and/or ineffectiveness are validated thru established environmental procedures.	2.1 Causes of environmental inefficiencies and ineffectiveness	2.1 Deductive Reasoning Skills 2.2 Critical thinking 2.3 Problem Solving 2.4 Observation Skills
3. Convey inefficient and ineffective environmental practices	3.1 Efficiency and effectiveness of resource utilization are reported to appropriate personnel. 3.2 Concerns related to resource utilization are	3.1 Appropriate Personnel to address the environmental hazards 3.2 Environmental corrective actions	3.1 Written and Oral Communication Skills 3.2 Critical thinking 3.3 Problem Solving 3.4 Observation Skills

	discussed with appropriate personnel. 3.3 Feedback on information/ concerns raised are clarified with appropriate personnel.		3.5 Practice Environmental Awareness

RANGE OF VARIABLES

VARIABLE	RANGE
1. Environmental Work Procedures	May include: 1.1 Utilization of Energy, Water, Fuel Procedures 1.2 Waster Segregation Procedures 1.3 Waste Disposal and Reuse Procedures 1.4 Waste Collection Procedures 1.5 Usage of Hazardous Materials Procedures 1.6 Chemical Application Procedures 1.7 Labeling Procedures
2. Appropriate Personnel	May include: 2.1 Manager 2.2 Safety Officer 2.3 EHS Offices 2.4 Supervisors 2.5 Team Leaders 2.6 Administrators 2.7 Stakeholders 2.8 Government Official 2.9 Key Personnel 2.10 Specialists 2.11 Himself

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Measured required resource utilization in the workplace using appropriate techniques 1.2 Recorded data in accordance with workplace protocol 1.3 Identified causes of inefficiency and/or ineffectiveness through deductive reasoning 1.4 Validate the identified causes of inefficiency and/or ineffectiveness thru established environmental procedures 1.5 Report efficiency and effectiveness of resource utilization to appropriate personnel 1.6 Clarify feedback on information/concerns raised with appropriate personnel
2. Resource Implications	The following resources should be provided: 2.1 Workplace 2.2 Tools, materials and equipment relevant to the tasks 2.3 PPE 2.4 Manuals and references
3. Method of Assessment	Competency in this unit may be assessed through: 3.1 Demonstration 3.2 Oral questioning

	3.3 Written examination
4. Context of Assessment	4.1 Competency assessment may occur in workplace or any appropriately simulated environment 4.2 Assessment shall be observed while task are being undertaken whether individually or in-group

UNIT OF COMPETENCY	:	PRACTICE ENTREPRENEURIAL SKILLS IN THE WORKPLACE
UNIT CODE	:	400311218
UNIT DESCRIPTOR	:	This unit covers the outcomes required to apply entrepreneurial workplace best practices and implement cost-effective operations.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Apply entrepreneurial workplace best practices	1.1 Good practices relating to workplace operations are observed and selected following workplace policy. 1.2 Quality procedures and practices are complied with according to workplace requirements. 1.3 Cost-conscious habits in resource utilization are applied based on industry standards	1.1 Workplace best practices, policies and criteria 1.2 Resource utilization 1.3 Ways in fostering entrepreneurial attitudes: • Patience • Honesty • Quality-consciousness •Safety-consciousness • Resourcefulness	1.1 Communication skills 1.2 Complying with quality procedures
2. Communicate entrepreneurial workplace best practices	2.1 Observed good practices relating to workplace operations are communicated to the appropriate person. 2.2 Observed quality procedures and practices are communicated to the appropriate person. 2.3 Cost-conscious habits in resource utilization are communicated based on industry standards.	2.1 Workplace best practices, policies and criteria 2.2 Resource utilization 2.3 Ways in fostering entrepreneurial attitudes: • Patience • Honesty •Quality -consciousness • Safety -consciousness • Resourcefulness	2.1 Communication skills 2.2 Complying with quality procedures 2.3 Following workplace communication protocol

| 3. Implement cost effective operations | 3.1 Preservation and optimization of workplace resources is implemented in accordance with enterprise policy.
3.2 Judicious use of workplace tools, equipment and materials are observed according to manual and work requirements.
3.3 Constructive contributions to office operations are made according to enterprise requirements.
3.4 Ability to work within one's allotted time and finances is sustained. | 3.1 Optimization of workplace resources
3.2 5S procedures and concepts
3.3 Criteria for cost effectiveness
3.4 Workplace productivity
3.5 Impact of entrepreneurial mindset to workplace productivity
3.6 Ways in fostering entrepreneurial attitudes:
 • Quality - consciousness
 • Safety - consciousness | 3.1 Implementing preservation and optimizing workplace resources
3.2 Observing judicious use of workplace tools, equipment and materials
3.3 Making constructive contributions to office operations
3.4 Sustaining ability to work within allotted time and finances |

RANGE OF VARIABLES

VARIABLE	RANGE
1. Good practices	May include: 1.1 Economy in use of resources 1.2 Documentation of quality practices
2. Resources utilization	May include: 2.1 Consumption/ use of consumables 2.2 Use/Maintenance of assigned equipment and furniture 2.3 Optimum use of allotted /available time

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Demonstrated ability to identify and sustain cost-effective activities in the workplace 1.2 Demonstrated ability to practice entrepreneurial knowledge, skills and attitudes in the workplace.

2. Resource Implications	The following resources should be provided:
	2.1 Simulated or actual workplace
	2.2 Tools, materials and supplies needed to demonstrate the required tasks
	2.3 References and manuals
	      2.3.1 Enterprise procedures manuals
	      2.3.2 Company quality policy

3. Method of Assessment	Competency in this unit should be assessed through: 3.1 Interview 3.2 Third-party report
4. Context of Assessment	4.1 Competency may be assessed in workplace or in a simulated workplace setting 4.2 Assessment shall be observed while tasks are being undertaken whether individually or in-group

COMMON COMPETENCIES

UNIT OF COMPETENCY	:	APPLY SAFETY MEASURES IN FARM OPERATIONS
UNIT CODE	:	AFF321201
UNIT DESCRIPTOR	:	This unit covers the knowledge, skills and attitudes required to perform safety measures effectively and efficiently. It includes identifying areas, tools, materials, time and place in performing safety measures.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Determine areas of concern for safety measures	1.1 **Work tasks** are identified in line with farm operations 1.2 **Place** for safety measures are determined in line with farm operations 1.3 **Time** for safety measures are determined in line with farm operations 1.4 Appropriate **tools, materials and outfits** are prepared in line with job requirements	1.1 Different work tasks in farm operations 1.2 Place and time for implementation of safety measures 1.3 Different hazards in the workplace 1.4 Types of tools, materials and outfits 1.5 Preparation of tools, materials and outfits	1.1 Identifying work tasks in farm operations 1.2 Determining place and time for implementation of safety measures 1.3 Reading labels, manuals and other basic safety information 1.4 Identifying effective/functional tools, materials and outfit 1.5 Preparing tools, materials and outfits 1.6 Discarding defective tools, and materials
2. Apply appropriate safety measures	2.1 Tools and materials are used according to specifications and procedures 2.2 Outfits are worn according to farm requirements 2.3 Effectivity/shelf life/expiration of materials are strictly observed 2.4 **Emergency procedures** are known and followed to ensure a safe work requirement 2.5 Hazards in the workplace are identified	2.1 Uses and functions of tools 2.2 Outfits and how to wear it. 2.3 Expiration/shelf life of materials 2.4 Proper disposal of expired materials 2.5 Environmental rules and regulations 2.6 Emergency procedures 2.7 Hazards identification and reporting 2.8 Communication skills 2.9 OSHS	2.1 Using tools and materials in the workplace 2.2 Wearing of outfits 2.3 Observing expiration/ shelf life of materials 2.4 Disposing of expired materials 2.5 Following emergency procedures 2.6 Identifying and reporting hazards in the workplace area.

	and reported in line with farm guidelines		
3. Safe keep /dispose tools, materials and outfit	3.1 Used tools and outfit are cleaned after use and stored in designated areas 3.2 Unused materials are properly labeled and stored according to manufacturer's recommendation and farm requirements 3.3 Waste materials are disposed according to manufacturers, government and farm requirements	3.1 Procedures of cleaning used tools and outfits 3.2 Label and storage unused materials 3.3 Disposal of wastes materials 3.4 Manufacturers recommendation on keeping materials 3.5 Environmental rules and regulations	3.1 Cleaning used tools and outfit 3.2 Labelling and storing unused materials 3.3 Disposing waste materials

RANGE OF VARIABLES

VARIABLE	RANGE
1. Work tasks	Work task may be selected from any of the subsectors: 1.1 Crop Production 1.2 Post-harvest 1.3 Agri-marketing 1.4 Farm Equipment
2. Place	May include: 2.1 Stock room/storage areas/warehouse 2.2 Field/farm/orchard
3. Time	May include: 3.1 Fertilizer and pesticides application 3.2 Feed mixing and feeding 3.3 Harvesting and hauling
4. Tools, materials and outfits	May include: 4.1 Tools 4.1.1 Wrenches 4.1.2 Screwdriver 4.1.3 Pliers 4.2 Outfit 4.2.1 Masks 4.2.2 Gloves 4.2.3 Boots 4.2.4 Overall coats 4.2.5 Hat 4.2.6 Eye goggles
5. Emergency procedures	May include: 5.1 Location of first aid kit 5.2 Evacuation 5.3 Agencies contract 5.4 Farm emergency procedures
6. Hazards	May include: 6.1 Chemical 6.2 Electrical 6.3 Falls

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Determined areas of concern for safety measures 1.2 Applied appropriate safety measures according to industry requirements 1.3 Prepared tools, materials and outfit needed 1.4 Performed proper disposal of used materials 1.5 Cleaned and stored tools, materials and outfit in designated facilities.
2. Resource Implications	The following resources should be provided: 2.1 Farm location 2.2 Tools, equipment and outfits appropriate in applying safety measures
3. Method of Assessment	Competency in this unit must be assessed through: 3.1 Practical demonstration 3.2 Third Party Report
4. Context of Assessment	4.1 Competency may be assessed in the actual workplace or at the designated TESDA Accredited Assessment Center.

UNIT OF COMPETENCY	:	USE FARM TOOLS AND EQUIPMENT
UNIT CODE	:	AFF321202
UNIT DESCRIPTOR	:	This unit covers the knowledge, skills and attitudes required to use farm tools and equipment. It includes selection, operation and preventive maintenance of farm tools and equipment.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Select and use farm tools	1.1 Appropriate farm tools are identified according to requirement/use. 1.2 Farm tools are checked for faults and defective tools reported in accordance with farm procedures. 1.3 Appropriate tools are safely used according to job requirements and manufacturers conditions.	1.1 Types and uses of farm tools 1.2 Characteristics of functional tools 1.3 Checking tools for defects/faults 1.4 Segregation and reporting defective tools 1.5 Uses of tools	1.1 Identifying farm tools for the work 1.2 Checking the conditions of tools 1.3 Reporting defective tools 1.4 Using tools
2. Select and operate farm equipment	2.1 Identify appropriate *farm equipment.* 2.2 Instructional manuals of the farm tools and equipment are carefully read prior to operation. 2.3 Pre-operation check-up is conducted in line with the manufacturer's manual. 2.4 Faults in farm equipment are identified and reported in line with farm procedures. 2.5 Farm equipment is used according to its function. 2.6 Safety procedures are followed.	2.1 Types and operations of farm equipment 2.2 Standards operating procedures of farm equipment 2.3 Instructional manual of equipment 2.4 Pre-operation check-up 2.5 Equipment Specification 2.6 Procedures in calibrating and use of equipment 2.7 Equipment faults identification and reporting 2.8 Operation of equipment 2.9 Codes and Regulations on environmental protection 2.10 Safety and keeping of equipment every after use 2.11 Safety measures	2.1 Identifying appropriate farm equipment for the work 2.2 Reading instructional manual 2.3 Conducting pre operation checkup 2.4 Identifying faults/defects of farm equipment 2.5 Reporting on defective farm equipment 2.6 Operating farm equipment 2.7 Following safety procedures 2.6 Identifying and reporting hazards in the workplace area.

3. Perform preventive maintenance	3.1 Tools and equipment are cleaned immediately after use in line with farm procedures. 3.2 Routine check-up and maintenance are performed. 3.3 Tools and equipment are stored in designated areas in line with farm procedures.	3.1 Cleaning procedures of tools and equipment 3.2 Maintenance procedures of farm equipment 3.3 Storage of tools and equipment 3.4 Designated storage areas	3.1 Cleaning tools and equipment 3.2 Performing routinely checkup of tools and equipment 3.3 Maintaining farm equipment 3.4 Storing tools and equipment

RANGE OF VARIABLES

VARIABLE	RANGE
1. Farm equipment	May include: 1.1 Engine 1.2 Pumps 1.3 Generators 1.4 Sprayers
2. Farm tools	May include: 2.1 Sickle 2.2 Cutters 2.3 Weighing scales 2.4 Hand tools 2.5 Measuring tools 2.6 Garden tools
3. Pre-operation check-up	May include: 3.1 Tires 3.2 Brake fluid 3.3 Fuel 3.4 Water 3.5 Oil 3.6 Lubricants 3.7 Battery

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Correctly identified appropriate farm tools and equipment 1.2 Operated farm equipment according to manual specification 1.3 Performed preventive maintenance
2. Resource Implications	The following resources should be provided: 2.1 Service/operational manual of farm tools and equipment 2.2 Tools and equipment 2.3 Farm implements
3. Method of Assessment	Competency in this unit must be assessed through: 3.1 Direct observation 3.2 Practical demonstration 3.3 Third Party Report
4. Context of Assessment	4.1 Competency may be assessed individually in the actual workplace or simulation environment in TESDA accredited institutions

UNIT OF COMPETENCY	:	PERFORM ESTIMATION AND BASIC CALCULATION
UNIT CODE	:	AFF321203
UNIT DESCRIPTOR	:	This unit covers the knowledge, skills and attitudes required to perform basic workplace calculations.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Perform estimation	1.1 Job requirements are identified from written or oral communications. 1.2 Quantities of materials and resources required to complete a work task are estimated. 1.3 The time needed to complete a work activity is estimated. 1.4 Accurate estimates for work completion are made. 1.5 Estimates of materials and resources are reported to the appropriate person.	1.1 Job requirements/ labor needs 1.2 Calculation of quantities of materials and resources required 1.3 Calculation of time for job completion 1.4 Preparation of estimate report 1.5 Basic mathematical operations 1.6 Percentage and ratios 1.7 Unit Conversion	1.1 Identifying job requirements/ labor 1.2 Estimating quantities of materials and resources required 1.3 Estimating time for job completion 1.4 Performing basic calculation 1.5 Compute percentage 1.6 Convert English to metric systems of measurement 1.7 Preparing estimate report
2. Perform basic workplace calculation	2.1 System and units of measurement to be followed are ascertained. 2.2 Calculations needed to complete work tasks are performed using the four basic mathematical operations. 2.3 Calculate the whole fraction, percentage and mixed when they are used to complete the instructions. 2.4 Number computed is checked following work requirements	2.1 Four basic mathematical operation 2.2 System and units of measurement 2.3 Fraction, percentage and ratio 2.4 Material take-off 2.5 Materials costing	2.1 Compute bill of materials 2.2 Compute project cost.

RANGE OF VARIABLES

VARIABLE	RANGE
1. Four basic mathematical operation	Includes: 1.1 Addition 1.2 Subtraction 1.3 Multiplication 1.4 Division
2. System of measurement	Includes: 2.1 English 2.2 Metric
3. Units of measurement	Includes: 3.1 Area 3.2 Volume 3.3 Weight 3.4 Length

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Performed estimation 1.2 Performed basic workplace calculation 1.3 Applied corrective measures as maybe necessary
2. Resource Implications	The following resources should be provided: 2.1 Relevant tools and equipment for basic calculation 2.2 Recommended data
3. Method of Assessment	Competency in this unit must be assessed through: 3.1 Practical demonstration 3.2 Written examination
4. Context of Assessment	4.1 Competency may be assessed individually in the actual workplace or simulation environment in TESDA accredited institutions.

CORE COMPETENCIES

UNIT OF COMPETENCY	:	ESTABLISH ORCHARD
UNIT CODE	:	ABAFF1204704611301
UNIT DESCRIPTOR	:	This unit covers the knowledge, skills and attitudes required to perform preparatory activities in planting mangosteen and other maintenance activities concerning the establishment of mangosteen orchard.

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Perform preparatory activities	1.1 Perform site selection based on the *plant requirements*. 1.2 Soil sample is prepared for soil analysis following industry standard procedure. 1.3 Land is *cleared* following Good Agricultural Practices (GAPs). 1.4 Shade plant is planted following farm practice. 1.5 Staking is performed following lay out. 1.6 Quality seedlings are acquired based on Bureau of Plant Industry (BPI) guidelines. 1.7 PPEs are used following Occupational Health and Safety (OHS) procedure. 1.8 Safety practices is applied following (OHS) procedure. 1.9 Tools*, equipment and materials* are prepared following farm practice.	**TECHNOLOGY** 1.1 Function of shade plants 1.2 Awareness on the use of Soil test kit 1.3 Criteria on site selection 1.4 Planting system and techniques 1.5 Procedures on soil sample collection and preparation 1.6 Usage and importance of PPE 1.7 Application of Tools, equipment and materials **ENVIRONMENTAL AND OTHER RELATED LAWS** 1.8 Awareness on DENR AO 2000-24 Issuance of Tree Cutting Permit 1.9 Awareness on soil erosion and its control 1.10 Bureau of Plant Industry Guidelines 1.11 OSHS **MATHEMATICS**	1.1 Selecting site 1.2 Preparing soil samples 1.3 Clearing land fill 1.4 Planting shading planting 1.5 Performing lay-outing and staking 1.6 Acquiring quality seedlings 1.7 Computation skills 1.8 Applying safe practices 1.9 Preparing tools equipment and materials 1.10 Handling tools equipment and materials

		1.12 Square planting system Computation 1.13 Quincunx Computation 1.14 Triangular planting system Computation **COMMUNICATION** 1.15 Awareness on occupational health and safety practice 1.16 Understanding Good Agricultural Practices (GAPs)	
2. Plant mangosteen	2.1 Holes are dug following layout. 2.2 Basal *fertilizer* is applied according to the result of soil analysis. 2.3 Seedlings are planted based on Good Agricultural Practices (GAPs). 2.4 *Farm tools and materials* are used following farm practice. 2.5 Personal Protective Equipment are used following Occupational Health and Safety (OHS) procedure. 2.6 Safety practices is applied following Occupational Health and Safety (OHS) procedure.	**TECHNOLOGY** 2.1 Method of fertilizer application 2.2 Time of application **SCIENCE** 2.3 Types and forms of fertilizer 2.4 Advantages and disadvantages of organic and inorganic fertilizers **ENVIRONMENT AND OTHER RELATED LAWS** 2.5 Good environmental practices 2.6 Occupational Health and Safety procedures 2.7 Awareness on DENR AO 2000-24 Issuance of Tree Cutting Permit 2.8 Awareness on soil erosion and its control 2.9 Bureau of Plant Industry Guidelines	2.1 Digging holes 2.2 Applying fertilizer 2.3 Planting seedlings 2.4 Recording planting schedule 2.5 Recording fertilizer application schedule 2.6 Measuring skills 2.7 Classifying or selecting seedlings

		MATHEMATICS 2.10 Ratio and proportion 2.11 Hole measurement COMMUNICATION 2.12 Planting schedule 2.13 Fertilizer application schedule	
3. Conduct maintenance activities	3.1 Weeds are controlled using *weed control methods*. 3.2 *Fertilizer* is applied following established farm practice. 3.3 *Insect pests and diseases* are controlled following *pest and disease-controlled methods*. 3.4 *Farm tools and materials* are used following farm practice. 3.5 *Farm equipment* are operated following manufacturer's manual. 3.6 Personal Protective Equipment are used following Occupational Health and Safety (OHS) procedure. 3.7 Safety practices is applied following OHS procedure.	TECHNOLOGY 3.1 Preparation of fertilizer 3.2 Weed control methods 3.3 Pest and disease control methods 3.4 Localized placement of fertilizer 3.5 Proper use of tools and materials 3.6 Cleaning and sanitation procedures 3.7 Risk mitigation strategies 3.8 Soil fertility management SCIENCE 3.9 Role of 17 Essential Nutrients in Plant Nutrition ENVIRONMENTAL AND OTHER RELATED LAWS 3.10 Republic Act 8749 – Philippine Clean Air Act of 1990 3.11 Republic Act 6969 – An Act to Control Toxic Substances and Hazardous and Nuclear Wastes	3.1 Preparing fertilizer 3.2 Applying fertilizer 3.3 Applying pest and disease control 3.4 Cleaning and sanitizing 3.5 Handling tools, equipment and materials 3.6 Operating equipment 3.7 Applying localized fertilizer methods 3.8 Weeding 3.9 Applying risk mitigation strategies 3.10 Interpreting user's manual

		3.12 Presidential Decree 1586 Environmental Impact Statement of 1978 3.13 Republic Act 10611 Food Safety Act 3.14 Republic Act 9003 Ecological Solid Waste Management 3.15 Awareness on Occupational Health and Safety Procedures 3.16 Good Agricultural Practice Standards **MATHEMATICS** 3.17 Ratio and Proportion **COMMUNICATION** 3.18 Fertilization program 3.19 Manufacturer's Manual	
4. Perform post activities	4.1 ***Tools and equipment*** are cleaned and stored following farm practices. 4.2 ***Materials*** are labeled according to Good Agricultural Practices (GAP's) 4.3 Record keeping is performed following farm practices. 4.4 ***Wastes*** are disposed following solid waste management.	**TECHNOLOGY** 4.1 Storage strategies 4.2 Waste disposal methods **SCIENCE** 4.3 Proper waste disposal 4.4 Vermicomposting 4.5 Proper housekeeping **ENVIRONMENTAL AND OTHER RELATED LAWS** 4.6 Republic Act 8749 – Philippine Clean Air Act of 1990 4.7 Republic Act 6969 – An Act to Control Toxic Substances and	4.1 Keeping of records 4.2 Labelling of materials 4.3 Cleaning of wastes 4.4 Disposing wastes 4.5 Storing fertilizer 4.6 Storing pesticides

		Hazardous and Nuclear Wastes 4.8 Presidential Decree 1586 Environmental Impact Statement of 1978 4.9 Republic Act 10611 Food Safety Act 4.10 Republic Act 9003 Ecological Solid Waste Management 4.11 Awareness on Occupational Health and Safety Procedures 4.12 Good Agricultural Practice Standards **COMMUNICATION** 4.13 Cleaning and sanitation program	

RANGE OF VARIABLES

VARIABLE	RANGE
1. Plant requirements	May include: 1.1 Soil 1.2 Climate 1.3 Water source

2. Land clearing	May include:
	2.1 Removal of any vegetation
	    2.1 Weeds
	    2.2 Stumps
	    2.3 Trees
	    2.4 Plants
	2. removal of debris
	  2.1 rocks
	  2.2 boulders
	3. trash and waste materials

3. Fertilizer	May include: 1. Organic 2. Inorganic
4. Farm tools	May include: 1. bolo 2. shovel 3. Pruning shear 4. Spade 5. Wheel borrow
5. Equipment	May include: 1. grass cutter 2. mower 5. Power sprayers

6. Materials	May include:
	    1. Fertilizer
	    2. Pesticides

7. Weed control methods	May include: 1. manual weeding or hand pulling 2. mechanical 3. chemical 3.1 herbicide

8. Insect Pest	May include:
	    1. Fruit flies
	    2. Mealybugs
	    3. Thrips
	    4. Scale Insect

9. Diseases	May include:
	    1. Leaf blight
	    2. Gummosis
	    3. Sooty mold
	    4. Anthracnose

10. Pest and disease-controlled method	May include:
	    1. Cultural control
	      1.1 Sanitation
	        1.1.1 Pruning

VARIABLE	RANGE
	1.1.2 Clean field boarders
	1.1.3 Proper disposal of waste
	2. Mechanical control
	2.1 Mechanical destruction
	2.1.1 Manual labor
	2.1.2 Mechanical force
	2.2 Mechanical exclusion
	3. Chemical control
	3.1 Insecticide application
	3.2 Fungicide application

EVIDENCE GUIDE

1. Critical aspects of Competency	Assessment requires evidence that the candidate:
	1.1. Performed preparatory activities.
	1.1.1. Performed site selection.
	1.1.2. Cleared land.
	1.1.3. Performed staking.
	1.1.4. Acquired quality seedlings.
	1.1.5. Applied safety practices.
	1.1.6. Prepared tools, equipment and materials.
	1.2. Planted mangosteen.
	1.2.1. Dug holes
	1.2.2. Applied Basal fertilizer.
	1.2.3. Planted seedlings.
	1.2.4. Used farm tools and materials.
	1.2.5. Applied safety practices.
	1.3. Conducted maintenance activities.
	1.3.1. Controlled weeds
	1.3.2. Applied fertilizer.
	1.3.3. Controlled Insect pests and diseases.
	1.3.4. Used farm tools and materials.
	1.3.5. Operated farm equipment.
	1.3.6. Applied Safety practices.
	1.4. Performed post activities.
	1.4.1. Cleaned and stored tools and equipment.
	1.4.2. Labeled materials.
	1.4.3. Performed record keeping.
	1.4.4. Disposed wastes.
2. Resource Implications	The following resources **MUST** be provided:
	2.1. Planting site
	2.2. Seedlings
	2.3. Farm tools, supplies, and equipment
	2.4. Personal Protective Equipment (PPEs)
	2.5. Soil samples
	2.6. References (catalogues, field guides, OSHS and other manuals)
	2.7. Logbook
	2.8. Storage
3. Methods of Assessment	Competency in this unit must be assessed through
	3.1. Demonstration with oral questioning
	3.2. Written Test
	3.3. Interview
	3.4. Portfolio
4. Context for Assessment	4.1. Competency may be assessed individually in the actual workplace or TESDA accredited institutions.

UNIT OF COMPETENCY	:	HARVEST PRODUCE
UNIT CODE	:	ABAFF1204704611302
UNIT DESCRIPTOR	:	This unit covers the knowledge, skills and attitudes required to properly perform pre, during and post harvesting activities in mangosteen production including preparation of materials, harvesting and managing harvested produce.

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Perform pre – harvest operations	1.1 Harvesting ***tools, materials***, and temporary shed are prepared based on farm practice 1.2 ***Pre-harvest records*** are checked based on harvest criteria. 1.3 ***Obstructions*** from the field are removed based on Good Agricultural Practices (GAPs). 1.4 Fruit maturity is assessed according to fruit maturity chart index. 1.5 ***PPEs*** are prepared following OHS.	**TECHNOLOGY** 1.1 Use of tools and materials **ENVIRONMENTAL AND OTHER RELATED LAWS** 1.2 Good Agricultural Practices 1.3 Occupational Health and Safety Standards **COMMUNICATION** 1.4 Plant record	1.1 Preparing tools and materials 1.2 Preparing temporary shed 1.3 Checking pre-harvest records 1.4 Preparing PPEs
2. Perform harvesting activities	2.1 Fruits are harvested based on fruit maturity 2.2 ***Harvesting methods*** are applied based on Good Agricultural Practice (GAP) guidelines. 2.3 Safety procedures applied according Occupational Health and Safety standards. 2.4 Harvests are transported to packing house	**TECHNOLOGY** 2.1 Harvesting methods 2.2 Use of tools 2.3 Handling of crops **ENVIRONMENTAL AND OTHER RELATED LAWS** 2.4 Good Agricultural Practices 2.5 Occupational Health and Safety Standards 2.6 PNS/ BAFPS 31:2005 Fresh Fruits-Mangosteen-	2.1 Harvesting fruits 2.2 Handling of tools 2.3 Interpreting fruit maturity index 2.4 Handling of harvests 2.5 Applying safety practices 2.6 Transporting harvests

	following farm practice.	Grading and Classification **COMMUNICATION** 2.7 Interpretation of fruit maturity index	
3. Classify harvested fruits	3.1 Harvested fruits are sorted following fruit maturity index 3.2 Harvested fruits are graded following fruit maturity index 3.3 Rejected fruits are discarded following farm practice 3.4 **PPEs** are used following OHS procedure. 3.5 Safety practices are applied following OHS procedure. 3.6 **Tools and materials** are used following farm practice	**TECHNOLOGY** 3.1 Fruit maturity index 3.2 Color index 3.3 Grading and Classification of Mangosteen **SCIENCE** 3.4 Tools and materials 3.5 PPEs **ENVIRONMENTAL AND OTHER RELATED LAWS** 3.6 Republic Act No. 10611, aka the Food Safety Act of 2013 3.7 Republic Act No. 9003 3.8 (DENR) Administrative Order No. 2019-20 3.9 Department of Agriculture (DA) Administrative Order No. 10, series of 2018 3.10 Bureau of Plant Industry (BPI) regulations 3.11 OSHS 3.12 PNS/ BAFPS 31:2005 Fresh Fruits-Mangosteen-Grading and Classification **COMMUNICATION** 3.13 Effective verbal communication skills for coordinating with	3.1 Inspecting mangosteen visually 3.2 Grading and classifying rejected fruits 3.3 Applying safety practices 3.4 Using tools and materials 3.5 Using PPEs

		team members or supervisors during the sorting process 3.14 Basic written communication skills for documenting any quality or safety-related issues observed during sorting	
3. Perform post-harvest operation	4.1 Use postharvest equipment according to manufacturer's manual 4.2 Handling is done according to market requirements. 4.3 PPEs are used following OHS procedure. 4.4 Safety practices are applied following OHS procedure.	**TECHNOLOGY** 4.1 Use of equipment **SCIENCE** 4.2 Fruit Physiology **ENVIRONMENTAL AND OTHER RELATED LAWS** 4.3 Republic Act No. 9003, Solid Waste Management **MATHEMATICS** 4.4 Basic Arithmetic **COMMUNICATION** 4.5 Production Statistics	4.1 Forecasting produce 4.2 Using postharvest equipment 4.3 Using manufacturer's manual 4.4 Using PPEs 4.5 Handling produce • Packing of fruits

RANGE OF VARIABLES

VARIABLE	RANGE
Tools	May include: 1. Picking poles 2. Shears 3. Collecting baskets with liners 4. Harvesting crates with liner 5. Ladder
Materials	May include 1. Scissors 2. Container with clean water 3. Sacks 4. Twines 5. Labels and markers
Pre-harvest records	Include the following: 1. Crop history 2. Farm calendar 3. Farm records 4. Fruit maturity chart
Obstructions	May include but not limited to: 1. Weeds 2. Dead branches 3. Stakes and wedges
Postharvest treatment	Include the following: 1. Sorter 2. Weighing scale
Characteristics affecting harvest	Include the following: 1. Continued occurrence of physiological changes 2. Susceptible to attack by pathogens and insects 3. High in water content
Harvesting method	May include: 1. Picking poles with net basket 2. Handpicking
Buyers	Buyers may include but not limited to: Processor or Manufacturer Supermarket Local traders Trading centers Public market Wholesaler Retailer
PPEs	May include: 1. Hand gloves 2. Safety belt 3. Goggles 4. Gown

EVIDENCE GUIDE

Critical aspects of Competency	Assessment requires evidence that the candidate:
	1.1. Performed pre – harvest operations.
	1.1.1. Prepared harvesting tools ~~and~~ materials, and temporary shed.
	1.1.2. Checked pre-harvest records
	1.1.3. Removed obstructions from the field
	1.1.4. Prepared PPEs
	1.2. Performed harvesting activities.
	1.2.1. Identified crop maturity
	1.2.2. Harvested fruits
	1.2.3. Applied harvesting methods
	1.2.4. Applied safety procedures
	1.2.5. Transported harvests to packing house
	1.3. Classified harvested fruits.
	1.3.1. Sorted harvested fruits
	1.3.2. Graded harvested fruits
	1.3.3. Discarded rejected fruits
	1.3.4. Applied safety practices
	1.3.5. Used tools and materials
Resource Implications	The following resources **MUST** be provided:
	2.1. Demo farm
	2.2. Farm tools, supplies and materials
	2.3. Personal Protective Equipment (PPEs)
	2.4. References (catalogues, field guides, OSHS and other manuals)
	2.5. Logbook
Methods of Assessment	Competency in this unit must be assessed through
	3.1. Demonstration with oral questioning
	3.2. Direct observation
	3.3. Interview
	3.4. Portfolio
Context for Assessment	Competency may be assessed individually in the actual workplace or TESDA accredited institutions.

UNIT OF COMPETENCY	:	MARKET PRODUCE
UNIT CODE	:	ABAFF1204704611303
UNIT DESCRIPTOR	:	This unit covers the knowledge, skills and attitudes required to properly perform coordination, information gathering and communication to be used in marketing harvested produce.

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Monitor prevailing farmgate prices of produce	1.1 ***Buyers*** of the produce identified according to industry practice. 1.2 Information on price is gathered following industry practice. 1.3 Price information is recorded following industry practice.	**TECHNOLOGY** 1.1 Types of buyers 1.2 and trading centers 1.3 Criteria in determining major buyers 1.4 Supply and demand in relation to price movements 1.5 Sources of price information 1.6 Methods to monitor prices 1.7 Procedures in recording price information	1.1 Determining major buyers and trading centers 1.2 Gathering price information 1.3 Recording price information 1.4 Coordinating skills 1.5 Monitoring skills 1.6 Communication skills
2. Apply marketing strategies	2.1 Collected information is used in strategizing to optimize sales and profit according to standard marketing procedure. 2.2 ***Value adding*** activities are applied based on market plan. 2.3 Marketing of produce is done following industry practices.	**TECHNOLOGY** 2.1 Value adding strategies 2.2 Marketing strategies **MATHEMATICS** 2.3 Computation on sales, cost and profit	2.1 Using collected information in 2.2 Applying marketing strategies 2.3 Applying value adding activities 2.4 Coordinating skills 2.5 Computation skills 2.6 Record Keeping 2.7 Strategic thinking
3. Sell produce	3.1 Negotiation with buyers is performed according to industry practice.	**TECHNOLOGY** 3.1 Product delivery process with quality handling and traceability	3.1 Negotiating 3.2 Computing 3.3 Establishing sales terms and condition

	3.2 **Sales terms and conditions** are established and agreed following marketing practices. 3.3 Fresh produce is sold based on quality standards. 3.4 Details of sales transactions are recorded following industry practice.	**SCIENCE** 3.2 Fundamentals of Negotiation **ENVIRONMENTAL AND OTHER RELATED LAWS** 3.3 RA 7394 (Consumer Act of the Philippines) **MATHEMATICS** 3.4 Computation of sales, cost and profit **COMMUNICATIONS** 3.5 Record keeping of details of marketing transaction 3.6 Sales Contract	3.4 Preparing produce 3.5 selling of products 3.6 Recording of Details of marketing transaction

RANGE OF VARIABLES

VARIABLE	RANGE
Buyers	Plant Owners Manufacturers Middle Men Retailer Wholesalers
Value Adding Activities	Branding Labelling Re-selling Product Innovation
Sales Terms and Conditions	Delivery Terms Price Payment Terms Mode of Sales Sales Conditions
Marketing Plan	SWOT Analysis Financial Aspect Revenue Brand Development Distribution Price

EVIDENCE GUIDE

Critical aspects of Competency	Assessment requires evidence that the candidate:

	1. Monitored prevailing farmgate prices of produce
	    1.1 Identified buyers of the produce.
	    1.2 Gathered price information.
	    1.3 Recorded Price information.
	
	2. Applied marketing strategies
	    2.1 Used collected information in strategizing.
	    2.2 Applied Value adding activities.
	    2.3 Market Produce.
	
	3. Sold Produce
	    3.1 Performed negotiation with buyers.
	    3.2 Established sales terms and conditions.
	    3.3. Sold fresh produce.
	    3.4 Recorded sales transaction details.

Resource Implications	The following resources **MUST** be provided: • Logbook • List of Buyers • References (Manuals, Sales Contract, Product/Marketing Brochure) • Simulated Workplace • Writing Materials • Business Cards
Methods of Assessment	Competency in this unit must be assessed through: ▪ Demonstration ▪ Direct observation ▪ Interview ▪ Written Exam
Context for Assessment	Competency may be assessed individually in the actual workplace or TESDA accredited institutions.

GLOSSARY OF TERMS

ORCHARD	Comprise fruit or nut producing trees which are generally grown for commercial production. Fruit trees that are planted.
PACKING	primary packaging
PACKING HOUSE	consolidate produce, aka temporary house
PACKAGING	by boxes, done by the buyers.

ACKNOWLEDGEMENTS