

# COMPETENCY STANDARDS



## COFFEE NURSERY OPERATION LEVEL II

**AGRICULTURE, FORESTRY AND FISHERY  
SECTOR**

**TECHNICAL EDUCATION AND SKILLS DEVELOPMENT AUTHORITY**  
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**COMPETENCY STANDARDS FOR  
COFFEE NURSERY OPERATION LEVEL II**

**SECTION 1 COFFEE NURSERY OPERATION LEVEL II DESCRIPTION**

**COFFEE NURSERY OPERATION LEVEL II COMPETENCY STANDARDS**

The **COFFEE NURSERY OPERATION LEVEL II** Qualification consists of competencies that a person must have in order to establish mother plant garden, produce rooted cuttings, and produce ready-to-plant (RTP) plantlets. The competencies focus on production, that is from preparing the mother plants to planting, stem cutting, rooting, and marketing the ready-to-plant plantlets. It also comprises of competencies to handle farm operation in small scale, which is farm (1 to 10 hectares).

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**

AFFXXXXXX	Establish mother plant garden
AFFXXXXXX	Produce rooted cuttings
AFFXXXXXX	Produce ready-to-plant (RTP) plantlets

A person who has achieved this Qualification is competent to be:

- Coffee Farmer Nursery Operator

## SECTION 2 COMPETENCY STANDARDS

This section gives the details of the contents of the basic, common and core units of competency required in **COFFEE NURSERY OPERATION 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 <i>Italicized terms</i> 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 <b>appropriate sources</b> . 1.2 Effective questioning, active listening and speaking skills are used to gather and convey information. 1.3 Appropriate <b>medium</b> 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 <b>storage</b> of information are used.	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

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	1.7 Personal interaction is carried out clearly and concisely.		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 instruction are followed based on established procedures. 2.3 Feedback is given to workplace supervisor based instructions/ information received. 2.4 <b>Workplace interactions</b> 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 <b>appropriate sources</b> . 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 <b>forms</b> relating to conditions of employment are completed	3.1 Effective verbal and non-verbal communication 3.2 Different modes of communication	3.1 Completing work-related documents 3.2 Applying operations of

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
	<p>accurately and legibly.</p> <p>3.2 Workplace data is recorded on standard workplace forms and documents.</p> <p>3.3 Errors in recording information on forms/ documents are identified and acted upon.</p> <p>3.4 Reporting requirements to supervisor are completed according to organizational guidelines.</p>	<p>3.3 Workplace forms and documents</p> <p>3.4 Organizational/ Workplace policies</p> <p>3.5 Communication procedures and systems</p> <p>3.6 Technology relevant to the enterprise and the individual's work responsibilities</p>	<p>addition, subtraction, division and multiplication</p> <p>3.3 Gathering and providing information in response to workplace requirements</p> <p>3.4 Effective record keeping skills</p>

## 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

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



**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.

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
1. Describe team role and scope	1.1 The <b>role and objective of the team</b> is identified from available <b>sources of information</b> . 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 is identified from available <b>sources of information</b> . 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	3.1 Communication Process 3.2 Workplace communication protocol	3.1 Communicating appropriately, consistent with the culture of the workplace

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	<p>team members based on company practices.</p> <p>3.2 Effective and appropriate contributions made to complement team activities and objectives, based on <b>workplace context</b>.</p> <p>3.3 Protocols in reporting are observed based on standard company practices.</p> <p>3.4 Contribute to the development of team work plans based on an understanding of team's role and objectives.</p>	<p>3.3 Team planning and decision making</p> <p>3.4 Team thinking</p> <p>3.5 Team roles</p> <p>3.6 Process of team development</p> <p>3.7 Workplace context</p>	<p>3.2 Interacting effectively with others</p> <p>3.3 Deciding as an individual and as a group using group think strategies and techniques</p> <p>3.4 Contributing to Resolution of issues and concerns</p>

## 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 maybe 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

<p>1. Critical aspects of Competency</p>	<p><b>Assessment requires evidence that the candidate:</b></p> <p>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</p>
<p>2. Resource Implications</p>	<p><b>The following resources should be provided:</b></p> <p>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</p>
<p>3. Methods of Assessment</p>	<p><b>Competency in this unit may be assessed through:</b></p> <p>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</p>
<p>4. Context for Assessment</p>	<p>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</p>

**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.

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
1. Identify routine problems	1.1 Routine <b>problems or procedural problem</b> 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 problem are identified. 2.2 Recommendations about possible solutions are developed, <b>documented</b> , ranked and presented to	2.1 Current industry hardware and software products and services 2.2 Industry service and helpdesk practices, processes and procedures	2.1 Identifying current industry hardware and software products and services 2.2 Identifying services and helpdesk practices,

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	<b><i>appropriate person</i></b> for decision.	2.3 Operating systems 2.4 Industry standard diagnostic tools 2.5 Malfunctions and resolutions. 2.6 Root cause analysis	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 <b>planned</b> . 3.2 Evaluation of implemented solutions are planned. 3.3 Recommended solutions are documented and submit 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 Co-ordination and feedback requirements 4.3 Safety requirements 4.4 Risk assessment 4.5 Environmental requirements

## EVIDENCE GUIDE

1. Critical aspects of Competency	<p><b>Assessment requires evidence that the candidate:</b></p> <ul style="list-style-type: none"> <li>1.1 Determined the root cause of a routine problem</li> <li>1.2 Identified solutions to procedural problems.</li> <li>1.3 Produced documentation that recommends solutions to problems.</li> <li>1.4 Followed established procedures.</li> <li>1.5 Referred unresolved problems to support persons.</li> </ul>
2. Resource Implications	2.1 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. Methods of Assessment	<p><b>Competency in this unit may be assessed through:</b></p> <ul style="list-style-type: none"> <li>3.1 Case Formulation</li> <li>3.2 Life Narrative Inquiry</li> <li>3.3 Standardized test</li> </ul> <p>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.</p>
4. Context for 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.

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
1. Manage one’s emotion	1.1 <b>Self-management strategies</b> 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 <b>unpleasant situation</b> 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 situation 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	2.1 Basic SWOT analysis 2.2 Strategies to improve one’s attitude in the workplace 2.3 Gibbs’ Reflective Cycle/Model (Description,	2.1 Using the basic SWOT analysis as self-assessment strategy 2.2 Developing reflective practice through realization of

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
	<p>responding to feedback from teachers to assist them in consolidating strengths, addressing weaknesses and fulfilling their potential are monitored.</p> <p>2.3 Outcomes of personal and academic challenges by reflecting on previous problem solving and decision making strategies and feedback from peers and teachers are predicted.</p>	<p>Feelings, Evaluation, Analysis, Conclusion, and Action plan)</p>	<p>limitations, likes/ dislikes; through showing of self-confidence</p> <p>2.3 Demonstrating self-acceptance and being able to accept challenges</p>
<p>3. Boost self-confidence and develop self-regulation</p>	<p>3.1 Efforts for continuous self-improvement are demonstrated.</p> <p>3.2 Counter-productive tendencies at work are eliminated.</p> <p>3.3 Positive outlook in life are maintained.</p>	<p>3.1 Four components of self-regulation based on Self-Regulation Theory (SRT)</p> <p>3.2 Personality development concepts</p> <p>3.3 Self-help concepts (e. g., 7 Habits by Stephen Covey, transactional analysis, psycho-spiritual concepts)</p>	<p>3.1 Performing effective communication skills – reading, writing, conversing skills</p> <p>3.2 Showing affective skills – flexibility, adaptability, etc.</p> <p>3.3 Self-assessment for determining one’s strengths and weaknesses</p>

## 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	<b>Assessment requires evidence that the candidate:</b> 1.1 Express emotions appropriately 1.2 Work independently and show initiative 1.3 Consistently demonstrate self-confidence and self-discipline
2. Resource Implications	<b>The following resources should be provided:</b> 2.1 Access to workplace and resources 2.2 Case studies
3. Methods of Assessment	<b>Competency in this unit may be assessed through:</b> 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 for 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 pro-active and positive contribution to workplace innovation.**

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
1. Identify opportunities to do things better	1.1 <b>Opportunities for improvement</b> are identified proactively in own area of work. 1.2 <b>Information</b> are gathered and reviewed which may be relevant to ideas and which might assist in gaining support for idea.	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 <b>People who could provide input</b> 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 review and selected based on feedback. 2.5 <b>Critical inquiry method</b> 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

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
			group discussions and meetings
3. Integrate ideas for change in the workplace	<p>3.1 Critical inquiry method is used to integrate different ideas for change of key people.</p> <p>3.2 Summarizing, analyzing and generalizing skills are used to extract salient points in the pool of ideas.</p> <p>3.3 <b>Reporting skills</b> are likewise used to communicate results.</p> <p>3.4 <b>Current Issues and concerns</b> on the systems, processes and procedures, as well as the need for simple innovative practices are identified.</p>	<p>3.1 Roles of individuals in suggesting and making improvements</p> <p>3.2 Positive impacts and challenges in innovation</p> <p>3.3 Types of changes and responsibility</p> <p>3.4 Seven habits of highly effective people</p> <p>3.5 Basic research skills</p>	<p>3.1 Identifying opportunities to improve and to do things better. Involvement</p> <p>3.2 Identifying the positive impacts and the challenges of change and innovation</p> <p>3.3 Providing examples of the types of changes that are within and outside own scope of responsibility</p> <p>3.4 Communicating ideas for change through small group discussions and meetings</p> <p>3.5 Demonstrating skills in analysis and interpretation of data</p>

## 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

VARIABLE	RANGE
	5.4 Coherent writing 5.5 Speaking

## EVIDENCE GUIDE

1. Critical aspects of Competency	<p><b>Assessment requires evidence that the candidate:</b></p> <p>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.</p>
2. Resource Implications	<p><b>The following resources should be provided:</b></p> <p>2.1 Pens, papers and writing implements 2.2 Cartolina 2.3 Manila papers</p>
3. Methods of Assessment	<p><b>Competency in this unit may be assessed through:</b></p> <p>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</p>
4. Context for Assessment	<p>4.1 Competency may be assessed individually in the actual workplace or simulation environment in TESDA accredited institutions.</p>

**UNIT OF COMPETENCY : PRESENT RELEVANT INFORMATION**

**UNIT CODE : 400311215**

**UNIT DESCRIPTOR : This unit of covers the knowledge, skills and attitudes required to present data/information appropriately.**

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
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 Organisational 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 Organisational values, ethics and codes of conduct	1.1 Describing organisational 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 organisational values, ethics and codes of conduct
2. Assess gathered data/ information	2.1 Validity of data/ information is assessed.	2.1 Business mathematics and statistics	2.1 Computing business mathematics and statistics



ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	2.2 Analysis techniques are applied to assess data/ information. 2.3 Trends and anomalies are identified.  2.4 <b>Data analysis techniques</b> and procedures are documented. 2.5 Recommendation s are made on areas of possible improvement.	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	2.2 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 Recommendation s 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	<p><b>Assessment requires evidence that the candidate:</b></p> <p>1.1 Determine data / information 1.2 Studied and applied gathered data/information 1.3 Recorded and studied data/information</p> <p>These aspects may be best assessed using a range of scenarios what ifs 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.</p>
2. Resource Implications	<p><b>Specific resources for assessment</b></p> <p>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.</p>
3. Methods of Assessment	<p><b>Competency in this unit may be assessed through:</b></p> <p>3.1 Written Test 3.2 Interview 3.3 Portfolio</p> <p>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.</p>
4. Context for Assessment	<p>4.1 In all workplace, it may be appropriate to assess this unit concurrently with relevant teamwork or operation units.</p>

**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.

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
1. Identify OSH compliance requirements	1.1 Relevant <b>OSH requirements, regulations, policies and procedures</b> are identified in accordance with workplace policies and procedures. 1.2 OSH activity non-conformities are conveyed to <b>appropriate personnel</b> . 1.3 <b>OSH preventive and control requirements</b> 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.	2.1 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

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	2.3 Required OSH materials, tools and equipment are arranged/ placed in accordance with OSH work standards.		
3. Perform tasks in accordance with relevant OSH policies and procedures	3.1 Relevant OSH work procedures are identified in accordance with workplace policies and procedures. 3.2 Work Activities are executed in accordance with OSH work standards. 3.3 <b>Non-compliance work activities</b> are reported to <i>appropriate personnel</i> .	3.1 OSH work standards 3.2 Industry related work activities 3.3 General OSH principles 3.4 OSH Violations Non-compliance work activities	3.1 Communication skills 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: 1.1 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

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

**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.

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
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 are recorded in accordance with workplace protocol. 1.3 Recorded data are compared to determine the efficiency and effectiveness of resource utilization according to established <b>environmental work procedures.</b>	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	2.1 Causes of environmental inefficiencies and ineffective-ness	2.1 Deductive Reasoning Skills 2.2 Critical thinking 2.3 Problem Solving 2.4 Observation Skills

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
	environmental procedures.		
3. Convey inefficient and ineffective environmental practices	3.1 Efficiency and effectiveness of resource utilization are reported to <i>appropriate personnel</i> . 3.2 Concerns related resource utilization are discussed with appropriate personnel. 3.3 Feedback on information/ concerns raised are clarified with appropriate personnel.	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 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

<p>1. Critical aspects of Competency</p>	<p><b>Assessment requires evidence that the candidate:</b></p> <p>1.1 Measured required resource utilization in the workplace using appropriate techniques</p> <p>1.2 Recorded data in accordance with workplace protocol</p> <p>1.3 Identified causes of inefficiency and/or ineffectiveness through deductive reasoning</p> <p>1.4 Validate the identified causes of inefficiency and/or ineffectiveness thru established environmental procedures</p> <p>1.5 Report efficiency and effectiveness of resource utilization to appropriate personnel</p> <p>1.6 Clarify feedback on information/concerns raised with appropriate personnel</p>
<p>2. Resource Implications</p>	<p><b>The following resources should be provided:</b></p> <p>2.1 Workplace</p> <p>2.2 Tools, materials and equipment relevant to the tasks</p> <p>2.3 PPE</p> <p>2.4 Manuals and references</p>
<p>3. Methods of Assessment</p>	<p><b>Competency in this unit may be assessed through:</b></p> <p>3.1 Demonstration</p> <p>3.2 Oral questioning</p> <p>3.3 Written examination</p>
<p>4. Context for Assessment</p>	<p>4.1 Competency assessment may occur in workplace or any appropriately simulated environment</p> <p>4.2 Assessment shall be observed while task are being undertaken whether individually or in-group</p>

**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.

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
1. Apply entrepreneurial workplace best practices	1.1 <b>Good practices</b> 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 <b>resource utilization</b> 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: <ul style="list-style-type: none"> <li>• Patience</li> <li>• Honesty</li> <li>• Quality-consciousness</li> <li>• Safety-consciousness</li> <li>• Resourcefulness</li> </ul>	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 <b>appropriate person</b> . 2.2 Observed quality procedures and practices are communicated to appropriate person.	2.1 Workplace best practices, policies and criteria 2.2 Resource utilization 2.3 Ways in fostering entrepreneurial attitudes: <ul style="list-style-type: none"> <li>• Patience</li> <li>• Honesty</li> <li>• Quality-consciousness</li> </ul>	2.1 Communication skills 2.2 Complying with quality procedures 2.3 Following workplace communication protocol

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
	2.3 Cost-conscious habits in resource utilization are communicated based on industry standards.	<ul style="list-style-type: none"> <li>• Safety-consciousness</li> <li>• Resourcefulness</li> </ul>	
3. Implement cost-effective operations	<p>3.1 Preservation and optimization of workplace resources is implemented in accordance with enterprise policy.</p> <p>3.2 Judicious use of workplace tools, equipment and materials are observed according to manual and work requirements.</p> <p>3.3 Constructive contributions to office operations are made according to enterprise requirements.</p> <p>3.4 Ability to work within one's allotted time and finances is sustained.</p>	<p>3.1 Optimization of workplace resources</p> <p>3.2 5S procedures and concepts</p> <p>3.3 Criteria for cost-effectiveness</p> <p>3.4 Workplace productivity</p> <p>3.5 Impact of entrepreneurial mindset to workplace productivity</p> <p>3.6 Ways in fostering entrepreneurial attitudes:</p> <ul style="list-style-type: none"> <li>• Quality-consciousness</li> <li>• Safety-consciousness</li> </ul>	<p>3.1 Implementing preservation and optimizing workplace resources</p> <p>3.2 Observing judicious use of workplace tools, equipment and materials</p> <p>3.3 Making constructive contributions to office operations</p> <p>3.4 Sustaining ability to work within allotted time and finances</p>

## 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	<b>Assessment requires evidence that the candidate:</b> 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	<b>The following resources should be provided:</b> 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. Methods of Assessment	<b>Competency in this unit should be assessed through:</b> 3.1 Interview 3.2 Third-party report
4. Context for 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 <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Determine areas of concern for safety measures	1.1 <b>Work tasks</b> are identified in line with farm operations. 1.2 <b>Place</b> for safety measures are determined in line with farm operations. 1.3 <b>Time</b> for safety measures are determined in line with farm operations. 1.4 Appropriate <b>tools, materials and outfits</b> 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	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	2.1 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

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	<p>materials are strictly observed.</p> <p>2.4 <b>Emergency procedures</b> are known and followed to ensure a safework requirement.</p> <p>2.5 Hazards in the workplace are identified and reported in line with farm guidelines.</p>	<p>2.5 Environmental rules and regulations</p> <p>2.6 Emergency procedures</p> <p>2.7 Hazards identification and reporting</p> <p>2.8 Communication skills</p> <p>2.9 OSHS</p>	<p>2.5 Following emergency procedures</p> <p>2.6 Identifying and reporting of hazards in workplace area</p>
3. Safekeep /dispose tools, materials and outfit	<p>3.1 Used tools and outfit are cleaned after use and stored in designated areas.</p> <p>3.2 Unused materials are properly labeled and stored according to manufacturer's recommendation and farm requirements.</p> <p>3.3 Waste materials are disposed according to manufacturers, government and farm requirements.</p>	<p>3.1 Procedures of cleaning used tools and outfits</p> <p>3.2 Label and storage unused materials</p> <p>3.3 Disposal of wastes materials</p> <p>3.4 Manufacturers' recommendation on keeping materials</p> <p>3.5 Environmental rules and regulations</p>	<p>3.1 Cleaning used tools and outfit</p> <p>3.2 Labeling and storing unused materials</p> <p>3.3 Disposing waste materials</p>

## 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	2.1 Stock room/storage areas/warehouse 2.2 Field/farm/orchard
3. Time	3.1 Fertilizer and pesticides application 3.2 Feed mixing and feeding 3.3 Harvesting and hauling
4. Tools, materials and outfits	4.1 Tools 4.1.1 Wrenches 4.1.2 Screw driver 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	5.1 Location of first aid kit 5.2 Evacuation 5.3 Agencies contract 5.4 Farm emergency procedures
6. Hazards	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. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Practical demonstration 3.2 Third Party Report
4. Context for Assessment	4.1 Competency may be assessed individually in the actual workplace or simulation environment in TESDA accredited institutions.

**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.

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
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 <b><i>farm equipment</i></b> . 2.2 Instructional manual of the farm tools and equipment are carefully read prior to operation. 2.3 Pre-operation check-up is conducted in line with manufacturers 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	2.1 Identifying appropriate farm equipment for the work 2.2 Reading instructional manual 2.3 Conducting pre-operation check-up 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

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
		2.9 Codes and Regulations on environmental protection 2.10 Safety and keeping of equipment every after use 2.11 Safety measures	
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 check-up 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. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Direct observation 3.2 Practical demonstration 3.3 Third Party Report
4. Context for 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.**

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
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 estimate for work completion are made. 1.5 Estimate of materials and resources are reported to 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	1.1 <b>System and units of measurement</b> to be followed are ascertained. 1.2 Calculation needed to complete work tasks are performed using the <b>four basic mathematical operation</b> . 1.3 Calculate whole fraction, percentage and mixed when are used to complete the instructions.	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

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
	1.4 Number computed is checked following work requirements		

## 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. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Practical demonstration 3.2 Written examination
4. Context for Assessment	4.1 Competency may be assessed individually in the actual workplace or simulation environment in TESDA accredited institutions.

## CORE COMPETENCY

**UNIT OF COMPETENCY** : **ESTABLISH MOTHER PLANT GARDEN**

**UNIT CODE** : **AFFXXXXXX**

**UNIT DESCRIPTOR** : This unit covers the knowledge, skills and attitudes required to conduct pre-establishment activities, acquire quality seedlings, and grow mother plants.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Conduct pre-establishment activities	1.1 Site is <b>selected</b> following <b>industry standards</b> . 1.2 Clearing of nursery area is performed following industry practices. 1.3 Nursery plan and budget are prepared based on industry practice. 1.4 Nursery plan is confirmed with superior according to workplace procedure. 1.5 Debris are disposed based on waste management. 1.6 <b>Tools, materials, and equipment</b> are prepared based on work requirements. 1.7 <b>PPEs</b> are prepared following Occupational Safety and Health Standards (OSHS). 1.8 Safety practices are applied following Occupational Safety and Health Standards (OSHS).	1.1 Components of nursery facilities 1.1.1 Mother plant garden (MPG) 1.1.2 Nursery area 1.2 Site selection 1.3 GAPs and PNS 1.4 Clearing operation 1.5 Nursery plan and budget 1.6 Tools, materials, and PPEs in preparing a nursery 1.7 Waste management 1.8 DENR Regulations 1.8.1 Area qualification 1.8.2 Cutting permit 1.9 PCA requirement 1.9.1 Cutting permit 1.10 Communication skills	1.1 Selecting site 1.2 Clearing nursery area 1.3 Communication skills 1.4 Interpreting nursery plan 1.5 Confirming nursery plan 1.6 Disposing debris 1.7 Preparing tools and materials 1.8 Preparing PPEs 1.9 Applying safety practices
2. Acquire quality seedlings	2.1 Certified nurseries are identified based on official list.	2.1 Bureau of Plant Industry (BPI)	2.1 Identifying certified nurseries



ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	2.2 Quality plantlets are sourced out from certified nurseries. 2.3 Quality plantlets are transported following industry practice. 2.4 Acclimatization is done based on industry practice. 2.5 Safety practices are applied following Occupational Safety and Health Standards (OSHS).	2.1.1 Official list of certified nurseries 2.1.2 Standards on specifications 2.2 Community-based nurseries 2.3 Coffee variety 2.3.1 Robusta 2.3.2 Excelsa 2.3.3 Arabica 2.3.4 Liberica 2.4 Procedure in sourcing-out plantlets 2.5 Quality plantlets 2.6 Acclimatization 2.6.1 Transportation stress 2.6.2 Micro-climatic condition 2.7 Occupational Safety and Health Standards (OSHS)	2.2 Sourcing quality plantlets 2.3 Transporting quality plantlets 2.4 Acclimatizing plantlets 2.5 Applying safety measures
3. Grow mother plants	3.1 <b>Lay-outing</b> is done according to nursery plan. 3.2 Hole is dug following nursery plan. 3.3 Plantlets are planted following industry practice. 3.4 <b>Weed management</b> is performed following Good Agricultural Practices (GAP). 3.5 Fertilizer is applied following Good Agricultural Practices (GAP). 3.6 Watering is applied according to plant requirements.	3.1 Nursery plan 3.2 Lay-outing procedure 3.3 Lay-outing and planting tools and equipment 3.4 Planting procedure 3.5 Weed management 3.5.1 Mulching 3.6 Application of fertilizer 3.7 Water management 3.8 Bending technique 3.9 Lateral removal 3.10 Computation and Mensuration 3.11 Good Agricultural Practices (GAP)	3.1 Computation skills 3.2 Lay-outing nursery 3.3 Digging hole 3.4 Planting plantlets 3.5 Performing weed management 3.6 Applying fertilizer

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
	3.7 Bending is performed according to industry procedure. 3.8 Lateral removal is performed based on industry procedure. 3.9 Safety practices are applied following Occupational Safety and Health Standards (OSHS).	3.12 Occupational Safety and Health Standards (OSHS)	

## RANGE OF VARIABLES

VARIABLE	RANGE
1. Site selection	Site selection may include: <ul style="list-style-type: none"> <li>1.1 Water source</li> <li>1.2 Transport accessibility</li> <li>1.3 Secured area</li> </ul>
2. Industry standards	Industry standards may include: <ul style="list-style-type: none"> <li>2.1 Good Agricultural Practices (GAPs)</li> <li>2.2 Philippine National Standards (PNS)</li> </ul>
3. Tools, materials, and equipment	Tools, materials, and equipment may include: <ul style="list-style-type: none"> <li>3.1 Tools:               <ul style="list-style-type: none"> <li>3.1.1 Bolo</li> <li>3.1.2 Slasher knife</li> <li>3.1.3 Bending bar (fabricated)</li> <li>3.1.4 Pruning shear</li> <li>3.1.5 Wheel barrow</li> <li>3.1.6 Shovel</li> <li>3.1.7 Digging bar</li> <li>3.1.8 Sprinkler</li> <li>3.1.9 Hose</li> </ul> </li> <li>3.2 Materials:               <ul style="list-style-type: none"> <li>3.2.1 Pole                   <ul style="list-style-type: none"> <li>3.2.1.1 Bamboo pole</li> <li>3.2.1.2 GI Pipes</li> </ul> </li> <li>3.2.2 Tying materials</li> <li>3.2.3 Anchorage                   <ul style="list-style-type: none"> <li>3.2.3.1 Bamboo stick</li> <li>3.2.3.2 GI wires</li> </ul> </li> <li>3.2.4 Fungicide</li> <li>3.2.5 Plantlets</li> </ul> </li> <li>3.3 Equipment:               <ul style="list-style-type: none"> <li>3.3.1 Knapsack sprayer</li> </ul> </li> </ul>
4. PPEs	PPEs may include: <ul style="list-style-type: none"> <li>4.1 Gloves</li> <li>4.2 Rubber boots</li> <li>4.3 Buri hat</li> <li>4.4 Mask</li> </ul>
5. Lay-outing	Lay-outing may include: <ul style="list-style-type: none"> <li>5.1 Measurement of distance</li> <li>5.2 Line staking</li> </ul>
6. Weed management	Weed management may include: <ul style="list-style-type: none"> <li>6.1 Manual weeding</li> <li>6.2 Mulching</li> <li>6.3 Mechanical weeding</li> </ul>

## EVIDENCE GUIDE

<p>1. Critical aspects of Competency</p>	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> <li>1.1 Performed preparatory activities. <ul style="list-style-type: none"> <li>1.1.1 Selected site.</li> <li>1.1.2 Prepared nursery plan and budget.</li> <li>1.1.3 Prepared tools and materials.</li> <li>1.1.4 Applied safety practices.</li> </ul> </li> <li>1.2 Acquired quality seedlings. <ul style="list-style-type: none"> <li>1.2.1 Identified certified nurseries.</li> <li>1.2.2 Sourced out quality plantlets.</li> </ul> </li> <li>1.3 Grow mother plants. <ul style="list-style-type: none"> <li>1.3.1 Done lay-outing.</li> <li>1.3.2 Planted plantlets.</li> <li>1.3.3 Performed weed management.</li> <li>1.3.4 Applied fertilizer.</li> <li>1.3.5 Applied watering.</li> <li>1.3.6 Performed bending.</li> <li>1.3.7 Performed lateral removal.</li> <li>1.3.8 Applied safety practices.</li> </ul> </li> </ul>
<p>2. Resource Implications</p>	<p>The following resources should be provided:</p> <ul style="list-style-type: none"> <li>2.1 Actual and simulated workplace</li> <li>2.2 Materials, tools, and equipment needed to perform the required task</li> <li>2.3 References and manuals</li> <li>2.4 PPEs</li> <li>2.5 First aid kit</li> </ul>
<p>3. Methods of Assessment</p>	<p>Competency in this unit may be assessed through:</p> <ul style="list-style-type: none"> <li>3.1 Demonstration</li> <li>3.2 Oral questioning</li> <li>3.3 Written test</li> </ul>
<p>4. Context for Assessment</p>	<p>4.1 Competency may be assessed in actual workplace or at the designated TESDA Accredited Assessment Center in a simulated workplace setting.</p>

**UNIT OF COMPETENCY : PRODUCE ROOTED CUTTINGS**

**UNIT CODE : AFFXXXXXX**

**UNIT DESCRIPTOR :** This unit covers the knowledge, skills and attitudes required to perform preparatory activities, construct rooting chamber nursery, and prepare and plant stem cuttings.

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
1. Perform preparatory activities	1.1 Site is <b>selected</b> following <b>industry standards</b> . 1.2 Clearing of nursery area is performed following industry practices. 1.3 Nursery plan and budget are prepared based on industry practice. 1.4 Nursery plan is confirmed with superior according to workplace procedure. 1.5 Debris are disposed based on waste management. 1.6 <b>Tools, materials, and equipment</b> are prepared based on work requirements. 1.7 <b>PPEs</b> are prepared following Occupational Safety and Health Standards (OSHS). 1.8 Safety practices are applied following Occupational Safety and Health Standards (OSHS).	1.1 Components of nursery facilities 1.1.1 Rooting chamber 1.1.2 Nursery area 1.2 Site selection 1.3 Clearing operation 1.4 Nursery plan and budget 1.5 Tools, materials, and PPEs in preparing a nursery 1.6 Waste management 1.7 DENR Regulations 1.7.1 Area qualification 1.7.2 Cutting permit 1.8 PCA requirement 1.8.1 Cutting permit 1.9 Communication skills 1.10 Occupational Safety and Health Standards (OSHS)	1.1 Selecting site 1.2 Clearing nursery area 1.3 Preparing nursery plan and budget 1.4 Confirming nursery plan with superior 1.5 Disposing debris 1.6 Preparing tools and materials 1.7 Preparing PPEs. 1.8 Applying safety practices.
2. Construct rooting chamber nursery	2.1 <b>Lay-outing</b> is done according to nursery plan.	2.1 Nursery plan 2.2 Lay-outing procedure	2.1 Performing lay-outing 2.2 Digging hole 2.3 Installing pole 2.4 Installing net

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	2.2 Hole is dug following nursery plan. 2.3 <b>Pole</b> is installed following nursery plan. 2.4 Net is installed following nursery plan. 2.5 <b>Boxes</b> are laid based on nursery plan. 2.6 <b>Boxes</b> are filled with sand based on nursery plan. 2.7 Safety practices are applied following Occupational Safety and Health Standards (OSHS).	2.3 Lay-outing and planting tools and equipment 2.4 Basic carpentry 2.5 Net specification 2.5.1 Principle of shading 2.6 Lay-outing boxes 2.7 Filling-out river sand 2.8 Computation and Mensuration 2.9 Occupational Safety and Health Standards (OSHS)	2.5 Laying boxes 2.6 Filling boxes with sand 2.7 Applying safety practices.
3. Prepare stem cuttings	3.1 <b>Ready-to-harvest vertical stems</b> are identified based on industry practice. 3.2 Vertical stems are harvested based on industry practice. 3.3 Vertical stems are carried to shed following industry practice. 3.4 Vertical stems are cut per node based on industry standards. 3.5 Stem cuttings are placed in container according to industry practice. 3.6 Record keeping is performed based on industry practice. 3.7 Safety practices are applied following Occupational Safety and Health Standards (OSHS).	3.1 Quality of ready-to-harvest vertical stems 3.2 Harvesting techniques 3.3 Use of tools 3.4 Selection of nodes 3.5 Cutting techniques 3.6 Stems cuttings 3.7 Waste management 3.8 Record keeping 3.9 Occupational Safety and Health Standards (OSHS)	3.1 Identifying ready-to-harvest vertical stems 3.2 Harvesting and carrying vertical stems 3.3 Cutting vertical stems per node 3.4 Placing stem cuttings in container 3.5 Performing record keeping 3.6 Applying safety practices

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
4. Plant stem cuttings	4.1 Insertion guide is used following industry practice. 4.2 Stem cuttings are inserted following industry practice. 4.3 Fungicide solution is sprayed based on Good Agricultural Practice (GAP). 4.4 Rooting chamber is covered with PE sheet following industry practice. 4.5 Safety practices are applied following Occupational Safety and Health Standards (OSHS).	4.1 Insertion guide 4.2 Insertion of stem cuttings 4.3 Type of fungicide 4.3.1 Copper-based fungicide 4.4 Preparation of fungicide solution 4.5 Method in covering rooting chamber 4.6 Measurement 4.7 Waste disposal 4.8 DENR 4.9 PPEs 4.10 Occupational Safety and Health Standards (OSHS)	4.1 Using insertion guide 4.2 Inserting stem cuttings 4.3 Spraying fungicide solution 4.4 Covering rooting chamber with PE sheet 4.5 Applying safety practices

## RANGE OF VARIABLES

VARIABLE	RANGE
1. Site selection	Site selection may include: <ul style="list-style-type: none"> <li>1.1 Water source</li> <li>1.2 Transport accessibility</li> <li>1.3 Secured area</li> </ul>
2. Industry standards	Industry standards may include: <ul style="list-style-type: none"> <li>2.1 Good Agricultural Practices (GAPs)</li> <li>2.2 Philippine National Standards (PNS)</li> </ul>
3. Tools, materials, and equipment	Tools, materials, and equipment may include: <ul style="list-style-type: none"> <li>3.1 Tools:               <ul style="list-style-type: none"> <li>3.1.1 Bolo</li> <li>3.1.2 Slasher knife</li> <li>3.1.3 Pruning shear</li> <li>3.1.4 Insertion guide for stem cuttings (fabricated)</li> <li>3.1.5 Wheel barrow</li> <li>3.1.6 Shovel</li> <li>3.1.7 Digging bar</li> <li>3.1.8 Sprinkler</li> <li>3.1.9 Hose</li> </ul> </li> <li>3.2 Materials:               <ul style="list-style-type: none"> <li>3.2.1 Nails</li> <li>3.2.2 Pole                   <ul style="list-style-type: none"> <li>3.2.2.1 Bamboo pole</li> <li>3.2.2.2 GI pipes</li> </ul> </li> <li>3.2.3 Net</li> <li>3.2.4 Tying materials</li> <li>3.2.5 GI wires</li> <li>3.2.6 Polyethylene (PE) sheet</li> <li>3.2.7 Fungicide</li> </ul> </li> <li>3.3 Equipment:               <ul style="list-style-type: none"> <li>3.3.1 Knapsack sprayer</li> </ul> </li> </ul>
4. PPEs	PPEs may include: <ul style="list-style-type: none"> <li>5.1 Gloves</li> <li>5.2 Rubber boots</li> <li>5.3 Buri hat</li> <li>5.4 Mask</li> <li>5.5 Goggles</li> </ul>
5. Lay-outing	Lay-outing may include: <ul style="list-style-type: none"> <li>6.1 Measurement of distance</li> <li>6.2 Line staking</li> </ul>
6. Pole	Pole includes: <ul style="list-style-type: none"> <li>7.1 Bamboo pole</li> <li>7.2 GI pipes</li> </ul>
7. Boxes	Boxes include: <ul style="list-style-type: none"> <li>8.1 Made of concrete hollow blocks (CHB)</li> <li>8.2 Made of bamboo pole</li> </ul>



<b>VARIABLE</b>	<b>RANGE</b>
8. Ready-to-harvest vertical stem	Ready-to-harvest vertical stem includes: 9.1 Pencil size stem 9.2 With 3 to 4 nodes

## EVIDENCE GUIDE

<p>1. Critical aspects of Competency</p>	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> <li>1.1 Performed preparatory activities. <ul style="list-style-type: none"> <li>1.1.1 Selected site.</li> <li>1.1.2 Prepared nursery plan and budget.</li> <li>1.1.3 Prepared tools and materials.</li> <li>1.1.4 Applied safety practices.</li> </ul> </li> <li>1.2 Constructed rooting chamber nursery. <ul style="list-style-type: none"> <li>1.2.1 Done lay-outing.</li> <li>1.2.2 Installed pole.</li> <li>1.2.3 Installed net.</li> <li>1.2.4 Laid boxes.</li> <li>1.2.5 Filled boxes with sand.</li> <li>1.2.6 Applied safety practices.</li> </ul> </li> <li>1.3 Prepared stem cuttings. <ul style="list-style-type: none"> <li>1.3.1 Identified ready-to-harvest vertical stems.</li> <li>1.3.2 Harvested vertical stems.</li> <li>1.3.3 Cut vertical stems per node.</li> <li>1.3.4 Performed record keeping.</li> <li>1.3.5 Applied safety practices.</li> </ul> </li> <li>1.4 Planted stem cuttings. <ul style="list-style-type: none"> <li>1.4.1 Used insertion guide.</li> <li>1.4.2 Inserted stem cuttings.</li> <li>1.4.3 Sprayed fungicide solution.</li> <li>1.4.4 Covered rooting chamber with PE sheet.</li> <li>1.4.5 Applied safety practices.</li> </ul> </li> </ul>
<p>2. Resource Implications</p>	<p>The following resources should be provided:</p> <ul style="list-style-type: none"> <li>2.1 Actual and simulated workplace</li> <li>2.2 Materials, tools, and equipment needed to perform the required task</li> <li>2.3 References and manuals</li> <li>2.4 PPEs</li> <li>2.5 First aid kit</li> </ul>
<p>3. Methods of Assessment</p>	<p>Competency in this unit may be assessed through:</p> <ul style="list-style-type: none"> <li>3.1 Demonstration</li> <li>3.2 Oral questioning</li> <li>3.3 Written test</li> </ul>
<p>4. Context for Assessment</p>	<p>4.1 Competency may be assessed in actual workplace or at the designated TESDA Accredited Assessment Center in a simulated workplace setting.</p>

**UNIT OF COMPETENCY : PRODUCE READY-TO-PLANT (RTP) PLANTLETS**

**UNIT CODE : AFFXXXXXX**

**UNIT DESCRIPTOR :** This unit covers the knowledge, skills and attitudes required to perform site selection, prepare nursery plan, prepare potting media, construct nursery for potted plantlets, perform bagging, maintain planting materials, and market ready-to-plant plantlets.

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
1. Perform pre-production activities	1.1 Site is <b>selected</b> following <b>industry standards</b> . 1.2 Clearing of nursery area is performed following industry practices. 1.3 Nursery plan and budget are prepared based on industry practice. 1.4 Nursery plan is confirmed with superior according to workplace procedure. 1.5 Debris are disposed based on waste management. 1.6 Polyethylene bag is sourced out based on industry criteria. 1.7 Potting media is prepared based on industry criteria. 1.8 <b>Tools, materials, and equipment</b> are prepared based on work requirements. 1.9 <b>PPEs</b> are prepared following OSH. 1.10 Safety practices are applied following Occupational	1.1 Components of nursery facilities 1.1.1 Nursery area 1.1.2 Hardening area 1.2 Site selection 1.3 Clearing operation 1.4 Nursery plan and budget 1.5 Tools, materials, and PPEs in preparing a nursery 1.6 Waste management 1.7 DENR Regulations 1.7.1 Area qualification 1.7.2 Cutting permit 1.8 PCA requirement 1.8.1 Cutting permit 1.9 Occupational Safety and Health Standards (OSHS) 1.10 Communication skills	1.1 Selecting site 1.2 Clearing nursery area 1.3 Preparing nursery plan and budget 1.4 Confirming nursery plan with superior 1.5 Disposing debris 1.6 Sourcing out polyethylene bag 1.7 Preparing potting media 1.6 Preparing tools and materials 1.7 Preparing PPEs. 1.8 Applying safety practices.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	Safety and Health Standards (OSHS).		
2. Construct nursery for potted plantlets	2.1 <b>Lay-outing</b> is done according to nursery plan. 2.2 Hole is dug following nursery plan. 2.3 <b>Pole</b> is installed following nursery plan. 2.4 Net is installed following nursery plan. 2.5 Safety practices are applied following Occupational Safety and Health Standards (OSHS).	2.1 Nursery plan 2.2 Lay-outing procedure 2.3 Lay-outing and planting tools and equipment 2.4 Basic carpentry 2.5 Net specification 2.5.1 Principle of shading 2.6 Computation and Mensuration 2.7 Occupational Safety and Health Standards (OSHS)	2.1 Performing lay-outing 2.2 Digging hole 2.3 Installing pole 2.4 Installing net 2.5 Applying safety practices
3. Perform bagging	3.1 Polyethylene bag is filled with potting media based on industry criteria. 3.2 <b>Tools and materials</b> are prepared following industry criteria. 3.3 Filled polybag is hauled and arranged by clone in nursery site following industry standard. 3.4 Safety practices are applied following Occupational Safety and Health Standards (OSHS).	3.1 Tools and materials 3.2 Filling of soil 3.3 Hauling procedure 3.4 Procedure in piling 3.5 Occupational Safety and Health Standards (OSHS)	3.1 Filling polyethylene bag with potting media 3.2 Preparing tools and materials 3.3 Hauling filled polybag 3.4 Hauling filled polybag 3.5 Practicing safety
4. Maintain planting materials	4.1 Rooted cuttings are selected and harvested based on industry practice. 4.2 Rooted cuttings are transferred to polybags following industry practice. 4.3 Hardening is performed based	4.1 Selection of rooted cuttings 4.2 Harvesting procedure 4.3 Hardening procedure 4.4 Tagging procedure 4.5 Pruning procedure	4.1 Selecting and harvesting rooted cuttings 4.2 Transferring rooted cuttings to polybags 4.3 Performing hardening 4.4 Performing tagging 4.5 Pruning laterals

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	<p>on industry standards.</p> <p>4.4 Tagging is performed based on industry practice.</p> <p>4.5 Laterals are pruned based on industry standards.</p> <p>4.6 Fertilizer and pesticides are applied following industry practices.</p> <p>4.7 Watering is performed following industry practices.</p> <p>4.8 Record keeping is performed following industry practices.</p> <p>4.9 Safety practices are applied based on Occupational Safety and Health Standards (OSHS).</p>	<p>4.6 Good Agricultural Practices</p> <p>4.6.1 Application of fertilizer and pesticides</p> <p>4.6.2 PPEs</p> <p>4.7 Water management</p> <p>4.8 Record keeping</p> <p>4.9 Occupational Safety and Health Standards (OSHS)</p>	<p>4.6 Applying fertilizer and pesticides</p> <p>4.7 Performing watering</p> <p>4.8 Performing record keeping</p> <p>4.9 Practicing safety</p>
5. Market ready-to-plant plantlets	<p>5.1 Certification is acquired following <b>government</b> requirements.</p> <p>5.2 Bidding activities are participated based on industry practice.</p> <p>5.3 <b>Marketing strategies</b> are applied based on industry practice.</p> <p>5.4 Transactions are completed based on industry practice.</p> <p>5.5 Record keeping is performed based on industry practice.</p>	<p>5.1 Procedure in acquiring government certification</p> <p>5.2 Procedure and requirements of Bidding activities</p> <p>5.3 Basic book keeping</p> <p>5.4 Completion of transaction</p> <p>5.5 Marketing strategies</p>	<p>5.1 Acquiring certification</p> <p>5.2 Participating bidding activities</p> <p>5.3 Applying marketing strategies</p> <p>5.4 Completing transactions</p> <p>5.5 Performing record keeping</p>

## RANGE OF VARIABLES

VARIABLE	RANGE
1. Site selection	Site selection may include: <ul style="list-style-type: none"> <li>1.1 Water source</li> <li>1.2 Transport accessibility</li> <li>1.3 Secured area</li> </ul>
2. Industry standards	Industry standards may include: <ul style="list-style-type: none"> <li>2.1 Good Agricultural Practices (GAPs)</li> <li>2.2 Philippine National Standards (PNS)</li> </ul>
3. Tools, materials, and equipment	Tools, materials, and equipment may include: <ul style="list-style-type: none"> <li>3.1 Tools:               <ul style="list-style-type: none"> <li>3.1.1 Bolo</li> <li>3.1.2 Slasher knife</li> <li>3.1.3 Pruning shear</li> <li>3.1.4 Wheel barrow</li> <li>3.1.5 Shovel</li> <li>3.1.6 Digging bar</li> <li>3.1.7 Sprinkler</li> <li>3.1.8 Hose</li> </ul> </li> <li>3.2 Materials:               <ul style="list-style-type: none"> <li>3.2.1 Nails</li> <li>3.2.2 Pole                   <ul style="list-style-type: none"> <li>3.2.2.1 Bamboo pole</li> <li>3.2.2.2 GI Pipes</li> </ul> </li> <li>3.2.3 Net</li> <li>3.2.4 Tying materials</li> <li>3.2.5 GI wires</li> <li>3.2.6 Fungicide</li> </ul> </li> <li>3.3 Equipment:               <ul style="list-style-type: none"> <li>3.3.1 Knapsack sprayer</li> </ul> </li> </ul>
4. PPEs	PPEs may include: <ul style="list-style-type: none"> <li>4.1 Gloves</li> <li>4.2 Rubber boots</li> <li>4.3 Buri hat</li> <li>4.4 Mask</li> <li>4.5 Goggles</li> </ul>
5. Lay-outing	Lay-outing may include: <ul style="list-style-type: none"> <li>5.1 Measurement of distance</li> <li>5.2 Line staking</li> </ul>
6. Pole	Pole includes: <ul style="list-style-type: none"> <li>6.1 Bamboo pole</li> <li>6.2 GI pipes</li> </ul>
7. Government	Government may include: <ul style="list-style-type: none"> <li>7.1 Bureau of Plant Industry (BPI)</li> <li>7.2 Philippine Government Electronic Procurement (PhilGEPs)</li> <li>7.3 Regional/Provincial/Local Government Units (LGUs)</li> </ul>

<b>VARIABLE</b>	<b>RANGE</b>
8. Marketing strategies	Marketing strategies may include: 8.1 On-line selling 8.2 Exhibits 8.3 Trade fairs

## EVIDENCE GUIDE

<p>1. Critical aspects of Competency</p>	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> <li>1.1 Performed preparatory activities. <ul style="list-style-type: none"> <li>1.1.1 Selected site.</li> <li>1.1.2 Prepared nursery plan and budget.</li> <li>1.1.3 Prepared potting media.</li> <li>1.1.4 Prepared tools and materials.</li> <li>1.1.5 Applied safety practices.</li> </ul> </li> <li>1.2 Constructed nursery for potted plantlets. <ul style="list-style-type: none"> <li>1.2.1 Done lay-outing.</li> <li>1.2.2 Installed pole.</li> <li>1.2.3 Installed net.</li> <li>1.2.4 Applied safety practices.</li> </ul> </li> <li>1.3 Performed bagging. <ul style="list-style-type: none"> <li>1.3.1 Filled polyethylene bag with potting media.</li> <li>1.3.2 Prepared tools and materials.</li> <li>1.3.3 Hauled filled polybag and arranged by clone.</li> <li>1.3.4 Applied safety practices.</li> </ul> </li> <li>1.4 Maintained planting materials. <ul style="list-style-type: none"> <li>1.4.1 Selected and harvested rooted cuttings.</li> <li>1.4.2 Transferred rooted cuttings.</li> <li>1.4.3 Performed hardening.</li> <li>1.4.4 Performed tagging.</li> <li>1.4.5 Pruned laterals.</li> <li>1.4.6 Applied fertilizer and pesticides.</li> <li>1.4.7 Performed watering.</li> <li>1.4.8 Performed record keeping.</li> <li>1.4.9 Applied safety practices.</li> </ul> </li> <li>1.5 Market ready-to-plant plantlets. <ul style="list-style-type: none"> <li>1.5.1 Acquired certificate.</li> <li>1.5.2 Participated bidding activities.</li> <li>1.5.3 Applied marketing strategies.</li> <li>1.5.4 Completed transactions.</li> <li>1.5.5 Performed record keeping.</li> </ul> </li> </ul>
<p>2. Resource Implications</p>	<p>The following resources should be provided:</p> <ul style="list-style-type: none"> <li>2.1 Actual and simulated workplace</li> <li>2.2 Materials, tools, and equipment needed to perform the required task</li> <li>2.3 References and manuals</li> <li>2.4 PPEs</li> <li>2.5 First aid kit</li> </ul>
<p>3. Methods of Assessment</p>	<p>Competency in this unit may be assessed through:</p> <ul style="list-style-type: none"> <li>3.1 Demonstration</li> <li>3.2 Oral questioning</li> <li>3.3 Written test</li> </ul>
<p>4. Context for Assessment</p>	<p>4.1 Competency may be assessed in actual workplace or at the designated TESDA Accredited Assessment Center in a simulated workplace setting.</p>



## **SECTION 3 TRAINING ARRANGEMENTS**

### **3.1 TRAINEE ENTRY REQUIREMENTS**

Trainees or students who would like to enroll in this course must possess the following requirements:

- Good communication skills
- Basic mathematical skills
- Certificate of Completion on 10 years of basic education or Alternative Learning System (ALS) with grade 10 equivalent holder

### **3.2 TRAINER'S QUALIFICATIONS FOR AGRICULTURE, FORESTRY AND FISHERY SECTOR – COFFEE NURSERY OPERATION LEVEL II**

- Must have two (2) years industry experience relevant to coffee nursery operation within the last five (5) years
- Must have training of trainers certificate **OR** must be a practicing trainers for 2 years within the last 5 years

## GLOSSARY OF TERMS

- 1. ACCLIMATIZATION** The period in which we allow the planting material to adjust to a change in its environment (from its source) such as a change in altitude, temperature, humidity, etc...); thus giving ample time to minimize the impact of transport/handling and other stress before planting in the field. Usually 1-2 weeks in coffee planting material depending on its actual condition. Enough shading and watering is provided.
- 2. ARABICA** One of the known varieties of coffee growing in the Philippines. It is usually propagated from seeds (sexual) as they are self-pollinated (self-fertilizing).
- 3. BAGGING** Filling of the potting media into the seedling/plantlet polybags.
- 4. CLONE** Genetically identical individuals obtained by asexual propagation.
- 5. CLONING** The process of generating a genetically identical copy of a cell or organism.
- 6. GOOD AGRICULTURAL PRACTICES (GAPS)** A set of principles, regulations and technical recommendations applicable to production, processing and food transport, addressing human health care, environment protection and improvement of worker conditions and their families (FAO).
- 7. HARDENING** The process of gradual exposure of plantlets to outdoor conditions through decrease in shading in the nursery nets until ready to plant in the field.
- 8. INSERTION GUIDE** A mark created by the insertion guide or planting guide tool in the rooting chamber to ensure uniform spacing during the insertion of stem cuttings.
- 9. LATERALS** A branch arising directly from a vertical stem.
- 10. MOTHER PLANT/ MOTHER PLANT GARDEN** Area planted with selected coffee clones solely for the purpose of stem cutting production.
- 11. NURSERY** Area used in the establishment, acclimatization and hardening of coffee plantlets.
- 12. PLANTLETS** A young or small plant from asexual propagation in contrast to a seedling - a young plant grown from seeds.
- 13. POTTING MEDIA** Mixture of garden soil, compost, and other conducive to plant root establishment and growth.

<b>14. READY-TO-PLANT (RTP) PLANTLETS</b>	Mature, hardened plantlets ready for field planting. Usually with minimum 4 pairs of leaves.
<b>15. ROBUSTA</b>	One of the known varieties of coffee growing in the Philippines. It is traditionally propagated by cuttings (asexual) as they are cross-pollinated.
<b>16. ROOTING CHAMBER</b>	A bed or box filled with river sand of about 6-8 inches, wherein stem cuttings are inserted and maintained for rooting.
<b>17. ROOTED CUTTINGS</b>	The end product of the stem cuttings inserted in the rooting chamber which normally take 2-4 months before from insertion.
<b>18. STEM CUTTINGS</b>	Excised section of physiologically mature vertical stems (from Mother plants) with one node capable of rooting, and developing into a mature plant.
<b>19. TAGGING</b>	The process of labelling the plantlets based on its type of selection (or clone).
<b>20. VERTICAL STEMS</b>	The branch emerging from the original stem; the part harvested in the mother plants, mature of about pencil size in thickness, consisting of 3-5 nodes for stem cutting propagation.

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