COMPETENCY STANDARDS

PEST AND NUTRIENT MANAGEMENT (RICE) LEVEL III

AGRICULTURE, FORESTRY AND FISHERY

TECHNICAL EDUCATION AND SKILLS DEVELOPMENT AUTHORITY
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AGRICULTURE, FORESTRY AND FISHERY SECTOR

PEST AND NUTRIENT MANAGEMENT (RICE) LEVEL III

COMPETENCY STANDARDS FOR
PEST AND NUTRIENT MANAGEMENT

Section 1   PEST AND NUTRIENT MANAGEMENT (RICE) QUALIFICATIONS

The **PEST AND NUTRIENT MANAGEMENT (Rice) Level III** Qualification consists of competencies that a person must achieve to conduct integrated nutrient management, apply integrated pest and disease management on rice, and monitor results of pest and nutrient management activities and provide feedback.

The units of competency comprising this qualification include the following:

Code	BASIC COMPETENCIES
400311319	Lead workplace communication
400311320	Lead small teams
400311321	Apply critical thinking and problem-solving techniques in the workplace
400311322	Work in a diverse environment
400311323	Propose methods of applying learning and innovation in the organization
400311324	Use information systematically
400311325	Evaluate occupational safety and health work practices
400311326	Evaluate environmental work practices
400311327	Facilitate entrepreneurial skills for micro-small-medium enterprises (MSMEs)
Code	**COMMON COMPETENCIES**
AFF321201	Apply safety measures in farm operations
AFF321203	Perform estimation and basic calculation
AFF 321202	Use farm tools
Code	**CORE COMPETENCIES**
AB-AFF0203114131301	Conduct integrated nutrient management
AB-AFF0203114131302	Apply integrated pest and disease management on rice
AB-AFF0203114131303	Monitor results of pest and nutrient management activities and provide feedback

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

- o   Soil and nutrient technologist
- o   Crop advisor
- o   Restoration specialist

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 **PEST AND NUTRIENT MANAGEMENT LEVEL III**

BASIC COMPETENCIES

UNIT OF COMPETENCY : LEAD WORKPLACE COMMUNICATION

UNIT CODE   **: 400311319**

UNIT DESCRIPTOR   **:** This unit covers the knowledge, skills and attitudes required to lead in the dissemination and discussion of ideas, information and issues in the workplace.

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Communicate information about workplace processes	1.1 Relevant ***communication method*** is selected based on workplace procedures 1.2 Multiple operations involving several topics/areas are communicated following enterprise requirements 1.3 Questioning is applied to gain extra information 1.4 Relevant sources of information are identified in accordance with workplace/ client requirements 1.5 Information is selected and organized following enterprise procedures 1.6 Verbal and written reporting is undertaken when required 1.7 Communication and negotiation skills are	1.1. Organization requirements for written and electronic communication methods 1.2. Effective verbal communication methods 1.3. Business writing 1.4. Workplace etiquette	1.1. Organizing information 1.2. Conveying intended meaning 1.3. Participating in a variety of workplace discussions 1.4. Complying with organization requirements for the use of written and electronic communication methods 1.5. Effective business writing 1.6. Effective clarifying and probing skills 1.7. Effective questioning techniques

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	applied and maintained in all relevant situations		(clarifying and probing)
2. Lead workplace discussions	2.1 Response to workplace issues are sought following enterprise procedures 2.2 Response to workplace issues are provided immediately 2.3 Constructive contributions are made to *workplace discussions* on such issues as production, quality and safety 2.4 Goals/objectives and action plans undertaken in the workplace are communicated promptly	2.1 Organization requirements for written and electronic communication methods 2.2 Effective verbal communication methods 2.3 Workplace etiquette	2.1 Organizing information 2.2 Conveying intended meaning 2.3 Participating in variety of workplace discussions 2.4 Complying with organization requirements for the use of written and electronic communication methods 2.5 Effective clarifying and probing skills
3. Identify and communicate issues arising in the workplace	3.1 Issues and problems are identified as they arise 3.2 Information regarding problems and issues are organized coherently to ensure clear and effective communication 3.3 Dialogue is initiated with appropriate personnel 3.4 Communication problems and issues are raised as they arise 3.5 Identify barriers in communication to be addressed appropriately	3.1 Organization requirements for written and electronic communication methods 3.2 Effective verbal communication methods 3.3 Workplace etiquette 3.4 Communication problems and issues 3.5 Barriers in communication	3.1 Organizing information 3.2 Conveying intended meaning 3.3 Participating in a variety of workplace discussions 3.4 Complying with organization requirements for the use of written and electronic communication methods 3.5 Effective clarifying and probing skills 3.6 Identifying issues

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
			3.7 Negotiation and communication skills

RANGE OF VARIABLES

VARIABLE	RANGE
1. Methods of communication	May include: 1.1. Non-verbal gestures 1.2. Verbal 1.3. Face-to-face 1.4. Two-way radio 1.5. Speaking to groups 1.6. Using telephone 1.7. Written 1.8. Internet
2. Workplace discussions	May include: 2.1. Coordination meetings 2.2. Toolbox discussion 2.3. Peer-to-peer discussion

EVIDENCE GUIDE

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1. Dealt with a range of communication/information at one time 1.2. Demonstrated leadership skills in workplace communication 1.3. Made constructive contributions in workplace issues 1.4. Sought workplace issues effectively 1.5. Responded to workplace issues promptly 1.6. Presented information clearly and effectively written form 1.7. Used appropriate sources of information 1.8. Asked appropriate questions 1.9. Provided accurate information
2. Resource Implications	The following resources should be provided: 2.1. Variety of Information 2.2. Communication tools 2.3. Simulated workplace
3. Methods of Assessment	Competency in this unit must be assessed through 3.1. Case problem 3.2. Third-party report 3.3. Portfolio

	3.4. Interview
	3.5. Demonstration/Role-playing
4. Context for Assessment	4.1. Competency may be assessed in the workplace or in simulated workplace environment

UNIT OF COMPETENCY   **:**   **LEAD SMALL TEAMS**

UNIT CODE   **:**   **400311320**

UNIT DESCRIPTOR   **:**   This unit covers the knowledge, skills and attitudes to lead small teams including setting, maintaining and monitoring team and individual performance standards.

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Provide team leadership	1.1. ***Work requirements*** are identified and presented to team members based on company policies and procedures 1.2. Reasons for instructions and requirements are communicated to team members based on company policies and procedures 1.3. ***Team members' queries and concerns*** are recognized, discussed and dealt with based on company practices	1.1 Facilitation of Team work 1.2 Company policies and procedures relating to work performance 1.3 Performance standards and expectations 1.4 Monitoring individual's and team's performance vis a vis client's and group's expectations	1.1 Communication skills required for leading teams 1.2 Group facilitation skills 1.3 Negotiating skills 1.4 Setting performance expectation
2. Assign responsibilities	2.1. Responsibilities are allocated having regard to the skills, knowledge and aptitude required to undertake the assigned task based on company policies. 2.2. Duties are allocated having regard to individual preference, domestic and personal considerations, whenever possible	2.1 Work plan and procedures 2.2 Work requirements and targets 2.2 Individual and group expectations and assignments 2.3 Ways to improve group leadership and membership	2.1 Communication skills 2.2 Management skills 2.3 Negotiating skills 2.4 Evaluation skills 2.5 Identifying team member's strengths and rooms for improvement

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
3. Set performance expectations for team members	3.1 Performance expectations are established based on client needs 3.2 Performance expectations are based on individual team members knowledge, skills and aptitude 3.3 Performance expectations are discussed and disseminated to individual team members	3.1 One's roles and responsibilities in the team 3.2 Feedback giving and receiving 3.3 Performance expectation	3.1 Communication skills 3.2 Accurate empathy 3.3 Congruence 3.4 Unconditional positive regard 3.5 Handling of Feedback
4. Supervised team performance	4.1 Performance is *monitored* based on defined performance criteria and/or assignment instructions 4.2 Team members are provided with *feedback*, positive support and advice on strategies to overcome any deficiencies based on company practices 4.3 *Performance issues* which cannot be rectified or addressed within the team are referenced to appropriate personnel according to employer policy 4.4 Team members are kept informed of any changes in the priority allocated to assignments or tasks which might impact on client/customer needs and satisfaction	4.1 Performance Coaching 4.2 Performance management 4.3 Performance Issues	4.1 Communication skills required for leading teams 4.2 Coaching skill

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	4.5 Team operations are monitored to ensure that employer/client needs and requirements are met 4.6 Follow-up communication is provided on all issues affecting the team 4.7 All relevant documentation is completed in accordance with company procedures		

RANGE OF VARIABLES

VARIABLE	RANGE
1. Work requirements	May include: 1.1. Client Profile 1.2. Assignment instructions
2. Team member's concerns	May include: 2.1. Roster/shift details
3. Monitor performance	May include: 3.1. Formal process 3.2. Informal process
4. Feedback	May include: 4.1. Formal process 4.2. Informal process
5. Performance issues	May include: 5.1. Work output 5.2. Work quality 5.3. Team participation 5.4. Compliance with workplace protocols 5.5. Safety 5.6. Customer service

EVIDENCE GUIDE

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1. Maintained or improved individuals and/or team performance given a variety of possible scenario 1.2. Assessed and monitored team and individual performance against set criteria 1.3. Represented concerns of a team and individual to next level of management or appropriate specialist and to negotiate on their behalf 1.4. Allocated duties and responsibilities, having regard to individual's knowledge, skills and aptitude and the needs of the tasks to be performed 1.5. Set and communicated performance expectations for a range of tasks and duties within the team and provided feedback to team members
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 task
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1. Written Examination 3.2. Oral Questioning 3.3. Portfolio
4. Context for Assessment	4.1. Competency may be assessed in actual workplace or at the designated TESDA Accredited Assessment Center

UNIT OF COMPETENCY: APPLY CRITICAL THINKING AND PROBLEM-SOLVING TECHNIQUES IN THE WORKPLACE

UNIT CODE : **400311321**

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to solve problems in the workplace including the application of problem solving techniques and to determine and resolve the root cause/s of specific problems in the workplace.

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Examine specific workplace challenges	1.1. Variances are examined from normal operating **parameters;** and product quality. 1.2. Extent, cause and nature of the specific problem are defined through observation, investigation and ***analytical techniques***. 1.3. ***Problems*** are clearly stated and specified.	1.1. Competence includes a thorough knowledge and understanding of the process, normal operating parameters, and product quality to recognize non-standard situations. 1.2. Competence to include the ability to apply and explain, enough for the identification of fundamental causes of specific workplace challenges. 1.3. Relevant equipment and operational processes. 1.4. Enterprise goals, targets and measures. 1.5. Enterprise quality OHS and environmental requirement. 1.6. Enterprise information systems and data collation	1.1. Using range of analytical techniques (e.g., planning, attention, simultaneous and successive processing of information) in examining specific challenges in the workplace. 1.2. Identifying extent and causes of specific challenges in the workplace.

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		1.7. Industry codes and standards.	
2. Analyze the causes of specific workplace challenges.	2.1. Possible causes of specific problems are identified based on experience and the use of problem solving tools / analytical techniques. 2.2. Possible cause statements are developed based on findings. 2.3. Fundamental causes are identified per results of investigation conducted.	2.1 Competence includes a thorough knowledge and understanding of the process, normal operating parameters, and product quality to recognize non-standard situations. 2.2 Competence to include the ability to apply and explain, sufficient for the identification of fundamental cause, determining the corrective action and provision of recommendations. 2.3 Relevant equipment and operational processes. 2.4 Enterprise goals, targets and measures. 2.5 Enterprise quality OSH and environmental requirement. 2.6 Enterprise information systems and data collation. 2.7 Industry codes and standards.	2.1 Using range of analytical techniques (e.g., planning, attention, simultaneous and successive processing of information) in examining specific challenges in the workplace. 2.2 Identifying extent and causes of specific challenges in the workplace. 2.3 Providing clear-cut findings on the nature of each identified workplace challenges.
3. Formulate resolutions to specific workplace challenges	3.1. All possible options are considered for resolution of the problem.	3.1. Competence to include the ability to apply and explain, sufficient for the identification of	3.1. Using range of analytical techniques (e.g., planning, attention,

ELEMENT	PERFORMANCE CRITERIA _Italicized_ terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	3.2. Strengths and weaknesses of possible options are considered. 3.3. Corrective actions are determined to resolve the problem and possible future causes. 3.4. **Action _plans_** are developed identifying measurable objectives, resource needs and timelines in accordance with safety and operating procedures	fundamental cause, determining the corrective action and provision of recommendations 3.2. Relevant equipment and operational processes 3.3. Enterprise goals, targets and measures 3.4. Enterprise quality OSH and environmental requirement 3.5. Principles of decision making strategies and techniques 3.6. Enterprise information systems and data collation 3.7. Industry codes and standards	simultaneous and successive processing of information) in examining specific challenges in the workplace. 3.2. Identifying extent and causes of specific challenges in the workplace. 3.3. Providing clear-cut findings on the nature of each identified workplace challenges. 3.4. Devising, communicating, implementing and evaluating strategies and techniques in addressing specific workplace challenges.
4. Implement action plans and communicate results	4.1. Action plans are implemented and evaluated. 4.2. Results of plan implementation and recommendations are prepared. 4.3. Recommendations are presented to appropriate personnel. 4.4. Recommendations are followed-up, if required.	4.1 Competence to include the ability to apply and explain, sufficient for the identification of fundamental cause, determining the corrective action and provision of recommendations 4.2. Relevant equipment and	4.1 Using range of analytical techniques (e.g., planning, attention, simultaneous and successive processing of information) in examining specific challenges in the workplace.

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		operational processes	4.2 Identifying extent and causes of specific challenges in the workplace.
		4.3 Enterprise goals, targets and measures	4.3 Providing clear-cut findings on the nature of each identified workplace challenges.
		4.4 Enterprise quality, OSH and environmental requirement	
		4.5 Principles of decision making strategies and techniques	4.4 Devising, communicating, implementing and evaluating strategies and techniques in addressing specific workplace challenges.
		4.6 Enterprise information systems and data collation	
		4.7 Industry codes and standards	

RANGE OF VARIABLES

VARIABLES	RANGE
1. Parameters	May include: 1.1 Processes 1.2 Procedures 1.3 Systems
2. Analytical techniques	May include: 2.1. Brainstorming 2.2. Intuitions/Logic 2.3. Cause and effect diagrams 2.4. Pareto analysis 2.5. SWOT analysis 2.6. Gant chart, Pert CPM and graphs 2.7. Scattergrams
3. Problem	May include: 3.1. Routine, non – routine and complex workplace and quality problems 3.2. Equipment selection, availability and failure 3.3. Teamwork and work allocation problem 3.4. Safety and emergency situations and incidents 3.5. Risk assessment and management
4. Action plans	May include: 4.1. Priority requirements 4.2. Measurable objectives 4.3. Resource requirements 4.4. Timelines 4.5. Co-ordination and feedback requirements 4.6. Safety requirements 4.7. Risk assessment 4.8. Environmental requirements

EVIDENCE GUIDE

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1. Examined specific workplace challenges. 1.2. Analyzed the causes of specific workplace challenges. 1.3. Formulated resolutions to specific workplace challenges. 1.4. Implemented action plans and communicated results on specific workplace challenges.
2. Resource Implications	2.1. Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios / case studies / what ifs will be required as well as bank of questions which will be used to probe the reason behind the observable action.
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1. Observation 3.2. Case Formulation 3.3. Life Narrative Inquiry 3.4. 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. These assessment activities should include a range of problems, including new, unusual and improbable situations that may have happened.
4. Context for Assessment	4.1. In all workplace, it may be appropriate to assess this unit concurrently with relevant teamwork or operation units.

UNIT OF COMPETENCY : **WORK IN A DIVERSE ENVIRONMENT**
UNIT CODE : **400311322**
UNIT DESCRIPTOR : This unit covers the outcomes required to work effectively in a workplace characterized by diversity in terms of religions, beliefs, races, ethnicities and other differences.

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Develop an individual's cultural awareness and sensitivity	1.1. Individual differences with clients, customers and fellow workers are recognized and respected in accordance with enterprise policies and core values. 1.2. Differences are responded to in a sensitive and considerate manner 1.3. *Diversity* is accommodated using appropriate verbal and non-verbal communication.	1.1. Understanding cultural diversity in the workplace 1.2. Norms of behavior for interacting and dialogue with specific groups (e. g., Muslims and other non-Christians, non-Catholics, tribes/ethnic groups, foreigners) 1.3. Different methods of verbal and non-verbal communication in a multicultural setting	1.1. Applying cross-cultural communication skills (i.e. different business customs, beliefs, communication strategies) 1.2. Showing affective skills – establishing rapport and empathy, understanding, etc. 1.3. Demonstrating openness and flexibility in communication 1.4. Recognizing diverse groups in the workplace and community as defined by divergent culture, religion, traditions and practices
2. Work effectively in an environment that acknowledge	2.1 Knowledge, skills and experiences of others are recognized and documented in relation to team objectives.	2.1 Value of diversity in the economy and society in terms of Workforce development	2.1 Demonstrating cross-cultural communication skills and active listening

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
s and values cultural diversity	2.2 Fellow workers are encouraged to utilize and share their specific qualities, skills or backgrounds with other team members and clients to enhance work outcomes. 2.3 Relations with customers and clients are maintained to show that diversity is valued by the business.	2.2 Importance of inclusiveness in a diverse environment 2.3 Shared vision and understanding of and commitment to team, departmental, and organizational goals and objectives 2.4 Strategies for customer service excellence	2.2 Recognizing diverse groups in the workplace and community as defined by divergent culture, religion, traditions and practices 2.3 Demonstrating collaboration skills 2.4 Exhibiting customer service excellence
3. Identify common issues in a multicultural and diverse environment	3.1 *Diversity-related conflicts* within the workplace are effectively addressed and resolved. 3.2 Discriminatory behaviors towards customers/stakeholders are minimized and addressed accordingly. 3.3 Change management policies are in place within the organization.	3.1 Value, and leverage of cultural diversity 3.2 Inclusivity and conflict resolution 3.3 Workplace harassment 3.4 Change management and ways to overcome resistance to change 3.5 Advanced strategies for customer service excellence	3.1 Addressing diversity-related conflicts in the workplace 3.2 Eliminating discriminatory behavior towards customers and co-workers 3.3 Utilizing change management policies in the workplace

RANGE OF VARIABLES

VARIABLE	RANGE
1. Diversity	This refers to diversity in both the workplace and the community and may include divergence in : 1.1 Religion 1.2 Ethnicity, race or nationality 1.3 Culture 1.4 Gender, age or personality 1.5 Educational background
2. Diversity-related conflicts	May include conflicts that result from: 2.1 Discriminatory behaviors 2 Differences of cultural practices 3 Differences of belief and value systems 4 Gender-based violence 5 Workplace bullying 6 Corporate jealousy 7 Language barriers 8 Individuals being differently-abled persons 2.9 Ageism (negative attitude and behavior towards old people)

EVIDENCE GUIDE

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1 Adjusted language and behavior as required by interactions with diversity 1.2 Identified and respected individual differences in colleagues, clients and customers 1.3 Applied relevant regulations, standards and codes of practice
2. Resource Implications	The following resources should be provided: 2.1 Access to workplace and resources 2.2 Manuals and policies on Workplace Diversity
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Demonstration or simulation with oral questioning 3.2 Group discussions and interactive activities 3.3 Case studies/problems involving workplace diversity issues 3.4 Third-party report 3.5 Written examination 3.6 Role Plays
4. Context for Assessment	Competency assessment may occur in workplace or any appropriately simulated environment

UNIT OF COMPETENCY: **PROPOSE METHODS OF APPLYING LEARNING AND INNOVATION IN THE ORGANIZATION**

UNIT CODE : **400311323**

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to assess general obstacles in the application of learning and innovation in the organization and to propose practical methods of such in addressing organizational challenges.

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Assess work procedures, processes and systems in terms of innovative practices	1.1. R*easons* for innovation are incorporated to work procedures. 1.2. *Models of innovation* are researched. 1.3. G*aps or barriers* to innovation in one's work area are analyzed. 1.4. Staff who can support and foster innovation in the work procedure are identified.	1.1 Seven habits of highly effective people. 1.2 Character strengths that foster innovation and learning (Christopher Peterson and Martin Seligman, 2004) 1.3 Five minds of the future concepts (Gardner, 2007). 1.4 Adaptation concepts in neuroscience (Merzenich, 2013). 1.5 Transtheoretical model of behavior change (Prochaska, DiClemente, & Norcross, 1992).	1.1 Demonstrating collaboration and networking skills. 1.2 Applying basic research and evaluation skills 1.3 Generating insights on how to improve organizational procedures, processes and systems through innovation.

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
2. Generate practical action plans for improving work procedures, processes	2.1 Ideas for innovative work procedure to foster innovation using individual and group techniques are conceptualized 2.2 Range of ideas with other team members and colleagues are evaluated and discussed 2.3 Work procedures and processes subject to change are selected based on **workplace requirements** (feasible and innovative). 2.4 Practical action plans are proposed to facilitate simple changes in the work procedures, processes and systems. 2.5 **Critical inquiry** is applied and used to facilitate discourse on adjustments in the simple work procedures, processes and systems.	2.1 Seven habits of highly effective people. 2.2 Character strengths that foster innovation and learning (Christopher Peterson and Martin Seligman, 2004) 2.3 Five minds of the future concepts (Gardner, 2007). 2.4 Adaptation concepts in neuroscience (Merzenich, 2013). 2.5 Transtheoretical model of behavior change (Prochaska, DiClemente, & Norcross, 1992).	2.1 Assessing readiness for change on simple work procedures, processes and systems. 2.2 Generating insights on how to improve organizational procedures, processes and systems through innovation. 2.3 Facilitating action plans on how to apply innovative procedures in the organization.

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
3. Evaluate the effectiveness of the proposed action plans	3.1 Work structure is analyzed to identify the impact of the new work procedures 3.2 Co-workers/key personnel is consulted to know who will be involved with or affected by the work procedure 3.3 Work instruction operational plan of the new work procedure is developed and evaluated. 3.4 Feedback and suggestion are recorded. 3.5 Operational plan is updated. 3.6 Results and impact on the developed work instructions are reviewed 3.7 Results of the new work procedure are evaluated 3.8 Adjustments are recommended based on results gathered	3.1 Five minds of the future concepts (Gardner, 2007). 3.2 Adaptation concepts in neuroscience (Merzenich, 2013). 3.3 Transtheoretical model of behavior change (Prochaska, DiClemente, & Norcross, 1992).	3.1 Generating insights on how to improve organizational procedures, processes and systems through innovation. 3.2 Facilitating action plans on how to apply innovative procedures in the organization. 3.3 Communicating results of the evaluation of the proposed and implemented changes in the workplace procedures and systems. 3.4 Developing action plans for continuous improvement on the basic systems, processes and procedures in the organization.

RANGE OF VARIABLES

VARIABLE	RANGE
1. Reasons	May include: 1.1. Strengths and weaknesses of the current systems, processes and procedures. 1.2. Opportunities and threats of the current systems, processes and procedures.
2. Models of innovation	May include: 2.1. Seven habits of highly effective people. 2.2. Five minds of the future concepts (Gardner, 2007). 2.3. Neuroplasticity and adaptation strategies.
3. Workplace requirements	May include: 3.1. Feasible 3.2. Innovative
4. Gaps or barriers	May include: 4.1. Machine 4.2. Manpower 4.3. Methods 4.4. Money
5. Critical Inquiry	May include: 5.1. Preparation. 5.2. Discussion. 5.3. Clarification of goals. 5.4. Negotiate towards a Win-Win outcome. 5.5. Agreement. 5.6. Implementation of a course of action. 5.7. Effective verbal communication. See our pages: Verbal Communication and Effective Speaking. 5.8. Listening. 5.9. Reducing misunderstandings is a key part of effective negotiation. 5.10. Rapport Building. 5.11. Problem Solving. 5.12. Decision Making. 5.13. Assertiveness. 5.14. Dealing with Difficult Situations.

EVIDENCE GUIDE

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1. Established the reasons why innovative systems are required 1.2. Established the goals of a new innovative system 1.3. Analyzed current organizational systems to identify gaps and barriers to innovation. 1.4. Assessed work procedures, processes and systems in terms of innovative practices. 1.5. Generated practical action plans for improving work procedures, and processes. 1.6. Reviewed the trial innovative work system and adjusted reflect evaluation feedback, knowledge management systems and future planning. 1.7. Evaluated the effectiveness of the proposed action plans.
2. Resource Implications	The following resources should be provided: 2.1. Pens, papers and writing implements. 2.2. Cartolina. 2.3. Manila papers
3. Methods 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 for Assessment	Competency may be assessed individually in the actual workplace or simulation environment in TESDA accredited institutions.

UNIT OF COMPETENCY: USE INFORMATION SYSTEMATICALLY

UNIT CODE   :   400311324

UNIT DESCRIPTOR   : This unit covers the knowledge, skills and attitudes required to use technical information systems, apply information technology (IT) systems and edit, format & check information.

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Use technical information	1.1. **Information** are *c*ollated and organized into a suitable form for reference and use 1.2. Stored information are classified so that it can be quickly identified and retrieved when needed 1.3. Guidance are advised and offered to people who need to find and use information	1.1. Application in collating information 1.2. Procedures for inputting, maintaining and archiving information 1.3. Guidance to people who need to find and use information 1.4. Organize information 1.5. classify stored information for identification and retrieval 1.6. Operate the technical information system by using agreed procedures	1.1. Collating information 1.2. Operating appropriate and valid procedures for inputting, maintaining and archiving information 1.3. Advising and offering guidance to people who need to find and use information 1.4. Organizing information into a suitable form for reference and use 1.5. Classifying stored information for identification and retrieval 1.6. Operating the technical information system by using agreed procedures
2. Apply information technology (IT)	2.1. **Technical information** system is operated using agreed procedures 2.2. Appropriate and valid procedures are operated for inputting,	2.1. Attributes and limitations of available software tools 2.2. Procedures and work instructions for the use of IT	2.1. Identifying attributes and limitations of available software tools 2.2. Using procedures and work

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	maintaining and archiving information 2.3. **Software** required are utilized to execute the project activities 2.4. Information and data obtained are handled, edited, formatted and checked from a range of internal and external **sources** 2.5. Information are extracted, entered, and processed to produce the outputs required by **customers** 2.6. Own skills and understanding are shared to help others 2.7. Specified **security measures** are implemented to protect the confidentiality and integrity of project data held in IT systems	2.3. Operational requirements for IT systems 2.4. Sources and flow paths of data 2.5. Security systems and measures that can be used 2.6. Extract data and format reports 2.7. Methods of entering and processing information 2.8. WWW enabled applications	instructions for the use of IT 2.3. Describing operational requirements for IT systems 2.4. Identifying sources and flow paths of data 2.5. Determining security systems and measures that can be used 2.6. Extracting data and format reports 2.7. Describing methods of entering and processing information 2.8. Using WWW applications
3. Edit, format and check information	3.1 Basic editing techniques are used 3.2 Accuracy of documents are checked 3.3 Editing and formatting tools and techniques are used for more complex documents 3.4 Proof reading techniques is used to check that documents look professional	3.1 Basic file-handling techniques 3.2 Techniques in checking documents 3.3 Techniques in editing and formatting 3.4 Proof reading techniques	3.1 Using basic file-handling techniques is used for the software 3.2 Using different techniques in checking documents 3.3 Applying editing and formatting techniques 3.4 Applying proof reading techniques

RANGE OF VARIABLES

VARIABLE	RANGE
1. Information	May include: 1.1. Property 1.2. Organizational 1.3. Technical reference
2. Technical information	May include: 2.1. paper based 2.2. electronic
3. Software	May include: 3.1. spreadsheets 3.2. databases 3.3. word processing 3.4. presentation
4. Sources	May include: 4.1. other IT systems 4.2. manually created 4.3. within own organization 4.4. outside own organization 4.5. geographically remote
5. Customers	May include: 5.1. colleagues 5.2. company and project management 5.3. clients
6. Security measures	May include: 6.1. access rights to input; 6.2. passwords; 6.3. access rights to outputs; 6.4. data consistency and back-up; 6.5. recovery plans

EVIDENCE GUIDE

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1. Used technical information systems and information technology 1.2. Applied information technology (IT) systems 1.3. Edited, formatted and checked information
2. Resource Implications	The following resources should be provided: 2.1. Computers 2.2. Software and IT system
3. Methods of Assessment	Competency in this unit MUST be assessed through: 3.1. Direct Observation 3.2. Oral interview and written test
4. Context for Assessment	4.1. Competency may be assessed individually in the actual workplace or through accredited institution

**UNIT OF COMPETENCY : EVALUATE OCCUPATIONAL SAFETY AND HEALTH
WORK PRACTICES**

UNIT CODE   : 400311325

**UNIT DESCRIPTOR   : This unit covers the knowledge, skills and attitudes
required to interpret Occupational Safety and Health
practices, set OSH work targets, and evaluate
effectiveness of Occupational Safety and Health work
instructions**

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Interpret Occupational Safety and Health practices	1.1 ***OSH work practices issues*** are identified relevant to work requirements 1.2 OSH work standards and procedures are determined based on applicability to nature of work 1.3 Gaps in work practices are identified related to relevant OSH work standards	1.1. OSH work practices issues 1.2. OSH work standards 1.3. General OSH principles and legislations 1.4. Company/ workplace policies/ guidelines 1.5. Standards and safety requirements of work process and procedures	1.1. Communication skills 1.2. Interpersonal skills 1.3. Critical thinking skills 1.4. Observation skills
2. Set OSH work targets	2.1 Relevant work information are gathered necessary to determine OSH work targets 2.2 ***OSH Indicators*** based on gathered information are agreed upon to measure effectiveness of workplace OSH policies and procedures 2.3 Agreed OSH indicators are endorsed for approval from appropriate personnel 2.4 ***OSH work instructions*** are received in accordance with workplace policies and procedures*	2.1. OSH work targets 2.2. OSH Indicators 2.3. OSH work instructions 2.4. Safety and health requirements of tasks 2.5. Workplace guidelines on providing feedback on OSH and security concerns 2.6. OSH regulations Hazard control procedures 2.7. OSH trainings relevant to work	2.1. Communication skills 2.2. Collaborating skills 2.3. Critical thinking skills 2.4. Observation skills
3. Evaluate effectiveness of	3.1 OSH Practices are observed based on workplace standards	3.1. OSH Practices 3.2. OSH metrics	3.1. Critical thinking skills

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Occupational Safety and Health work instructions	3.2 Observed OSH practices are measured against approved *OSH metrics* 3.3 Findings regarding effectiveness are assessed and gaps identified are implemented based on OSH work standards	3.3. OSH Evaluation Techniques 3.4. OSH work standards	3.2. Evaluating skills

RANGE OF VARIABLES

VARIABLE	RANGE
1. OSH Work Practices Issues	May include: 1.1 Workers' experience/observance on presence of work hazards 1.2 Unsafe/unhealthy administrative arrangements (prolonged work hours, no break-time, constant overtime, scheduling of tasks) 1.3 Reasons for compliance/non-compliance to use of PPEs or other OSH procedures/policies/ guidelines
2. OSH Indicators	May include: 2.1 Increased of incidents of accidents, injuries 2.2 Increased occurrence of sickness or health complaints/symptoms 2.3 Common complaints of workers' related to OSH 2.4 High absenteeism for work-related reasons
3. OSH Work Instructions	May include: 3.1 Preventive and control measures, and targets 3.2 Eliminate the hazard (i.e., get rid of the dangerous machine 3.3 Isolate the hazard (i.e. keep the machine in a closed room and operate it remotely; barricade an unsafe area off) 3.4 Substitute the hazard with a safer alternative (i.e., replace the machine with a safer one) 3.5 Use administrative controls to reduce the risk (i.e. give trainings on how to use equipment safely; OSH-related topics, issue warning signages, rotation/shifting work schedule) 3.6 Use engineering controls to reduce the risk (i.e. use safety guards to machine) 3.7 Use personal protective equipment 3.8 Safety, Health and Work Environment Evaluation 3.9 Periodic and/or special medical examinations of workers
4. OSH metrics	May include: 4.1 Statistics on incidence of accidence and injuries 4.2 Morbidity (Type and Number of Sickness) 4.3 Mortality (Cause and Number of Deaths) 4.4 Accident Rate

EVIDENCE GUIDE

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1. Identify OSH work practices issues relevant to work requirements 1.2. Identify gaps in work practices related to relevant OSH work standards 1.3. Agree upon OSH Indicators based on gathered information to measure effectiveness of workplace OSH policies and procedures 1.4. Receive OSH work instructions in accordance with workplace policies and procedures 1.5. Compare Observed OSH practices with against approved OSH work instructions 1.6. Assess findings regarding effectiveness based on OSH work standards
2. Resource Implications	The following resources should be provided: 2.1 Facilities, materials, tools and equipment necessary for the activity
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Observation/Demonstration with oral questioning 3.2 Third party report 3.3 Written exam
4. Context for Assessment	4.1 Competency may be assessed in the work place or in a simulated work place setting

UNIT OF COMPETENCY : **EVALUATE ENVIRONMENTAL WORK PRACTICES**
UNIT CODE : **400311326**
UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitude to interpret environmental Issues, establish targets to evaluate environmental practices and evaluate effectiveness of environmental practices

ELEMENTS	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Interpret environmental practices, policies and procedures	1.1 Environmental work practices issues are identified relevant to work requirements 1.2 Environmental Standards and Procedures nature of work are determined based on Applicability to nature of work 1.3 Gaps in work practices related to Environmental Standards and Procedures are identified	1.1 Environmental Issues 1.2 Environmental Work Procedures 1.3 Environmental Laws 1.4 Environmental Hazardous and Non-Hazardous Materials 1.5 Environmental required license, registration or certification	1.1. Analyzing Environmental Issues and Concerns 1.2. Critical thinking 1.3. Problem Solving 1.4. Observation Skills
2. Establish targets to evaluate environmental practices	2.1. Relevant information is gathered necessary to determine environmental work targets 2.2. Environmental Indicators based on gathered information are set to measure environmental work targets 2.3. Indicators are verified with appropriate personnel	2.1. Environmental Indicators 2.2. Relevant Environment Personnel or expert 2.3. Relevant Environmental Trainings and Seminars	2.1. Investigative Skills 2.2. Critical thinking 2.3. Problem Solving 2.4. Observation Skills
3. Evaluate effectiveness of environmental practices	3.1. Work environmental practices are recorded based on workplace standards 3.2. Recorded work environmental practices are compared against planned indicators 3.3. Findings regarding effectiveness are assessed and gaps identified are implemented based on environment work standards and procedures	1.1. Environmental Practices 1.2. Environmental Standards and Procedures	3.1 Documentation and Record Keeping Skills 3.2 Critical thinking 3.3 Problem Solving 3.4 Observation Skills

	3.4. Results of environmental assessment are conveyed to appropriate personnel		

RANGE OF VARIABLES

VARIABLE	R A N G E
1. Environmental Practices Issues	May include: 1.1 Water Quality 1.2 National and Local Government Issues 1.3 Safety 1.4 Endangered Species 1.5 Noise 1.6 Air Quality 1.7 Historic 1.8 Waste 1.9 Cultural
2. Environmental Indicators	May include: 2.1 Noise level 2.2 Lighting (Lumens) 2.3 Air Quality - Toxicity 2.4 Thermal Comfort 2.5 Vibration 2.6 Radiation 2.7 Quantity of the Resources 2.8 Volume

EVIDENCE GUIDE

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1. Identified environmental issues relevant to work requirements 1.2. Identified gaps in work practices related to Environmental Standards and Procedures 1.3. Gathered relevant information necessary to determine environmental work targets 1.4. Set environmental indicators based on gathered information to measure environmental work targets 1.5. Recorded work environmental practices are recorded based on workplace standards 1.6. Conveyed results of environmental assessment to appropriate personnel
2. Resource Implications	The following resources should be provided: 2.1 Workplace/Assessment location 2.2 Legislation, policies, procedures, protocols and local ordinances relating to environmental protection 2.3 Case studies/scenarios relating to environmental protection
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Written/ Oral Examination 3.2 Interview/Third Party Reports 3.3 Portfolio (citations/awards from GOs and NGOs, certificate of training – local and abroad) 3.4 Simulations and role-plays
4. Context for Assessment	4.1 Competency may be assessed in actual workplace or at the designated TESDA center.

UNIT OF COMPETENCY : **FACILITATE ENTREPRENEURIAL SKILLS FOR MICRO-SMALL-MEDIUM ENTERPRISES (MSMEs)**
UNIT CODE : **400311327**
UNIT DESCRIPTOR : This unit covers the outcomes required to build, operate and grow a micro/small-scale enterprise.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Develop and maintain micro-small-medium enterprise (MSMEs) skills in the organization	1.1 Appropriate **business strategies** are determined and set for the enterprise based on current and emerging business environment. 1.2 **Business operations** are monitored and controlled following established procedures. 1.3 Quality assurance measures are implemented consistently. 1.4 Good relations are maintained with staff/workers. 1.5 Policies and procedures on occupational safety and health and environmental concerns are constantly observed.	1.1 Business models and strategies 1.2 Types and categories of businesses 1.3 Business operation 1.4 Basic Bookkeeping 1.5 Business internal controls 1.6 Basic quality control and assurance concepts 1.7 Government and regulatory processes	1.1 Basic bookkeeping/ accounting skills 1.2 Communication skills 1.3 Building relations with customer and employees 1.4 Building competitive advantage of the enterprise
2. Establish and Maintain client-base/market	2.1 Good customer relations are maintained 2.2 New customers and markets are identified, explored and reached out to. 2.3 Promotions/Incentives are offered to loyal customers 2.4 Additional products and services are evaluated and tried where feasible. 2.5 **Promotional/advertising initiatives** are carried out where necessary and feasible.	2.1 Public relations concepts 2.2 Basic product promotion strategies 2.3 Basic market and feasibility studies 2.4 Basic business ethics	2.1 Building customer relations 2.2 Individual marketing skills 2.3 Using basic advertising (posters/ tarpaulins, flyers, social media, etc.)

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
3. Apply budgeting and financial management skills	3.1 Enterprise is built up and sustained through judicious control of cash flows. 3.2 Profitability of enterprise is ensured though appropriate *internal controls*. 3.3 Unnecessary or lower-priority expenses and purchases are avoided.	3.1 Cash flow management 3.1 Basic financial management 3.2 Basic financial accounting 3.3 Business internal controls	3.1 Setting business priorities and strategies 3.2 Interpreting basic financial statements 3.3 Preparing business plans

RANGE OF VARIABLES

VARIABLE	RANGE
1. Business strategies	May include: 1.1. Developing/Maintaining niche market 1.2. Use of organic/healthy ingredients 1.3. Environment-friendly and sustainable practices 1.4. Offering both affordable and high-quality products and services 1.5. Promotion and marketing strategies (e. g., on-line marketing)
2. Business operations	May include: 2.1 Purchasing 2.2 Accounting/Administrative work 2.3 Production/Operations/Sales
3. Internal controls	May include: 3.1 Accounting systems 3.2 Financial statements/reports 3.3 Cash management
4. Promotional/ Advertising initiatives	May include: 4.1 Use of tarpaulins, brochures, and/or flyers 4.2 Sales, discounts and easy payment terms 4.3 Use of social media/Internet 4.4 "Service with a smile" 4.5 Extra attention to regular customers

EVIDENCE GUIDE

1. Critical aspects of competency	**Assessment requires evidence that the candidate :** 1.1. Demonstrated basic entrepreneurial skills 1.2. Demonstrated ability to conceptualize and plan a micro/small enterprise 1.3. Demonstrated ability to manage/operate a micro/small-scale business
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
3. Methods of Assessment	**Competency in this unit may be assessed through :** 3.1. Written examination 3.2. Demonstration/observation with oral questioning 3.3. Portfolio assessment with interview 3.4. Case problems
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/function al 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

	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 and reported in line with farm guidelines	2.5 Environmental rules and regulations 2.6 Emergency procedures 2.7 Hazards identification and reporting 2.8 Communication skills 2.9 OSHS	2.5 Following emergency procedures 2.6 Identifying and reporting of hazards in workplace area.
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 manufacturers 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 maybe assessed in actual workplace or at the designated TESDA Accredited Assessment Center.

UNIT OF COMPETENCY   :   **PERFORM ESTIMATION AND BASIC CALCULATIONS**

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 estimate for work completion are made
	1.5 Estimate of materials and resources are reported to appropriate person
		1.1 Basic mathematical operations
		1.2 Estimates
		
		percentage and ratios
		1.3 Unit conversion
		1.4 basic accounting and procedures
		   a. production cost
		   b. sales
		   c. accounts receivables/payables
			1.1 Ability to perform basic calculation
			1.2 Communication skill
			1.3 Analytical skill
			1.4 Critical thinking skill

2. Perform basic workplace calculation	2.1 Calculations to be made are identified according to job requirements 2.2 Correct method of calculation identified 2.3 System and units of measurement to be followed are ascertained 2.4 Calculation needed to complete work tasks are performed using the four basic process of addition, division, multiplication, and subtraction		2.1 basic mathematical skill 2.2 analytical thinking skills 2.3 critical thinking skills

	2.5 Calculate whole fraction, percentage and mixed when are used to complete the instructions 2.6 Number computed in self checked and completed for alignment		

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 maybe assessed in actual workplace or at the designated TESDA Accredited Assessment Center.

UNIT OF COMPETENCY : **USE FARM TOOLS AND EQUIPMENT**

UNIT CODE : **AFF 321202**

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 and equipment are safely used according to job requirements and manufacturers conditions	• Different farm tools and its specification and uses • Ideal good work habits in using farm tools • Easy and safety standards during operation of farm equipment	• Calibrating of equipment
2. Select and operate farm equipment	2.1 Appropriate farm equipment is identified 2.2 Instructional manual of the farm tools and equipment is 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	• Environmental Compliance Certificate (ECG) • Pre-operation check-up of equipment • Different faults of farm equipment	• Reading and interpreting instructional manual of farm tools and equipment • Ability to recognize defects/ faults of farm equipment • Following safety procedure

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	2.5 Farm equipment is used according to its function 2.6 Safety procedures are followed		
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	• Regular upkeep of equipment and farm tools • Routine check up and maintenance of farm equipment and tools • Proper storage of tools and farm equipment	• Perform proper management practices of safety measures • Effective work supervision in the operations of farm equipment • Preventive maintenance skills

NO RANGE OF VARIABLES

VARIABLE	RANGE
1. Farm equipment	Farm equipment Includes: 1.1 Engine 1.2 Pumps 1.3 Generators 1.4 Sprayers
2. Farm tools	Farm tools 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	Pre-operation check-up 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 MUST 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 may be assessed through: 3.1 Direct observation 3.2 Practical demonstration 3.3 Third Party Report
4. Context for Assessment	4.1 Assessment may occur in the workplace or in a simulated workplace or as part of a team under limited supervision

CORE COMPETENCIES

UNIT OF COMPETENCY : **CONDUCT INTEGRATED NUTRIENT MANAGEMENT**

UNIT CODE : **AB-AFF0203114131301**

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to determine nutrient requirements using recommended tools and methods, select the right element of fertilizer needed by the rice crop, and apply right amount of fertilizer at the right time.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Determine the nutrient requirements of rice plant	1.1 Different parts of the rice plants and its growth stages are identified 1.2 PalayCheck system is reviewed 1.3 Procedures of Soil samplings are followed according to standards 1.4 Soil samples are analyzed using ***appropriate methods and tools*** 1.5 Result of soil analysis is recorded to determine the right kind of fertilizer	1.1 Morphology and growth stages of the rice plant 1.2 Nine (9) key checks of the PalayCheck system 1.3 Components of agricultural soil 1.4 Balance fertilization strategy (BFS) 1.5 Physical and chemical properties of soil 1.6 MOET – Minus one element technique 1.7 Use of Soil Test Kit (STK) 1.8 LCC – leaf color chart 1.9 Rice crop manager application 1.10 Site Specific Management Principle (SSMP)	1.1 Collecting soil samples for laboratory and for MOET set-up 1.2 Communication skill 1.3 Mathematical skill 1.4 Analytical skill 1.5 Critical thinking skill 1.6 Interpersonal skill 1.7 Collaboration skill 1.8 Techno-savvy 1.9 Patient 1.10 Open-minded 1.11 Dedicated 1.12 Hardworking
2. Select right element of fertilizer needed by the rice crop	2.1 ***Classification and sources of fertilizer materials*** are determined according to form	2.1 Fertilizer terminologies 2.2 Classification and sources of	2.1 Analytical skill 2.2 Mathematical skill 2.3 Communication skill

	and the number of elements present 2.2 ***Fertilizer calculation*** is performed according to standards 2.3 Right kind of fertilizer is selected based on soil analysis result	fertilizer materials 2.3 Fertilizer forms or grade 2.4 Fertilizer calculation	2.4 Critical thinking skills 2.4 Dedicated 2.5 Hard-working 2.6 Persistent
3. Apply right amount of fertilizer at the right time	3.1 Right amount of fertilizer is applied to rice crops based on fertilizer computation, Rice Crop Manager recommendation 3.2 Right timing of fertilizer application is followed according to Palay key check 5 standards 3.3 Right technique of fertilizer application is utilized based on key check 5 standard	3.1 Palay check system: key check 5	3.1 Critical thinking skill 3.2 Analytical skill 3.3 Task-management skill 3.4 Job-environment skill 3.5 Task skill 3.6 Persistent 3.7 Hard working 3.8 Resilient

RANGE OF VARIABLES

VARIABLE	RANGE
1. Appropriate methods and tools	Appropriate methods and tools may include: 1.1. Soil laboratory testing 1.1.1. MOET – Minus one element technique (app/kit) 1.2. Use of Soil Test Kit (STK) 1.3. LCC – leaf color chart (app/chart) 1.4. Rice crop manager application 1.5. Site Specific Management Principle (SSMP)

2. Classification and sources of fertilizer materials	Classification and sources of fertilizer materials may include:
	2.1 Classification for fertilizer materials according to:
	    2.1.1. type
	    2.1.2. form
	    2.1.3. number of fertilizer element present
	2.2 Fertilizer sources for:
	    2.2.1 Nitrogen
	    2.2.2 Phosphorus
	    2.2.3 Potassium
	    2.2.4 Sulfur
	    2.2.5 Zinc

3. Fertilizer calculation	Fertilizer calculation may include:
	Formula for:
	3.1. Amount of fertilizer material per hectare
	3.2. Computation according to the number of fertilizer elements present:
	    3.2.1 Combination of single fertilizer materials
	    3.2.2 Combination incomplete and single fertilizer
	    3.2.3 Combination of complete and single fertilizer

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate:
	1.1 Determined nutrient requirements
	1.1.1 Identified different parts of the rice plants and its growth stages
	1.1.2 Reviewed Palay Check system
	1.1.3 Followed procedures of Soil samplings
	1.1.4 Analyzed soil samples
	1.1.5 Recorded result of soil analysis
	1.2 Selected right element of fertilizer needed by the rice crop
	1.2.1 Determine classification/sources of fertilizer materials
	1.2.2 Performed fertilizer calculation
	1.2.3 Selected right kind of fertilizer
	1.3 Apply right amount of fertilizer at the right time
	1.3.1 Applied right amount of fertilizer
	1.3.2 Followed right timing of fertilizer application
	1.3.3 Utilized right technique of fertilizer application
2. Resource Implications	The following resources should be provided:
	2.1 Farm location for soil samples
	2.2 Farmland with established rice crop
	2.2 MOET set-up/prototype
	2.3 Smartphone with required application
	2.4 PPE
	2.5 Sample fertilizers
3. Method of Assessment	Competency in this unit must be assessed through:
	3.1 Practical demonstration
	3.2 Written
	3.3 Interview
4. Context of Assessment	4.1 Competency maybe assessed in actual workplace or at the designated TESDA Accredited Assessment Center.

UNIT OF COMPETENCY   :   APPLY INTEGRATED PEST AND DISEASE MANAGEMENT ON RICE

UNIT CODE   :   AB-AFF0203114131302

UNIT DESCRIPTOR   :   This unit covers the skills, knowledge and attitudes required to identify target pests and their natural enemies, and other beneficial organisms, select IPM strategies and prepare for the application, implement management control activities, and check performance of control activities.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Identify target pests and their natural enemies, and other beneficial organisms	**1.1 Pests,** which warrant action, and their ***natural enemies, and other beneficial organisms*** are identified according to ***general classification, life cycle and behavior and signs and symptoms and stage of plant growth*** 1.2. Superior is consulted as required to validate data on target pests and their natural enemies, and other beneficial organisms according to ***farm work procedures*** 1.3. Requirement for available ***biocontrol measures*** are assessed in line	1.1 IPM principles 1.2 Different types of pests 1.3 Natural enemies and other beneficial organisms 1.4 General classification of pests 1.5 Life cycle of the insect pest 1.6 Mode of damage to crop 1.7 Management pests 1.8 Farm work procedures 1.9 Biological control of pest 1.10 Use of diagnostic ICT tools	1.1 Communication skill 1.2 Analytical skill 1.3 Critical thinking skill 1.4 Interpersonal skill 1.5 Collaboration skill 1.6 Techno-savvy 1.7 Patient 1.8 Open-minded 1.9 Dedicated 1.10 Hardworking

	with the **IPM** strategy 1.4 **ICT diagnostic and identification tools** are used to identify problems and provide actionable advice on how to manage them		
2. Select IPM strategies and prepare for the application	2.1. Bio-control measures are selected according to target pests and their natural enemies, and other beneficial organisms, availability and appropriateness to prevailing pest density, level of severity/infestation, the **environment** and **other relevant information** in accordance with farm work procedures 2.2. All necessary **supplies and materials, and tools, machinery, equipment, and facilities** are prepared according to farm work procedures 2.3. Suitable **PPE** is selected according to **OHS requirements**	2.1 IPM strategies a. cultural b. physical/mechanical c. biological d. chemical 2.2 Food web and food chain 2.3 Ecological engineering 2.4 Palay check system: key check 3 2.5 Classification and Use of Pesticides 2.6 Biological control agents 2.7 Environment	2.1 Analytical skill 2.2 Mathematical skill 2.3 Communication skill 2.4 Critical thinking skills 2.5 decision-making skill 2.4 Dedicated 2.5 Hard-working 2.6 Persistent
3. Implement management control activities	3.1. Appropriate control measures are implemented	3.1 Safe handling of pesticides 3.2 Use of different tools and	3.1 Sprayer Calibration

		equipment (knap sack sprayer, power sprayer) 3.3 Storage of pesticides 3.4 Awareness on RA 9003 & RA 6969 and other legislations and regulations 3.5 OHS hazards and risks 3.5 PPEs	3.2 disposing of hazardous wastes 3.3 Critical thinking skill 3.4 Analytical skill 3.5 Task-management skill 3.6 Job-environment skill 3.7 Task skill 3.8 Persistent 3.9 Hard working 3.10 Resilient
	in line with farm work procedures 3.2. Tools, machinery and equipment, facilities and *PPE* are used in accordance with *OHS* requirements		
4.Check performance of control activities	4.1. Management options implemented are recorded and monitored in line with farm work procedures 4.2. Supplemental and remedial actions are undertaken, as necessary, according to work instructions 4.3. *Records* are maintained according to standard procedures	4.1 Apply decision making tools (AESA Recommendation) 4.2 Record of daily monitoring activities	4.1 Sprayer Calibration 4.2 disposing of hazardous wastes 4.3 Critical thinking skill 4.4 Analytical skill 4.5 Task-management skill 4.6 Job-environment skill 4.7 Task skill 4.8 Persistent 4.9 Hard working 4.10 Resilient

VARIABLE	RANGE

1. Pests	Pests include:
	  1.1. Insect pests
	  1.2. Weeds
	  1.3. Diseases
	  1.4. Others (snails, birds, rodents,)

2. Natural enemies and beneficial organisms	Natural enemies and beneficial organisms include:
	  2.1. Parasites/parasitoids
	  2.2. Predators
	  2.3. Pollinators
	  2.4. Repellant or refuge plants
	  2.5. Micro-organisms and entomopathogens

3. General classification	General classification includes:
	  3.1. Defoliator, borer, miner, root feeder, etc. (for insect pests)
	  3.2. Grass, broad leaf, or sedge (for weeds)
	  3.3. Bacterium, fungus, virus, plant parasitic nematode, mycoplasma, viroid (for diseases)

4. Life cycle of insect pests and their natural enemies, and other beneficial organisms	Life cycle of insect pests and their natural enemies, and other beneficial organisms may include:
	  4.1 Complete life cycle
	    4.1.1. Egg
	    4.1.2. Larva
	    4.1.3. Pupa
	    4.1.4. Adult
	  4.2 Incomplete life cycle
	    4.2.1. Egg
	    4.2.2. Nymph
	    4.2.3. Adult

5. Behavior (for insect pests and natural enemies, and other beneficial organisms)	Behavior (for insect pests and natural enemies, and other beneficial organisms) include:
	  5.1. Where it stays/ Habitat
	  5.2. Diurnal/nocturnal
	  5.3. Destructive stage
	  5.4. Alternate hosts/predators
	  5.5. Reproduction as influenced by external factors
	  5.6. Response to external factors (e.g. rain, severe dehydration, shading)
	  5.7. Nature and extent of damage
	  5.8. Critical period of infestation

6. Signs and symptoms for insect pests and diseases	Signs and symptoms for insect pests and diseases may include:
	  6.1. Signs of pest infestation such as population density, severity of damage, etc.
	  6.2. Manifestations of the disease such as spotting, rotting, wilting, blighting, curling, yellowing, dwarfing, etc.

7. Stage of plant growth	Stage of plant growth include: 7.1. Seed / Seedling 7.2. Vegetative stage 7.3. Reproductive stage
8. Superior	Superior may include: 8.1. Supervisor 8.2. Pest specialist,
9. Farm work procedures	Farm work procedures may include: 9.1. Supervisor/s' oral and written instructions 9.2. Standard operating procedures 9.3. Pest management plan 9.4. Best practice guidelines on pest management 9.5. Good agricultural practices 9.6. OHS procedures
10. Bio-control measures	Bio-control measures may include: 10.1. Enhancement of population of natural enemies (e.g., avoid indiscriminate use of pesticides) 10.2. Supplemental use of other beneficial organisms (e.g., parasitoids, predators, insect pathogens, entomopathogens) 10.3. Planting repellent and trap crops 10.4. Selective use of botanical pesticides 10.5. Others (e.g., natural population build-up of frogs, lizards, snakes)
11. Integrated Pest Management (IPM)	Integrated Pest Management (IPM) include: 11.1 Biological 11.2 Cultural 11.3 Physical management
12. ICT diagnostic and identification tools	ICT diagnostic and identification tools may include: 12.1 Rice doctor 12.2 E-Damuhan 12.3 Weed ID
13. Environment	Environment may include: 13.1. Soil Fertility 13.2. Soil Type 13.3. Weather Conditions 13.4. Topography 13.5. Water, Etc.
14. Other relevant information	Other relevant information includes: 14.1. Crop variety 14.2. Cropping pattern/system 14.3. Stage of the crop
15.Supplies and materials	Supplies and materials may include: 15.1. farmer-level or village-laboratory massproduced biological control agents (e.g., parasitoids, predators, or insect pathogens) 15.2. other natural enemies, or beneficial organisms 15.3. selected botanical pesticides (e.g. chilli or hot pepper solution, marigold extracts)

	15.4. repellent crops (e.g. marigold)
	15.5. trap crops (e.g. susceptible crops or alternate hosts of destructive pests)
	15.6. cards
	15.7. paper strips
	15.8. measuring cup, others
16. Tools, machinery, equipment, and facilities	Tools, machinery, equipment, and facilities include:
	16.1. sprayer/applicator
	16.2. sweep nets, others
	16.3. Meter stick
	16.4. Flip charts (insect pests, natural enemies, and diseases)
	16.5. Flash cards (insect pests, natural enemies, and diseases)
	16.6. Storage area
	16.7. Hazardous waste disposal area
17. Personal protective equipment	Personal protective equipment includes:
	17.1. Rice paddy boots
	17.2. Hat/Hard hat
	17.3. Coveralls, Gloves
	17.4. Protective eyewear
	17.5. Respirator or face mask
	17.6. Long sleeves
	17.7. Sun protection (sun hat, sun-screen)
18. OHS requirements	OHS requirements include:
	18.1. the safe operation and maintenance of tools, machinery, and equipment.
	18.2. identifying hazards, assessing, and reporting risks.
	18.3. emergency operating procedures.
	18.4. safe lifting, carrying, and handling techniques.
	18.5. manual handling systems and procedures, handling and storage of hazardous substances, and the appropriate use of personal protective clothing and equipment.
	18.6. manual on understanding hazards on the use of pesticides to natural enemies, humans, and other non-target organisms
	18.7. safe systems and procedures for outdoor
	a. work including protection from solar radiation,
	b. protection of people in the workplace,
	c. protection from hazardous noise, mechanical
	d. vibration, organic and other dusts, and
	e. protection from fire risk.
19. Records	Records may include:
	19.1. Date and time of application
	19.2. Location
	19.3. Specific control measures implemented
	19.4. Supplies and materials used (quantity, cost, classification of pesticides used, etc.)

	19.5. Labor (man days and wage rates) 19.6. Field assessment records

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidences that the candidate:
	1.1 Identified target pests and their natural enemies, and other beneficial organisms
	    1.1.1 Identified pests which warrant action, and their natural enemies, and other beneficial organisms
	    1.1.2 Consulted supervisor or the pest specialist
	    1.1.3 Assessed requirements for available biocontrol measures
	    1.1.4 Used ICT diagnostic and identification tools
	
	1.2 Selected IPM strategies and prepare for the application
	    1.2.1 Selected and applied appropriate biocontrol measures
	    1.2.2 Prepared all necessary supplies, materials, tools, machineries, equipment, and facilities
	    1.2.3 Selected suitable PPE
	
	1.3 Implemented management control activities
	    1.3.1 Implemented appropriate control measures
	    1.3.2 Used Tools, machineries, equipment and facilities and PPE
	 1.4 Checked performance of control activities
	    1.4.1 Implemented management options
	    1.4.2 Undertook supplemental and remedial actions
	    1.4.3 Maintained records
	   The skills and knowledge required to apply biocontrol measures for managing pests must be transferable to a different work environment. For example, this may include different vegetables, pests, and farms/areas.

2. Resource Implications	The following resources should be provided: 2.1 Vegetable farm or a simulated workplace/demo farm 2.2 Village-level bio-control mass-rearing laboratories 2.3. Enterprise procedures relating to biocontrol measures
3. Method of Assessment	Competency in this unit must be assessed through: 3.1. Direct observation with oral questioning 3.2. Demonstration with oral questioning 3.3. Portfolio assessment
4. Context of Assessment	4.1 Assessment should be in a vegetable farm or in a simulated workplace/demo farm 4.2 Ability to apply competency over time and on a number of occasions.

| | | UNIT OF COMPETENCY | : | **MONITOR RESULTS OF PEST AND NUTRIENT MANAGEMENT ACTIVITIES AND PROVIDE FEEDBACK** |

UNIT OF COMPETENCY   :   **MONITOR RESULTS OF PEST AND NUTRIENT MANAGEMENT ACTIVITIES AND PROVIDE FEEDBACK**

UNIT CODE   :   **AB-AFF0203114131303**

UNIT DESCRIPTOR   :   This unit covers the skills, knowledge and attitude in checking and recording performance of control activities and addressing the performance of control activities.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Check and record performance of control activities	1.1 Targeted plant response **to pest management activities**, as well as any non-targeted effects such as environmental impact or pest responses, is regularly monitored and recorded, according to work instructions, **OHS requirements** and protocols and standards 1.2 Progress report is prepared and submitted to supervisor as required, according to farm work procedures	1.1 Pest management activities 1.2 OHS requirements 1.3 Reporting requirements 1.4 Monitoring requirements	1.1 Analytical skill 1.2 Communication skill 1.3 Record keeping skill 1.4 Monitoring skill 1.5 Task-management skill 1.6 Accuracy 1.7 Environment-conscious 1.8 Positive work values 1.9 Work ethics 1.10 Cost conscious 1.11 Safety conscious
2.Address performance of control activities	2.1 Any gap or deviation from expected results of control activities are reported to supervisor according to standard procedures	2.1 Types of control measures 2.2 expected effects/impacts of control measures 2.3 Records 2.3 Possible remedial actions for gaps/deviations	2.1 Analytical skill 2.2 Mathematical skill 2.3 Communication skill 2.4 Critical thinking skills 2.5 decision-making skill 2.4 Dedicated 2.5 Hard-working

	2.2 Adjustments to control measures are implemented, where necessary, according to work instructions 2.3 **Records** are kept and updated regularly according to farm work procedures	between the effect/impact of control measures and actual results	2.6 Persistent

RANGE OF VARIABLES

VARIABLE	RANGE

1. Pest management activities	Pest management activities may include:
	    1.1. Bio-control measures
	    1.2. Physical control measures
	    1.3. Cultural management strategies
	    1.4. Chemical control measures

2. OHS requirements	OHS requirements may include:
	    2.1. the safe operation and maintenance of machinery and equipment including hydraulics and guarding of exposed moving parts.
	    2.2. identifying hazards, assessing, and reporting risks.
	    2.3. emergency operating procedures.
	    2.4. safe lifting, carrying, and handling techniques.
	    2.5. manual handling systems and procedures, handling and storage of hazardous substances, and the appropriate use of personal protective clothing and equipment.
	    2.6. safe systems and procedures for outdoor work including protection from solar radiation, protection of people in the workplace, protection from hazardous noise, mechanical vibration, organic and other dusts, and protection from fire risk.

3. Farm work procedures	Farm work procedures may include:
	    3.1. Supervisor/s' oral and written instructions
	    3.2. Standard operating procedures
	    3.3. Pest management plan
	    3.4. Best practice guidelines on pest management
	    3.5. Good agricultural practices
	    3.6. OHS procedures

4. Records	Records may include:
	    4.1. Date and time of monitoring
	    4.2. Location
	    4.3. Specific control measures implemented
	    4.4. Success of treatments
	    4.5. Observable negative effects on the environment
	    4.6. Effectivity of the control measures implemented / results of application

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidences that the candidate:
	1.1 Checked and recorded performance of control activities
	    1.1.1 Monitored and recorded results of control activities and provided feedback
	    1.1.2 Prepared and submitted progress report
	3.2 Addressed performance of control activities
	    1.2.1 Reported any gap or deviation from expected results of control activities
	    1.2.2 Implemented adjustments to control measures
	    1.2.3 Updated kept records regularly
	
	The skills and knowledge required to monitor results of control activities and provide feedback must be transferable to a different work environment. For example, this may include different crops, control measures and farms/areas

2. Resource Implications	The following resources MUST be provided:
	    2.1. Vegetable farm or simulated workplace/demo farm
	    2.2. Enterprise procedures relating to pest management activities

3. Method of Assessment	Competency in this unit must be assessed through:
	    3.1. Direct observation with oral questioning
	    3.2. Demonstration with oral questioning
	    3.3. Portfolio assessment

4. Context of Assessment	4.1. Assessment should be in a workplace or in a simulated workplace 4.2. Demonstration of competency over time and on several occasions

GLOSSARY OF TERMS

1.	**Fertilizer**	Is a natural or artificial substance containing the chemical elements that improve growth and productiveness of plants. Fertilizers enhance the natural fertility of the soil or replace chemical elements taken from the soil by previous crops. (https://www.britannica.com/topic/fertilizer)
2.	**Integrated Pest Management (IPM)**	Integrated Pest Management or IPM, as it is commonly known, is a system of managing pests which is designed to be sustainable. IPM involves using the best combination of cultural, biological and chemical measures for particular circumstances, including plant biotechnology as appropriate (https://croplife.org/crop-protection/stewardship/integrated-pest-management/#:~:text=Integrated%20Pest%20Management%20or%20IPM,including%20plant%20biotechnology%20as%20appropriate)
3.	**Nutrient Management**	Nutrient management is the process of managing the amount, source, timing, and method of nutrient application with the goal of optimizing farm productivity while minimizing nutrient losses that could create nutrient (biosolid) application environmental problems. (http://soilquality.org)
4.	**Pest**	an insect or small animal that is harmful or damages crops (such as rats, mice, cockroaches, grasshopper etc.) (https://dictionary.cambridge.org/us/dictionary/english/pest)
5.	**Pesticides**	a chemical substance used to kill harmful insects, small animals, wild plants, and other unwanted organisms (https://dictionary.cambridge.org/us/dictionary/english/pest)

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