

TRAINING REGULATIONS



AGRICULTURAL MACHINERY OPERATION NC II

AGRICULTURE, FORESTRY AND FISHERY SECTOR

TECHNICAL EDUCATION AND SKILLS DEVELOPMENT AUTHORITY

East Service Road, South Luzon Expressway (SLEX), Taguig City, Metro Manila Philippines

Technical Education and Skills Development Act of 1994

(Republic Act No. 7796)

Section 22, “Establishment and Administration of the National Trade Skills Standards” of the RA 7796 known as the TESDA Act mandates TESDA to establish national occupational skill standards. The Authority shall develop and implement a certification and accreditation program in which private industry group and trade associations are accredited to conduct approved trade tests, and the local government units to promote such trade testing activities in their respective areas in accordance with the guidelines to be set by the Authority.

The Training Regulations (TR) serve as basis for the:

- 1 Competency assessment and certification;
- 2 Registration and delivery of training programs; and
- 3 Development of curriculum and assessment instruments.

Each TR has four sections:

- Section 1 **Definition of Qualification** - refers to the group of competencies that describes the different functions of the qualification.
- Section 2 The **Competency Standards** - gives the specifications of competencies required for effective work performance.
- Section 3 **Training Arrangements** - contains information and requirements in designing training program for certain Qualification. It includes curriculum design, training delivery; trainee entry requirements; tools and requirements; tools and equipment; training facilities and trainer's qualification.
- Section 4 **Assessment and Certification Arrangements** - describes the policies governing assessment and certification procedure

TABLE OF CONTENTS
AGRICULTURE, FORESTRY AND FISHERY SECTOR
AGRICULTURAL MACHINERY OPERATION NC II

	Page No.
SECTION 1 AGRICULTURAL MACHINERY OPERATION NC II QUALIFICATION	1
SECTION 2 COMPETENCY STANDARDS	2 - 45
• Basic Competencies	2 - 18
• Common Competencies	19 - 27
• Core Competencies	28 – 46
SECTION 3 TRAINING ARRANGEMENTS	47 - 82
3.1 Curriculum Design	47
3.2 Training Delivery	73
3.3 Trainee Entry Requirements	75
3.4 List of Tools, Equipment and Materials	75
3.5 Training Facilities	81
3.6 Trainers' Qualifications	82
3.7 Institutional Assessment	82
SECTION 4 NATIONAL ASSESSMENT AND CERTIFICATION ARRANGEMENTS	83
COMPETENCY MAP	86
GLOSSARY OF TERMS	87
ACKNOWLEDGEMENTS	89

TRAINING REGULATIONS FOR AGRICULTURAL MACHINERY OPERATION NC II

SECTION 1 AGRICULTURAL MACHINERY OPERATION NC II QUALIFICATION

The **AGRICULTURAL MACHINERY OPERATION NC II** Qualification consists of competencies that an **Agricultural Machinery Operator, Agricultural Tractor Operator, Agricultural Post-harvest Machinery Operator or Agricultural Production Machinery Operator** must have in order to operate agricultural small production machinery and equipment, operate agricultural large production machinery and equipment and operate agricultural post-production machinery and equipment.

This Qualification is packaged from the competency map of the Agriculture, Forestry and Fishery Sector as shown in Annex A.

The Units of Competency comprising this Qualification include the following:

UNIT CODE	BASIC COMPETENCIES
500311105	Participate in workplace communication
500311106	Work in team environment
500311107	Practice career professionalism
500311108	Practice occupational health and safety procedures

UNIT CODE	COMMON COMPETENCIES
AGR321201	Apply Safety Measures in Farm Operations
AGR321202	Use Farm Tools and Equipment
AGR321203	Perform Estimation and Basic Calculation

UNIT CODE	CORE COMPETENCIES
AFF834367	Operate agricultural small production machinery and equipment
AFF834368	Operate agricultural large production machinery and equipment
AFF834369	Operate agricultural post-production machinery and equipment

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

- Agricultural Machinery Operator
- Agricultural Tractor Operator
- Agricultural Post-harvest Machinery Operator
- Agricultural Production Machinery Operator

SECTION 2 COMPETENCY STANDARDS

This section gives the details of the contents of the units of competency required in **AGRICULTURAL MACHINERY OPERATION NC II**.

BASIC COMPETENCIES

UNIT OF COMPETENCY : PARTICIPATE IN WORKPLACE COMMUNICATION

UNIT CODE : 500311105

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 appropriate sources 1.2 Effective questioning, active listening and speaking skills are used to gather and convey information 1.3 Appropriate medium is used to transfer information and ideas 1.4 Appropriate non-verbal communication is used 1.5 Appropriate lines of communication with supervisors and colleagues are identified and followed 1.6 Defined workplace procedures for the location and	1.1 Effective communication 1.2 Different modes of communication 1.3 Written communication 1.4 Organizational policies 1.5 Communication procedures and systems 1.6 Technology relevant to the enterprise and the individual's work responsibilities	1.1 Follow simple spoken language 1.2 Perform routine workplace duties following simple written notices 1.3 Participate in workplace meetings and discussions 1.4 Complete work related documents 1.5 Estimate, calculate and record routine workplace measures 1.6 Ability to relate to people of social range in the workplace 1.7 Gather and provide information in response to

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	<p>storage of information are used</p> <p>1.7 Personal interaction is carried out clearly and concisely</p>		workplace requirements
2. Participate in workplace meetings and discussions	<p>2.1 Team meetings are attended on time</p> <p>2.2 Own opinions are clearly expressed and those of others are listened to without interruption</p> <p>2.3 Meeting inputs are consistent with the meeting purpose and established protocols</p> <p>2.4 Workplace interactions are conducted in a courteous manner</p> <p>2.5 Questions about simple routine workplace procedures and matters concerning working conditions of employment are asked and responded to</p> <p>2.6 Meetings outcomes are interpreted and implemented</p>	<p>2.1 Effective communication</p> <p>2.2 Different modes of communication</p> <p>2.3 Written communication</p> <p>2.4 Organizational policies</p> <p>2.5 Communication procedures and systems</p> <p>2.6 Technology relevant to the enterprise and the individual's work responsibilities</p>	<p>2.1 Follow simple spoken language</p> <p>2.2 Perform routine workplace duties following simple written notices</p> <p>2.3 Participate in workplace meetings and discussions</p> <p>2.4 Complete work related documents</p> <p>2.5 Estimate, calculate and record routine workplace measures</p> <p>2.6 Ability to relate to people of social range in the workplace</p> <p>2.7 Gather and provide information in response to workplace requirements</p>
3. Complete relevant work related documents	3.1 Range of forms relating to conditions of employment are completed accurately and legibly	<p>3.1 Effective communication</p> <p>3.2 Different modes of communication</p> <p>3.3 Written communication</p>	<p>3.1 Complete work related documents</p> <p>3.2 Basic mathematical processes of addition,</p>

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	<p>3.2 Workplace data is recorded on standard workplace forms and documents</p> <p>3.3 Basic mathematical processes are used for routine calculations</p> <p>3.4 Errors in recording information on forms/ documents are identified and properly acted upon</p> <p>3.5 Reporting requirements to supervisor are completed according to organizational guidelines</p>	<p>3.4 Organizational 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>subtraction, division and multiplication</p> <p>3.3 Gather and provide information in response to workplace requirements</p>

RANGE OF VARIABLES

VARIABLE	RANGE
1. Appropriate sources	May include: 1.1. Team members 1.2. Suppliers 1.3. Trade personnel 1.4. Local government 1.5. Industry bodies
2. Medium	May include: 2.1. Memorandum 2.2. Circular 2.3. Notice 2.4. Information discussion 2.5. Follow-up or verbal instructions 2.6. Face to face communication
3. Storage	May include: 3.1. Manual filing system 3.2. Computer-based filing system
4. Forms	May include: 4.1 Personnel forms 4.2 Telephone message forms 4.3 Safety reports
5. Workplace interactions	May include: 5.1. Face to face 5.2. Telephone 5.3. Electronic and two way radio 5.4. Written including electronic, memos, instruction and forms, non-verbal including gestures, signals, signs and diagrams
6. Protocols	May include: 6.1. Observing meeting 6.2. Compliance with meeting decisions 6.3. Obeying meeting instructions

EVIDENCE GUIDE

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1 Prepared written communication following standard format of the organization 1.2 Accessed information using communication equipment 1.3 Made use of relevant terms as an aid to transfer information effectively 1.4 Conveyed information effectively adopting the formal or informal communication
2. Resource Implications	The following resources should be provided: 2.1 Fax machine 2.2 Telephone 2.3 Writing materials 2.4 Internet
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Direct Observation 3.2 Oral interview and written test
4. Context for Assessment	Competency may be assessed individually in the actual workplace or through accredited institution

UNIT OF COMPETENCY : WORK IN TEAM ENVIRONMENT

UNIT CODE : 500311106

UNIT DESCRIPTOR : This unit covers the skills, knowledge and attitudes to identify role and responsibility as a member of a team.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Describe team role and scope	1.1 The <i>role and objective of the team</i> is identified from available <i>sources of information</i> 1.2 Team parameters, reporting relationships and responsibilities are identified from team discussions and appropriate external sources	1.1 Communication process 1.2 Team structure 1.3 Team roles 1.4 Group planning and decision making	1.1 Communicate appropriately, consistent with the culture of the workplace
2. Identify own role and responsibility within team	2.1 Individual role and responsibilities within the team environment are identified 2.2 Roles and responsibility of other team members are identified and recognized 2.3 Reporting relationships within team and external to team are identified	2.1 Communication process 2.2 Team structure 2.3 Team roles 2.4 Group planning and decision making	2.1 Communicate appropriately, consistent with the culture of the workplace
3. Work as a team member	3.1 Effective and appropriate forms of communications used and interactions undertaken with team members who contribute to known team activities and objectives 3.2 Effective and appropriate contributions made to complement team	3.1 Communication process 3.2 Team structure 3.3 Team roles 3.4 Group planning and decision making	3.1 Communicate appropriately, consistent with the culture of the workplace 3.2 Interacting effectively with others

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	activities and objectives, based on individual skills and competencies and workplace context 3.3 Observed protocols in reporting using standard operating procedures 3.4 Contribute to the development of team work plans based on an understanding of team's role and objectives and individual competencies of the members		

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 judgment 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>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Operated 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 1.6 Reported outcomes
<p>2. Resource Implications</p>	<p>The following resources should be provided:</p> <ul style="list-style-type: none"> 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>3. Methods of Assessment</p>	<p>Competency in this unit may be assessed through:</p> <ul style="list-style-type: none"> 3.1 Observation of the individual member in relation to the work activities of the group 3.2 Observation of simulation and or role play involving the participation of individual member to the attainment of organizational goal 3.3 Case studies and scenarios as a basis for discussion of issues and strategies in teamwork
<p>4. Context for Assessment</p>	<ul style="list-style-type: none"> 4.1 Competency may be assessed in workplace or in a simulated workplace setting 4.2 Assessment shall be observed while task are being undertaken whether individually or in group

UNIT OF COMPETENCY : PRACTICE CAREER PROFESSIONALISM

UNIT CODE : 500311107

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes in promoting career growth and advancement.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Integrate personal objectives with organizational goals	1.1 Personal growth and work plans are pursued towards improving the qualifications set for the profession 1.2 Intra- and interpersonal relationships are maintained in the course of managing oneself based on performance evaluation 1.3 Commitment to the organization and its goal is demonstrated in the performance of duties	1.1 Work values and ethics (Code of Conduct, Code of Ethics, etc.) 1.2 Company policies 1.3 Company operations, procedures and standards 1.4 Fundamental rights at work including gender sensitivity 1.5 Personal hygiene practices	1.1 Appropriate practice of personal hygiene 1.2 Intra and Interpersonal skills 1.3 Communication skills
2. Set and meet work priorities	2.1 Competing demands are prioritized to achieve personal, team and organizational goals and objectives. 2.2 Resources are utilized efficiently and effectively to manage work priorities and commitments 2.3 Practices along economic use and maintenance of equipment and facilities are followed as per established procedures	2.1 Work values and ethics (Code of Conduct, Code of Ethics, etc.) 2.2 Company policies 2.3 Company operations, procedures and standards 2.4 Fundamental rights at work including gender sensitivity 2.5 Personal hygiene practices 2.6 Time management	2.1 Appropriate practice of personal hygiene 2.2 Intra and Interpersonal skills 2.3 Communication skills 2.4 Managing goals and time

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
3. Maintain professional growth and development	3.1 <i>Trainings and career opportunities</i> are identified and availed of based on job requirements 3.2 <i>Recognitions</i> are sought/received and demonstrated as proof of career advancement 3.3 <i>Licenses and/or certifications</i> relevant to job and career are obtained and renewed	3.1 Work values and ethics (Code of Conduct, Code of Ethics, etc.) 3.2 Company policies 3.3 Company operations, procedures and standards 3.4 Fundamental rights at work including gender sensitivity 3.5 Personal hygiene practices	3.1 Appropriate practice of personal hygiene 3.2 Intra and Interpersonal skills 3.3 Communication skills

RANGE OF VARIABLES

VARIABLE	RANGE
1. Evaluation	May include: 1.1 Performance Appraisal 1.2 Psychological Profile 1.3 Aptitude Tests
2. Resources	May include: 2.1 Human 2.2 Financial 2.3 Technology 2.3.1 Hardware 2.3.2 Software
3. Trainings and career opportunities	May include: 3.1 Participation in training programs 3.1.1 Technical 3.1.2 Supervisory 3.1.3 Managerial 3.1.4 Continuing Education 3.2 Serving as Resource Persons in conferences and workshops
4. Recognitions	May include: 4.1 Recommendations 4.2 Citations 4.3 Certificate of Appreciations 4.4 Commendations 4.5 Awards 4.6 Tangible and Intangible Rewards
5. Licenses and/or certifications	May include: 5.1 National Certificates 5.2 Certificate of Competency 5.3 Support Level Licenses 5.4 Professional Licenses

EVIDENCE GUIDE

<p>1. Critical aspects of Competency</p>	<p>Assessment requires evidence that the candidate:</p> <p>1.1 Attained job targets within key result areas (KRAs)</p> <p>1.2 Maintained intra - and interpersonal relationship in the course of managing oneself based on performance evaluation</p> <p>1.3 Completed trainings and career opportunities which are based on the requirements of the industries</p> <p>1.4 Acquired and maintained licenses and/or certifications according to the requirement of the qualification</p>
<p>2. Resource Implications</p>	<p>The following resources should be provided:</p> <p>2.1 Workplace or assessment location</p> <p>2.2 Case studies/scenarios</p>
<p>3. Methods of Assessment</p>	<p>Competency in this unit may be assessed through:</p> <p>3.1 Portfolio Assessment</p> <p>3.2 Interview</p> <p>3.3 Simulation/Role-plays</p> <p>3.4 Observation</p> <p>3.5 Third Party Reports</p> <p>3.6 Exams and Tests</p>
<p>4. Context for Assessment</p>	<p>Competency may be assessed in the work place or in a simulated work place setting</p>

UNIT OF COMPETENCY : PRACTICE OCCUPATIONAL HEALTH AND SAFETY PROCEDURES

UNIT CODE : 500311108

UNIT DESCRIPTOR : This unit covers the outcomes required to comply with regulatory and organizational requirements for occupational health and safety.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Identify hazards and risks	1.1 Safety regulations and workplace safety and hazard control practices and procedures are clarified and explained based on organization procedures 1.2 Hazards/risks in the workplace and their corresponding indicators are identified to minimize or eliminate risk to co-workers, workplace and environment in accordance with organization procedures 1.3 Contingency measures during workplace accidents, fire and other emergencies are recognized and established in accordance with organization procedures	1.1 OHS procedures and practices and regulations 1.2 Personal hygiene practices 1.3 Hazards/risks identification and control 1.4 Organization safety and health protocol 1.5 Safety consciousness 1.6 Health consciousness	1.1 Practice of personal hygiene 1.2 Hazards/risks identification and control skills 1.3 Interpersonal skills 1.4 Communication skills

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
2. Evaluate hazards and risks	2.1 Terms of maximum tolerable limits which when exceeded will result in harm or damage are identified based on threshold limit values (TLV) 2.2 Effects of the hazards are determined 2.3 OHS issues and/or concerns and identified safety hazards are reported to designated personnel in accordance with workplace requirements and relevant workplace OHS legislation	2.1 OHS procedures and practices and regulations 2.2 Personal hygiene practices 2.3 Hazards/risks identification and control 2.4 Threshold Limit Value -TLV 2.5 OHS indicators 2.6 Organization safety and health protocol 2.7 Safety consciousness 2.8 Health consciousness	2.1 Practice of personal hygiene 2.2 Hazards/risks identification and control skills 2.3 Interpersonal skills 2.4 Communication skills
3. Control hazards and risks	3.1 Occupational Health and Safety (OHS) procedures for controlling hazards/risks in workplace are consistently followed 3.2 Procedures for dealing with workplace accidents, fire and emergencies are followed in accordance with organization OHS policies 3.3 Personal protective equipment (PPE) is correctly used in accordance with organization OHS procedures and practices 3.4 Appropriate assistance is provided in the event of a workplace emergency in accordance with	3.1 OHS procedures and practices and regulations 3.2 PPE types and uses 3.3 Personal hygiene practices 3.4 Hazards/risks identification and control 3.5 OHS indicators 3.6 Organization safety and health protocol 3.7 Safety consciousness 3.8 Health consciousness	3.1 Practice of personal hygiene 3.2 Hazards/risks identification and control skills 3.3 Interpersonal skills 3.4 Communication skills

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	established organization protocol		
4. Maintain OHS awareness	4.1 <i>Emergency-related drills and trainings</i> are participated in as per established organization guidelines and procedures 4.2 <i>OHS personal records</i> are completed and updated in accordance with workplace requirements	4.1 OHS procedures and practices and regulations 4.2 PPE types and uses 4.3 Personal hygiene practices 4.4 OHS indicators 4.5 Organization safety and health protocol 4.6 Safety consciousness 4.7 Health consciousness	4.1 Practice of personal hygiene 4.2 Interpersonal skills 4.3 Communication skills

RANGE OF VARIABLES

VARIABLE	RANGE
1. Safety regulations	<p>May include but are not limited to:</p> <ul style="list-style-type: none"> 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 Philippine Occupational Safety and Health Standards 1.6 DOLE regulations on safety legal requirements 1.7 ECC regulations
2. Hazards/Risks	<p>May include but are not limited to:</p> <ul style="list-style-type: none"> 2.1 Physical hazards – impact, illumination, pressure, noise, vibration, temperature, radiation 2.2 Biological hazards - bacteria, viruses, plants, parasites, mites, molds, fungi, insects 2.3 Chemical hazards – dusts, fibers, mists, fumes, smoke, gasses, vapors 2.4 Ergonomics <ul style="list-style-type: none"> 2.4.1 Psychological factors – over exertion/ excessive force, awkward/static positions, fatigue, direct pressure, varying metabolic cycles 2.4.2 Physiological factors – monotony, personal relationship, work out cycle
3. Contingency measures	<p>May include but are not limited to:</p> <ul style="list-style-type: none"> 3.1 Evacuation 3.2 Isolation 3.3 Decontamination 3.4 (Calling designed) emergency personnel
4. PPE	<p>May include but are not limited to:</p> <ul style="list-style-type: none"> 4.1 Mask 4.2 Gloves 4.3 Goggles 4.4 Hair Net/cap/bonnet 4.5 Face mask/shield 4.6 Ear muffs 4.7 Apron/Gown/coverall/jump suit 4.8 Anti-static suits
5. Emergency-related drills and training	<p>May include but are not limited to:</p> <ul style="list-style-type: none"> 5.1 Fire drill 5.2 Earthquake drill 5.3 Basic life support/CPR 5.4 First aid 5.5 Spillage control 5.6 Decontamination of chemical and toxic 5.7 Disaster preparedness/management

6. OHS personal records	May include but not limited to: 6.1 Medical/Health records 6.2 Incident reports 6.3 Accident reports 6.4 OHS-related training completed
-------------------------	--

EVIDENCE GUIDE

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1 Explained clearly established workplace safety and hazard control practices and procedures 1.2 Identified hazards/risks in the workplace and its corresponding indicators in accordance with company procedures 1.3 Recognized contingency measures during workplace accidents, fire and other emergencies 1.4 Identified terms of maximum tolerable limits based on threshold limit value- TLV. 1.5 Followed Occupational Health and Safety (OHS) procedures for controlling hazards/risks in workplace 1.6 Used Personal Protective Equipment (PPE) in accordance with company OHS procedures and practices 1.7 Completed and updated OHS personal records in accordance with workplace requirements
2. Resource Implications	The following resources should be provided: 2.1 Workplace or assessment location 2.2 OHS personal records 2.3 PPE 2.4 Health records
3. Methods of Assessment	Competency may be assessed through: 3.1 Portfolio Assessment 3.2 Interview 3.3 Case Study/Situation
4. Context for Assessment	Competency may be assessed in the work place or in a simulated work place setting

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 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/functiona l tools, materials and outfit 1.5 Preparing tools, materials and outfits 1.6 Discarding defective tools, and materials
2. Apply appropriate safety measures	2.1 Tools and materials are used according to specifications and procedures 2.2 Outfits are worn according to farm requirements 2.3 Effectivity/shelf life/expiration of materials are strictly observed 2.4 Emergency procedures are known and followed	2.1 Uses and functions of tools 2.2 Outfits and how to wear it. 2.3 Expiration/shelf life of materials 2.4 Proper disposal of expired materials 2.5 Environmental rules and regulations 2.6 Emergency procedures	2.1 Using tools and materials in the workplace 2.2 Wearing of outfits 2.3 Observing expiration/ shelf life of materials 2.4 Disposing of expired materials 2.5 Following emergency procedures 2.6 Identifying and

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	to ensure a safe work requirement 2.5 Hazards in the workplace are identified and reported in line with farm guidelines	2.7 Hazards identification and reporting 2.8 Communication skills 2.9 OSHS	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 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	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 : AFF321202

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to use farm tools and equipment. It includes selection, operation and preventive maintenance of farm tools and equipment.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Select and use farm tools	1.1 Appropriate farm tools are identified according to requirement/use 1.2 Farm tools are checked for faults and defective tools reported in accordance with farm procedures 1.3 Appropriate tools are safely used according to job requirements and manufacturers conditions	1.1 Types and uses of farm tools 1.2 Characteristics of functional tools 1.3 Checking tools for defects/faults 1.4 Segregation and reporting defective tools 1.5 Uses of tools and equipment	1.1 Identifying farm tools for the work 1.2 Checking the conditions of tools 1.3 Reporting defective tools 1.4 Using tools
2. Select and operate farm equipment	2.1 Identify appropriate farm equipment 2.2 Instructional 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 used according to its function 2.6 Safety procedures are followed.	2.1 Types and operations of farm equipment 2.2 Standards operating procedures of farm equipment 2.3 Instructional manual of equipment 2.4 Pre-operation check-up 2.5 Equipment Specification 2.6 Procedures in calibrating and use of equipment 2.7 Equipment faults identification and reporting 2.8 Operation of equipment 2.9 Codes and	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.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		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 routinary 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	Farm equipment include: 1.1 Engine 1.2 Pumps 1.3 Generators 1.4 Sprayers
2. Farm tools	Farm tools includes: 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 includes: 3.1 Tires 3.2 Brake fluid 3.3 Fuel 3.4 Water 3.5 Oil 3.6 Lubricants 3.7 Battery

EVIDENCE GUIDE

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

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

UNIT CODE : **AFF321203**

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to perform basic workplace calculations.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> 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 Job requirements/ labor needs 1.2 Calculation of quantities of materials and resources required 1.3 Calculation of time for job completion 1.4 Preparation of estimate report 1.5 Basic mathematical operations 1.6 Percentage and ratios 1.7 Unit Conversion	1.1 Identifying job requirements/ labor 1.2 Estimating quantities of materials and resources required 1.3 Estimating time for job completion 1.4 Performing basic calculation 1.5 Compute percentage 1.6 Convert English to Metric systems of measurement 1.7 Preparing estimate report
2. Perform basic workplace calculation	2.1 System and units of measurement to be followed are ascertained 2.2 Calculation needed to complete work tasks are performed using the four basic mathematical operation 2.3 Calculate whole fraction, percentage and mixed when are used to complete the instructions 2.4 Number computed is checked following work requirements	2.1 Four basic mathematical operation 2.2 System and units of measurement 2.3 Fraction, percentage and ratio 2.4 Material take-off 2.5 Materials costing	2.1 Compute bill of materials 2.2 Compute project cost

RANGE OF VARIABLES

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

EVIDENCE GUIDE

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

CORE COMPETENCIES

UNIT OF COMPETENCY : OPERATE AGRICULTURAL SMALL PRODUCTION MACHINERY AND EQUIPMENT

UNIT CODE : AFF834367

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to operate agricultural production machinery and equipment powered by small engines. This also includes to select of agricultural small production machineries, prepare agricultural machineries for operations, operate agricultural machineries and perform post-operation activities.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Select agricultural small production machineries	1.1 Field is assessed as per established practice 1.2 Land condition is determined based on industry standard 1.3 Crop condition is evaluated based on industry standard 1.4 Agricultural machineries are identified based on assessment result	1.1. Knowledge, Theory, Practices and Systems Operations 1.1.1 Assessment results 1.1.2 Procedures of field assessment 1.1.3 Different land conditions 1.1.4 Different crop conditions 1.1.5 Compatibility of engine and hand tractor 1.1.6 Different agricultural machineries powered by small engines 1.2. Communication 1.2.1 Preparation of assessment report 1.3. Values 1.3.1 Dedication to work and resourcefulness 1.3.2 Sense of quality and open-mindedness 1.3.3 Patience, Perseverance and Environmentally conscious	1.1 Assessing land and crop conditions 1.2 Determining and selecting agricultural machineries based on land and crop conditions 1.3 Preparing assessment report

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
2. Prepare agricultural machineries for operations	2.1 Agricultural machineries are checked and adjusted in accordance with job requirements 2.2 Tools and materials are prepared according to work requirements 2.3 Attachments are checked and adjusted following manufacturer's manual 2.4 Resources are readied to meet the work requirements	2.1. Knowledge, Theory, Practices and Systems Operations 2.1.1 Procedures of checking and adjusting agricultural machines 2.1.2 Nomenclature of engine and machines 2.1.3 Different tools and materials 2.1.4 Procedures of checking and adjusting different implements/ attachments 2.1.5 Procedures of checking and adjusting accessories and components 2.1.6 Resources required 2.2. Communication 2.2.1 Interpretation of manufacturer's manual 2.3. Values 2.3.1 Dedication to work 2.3.2 Resourcefulness 2.3.3 Sense of quality 2.3.4 Open-mindedness 2.3.5 Patience 2.3.6 Perseverance 2.3.7 Environmentally conscious	2.1 Reading and interpreting manual/ manufacturer's specifications, work and maintenance plans 2.2 Checking and adjusting agricultural machineries 2.3 Preparing tools and materials 2.4 Using appropriate fuel and lubrication requirements 2.5 Checking and adjusting different implements/ attachments 2.6 Checking and adjusting accessories and components 2.7 Preparing other resources required 2.8 Using manufacturer's manual
3. Operate agricultural machineries	3.1 Personal Protective Equipment are selected and worn as per work requirement 3.2 Machine is operated following operator's manual 3.3 Malfunctions are identified and corrected in accordance with	3.1. Knowledge, Theory, Practices and Systems Operations 3.1.1 Operation procedures of agricultural machines 3.1.2 Corrective procedures for different	3.1 Operating different agricultural machineries powered by small engines 3.2 Wearing appropriate/ proper of PPEs 3.3 Performing safety practices and

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	<p>operator's manual</p> <p>3.4 Performances are assessed according to set standards/client's specification</p> <p>3.5 Machinery is shutdown according to operator's manual.</p>	<p>malfunctions of agricultural machineries powered by small engines</p> <p>3.1.3 Assessment procedures for performances of agricultural machine performances</p> <p>3.1.4 Shutting down procedures of machineries</p> <p>3.2. Communication</p> <p>3.2.1 Interpretation of manufacturer's manual</p> <p>3.3. Safety Practices</p> <p>3.3.1 Wearing PPE</p> <p>3.4. Code</p> <p>3.4.1 OSHS</p> <p>3.4.2 PAES</p> <p>3.5. Values</p> <p>3.5.1 Dedication to work and resourcefulness</p> <p>3.5.2 Sense of quality and open-mindedness</p> <p>3.5.3 Patience,</p> <p>3.5.4 Perseverance</p> <p>3.5.5 Environmentally conscious</p>	<p>safe operation</p> <p>3.4 Demonstrating safe and environmentally responsible workplace practices</p> <p>3.5 Using manufacturer's manual</p> <p>3.6 Applying corrective measures for malfunctions of machineries</p> <p>3.7 Assessing performances of machineries</p> <p>3.8 Shutting down of machineries</p>
4. Perform post-operation activities	<p>4.1 Wastes are managed according to environmental regulations</p> <p>4.2 Machineries and engines are cleaned and checked prior to storage</p> <p>4.3 Work area is cleaned and maintained according to OHS and enterprise requirements</p> <p>4.4 Records of information are prepared in with reference to</p>	<p>4.1. Knowledge, Theory, Practices and Systems Operations</p> <p>4.1.1 Management of different wastes</p> <p>4.1.2 Procedures of cleaning and checking of machineries and engines prior to storage</p> <p>4.1.3 Maintenance of work area</p> <p>4.1.4 Record keeping procedures</p> <p>4.1.5 Basic preventive</p>	<p>4.1 Managing wastes</p> <p>4.2 Segregating wastes</p> <p>4.3 Cleaning and checking agricultural machineries</p> <p>4.4 Maintaining work area</p> <p>4.5 Keeping records of information</p> <p>4.6 Troubleshooting and practicing basic preventive maintenance</p> <p>4.7 Practicing 5S of Good</p>

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	enterprise format 4.5 Basic preventive maintenance is performed according to manufacturer's manuals	maintenance for machineries powered by small engines 4.2. Materials, Tools and Equipment: Uses, Specifications and Maintenance 4.2.1 Maintaining the various equipment, tools and utensils 4.2.2 Procedures in cleaning and checking machine and engine 4.3. Codes and Regulations 4.3.1 OSHS 4.3.2 5S of Good Housekeeping 4.3.3 3R applications 4.3.4 Waste Management Act 4.4. Safety Practices 4.4.1 Wearing PPE 4.5. Communication 4.5.1 Preparation of records of information 4.5.2 Interpreting manufacturer's manual 4.6. Maintenance 4.6.1 Basic preventive maintenance 4.7. Values 4.7.1 Dedication to work and resourcefulness 4.7.2 Sense of quality and open-mindedness 4.7.3 Patience 4.7.4 Perseverance 4.7.5 Environmentally conscious	Housekeeping and 3Rs 4.8 Preparing records 4.9 Communication skills

RANGE OF VARIABLES

VARIABLE	RANGE
1. Land Condition	Land condition includes: 1.1 Low land 1.2 High land
2. Crop condition	Crop condition includes: 2.1 Pest incidence 2.2 Water shortage 2.3 Nutrient shortage
3. Agricultural machineries	Agricultural machineries include: 3.1 Hand tractor/power tiller 3.2 Seeder/planter/digger 3.3 Irrigation pump 3.4 Weeder/Cultivator 3.5 Grass cutter 3.6 Power sprayer
4. Tools and materials	Tools and materials may include but not limited to: 4.1 Wrenches 4.2 Hammer 4.3 Fuel/Oil 4.4 Grease gun 4.5 Seeds 4.6 Sacks (for seeds and waste) 4.7 Measuring can 4.8 Planting materials 4.9 Teflon tape 4.10 Fertilizer 4.11 Chemicals 4.12 Screw drivers 4.13 Sacks 4.14 Air compressor 4.15 Broomstick and dustpan* 4.16 Rags* 4.17 Pressurized water sprayer* *For cleaning purposes
5. Attachments	Attachments may include but not limited to: 5.1 Implements 5.1.1 Moldboard/disc plow 5.1.2 Harrow 5.1.3 Trailer (for transport of implements of hand tractor) 5.1.4 Rotavator 5.1.5 Leveller

VARIABLE	RANGE
	5.2 Accessories 5.2.1 Guide stick 5.2.2 Floater 5.2.3 Furrow opener and closer 5.2.4 Pressure gauge 5.2.5 Pipe connector 5.2.6 Lance 5.2.7 Nozzle 5.2.8 Hose
6. Resources	Resources includes: 6.1 Water source 6.2 Required field
7. Personal Protective Equipment	Personal Protective Equipment 7.1 Boots 7.2 Dust Mask 7.3 Gloves 7.4 Ear muff 7.5 Protective cap
8. Malfunctions	Malfunctions may include but is not limited to: 8.1 Erratic engine speed 8.2 Belt slippage 8.3 Unplowed field/area 8.4 No water discharged 8.5 Pesticide leak
9. Performances	Performances may include but are not limited to: 9.1 Even seeding rate 9.2 Straight row planting 9.3 Uniform transplanted seedlings 9.4 Acceptable field efficiency 9.5 Discharge capacity 9.6 Efficiency of machines 9.7 Capacity of machines
10.Waste	Waste may include but are not limited to: 10.1 Excess seeds after operation 10.2 Sacks 10.3 Remaining seedlings after operation 10.4 Pesticide bottle 10.5 Used Teflon seals 10.6 Used fertilizer 10.7 Container/sacks
11.Records of information	Records of information 11.1 Machine failure 11.2 Fuel consumption 11.3 Area operated 11.4 Hours of operation 11.5 Manpower requirements 11.6 Date of operation

VARIABLE	RANGE
12. Basic preventive maintenance	<p>May include but are not limited to:</p> <ul style="list-style-type: none"> 12.1 Dismantling and assembling procedures 12.2 Safety and pre-start checks 12.3 Testing 12.4 Tightening 12.5 Minor adjustments and repairs (e.g. belt tension/ pulley alignment, engine speed) 12.6 Routine servicing procedures (e.g. cleaning, lubricating, priming pumps, cleaning filters, checks of cooling systems, fuel, grease and oil, battery levels)

EVIDENCE GUIDE

1. Critical aspects of competency	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Selected agricultural machineries powered by small engines 1.2 Prepared agricultural machineries powered by small engines for operations 1.3 Operated agricultural machineries powered by small engines 1.4 Performed post-operation activities
2. Resource Implications	<p>The following resources MUST be provided:</p> <ul style="list-style-type: none"> 2.1 Field/Area 2.2 Machines and implements 2.3 Manufacturer's manual 2.4 Supplies and materials
3. Method of Assessment	<p>Competency may be assessed through:</p> <ul style="list-style-type: none"> 3.1 Direct observation 3.2 Demonstration with Oral Questioning 3.3 Portfolio
4. Context for Assessment	<ul style="list-style-type: none"> 4.1 Competency maybe assessed in actual workplace or at the designated TESDA Accredited Assessment Center.

UNIT OF COMPETENCY : OPERATE AGRICULTURAL LARGE PRODUCTION MACHINERY AND EQUIPMENT

UNIT CODE : AFF834368

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to operate agricultural production machinery and equipment with more than 20kW power rating. This also includes to select agricultural large production machineries, prepare agricultural machineries for operations, operate agricultural machineries and perform post-operation activities.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Select agricultural large production machineries	1.1 Field is assessed as per established practice 1.2 Land condition is determined based on industry standard 1.3 Crop condition is evaluated based on industry standard 1.4 Agricultural machinery is identified based on assessment result	1.1. Knowledge, Theory, Practices and Systems Operations 1.1.1 Field assessment procedures 1.1.2 Different land conditions 1.1.3 Different crop conditions 1.1.4 Different agricultural machineries powered by more than 20kW rating 1.1.5 Compatibility of engine and hand tractor 1.2. Communication 1.2.1 Preparation of report	1.1 Assessing field situation 1.2 Determining land condition 1.3 Evaluating crop condition 1.4 Identifying agricultural machineries powered by 20kW rating 1.5 Preparing assessment report
2. Prepare agricultural machineries for operations	2.1 Agricultural machineries are checked and adjusted in following manufacturer operator's manual 2.2 Agricultural machineries are loaded and unloaded on carrier in accordance with manufacturer operator's manual 2.3 Tools and materials are prepared based	2.1 Knowledge, Theory, Practices and Systems Operations 2.1.1 Nomenclature of engine and machines 2.1.2 Procedures of checking and adjusting machineries 2.1.3 Attachments adjustments - Implements adjustment - Accessories and	2.1 Checking and adjusting the machineries 2.1.1 Performing standard operating procedure of equipment 2.1.2 Using appropriate fuel and lubrication requirements 2.2 Reading and interpreting manual/ manufacturer's

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	<p>on work requirements</p> <p>2.4 Attachments are checked and adjusted in accordance with manufacturer's manual</p> <p>2.5 Resources are made available to meet the work requirements</p>	<p>components adjustment</p> <p>2.1.4 Loading and unloading procedures of agricultural machinery</p> <p>2.1.5 Transport of agricultural machineries</p> <p>2.1.6 Preparation of different tools, materials and resources</p> <p>2.2. Communication</p> <p>2.2.1 Interpretation of manufacturer's manual</p> <p>2.3. Safety practices</p> <p>2.3.1 Driving safety procedures</p> <p>2.4. Code</p> <p>2.4.1 Driving rules and regulations</p> <p>2.5. Tools, materials and equipment</p> <p>2.5.1 Uses and functions of tools and materials</p>	<p>specifications, work and maintenance plans</p> <p>2.3 Preparing tools materials and other resources</p> <p>2.4 Checking and adjusting of attachments</p> <p>2.5 Driving skills during loading and unloading of agricultural machineries</p>
3. Operate agricultural machineries	<p>3.1 Personal Protective Equipment are worn per work requirement</p> <p>3.2 Machine is operated according to operator's manual.</p> <p>3.3 Malfunctions are identified and corrected in accordance with the standard operating procedures</p> <p>3.4 Performances are assessed according to set standards or client's specification</p> <p>3.5 Machine is shutdown according to standard practices</p>	<p>3.1. Knowledge, Theory, Practices and Systems Operations</p> <p>3.1.1 Defensive-driving</p> <p>3.2. Safety Practices</p> <p>3.2.1 Environmental protection and concerns</p> <p>3.2.2 Good grooming and personal hygiene</p> <p>3.2.3 Occupational Safety and Health Standards</p> <p>3.2.4 Guidelines: -5S of Good Housekeeping -3R applications</p> <p>3.3. Values</p>	<p>3.1 Applying defensive-driving</p> <p>3.2 Demonstrating safe and environmentally responsible workplace practices</p> <p>3.3 Appropriate/ proper wearing of PPEs</p> <p>3.4 Performing safety practices and safe operation</p> <p>3.5 Assessing performances of operation</p> <p>3.6 Shutting down of machine</p>

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		3.3.1 Dedication to work 3.3.2 Resourcefulness 3.3.3 Sense of quality and open-mindedness	
4. Perform post-operation activities	4.1 Wastes are managed according to environmental regulations 4.2 Machine and engine are cleaned and checked prior to storage 4.3 Work area is cleaned and maintained according to OHS and enterprise requirements. 4.4 Records of information are prepared in appropriate format 4.5 Basic preventive maintenance is performed according to manufacturer's instructions and/or standard practices	4.1. Safety Practices 4.1.1 Wastes management 4.2. Materials, Tools and Equipment: Uses, Specifications and Maintenance 4.2.1 Maintaining the various equipment, tools and utensils 4.2.2 Procedures in cleaning and checking machine and engine 4.3. Codes: 4.3.1 OSHS 4.3.2 Waste Management Act 4.4. Values 4.4.1 Patience 4.4.2 Perseverance 4.4.3 Environmentally conscious	4.1 Managing wastes 4.2 Cleaning and checking of machine and engine 4.3 Cleaning and maintaining work area 4.4 Preparing records 4.5 Performing preventive maintenance 4.6 Computation and communication skills 4.7 Troubleshooting

RANGE OF VARIABLES

VARIABLE	RANGE
1. Land Condition	Land Condition includes: 1.1 Low land 1.2 High land
2. Crop condition	Crop condition includes: 2.1 Pest incidence 2.2 Water shortage 2.3 Nutrient shortage
3. Agricultural Machineries	Agricultural Machines with more than 20kW power rating: 3.1 4-Wheel tractor 3.2 Irrigation pump 3.3 Grass cutter 3.4 Power sprayer
4. Tools and materials	Tools and materials may include but are not limited to: 4.1 Wrenches 4.2 Hammer 4.3 Fuel/Oil 4.4 Grease gun 4.5 Seeds 4.6 Sacks (for seeds and waste) 4.7 Measuring can 4.8 Seedlings 4.9 Tray 4.10 Teflon tape 4.11 Fertilizer 4.12 Chemicals 4.13 Screw drivers 4.14 Sacks 4.15 Air compressor 4.16 Broomstick and dustpan* 4.17 Rags* 4.18 Pressurized water sprayer* *For cleaning purposes
5. Attachments	Attachments may include but are not limited to: 5.1 Implements: 5.1.1 Moldboard/disc plow 5.1.2 Harrow 5.1.3 Trailer (for transport of implements of hand tractor) 5.1.4 Rotavator 5.1.5 Leveller 5.1.6 Seeder/planter/Digger 5.1.7 Weeder/Cultivator 5.2 Accessories: 5.2.1 Guide stick 5.2.2 Floater 5.2.3 Furrow opener and closer 5.2.4 Pressure gauge 5.2.5 Pipe connector 5.2.6 Lance 5.2.7 Nozzle 5.2.8 Hose
6. Resources	Resources 6.1 Water source 6.2 Required field

VARIABLE	RANGE
7. Personal Protective Equipment	Personal Protective Equipment 7.1 Boots 7.2 Dust Mask 7.3 Gloves 7.4 Ear muff 7.5 Protective cap
8. Malfunctions	Malfunctions may include but is not limited to: 8.1 Erratic engine speed 8.2 Belt slippage 8.3 Unplowed field/area 8.4 No water discharged 8.5 Pesticide leak
9. Performances	Performances may include but are not limited to: 9.1 Even seeding rate 9.2 Straight row planting 9.3 Uniform transplanted seedlings 9.4 Acceptable field efficiency 9.5 Discharge capacity 9.6 Efficiency of machines 9.7 Capacity of machines
10. Waste	Waste may include but are not limited to: 10.1 Excess seeds after operation 10.2 Sacks 10.3 Remaining seedlings after operation 10.4 Pesticide bottle 10.5 Used Teflon seals 10.6 Used fertilizer 10.7 Container/sacks
11. Records of information	Records of information 11.1 Machine failure 11.2 Fuel consumption 11.3 Area operated 11.4 Hours of operation 11.5 Manpower requirements 11.6 Date of operation
12. Basic preventive maintenance	Basic preventive maintenance may include but are not limited to: 12.1 Dismantling and assembling procedures 12.2 Safety and pre-start checks 12.3 Testing 12.4 Tightening 12.5 Minor adjustments and repairs (e.g. belt tension/ pulley alignment, engine speed) 12.6 Routine servicing procedures (e.g. cleaning, lubricating, priming pumps, cleaning filters, checks of cooling systems, fuel, grease and oil, battery levels)

EVIDENCE GUIDE

<p>1. Critical aspects of competency</p>	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Inspected field/area 1.2 Selected agricultural machineries 1.3 Prepared hand tractor 1.4 Prepared agricultural machines powered by more than 20kW power rating 1.5 Operated agricultural machineries powered by more than 20kW power rating 1.6 Used proper field pattern for optimum efficiency 1.7 Operated and shut down machines 1.8 Operated machine at optimum efficiency 1.9 Performed post-operation activities 1.10 Cleaned and stored machine and engine 1.11 Cleaned and maintained work area 1.12 Prepared record of operation 1.13 Observed OHS procedures 1.14 Performed basic preventive maintenance activities
<p>2. Resource implications</p>	<p>The following resources MUST be provided:</p> <ul style="list-style-type: none"> 2.1 Field/Area 2.2 Machines and implements 2.3 Manufacturer’s manual 2.4 Supplies and materials
<p>3. Methods of assessment</p>	<p>Competency may be assessed through:</p> <ul style="list-style-type: none"> 3.1 Direct observation/Demonstration with Oral Questioning 3.2 Portfolio
<p>4. Context for Assessment</p>	<p>4.1 Competency maybe assessed in actual workplace or at the designated TESDA Accredited Assessment Center.</p>

UNIT OF COMPETENCY : OPERATE AGRICULTURAL POST-PRODUCTION MACHINERY AND EQUIPMENT

UNIT CODE : AFF834369

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required in operating post-production machinery and equipment. It also includes to prepare post-production machineries, to operate machineries and monitor performance and to perform post-operation activities.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Prepare post-production machineries	1.1 Post production machineries are checked and adjusted in accordance with established standards and manufacturer's manual 1.2 Tools and materials are prepared as per work requirements 1.3 Accessories are prepared and checked as per work requirement and established standards and manufacturer's manual	1.1. Knowledge, Theory, Practices and Systems Operations 1.1.1 Different post production machineries 1.1.2 Procedures of checking/adjusting post production machineries 1.1.3 Preparation of tools and material 1.1.4 Preparation and inspection of accessories 1.1.5 Compatibility of machines and engines 1.2. Communication 1.2.1 Preparation of records of information 1.2.2 Manufacturer's manual	1.1 Checking and adjusting post production machineries 1.2 Preparing tools and materials 1.3 Preparing and checking accessories 1.4 Using relevant farm tools and equipment 1.5 Using appropriate fuel and lubrication requirement 1.6 Preparing report
2. Operate machineries and monitor performance	2.1 Personal Protective Equipment (PPE) are selected and worn as per work requirement 2.2 Machine is operated according to established standards and manufacturer's manual	2.1 Knowledge, Theory, Practices and Systems Operations 2.1.1 Nomenclature of engine and machines 2.1.2 Components adjustments 2.1.3 Operation of machine 2.1.4 Abnormal	2.1 Appropriate/ proper wearing of PPEs 2.2 Performing standard operating procedure of equipment 2.3 Performing safety practices and safe operation

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	<p>2.3 Abnormal conditions are identified and corrected in accordance with the standard operating procedures</p> <p>2.4 Performances are assessed according to set standards and clients' specifications</p> <p>2.5 Malfunctions are recorded for appropriate adjustment by proper personnel</p> <p>2.6 Machine is shutdown according to established standards and manufacturer's manual</p>	<p>conditions of machine</p> <p>2.1.5 Shutting down procedures</p> <p>2.2 Communication</p> <p>2.2.1 Record keeping of malfunctions</p> <p>2.3 Safety Practices</p> <p>2.3.1 Occupational health and safety procedure</p> <p>2.3.2 Guidelines:</p> <ul style="list-style-type: none"> - 5S of Good Housekeeping - 3R applications <p>2.4 Values</p> <p>2.4.1 Dedication to work</p> <p>2.4.2 Resourcefulness</p> <p>2.4.3 Patience</p> <p>2.4.4 Perseverance</p> <p>2.4.5 Environmentally conscious</p> <p>2.4.6 Sense of quality</p> <p>2.4.7 Open mindedness</p>	<p>2.4 Demonstrating safe and environmentally responsible workplace practices</p> <p>2.5 Reading and interpreting manual/ manufacturer's specifications, work and maintenance plans</p> <p>2.6 Assessing performances of operation</p> <p>2.7 Recording malfunctions</p> <p>2.8 Shutting down machine</p>
<p>3. Perform post-operation activities</p>	<p>3.1 Wastes are managed according to environmental regulations</p> <p>3.2 Machine and engine are cleaned and stored as per established standards and manufacturer's manual</p> <p>3.3 Work area is cleaned and maintained according to OHS and enterprise requirements</p> <p>3.4 Records of information are prepared in appropriate format</p> <p>3.5 Basic preventive maintenance is performed according</p>	<p>3.1 Knowledge, Theory, Practices and Systems Operations</p> <p>3.1.1 Waste management</p> <p>3.1.2 Maintenance and storage of machine and engine</p> <p>3.1.3 Maintenance of work area</p> <p>3.2 Communication</p> <p>3.2.1 Written and oral communication</p> <p>3.2.2 Records of information</p> <p>3.3 Code</p> <p>3.3.1 OSHS</p> <p>3.3.2 Environmental regulations</p> <p>3.4 Tools, materials and equipment</p> <p>3.4.1 Preventive maintenance</p>	<p>3.1 Managing wastes</p> <p>3.2 Cleaning and storing machine and engine</p> <p>3.3 Maintaining work area</p> <p>3.4 Practicing OSHS</p> <p>3.5 Preparing records of information</p> <p>3.6 Performing basic preventive maintenance</p> <p>3.7 Troubleshooting</p> <p>3.8 Basic computation and communication skills</p>

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	to manufacturer's instructions and/or standard practices		

RANGE OF VARIABLES

VARIABLE	RANGE
1. Post production Machineries	Machines may include but are not limited to: 1.1 Harvester 1.2 Dryer 1.3 Mill 1.4 Thresher 1.5 Sheller 1.6 Decorticator 1.7 Dehusker/Depulper
2. Accessories	Accessories may include but are not limited to: 2.1 Moisture meter 2.2 Thermometer 2.3 Tachometer 2.4 Velometer 2.5 Mamometer 2.6 Hygrometer 2.7 Cleaner 2.8 Polisher 2.9 Separator 2.10 Grader 2.11 Bagger 2.12 Engines 2.13 Electric Motor 2.14 Huller 2.15 Weighing scale 2.16 Dust collection system
3. Tools and materials	Tools and materials may include but are not limited to: 3.1 Wrenches tools 3.2 Crop samples materials 3.3 Oil/fuel materials 3.4 Sacks (for grains and waste) materials 3.5 Plastic twine materials 3.6 Vacuum cleaner materials 3.7 Broomstick and dustpan materials 3.8 Rags materials 3.9 Grease gun tools

VARIABLE	RANGE
4. Personal Protective Equipment	Personal Protective Equipment may include but are not limited to: 4.1 Dust mask 4.2 Gloves 4.3 Ear muff 4.4 Long sleeve shirt 4.5 Protective cap
5. Abnormal	Abnormal conditions may include but are not limited to: 5.1 Erratic engine speed 5.2 Belt spillage 5.3 Prolonged drying time 5.4 High moisture gradient 5.5 Low airflow/low drying air temperature 5.6 Clogging 5.7 High losses 5.8 Excessive broken/return paddy
6. Performances	Performance may include but are not limited to: 6.1 Moisture reduction rate 6.2 Drying capacity 6.3 Loading capacity 6.4 Product quality 6.5 Drying rate 6.6 Spillage 6.7 Heating system efficiency 6.8 Drying efficiency 6.9 Moisture gradient 6.10 Milling recovery 6.11 Milling degree 6.12 Hulling efficiency
7. Wastes	Wastes may include but are not limited to: 7.1 Ashes 7.2 Impurities 7.3 Biomass waste 7.4 Used plastic twine and sacks
8. Records of information	Records of information may include but are not limited to: 8.1 Machine failure 8.2 Fuel consumption 8.3 Drying time 8.4 Hours of operation 8.5 Manpower requirements 8.6 Quality and quantity 8.7 Drying air temperature 8.8 Initial and final moisture of grains 8.9 Grain quantity & quality 8.10 Machine Failure 8.11 Fuel/electricity consumption 8.12 Hours of operation 8.13 Labor requirement

VARIABLE	RANGE
9. Basic preventive maintenance	<p>Basic preventive maintenance may include but are not limited to:</p> <ul style="list-style-type: none"> 9.1 Dismantling and assembling procedures 9.2 Safety and pre-start checks 9.3 Testing 9.4 Tightening 9.5 Minor adjustments and repairs (e.g. belt tension/ pulley alignment, engine speed) 9.6 Routine servicing procedures (e.g. cleaning, lubricating, priming pumps, cleaning filters, checks of cooling systems, fuel, grease and oil, battery levels)

EVIDENCE GUIDE

<p>1. Critical aspects of competency</p>	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Prepared post-production machines 1.2 Operated and shut down machine 1.3 Operated machine at optimum efficiency 1.4 Cleaned and stored machine and engine 1.5 Cleaned and maintained work area 1.6 Prepared record of operation 1.7 Observed OHS procedures 1.8 Performed basic routine preventive maintenance
<p>2. Resource implications</p>	<p>The following resources MUST be provided:</p> <ul style="list-style-type: none"> 2.1 Dryer machinery 2.2 Manufacturer's manual 2.3 Supplies and materials (grain samples, etc)
<p>3. Methods of assessment</p>	<p>Competency may be assessed through:</p> <ul style="list-style-type: none"> 3.1 Direct observation/Demonstration with Oral Questioning 3.2 Portfolio
<p>4. Context for Assessment</p>	<p>4.1 Competency maybe assessed in actual workplace or at the designated TESDA Accredited Assessment Center.</p>

SECTION 3 TRAINING ARRANGEMENTS

These standards are set to provide technical and vocational education and training (TVET) providers with information and other important requirements to consider when designing training programs for **AGRICULTURAL MACHINERY OPERATION NCII**.

They include information on curriculum design; training delivery; trainee entry requirements; tools and equipment; training facilities; and trainer's qualification.

3.1 CURRICULUM DESIGN

TESDA shall provide the training on the development of competency-based curricula to enable training providers develop their own curricula with the components mentioned below.

Delivery of knowledge requirements for the basic, common and core units of competency specifically in the areas of mathematics, science/technology, communication/language and other academic subjects shall be contextualized. To this end, TVET providers shall develop a Contextual Learning Matrix (CLM) to include Technology, Science, Math, English/Communication, and Safety to Environment. Includes also green technology, issues on health and drugs and cater to person with disabilities (PWD's).

Course Title: **AGRICULTURAL MACHINERY OPERATION NC Level II**

Nominal Training Duration:

20 hrs	Basic Competencies
72 hrs	Common Competencies
192 hrs	Core Competencies
Total 284 hrs	

Course Description:

This course is designed to provide the students/learner with knowledge, desirable attitudes and skills required to perform the following competencies in accordance with industry standards: operate agricultural small production machinery and equipment, operate agricultural large production machinery and equipment, operate agricultural post-production machinery and equipment

To obtain this, all units prescribed for this qualification must be achieved.

**BASIC COMPETENCIES
20 HRS**

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration		
1. Participate in workplace communication	1.1 Obtain and convey workplace information	<ul style="list-style-type: none"> • Describe Organizational policies 	<ul style="list-style-type: none"> • Group discussion 	<ul style="list-style-type: none"> • Oral evaluation 	4 Hours		
		<ul style="list-style-type: none"> • Read: <ul style="list-style-type: none"> ○ Effective communication ○ Written communication 	<ul style="list-style-type: none"> • Lecture 	<ul style="list-style-type: none"> • Written examination 			
		<ul style="list-style-type: none"> ○ Communication procedures and systems 					
		<ul style="list-style-type: none"> • Identify: <ul style="list-style-type: none"> ○ Different modes of communication ○ Medium of communication ○ Flow of communication ○ Available technology relevant to the enterprise and the individual's work responsibilities 					
		<ul style="list-style-type: none"> • Prepare different Types of question 				<ul style="list-style-type: none"> • Demonstration 	<ul style="list-style-type: none"> • Observation
		<ul style="list-style-type: none"> • Gather different sources of information 					

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration
		<ul style="list-style-type: none"> Apply storage system in establishing workplace information 			
		<ul style="list-style-type: none"> Demonstrate Telephone courtesy 			
	1.2 Complete relevant work related documents	<ul style="list-style-type: none"> Describe Communication procedures and systems 	<ul style="list-style-type: none"> Group discussion 	<ul style="list-style-type: none"> Oral evaluation 	
		<ul style="list-style-type: none"> Read: <ul style="list-style-type: none"> Meeting protocols 	<ul style="list-style-type: none"> Lecture 	<ul style="list-style-type: none"> Written examination 	
		<ul style="list-style-type: none"> Nature of workplace meetings 	<ul style="list-style-type: none"> Lecture 	<ul style="list-style-type: none"> Written examination 	
		<ul style="list-style-type: none"> Workplace interactions 			
		<ul style="list-style-type: none"> Barriers of communication 			
		<ul style="list-style-type: none"> Complete work related documents 	<ul style="list-style-type: none"> Demonstration 	<ul style="list-style-type: none"> Observation 	
		<ul style="list-style-type: none"> Read instructions on work related forms/documents 	<ul style="list-style-type: none"> Lecture 	<ul style="list-style-type: none"> Written examination 	
		<ul style="list-style-type: none"> Practice: <ul style="list-style-type: none"> Estimate, calculate and record routine workplace measures 			
		<ul style="list-style-type: none"> Basic mathematical processes of addition, subtraction, division and multiplication 	<ul style="list-style-type: none"> Demonstration 	<ul style="list-style-type: none"> Observation 	
		<ul style="list-style-type: none"> Demonstrate office activities in: 	<ul style="list-style-type: none"> Role play 	<ul style="list-style-type: none"> Oral evaluation 	

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration
		<ul style="list-style-type: none"> ○ workplace meetings and discussions scenario 		<ul style="list-style-type: none"> • Observation 	
		<ul style="list-style-type: none"> • Perform workplace duties scenario following simple written notices 	<ul style="list-style-type: none"> • Role play 	<ul style="list-style-type: none"> • Oral evaluation • Observation 	
		<ul style="list-style-type: none"> • Follow simple spoken language 	<ul style="list-style-type: none"> • Demonstration 	<ul style="list-style-type: none"> • Observation 	
		<ul style="list-style-type: none"> • Identify the different Non-verbal communication 	<ul style="list-style-type: none"> • Lecture 	<ul style="list-style-type: none"> • Written examination 	
		<ul style="list-style-type: none"> • Demonstrate ability to relate to people of social range in the workplace 			
		<ul style="list-style-type: none"> • Gather and provide information in response to workplace requirements 	<ul style="list-style-type: none"> • Demonstration 	<ul style="list-style-type: none"> • Observation 	
	1.3 Participate in workplace meeting and discussion	<ul style="list-style-type: none"> • Identify: <ul style="list-style-type: none"> ○ types of workplace documents and forms 			
		<ul style="list-style-type: none"> ○ kinds of workplace report 	<ul style="list-style-type: none"> • Lecture 	<ul style="list-style-type: none"> • Written examination 	
		<ul style="list-style-type: none"> ○ Available technology relevant to the enterprise and the individual's work responsibilities 			
		<ul style="list-style-type: none"> • Read and follow instructions in applying basic mathematical 			

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration
		concepts			
		<ul style="list-style-type: none"> Follow simple spoken language 	<ul style="list-style-type: none"> Demonstration 	<ul style="list-style-type: none"> Observation 	
		<ul style="list-style-type: none"> Gather and provide information in response to workplace requirements 			
2. Work in a team environment	2.1 Describe and identify team role and responsibility in a team.	<ul style="list-style-type: none"> Describe the team role and scope 	<ul style="list-style-type: none"> Group discussion 	<ul style="list-style-type: none"> Oral evaluation 	4 Hours
		<ul style="list-style-type: none"> Read <ul style="list-style-type: none"> Definition of Team Difference between team and group Objectives and goals of team 	<ul style="list-style-type: none"> Lecture 	<ul style="list-style-type: none"> Written examination 	
		<ul style="list-style-type: none"> Identify different sources of information 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> 	
		2.2 Describe work as a team	<ul style="list-style-type: none"> Describe team goals and objectives 	<ul style="list-style-type: none"> Group discussion 	
		<ul style="list-style-type: none"> Perform in setting team goals and expectations scenario Identify <ul style="list-style-type: none"> individual role and 	<ul style="list-style-type: none"> Role play Lecture 	<ul style="list-style-type: none"> Oral evaluation Observation Written examination 	

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration
		responsibility			
		<ul style="list-style-type: none"> Practice Interacting effectively with others 	<ul style="list-style-type: none"> Group discussion 	<ul style="list-style-type: none"> Oral evaluation 	
		<ul style="list-style-type: none"> Read: <ul style="list-style-type: none"> Fundamental rights at work including gender sensitivity Understanding individual competencies relative to teamwork Types of individuals Role of leaders 	<ul style="list-style-type: none"> Lecture 	<ul style="list-style-type: none"> Written examination 	
3. Practice career professionalism	3.1 Integrate personal objectives with organizational goals	<ul style="list-style-type: none"> Describe performance evaluation 	<ul style="list-style-type: none"> Group discussion 	<ul style="list-style-type: none"> Oral evaluation 	6 Hours
		<ul style="list-style-type: none"> Read: 	<ul style="list-style-type: none"> Lecture 	<ul style="list-style-type: none"> Written examination 	
		<ul style="list-style-type: none"> Work values and ethics (Code of Conduct, Code of Ethics, etc.) Understanding personal objectives 			
		<ul style="list-style-type: none"> Understanding organizational goals 			
		<ul style="list-style-type: none"> Demonstrate Intra and Interpersonal skills at work Demonstrate personal commitment in work 	<ul style="list-style-type: none"> Demonstration 	<ul style="list-style-type: none"> Observation 	

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration
	3.2 Set and meet work priorities	<ul style="list-style-type: none"> Describe company policies, operations, procedures and standards 	<ul style="list-style-type: none"> Group discussion 	<ul style="list-style-type: none"> Oral evaluation 	
		<ul style="list-style-type: none"> Read: <ul style="list-style-type: none"> Time Management Basic strategic planning concepts Resource utilization and management Apply managing goals and time Practice: <ul style="list-style-type: none"> economic use of resources and facilities time management 	<ul style="list-style-type: none"> Lecture Demonstration Demonstration 	<ul style="list-style-type: none"> Written examination Observation Observation 	
	3.3 Maintain professional growth and development	<ul style="list-style-type: none"> Describe company recognition and incentives 	<ul style="list-style-type: none"> Group discussion 	<ul style="list-style-type: none"> Oral evaluation 	
		<ul style="list-style-type: none"> Read: <ul style="list-style-type: none"> Career development opportunities Information on relevant licenses and or certifications personal career development needs 	<ul style="list-style-type: none"> Lecture 	<ul style="list-style-type: none"> Written examination 	

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration
		<ul style="list-style-type: none"> Determine personal career development needs 	<ul style="list-style-type: none"> Group discussion 	<ul style="list-style-type: none"> Oral evaluation 	
4. Practice occupational health and safety	4.1 Identify hazard and risks	<ul style="list-style-type: none"> Describe OHS procedures, practices and regulations 	<ul style="list-style-type: none"> Group discussion 	<ul style="list-style-type: none"> Oral evaluation 	6 Hours
		<ul style="list-style-type: none"> Read <ul style="list-style-type: none"> OHS indicators Organizational contingency practices 	<ul style="list-style-type: none"> Lecture 	<ul style="list-style-type: none"> Written examination 	
		<ul style="list-style-type: none"> Practice hazards/risks identification and control 			
	4.2 Evaluate hazard and risks	<ul style="list-style-type: none"> Describe effects of safety hazards 	<ul style="list-style-type: none"> Group discussion 	<ul style="list-style-type: none"> Oral evaluation 	
		<ul style="list-style-type: none"> Read <ul style="list-style-type: none"> Threshold Limit Value – TLV 	<ul style="list-style-type: none"> Lecture 	<ul style="list-style-type: none"> Written examination 	
		<ul style="list-style-type: none"> Practice reporting safety hazards 	<ul style="list-style-type: none"> Role play 	<ul style="list-style-type: none"> Observation 	
		<ul style="list-style-type: none"> Demonstrate evaluating hazards and risks using communication equipment 	<ul style="list-style-type: none"> Demonstration 	<ul style="list-style-type: none"> Observation 	
	4.3 Control hazards and risks	<ul style="list-style-type: none"> Describe: <ul style="list-style-type: none"> Organization safety and health protocol Company emergency 	<ul style="list-style-type: none"> Group discussion 	<ul style="list-style-type: none"> Oral evaluation 	

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration
		procedure practices			
		<ul style="list-style-type: none"> Practice personal hygiene 	<ul style="list-style-type: none"> Demonstration 	<ul style="list-style-type: none"> Observation 	
		<ul style="list-style-type: none"> Practice drills on responding to emergency 	<ul style="list-style-type: none"> Demonstration Simulation 	<ul style="list-style-type: none"> Observation 	
	4.4 Maintain occupational health and safety awareness	<ul style="list-style-type: none"> Identify emergency-related drills information 	<ul style="list-style-type: none"> Lecture 	<ul style="list-style-type: none"> Written examination 	
		<ul style="list-style-type: none"> Practice occupational safety and health standards on personal records in the workplace 	<ul style="list-style-type: none"> Role play 	<ul style="list-style-type: none"> Observation 	
		<ul style="list-style-type: none"> Practice emergency related drills in the workplace 	<ul style="list-style-type: none"> Demonstration Simulation 	<ul style="list-style-type: none"> Observation 	

COMMON COMPETENCIES
72 HRS

Unit of Competency	Learning Outcome	Learning Activities	Methodology	Assessment Method	Nominal Duration
1. Apply safety measures in farm operations	1.1 Determine areas of concern for safety measures	<ul style="list-style-type: none"> Identify work tasks in farm operations 	<ul style="list-style-type: none"> Lecture Discussion Incomplete worksheet Power point presentation Video presentation 	<ul style="list-style-type: none"> Written examination Interview Oral questioning Demonstration 	(Total-7 hrs) 1 hr
		<ul style="list-style-type: none"> Discuss safety measures in a workplace during farm operations 	<ul style="list-style-type: none"> Lecture Discussion Incomplete worksheet Power point presentation Video presentation Role playing 	<ul style="list-style-type: none"> Written examination Interview Oral questioning Demonstration 	1 hr
		<ul style="list-style-type: none"> Explain farm operations situations and period when to observe safety 	<ul style="list-style-type: none"> Lecture Discussion Incomplete worksheet Power point presentation Video presentation Role playing 	<ul style="list-style-type: none"> Written examination Interview Oral questioning Demonstration 	1 hr
		<ul style="list-style-type: none"> Identify appropriate tools, 	<ul style="list-style-type: none"> Lecture 	<ul style="list-style-type: none"> Written 	2 hrs

Unit of Competency	Learning Outcome	Learning Activities	Methodology	Assessment Method	Nominal Duration
		materials and outfits to be used	<ul style="list-style-type: none"> • Discussion • Incomplete worksheet • Power point presentation • Video presentation 	examination <ul style="list-style-type: none"> • Interview • Oral questioning • Demonstration 	
		<ul style="list-style-type: none"> • Prepare tools, materials and outfits for the farm operation 	<ul style="list-style-type: none"> • Lecture • Discussion • Power point presentation • Video presentation • Demonstration 	<ul style="list-style-type: none"> • Written examination • Interview • Oral questioning • Demonstration 	2 hrs
	1.2 Apply appropriate safety measures	<ul style="list-style-type: none"> • Enumerate uses and functions of tools and materials 	<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Demonstration 	<ul style="list-style-type: none"> • Written examination • Interview • Oral questioning • Demonstration 	(Total -11 hrs.) 1 hr
		<ul style="list-style-type: none"> • Explain procedures of wearing personal protective equipment 	<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet 	<ul style="list-style-type: none"> • Written examination • Interview • Oral questioning 	1 hr
		<ul style="list-style-type: none"> • Discuss topics on 	<ul style="list-style-type: none"> • Discussion 	<ul style="list-style-type: none"> • Written 	1 hr

Unit of Competency	Learning Outcome	Learning Activities	Methodology	Assessment Method	Nominal Duration
		effectivity, shelf life and expirations of materials to be used.	<ul style="list-style-type: none"> • Power point presentation • Video presentation • Incomplete worksheet 	examination <ul style="list-style-type: none"> • Interview • Oral questioning 	
		<ul style="list-style-type: none"> • Identify the emergency procedures 	<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet 	<ul style="list-style-type: none"> • Written examination • Interview • Oral questioning 	2 hrs
		<ul style="list-style-type: none"> • Identify hazards in a farm workplace 	<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet 	<ul style="list-style-type: none"> • Written examination • Interview • Oral questioning 	2 hrs
		<ul style="list-style-type: none"> • Use tools and materials 	<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet • Demonstration • Hands-on 	<ul style="list-style-type: none"> • Written examination • Interview • Oral questioning • Demonstration 	2 hrs
		<ul style="list-style-type: none"> • Wear personal protective 	<ul style="list-style-type: none"> • Discussion 	<ul style="list-style-type: none"> • Written 	0.5 hr

Unit of Competency	Learning Outcome	Learning Activities	Methodology	Assessment Method	Nominal Duration
		equipment	<ul style="list-style-type: none"> • Power point presentation • Video presentation • Incomplete worksheet • Demonstration 	examination <ul style="list-style-type: none"> • Interview • Oral questioning • Demonstration 	
		<ul style="list-style-type: none"> • Prepare report on hazards in the workplace 	<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet 	<ul style="list-style-type: none"> • Written examination • Interview • Oral questioning • Demonstration 	1 hr
		<ul style="list-style-type: none"> • Report on hazards in the workplace 	<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet • Role playing 	<ul style="list-style-type: none"> • Written examination • Interview • Oral questioning • Demonstration 	0.5 hr
	1.3 Safekeep/ dispose of tools, materials and outfit	<ul style="list-style-type: none"> • Explain cleaning and storing procedures of the used tools and outfit 	<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet 	<ul style="list-style-type: none"> • Written examination • Interview • Oral questioning 	(Total – 6 hrs) 1 hr
		<ul style="list-style-type: none"> • State labelling and storing 	<ul style="list-style-type: none"> • Discussion 	<ul style="list-style-type: none"> • Written 	1 hr

Unit of Competency	Learning Outcome	Learning Activities	Methodology	Assessment Method	Nominal Duration
		procedures for unused materials	<ul style="list-style-type: none"> • Power point presentation • Video presentation • Incomplete worksheet 	examination <ul style="list-style-type: none"> • Interview • Oral questioning 	
		<ul style="list-style-type: none"> • Explain proper wastes disposal 	<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet 	<ul style="list-style-type: none"> • Written examination • Interview • Oral questioning 	1 hr
		<ul style="list-style-type: none"> • Clean and store used tools and outfit 	<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet • Demonstration • Hands-on 	<ul style="list-style-type: none"> • Written examination • Interview • Oral questioning • Demonstration 	1 hr
		<ul style="list-style-type: none"> • Label and store unused materials 	<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet • Demonstration • Hands-on 	<ul style="list-style-type: none"> • Written examination • Interview • Oral questioning • Demonstration 	1 hr
		<ul style="list-style-type: none"> • Dispose waste materials 	<ul style="list-style-type: none"> • Discussion 	<ul style="list-style-type: none"> • Written 	1 hr

Unit of Competency	Learning Outcome	Learning Activities	Methodology	Assessment Method	Nominal Duration
			<ul style="list-style-type: none"> • Power point presentation • Video presentation • Incomplete worksheet • Demonstration • Hands-on 	examination <ul style="list-style-type: none"> • Interview • Oral questioning • Demonstration 	
2.Use farm tools	2.1 Select and use farm tools	<ul style="list-style-type: none"> • Identify farm tools 	<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet • Demonstration 	<ul style="list-style-type: none"> • Written examination • Interview • Oral questioning • Demonstration 	(Total -6 hrs) 1 hr
		<ul style="list-style-type: none"> • Describe faults and defective tools 	<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet • Demonstration 	<ul style="list-style-type: none"> • Written examination • Interview • Oral questioning • Demonstration 	1 hr
	<ul style="list-style-type: none"> • Discuss using of tools and equipment relating to manufacturer's manual 	<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet • Demonstration • Hands-on 	<ul style="list-style-type: none"> • Written examination • Interview • Oral questioning • Demonstration 	1 hr	

Unit of Competency	Learning Outcome	Learning Activities	Methodology	Assessment Method	Nominal Duration
		<ul style="list-style-type: none"> • Check farm tools for faults and defects 	<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet • Demonstration • Hands-on 	<ul style="list-style-type: none"> • Written examination • Interview • Oral questioning • Demonstration 	1 hr
		<ul style="list-style-type: none"> • Use tools and equipment relating to manufacturer's manual 	<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet • Demonstration • Hands-on 	<ul style="list-style-type: none"> • Written examination • Interview • Oral questioning • Demonstration 	2 hrs
	2.2 Select and operate farm equipment	<ul style="list-style-type: none"> • Identify farm equipment 	<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet 	<ul style="list-style-type: none"> • Written examination • Interview • Oral questioning 	(Total -19 hrs) 1 hr

Unit of Competency	Learning Outcome	Learning Activities	Methodology	Assessment Method	Nominal Duration
		<ul style="list-style-type: none"> • Explain importance of reading manufacturer's manual 	<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet 	<ul style="list-style-type: none"> • Written examination • Interview • Oral questioning 	1 hr
		<ul style="list-style-type: none"> • Discuss pre-operation check and its importance 	<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet 	<ul style="list-style-type: none"> • Written examination • Interview • Oral questioning 	1 hr
		<ul style="list-style-type: none"> • Identify different types of faults in farm equipment 	<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet 	<ul style="list-style-type: none"> • Written examination • Interview • Oral questioning 	1 hr
		<ul style="list-style-type: none"> • Enumerate reporting procedures 	<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet • Role playing 	<ul style="list-style-type: none"> • Written examination • Interview • Oral questioning • Demonstration 	1 hr
		<ul style="list-style-type: none"> • Enumerate procedures in using farm equipment 	<ul style="list-style-type: none"> • Discussion • Power point 	<ul style="list-style-type: none"> • Written examination 	1 hr

Unit of Competency	Learning Outcome	Learning Activities	Methodology	Assessment Method	Nominal Duration
			<ul style="list-style-type: none"> presentation • Video presentation • Incomplete worksheet 	<ul style="list-style-type: none"> • Interview • Oral questioning 	
		<ul style="list-style-type: none"> • Discuss safety procedures for farm operation 	<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet 	<ul style="list-style-type: none"> • Written examination • Interview • Oral questioning 	1 hr
		<ul style="list-style-type: none"> • Read manufacturer's manual 	<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet • Demonstration 	<ul style="list-style-type: none"> • Written examination • Interview • Oral questioning • Demonstration 	1 hr
		<ul style="list-style-type: none"> • Conduct pre-operation check-up 	<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet • Demonstration • Hands-on 	<ul style="list-style-type: none"> • Written examination • Interview • Oral questioning • Demonstration 	1 hr
		<ul style="list-style-type: none"> • Report identified faults 	<ul style="list-style-type: none"> • Discussion • Power point presentation 	<ul style="list-style-type: none"> • Written examination • Interview 	1 hr

Unit of Competency	Learning Outcome	Learning Activities	Methodology	Assessment Method	Nominal Duration
			<ul style="list-style-type: none"> • Video presentation • Incomplete worksheet • Demonstration • Hands-on 	<ul style="list-style-type: none"> • Oral questioning • Demonstration 	
		<ul style="list-style-type: none"> • Operate farm equipment 	<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet • Demonstration • Hands-on • Field visit 	<ul style="list-style-type: none"> • Written examination • Interview • Oral questioning • Demonstration 	8 hrs
		<ul style="list-style-type: none"> • Follow safety procedures 	<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet • Demonstration • Hands-on 	<ul style="list-style-type: none"> • Written examination • Interview • Oral questioning • Demonstration 	1 hr
	2.3 Perform preventive maintenance	<ul style="list-style-type: none"> • Enumerate cleaning procedures for tools and equipment 	<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet 	<ul style="list-style-type: none"> • Written examination • Interview • Oral questioning • Demonstration 	(Total -7 hrs) 1 hr

Unit of Competency	Learning Outcome	Learning Activities	Methodology	Assessment Method	Nominal Duration
		<ul style="list-style-type: none"> • Discuss significance of routine check-up and maintenance 	<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet 	<ul style="list-style-type: none"> • Written examination • Interview • Oral questioning • Demonstration 	1 hr
		<ul style="list-style-type: none"> • Explain procedures in storing tools and equipment 	<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet 	<ul style="list-style-type: none"> • Written examination • Interview • Oral questioning 	1 hr
		<ul style="list-style-type: none"> • Clean tools and equipment 	<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet • Demonstration • Hands-on 	<ul style="list-style-type: none"> • Written examination • Interview • Oral questioning • Demonstration 	2 hrs

Unit of Competency	Learning Outcome	Learning Activities	Methodology	Assessment Method	Nominal Duration
		<ul style="list-style-type: none"> Perform routine check – up and maintenance 	<ul style="list-style-type: none"> Discussion Power point presentation Video presentation Incomplete worksheet Demonstration Hands-on 	<ul style="list-style-type: none"> Written examination Interview Oral questioning Demonstration 	1 hr
		<ul style="list-style-type: none"> Store tools and equipment 	<ul style="list-style-type: none"> Discussion Power point presentation Video presentation Incomplete worksheet Demonstration Hands-on 	<ul style="list-style-type: none"> Written examination Interview Oral questioning Demonstration 	1 hr
3. Perform estimation and basic calculation	3.1 Perform estimation	<ul style="list-style-type: none"> Identify job requirements and work task/activity 	<ul style="list-style-type: none"> Lecture Discussion 	<ul style="list-style-type: none"> Written exam Oral questioning 	(Total -8 hrs) 1 hr
		<ul style="list-style-type: none"> Identify materials and resources of job requirements 	<ul style="list-style-type: none"> Lecture Discussion 	<ul style="list-style-type: none"> Written exam Oral questioning 	1 hr
		<ul style="list-style-type: none"> Estimate time to complete work task/activity 	<ul style="list-style-type: none"> Lecture Discussion Demonstration Video presentation 	<ul style="list-style-type: none"> Written exam Oral questioning 	2 hrs
		<ul style="list-style-type: none"> Estimate quantities of materials and resources 	<ul style="list-style-type: none"> Lecture Discussion Demonstration 	<ul style="list-style-type: none"> Written exam Oral questioning 	2 hrs

Unit of Competency	Learning Outcome	Learning Activities	Methodology	Assessment Method	Nominal Duration
		<ul style="list-style-type: none"> • Prepare and submit bill of materials 	<ul style="list-style-type: none"> • Lecture • Discussion • Demonstration 	<ul style="list-style-type: none"> • Written exam • Oral questioning • Demonstration 	2 hrs
	3.2 Perform basic workplace calculation	<ul style="list-style-type: none"> • Describe different types of calculation 	<ul style="list-style-type: none"> • Lecture • Discussion 	<ul style="list-style-type: none"> • Written exam • Oral questioning 	(Total -8 hrs) 1 hr
		<ul style="list-style-type: none"> • Discuss different methods of calculation 	<ul style="list-style-type: none"> • Lecture • Discussion 	<ul style="list-style-type: none"> • Written exam • Oral questioning 	1 hr
		<ul style="list-style-type: none"> • Describe system and unit of measurement 	<ul style="list-style-type: none"> • Lecture • Discussion 	<ul style="list-style-type: none"> • Written exam • Oral questioning 	2 hrs
		<ul style="list-style-type: none"> • Compute quantity of feeds, amount of fertilizer and amount of medicines using methods of calculation, system of measurement and units of measurement 	<ul style="list-style-type: none"> • Lecture • Discussion • Demonstration 	<ul style="list-style-type: none"> • Written exam • Oral questioning 	4 hrs

CORE COMPETENCIES
192 HRS

Unit of Competency	Learning Outcomes	Learning Activities	Methodologies	Assessment Methods	Nominal Duration
1. Operate agricultural small production machinery and equipment	1.1 Select agricultural small production machineries	<ul style="list-style-type: none"> • Use relevant farm tools and machines • Assess land and crop conditions • Determine agricultural machines based on land and crop conditions- • Prepare report 	<ul style="list-style-type: none"> • Lecture/ discussion • Farm visit • Practical exercises • Film viewing • Group discussion 	<ul style="list-style-type: none"> • Direct observation • Demonstration • Oral interview and/or written test • Third party report 	8 hours
	1.2 Prepare agricultural machineries for operations	<ul style="list-style-type: none"> • Perform standard operating procedure of equipment (BLOWAF) • Read and interpret manual/manufacturer's specifications, work and maintenance plans • Prepare tools, materials and other resources • Use appropriate fuel and lubrication requirements 	<ul style="list-style-type: none"> • Lecture • Farm visit • Practical demonstration • Film viewing • Group discussion 	<ul style="list-style-type: none"> • Direct observation • Demonstration • Oral interview and/or written test • Third party report 	16 hours
	1.3 Operate agricultural machineries	<ul style="list-style-type: none"> • Select appropriate/proper PPEs • Connect/replace attachments • Perform safety practices and safe operation • Perform plowing • Perform furrowing • Perform harrowing • Demonstrate safe and environmentally 	<ul style="list-style-type: none"> • Lecture • Farm visit • Practical demonstration • Film viewing • Group discussion 	<ul style="list-style-type: none"> • Direct observation • Demonstration • Oral interview and/or written test • Third party report 	24 hours

Unit of Competency	Learning Outcomes	Learning Activities	Methodologies	Assessment Methods	Nominal Duration
		responsible workplace practices <ul style="list-style-type: none"> Identify and correct malfunctions Assess machines' performance Shutdown machines 			
	1.4 Perform post-operation activities	<ul style="list-style-type: none"> Segregate wastes Maintain and store machineries and engines Maintain work area Prepare records Perform basic preventive maintenance 	<ul style="list-style-type: none"> Lecture Farm visit Practical demonstration Film viewing Group discussion 	<ul style="list-style-type: none"> Direct observation Demonstration Oral interview and/or written test Third party report 	8 hours
2. Operate agricultural large production machinery and equipment	2.1 Select agricultural large production machineries	<ul style="list-style-type: none"> Use relevant farm tools and machines Assess land and crop conditions Determine agricultural machines based on land and crop conditions Prepare report 	<ul style="list-style-type: none"> Lecture Farm visit Practical demonstration Film viewing Group discussion 	<ul style="list-style-type: none"> Direct observation Demonstration Oral interview and/or written test Third party report 	8 hours
	2.2 Prepare agricultural machine for operations	<ul style="list-style-type: none"> Perform standard operating procedure of agricultural machineries and equipment Prepare tools, materials and resources Check and adjust attachments Read and interpret manual/manufacturer's 	<ul style="list-style-type: none"> Lecture Farm visit Practical demonstration Film viewing Group discussion 	<ul style="list-style-type: none"> Direct observation Demonstration Oral interview and/or written test Third party report 	16 hours

Unit of Competency	Learning Outcomes	Learning Activities	Methodologies	Assessment Methods	Nominal Duration
		specifications, work and maintenance plans <ul style="list-style-type: none"> • Use appropriate fuel and lubrication requirements 			
	2.3 Operate agricultural machineries	<ul style="list-style-type: none"> • Select appropriate/proper PPEs • Perform safety practices and safe operation of machine • Correct malfunctions of machine • Discuss safe and environmentally responsible workplace practices • Assess machines' performances 	<ul style="list-style-type: none"> • Lecture • Farm visit • Practical demonstration • Film viewing • Group discussion 	<ul style="list-style-type: none"> • Direct observation • Demonstration • Oral interview and/or written test • Third party report 	48 hours
	2.4 Perform post-operation activities	<ul style="list-style-type: none"> • Segregate wastes • Maintain machine and engine • Maintain work area • Prepare records • Perform basic preventive maintenance 	<ul style="list-style-type: none"> • Lecture • Farm visit • Practical demonstration • Film viewing • Group discussion 	<ul style="list-style-type: none"> • Direct observation • Demonstration • Oral interview and/or written test • Third party report 	8 hours
3. Operate agricultural post-production machinery and equipment	3.1 Prepare post-production machineries	<ul style="list-style-type: none"> • Explain compatibility of machines and engines • Discuss preparation of post-production machineries • Explain preparation of report • Check and adjust post production machineries 	<ul style="list-style-type: none"> • Lecture • Practical demonstration • Film viewing • Group discussion 	<ul style="list-style-type: none"> • Direct observation • Demonstration • Oral interview and/or written test 	16 hours

Unit of Competency	Learning Outcomes	Learning Activities	Methodologies	Assessment Methods	Nominal Duration
		<ul style="list-style-type: none"> • Prepare tools and materials, and accessories • Prepare report 			
	3.2 Operate machineries and monitor performance	<ul style="list-style-type: none"> • Select appropriate/proper PPEs • Connect/replace attachments • Perform safety practices and safe operation of machines • Perform harvesting • Perform drying • Perform milling • Demonstrate safe and environmentally responsible workplace practices • Correct abnormal conditions • Assess machines' performance • Shutdown machines 	<ul style="list-style-type: none"> • Lecture • Farm visit • Practical demonstration • Film viewing • Group discussion 	<ul style="list-style-type: none"> • Direct observation • Demonstration • Oral interview and/or written test • Third party report 	32 hours
	3.3 Perform post-operation activities	<ul style="list-style-type: none"> • Segregate wastes • Maintain and store machine and engine • Restore work area • Prepare records • Perform basic preventive maintenance 	<ul style="list-style-type: none"> • Lecture • Farm visit • Practical demonstration • Film viewing • Group discussion 	<ul style="list-style-type: none"> • Direct observation • Demonstration • Oral interview and/or written test • Third party report 	8 hours

3.2 TRAINING DELIVERY

1. The delivery of training shall adhere to the design of the curriculum. Delivery shall be guided by the principles of competency-based TVET.
 - a. Course design is based on competency standards set by the industry or recognized industry sector; **(Learning system is driven by competencies written to industry standards)**
 - b. Training delivery is learner-centered and should accommodate individualized and self-paced learning strategies;
 - c. Training can be done on an actual workplace setting, simulation of a workplace and/or through adoption of modern technology.
 - d. Assessment is based in the collection of evidence of the performance of work to the industry required standards;
 - e. Assessment of competency takes the trainee's knowledge and attitude into account but requires evidence of actual performance of the competency as the primary source of evidence.
 - f. Training program allows for recognition of prior learning (RPL) or current competencies;
 - g. Training completion is based on satisfactory completion of all specified competencies not on the specified nominal duration of learning.
2. The competency-based TVET system recognizes various types of delivery modes, both on-and off-the-job as long as the learning is driven by the competency standards specified by the industry. The following training modalities and their variations/components may be adopted singly or in combination with other modalities when designing and delivering training programs:

2.1 Institution- Based:

- Dual Training System (DTS)/Dualized Training Program (DTP) which contain both in-school and in-industry training or fieldwork components. Details can be referred to the Implementing Rules and Regulations of the DTS Law and the TESDA Guidelines on the DTP;

- Supervised Industry Training (SIT) or on-the-job training (OJT) is an approach in training designed to enhance the knowledge and skills of the trainee through actual experience in the workplace to acquire specific competencies as prescribed in the training regulations. It is imperative that the deployment of trainees in the workplace is adhered to training programs agreed by the institution and enterprise and status and progress of trainees are closely monitored by the training institutions to prevent opportunity for work exploitation.
- Project-based instruction is an authentic instructional model or strategy in which students plan, implement and evaluate projects that have real world applications

2.2 Enterprise-Based:

- Formal Apprenticeship – Training within employment involving a contract between an apprentice and an enterprise on an approved apprenticeable occupation.
- Informal Apprenticeship - is based on a training (and working) agreement between an apprentice and a master craftsperson wherein the agreement may be written or oral and the master craftsperson commits to training the apprentice in all the skills relevant to his or her trade over a significant period of time, usually between one and four years, while the apprentice commits to contributing productively to the work of the business. Training is integrated into the production process and apprentices learn by working alongside the experienced craftsperson.
- Enterprise-based Training- where training is implemented within the company in accordance with the requirements of the specific company. Specific guidelines on this mode shall be issued by the TESDA Secretariat.

2.3 Community-Based – Community-Based – short term programs conducted by non-government organizations (NGOs), LGUs, training centers and other TVET providers which are intended to address the specific needs of a community. Such programs can be conducted in informal settings such as barangay hall, basketball courts, etc. These programs can also be mobile training program (MTP).

2.4 Peer teaching/mentoring is a training modality wherein fast learners are given the opportunity to assist the slow learners.

3.3 TRAINEE ENTRY REQUIREMENTS

Trainees or students who wants to enroll in this course should possess the following requirements:

- Able to read and write;
- Able to communicate, both orally and in writing; and
- Fundamental arithmetical skills (four basic operations)
- Physically able*

**to be determined by the training center*

3.4 TOOLS AND EQUIPMENT

AGRICULTURAL MACHINERY OPERATION NC II

Recommended list of tools, equipment and materials for the training of 25 trainees for Agricultural Machinery Operation NC II.

A. School equipment, tools and materials

- 1 unit Digital light projection
- 1 unit System unit (computer)
- 1 White board
- 1 set White board marker and eraser
- 1 unit Audio system
- 1 lot Internet connection
- References

- Books
- Charts
- Slides
- Manuals
- Codes and regulations

B. Farm tools, equipment and materials

FULL QUALIFICATION

QTY	TOOLS	QTY	EQUIPMENT	QTY	MATERIALS
		Agricultural - Equipment		PPE:	
5 sets	Set of box wrench, 8 pieces	1 unit	Power sprayer	25 pcs	Rubber Boots
5 pcs	6" and 12" adjustable	1 unit	Boom Sprayer	25 pcs	Dust Mask

QTY	TOOLS	QTY	EQUIPMENT	QTY	MATERIALS
5 sets	Sets Allen wrench	1 unit	Sprayer, knapsack, stainless 16 Liters	25 pcs	Hand Gloves
5 pcs	Steel tape measure	1 unit	Hand tractor Hand tractor, 10 hp diesel engine with	25 pcs	Earmuff/Earplug
5 pcs	Ballpeen hammer	1 unit	Harvester, 1.2 meter reaper	25 pcs	Hand Gloves, cotton knitted rubber coated
5 pcs	Vice grip	1 unit	Wheel tractor	25 pcs	Long Sleeve Shirt
5 pcs	Pliers	1 unit	Irrigation pump, 2 x 2, 5.5 HP gasoline	25 pcs	Cover all clothing
5 pcs	Pliers, long nose	1 unit	Irrigation pump, 4 x 4, 10 HP diesel	1 set	First Aid kit
5 pcs	C-clamp	1 unit	Grass cutter	3 roll	Teflon Tape
5 pcs	Locking Pliers	1 unit	Thresher	20 L	Fuel and Oil
5 pcs	Grease Guns	1 unit	Sheller	1 pair	Engine Base
5 sets	Sets Flat screw driver	1 unit	Decorticator	2 pcs	Belt
5 sets	Sets Philips screw driver	1 unit	Size reduction machine/mill	1 pc	Pulley
5 pcs	24" adjustable wrench	1 unit	Dehusker/depulper	10 kg	Rags
5 pcs	Scythe	1 unit	Dryer	10 kg	Seeds
		1 unit	Air compressor	3 rolls	Plastic twine
2 units	Tachometer	1 unit	Trailer (for transport of implements of hand tractor)	5 pcs	Sacks (for seeds and waste)
5 pcs	Measuring can	1 unit	Pressurized water sprayer	20 kg	Planting materials
		1 unit	Weighing Scale (100kg)	5 kg	Crop samples
		1 unit	Weighing Scale, 30 kg capacity	1 bag	Fertilizer
		2 units	Weighing Scale (10kg)	3L	Chemicals assorted
		5 units	Thermometer	Office supplies	
		2 units	Moisture meter	25 pcs	Envelope
				3 rims	Bond Paper

QTY	TOOLS	QTY	EQUIPMENT	QTY	MATERIALS
		Agricultural - Implements		1 pc	White Board
		1 unit	Moldboard /disc plow	5 pcs	White Board Marker
		1 unit	Harrow	15 pcs	Pen Maker
		1 unit	Trailer (for transport of implements of hand tractor)	5 pads	Pad Paper
		1 unit	Rotavator		
		1 unit	Leveller		
		1 unit	Seeder/Planter/Digger		
		1 unit	Weeder/Cultivator		
		1 unit	Diesel engine (single cylinder engine) - 5 Hp		
		1 unit	Gasoline engine (single cylinder) - 5 Hp		
		Agricultural - Accessories			
		1 pc	Guide stick		
		1 pc	Floater		
		1 pc	Furrow opener and closer		
		1 unit	Pressure gauge		
		1 unit	Lance		
		1 set	Box –Nozzle (different sizes)		
		10 meters	Hose		
		5 Liters	Grease		
		25 pcs	Sanding paper #220		
		5 pcs	Pipe connector		

COC 1 OPERATE AGRICULTURAL SMALL PRODUCTION MACHINERY AND EQUIPMENT

QTY	TOOLS	QTY	EQUIPMENT	QTY	MATERIALS
5 sets	Set of box wrench, 8 pieces	1 unit	Hand tractor, 10 hp diesel engine with	25 pcs	Dust Mask (N95)
5 pcs	6" and 12" adjustable wrenches	1 unit	Moldboard Plow and Harrow	25 pcs	Sanding paper #220
5 sets	Allen wrench set	1 unit	Disc Plow	3 roll	Teflon Tape
5 pcs	Steel tape measure, 5 meters	1 unit	Leveller	10 L	Fuel (diesel)
5 pcs	Ball peen hammer	1 unit	Rotavator	10 L	Fuel (gasoline)
5 pcs	Vise grip	1 unit	Sprayer, knapsack, stainless 16 Liters	10 L	Oil
5 pcs	Pliers	1 unit	Harvester, 1.2 meter reaper	5 kgs	Rags
5 pcs	Pliers, long nose	1 unit	Diesel engine (single cylinder engine) - 5 Hp	25 pcs	Earmuff/Earplug
5 pcs	C-clamp	1 unit	Gasoline engine (single cylinder) - 5 Hp	25 pcs	Goggles
5 pcs	Locking Pliers	1 unit	Seeder/planter	25 pcs	Hand Gloves, cotton knitted rubber coated
5 pcs	Grease Gun	1 unit	Irrigation pump, 2 x 2, 5.5 HP gasoline	10 meters	Hose, 10 meters
5 sets	Flat screw driver set, 6 pcs	1 unit	Weeder/Cultivator, Honda	1 set	First Aid kit
5 sets	Philips screw driver set, 6 pcs	1 unit	Grass cutter	1 pc	Guide stick
5 pcs	24" adjustable wrench	1 unit	Trailer (for transport of implements of hand tractor)	250 grams	Grease, 250 grams
		1 unit	Power sprayer (for cleaning purposes)	2 pcs	Belt

		2 units	Tachometer, digital	25 pcs	Envelope
		1 unit	Weighing Scale, 30 kg capacity	3 rims	Bond Paper
		1 unit	Pressure gauge	1 pc	White Board
				5 pcs	White Board Marker
				15 pcs	Pen Maker
				5 pads	Pad Paper

COC 2 OPERATE AGRICULTURAL LARGE PRODUCTION MACHINERY AND EQUIPMENT

QTY	TOOLS	QTY	EQUIPMENT	QTY	MATERIALS
5 sets	Set of box wrench, 8 pieces	1 unit	Power sprayer (for cleaning purposes)	25 pcs	Dust Mask (N95)
5 pcs	6" and 12" adjustable wrenches	2 units	Tachometer, digital	25 pcs	Sanding paper #220
5 sets	Allen wrench set	1 unit	Weighing Scale, 30 kg capacity	3 roll	Teflon Tape
5 pcs	Steel tape measure, 5 meters	1 unit	Pressure gauge	10 L	Fuel (diesel)
5 pcs	Ball peen hammer	1 unit	4-wheel tractor	10 L	Fuel (gasoline)
5 pcs	Vise grip	1 unit	Moldboard Plow and Harrow	10 L	Oil
5 pcs	Pliers	1 unit	Disc plow	5 kgs	Rags
5 pcs	Pliers, long nose	1 unit	Rotavator	25 pcs	earplug
5 pcs	C-clamp	1 unit	Boom Sprayer	25 pcs	goggles
5 pcs	Locking Pliers	1 unit	Seeder/planter	25 pcs	Hand Gloves, cotton knitted rubber coated
5 pcs	Grease Gun	1 unit	Irrigation pump, 4 x 4, 10 HP diesel	10 meters	Hose, 10 meters
5 sets	Flat screw driver set, 6 pcs	1 unit	Trailer	1 set	First Aid kit

5 sets	Philips screw driver set, 6 pcs	1 unit	Harvester	1 pc	Guide stick
5 pcs	24" adjustable wrench			250 grams	Grease, 250 grams
				2 pcs	Belt
				25 pcs	Envelope
				3 rims	Bond Paper
				1 pc	White Board
				5 pcs	White Board Marker
				15 pcs	Pen Maker
				5 pads	Pad Paper

COC 3 OPERATE AGRICULTURAL POST-PRODUCTION MACHINERY AND EQUIPMENT

QTY	TOOLS	QTY	EQUIPMENT	QTY	MATERIALS
5 sets	Set of box wrench, 8 pieces	1 unit	Thresher	25 pcs	Dust Mask (N95)
5 pcs	6" and 12" adjustable wrenches	1 unit	Sheller	25 pcs	Sanding paper #220
5 sets	Allen wrench set	1 unit	Decorticator	3 roll	Teflon Tape
5 pcs	Steel tape measure, 5 meters	1 unit	Size reduction machine/mill	10 L	Fuel (diesel)
5 pcs	Ball peen hammer	1 unit	Dehusker/depulper	10 L	Fuel (gasoline)
5 pcs	Vise grip	1 unit	Dryer	10 L	Oil
5 pcs	Pliers	5 units	Thermometer	5 kgs	Rags
5 pcs	Pliers, long nose	2 units	Moisture meter	3 rolls	Plastic twine
5 pcs	C-clamp	1 unit	Weighing Scale, 100 kg capacity	5 pcs.	Sacks
5 pcs	Locking Pliers			5 kg	Crop samples
5 pcs	Grease Gun			25 pcs	Earplug

5 sets	Flat screw driver set, 6 pcs			25 pcs	Goggles
5 sets	Philips screw driver set, 6 pcs			25 pcs	Hand Gloves, cotton knitted rubber coated
5 pcs	24" adjustable wrench			10 meters	Hose, 10 meters
				1 set	First Aid kit
				1 pc	Guide stick
				250 grams	Grease, 250 grams
				2 pcs	Belt

Note: Access to and use of equipment/facilities can be provided through cooperative arrangements of MOA with other partner-companies/institutions.

3.5 TRAINING FACILITIES

AGRICULTURAL MACHINERY OPERATION NC II

Based on a class size of 25 students/trainees

SPACE REQUIREMENT	SIZE IN METERS	AREA IN SQ. METERS	TOTAL AREA IN SQ. METERS	GRAND TOTAL AREA IN SQ. METERS
A. Building (permanent)				150
• Student/Trainee Working Space	2.00 x 2.00 per student/trainee	4.00 per student	100.00	
• Lecture Room	7.00 x 5.00	35.00	35.00	
• Learning Resource Center	3.00 x 5.00	15.00	15.00	
B. Demo Farm				5,200
• Machinery Shed	10 x 20	200	200	
• Field Area	100 x 50	5,000	5,000	
TOTAL AREA				5,350.00

Note: Access to and use of equipment/facilities can be provided through cooperative arrangements of MOA with other partner-companies/institutions.

3.6 TRAINER'S QUALIFICATIONS FOR AGRICULTURE, FORESTRY SECTOR

Trainers who will deliver the training on **AGRICULTURAL MACHINERY OPERATION NC II** should have the following:

- Must be a holder of BS Agricultural Engineering and National Certificate holder of Trainer's Methodology level I (TMI) or must be a holder of NTTC I in Agricultural Machinery Operation NC II
- Must have at least 2 years job/industry experience for the last five (5) years

3.7 INSTITUTIONAL ASSESSMENT

Institutional Assessment is undertaken by trainees in a structured learning program to determine their achievement of units of competencies. It is administered by the trainer/assessor at end of each learning module.

The result of the institutional assessment may be considered as evidence for the assessment for national certification.

As a matter of policy, graduates of programs registered with TESDA under these training regulations are required to undergo mandatory national competency assessment upon completion of the program.

SECTION 4 ASSESSMENT AND CERTIFICATION ARRANGEMENT

Competency Assessment is the process of collecting evidence and making judgments whether competency has been achieved. The purpose of assessment is to confirm that an individual can perform to the standards expected at the workplace as expressed in relevant competency standards.

The assessment process is based on evidence or information gathered to prove achievement of competencies. The process may be applied to a full qualification or employable unit(s) of competency in partial fulfillment of the requirements of the national qualification.

4.1. NATIONAL ASSESSMENT AND CERTIFICATION ARRANGEMENTS

4.1.1 The Full National Qualification of **AGRICULTURAL MACHINERY OPERATION NC II** shall be acquired through the accumulation of Certificates of Competency in the following units of competencies:

- COC 1 Operate agricultural small production machinery and equipment
- COC 2 Operate agricultural large production machinery and equipment
- COC 3 Operate agricultural post-production machinery and equipment

4.1.2 Upon accumulation and submission of all the above COCs acquired, an individual shall be issued the corresponding National Certificate signed by the TESDA Director General. Certificates of Competency (COCs) shall be issued to candidates who have been assessed as competent in any of the above COCs (COC 1, COC 2, COC 3).

4.1.3 Assessment shall focus on the core units of competency. The basic and common units shall be integrated or assessed concurrently with the core units.

4.1.4 Recognition of Prior Learning (RPL). Candidates who have gained competencies through education, informal training, and work or life experiences may apply for recognition in a particular qualification through competency assessment.

4.1.5 The following are qualified to apply for assessment:

- 4.1.5.1 Graduating students/trainees of WTR-registered programs, graduates of NTR programs or graduates of formal/non-formal/informal including enterprise-based training programs related to agricultural machinery operation

4.1.5.2 Industry workers in agricultural machinery operations

4.1.6 Re-assessment shall focus only on the specific area/s where the candidate has not satisfactorily achieved the required level of competence AND must be undertaken within two (2) years during the period of validity of the Training Regulations.

4.1.7 A candidate who fails the assessment for two (2) consecutive times shall be advised to go through a refresher course before taking another assessment.

4.2. COMPETENCY ASSESSMENT REQUISITE

4.2.1 **Self-Assessment Guide.** The self-assessment guide (SAG) is accomplished by the candidate prior to actual competency assessment. SAG is a pre-assessment tool to help the candidate and the assessor determine what evidence is available, where gaps exist, including readiness for assessment.

This document can:

- a) Identify the candidate's skills and knowledge
- b) Highlight gaps in candidate's skills and knowledge
- c) Provide critical guidance to the assessor and candidate on the evidence that need to be presented
- d) Assist the candidate to identify key areas in which practice is needed or additional information or skills that should be gained prior to assessment

4.2.2 **Accredited Assessment Center.** Only Assessment Center accredited by TESDA is authorized to conduct competency assessment. Assessment centers undergo a quality assured procedure for accreditation before they are authorized by TESDA to manage the assessment for National Certification.

4.2.3 **Accredited Competency Assessor.** Only accredited competency assessor is authorized to conduct assessment of competence. Competency assessors undergo a quality assured system of accreditation procedure before they are authorized by TESDA to assess the competencies of candidates for National Certification.

4.2.3.1 Qualification of Competency Assessors

For Trainer-Assessor

- Holder of National TVET Trainer Certificate Level I (NTTC) on Agricultural Machinery Operation NC II
- Have at least 2 years relevant industry experience
- Have assisted in the actual conduct of assessment to at least two (2) candidates.

For Industry Assessor

- Holder of National Certificate on Agricultural Machinery Operation NC II
- Holder of Certificate of Competency (COC) in Conduct Competency Assessment under the Trainers Methodology Level I (TM I)
- Have at least two (2) years relevant industry experience
- Have assisted in the actual conduct of assessment to at least two (2) candidates.

COMPETENCY MAP FOR AGRICULTURE, FORESTRY AND FISHERY SECTOR AGRICULTURAL MACHINERY OPERATION NCII

ANNEX A

BASIC COMPETENCIES	Participate in workplace communication	Work in team environment	Practice career professionalism	Practice occupational health and safety procedures
-------------------------------	--	--------------------------	---------------------------------	--

COMMON COMPETENCIES	Apply Safety Measures in Farm Operations	Use Farm Tools and Equipment	Perform Estimation and Basic Calculation
--------------------------------	--	------------------------------	--

CORE COMPETENCIES	Operate agricultural small production machinery and equipment	Operate agricultural large production machinery and equipment	Operate agricultural post-production machinery and equipment
------------------------------	---	---	--

GLOSSARY OF TERMS

1. **4-Wheel Tractor** – wheeled power source having two axles, design to carry work by pulling or propel various agricultural machines and implements. They are classified according to horsepower rating Agricultural machinery – consists of agricultural tractors, self-propelled and pedestrian-operated machines, implements, and other equipment primarily used for agricultural operations
2. **Attachment** – anything that is specifically approved by the manufacturer of farm machinery or farm equipment to be attached to the machinery or equipment in order to modify it
3. **Coconut coir decorticator** – machine to crush matured coconut husk through impact or beating action to separate coco fiber and coconut peat from the husk
4. **Coffee pulper** – machine to remove and separate the soft pulp of ripe coffee cherry without making any damage to the parchment coffee
5. **Corn husker-sheller** – machine used to remove the husk of corn ear, detach, separate and clean the corn kernels from the cobs in one operation
6. **Corn sheller** – machine used to detach, separate and clean the corn kernels from the cobs
7. **Cultivator** – field cultivator implement for seedbed preparation, weed eradication, or fallow cultivation subsequent to some form of primary tillage, equipped with spring steel shank
8. **Disc harrow** – implement used to pulverize the soil to attain a better soil tilth for the seed germination and growth
9. **Disc plow** – implement with individually mounted concave disc blades which cut, partially or completely invert soil slices to bury surface material, and pulverize the soil
10. **Dryer** – machinery device used to lower down or remove available water from the crop through evaporation by the application of heated air
11. **Fiber decorticator** – mechanical device used for extracting fibers by crushing, beating and scraping actions effected by the rotating cylinder with equally spaced blades and breaker or scraper block
12. **Grass cutter** - a machine or device for cutting grass
13. **Hammer mill** – device use for grinding which is a result of the impact between the particles and hammers, which are mounted on a shaft rotating along a horizontal axis

- 14. Hand tractor/power tiller**– self-propelled machine having a single axle designed primarily to pull and propel trailed or mounted agricultural implements and machinery
- 15. Harvester** – machinery device used to gather the useful portion of the crop from the field
- 16. Irrigation pump** – pump device used to lift or transfer water from one source to another
- 17. Lever-operated knapsack sprayer (LOKS) backpack sprayer** – sprayer which is operated manually with a lever and can be carried on the back of an operator for spraying
- 18. Multicrop micromill** – machine that grinds dried product meal of various crops into finer particles suitable for the purpose of food seasoning or as flour
- 19. Peanut sheller** – machine used to remove kernels from the shell by breaking/splitting the pods
- 20. Power Sprayer** – equipment powered by an electric motor or by an engine used to spray fertilizer or pesticide to a certain height
- 21. Seeder/Planter/Digger**– machinery device whether self-propelled or pulled/hitch to a wheeled vehicle, used to place seeds or plant into the soil for propagation and production of crops
- 22. Small engine** – internal combustion engines with one or two cylinders of up to 20 kW rating used for agricultural purposes
- 23. Weeder** – implement used to remove/destroy the weeds from an agricultural land

ACKNOWLEDGEMENT

The Technical Education and Skills Development Authority (TESDA) wishes to extend thanks and appreciation to the many representatives of business, industry, academe and government agencies who donated their time and expertise to the development and validation of this Training Regulation.

THE TECHNICAL EXPERT PANEL (TEP)

ENGR. VICTOR A. RODULFO, JR., PhD

Technical Expert
University of the Philippines Los Baños–
AMDP
College, Laguna

ENGR. MARIFE R. SANTIAGO

Technical Expert
University of the Philippines Los Baños
College, Laguna

MS. ERLINA G. JOSECO

Technical Expert
Agricultural Machinery Manufacturers and
Distributors Association (AMMDA), Inc.
Makati City, Metro Manila

ENGR. GEORGE Q. CANAPI

Technical Expert
Agricultural Machinery Manufacturers and
Distributors Association (AMMDA), Inc.
Makati City, Metro Manila

ENGR. ALDRIN BADUA

Technical Expert
Philippine Center for Postharvest
Development and Mechanization
Science City of Muñoz, Nueva Ecija

ENGR. FRANCIA MACALINTAL

Technical Expert
Philippine Council for Agriculture and
Fishery
Department of Agriculture
Quezon City

THE PARTICIPANTS OF NATIONAL VALIDATION

MR. DIONISIO M. ABRAJANO

Member/Operator
Basinay I-A
Bolante Munoz, Nueva Ecija

MR. FERDINAND G. RAMOS

Member/Operator
Sapang Liyang Wet IAPI
David San Jose Tarlac

MR. JEREMIA M. AÑASCO

Instructor I
Visayas State University
VISCA, Baybay City, Leyte

MS. JOANN V. RIVERA

Member/Operator
Sapang Liyang Wet IAPI
David San Jose Tarlac

ENGR. JOHN RICK M. LAQUINTA

Department Head
Western Mindanao State University
WMSU-CA, San Ramon, Zamboanga City

MR. EDUARDO O. TOME

President/Operator
BIAG I-A
Bicos, Rizal, Nueva Ecija

ENGR. MARVIN C. PETINGCO
Assistant Professor/Expert
Cagayan State University
Carig Sur, Tuguegarao City

MR. HARVEY V. VALDEZ
Science Research Specialist I/Expert
Philippine Rice Research Institute
Maligaya, Muñoz, Nueva Ecija

The Members of the TESDA Board and Secretariat

The MANAGEMENT and STAFF of the TESDA Secretariat

- Qualifications and Standards Office (QSO)

TESDA – QSO Technical Facilitators

Competency Standards Development Division

MS. BERNADETTE N. SERVAZ- AUDIJE
MS. DORIANA B. ELPEDES
MS. CHERRY L. TORALDE
MS. MELCHRIS A. ATIS

Competency Programs and Standards Development Division

MS. MERCEDES E. JAVIER
MS. FORTUNATA L. BACO

- National Institute for Technical Education and Skills development (NITESD)

TESDA-NITESD Technical Facilitator

Curriculum and Training Aids Development Division

MR. ROSENDO R. RAFAEL

Training Regulation are available in both printed and electronic copies

For more information, please contact:

TECHNICAL EDUCATION AND SKILLS DEVELOPMENT AUTHORITY (TESDA)

Telephone Nos.:817-4076 to 82 loc. 163 / 164 Tele Fax No.:818-7728

or visit our website: www.tesda.gov.ph