

K to 12 BASIC EDUCATION CURRICULUM
JUNIOR HIGH SCHOOL TECHNOLOGY AND LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL - TECHNICAL-VOCATIONAL LIVELIHOOD TRACK
AGRI-FISHERY ARTS – AGRICULTURAL CROPS PRODUCTION (NC III)
(640 hours)

These are the specializations and their pre-requisites. These lists should be used as reference for curriculum maps.

AGRI-FISHERY ARTS

	Specialization	Number of Hours	Pre-requisite
1.	Agricultural Crops Production (NC I)	320 hours	
2.	Agricultural Crops Production (NC II) <i>updated based on TESDA Training Regulations published December 28, 2013</i>	640 hours	
3.	Agricultural Crops Production (NC III)	640 hours	Agricultural Crops Production (NC II)
4.	Animal Health Care Management (NC III)	320 hours	Animal Production (Poultry-Chicken) (NC II) or Animal Production (Ruminants) (NC II) or Animal Production (Swine) (NC II)
5.	Animal Production (Poultry-Chicken) (NC II) <i>updated based on TESDA Training Regulations published December 28, 2013</i>	320 hours	
6.	Animal Production (Large Ruminants) (NC II) <i>updated based on TESDA Training Regulations published December 28, 2013</i>	320 hours	
7.	Animal Production (Swine) (NC II) <i>updated based on TESDA Training Regulations published December 28, 2013</i>	320 hours	
8.	Aquaculture (NC II)	640 hours	
9.	Artificial Insemination (Large Ruminants) (NC II)	160 hours	Animal Production (Large Ruminants) (NC II)
10.	Artificial Insemination (Swine) (NC II)	160 hours	Animal Production (Swine) (NC II)
11.	Fish Capture (NC II)	640 hours	
12.	Fishing Gear Repair and Maintenance (NC III)	320 hours	
13.	Fish-Products Packaging (NC II)	320 hours	
14.	Fish Wharf Operation (NC I)	160 hours	
15.	Food Processing (NC II)	640 hours	
16.	Horticulture (NC III)	640 hours	Agricultural Crops Production (NC II)
17.	Landscape Installation and Maintenance (NC II)	320 hours	
18.	Organic Agriculture (NC II)	320 hours	
19.	Pest Management (NC II)	320 hours	
20.	Rice Machinery Operations (NC II)	320 hours	
21.	Rubber Processing (NC II)	320 hours	
22.	Rubber Production (NC II)	320 hours	
23.	Slaughtering Operations (Hog/Swine/Pig) (NC II)	160 hours	

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HOME ECONOMICS

	Specialization	Number of Hours	Pre-requisite
1.	Attractions and Theme Parks Operations with Ecotourism (NC II)	160 hours	
2.	Barbering (NC II)	320 hours	
3.	Bartending (NC II)	320 hours	
4.	Beauty/Nail Care (NC II)	160 hours	
5.	Bread and Pastry Production (NC II)	160 hours	
6.	Caregiving (NC II)	640 hours	
7.	Commercial Cooking (NC III)	320 hours	Cookery (NC II)
8.	Cookery (NC II)	320 hours	
9.	Dressmaking (NC II)	320 hours	
10.	Events Management Services (NC III)	320 hours	
11.	Fashion Design (Apparel) (NC III)	640 hours	Dressmaking (NC II) or Tailoring (NC II)
12.	Food and Beverage Services (NC II) <i>updated based on TESDA Training Regulations published December 28, 2013</i>	160 hours	
13.	Front Office Services (NC II)	160 hours	
14.	Hairdressing (NC II)	320 hours	
15.	Hairdressing (NC III)	640 hours	Hairdressing (NC II)
16.	Handicraft (Basketry, Macrame) (Non-NC)	160 hours	
17.	Handicraft (Fashion Accessories, Paper Craft) (Non-NC)	160 hours	
18.	Handicraft (Needlecraft) (Non-NC)	160 hours	
19.	Handicraft (Woodcraft, Leathercraft) (Non-NC)	160 hours	
20.	Housekeeping (NC II) <i>updated based on TESDA Training Regulations published December 28, 2013</i>	160 hours	
21.	Local Guiding Services (NC II)	160 hours	
22.	Tailoring (NC II)	320 hours	
23.	Tourism Promotion Services (NC II)	160 hours	
24.	Travel Services (NC II)	160 hours	
25.	Wellness Massage (NC II)	160 hours	

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INDUSTRIAL ARTS

	Specialization	Number of Hours	Pre-requisite
1.	Automotive Servicing (NC I) <i>updated based on TESDA Training Regulations published December 28, 2013</i>	640 hours	
2.	Automotive Servicing (NC II)	640 hours	Automotive Servicing (NC I)
3.	Carpentry (NC II)	640 hours	
4.	Carpentry (NC III)	320 hours	Carpentry (NC II)
5.	Construction Painting (NC II)	160 hours	
6.	Domestic Refrigeration and Air-conditioning (DOMRAC) Servicing (NC II)	640 hours	
7.	Driving (NC II)	160 hours	
8.	Electrical Installation and Maintenance (NC II)	640 hours	
9.	Electric Power Distribution Line Construction (NC II)	320 hours	Electrical Installation and Maintenance (NC II)
10.	Electronic Products Assembly and Servicing (NC II) <i>updated based on TESDA Training Regulations published December 28, 2013</i>	640 hours	
11.	Furniture Making (Finishing) (NC II)	640 hours	
12.	Instrumentation and Control Servicing (NC II)	320 hours	Electronic Products Assembly and Servicing (EPAS) (NC II)
13.	Gas Metal Arc Welding (GMAW) (NC II)	320 hours	Shielded Metal Arc Welding (SMAW) (NC II)
14.	Gas Tungsten Arc Welding (GTAW) (NC II)	320 hours	Shielded Metal Arc Welding (GMAW) (NC II)
15.	Machining (NC I)	640 hours	
16.	Machining (NC II)	640 hours	Machining (NC I)
17.	Masonry (NC II)	320 hours	
18.	Mechatronics Servicing (NC II)	320 hours	Electronic Products Assembly and Servicing (EPAS) (NC II)
19.	Motorcycle/Small Engine Servicing (NC II)	320 hours	
20.	Plumbing (NC I)	320 hours	
21.	Plumbing (NC II)	320 hours	Plumbing (NC I)
22.	Refrigeration and Air-Conditioning (Packaged Air-Conditioning Unit [PACU]/Commercial Refrigeration Equipment [CRE]) Servicing (NC III)	640 hours	Domestic Refrigeration and Air-conditioning (DOMRAC) Servicing (NC II)
23.	Shielded Metal Arc Welding (NC I)	320 hours	
24.	Shielded Metal Arc Welding (NC II)	320 hours	Shielded Metal Arc Welding (NC I)
25.	Tile Setting (NC II)	320 hours	
26.	Transmission Line Installation and Maintenance (NC II)	640 hours	Electrical Installation and Maintenance (NC II)

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INFORMATION, COMMUNICATIONS AND TECHNOLOGY (ICT)

	Specialization	Number of Hours	Pre-requisite
1.	Animation (NC II)	320 hours	
2.	Broadband Installation (Fixed Wireless Systems) (NC II)	160 hours	Computer Systems Servicing (NC II)
3.	Computer Programming (.Net Technology) (NC III) <i>updated based on TESDA Training Regulations published December 28, 2013</i>	320 hours	
4.	Computer Programming (Java) (NC III) <i>updated based on TESDA Training Regulations published December 28, 2013</i>	320 hours	
5.	Computer Programming (Oracle Database) (NC III) <i>updated based on TESDA Training Regulations published December 28, 2013</i>	320 hours	
6.	Computer Systems Servicing (NC II) <i>updated based on TESDA Training Regulations published December 28, 2007</i>	640 hours	
7.	Contact Center Services (NC II)	320 hours	
8.	Illustration (NC II)	320 hours	
9.	Medical Transcription (NC II)	320 hours	
10.	Technical Drafting (NC II)	320 hours	
11.	Telecom OSP and Subscriber Line Installation (Copper Cable/POTS and DSL) (NC II)	320 hours	Computer Systems Servicing (NC II)
12.	Telecom OSP Installation (Fiber Optic Cable) (NC II)	160 hours	Computer Systems Servicing (NC II)

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Prerequisite: Agricultural Crops Production NC II

Course Description:

This is a specialization which leads to an Agricultural Crops Production National Certificate Level III (NC III). It covers basic competencies for third level certification and core competencies, such as: 1) undertaking preparation of land for agricultural crop production, 2) implementing a post-harvest program, 3) implementing a plant nutrition program, 4) controlling weeds, and 5) preparing and applying chemicals. In agronomy, it covers the following core competencies: 1) establishing agronomic crops, 2) undertaking agronomic crop maintenance activities, 3) undertaking agronomic crop harvesting activities, 4) saving, preparing and storing agricultural seed, and 5) implementing vertebrate pest control program. This CG also includes elective competencies which the school can choose 3 lessons among the given 9 lessons.

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
Introduction: The preliminaries of this course include the following: 1) discussion on the relevance of the course, 2) explanation of key concepts relative to the course, and 3) exploration of career opportunities.				
1. Concepts and competencies in performing agricultural farm operations 2. Career opportunities in Agricultural Crops Farm Operations	The learner demonstrates understanding of one's Personal Competencies (PEC's) across agricultural products and services.	The learner recognizes his/her Personal Competencies (PEC's) across agricultural products and services and prepares an activity plan that aligns with that of a practitioner/entrepreneur in Agricultural Crop Production.	1. Explain the different factors to be considered in setting up a business. 2. Assess one's PECS, such as, characteristics, lifestyle features, and skills. 3. Assess practitioner's entrepreneurial competencies, such as, characteristics, attributes, lifestyle, skills, and traits.	
DEVELOPING PERSONAL ENTREPRENEURIAL COMPETENCIES (PECS) ACROSS ENVIRONMENT AND MARKET				
1. Nature of entrepreneurial activities 2. Assessment of Personal Competencies and Skills (PECS) vis-à-vis a practicing entrepreneur/ employee in locality/town 2.1 Characteristics 2.2 Lifestyle 2.3 Skills 3. Analysis of PECS in relation to a practitioner	The learner demonstrates understanding of one's Personal Competencies and Skills (PECS) in Agricultural Crops Production NC II.	The learner recognizes his/her Personal Entrepreneurial Competencies and Skills (PECSs) and prepares an activity plan that aligns with that of a practitioner/entrepreneur in Agricultural Crops Production.	LO 1. Know the nature of an entrepreneurial activity in relation to Personal Entrepreneurial Competencies and Skills (PECS) needed in Agricultural Crops Production. 1.1 Know the different factors considered in setting up businesses. 1.2 Identify the characteristics, lifestyle, and skills of successful entrepreneurs. 1.3 Assess one's PECS: characteristics, attributes, lifestyle, skills, and traits. 1.4 Assess practitioner's: characteristics, attributes, lifestyle, skills, traits.	TLE_ PECS9-12-00-1

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
4. Aligning, strengthening and developing one's PECS based on the results			1.5 Compare one's PECS with that of a practitioner /entrepreneur. 1.6 Align one's PECS with that of a practitioner/entrepreneur.	
UNDERSTANDING THE ENVIRONMENT AND MARKET OF BUSINESS (EM)				
Market (Town) 1. Key concepts of Market 2. Players in the Market (Competitors) 3. Products and services available in the market	The learner demonstrates understanding of environment and market in Agricultural Crop Production in one's town/municipality.	The learner independently creates a business vicinity map reflective of potential Agricultural Crop Production market within the locality/town.	LO 1. Recognize and understand the influence of the market and environment in businesses. 1.1 Market characteristics 1.2 Forms of businesses across industries 1.3 Needs and demands through environmental scanning 1.4 4M's of production 1.5 Start-up capital, site selection, hiring, registering a business, and record keeping 1.6 SWOT 1.7 Business Plan	TLE_EM9-12-00-1
BASIC COMPETENCIES				
LESSON 1: LEADING WORK PLACE COMMUNICATION (LWC)				
<ul style="list-style-type: none"> • Method of communication • Communication skills • Communication tools • Questioning techniques 	The learner demonstrates an understanding of the underlying theories in leading workplace communication.	The learner independently performs leading work place communication based on TESDA Training Regulations.	LO 1. Leading workplace communication. 1.1 Select appropriate communication method. 1.2 Communicate multiple operations involving several topic /areas. 1.3 Use questions to gain extra information. 1.4 Identify correct sources of information 1.5 Select information and sequenced correctly when required. 1.6 Maintain verbal and written reporting in both familiar and unfamiliar situations.	TLE_AFAACP9-12LWC-Ia-1

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<ul style="list-style-type: none"> • Method/techniques of discussion • How to lead discussion • How to solicit response 			<p>LO 2. Lead workplace discussion.</p> <p>2.1 Provide sight responses to workplace issues.</p> <p>2.2 Discuss constructive contributions to workplace, such as: issues production, quality and safety.</p> <p>2.3 Communicate goals and aims of actions undertaken in the workplace.</p>	<p>TLE_AFAACP9-12LWC-Ia-2</p>
<ul style="list-style-type: none"> • Identification of problems and issues • Organizing information on problem and issues • Relating problems and issues • Communication barriers affecting workplace discussions 			<p>LO 3. Identify and communicate issues arising in the workplace.</p> <p>3.1 Identify issues and problems as they arise.</p> <p>3.2 Organize information regarding problems and issues coherently to ensure clear and effective communication.</p> <p>3.3 Initiate dialogue with appropriate personnel.</p> <p>3.4 Address communication problems and issues as they arise.</p>	<p>TLE_AFAACP9-12LWC-Ia-3</p>
LESSON 2: LEADING SMALL TEAM (LST)				
<ul style="list-style-type: none"> • Communication skills required to lead small team • Skills and techniques in promoting team building • Negotiation skills • Up to date dissemination of instruction and requirements to members • Art of listening and treating individual team members appropriately 	<p>The learner demonstrates an understanding of the underlying theories in leading a small team.</p>	<p>The learner independently leads a small team based on TESDA Training Regulations.</p>	<p>LO1. Provide team leadership.</p> <p>1.1 Identify work requirements and prescribe to members.</p> <p>1.2 Disseminate reasons for instructions and requirements properly to team members.</p> <p>1.3 Recognize and discuss team members' questions, problems, concerns and address accordingly.</p>	<p>TLE_AFAACP9-12LST-Ia-4</p>

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<ul style="list-style-type: none"> • Duties and responsibilities of each team member • Skills in identifying individual skills, knowledge and attitude as basis for allocating responsibilities • Knowledge in identifying each team member duties and responsibilities 			<p>LO 2. Assign responsibilities among members.</p> <p>2.1 Allocate duties and responsibilities in accordance to the skills, knowledge and attitudes of every team member.</p> <p>2.2 Allocate duties based on the individual preference, domestic and personal considerations.</p> <p>2.3 Identify and define properly the duties and responsibilities of each member.</p>	<p>TLE_AFAACP9-12LST-Ib-5</p>
<ul style="list-style-type: none"> • Knowledge and skills in setting individual performance target/ expectation • Team members duties and responsibilities • Employee policies and procedures • Define performance expectations criteria 			<p>LO 3. Set performance expectation for team members.</p> <p>3.1 Establish performance expectations based on client needs and according to assigned requirements.</p> <p>3.2 Perform expectations based on individual team member’s duties and responsibilities.</p> <p>3.3 Discuss and disseminate performance expectations of individual team members.</p>	<p>TLE_AFAACP9-12LST-Ib-6</p>
<ul style="list-style-type: none"> • Knowledge and skills in monitoring team member performance • Monitor team operation to ensure client needs and satisfaction • Methods of monitoring performance • Informal/formal counseling skills 			<p>LO 4. Supervise team performance.</p> <p>4.1 Define monitoring team member’s performance based on set performance criteria</p> <p>4.2 Provide team members with feedback, positive support and advice on strategies to overcome any difficulties.</p> <p>4.3 Inform team members of any changes in the priority to allocated assignment or task.</p> <p>4.4 Provide communication follow-up on all issues affecting the team</p>	<p>TLE_AFAACP9-12LST-Ib-7</p>

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LESSON 3: DEVELOPING AND PRACTICING NEGOTIATION SKILLS (DPN)				
<ul style="list-style-type: none"> • Background information on other parties to the negotiation • Observing differences between content and process • Identifying bargaining information • Applying strategies to manage process • Steps in negotiating process • Strategies to manage conflict • Steps in negotiating process 	<p>The learner demonstrates an understanding of the underlying theories in developing and practicing negotiation skills.</p>	<p>The learner independently develops and practices negotiation skills based on TESDA Training Regulations.</p>	<p>LO 1. Plan negotiations.</p> <p>1.1 Identify Information in preparation for negotiation.</p> <p>1.2 Include information in the preparation for negotiation plan.</p> <p>1.3 Identify Information on creating non-verbal environments for positive negotiations</p> <p>1.4 Include information on creating non-verbal environment for positive negotiation plan.</p> <p>1.5 Identify information on different questioning techniques included in the plan.</p>	<p>TLE_AFAACP9-12DPN-Ib-c-8</p>
<ul style="list-style-type: none"> • Decision making and conflict resolution strategies and procedures • Problem solving strategies on how to deal with unexpected questions and attitudes during negotiation • Background information on other parties to the negotiation • Observing differences between content and process 			<p>LO 2. Participate in negotiations.</p> <p>2.1 Create an agreement for the set criteria for the successful attainment of the desired outcome for all parties.</p> <p>2.2 Consider desired outcome of all parties.</p> <p>2.3 Use appropriate language throughout the negotiation.</p> <p>2.4 Make documents on the issues and processes for agreement by all parties.</p> <p>2.5 Discuss possible solutions and assess their viability .</p> <p>2.6 Confirm and record areas for agreement.</p> <p>2.7 Follow-up action is agreed upon by all parties.</p>	<p>TLE_AFAACP9-12DPN-Ic-9</p>

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LESSON 4: SOLVING PROBLEMS RELATED TO WORK ACTIVITIES (SPW)				
<ul style="list-style-type: none"> • Observation, investigation and analytical techniques • Brainstorming • Cause and effect diagrams • PARETO analysis • SWOT analysis • Gantt chart • PERT CPM and graph • Scattergrams 	The learner demonstrates an understanding of the underlying theories in solving problems related to work activities.	The learner independently performs solving problems related to work activities.	LO 1. Explain the analytical techniques. 1.1 Explain the importance and application of analytical techniques. 1.2 Define analytical techniques, such as: brainstorming, cause and effects diagrams, PARETO analysis, SWOT analysis, Gantt chart, PERT CPM and graphs, and scatter grams.	TLE_AFAACP9-12SPW-Ic-10
<ul style="list-style-type: none"> • Normal operating parameters & product quality • Identification and clarification on the nature of problems • Application of analytical techniques 			LO 2. Identify the problem. 2.1 Identify variances from normal operating parameters and product quality. 2.2 Define extent, cause, and nature of the problem based on observation, investigation and analytical techniques. 2.3 State the problems clearly. 2.4 Specify the problems.	TLE_AFaACP9-12SPW-Id-11
<ul style="list-style-type: none"> • Non-routine process and quality problems • Teamwork and work allocation problem • Safety and emergency situations and incidents 			LO 3. Determine the possible cause/s of the problem. 3.1 Identify possible cause/s of problems based on experience and the use of problem solving tools/analytical techniques. 3.2 Develop on the possible causes of problem on the statement. 3.3 Explain fundamental causes of the problem.	TLE_AFAACP9-12SPW-Id-12

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LESSON 5: USING MATHEMATICAL CONCEPTS AND TECHNIQUES (MCT)				
<ul style="list-style-type: none"> • Four fundamental operations • Steps in solving a problem • Standard formulas • Conversion • Measurement 	The learner demonstrates an understanding of the underlying theories in using mathematical concepts and techniques.	The learner independently performs using mathematical concepts and techniques.	LO 1. Identify mathematical tools and techniques to solve problems. 1.1 Identify problem areas based on given condition. 1.2 Select mathematical techniques based on the given problem.	TLE_AFAACP9-12MCT-Id-13
<ul style="list-style-type: none"> • Problem-based questions • Estimation • Use of mathematical tools and standard formulas • Mathematical techniques 			LO 2. Apply mathematical procedure/solution. 2.1 Apply mathematical techniques based on the problem identified. 2.2 Perform mathematical computations to the level of accuracy required for the problem. 2.3 Determine the results of mathematical computation based on job requirements. 2.4 Verify the results of mathematical computation based on job requirements.	TLE_AFAACP9-12MCT-Id-14
<ul style="list-style-type: none"> • Four fundamental operations • Steps in solving a problem • Standard formulas • Conversion • Measurement 			LO 3. Analyze results. 3.1 Review results of application based on expected and required specifications and outcome. 3.2 Apply appropriate action in case of error on business viability.	TLE_AFAACP9-12MCT-Ie-15
LESSON 6: USING RELEVANT TECHNOLOGIES (URT)				
<ul style="list-style-type: none"> • Machineries/equipment and their application • Software/programs 	The learner demonstrates an understanding of the underlying theories in using relevant technologies.	The learner independently performs using relevant technologies.	LO 1. Study/select appropriate technology. 1.1 Study appropriate technology based on work requirements. 1.2 Identify appropriate technology based on work requirements. 1.3 Select appropriate technology based on work requirements.	TLE_AFAACP9-12URT-Ie-16

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<ul style="list-style-type: none"> Office technology Industrial technology System technology Information technology Training technology Different software/ hardware 5s (proper housekeeping) 			LO 2. Apply relevant technology. 2.1 Use relevant technology in carrying out functions based on work requirements. 2.2 Use applicable software and hardware as per job requirement. 2.3 Observe management concepts as per established industry practices.	TLE_AFAACP9-12URT-Ie-17
<ul style="list-style-type: none"> Corrective and preventive maintenance Upgrading of technology Communication skills Organizational set-up/work flow 			LO 3. Maintain/enhance relevant technology. 3.1 Apply maintenance of technology in accordance with the industry standard operating procedure, manufacturer's operating guidelines and occupational health and safety procedures. 3.2 Maintain updating of technology through continuing education or training in accordance with job requirements. 3.3 Report immediately appropriate action for technology failure/ defect to the concerned/responsible person or section.	TLE_AFAACP9-12URT-Ie-18
COMMON COMPETENCIES				
LESSON 7. APPLYING SAFETY MEASURES IN FARM OPERATIONS (SMO)				
<ul style="list-style-type: none"> Work tasks in farm operations Places for safety measures Time for safety measures Tools, materials, and outfits 	The learner demonstrates an understanding of the underlying theories in applying safety measures in farm operations.	The learner independently observes safety measures in farm operations based on TESDA Training Regulations.	LO 1. Determine areas of concern for safety measures. 1.1 Identify work tasks in line with farm operations. 1.2 Determine place for safety measures in line with farm operations. 1.3 Determine time for safety measures in line with farm operations. 1.4 Prepare appropriate tools, materials and outfits in line with job requirements.	TLE_AFAACP9-12SMO-If-19

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<ul style="list-style-type: none"> • Safety precautions in using tools • Personal Protective Equipment (PPE) • Effectivity/shelf life/expiration of materials • Tips for emergency procedures • Hazards/risks in the workplace • Principles of HACCP 			LO 2. Apply appropriate safety measures. 1.1 Use tools and materials according to specifications and procedures. 1.2 Wear outfits according to farm requirements 1.3 Observe strictly the effectivity/shelf life/expiration of materials. 1.4 Know and follow emergency procedures to ensure a safework requirement. 1.5 Identify and report hazards in the workplace in line with farm guidelines.	TLE_AFAACP9-12SMO-Ig-h-20
<ul style="list-style-type: none"> • Proper storage of tools, materials and outfit • Labeling of unused materials • Waste management 			LO 3. Safekeep/dispose tools, materials and outfit. 3.1 Clean and store used tools and outfit in designated areas. 3.2 Label properly and store unused materials according to manufacturers recommendation and farm requirements. 3.3 Dispose waste materials according to manufacturers, government and farm requirements.	TLE_AFAACP9-12SMO-Ii-21
LESSON 8: USING FARM TOOLS AND EQUIPMENT (UFT)				
<ul style="list-style-type: none"> • Farm tools and their uses • Pre-operational check up of tools 	The learner demonstrates an understanding of the underlying theories in using farm tools and equipment	The learner independently uses farm tools and equipment based on manufacturers manual.	LO 1. Select and use farm tools 1.1 Identify appropriate farm tools according to requirement/use. 1.2 Check and report for faults and defects of farm tools in accordance with farm procedures. 1.3 Safely use appropriate tools and equipment according to job requirements and manufacturers conditions.	TLE_AFAACP9-12UFT-Ij-22

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> • Farm equipment and their uses • Pre-operation check-up of equipment • Safety procedures in the use of equipment 			<p>LO 2. Select and operate farm equipment.</p> <p>1.1 Identify appropriate farm equipment.</p> <p>1.2 Read carefully instructional manual of the farm tools and equipment prior to operation.</p> <p>1.3 Conduct pre-operation check-up in line with manufacturers manual.</p> <p>1.4 Identify and report faults in farm equipment in line with farm procedures.</p> <p>1.5 Use farm equipment according to its function.</p> <p>1.6 Follow safety procedures.</p>	<p>TLE_AFAACP9-12UFT-IIa-b-23</p>
<ul style="list-style-type: none"> • Maintenance of tools and equipment 			<p>LO 3. Perform preventive maintenance.</p> <p>3.1 Clean tools and equipment immediately after use in line with farm procedures.</p> <p>3.2 Perform routine check-up and maintenance.</p> <p>3.3 Store tools and equipment in designated areas in line with farm procedures.</p>	<p>TLE_AFAACP9-12UFT-IIc-24</p>
LESSON 9: PERFORMING ESTIMATION AND BASIC CALCULATION (PEC)				
<ul style="list-style-type: none"> • Farm inputs • Labor requirement • Estimate farm inputs and labor requirements 	<p>The learner demonstrates an understanding of the underlying theories in performing estimation and basic calculation.</p>	<p>The learner independently performing calculation and basic calculation based on TESDA Training Regulations.</p>	<p>LO 1. Perform estimation.</p> <p>1.1 Identify job requirements from written or oral communications.</p> <p>1.2 Estimate quantities of materials and resources required to complete a work task.</p> <p>1.3 Estimate the time needed to complete a work activity.</p> <p>1.4 Make accurate estimate for work completion.</p> <p>1.5 Report estimate of materials and resources to appropriate person.</p>	<p>TLE_AFAACP9-12PEC-IIId-25</p>

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> • Perform calculation • System of measurement • Units of measurement • Conversion of units • Fraction and decimals • Percentage and ratio 			<p>LO 2. Perform basic workplace calculation.</p> <p>2.1 Identify calculations to be made according to job requirements.</p> <p>2.2 Identify correct method of calculation.</p> <p>2.3 Ascertain system and units of measurement to be followed.</p> <p>2.4 Perform calculation needed to complete work tasks using the four basic process of addition, division, multiplication and subtraction.</p> <p>2.5 Calculate whole fraction, percentage and mixed number to complete the task.</p>	TLE_AFAACP9-12PEC-IIe-26
CORE COMPETENCIES				
LESSON 10. PREPARING LAND FOR AGRICULTURAL CROP PRODUCTION (PLA)				
<ul style="list-style-type: none"> • Planting plan and its interpretation for a range of crops <ul style="list-style-type: none"> - Different planting plans (based on crops to be planted) • Method and order of cultivation • OSHS hazards and risks, including appropriate controls <ul style="list-style-type: none"> - Occupational safety and health standards (OSHS), relating to preparation of land • Selection, use and maintenance of PPE <ul style="list-style-type: none"> - What is Personal Protective Equipment (PPE)? • Environmental implications of site cultivation and legislations <ul style="list-style-type: none"> - Different environmental implications - Environmental rules and 	The learner demonstrates an understanding of concepts, underlying theories and principles in preparing land for agricultural crop production.	The learner independently prepares land for agricultural crop production based on required task.	<p>LO 1. Prepare for cultivation.</p> <p>1.1 Interpret requirements for the work to be undertaken according to planting plan.</p> <p>1.2 Identify the method and order of cultivation from the planting plan.</p> <p>1.3 Interpret the method and order of cultivation from the planting plan.</p> <p>1.4 Identify OHS hazards in accordance with OHS requirements and procedures.</p> <p>1.5 Assess OHS hazards in accordance with OHS requirements and procedures.</p> <p>1.6 Implement suitable controls in OHS hazards according to OHS requirements and procedures.</p> <p>1.7 Select suitable personal protective equipment (PPE).</p> <p>1.8 Maintain suitable personal protective equipment (PPE).</p> <p>1.9 Use suitable personal protective</p>	TLE_AFAACP9-12PLA-IIIf-h-27

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> regulations/ legislations - Assessing environmental implications - Necessary actions to be taken based on assessment 			<ul style="list-style-type: none"> equipment (PPE). 1.7 Identify the environmental implications of cultivating the site. 1.8 Assess environmental implication of cultivating the site. 1.9 Take responsible action based on the assessment. 	
<ul style="list-style-type: none"> • Types, uses and selection of vehicles and equipment for site cultivation • Maintenance and servicing of vehicles and equipment <ul style="list-style-type: none"> - Inspection and minor troubleshooting of vehicles and equipment • Proper disposal of wastes related to maintenance and servicing work <ul style="list-style-type: none"> - Environmental rules and regulations on waste disposals • Documentation and record keeping of maintenance and servicing activities • 5S and 3Rs 			<p>LO 2. Prepare the cultivating equipment.</p> <ul style="list-style-type: none"> 2.1 Select the vehicles and equipment required for site cultivation according to the planting plan and organization guidelines. 2.2 Service the vehicles and equipment that are not in good condition and replace worn parts to ensure reliability during cultivation. 2.3 Adjust the vehicles and equipment to ensure reliability during cultivation. 2.4 Dispose safely and appropriately all containers, leftover fluids, waste and debris from the maintenance and servicing work. 2.5 Document all maintenance and servicing works according to the requirements of the organization’s record keeping system. 	<p>TLE_AFAACP9-12PLA-IIh-j-28</p>
<ul style="list-style-type: none"> • Land clearing operation <ul style="list-style-type: none"> - Removal of previous crop - Incorporating - Burning • Cultivation practices and procedures <ul style="list-style-type: none"> - Reading cultivation plan • OSHS hazards and risks related to soil cultivation • Selection, use and maintenance 			<p>LO 3. Cultivate soil.</p> <ul style="list-style-type: none"> 3.1 Remove previous crop or land clearance according to the organizations’ guidelines. 3.2 Incorporate previous crop or land clearance according to the organizations’ guidelines. 3.3 Burn previous crop or land clearance according to the organizations’ guidelines. 3.4 Follow cultivation plan for each site. 3.5 Complete cultivation plan for each site. 	<p>TLE_AFAACP9-12PLA-IIIa-d-29</p>

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> of PPE • Operation, including adjustments, of vehicles and equipment for quality cultivation • Interpretation of schedule, resources and cultivation requirements from the planting plan 			<ul style="list-style-type: none"> 3.6 Assess OHS hazards. 3.7 according to OHS procedures and requirements. 3.8 Implement suitable controls for OSHS hazards according to OSHS procedures and requirements. 3.9 Use suitable personal protective equipment. 3.10 Maintain suitable personal protective equipment. 3.11 Operate vehicles and equipment in a safe, effective and efficient manner and at the right speeds to suit the conditions. 3.12 Adjust the vehicles and equipment as necessary to maximize the quality of cultivation. 3.13 Meet target schedule, resources and quality requirements of the planting plan all the time. 	
<ul style="list-style-type: none"> • Planting layout • Soil profiling • Fertilizers, ameliorants, and/or other pre-planting treatments <ul style="list-style-type: none"> - FPA guidelines - OSHS • Applying weed and pest • Controlling measures <ul style="list-style-type: none"> - Types of weed controlmeasures - Different pest control measures • Assessment of environmental implications of site preparation <ul style="list-style-type: none"> - Different environmental implications of site preparation 			<p>LO 4. Prepare site for planting.</p> <ul style="list-style-type: none"> 4.1 Complete the planting layout and soil profiles as required by the planting plan. 4.2 Apply fertilizers, ameliorants, and/or other pre-planting treatments as required by the planting plan. 4.3 Applyweed and pest control measures as required by the planting plan. 4.4 Assess the environmental implications of site preparation and, if necessary, take responsible action. 	<p>TLE_AFAACP9-12PLA-IIIe-h-30</p>

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> - Legislations relevant to site preparations - Required actions to be taken based on assessment 				
<ul style="list-style-type: none"> • Cleaning and storing equipment according to manufacturers' specifications, organizational procedures and regulations • Proper disposal of wastes from cleaning and maintenance work <ul style="list-style-type: none"> - Environmental rules and regulations of wastes disposals • Documentation and record keeping <ul style="list-style-type: none"> - Land preparation activities - Waste disposal activities 			<p>LO 5. Complete land preparation operations.</p> <p>5.1 Clean and store vehicles and equipment to minimize damage according to manufacturer's specifications, organizational procedures, and regulations.</p> <p>5.2 Dispose safely and appropriately all containers, leftover fluids, waste and debris from the cleaning and maintenance work.</p> <p>5.3 Complete all required records and documentation accurately and promptly according to organizational requirements.</p>	<p>TLE_AFAACP9-12PLA-IIIi-j-31</p>
LESSON 11: IMPLEMENTING A POST-HARVEST PROGRAM (PHP)				
<ul style="list-style-type: none"> • Types of post-harvest operations • Marketing plan • Material Safety Data Sheets (MSDS) • Types, uses and selection of materials, tools and machinery equipment for post-harvest activities • Pre-operational and safety checks on machinery, tools and equipment • OHS hazards and risks assessment and its control <ul style="list-style-type: none"> - OSHS - Reporting to supervisor 	<p>The learner demonstrates an understanding of the underlying concepts and principles in implementing a post-harvest program.</p>	<p>The learner independently performs the post harvest program based on the farm environment procedure/ legislation and industry standards.</p>	<p>LO 1. Prepare for implementation of post-harvest operations.</p> <p>1.1 Identify post-harvest operations to be performed according to farm work procedures, marketing plan and industry guidelines.</p> <p>1.2 Select materials, tools, equipment, and machinery according to farm work procedures.</p> <p>1.3 Carry-out pre-operational and safety checks on tools, equipment and machinery according to manufacturer's specifications, and farm work procedures.</p> <p>1.4 Assess OHS hazards in accordance with OSHS policies and procedures.</p>	<p>TLE_AFAACP9-12PHP-IVa-b-32</p>

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> • Selection, use and maintenance of PPE 			1.5 Implement suitable controls to OHS hazards according to OSHS policies and procedures. 1.6 Report on assessment and control of OHS hazards to supervisor. 1.7 Use suitable safety and PPE. 1.8 Maintain suitable safety and PPE.	
<ul style="list-style-type: none"> • Identification of the farm work team members • Task coordination and consultation with supervisor • Assessment of environmental implications of post-harvest work <ul style="list-style-type: none"> - Different environmental implications of post-harvest work - Control of environmental implications of post-harvest work based on assessment • Maintenance of clean, safe and hygienic work area 			LO 2. Coordinate post-harvest work. 2.1 Coordinate in a sequential, timely and effective manner with the farm work team. 2.2 Undertake post-harvest operations according to OHS requirements and with due consideration of the environmental implications. 2.3 Maintain a clean, safe and hygienic work area throughout the completion of work.	TLE_AFAACP9-12PHP-IVc-d - 33
<ul style="list-style-type: none"> • Grading harvested produce • Labelling of harvested produce • Handling and disposal of out-of specification/ standard produce <ul style="list-style-type: none"> - Identifying out-of-specification/ standard produce • Types and selection of post-harvest treatments • Conforming the timing, rate, application method, environmental requirements and handling techniques with the requirements of harvested 			LO 3. Implement post-harvest work. 3.1 Grade harvested produce according to the marketing plan and farm work procedures. 3.2 Label harvested produce according to the marketing plan and farm work procedures. 3.3 Dispose produce that does not meet specifications and farm standards according to farm environmental procedures. 3.4 Select post-harvest treatments according to harvested produce requirements, farm integrated pest management strategy, and the marketing plan. 3.5 Follow timing, rate, application method,	TLE_AFAACP9-12PHP-IVe-f-34

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
produce. <ul style="list-style-type: none"> • Different post- harvest practices • Minimizing damage to produce <ul style="list-style-type: none"> - Types of post- harvest damages • Cleaning and maintaining tools, equipment and machinery 			environmental requirements and handling techniques to the requirements of the harvested produce, farm work procedures, and industry best practices. 3.6 Apply post-harvest practices that are economical, methodical and meet established work schedules and with minimum damage to produce. 3.7 Maintain tools, equipment and machinery according to farm work procedures.	
<ul style="list-style-type: none"> • Waste disposal requirements of the farm <ul style="list-style-type: none"> - Types of farm wastes - Types of hazardous materials - Environmental legislations • Operational tasks in the farm relating to waste disposal • Monitoring waste collection and disposal • Reporting on impact of waste disposals to supervisors <ul style="list-style-type: none"> - Various impacts of waste disposal to business viability - Reporting procedures 			LO 4. Implement hazardous waste disposal guidelines. 4.1 Review the waste disposal requirements of the farm. 4.2 Determine the operational tasks related to waste disposal. 4.3 Monitor the collection and disposal of waste according to farm environmental procedures. 4.4 Report promptly the conditions likely to impact on business viability.	TLE_AFAACP9-12PHP-IVg-35
<ul style="list-style-type: none"> • Packaging requirements for agronomic produce • Marketing plan relating to packaging • Types of packaging materials, including environment-friendly materials • Package produce documentation and record keeping of packaging processes 			LO 5. Implement packaging requirements of produce. 5.1 Determine operational task on packaging requirements specified in the marketing plan and farm work procedures. 5.2 Conform packaging of produce to the requirements of harvesting, marketing plan and industry best practice. 5.3 Select packaging materials based on environmentally sound principles. 5.4 Record packaging processes according to farm work procedures.	TLE_AFAACP9-12PHP-IVh-36

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> • Types of storage facility • Storage principles and practices; good warehouse keeping <ul style="list-style-type: none"> - Cool chain principles and practices • Marketing plan relating to storage of produce • Storage requirements for agronomic produce <ul style="list-style-type: none"> - Characteristics and procedures for the use of cold storage rooms - The correct storage temperatures for a range of produce - Humidity levels and their effect on the quality of produce • Handling agronomic produce <ul style="list-style-type: none"> - Hygiene issues in the handling and storage of plant produce • Storage processes and facilities • Remedial actions based on monitoring results • Documentation and record storage processes and conditions 			<p>LO 6. Implement storage requirements of produce.</p> <p>6.1 Identify types of storage facility.</p> <p>6.2 Apply storage principles and practices according to good warehouse keeping.</p> <p>6.3 Review storage requirements in the marketing plan.</p> <p>6.4 Determine operational tasks on storage requirements specified in the marketing plan and farm work procedure.</p> <p>6.5 Conform storage and handling of produce to the requirements of the harvested produce, marketing plan, and industry best practices.</p> <p>6.6 Monitor storage processes and facilities</p> <p>6.7 Apply remedial actions based on monitoring activities.</p> <p>6.8 Record storage processes and conditions according to farm work procedures.</p>	<p>TLE_AFAACP9-12PHP-IVi-j-37</p>
LESSON 12: IMPLEMENTING A PLANT NUTRITION PROGRAM (IPN)				
<ul style="list-style-type: none"> • Types of plant species and varieties • Analyzing nutrients/composition of soil <ul style="list-style-type: none"> - Soil sampling techniques - Soil analysis • Application of materials for soil and plant treatments 	<p>The learner demonstrates an understanding of the underlying concepts and principles in implementing plant nutrition program.</p>	<p>The learner independently performs the plant nutrition program based on the TESDA Training Regulation and Plant Nutrition Requirement Manual.</p>	<p>LO 1. Prepare for implementation of the plant nutrition program.</p> <p>1.1 Identify goals and target site for implementation of the plant nutrition program.</p> <p>1.2 Identify soils, plant species, and varieties according to farm work procedures.</p> <p>1.3 Follow soil sampling</p>	<p>TLE_AFAACP9-12IPN-Ia-b-38</p>

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> - Different materials for soil and plant treatments - Sourcing of materials • OHS hazards, risks, and its control <ul style="list-style-type: none"> - OSHS - Environmental rules and regulations • Selection, use, and maintenance of PPE 			<p>techniques/procedures.</p> <p>1.4 Analyze soil composition/nutrients of the area and adjacent lands following the soil sampling procedures.</p> <p>1.5 Identify materials for soil and plant treatments.</p> <p>1.6 Use and store materials for soil and plant treatments per manufacturers' specifications.</p> <p>1.7 Assess OHS hazards in accordance with OHS requirements and procedures.</p> <p>1.8 Control OHS hazards in accordance with OHS requirements and procedures.</p> <p>1.9 Use suitable personal PPE according to job/OHS requirements and procedures.</p> <p>1.10 Maintain PPE according to job/OHS requirements and procedures.</p>	
<ul style="list-style-type: none"> • Soil test kit • Soil ph monitoring and plant growth • Factors affecting soil pH • Selection and sourcing of products useful in changing soil pH • Application of products <ul style="list-style-type: none"> - Types of application methods • Assessing application methods <ul style="list-style-type: none"> - Environmental implications of application methods 			<p>LO 2. Monitor soil pH.</p> <p>2.1 Identify the materials inside the soil test kit.</p> <p>2.2 Monitor soil pH during implementation in relation to plant nutrition requirement and according to farm work procedures.</p> <p>2.3 Determine the factors affecting the soil pH.</p> <p>2.4 Select products useful in changing soil pH according to farm work procedures.</p> <p>2.5 Source products useful in changing soil pH according to farm work procedures.</p> <p>2.6 Assess product application methods according to product type, soil type, farm work procedures, and in due consideration of the environmental implications.</p>	<p>TLE_AFAACP9-12IPN-Ic-d-39</p>

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> • Common nutrient deficiency and toxicity problems <ul style="list-style-type: none"> - Common nutrient deficiency and toxicity problems in plants - Visual inspections of deficiency and toxicity - Plant nutrient requirement - Soil nutrients • Causes of nutrition and toxicity problems • Selection of soil ameliorants <ul style="list-style-type: none"> - Different soilameliorants • Sources of soil ameliorants 			<p>LO 3. Determine nutritional problems in plants.</p> <p>3.1 Identify common nutrient deficiency and toxicity problems in plants using visual inspection in accordance with crop production manuals.</p> <p>3.2 Consult supervisor and/or nutritional specialist to determine causes of nutritional or toxicity problems.</p> <p>3.3 Select soil ameliorants to improve soil fertility according to farm work procedures.</p> <p>3.4 Source soil ameliorants to improve soil fertility according to farm work procedures.</p>	<p>TLE_AFAACP9-12IPN-Ie-40</p>
<ul style="list-style-type: none"> • Types and uses of various fertilizers • Soil types • Assessment of fertilizer application methods • Plant growth cycle • Farm fertilizer calendar • Handling and storage of fertilizers • Environmental implications of fertilizer application 			<p>LO 4. Prepare to use fertilizers.</p> <p>4.1 Select the fertilizer to be used according to soil nutrient requirements, farm work procedures, in consultation with the supervisor and/or nutritional specialist and in due consideration of the environmental implications.</p> <p>4.2 Assess fertilizer application methods according to fertilizer type, soil type, farm work procedures, and in due consideration of the environmental implications.</p> <p>4.3 Determine the plant growing cycle and the farm fertilizer calendar.</p> <p>4.4 Handle fertilizers cautiously to ensure minimal detrimental environmental impact according to farm work procedures.</p> <p>4.5 Store fertilizers to ensure minimal detrimental environmental impact according to farm work procedures.</p>	<p>TLE_AFAACP9-12IPN-If-g-41</p>

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> • Selection and uses of farm tools, equipment and machinery for fertilizer application • Conduct of pre-operational and safety checks on tools, equipment, and machinery • Calibration and adjustment of tools, equipment, and machinery 			<p>LO 5. Prepare application equipment.</p> <p>5.1 Identify the types and uses of tools, equipment, and machinery for fertilizer application.</p> <p>5.2 Observe pre-operational safety procedures on tools, equipment, and machinery according to manufacturers’ specifications and farm work procedures.</p> <p>5.3 Calibrate and adjust tools, equipment, and machinery according to manufacturer’s guidelines and farm work procedures.</p>	<p>TLE_AFAACP9-12IPN-Ih-42</p>
<ul style="list-style-type: none"> • Selection of fertilizers based on soil analysis and plant needs • Calculation of fertilizer application rates • Proper fertilizer application, including rate, timing and method • Operate equipment and machinery for fertilizer application • Record keeping of product application activities • Environmental implications of fertilizer application • Documentation of target to the plant nutrition program 			<p>LO 6. Apply specific products at appropriate rates.</p> <p>6.1 Select specific products of fertilizers based on suitability to meet plant needs according to farm work procedures.</p> <p>6.2 Calculate product application rates to optimise plant benefit and minimize environmental impact according to manufacturers’ specifications and farm work procedures.</p> <p>6.3 Apply specific products at the correct rate, timing, and method according to the product type and analysis, manufacturers specifications, farm work procedures, and in due consideration of the environmental implications.</p> <p>6.4 Record product applications according to farm work procedures.</p> <p>6.5 Document the target plant response to the plant nutrition program, as well as any non-target effects, such as: environmental impact or pest responses according to farm work procedures.</p> <p>6.6 Report findings on product applications to supervisors according to farm work procedures.</p>	<p>TLE_AFAACP9-12IPN-Ii-j-43</p>

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
LESSON 13: CONTROLLING WEEDS (CTW)				
<ul style="list-style-type: none"> • Different types of weeds • Different types of beneficial organisms • Recording identified weeds and beneficial organisms • Scope, density and size of weed infestation • Level of weed infestations • Integrated pest Management principles (IPM) 	The learner demonstrates an understanding of the underlying concepts and principles in controlling weeds.	The learner independently performs weeds control based on the Integrated Pest Management (IPM) manual and crop production manual.	LO 1. Assess weed infestation. 1.1 Record weeds and beneficial organisms in the field in accordance with crop production manuals. 1.2 Report weeds and beneficial organisms in the field in accordance with crop production manuals. 1.3 Assess scope, density, and size of the infestation based on farm work procedures. 1.4 Identify levels of weed infestations tolerated by the client, market or environment in accordance with the integrated pest management (ipm) strategy. 1.5 Identify weed infestation levels, which plant health or growth objectives are compromised in accordance with crop production manuals. 1.6 Obtain professional advice as required according to enterprise guidelines.	TLE_AFAACP9-12CTW-IIa-b-44
<ul style="list-style-type: none"> • Methods of controlling weeds <ul style="list-style-type: none"> - IPM principles • Tools, equipment and implements for weed control • PPE • Control measures <ul style="list-style-type: none"> - Environmental implications of weed control measures • OSHS requirements • Environmental legislative requirements 			LO 2. Plan the implementation of control measures. 2.1 Select control measures suitable for the infestation in accordance with the IPM strategy. 2.2 Select tools, equipment and implement for each work activity according to enterprise work procedures. 2.3 Assess OHS Hazards in accordance with OSHS requirements and procedures. 2.4 Select control measures in full consideration of environmental implications. 2.5 Select suitable safety equipment and PPE	TLE_AFAACP9-12CTW-IIc-e-45

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
			<p>in accordance with OSHS requirements and procedures.</p> <p>2.6 Maintain suitable safety equipment and PPE in accordance with OHS requirements and procedures.</p> <p>2.7 Store suitable safety equipment and PPE in accordance with OSHS requirements and procedures.</p>	
<ul style="list-style-type: none"> • Work coordination procedures • Consultation with supervisor • Implementation of control measures <ul style="list-style-type: none"> - IPM activities - Cover cropping to control harmful weeds - Land preparation to eliminate weeds - OSHS requirements • Maintenance of clean and safe work area • Maintenance of records 			<p>LO 3. Implement control measures.</p> <p>3.1 Coordinate enterprise work team, contractors, and IPM product suppliers in a sequential, timely and effective manner in consultation with the supervisor and following farm work procedures.</p> <p>3.2 Implement control measures according to the IPM principles (e.g., Water Management for Rice) and OHS requirements.</p> <p>3.3 Maintain safe and clean work area throughout and on completion of each work activity according to OHS requirements.</p> <p>3.4 Prepare land to ensure weed elimination in accordance with farm work procedures.</p> <p>3.5 Maintain records as required by legislation and enterprise guidelines.</p>	<p>TLE_AFAACP9-12CTW-IIIf-h-46</p>
<ul style="list-style-type: none"> • Monitoring of control methods and the side effects on: <ul style="list-style-type: none"> - Plants - Animals - External environment - Range of site monitoring • Effectivity of control methods <ul style="list-style-type: none"> - Analysis techniques used in IPM program • Adjustments to IPM methods 			<p>LO 4. Monitor control methods.</p> <p>4.1 Monitor control methods to identify side effects to other plants, animals or external environment in accordance with farm work procedures.</p> <p>4.2 Assess effectiveness of control methods in reference to specified industry and enterprise standards.</p> <p>4.3 Implement adjustments to IPM control methods where necessary to meet enterprise specifications.</p>	<p>TLE_AFAACP9-12CTW-IIi-j-47</p>

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
LESSON 14: PREPARING AND APPLYING CHEMICALS (PAC)				
<ul style="list-style-type: none"> • Nature and level of pests infestation and diseases • Types of weeds and insects and its effects on crops • Common plant diseases and theirsymptoms • Requirement for chemical use as an option to IPM 	<p>The learner demonstrates an understanding of the underlying concepts and principles in preparing and applying chemicals.</p>	<p>The learner independently performs preparation and application of chemicals based on the Crop Production Manual, IPM and Enterprise Guidelines.</p>	<p>LO 1. Determine the need for chemical use.</p> <ol style="list-style-type: none"> 1.1 Identify nature and level of the pest, weed infestation or disease based on crop manuals and farm work procedures. 1.2 Determine common plant diseases and their symptoms. 1.3 Assess need for action and the requirement for chemical use as an option within an integrated pest management strategy based on farm work procedures. 1.4 Undertake hazard and risk analysis of different chemical options in accordance with OSHSrequirements and environmental policies and procedures. 1.5 Identify requirement for chemical application including coverage by appropriate insurance according to enterprise guidelines and chemical application regulations. 1.6 Confirm requirement for chemical application including coverage by appropriate insurance according to enterprise guidelines and chemical application regulations. 	<p>TLE_AFAACP9-12PAC-IIIa-e-48</p>
<ul style="list-style-type: none"> • Principles and practices in chemical use • Understanding chemical labels and Material Safety Data Sheets (MSDS) • Preparation of chemicals • Legislative requirements and codes of practice relevant to chemical use and hazardous 			<p>LO 2. Prepare appropriate chemical.</p> <ol style="list-style-type: none"> 2.1 Determine the principles and practices of using chemicals. 2.2 Read Chemical Label and Material Safety Data Sheets (MSDS) in accordance with manufacturers’ specifications. 2.3 Understand Chemical Label and MSDS in accordance with manufacturers’ specifications. 	<p>TLE_AFAACP9-12PAC-IIIif-j-49</p>

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waste substances - OSHS			2.4 Check labels to ensure that chemicals meet user requirements and specifications in accordance with farm work procedures and codes of practice. 2.5 Prepare chemicals for the intended purpose to suit the organization’s chemical use strategy based on manufacturers’ specifications and farm work procedures. 2.6 Follow legislation and regulations concerning chemical use in accordance with manufacturers’ specifications and government regulating bodies. 2.7 Identify Occupational Health and Safety (OHS) hazards and risks and risk control requirements associated with use of the chemical in accordance with OHS requirements and procedures.	
<ul style="list-style-type: none"> • PPE based on product label and MSDS • Calibration and adjustment of equipment and tools damage, wear or malfunctions equipment and tools <ul style="list-style-type: none"> - Segregate defective tools - Basic repair of equipment - Report conditions of equipment • Mixing of chemicals <ul style="list-style-type: none"> - Calculation of appropriate mixing rates - Chemical use according to product label and MSDS - Chemical compatibility - OSHS - Legislative requirements and codes of practice relevant to 			LO 3. Prepare to use chemicals according to the label and MSDS. 3.1 Select Personal Protective Equipment according to the product label and MSDS. 3.2 Check Personal Protective Equipment according to the product label and MSDS. 3.3 Follow requirements for the selection, preparation, and adjustment of application equipment and tools for the appropriate chemicals based on manufacturers’ specifications. 3.4 Follow requirements for pre and post-operative checks on equipment based on manufacturers’ specifications. 3.5 Report damage, wear or malfunctions of any equipment in accordance with organizational reporting system. 3.6 Repair damage, wear or malfunctions of any equipment in accordance with	TLE_AFAACP9-12PAC-IVa-c-50

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
chemical use and hazardous substances			organizational reporting system. 3.7 Define mixing rates as per manufacturers' specifications. 3.8 Calculate mixing rates as per manufacturers' specifications. 3.9 Follow directions, standards and legislative requirements for mixing chemicals based on manufacturers' specifications, OHS requirements, and government regulations.	
<ul style="list-style-type: none"> • Assessment of meteorological conditions • Meteorological conditions in relation to <ul style="list-style-type: none"> - chemical use - forecasts • Identifying hazards of chemicals • Assessing and controlling risks <ul style="list-style-type: none"> - Environmental effects of chemicals - Modes of chemical absorption and paths of entry, including risks to applicators and the public • Calibration and adjustment of equipment and tools • Applying chemicals <ul style="list-style-type: none"> - Procedures and precautions in using chemicals - License requirements and relevant government authorities in chemical handling and application - Drift management - OSHS - Legislative requirements and 			LO 4. Apply chemicals. 4.1 Assess meteorological forecasts and condition prior to and during application per enterprise guidelines and based on PAGASA weather bulletins. 4.2 Identify hazards of particular chemicals in accordance to manufacturers' specifications and OHS procedures. 4.3 Assess risks to others and the environment in accordance with OHS requirements and procedures and environmental regulations. 4.4 Control risks to others and the environment in accordance with OHS requirements and procedures and environmental regulations. 4.5 Follow application equipment calibration procedures according to manufacturers' operating manual. 4.6 Interpret procedures and precautions for the use of the chemicals from labels and accreditation requirements based on enterprise guidelines. 4.7 Requirements for chemical handling and application are determined according to directions, standards and legislative	TLE_AFACP9-12PAC-IVd-f-51

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> - Codes of Practice relevant to chemical use and hazardous substances • Following chemical spills procedure or accident procedures • First aid practices and procedures 			requirements. 4.8 Apply chemicals safely and effectively according to directions and OHS procedures. 4.9 Follow chemical spills or accident procedures in accordance with OHS procedures. 4.10 Provide first aid equipment available on site following OHS procedures.	
<ul style="list-style-type: none"> • Tools and equipment for cleaning up chemicals • Cleaning requirements and procedures for: <ul style="list-style-type: none"> - Sites - Equipment used in chemical applications - Tools used in chemical applications • Proper disposal of unused chemicals, containers and spilled materials • Proper storage of chemicals • Procedures for reporting chemical spills 			LO 5. Clean up following chemical application. 5.1 Select tools or equipment required to clean up chemicals. 5.2 Follow cleaning requirements of equipment and sites based on farm work procedures and organizational directions and standards. 5.3 Define directions standards and requirements for disposing of unused chemicals, empty containers or spilled material in accordance with OSHS procedures and environmental legislation. 5.4 Follow procedures for reporting chemical spills according to organizational reporting system.	TLE_AFAACP9-12PAC-IVg-h-52
<ul style="list-style-type: none"> • Record keep related to chemical use according to: <ul style="list-style-type: none"> - organization procedures - label directions - legislation • Record details of specific chemical concerned <ul style="list-style-type: none"> - Chemical inventory • Procedures and requirements for reporting application details to 			LO 6. Record application details. 6.1 Record application of chemicals according to organization's procedures, label directions and legislation. 6.2 Record correctly the details of the specific chemical concerned in the chemical inventory according to regulations. 6.3 Record inventory of PPE and application equipment based on organizational reporting system.	TLE_AFAACP9-12PAC-IVi-j-53

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
management • Record keeping of injury and poisoning associated with chemical use			6.4 Follow procedures and requirements for reporting application details to senior management or client based on organizational reporting system. 6.5 Make and provide records of injury or poisoning associated with application of chemical based on organizational reporting system.	
CORE COMPETENCIES (AGRONOMIC)				
LESSON 15: ESTABLISHING AGRONOMIC CROPS (EAC)				
• Preparation of machinery and equipment: - Selection and use of machinery and equipment - Attach farm implements to machinery - Different farm implements for establishing agronomic crops - Calibration of machinery and equipment - Pre-operational and safety checks for machinery and equipment - Operating principles and operating methods for machinery and equipment • Assessment of OHS hazards and risks and its control - Identify existing and potential OHS hazards	The learner demonstrates an understanding of concepts, underlying theories and principles in establishing agronomic crops.	The learner independently established agronomic crops based on TESDA Training Regulation and required task.	LO 1. Prepare machinery and equipment for use. 1.1 Select machinery and equipment according to manufacturer’s specifications and work plan. 1.2 Prepare machinery and equipment according to manufacturer’s specifications and work plan. 1.3 Perform pre-operational and safety checks for seeding machinery and equipment. 1.4 Attach securely equipment for operation in accordance with manufacturer’s specifications and operating manual. 1.5 Calibrate equipment for operation in accordance with manufacturer’s specifications and operating manual. 1.6 Identify existing and potential OHS hazards in the workplace. 1.7 Assess risks in line with farm requirements and OHS procedures. 1.8 Control risks in line with farm requirements and OHS procedures.	TLE_AFAACP9-12EAC-Ia-c-54

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> • Monitoring soil and weather conditions <ul style="list-style-type: none"> - Optimal seeding conditions - Effects of weather conditions on seeding and fertilizer application • Sustainable land management and soil conservation techniques and land preparation • Requirements for seeding, pest and weed control activities <ul style="list-style-type: none"> - Confirm the activities against the work plan - Crop types - Preparation of seeds - Seeding methods - Application techniques - Fertilizer types, rates of application and crop nutrient requirements/ Integrated nutrients management techniques - Types of chemical pesticides and alternative pest control methods (non-chemical)/ Integrated Pest Management - Calculation of pesticide requirements and application rates • Contingency planning 			<p>LO 2. Prepare for agronomic crop establishment.</p> <p>2.1 Monitor soil and weather conditions for optimal seeding conditions according to farm work procedures.</p> <p>2.2 Recognize soil conservation and sustainable land management.</p> <p>2.3 Confirm soil conservation and sustainable land management practices in accordance with farm requirements and environmental concerns.</p> <p>2.4 Confirm seeding, fertilizer, and pest and weed control against the work plan.</p> <p>2.5 Prepare seeding, fertilizer, and pest and weed control requirements based on manufacturers' specifications using safe handling procedures.</p> <p>2.6 Calculate pesticide requirements and application rates.</p> <p>2.7 Prepare contingency plans for unusual seasonal conditions and pest/disease outbreaks according to farm work procedures.</p>	<p>TLE_AFAACP9-12EAC-Id-e-55</p>
<ul style="list-style-type: none"> • Selection, use and maintenance of personal protective equipment • Seeding activities <ul style="list-style-type: none"> - Seeding methods • Applying fertilizers <ul style="list-style-type: none"> - Application techniques 			<p>LO 3. Sow the crop.</p> <p>3.1 Select suitable personal protective clothing and equipment in accordance with OHS requirements.</p> <p>3.2 Use suitable personal protective clothing and equipment in accordance with OHS</p>	<p>TLE_AFAACP9-12EAC-If-g-56</p>

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> - Types of fertilizers - FPA guidelines • Coordinating pest and weed control treatments • Environmental implications of seeding operations and fertilizer application • Different environmental implications of the activities • Controlling environmental effects of the activities 			<p>requirements.</p> <p>3.3 Maintain suitable personal protective clothing and equipment in accordance with OHS requirements.</p> <p>3.4 Perform seeding methods and fertilizer applications in accordance with the seeding/application rate and the work plan.</p> <p>3.5 Coordinate pest and weed control treatment with seeding and fertilizer applications according to the work plan.</p> <p>3.6 Identify environmental implications associated with sowing operations in line with farm requirements and environmental regulations.</p> <p>3.7 Assess environmental implications associated with sowing operations in line with farm requirements and environmental regulations.</p> <p>3.8 Control environmental implications associated with sowing operations in line with farm requirements and environmental regulations.</p>	
<ul style="list-style-type: none"> • Record keeping related to seeding, machinery and equipment operation • Reporting machinery damage, faults or malfunctions • Procedures for cleaning, securing and storing machinery, equipment and materials 			<p>LO 4. Complete seeding operations.</p> <p>4.1 Maintain seeding, machinery and equipment operation records in accordance with farm requirements.</p> <p>4.2 Record machinery and equipment damage/ malfunctions or irregular performance in line with farm requirements and operating manual.</p> <p>4.3 Report machinery and equipment damage/ malfunctions or irregular performance in line with farm requirements and operating manual.</p> <p>4.4 Clean machinery and equipment in line with manufacturers' specifications and farm requirements.</p> <p>4.5 Secure machinery and equipment in line with</p>	<p>TLE_AFAACP9-12EAC-Ih-i-57</p>

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
			manufacturers' specifications and farm requirements. 4.6 Store machinery and equipment in line with manufacturers' specifications and farm requirements.	
LESSON 16: UNDERTAKING AGRONOMIC CROP MAINTENANCE ACTIVITIES (ACM)				
<ul style="list-style-type: none"> • Assessment of crops needs and conditions <ul style="list-style-type: none"> - Different conditions and needs of crop - Types of crop maintenance activities - Growth stages for a range of crops - Monitoring and recording procedure • Selection of pest and disease control measures <ul style="list-style-type: none"> - Pest and disease control alternatives - Economic threshold level • Measure soil moisture level <ul style="list-style-type: none"> - Moisture level of identified site in the farm - Use soil probe - Soil water percentage • Measure water requirements <ul style="list-style-type: none"> - Calculate water requirements - Stand crops - Weather conditions in the site 	The learner demonstrates an understanding of concepts, underlying theories and principles in performing agronomic crop maintenance activities.	The learner independently performs agronomic crop maintenance activities based on TESDA Training Regulation and required task.	LO 1. Assess agronomic crop condition, growth and requirement. <ol style="list-style-type: none"> 1.1 Monitor crop needs and conditions according to farm work procedures. 1.2 Assess crop needs and conditions according to farm work procedures. 1.3 Record crop needs and conditions according to farm work procedures. 1.4 Illustrate the growth stages for a range of crops. 1.5 Select pest and disease control measures based on species' type and infestation level according to farm work procedures and manufacturers' recommendation. 1.6 Determine the effects of maintenance activities on plant growth, habit and production level. 1.7 Measures regularly the soil moisture in identified sites in accordance with survey advice, farm work procedures, and crop water requirements. 1.8 Calculate water requirements in line with standing crop and forecast weather conditions. 	TLE_AFAACP9-12ACM-IIb-d-58

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> • Selection of suitable controls <ul style="list-style-type: none"> - OSHS hazards and risks assessment • Selection of tools, material and equipment <ul style="list-style-type: none"> - Types and uses of crop maintenance tools, equipment and machinery - Use and maintenance of PPE - Specialist sprays - Pre-operational and safety checks according to manufacturer's specifications and farm work procedures • Calibration and adjustment according to manufacturer's specifications and farm work procedures • Application of fertilizers <ul style="list-style-type: none"> - Proper fertilizer, amendments - Chipping or spot spraying • Assess and report crop growth stages and keys • Water application • Assessment of environmental impacts of the application <ul style="list-style-type: none"> - Adverse environmental impacts of fertilizer applications • Environmental regulations • FPA guidelines • PPE and OSHS requirements and procedures 			<p>LO 2. Apply fertilizer and amendments.</p> <p>2.1 Select tools, equipment and machinery according to manufacturers' specifications and farm work procedures.</p> <p>2.2 Use and maintain suitable personal protective (PPE) clothing in accordance with OSHS requirements.</p> <p>2.3 Perform pre - operational procedures for tools, equipment and machinery according to manufacturers' specifications and farm work procedures.</p> <p>2.4 Apply fertilizer, amendments, and water based on crop growth stages in accordance with farm work procedures and organization requirements.</p> <p>2.5 Apply water according to the need and requirements.</p> <p>2.6 Assess all applications in full consideration of adverse environmental conditions.</p>	<p>TLE_AFAACP9-12ACM-IIe-g-59</p>

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> • Monitoring crop maturity <ul style="list-style-type: none"> - Maturity index of agronomic crops - Monitor system of maintenance activities - Feedback provision - Monitor health requirements for agronomic crops • Corrective measures based on growing plan <ul style="list-style-type: none"> - Corrective measures in line with maintenance of crops • Harvesting crops <ul style="list-style-type: none"> - Cropping calendar 			<p>LO 3. Monitor crop condition, growth, and requirement.</p> <p>3.1 Monitor crop maturity and health for further application to be undertaken, if necessary, in accordance with standard procedures and in consultation with manager.</p> <p>3.2 Identify the different hygiene requirements for agronomic crops.</p> <p>3.3 Apply corrective measures as required according to growing plan.</p> <p>3.4 Determine harvesting according to the cropping calendar and in consultation with the property manager.</p>	<p>TLE_AFAACP9-12ACM-IIIh-i-60</p>
<ul style="list-style-type: none"> • Cleaning, maintenance and storage of tools, equipment and machinery • Proper waste collection and disposal <ul style="list-style-type: none"> - Environmental - rules and regulations on waste management • Record and report of crop maintenance activities 			<p>LO 4. Complete cleaning and hygiene operations.</p> <p>4.1 Clean tools, equipment and machinery according to manufacturers' specifications, and organizational procedures and regulations.</p> <p>4.2 Store tools, equipment and machinery according to manufacturers' specifications, and organizational procedures and regulations.</p> <p>4.3 Dispose waste materials from the site in an environmentally aware and safe manner according to farm work procedures and environmental regulations.</p> <p>4.4 Record work outcomes according to organizational procedures.</p>	<p>TLE_AFAACP9-12ACM-IIj-IIIa-61</p>

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
LESSON 17: UNDERTAKING AGRONOMIC CROP HARVESTING ACTIVITIES (ACH)				
<ul style="list-style-type: none"> • Harvesting requirements: <ul style="list-style-type: none"> - Work to be undertaken - Method of harvesting - Order of harvesting • Assessment and control OSHS hazards and risks <ul style="list-style-type: none"> - OSHS and risks • Use and maintenance of PPE • Environmental implications of harvesting • Windrowing/swathing as a harvesting strategy • Sampling of crops <ul style="list-style-type: none"> - Maturity index - Crop sampling method - Classification standards • Hygiene standards for crop and site <ul style="list-style-type: none"> - Different hygiene standards - In harvesting strategy and storage plan • Environmental regulations • Maturity parameters for a range of crops • Environmental factors affecting crop harvesting activities • Farm quality procedures and crop characteristics relative to varying market requirements • Selection, use and maintenance of PPE • OHS hazards and risks and controls • Selection and use of harvesting tools, equipment and machinery • Moisture and hygiene 	<p>The learner demonstrates an understanding of concepts, underlying theories and principles in performing agronomic crop harvesting activities.</p>	<p>The learner independently performs agronomic crop harvesting activities based on TESDA Training Regulation and required task.</p>	<p>LO 1. Prepare to harvest agronomic crops.</p> <ol style="list-style-type: none"> 1.1 Interpret requirements for the work to be undertaken, method and order of harvesting in accordance with the harvest strategy and maturity parameters. 1.2 Identify environmental factors affecting crop harvesting activities. 1.3 Follow farm quality procedures and crop characteristics relative to varying market requirements. 1.4 Identify OSHS hazards. 1.5 Assess suitable controls in accordance with OSHS requirements and procedures. 1.6 Implement suitable controls in accordance with OHS requirements and procedures. 1.7 Select suitable personal protective equipment according to job/OHS requirements and procedures. 1.8 Use suitable personal protective equipment according to job/OHS requirements and procedures. 1.9 Maintain suitable personal protective equipment according to job/OHS requirements and procedures. 1.10 Select harvesting tools, equipment and machinery according to farm work procedure. 1.11 Identify necessary action on the environmental implications of harvesting the crop based on farm work procedures and environmental regulations. 1.12 Assess necessary action on the environmental implications of harvesting the crop based on farm work procedures and environmental regulations. 	<p>TLE_AFAACP9-12ACH-IIIb-f-62</p>

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
requirements for the crop and equipment			1.13 Take necessary action on the environmental implications of harvesting the crop based on farm work procedures and environmental regulations.. 1.14 Identify the hygiene standards for the crop and the site according to the harvest strategy.	
<ul style="list-style-type: none"> • Cleaning and sanitizing procedures for harvesting machinery • Preparation of machinery and equipment • Machine maintenance procedures • Pre-operational and safety checks on tools, equipment • Machinery operating principles and methods • Operational procedures and standards for harvesting and ancillary equipment • Potential hazards associated with the operation of basic tools and equipment • Disposal of wastes materials <ul style="list-style-type: none"> - Different wastes - Environmental regulations and procedures • Recording and reporting maintenance and servicing activities 			LO 2. Prepare the harvesting equipment. 2.1 Clean harvesting machinery and other equipment from pests and other contaminants to maintain crop and site hygiene standards, as required by the harvest strategy and manufacturers' specifications. 2.2 Pre-operational and safety checks on tools, equipment, and machinery. 2.3 Assess all machinery and equipment for reliability. 2.4 Service all machinery and equipment for reliability. 2.5 Adjust appropriate parts of the machinery and equipment for harvesting conditions to ensure reliability during the harvest in accordance with manufacturers' specifications and operating manuals. 2.6 Replace appropriate parts of the machinery and equipment for harvesting conditions to ensure reliability during the harvest in accordance with manufacturers' specifications and operating manuals. 2.7 Dispose safely and appropriately all containers, leftover fluids, waste and debris from the maintenance and servicing work in conformance to environmental regulations. 2.8 Documents all maintenance and servicing according to the requirements of the organization's record keeping system.	TLE_AFAACP9-12ACH-IIIg-j-IVa-63

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<ul style="list-style-type: none"> • Use and maintainance of PPE • Assessment and control of OSHS hazards and risks • Environmental implications of harvesting activities • Conduct of harvestingoperation <ul style="list-style-type: none"> - Harvesting strategy - Safe operation of harvesting machinery and ancillary equipment at appropriately speeds to suit crop conditions • Maintaining quality harvest <ul style="list-style-type: none"> - Hygiene requirements for the crop and equipment - Check and adjust harvester and ancillary equipment including its height and other settings - Factors affecting quality of harvest • Safe and efficient harvesting while maintaining the highest degree of hygiene and quality possible • Selection, use, and maintenance of PPE 			<p>LO 3. Harvest crops.</p> <ul style="list-style-type: none"> 3.1 Perform harvesting following the harvest principles and techniques. 3.2 Identify environmental implications and OHS hazards. 3.3 Assess suitable controls in accordance with environmental regulations and OHS procedures. 3.4 Implement suitable controls in accordance with environmental regulations and OHS procedures. 3.5 Select suitable personal protective equipment according to job/OHS requirements and procedures. 3.6 Use suitable personal protective equipment according to job/OHS requirements and procedures. 3.7 Maintain suitable personal protective equipment according to job/OHS requirements and procedures. 3.8 Operate in a safe manner and speeds the harvesting machinery and ancillary equipment to suit crop conditions according to manufacturers’ specification and operating manuals. 3.9 Check the hygiene of all surfaces of harvester and ancillary equipment that come into contact with the crop to maximize the quality. 3.10 Maintain the hygiene of all surfaces of harvester and ancillary equipment that come into contact with the crop to maximize the quality. 3.11 Adjust the harvester and ancillary equipment including their height and other settings according to organizational guidelines and manufacturers’ 	<p>TLE_AFAACP9-12ACH-IVb-g-64</p>

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
			specifications. 3.12 Determine the factors affecting the quality of harvest required by organizational procedures and the harvest strategy.	
<ul style="list-style-type: none"> • Cleaning, maintenance and storage of tools, equipment, and machinery <ul style="list-style-type: none"> - Post-operational checks on tools, harvester and equipment • Proper waste collection and disposal <ul style="list-style-type: none"> - Environmental rules and regulations on waste management • Recording and reporting procedures <ul style="list-style-type: none"> - Accomplishing forms 			LO 4. Complete harvesting operations. 4.1 Clean equipment in accordance with manufacturers' specifications, organizational procedures and regulations. 4.2 Clean attachments and other ancillary equipment to minimize damage and to maximize hygiene according to manufacturers' specifications, organizational procedures and regulations. 4.3 Store attachments and other ancillary equipment to minimize damage and to maximize hygiene according to manufacturers' specifications, organizational procedures and regulations. 4.4 Apply insecticides as required by organizational procedures and the harvest strategy. 4.5 Dispose safely and appropriately all containers, leftover fluids, waste and debris from the maintenance and servicing work in conformance to environmental regulations and OHS procedures. 4.6 Complete accurately and promptly all required records and documentation in accordance with organizational requirements.	TLE_AFAACP9-12ACH-IVh-j-Ia-65
LESSON 18: SAVING, PREPARING AND STORING AGRICULTURAL SEED (SPS)				
<ul style="list-style-type: none"> • Calculating quantity of seed required • Calculating area of crop needed 	The learner demonstrates an understanding of concepts, underlying	The learner independently performs the standard procedures of selecting,	LO 1. Select seed from agricultural crops. 1.1 Calculate the quantity of seeds for the following season's crop according to	TLE_AFAACP9-12SPS-Ia-f-66

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<p>to produce the required seed quantity</p> <ul style="list-style-type: none"> • Seeding requirements per hectare for a range of crops • Seed selection • Selection of appropriate seed tests • Soil types and elevation/climatic conditions for a range of crops • Preservation of seed and plant health application of chemicals <ul style="list-style-type: none"> - Detrimental environmental impacts of chemicals. - Environmental controls and codes of practice applicable • Selection of appropriate personal protective equipment • Legislation and regulations relating to OSHS, chemical use and application, and handling and sale of seed 	<p>theories and principles in selecting, preparing and storing agricultural seed.</p>	<p>preparing and storing of agricultural seeds based on TESDA Training Regulation.</p>	<p>seeding rate, germination rate, area to be planted, and the seed’s health, vigour, and size.</p> <p>1.2 Select the quantity of seed for the following season’s crop according to seeding rate, germination rate, area to be planted, and the seed’s health, vigour, and size.</p> <p>1.3 Record the potential soil type and elevation/climatic conditions for the crop.</p> <p>1.4 Preserve seed and plant health, vigour and uniformity following the organization’s quality parameters.</p> <p>1.5 Undertake the application of any chemicals to the crop in full consideration of detrimental environmental impacts and in accordance with manufacturers’ specifications and procedures.</p> <p>1.6 Perform all work using the appropriate personal protective equipment and in accordance with OHS guidelines.</p>	
<ul style="list-style-type: none"> • Assessing seed: <ul style="list-style-type: none"> - Seed suitability to location, soil, and market requirements - Grading seeds - Criteria for grading seeds - Seed grading procedures • Seed preservation: <ul style="list-style-type: none"> - Fungicidal application - Seed treatment and cleaning measures; - inoculation treatments and seed dressings • Test sampling • Record keeping <ul style="list-style-type: none"> - Test sampling results 			<p>LO 2. Evaluate and grade seed.</p> <p>2.1 Assess harvested produce for its seed suitability in accordance with the location, soil, and organization’s production and marketing requirements.</p> <p>2.2 Grade the seed according to the required organizational quality parameters.</p> <p>2.3 Apply fungicidal and insecticidal dressings to the seed where appropriate and according to the organization’s production and marketing requirements.</p> <p>2.4 Prepare test samples for analysis by the analysing body, according to their guidelines.</p> <p>2.5 Forward test samples to the analysing body</p>	<p>TLE_AFAACP9-12SPS-If-j-IIa-67</p>

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> - Information regarding new varieties or trial results 			<ul style="list-style-type: none"> for analysis, according to their guidelines. 2.6 Keep records of observations, information gathered, and results of tests and grading according to the requirements of the organization and the industry. 2.7 Update records of observations, information gathered, and results of tests and grading according to the requirements of the organization and the industry. 2.8 Maintain records of observations, information gathered, and results of tests and grading according to the requirements of the organization and the industry. 2.9 Forward records to appropriate person for analysis and decision-making. 	
<ul style="list-style-type: none"> • Storage of seeds <ul style="list-style-type: none"> - Preparing storage facilities - Transferring seeds to storage - Storage procedures, techniques and requirements for seed and grain • Seed sampling procedures, testing and analysis • Monitoring activities: <ul style="list-style-type: none"> - Storage facility inspection and maintenance - Pests in stored grain and its control - Factors affecting viability of seeds • Common problems and corrective actions in maintaining seed quality • Record keeping on seed information and storage activities 			<p>LO 3. Store seed.</p> <ul style="list-style-type: none"> 3.1 Select hygienically storage facilities to be used according to good warehousing practices. 3.2 Prepare hygienically storage facilities to be used according to good warehousing practice. 3.3 Transfer seed according to the organizations OHS and hygiene guidelines in conditions that maintain its quality and germination capacity. 3.4 Store seed according to the organizations OHS and hygiene guidelines in conditions that maintain its quality and germination capacity. 3.5 Conduct periodical checks of seed in long-term storage for quality factors and viability according to enterprise requirements. 3.6 Take seed samples for laboratory following organizational sampling 	<p>TLE_AFAACP9-12SPS-IIa-e-68</p>

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<ul style="list-style-type: none"> • Environmental implications and OHS hazards and risks • OSHS 			<p>procedures according to prescribed guidelines.</p> <p>3.7 Prepare seed samples for laboratory following organizational sampling procedures according to prescribed guidelines.</p> <p>3.8 Analyze seed samples following organizational sampling procedures according to prescribed guidelines.</p> <p>3.9 Create clear and accurate records of seed storage, tests and inspections, as prescribed in the seed storage program.</p> <p>3.10 Maintain clear and accurate records of seed storage, tests and inspections, as prescribed in the seed storage program.</p> <p>3.11 Keep clear and accurate records of seed storage, tests and inspections, as prescribed in the seed storage program.</p> <p>3.12 Monitor the condition of storage facilities following the schedule and methods outlined in the seed storage program.</p> <p>3.13 Take appropriate corrective action, as required to maintain seed in accordance with enterprise requirements.</p> <p>3.14</p> <p>3.15 Undertake activities around the seed storage facilities according to the OHS guidelines detailed in the seed storage program.</p>	
<ul style="list-style-type: none"> • Delivery or supply terms in collecting and delivery of seeds • Sources of purchased seeds • Selling and purchasing of seeds • Legislation and regulations relating to contractor engagement, vehicle and plant use, and to the use, handling, 			<p>LO 4. Collect and deliver seeds.</p> <p>4.1 Establish seed delivery or supply terms in accordance with the organization’s collection or delivery procedures.</p> <p>4.2 Apply seed delivery or supply terms in accordance with the organization’s collection or delivery procedures.</p> <p>4.3 Purchase seeds in conformance to local</p>	<p>TLE_AFAACP9-12SPS-IIIf-g-69</p>

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<ul style="list-style-type: none"> movement, and sale of seed • Recording and documentation for tracking and handling of seeds 			<ul style="list-style-type: none"> legislation and regulations. 4.4 Follow regulations in the inter-municipal movement of seeds in accordance with local legislation and regulations. 	
LESSON 19: IMPLEMENTING VERTEBRATE PEST CONTROL PROGRAM (IVP)				
<ul style="list-style-type: none"> • Assessment of vertebrate pest control requirements <ul style="list-style-type: none"> - Types, species and nature - of vertebrate pests - Different control measures • Verification of type and severity of infestations <ul style="list-style-type: none"> - Inspection procedures - Selection and application of control agents and methods • Development of pest control program 	The learner demonstrates an understanding of concepts, underlying theories and principles in implementing vertebrate pest control program.	The learner independently performs the vertebrate pest control program based on TESDA Training Regulation and Integrated Pest Management (IPM) Manual.	<p>LO 1. Assess requirements for pest control.</p> <ul style="list-style-type: none"> 1.1 Assess vertebrate pest control requirements according to farm objectives. 1.2 Clarify vertebrate pest control requirements according to farm objectives. 1.3 Carry out inspections to ascertain type and severity of pest infestations in accordance with enterprise guidelines. 1.4 Determine control agents and methods of application to prevent, control or manage vertebrate pests based on technical manuals/crop protection manuals and in accordance with organizational procedures. 1.5 Develop control program for implementation according to farm requirements. 	TLE_AFAACP9-12IVP-IIh-i-70
<ul style="list-style-type: none"> • Selection, use and maintenance of suitable personal protective equipment (PPE) • Prepare equipment and materials <ul style="list-style-type: none"> - Selection of equipment and materials for vertebrate pest control - Inspection and adjustment of equipment - Basic equipment repair • Obtain relevant licenses and permits • Legislation and regulations in 			<p>LO 2. Prepare to implement control program.</p> <ul style="list-style-type: none"> 2.1 Select suitable personal protective equipment according to OHS requirements. 2.2 Use suitable personal protective equipment according to OHS requirements. 2.3 Maintain suitable personal protective equipment according to OHS requirements. 2.4 Arrange equipment and materials required to support the implementation of control 	TLE_AFAACP9-12IVP-IIj-IIIa-71

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
vertebrate pest control, chemical usage and storage, labelling and disposal - Following OSHS legislative requirements and procedures			program in accordance with organizational procedures. 2.5 Obtain relevant licenses and permits according to legislative requirements. 2.6 Observe safe working practices according to OHS and farm requirements. 2.7 Follow safe working practices according to OHS and farm requirements.	
<ul style="list-style-type: none"> • Implementation of vertebrate control program <ul style="list-style-type: none"> - Control methods and techniques - OSHS, legislative and industry requirements for vertebrate pest control • Applying safeguards <ul style="list-style-type: none"> - Safety signages - Environmental guidelines to protect native vegetation, flora and fauna • Implementation of integrated health management • Assessment and control of environmental impacts of vertebrate pest control <ul style="list-style-type: none"> - Different environmental impacts of pest control - Proper selection, use, handling and disposal of hazardous substances and waste materials - PPE and hygiene requirements 			LO 3. Control vertebrate pests. 3.1 Implement control program according to OHS, legislative and farm requirements. 3.2 Employ safeguards to ensure that targeted pests are controlled and all other species remain unharmed, based on manufacturers' specifications and organizational procedures. 3.3 Consider integrated health management, as required in accordance with OHS requirements. 3.4 Implement integrated health management as required in accordance with OHS requirements. 3.5 Assess environment according to legislative and farm requirements. 3.6 Control environmental conditions according to legislative and farm requirements.	TLE_AFAACP9-12IVP-IIIb-c-72

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> • Disposal of carcasses and control agents <ul style="list-style-type: none"> - Proper selection, use, handling and disposal of hazardous substances and waste materials - Environmental and industry codes of practice for the disposal of carcasses and control agents • Evaluation of the control program and outcomes for planning management <ul style="list-style-type: none"> - Analysis of data on the control program - Best practices in vertebrate pest management • Maintenance of equipment and area <ul style="list-style-type: none"> - Cleaning of area - Cleaning, handling and storage of tools, equipment and excess chemicals • Surrendering equipment • Documentation and record keeping • OSHS legislative and industry requirements for vertebrate pest control 			<p>LO 4. Complete control program.</p> <p>4.1 Dispose carcasses and control agents according to environmental and industry Codes of Practice.</p> <p>4.2 Review control program and outcomes according to best practices and planned vertebrate pest management.</p> <p>4.3 Evaluate control program and outcomes according to best practices and planned vertebrate pest management.</p> <p>4.4 Clean equipment and work areas following operating orders according to OHS and farm requirements.</p> <p>4.5 Return equipment and work areas following operating orders according to OHS and farm requirements. Document relevant information in compliance to industry standards and farm requirements.</p> <p>4.6 Maintain relevant information in compliance to industry standards and farm requirements.</p>	TLE_AFAACP9-12IVP-IIIId-f-73
ELECTIVE COMPETENCIES				
NOTE: CHOOSE AT LEAST THREE (3) LESSONS INCLUDING RECORD KEEPING AT TWO (2) WEEKS OR (20 HOURS) PER LESSON				
LESSON 20A: FOLLOWING SITE QUARANTINE PROCEDURES (SQP)				
<ul style="list-style-type: none"> • Decontamination of quarantine site • Quarantine site <ul style="list-style-type: none"> - Whole farm or enterprise 	The learner demonstrates an understanding of concepts, underlying theories and principles in	The learner independently follows site quarantine procedures based on required task.	<p>LO 1.Prepare to work in quarantine site.</p> <p>1.1 Decontaminate personal and/or work vehicles before entering the quarantine site.</p>	TLE_AFAACP9-12SQP-IIIg-74

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> premises <ul style="list-style-type: none"> - Isolation area/sickbay • Procedures of decontamination <ul style="list-style-type: none"> - Personal/Vehicle decontamination • Report potential contaminants <ul style="list-style-type: none"> - Pathogens entering on clothing/footwear, equipment, vehicles, - Contaminants entering in food stuffs (food for animal or human consumption, vaccines, water or soil, items being delivered to the enterprise or be brought on to the site by new livestock or pests.) • Hand washing • PPE and OSHS requirements <ul style="list-style-type: none"> - Securely storing streetclothing • Interpersonal relationships and communication 	<p>following site quarantine procedures.</p>		<ul style="list-style-type: none"> 1.2 Report contact with potential contaminants according to enterprise requirements. 1.3 Wash hands before handling livestock, feed, plant stock or other products. 1.4 Put on appropriate clothing and footwear before commencing work. 1.5 Securely store street clothing away from livestock, feed or other agricultural produce. 	
<ul style="list-style-type: none"> • Safety handling and storage procedures of chemicals and quarantine products according to enterprise standards <ul style="list-style-type: none"> - Storing separately feed mixes, soils, growing media and other products • Reporting pest and diseases incidence • Reporting alleged breaches of site quarantine procedures • Identifying and controlling OSHS hazards and risks related to quarantine procedures 			<p>LO 2. Work in quarantine site.</p> <ul style="list-style-type: none"> 2.1 Handle chemicals for disinfestations and/or administering medications to livestock according to workplace requirements. 2.2 Store chemicals for disinfestation and/or medications to livestock according to workplace requirements. 2.3 Keep separately different feed mixes, soils and/or growing media and/or other products according to quarantine procedures. 2.4 Mark appropriately different feed mixes, soils and/or growing media and/or other 	<p>TLE_AFAACP9-12SQP-IIIh-i-75</p>

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> • Proper wastes disposal according to 5S and 3R's • Guidelines and standard • Operating procedures (SOP). <ul style="list-style-type: none"> - Waste products <ul style="list-style-type: none"> ▪ feed spills ▪ unused/expired vaccine ▪ biological matter semen ▪ Embryos ▪ tissue samples ▪ plant cuttings ▪ infected plants ▪ dead birds and manures • Material safety data sheets (MSDS) • Record keeping of information relating to work in quarantine • Environmental rules and regulations • OSHS requirements 			<p>products according to quarantine procedures.</p> <ul style="list-style-type: none"> 2.5 Identify and report any cases of pest and diseases incidence to supervisor. 2.6 Identify and report any breaches of quarantine procedures to supervisor. 2.7 Identify any OSHS hazards according to enterprise policy and OSHS legislation and codes. 2.8 Take appropriate actions to any OSHS hazards according to enterprise policy and OSHS legislation and codes. 2.9 Dispose all waste products according to SOP. 2.10 Dispose all deceased livestock, unwanted biological material or damaged/infected plant stocks according to SOP. 2.11 Record information relating to work in quarantine site as required in the SOP. 	
<ul style="list-style-type: none"> • Quarantine policy and procedures before entering the enterprise site • Report procedures for alleged breaches of site quarantine procedures • Installing security fencing • Check/inspection of deliveries for vehicle decontamination • OHS risk and its control 			<p>LO 3. Assist in maintaining site quarantine procedures.</p> <ul style="list-style-type: none"> 3.1 Inform all visitors of the quarantine procedures. 3.2 Provide all visitors with appropriate clothing and footwear, if required by SOP. 3.3 Note and report any breaches of quarantine procedures by visitors to supervisor. 3.4 Keep gates and doors locked if required by SOP and supervisor instructions. 3.5 Maintain installed security fencing according to supervisors instructions. 3.6 Check deliveries to site to ensure that established proper procedures for vehicle decontamination, unloading and receipt and holding or storage of stock and/or supplies are followed. 	<p>TLE_AFAACP9-12SQP-IIIj-76</p>

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> • Report specific problem and its location <ul style="list-style-type: none"> - Consequences of breaching site quarantine procedures • Clean site and location of breaching <ul style="list-style-type: none"> - Control measure procedures for infected sites • Isolate and monitor suspected livestock and plant stock exposed in contaminants • Record information on the breach or problem • SOP • HACCP plan • OHS hazard and risk control 			<p>LO 4. Respond to site quarantine breach or problem.</p> <p>4.1 Identify and report the specific problem and its location to supervisor.</p> <p>4.2 Disinfect quarantine site and location of breach, as required according to the specific nature of the problem and SOP.</p> <p>4.3 Isolate livestock, plant stock suspected of being exposed to contaminants according to SOP.</p> <p>4.4 Monitor livestock, plant stock suspected of being exposed to contaminants for evidence of contamination according to SOP.</p> <p>4.5 Record information about the breach or problem according to SOP.</p>	<p>TLE_AFAACP9-12SQP-IIIj-77</p>
LESSON 20B: COLLECTING SAMPLES FOR A RURAL PRODUCTION OR HORTICULTURE MONITORING PROGRAM (CSR)				
<ul style="list-style-type: none"> • Horticultural sites/location <ul style="list-style-type: none"> - Paddocks - Farm building - Work site - Nurseries - Playing fields - Dams • Purpose and scope of biological sample collection activities <ul style="list-style-type: none"> - Sample site - Sample collection schedule • Field procedures for sampling and preservation • OSHS requirement 	<p>The learner demonstrates an understanding of concepts, underlying theories and principles in collecting samples for a rural production or horticulture monitoring program.</p>	<p>The learner independently collects samples for a rural production or horticulture monitoring program based on required task.</p>	<p>LO 1. Plan for collection of samples.</p> <p>1.1 Confirm purpose and scope of sample collection activity from discussion with supervisor or work instructions.</p> <p>1.2 Read/hear sample collection schedule with supervisor.</p> <p>1.3 Confirm sample collection schedule with supervisor.</p> <p>1.4 Confirm sampling site location following enterprise guidelines.</p> <p>1.5 Obtain approval for site access following enterprise guidelines.</p> <p>1.6 Identify samples to be collected and preserved in conjunction with supervisor or by reference to enterprise guidelines.</p> <p>1.7 Assess range of likely operating conditions, hazards and difficult/sensitive environments for impact on sampling and testing.</p>	<p>TLE_AFAACP9-12CSR-IVa-78</p>

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<ul style="list-style-type: none"> • Preservation of equipment and processes <ul style="list-style-type: none"> - Preserving equipment <ul style="list-style-type: none"> ▪ kick seines ▪ containers for holding and sorting samples, plastic buckets, blood/saliva - Sampling equipment <ul style="list-style-type: none"> ▪ hand-held magnifying glasses ▪ tweezers or forceps ▪ small vegetable brushes ▪ wading boots ▪ rubber gloves, thermometer ▪ yardstick ▪ sample record and assessment form ▪ pencils and clipboard ▪ relevant field guides • Collect equipment and pre – operational methods <ul style="list-style-type: none"> - Electronic machines - Probes - Grabs - Nets - Dredges - plankton nets - water sample bottles - bailer - still and video cameras, specialised machinery - identification keys 			<p>LO 2. Prepare equipment and resources.</p> <p>2.1 Source equipment required for sampling and preserving according to sampling procedures.</p> <p>2.2 Check equipment for availability and serviceability in accordance with enterprise procedures.</p> <p>2.3 Collect data or record sheets/books for use.</p> <p>2.4 Ready equipment, data sheets and personnel to sampling sites without injury or damage.</p> <p>2.5 Move equipment, data sheets and personnel to sampling sites without injury or damage.</p>	<p>TLE_AFAACP9-12CSR-IVb-79</p>
<ul style="list-style-type: none"> • Protocol/guideline procedures in sampling activities • Procedures in preserving samples <ul style="list-style-type: none"> - Collect samples 			<p>LO 3. Carry out sampling and preserving procedures.</p> <p>3.1 Collect samples in accordance with sampling plan and enterprise procedures</p>	<p>TLE_AFAACP9-12CSR-IVc-d-80</p>

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<ul style="list-style-type: none"> - Preserve samples - Prepare and package samples for transport to laboratory according to standards • Habitat assessment procedures • OSHS requirement 			<p>and industry protocols/guidelines.</p> <p>3.2 Preserve samples in accordance with sampling standards and guidelines.</p> <p>3.3 Preserve samples in accordance with sampling standards and guidelines.</p> <p>3.4 Prepare samples for external analysis in accordance with sampling schedule and laboratory standards.</p> <p>3.5 Pack samples for external analysis in accordance with sampling schedule and laboratory standards.</p> <p>3.6 Send samples for external analysis in accordance with sampling schedule and laboratory standards.</p> <p>3.7 Pack hazardous materials in accordance with legislative requirements.</p> <p>3.8 Transport hazardous materials in accordance with legislative requirements.</p> <p>3.9 Make observations including information on the surrounding area and environmental conditions in accordance with monitoring schedule.</p> <p>3.10 Follow equipment operation and work practices according to OHS requirements.</p> <p>3.11 Report collection outcomes including presentation of samples in accordance to enterprise guidelines.</p> <p>3.12 Deliver collection outcomes including presentation of samples in accordance to enterprise guidelines.</p>	
<ul style="list-style-type: none"> • Sampling plans and procedures • Collect techniques (record, forward, test and analyse) • Proper handling of collecting equipment according to enterprise procedures • Environment act and legislation 			<p>LO 4. Complete sample collection activities.</p> <p>4.1 Sanitize equipment and clothing in accordance with enterprise procedures.</p> <p>4.2 Store equipment and clothing in accordance with enterprise procedures.</p> <p>4.3 Repair damaged or malfunctioning</p>	<p>TLE_AFAACP9-12CSR-IVe-81</p>

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> • PPE and OSHS requirements 			<p>equipment on site.</p> <p>4.4 Send damaged or malfunctioning equipment to manufacturer or specialist.</p> <p>4.5 Record accurately sampling results and observations on data sheets in accordance with enterprise procedures.</p> <p>4.6 Forward sampling results and observations on data sheets in accordance with enterprise procedures.</p> <p>4.7 Convey changes in field conditions and equipment to supervisor according to enterprise procedures.</p>	
LESSON 20C: HANDLING BULK MATERIALS IN STORAGE AREA (BMS)				
<ul style="list-style-type: none"> • Types and selection of materials, tools and equipment appropriate to handling bulk materials in storage area • Routine check-up of tools and equipment • Manual handling procedures and techniques • PPE and OSHS requirement • Common OSHS risk and hazards and its control • Interpersonal relations and communication between supervisor and workers 	<p>The learner demonstrates an understanding of concepts, underlying theories and principles in handling bulk materials in storage area.</p>	<p>The learner independently handles bulk materials in storage area based on required task.</p>	<p>LO 1. Prepare to work in bulk materials storage area.</p> <p>1.1 Interpret work undertaken from the work program where necessary, and confirmed with the management.</p> <p>1.2 Assess OSHS risk and hazards.</p> <p>1.3 Implement suitable controls for OSHS risk and hazards.</p> <p>1.4 Use suitable personal protective clothing and equipment.</p> <p>1.5 Maintain personal protective clothing and equipment.</p> <p>1.6 Select tools and equipment suitable for the work to be undertaken.</p> <p>1.7 Maintain tools and equipment used in preparing the storage area.</p> <p>1.8 Assess environmental implications of undertaking work in the bulk materials storage area.</p> <p>1.9 Inform worker on what to do in case this type of emergency or things happen.</p>	<p>TLE_AFAACP9-12BMS-IVf-82</p>

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> • Client’s sampling and classification requirements • Samples of bulk materials for Testing <ul style="list-style-type: none"> - Crop harvested (such as: cereals, legumes, pulse crops, oilseeds and pasture seeds) - Animal feed or fertilizers • Procedures in preparing sample bulk materials for testing <ul style="list-style-type: none"> - PPE and OSHS requirement for testing - Prepare bulk material samples - Label bulk material samples - Packing of bulk material samples - Dispatching the samples 			<p>LO 2. Sample bulk materials for testing.</p> <p>2.1 Take representative samples of bulk materials for testing in line with the requirements of the bulk materials storage program.</p> <p>2.2 Undertake sampling safely, following the prescribed guidelines for the activity.</p> <p>2.3 Prepare representative bulk materials samples for dispatch accurately according to the guidelines of the organization and the analysing body.</p> <p>2.4 Label representative bulk materials samples for dispatch clearly according to the guidelines of the organization and the analysing body.</p> <p>2.5 Pack representative bulk materials samples for dispatch according to the guidelines of the organization and the analysing body.</p> <p>2.6 Dispatch samples to the analysing body, according to the requirements of the bulk materials storage program.</p>	<p>TLE_AFAACP9-12BMS-IVg-83</p>
<ul style="list-style-type: none"> • Types and characteristics of bulk materials • Bulk materials storage program • Methods and procedures of moving bulk materials into and out of storage • Bulk segregation classification <ul style="list-style-type: none"> - Type - Variety - Quality • Types of silo and handling equipment • PPE and OSHS requirements 			<p>LO 3. Move bulk materials into and out of storage.</p> <p>3.1 Identify bulk materials for handling and storage correctly from the written or verbal instructions.</p> <p>3.2 Segregate bulk materials according to type, variety and quality characteristics according to the requirements of the organization as stated in the bulk materials storage program.</p> <p>3.3 Take measures to minimize insect and weed infestation and contamination during the movement of the bulk materials.</p> <p>3.4 Check bulk materials regularly for insect</p>	<p>TLE_AFAACP9-12BMS-IVh-i-84</p>

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
			<p>infestation and contamination during movement according to enterprise requirements.</p> <p>3.5 Clean any storage and handling equipment thoroughly after emptying according to the procedures of the organization and the nature of the equipment.</p> <p>3.6 Move bulk materials into and out of storage according to the procedures of the organization, and following the prescribed OSHS procedures.</p> <p>3.7 Select silo types and handling equipment for each bulk material type in relation to their storage characteristics and flow properties and according to the requirements of the bulk materials storage program.</p> <p>3.8 Implement suitable measures to minimize the effect of desiccant dusts on the flow properties of bulk materials.</p> <p>3.9 Maintain updated clear and accurate records when required by the bulk materials storage program.</p>	
<ul style="list-style-type: none"> • Types of storage facility <ul style="list-style-type: none"> - Temporary storage - Permanent Storage • Typical signs of damage in storage facility • Maintenance schedule and program • Maintenance procedures for tools and equipment • PPE and OSHS requirements 			<p>LO 4. Repair and maintain storage facility.</p> <p>4.1 Identify the need for repairs to the facility through observation or instruction.</p> <p>4.2 Conduct maintenance and repairs according to the requirements of the organization and following the prescribed OSHS procedures and taking into account environmental considerations.</p> <p>4.3 Document completed maintenance records and other appropriate information in accordance with enterprise requirements.</p>	<p>TLE_AFAACP9-12BMS-IVj-85</p>

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
			4.4 Maintain workshop and work areas according to OSHS and enterprise requirements. 4.5 Report maintenance and repairs, damage, malfunctions or irregular performance in machinery, tools and equipment in line with organizational requirements. 4.6 Maintain tools and equipment in line with OSHS and organizational requirements.	
LESSON 20D: PREPARING GRAIN STORAGES (PGS)				
<ul style="list-style-type: none"> • Types and selection of tools, materials, and equipment appropriate to work in preparing bulk material storage area • Manual handling procedure and techniques in preparing bulk material storage area • PPE and OSHS requirement • Common OSHS hazards and its Control 	The learner demonstrates an understanding of concepts, underlying theories and principles in preparing grain storage.	The learner independently prepares grain storage based on required task.	LO 1. Prepare to work in bulk material storage area. 1.1 Understand work to be undertaken from work program when necessary, and confirmed with supervisor. 1.2 Assess OSHS risk and hazards. 1.3 Implement suitable controls for OSHS risk and hazards. 1.4 Use suitable personal protective equipment. 1.5 Maintain personal protective equipment. 1.6 Select tools and equipment suitable for the work to be undertaken. 1.7 Assess outcomes on environmental implications of undertaking work in the bulk material storage area and take responsible actions.	Note: If the student chooses the electives below, the time allotment would appear as: TLE_AFAACP9-12PGS-IIIg-74
<ul style="list-style-type: none"> • Procedures in preparing bulk materials storage area • Disposal of waste materials according to requirements <ul style="list-style-type: none"> - Leftover treatmentsl - unused containers - general debris - discarded components • Maintenance of site in a clean 			LO 2. Prepare storage area. 2.1 Clean storage site of weeds, dust and spillage based on organization requirements. 2.2 Dispose of refuse according to regulatory requirements. 2.3 Maintain site in a clean and tidy condition according to organization requirements. 2.4 Prepare storage site according to OSHS	TLE_AFAACP9-12PGS-IIIh-75

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
and tidy condition • PPE and OSHS requirements			standards.	
<ul style="list-style-type: none"> • Procedures in preparing storage • Appropriate legislative requirements, manufacturers instructions and enterprise procedures/instructions • Equipment and storage facility assessment • Procedure in establishing temporary storage according to OSHS requirements 			LO 3. Prepare storages. 3.1 Prepare storages according to OSHS standards. 3.2 Clean all residues of bulk material storages according to organization requirements. 3.3 Check bulk material storages for structural safety, damage or deterioration, and repair or report as required according to organization requirements. 3.4 Erect temporary storages to meet the needs of the organization according to OSHS standards.	TLE_AFAACP9-12PGS-IIIi-76
<ul style="list-style-type: none"> • Common bulk handling equipment <ul style="list-style-type: none"> - silo conveyors - elevators - chutes, and augers - tractors - front-end loaders - two-way radio/ telephone - wall charts and other visual recording methods - warning devices, ventilation/aeration equipment • Pre-operational and safety checks, servicing and maintenance procedures for tools and equipment <ul style="list-style-type: none"> - Cleaning - Setting - Preparing for use • Potential hazards associated with the operation of basic tools and equipment 			LO 4. Prepare bulk material handling machinery. 4.1 Clean bulk material handling machinery of contamination and residues according to organization requirements. 4.2 Set bulk material handling equipment according to organization requirements. 4.3 Prepare bulk material handling equipment for use according to manufacturers instructions and OSHS standards.	TLE_AFAACP9-12PGS-IIIj-77

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> • General machine maintenance procedures • Machinery operating principles and operating methods • Machinery storage and protection methods • Provincial/municipal legislation, regulations and codes of practice with regard to workplace OSHS, and the use and control of machinery and equipment • 5'S and 3 R's • PPE and OSHS requirements 			LO 5. Complete maintenance operations. 5.1 Record workplace information clearly and accurately in the required format and at the time required by the organization. 5.2 Dispose of or recycle waste to minimise damage to the external environment. 5.3 Maintain tools and equipment according to organization work procedures.	TLE_AFAACP9-12PGS-IVa-78
LESSON 20E: COMPLYING WITH INDUSTRY QUALITY ASSURANCE REQUIREMENTS (CQA)				
<ul style="list-style-type: none"> • Elements of industry quality requirements • HACCP requirements • Record keeping practices 	The learner demonstrates an understanding of concepts, underlying theories and principles in complying with industry quality assurance requirements.	The learner independently complies with industry quality assurance requirements based on enterprise requirements.	LO 1. Implement quality assurance practices on food safety and quality, biosecurity and animal welfare. 1.1 Determine elements of the industry quality assurance requirements. 1.2 Identify hazards to food safety and quality in work area according to enterprise guidelines and standard operating procedures. 1.3 Determine critical control points for work area according to workplace procedures. 1.4 Complete record keeping according to industry QA requirements.	TLE_AFAACP9-12CQA-IVb-c-79
<ul style="list-style-type: none"> • Standard operating procedures (SOP) relating to food safety quality, biosecurity, and animal welfare. • Industry chart <ul style="list-style-type: none"> - Mission statement - Work instructions 			LO 2. Implement standard operating procedures. 2.1 Implement standard operating procedures in accordance with enterprise requirements. 2.2 Non-conforming or defective product reported to supervisor according to	TLE_AFAACP9-12CQA-IVd-e-80

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> - Corrective actions - Monitoring procedures • Policies and code of practice • Samples of non –conforming or defective products 			enterprise/industry requirements. 2.3 Corrective action taken in accordance with enterprise policy and procedures.	
<ul style="list-style-type: none"> • Enterprise recording and reporting procedures. • Common problems that affect quality from specification or work instruction. • Interpersonal relationships and communication 			LO 3. Report problems that affect quality. 3.1 Recognize potential or existing quality problems. 3.2 Identify instances of variation in quality from specifications or work instructions. 3.3 Report variation and potential problems to supervisor/manager according to enterprise guidelines.	TLE_AFAACP9-12CQA-IVf-81
LESSON 20F: MAINTAINING AND MONITORING ENVIRONMENTAL WORK PRACTICES (MEW)				
<ul style="list-style-type: none"> • Legislation, codes and national standards on workplace environmental practices • OSHS risks and hazards and its control 	The learner demonstrates an understanding of concepts, underlying theories and principles in maintaining and monitoring environmental work practices.	The learner independently maintains and monitors environmental work practices based on enterprise requirements.	LO 1. Maintain workplace environmental procedures. 1.1 Follow workplace procedures and work instructions for integrated environmental work practices for own work area. 1.2 Convey to team members the workplace procedures and work instructions for integrated environmental work practices for own work area. 1.3 Follow relevant legislation, codes and national standards that impact on workplace environmental practices. 1.4 Convey to team members the relevant legislation, codes and national standards that impact on workplace environmental practices.	TLE_AFAACP9-12MEW-IIIg-82
<ul style="list-style-type: none"> • Environmental risk and hazards • Types of hazards <ul style="list-style-type: none"> - Physical hazards 			LO 2. Recognize and report on potential environmental threats. 2.1 Identify and report existing and potential	TLE_AFAACP9-12MEW-IIIf-83

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> - Chemical hazards - Biological hazards • Food quality hazards environmental assessment <ul style="list-style-type: none"> - Observation - Recording - Reporting 			<p>environmental risks and hazards to designated personnel and dealt with accordingly.</p> <p>2.2 Record location and extent of the potential environmental threat accurately.</p> <p>2.3 Complete reports on the potential environmental threat according to enterprise guidelines.</p>	
<ul style="list-style-type: none"> • Environmental issues and concerns <ul style="list-style-type: none"> - Sustainability reduction and disposal of waste - water quality - energy efficiency - biodiversity - habitat protection, conservation of natural resources - air quality - land contamination - noise - soil and salinity management - fire management • Workplace approaches to environmental practices • Preventing and minimising the production of pollution (e.g. discharges to air, land and water, hazardous waste, reducing 'burning off', composting, recycling materials, conservation practices) • Improving workplace maintenance practices (e.g. using a broom instead of a hose, using environment-friendly cleaning agents) 			<p>LO 3. Support continuous improvement of environmental work practices.</p> <p>3.1 Suggest improvements to support the development of improved environmental workplace practices according to gathered information.</p> <p>3.2 Discuss environmental issues and their relationship to workplace practices in the workplace.</p> <p>3.3 Respond positively and promptly to the changes in the workplace approaches based on environmental practices and are in accordance with enterprise requirements.</p> <p>3.4 Inform individuals/teams of the results of environmental improvements in the workplace.</p> <p>3.5 Identify environmental training needs of the work team members.</p> <p>3.6 Seek required environmental training of the work team members.</p>	<p>TLE_AFAACP9-12MEW-IIIi-j-84</p>

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> • Environmental records • Environmental data • Maintenance and inspection reports • Incident or accident reports complaints from the public 			<p>LO 4. Maintain environmental Records.</p> <p>4.1 Maintain environmental records accurately and legibly in a form accessible for reporting purposes.</p> <p>4.2 Store environmental records securely and accessible for reporting purposes.</p> <p>4.3 Maintain internal and external reporting procedures.</p>	<p>TLE_AFAACP9-12MEW-IVa-85</p>
LESSON 20G: KEEPING RECORDS FOR A FARM BUSINESS (KRF)				
<ul style="list-style-type: none"> • Record keeping <ul style="list-style-type: none"> - Physical records <ul style="list-style-type: none"> ▪ property plan ▪ livestock ▪ paddock treatments including spraying, paddocks, rainfall, production, sales data, supplies, machinery and equipment, and stock - Financial records • Methods to identify sources of information <ul style="list-style-type: none"> - observation and listening - previous file records individual research statistics and reports from other organizations - producing reports from data collected in the farm, - translating data from diaries and note-books - Professional data collection agency • Principles of effective interpersonal skills 	<p>The learner demonstrates an understanding of concepts underlying theories and principles in keeping records for a farm business.</p>	<p>The learner independently keeps records for a farm business based on required task.</p>	<p>LO 1. Prepare and store physical records.</p> <p>1.1 Determine physical records and inventories required for the organization in consultation with the management team.</p> <p>1.2 Use time, resources and reliable methods for collecting information efficiently.</p> <p>1.3 Use appropriate interpersonal skills to access relevant information from individuals and teams.</p> <p>1.4 Organize information into a format suitable for analysis, interpretation and dissemination in accordance with organizational requirements.</p> <p>1.5 Use business equipment/technology to maintain information in accordance with organizational and OSHS requirements.</p> <p>1.6 Update records in accordance with organizational requirements.</p> <p>1.7 Store records in accordance with organizational requirements.</p>	<p>TLE_AFAACP9-12KRF-IIIg-h-86</p>

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> - effective listening - open questioning techniques - verbal and non-verbal communication skills, appropriate body language, the ability to relate to people from a range of social, cultural and ethnic backgrounds and physical and mental abilities 				
<ul style="list-style-type: none"> • Guidelines in the process of petty cash transaction • Principles and procedures for cash and non-cash handling • Principles of single entry accounting and cash flow statements 			<p>LO 2. Process petty cash transactions.</p> <p>2.1 Check petty cash claims and vouchers for accuracy and authenticity prior to processing.</p> <p>2.2 Process petty cash transactions in accordance with organizational requirements.</p> <p>2.3 Record petty cash transactions in accordance with organizational requirements.</p> <p>2.4 Balance petty cash book in accordance with organizational requirements.</p>	<p>TLE_AFAACP9-12KRF-IIIh-i-87</p>
<ul style="list-style-type: none"> • Maintaining cash book <ul style="list-style-type: none"> - Documents - Manual - Electronic • Filing of records accurately in accordance with organizational requirements • Basic calculations and balance accounts • Procedures in preparing cash flow statements and budgets 			<p>LO 3. Establish and maintain a cash book in accordance with organizational requirements.</p> <p>3.1 Check cash receipts and payments book created, and documentation relating to financial transactions for validity prior to processing.</p> <p>3.2 Reconcile cashbook balances with bank and creditor statements.</p> <p>3.3 Use cashbook balances to complete legislative reporting requirements.</p> <p>3.4 Prepare cash flow statements on the basis of summarised cashbook entries.</p>	<p>TLE_AFAACP9-12KRF-IIIi-j-88</p>

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> • Different creditors and debtors <ul style="list-style-type: none"> - Financial institutions - Goods and service suppliers - Rural merchants - Contractors - Professional advisors - Cooperatives • Procedures in processing invoice and payments 			<p>LO 4. Reconcile invoices for payment to creditors.</p> <p>4.1 Identify adjustments and errors in accordance with organizational requirements.</p> <p>4.2 Report adjustments and errors in accordance with organizational requirements.</p> <p>4.3 Rectified adjustments and errors in accordance with organizational requirements.</p> <p>4.4 Process invoices in accordance with organizational requirements.</p> <p>4.5 Make payment in accordance with organizational requirements.</p>	<p>TLE_AFAACP9-12KRF-IIIj-IVa-89</p>
<ul style="list-style-type: none"> • Taxation and auditing requirements • Accurate records of all business assets <ul style="list-style-type: none"> - liabilities - income, expenses and entitlements to be analyzed by an accountant for compliance purposes • Steps in filing of records and other documents in accordance with organizational requirements 			<p>LO 5. Prepare invoices for debtors.</p> <p>5.1 Prepare invoices accurately and, if required, distribute to nominated person for verification prior to despatch.</p> <p>5.2 Make adjustments as required in accordance with organizational requirements.</p> <p>5.3 Copy invoices and other related documents in accordance with organizational requirements for taxation and auditing purposes.</p> <p>5.4 File invoices and other related documents in accordance with organizational requirements for taxation and auditing purposes.</p>	<p>TLE_AFAACP9-12KRF-IVa-90</p>
LESSON 20H: PERFORMING SPECIALISED MACHINERY AND EQUIPMENT MAINTENANCE (PSM)				
<ul style="list-style-type: none"> • Classification of specialized machinery and equipment with primemovers <ul style="list-style-type: none"> - Internal combustion engines - Electric motors 	<p>The learner demonstrates an understanding of concepts, underlying theories and principles in performing specialized</p>	<p>The learner independently performs specialized machinery and equipment maintenance based on required task.</p>	<p>LO 1. Primemover checks.</p> <p>1.1 Carry out regular primemover checks on specialized machinery and equipment as specified in operator’s manual.</p> <p>1.2 Lubricate all relevant grease or lubricant</p>	<p>TLE_AFAACP9-12PSM-IIIg-h-91</p>

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> • Engine function principles • Pre-operational and safety checks of specialized machinery and equipment • PPE and OSHS requirements 	machinery and equipment maintenance.		points according to manufacturers' specifications. 1.3 Change oils and filters at intervals prescribed in operator's manual. 1.4 Check systems (i.e. cooling, electrical, lubrication, etc.) for deterioration and defects acted upon in line with supervisor's instructions. 1.5 Assess OSHS risk and hazards in the workplace according to enterprise requirements. 1.6 Report OSHS risk and hazards in the workplace according to enterprise requirements.	
<ul style="list-style-type: none"> • Transmission and drive systems <ul style="list-style-type: none"> - Clutches - Gearbox - Direct drive and power shaft transmission - Torque converter - Final drives(include universal joints, drive links) • Engine specifications in line with power requirements • Engine equipment <ul style="list-style-type: none"> - oil/coolant levels - filters - oil - air - fuel - air conditioner 			LO 2. Carry out transmission checks. 2.1 Check drive and steering clutches for operation and adjustment in line with operator's manual. 2.2 Check transmission oil levels in line with operator's manual. 2.3 Check tracks/wheels and undercarriage for oil leaks, wear and alignment. 2.4 Identify faulty seals or leaks and take corrective actions according to operator's instructions. 2.5 Check transmission regularly for alignment in case of belt transmission of oil levels and in case of enclosed transmission.	TLE_AFAACP9-12PSM-IIIh-i-92
<ul style="list-style-type: none"> • Maintain machinery and equipment components <ul style="list-style-type: none"> - Drive and steering clutch - Transmission - Truck wheel and under 			LO 3. Maintain components and attachments. 3.1 Use suitable personal protective equipment according to OSHS requirements. 3.2 Maintain personal protective equipment	TLE_AFAACP9-12PSM-IIIi-j-93

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> - Carriage - Engine equipment - Machine operating component/wear component <ul style="list-style-type: none"> ▪ buckets ▪ blades ▪ cutter teeth and forks - Moving operational Components - Elevator and loading chains <ul style="list-style-type: none"> ▪ cutters/knives ▪ belts • Tools and equipment used for maintenance • Spare parts and materials used in maintaining specialized machinery • PPE and OHS requirements 			<p>according to OSHS requirements.</p> <p>3.3 Check machine operational replacement wear components for wear and condition.</p> <p>3.4 Replace worn or unserviceable replacement components as part of daily routines.</p> <p>3.5 Complete component inspection and replacement activities safely following enterprise and industry guidelines.</p> <p>3.6 Check moving operational components for wear and condition and adjust to the tolerances specified in the operator's manual where applicable.</p> <p>3.7 Maintain work areas according to enterprise and OSHS requirements.</p>	
<ul style="list-style-type: none"> • Common faults and defects of a machine • Hazard identification and control • OSHS responsibilities of employees and employers • Maintenance procedures and workplace documentation 			<p>LO 4. Record maintenance.</p> <p>4.1 Record identified faults and defects in machine record.</p> <p>4.2 Record maintenance procedures including duplicate usage in workshop record.</p> <p>4.3 Report service or repair requirements according to prescribed procedures.</p> <p>4.4 Take possible action on service or repair requirements according to prescribed procedures.</p>	<p>TLE_AFAACP9-12PSM-IIIj-IVa-94</p>
LESSON 20I: INSTALLING IRRIGATION SYSTEMS (IIS)				
<ul style="list-style-type: none"> • Tools, materials, equipment and machinery according to irrigation system design • Methods and techniques of 	<p>The learner demonstrates an understanding of concepts, underlying theories and principles in</p>	<p>The learner independently installs irrigation system based on required task.</p>	<p>LO 1. Organize resources for installation work.</p> <p>1.1 Select materials, tools, equipment and machinery according to the irrigation</p>	<p>TLE_AFAACP9-12IIS-IIIg-h-95</p>

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
irrigation system <ul style="list-style-type: none"> - Mains pressure - Low pressure - Below ground - Above ground - Spray systems - Dripper and capillary systems. • Factors to consider in selecting irrigation site • Pre-operational check-up, safety and maintenance of parts and equipment • PPE and OSHS requirement 	installing irrigation system.		system design requirements and enterprise work procedures. 1.2 Identify the construction site for the irrigation system and construction method according to the site and irrigation system plans and enterprise work procedures. 1.3 Check parts and equipment delivered to site according to system drawings and specifications. 1.4 Carry out pre-operational and safety checks on tools, equipment and machinery according to manufacturer’s specifications and enterprise work procedures. 1.5 Assess OSHS risk and hazards according to OHS requirements and standards. 1.6 Implement controls on OSHS risk and hazards according to OSHS requirements and standards. 1.7 Use suitable safety and personal protective equipment (PPE). 1.8 Maintain suitable safety and personal protective equipment (PPE). 1.9 Check water supply to ensure that it is compatible with system specifications.	
<ul style="list-style-type: none"> • Tasks in preparing site and working area <ul style="list-style-type: none"> - Disable unused tools, equipment and machinery - Storing neatly out of the way of installation activities, safely storing materials on site - Using signages and safety barriers during and removing after construction activities are completed, - Swiftly and efficiently removing and processing 			LO 2. Set out and prepare site. 2.1 Mark out irrigation lines consistent with the plan. 2.2 Construct trenches at the specified depth without damage to services, facilities, features and established plants. 2.3 Follow equipment operation and work practices according to enterprise and legislative OSHS requirements. 2.4 Observe regulations and legislation relevant to the situation. 2.5 Reflect work practices sustainable to horticulture principles.	TLE_AFAACP9-12IIS-IIIi-96

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<ul style="list-style-type: none"> debris and waste • OSHS and PPE requirements 			2.6 Respond to local community requirements.	
<ul style="list-style-type: none"> • Different examples of irrigation plans • Methods and techniques of irrigation • Components of an irrigation system • Characteristics and operation of joints, valves and sprinkler components • Water quality and water filtration • Techniques • Calculations for installing irrigation systems • Enterprise OSHS procedures 			LO 3. Install irrigation components. 3.1 Interpret plan according to enterprise guidelines. 3.2 Supervise contractors to follow the specified work plan. 3.3 Assemble components according to the plan and joints according to manufacturers specifications. 3.4 Test assembled components according to the plan and joints according to manufacturer’s specifications. 3.5 Fit fittings and valves to the requirements of the installation plan and all joints are secured according to enterprise guidelines. 3.6 Adjust fittings and valves to the requirements of the installation plan and all joints are secured according to enterprise guidelines. 3.7 Maintain a clean and safe work area while installation work is carried out. 3.8 Use tools appropriate to the task being undertaken according to guidelines. 3.9 Employ safe working practices.	TLE_AFAACP9-12IIS-IIIj-IVa-97
<ul style="list-style-type: none"> • Behaviour of water on varying terrain and soil types • Soil water retention testing techniques • Water quality and water filtration techniques • Calculations for installing irrigation systems • 5 S and 3 R’s on waste disposal • Maintenance of tools and Equipment 			LO 4. Complete installation work. 4.1 Finish earthworks off to plan specifications and enterprise work procedures. 4.2 Match the system configuration and capacity to the installation plan. 4.3 Restore/Dispose waste material from the site in an environmentally aware and safe manner according to enterprise work procedures. 4.4 Maintain tools, equipment and machinery according to enterprise work procedures.	TLE_AFAACP9-12IIS-IVa-98

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AGRI-FISHERY ARTS – AGRICULTURAL CROPS PRODUCTION (NC III)
(640 hours)

RESOURCES			METHODOLOGY	ASSESSMENT METHOD
TOOLS	EQUIPMENT	MATERIALS		
<ul style="list-style-type: none"> • Bolos • Broomstick • Calculator • Container • Cutting tools • Digging tools • Drying meter • Dulos • Fruit crate • Harvesting tools • Hat • Knapsack sprayer • Knife • Light hoe • Moisture meter • Personal protection equipment • Petri-dish • pH meter • Pick mattock • Picking knife • Plow • Plumbing tools • Post-Harvest treatment tools • Protective coat • Protective gadgets • Pruning shears • Rake • Scissors • Seed bed • Seedling tray • Shovel • Sprinklers • Step ladder • Storage tools/cabinet 	<ul style="list-style-type: none"> • Booth/temporary shed • Cart (Kariton&paragus) • Coolroom • Comb-tooth harrow • Computer with record keeping software applications • Crates • Drying oven • Farm/ field • Greenhouse/nursery • Harvesting equipment • Irrigation system (sprinkler, mist/drip irrigation) • Mower (grass cutter) • Over head projector (OHP) • Portable chain saw • Post-harvest treatment equipment • Power sprayer • Propagation Equipment • Pump for irrigation • Rotavator • Service vehicle • Sorting /Grading equipment • Spike tooth harrow • Storage room • Surface irrigation system 	<ul style="list-style-type: none"> • Agri bags, plastic • Bamboo stick • Basket • Bond paper • Catching nets • Clips • Coconut dust • Compost • Fertilizers-various • First aid supplies/medicine • Flower inducer • Fungicides • Gloves • Growing media (garden soil, sewed sand, compost, soil, manure and sawdust/rice husk • Killing bottles • Marking pens • Masks • Material Safety Data Sheets • Mulching material • Hair nets • Packaging materials, assorted • Pail • Paper/bond • Pencil • Pens • Pesticides/Insecticides • Pieces of cloth • Plastic bag • Plumbing supplies • Pots 	<ul style="list-style-type: none"> • Group discussion • Role playing • Brainstorming • Lecture / discussion • Demonstration • Direct observation • Self-paced / modular • Simulation / role playing • Case studies • Interaction • Field visit/tour • Practical exercise 	<ul style="list-style-type: none"> • Written exam • Actual Designing • Actual Demonstration • Observation • Questioning • Demonstration with questioning • Direct observation and interview • Direct observation • Oral interview • Portfolio assessment

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AGRI-FISHERY ARTS – AGRICULTURAL CROPS PRODUCTION (NC III)
(640 hours)

RESOURCES			METHODOLOGY	ASSESSMENT METHOD
TOOLS	EQUIPMENT	MATERIALS		
<ul style="list-style-type: none"> • Transplanting tools • Trowel 	<ul style="list-style-type: none"> • Tractor/ Carabao • Typewriter 	<ul style="list-style-type: none"> • Propagation materials e.g., seeds, spores, cuttings, etc. • Propagating media (garden soil, sawdust, sand, compost, coconut coir) • Rice hull • Rope (small, med. Large) • Rubber band • Rubber boots • Rubber knots • Sacks • Sample of matured agronomic crops • Seed box • Seedlings (assorted) • Seeds • Soil auger Training Materials • Brochures • Instructional supplies and materials • Visual aids • Reference materials/Books (technical information on horticultural and agronomic crops) • Reference manuals (first aid kit with reference manual) • Data (Data on result of soil analysis) • Procedural manuals • Soil samples analysis • Examples of farm standard operating procedures (SOPs) 		

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(640 hours)

GLOSSARY

1. Aflatoxin - Toxin produced by some strains of the fungi *Aspergillus flavus* and *Aspergillus parasiticus*; the most potent carcinogen yet discovered
2. Agronomy - The application of the various soil and plant sciences to soil management and raising of crops
3. Agronomic crops - May include coarse grains, grain legumes, coffee, coconuts, cotton, soya beans, peanuts and sugar cane
4. Agricultural crops - May include fruits, vegetables, herbs, flowers, foliage, bulbs, tubers, nuts, mushrooms, wild harvest plants and oils
5. Ambient condition - Ordinary room temperature and relative humidity
6. Ambient air - The surrounding air (atmospheric)
7. Ambient storage - Any treatment or practice extending post harvest life of harvested commodity beyond that of similar commodity held under ambient conditions without treatment
8. Airflow rate - The amount of air passing through an obstruction per unit of time
9. ACIAR - Australian Center for International Agricultural Research
10. AFHB - ASEAN Food Handling Bureau
11. BPI - Bureau of Plant Industry
12. BPRE - Bureau of Post harvest Research & Extension
13. Curing - The process of toughening and self-healing of bruises and skinned areas in root and tuber crops or the rapid closing of the neck of bulb crops under favourable conditions
14. Driller - Machine for sowing in furrows
15. Drip Irrigation - Application of water through small tubes and orifices or emitters which discharge small quantity of water to the base of the plant
16. Dry-bulb temperature - Temperature of air indicated by a standard thermometer
17. Equilibrium moisture content - The moisture content at which moisture in a product is in equilibrium with the surrounding air and the product does not gain or loss moisture
18. Fogging - To cover or envelope with fog
19. Foliar Fertilizer - Fertilizer formulation containing nitrogen, phosphorus and potassium plus selected micronutrient elements such as: Ca, Mg, Mn, Fe, Zn, Cl, B, Cu, S applied by spraying on the leaves
20. Fumigant - A chemical compound which acts in the gaseous state to destroy insects and their larvae
21. Fumigation - The process of treating stored products with insecticides/pesticides and the like in fumes or vapor form
22. Furrow Irrigation - A method of supplying water through a canal system wherein water flows down or across the slope of the field
23. Furrowing - Final step in land preparation by making furrows or beds for planting
24. GATT - General Agreement on Tariff and Trade
25. Grading - The process of classifying into groups according to a set of recognized criteria of quality and size, each group bearing an accepted name and size grouping
26. Growing Medium - Mixture of different materials such as soil, sand, compost, coir dust, rice hull, perlite, peat, etc. for growing seedlings
27. HACCP - Hazard Analysis Critical Control Points
28. Hardening - The process of gradually withholding water and exposing to direct sunlight to prevent seedlings from transplanting stress/shock
29. Harrowing - Breaking of large soil clods that are caused by plowing
30. Hilling-Up - The process of covering the applied fertilizer material by raising the soil towards the base of the plant to further stabilize its stand for better plant growth

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AGRI-FISHERY ARTS – AGRICULTURAL CROPS PRODUCTION (NC III)

(640 hours)

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|-----|-------------------------|---|---|
| 31. | Hygrometer | - | An instrument that measures humidity |
| 32. | Insect pest | - | Destructive or harmful insect |
| 33. | Irrigation | - | Any method of supplying water to sustain plant growth |
| 34. | Off-baring | - | The process of cultivating the soil away from the base of the plants |
| 35. | Pricking-off | - | The methods of transferring of seedling to avoid overcrowding |
| 36. | Larvae | - | The first stage of the life cycle of insects after leaving the egg |
| 37. | Manometer | - | Instrument that measures air pressure |
| 38. | Maturity | - | The quality or state of ripeness, or of being fully developed grain |
| 39. | Maturity index | - | The signs or indications that a commodity is mature and is ready to be harvested |
| 40. | Moisture content | - | The conventional index used to determine whether the seed is dry enough for safe storage or for milling usually expressed in percent (% M.C.) |
| 41. | Molds | - | A superficial often woolly growth produced on various forms of organic matter, especially when damp or decaying |
| 42. | NFA | - | National Food Authority |
| 43. | NSIC | - | National Seed Industry Council. |
| 44. | Packaging | - | The technology or process to ensure adequate protection and safe delivery of a product from the producers to the ultimate consumer |
| 45. | Packing | - | Act of putting commodities in a container |
| 46. | Packinghouse | - | A place where the preparatory steps for storage or marketing are done |
| 47. | Pallet | - | A low portable platform made of wood or metal or in combination to facilitate handling, storage or transport of materials as a unit load using forklift |
| 48. | Perishables | - | Food crops for which value and/or quality is maintained over a short period of time after harvest. These include fruits, vegetables, flowers, young coconut, nursery stocks and some staple root crops, such as: sweet potato, cassava and yam. |
| 49. | Post-harvest disease | - | A disease observed after harvest regardless of when or where initial infestation took place |
| 50. | Post- harvest handling | - | A specific term used for the movement of commodities and operations through which a commodity undergoes from harvest to possession of the fixed consumer and includes the technological aspects of marketing and distribution |
| 51. | Post- harvest infection | - | Infection that takes place after harvest |
| 52. | Post- harvest life | - | The period of time during which a commodity is still acceptable for its intended purpose |
| 53. | Pre- cooling | - | The rapid cooling (48 hours or less) of a commodity to a desired transit or storage temperature soon after harvest and before it is stored or moved in transit |
| 54. | Pupa | - | An intermediate stage of an insect that preys on one or more plants and animals that man wishes to preserve for his own use |
| 55. | Refrigeration | - | The process of removing heat from a compartment or substance so that temperature is lowered and then maintained at a desirable level, usually refers to refrigeration by mechanical means. |
| 56. | Relative humidity | - | The actual vapor pressure of the air relative to saturation. |
| 57. | Respiration | - | A biological process by which organic materials are broken down to simpler forms accompanied by the release of energy and heat. |
| 58. | Ripening | - | The state of development of a fruit when it becomes soft and edible applies strictly to climacteric type fruit |
| 59. | Rodents | - | Refers to rats and mice which destroy grains and other stored products. |
| 60. | Senescence | - | The final phase in the life of an organ in which a series of normally irreversible events are initiated leading to cellular breakdown or death of the organ |
| 61. | Side-Dress Fertilizer | - | Additional amount of any fertilizer materials applied at the onset of flowering to complete the nutritional requirement of the crop |

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(640 hours)

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|--------------------------|--|
| 62. Sprinkler Irrigation | - A mechanical method of supplying water over the standing crop by means of a nozzle which is rotated by water pressure |
| 63. Synthetic Mulch | - A mulching materials made either of polyethylene or non-woven fabric |
| 64. Sorting | - The process of classifying into groups designated by the person classifying crops or commodities the produce either according to set criteria. |
| 65. Standard | - The set of criteria and specifications of quality determining the grades, described as product characteristics, such as: maturity, color, cleanliness, shape, free from decay and blemishes and uniformity of size. |
| 66. Storage | - The process of keeping horticultural crops in a structure designed to protect the stored products from inclement weather and pests for a short or long period of time to await processing or movement to other location. |
| 67. Storage life | - The longest time produce can be kept in a sound marketable condition. |
| 68. Tachometer | - An instrument that measures revolutions per minute |
| 69. Tillage | - The mechanical manipulation of the soil |
| 70. Transplants | - Vegetable seedlings produced for transplanting |
| 71. Trellis | - A support structure for vinyl crops and can either be T, I, Y, A shaped |
| 72. Velometer | - An instrument that measures velocity of air flow |
| 73. Waxing | - Application of a thin film of surface coating to fruits and vegetables. |
| 74. Wet-bulb temperature | - The temperature of moist air indicated by a thermometer whose bulb is covered with a moist wick which the air flow passing over has a velocity of 15 ft per second. |

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CODE BOOK LEGEND

Sample: **TLE_AFAACP9-12LWC-Ia-1**

LEGEND		SAMPLE		DOMAIN / COMPONENT	CODE
First Entry	Learning Area and Strand/ Subject or Specialization	Technology and Livelihood Education_Agri-Fishery Arts Agricultural Crop Production	TLE_AFAACP9-12	Leading Work Place Communication	LWC
	Grade Level	9/10/11/12		Leading Small Team	LST
Uppercase Letter/s	Domain/ Content/ Component/ Topic	Leading Work Place Communication	LWC	Developing and Practicing Negotiation Skills	DPN
				Solving Problems Related to Work Activities	SPW
Roman Numeral <i>*Zero if no specific Quarter</i>	Quarter	First Quarter	I	Using Mathematical Concepts and Techniques	MCT
				Using Relevant Technologies	URT
Lower case letter/s <i>*Put an en-dash (-) in between letters to indicate more than a specific week</i>	Week	Week one	a	Applying Safety Measures in Farm Operations	SMO
				Using Farm Tools and Equipment	UFT
Arabic Number	Competency	Leading workplace communication.	1	Performing Estimation and Calculation	PEC
				Preparing Land for Agricultural Crop Production	PLA
				Implementing a Post-Harvest Program	PHP
				Implementing a Plant Nutrition Program	IPN
				Controlling Weeds	CTW
				Preparing and Applying Chemicals	PAC
				Establishing Agronomic Crops	EAC
				Undertaking Agronomic Crop Maintenance Activities	ACM
				Undertaking Agronomic Crop Harvesting Activities	ACH
				Saving, Preparing and Storing Agricultural Seed	SPS
				Implementing Vertebrate Pest Control Program	IVP
				Following Site Quarantine Procedures	SQP
				Collecting Samples for a Rural Production or Horticulture Monitoring Program	CSR
				Handling Bulk Materials in Storage Area	BMS
				Preparing Grain Storages	PGS
				Complying with Industry Quality Assurance Requirements	CQA
				Maintaining and Monitoring Environmental Work Practices	MEW
				Keeping Records for a Farm Business	KRF
				Performing Specialised Machinery and Equipment Maintenance	PSM
				Installing Irrigation Systems	IIS

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Technology-Livelihood Education and Technical-Vocational Track specializations may be taken between Grades 9 to 12.

Schools may offer specializations from the four strands as long as the minimum number of hours for each specialization is met.


Please refer to the sample Curriculum Map on the next page for the number of semesters per Agri-Fishery Arts specialization and those that have pre-requisites. Curriculum Maps may be modified according to specializations offered by a school.

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SAMPLE AGRICULTURE AND FISHERY ARTS CURRICULUM MAP (updated as of May 2016)**

GRADE 7/8 (EXPLORATORY)				GRADES 9-12			
				Agricultural Crops Production (NC I)	4 sems		
				Agricultural Crops Production (NC II) ⁺ <small>updated based on TESDA Training Regulations published on December 28, 2013</small>			8 sems
				*Agricultural Crops Production (NC III)			8 sems
				Landscape Installation and Maintenance (NC II)	4 sems	Organic Agriculture (NC II)	
				Pest Management (NC II)	4 sems	Rice Machinery Operation (NC II)	
				Animal Production (Swine) (NC II) ⁺ <small>updated based on TESDA Training Regulations published on December 28, 2013</small>	4 sems	*Artificial Insemination: Swine (NC II)	2 sems
				Animal Production (Large Ruminants) (NC II) ⁺ <small>updated based on TESDA Training Regulations published on December 28, 2013</small>	4 sems	*Artificial Insemination: Large Ruminants (NC II)	2 sems
				Animal Production (Poultry-Chicken) (NC II) ⁺ <small>updated based on TESDA Training Regulations published on December 28, 2013</small>	4 sems	*Animal Health Care Management NC III	
				Rubber Production (NC II)	4 sems	Rubber Processing (NC II)	
				*Horticulture (NC III)			8 sems
				Food Processing (NC II)			8 sems
				Fish Capture (NC II)			8 sems
				Aquaculture (NC II)			8 sems
				Fish-Products Packaging (NC II)	4 sems	Fishing Gear Repair and Maintenance (NC III)	

EXPLORATORY

- * Please note that these subjects have pre-requisites mentioned in the CG.
- + CG updated based on new Training Regulations of TESDA.
-  Other specializations with no prerequisites may be taken up during these semesters.

****This is just a sample. Schools make their own curriculum maps considering the specializations to be offered. Subjects may be taken up at any point during Grades 9-12.**

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(640 hours)

Reference:

Technical Education and Skills Development Authority-Qualification Standards Office. *Training Regulations for Agricultural Crops Production NC III*. Taguig City, Philippines: TESDA, 2006.