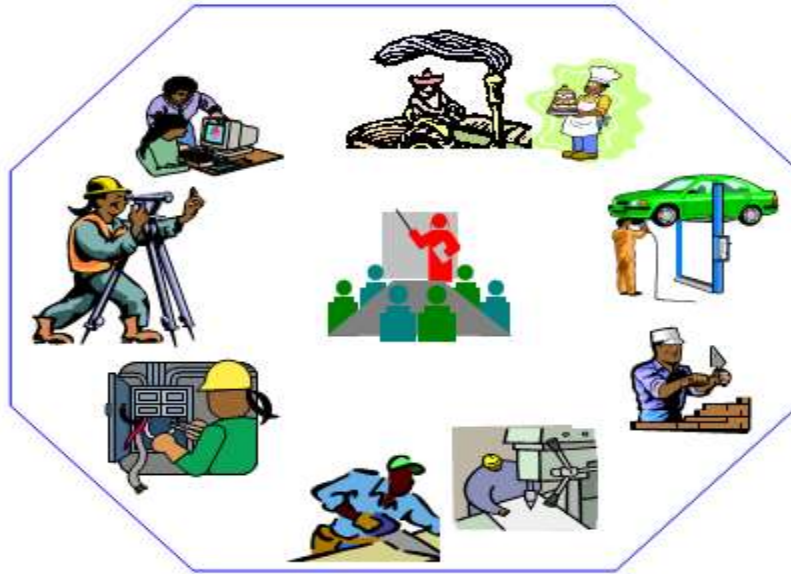


CROP PRODUCTION LEVEL – I



CURRICULUM

**Based on April, 2022 Version 1 Occupational
Standard (OS)**

April, 2022

Addis Ababa, Ethiopia

Preface

The reformed TVET-System is an outcome-based system. It utilizes the needs of the labor market and occupational requirements from the world of work as the benchmark and Standard for TVET delivery. The requirements from the world of work are analyzed and documented – taking into account international benchmarking – as occupational Standards (OS).

In the reformed TVET-System, curricula and curriculum development play an important role with regard to quality driven comparable TVET-Delivery. The Curricula help to facilitate the training process in a way, that trainees acquire the set of occupational competences (skills, knowledge and attitude) required at the working place and defined in the occupational Standards (OS).

This curriculum has been developed by a group of professional experts from different Regional TVET Bureaus, colleges, Industries, Institutes and universities based on the occupational Standard **for crop production Level I**. The curriculum development process has been actively supported and facilitated by **Ministry of Labor and Skills**.

TVET-Program Design

1.1 TVET-Program Title: Crop Production Level I.

1.2 TVET-Program Description

The Program is designed to develop the necessary knowledge, skills and attitude of the trainees to the Standard required by the occupation. The contents of this program are in line with the occupational Standard. The Trainees who successfully completed the Program will be qualified to work as a **Crop production assistance** with competencies elaborated in the respective OS. Graduates of the program will have the required qualification to work in the **Agriculture** sector in the field of **Crop production**.

The prime objective of this training program is to equip the Trainees with the identified competences specified in the OS. Graduates are therefore expected to perform field crop production, perform horticultural crop production, carryout basic nursery work, identify and determine basic properties of soil, prepare compost, apply soil and water conservation practices, identify important crop pests, apply chemicals and safety rules, apply agricultural extension communication , implement agribusiness marketing, apply basics of human nutrition practices and apply 5s procedures in accordance with the performance criteria and evidence guide described in the OS.

1.3 TVET-Program Training Outcomes

The expected outputs of this program are the acquisition and implementation of the following units of competences:

AGR CRP1 01 0322 Perform Field Crop Production

AGR CRP1 02 0322 Perform Horticultural Crop Production

AGR CRP1 03 0322 Carryout Basic Nursery Work

AGR CRP1 04 0322 Identify and determine Basic Properties of Soil

AGR CRP1 05 0322 Prepare Compost

AGR CRP1 06 0322 Apply Soil and water conservation practices

AGR CRP1 07 0322 Identify important crop pests

AGR CRP1 08 0322 Apply Chemicals and safety rules

AGR CRP1 09 0322 Apply Agricultural Extension Communication

AGR CRP1 10 0322 Implement Agribusiness Marketing

AGR CRP1 M11 0422 Apply Basics of Human Nutrition Practices

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AGR CRP1 12 0322 Apply 5S Procedures

1.4 Duration of the TVET-Program

The Program will have duration of **642hours** including the on school/ Institution training and on-the-job practice or cooperative training time. Such cooperative training based on realities of the industry, nature of the occupation, location of the TVET institution, and other factors will be considered in the training delivery to ensure that trainees acquire practical and workplace experience.

s.no	Unit competency	TVET Institution training		Cooperative training	Total hours	Remarks Time in hour
		Theory	Practical			
1.	Perform Field Crop Production	8	12	35	55	
2.	Perform Horticultural Crop Production	8	12	35	55	
3.	Carryout Basic Nursery Work	8	12	35	55	
4.	Identify and determine Basic Properties of Soil,	8	12	35	55	
5.	Prepare Compost	8	12	35	55	
6.	Apply Soil and water conservation practices	8	12	42	62	
7.	Identify important crop pests	8	12	42	62	
8.	Apply Chemicals and safety rules	8	12	42	62	
9	Apply Agricultural Extension Communication	8	12	35	55	
10	Implement Agribusiness Marketing	8	12	21	41	
11	Apply Basics of Human Nutrition Practices	8	12	28	48	
12	Apply 5S Procedures	8	12	21	41	

1.5 Qualification Level and Certification

Based on the descriptors elaborated on the Ethiopian National TVET Qualification Framework (NTQF) the qualification of this specific TVET Program is **Level I**

The trainee can exit after successfully completing the modules in one level and will be awarded the equivalent institutional certificate on the level completed. However, only institutional certificate of training accomplishment will be awarded.

1.6 Target Groups

Any citizen who meets the entry requirements under items 1.7 and capable of participating in the training activities is entitled to take part in the Program.

1.7 Entry Requirements

The prospective participants of this program are required to possess the requirements or directive of the **Ministry of Labor and Skills**.

1.8 Mode of Delivery

This TVET-Program is characterized as a formal Program on middle level technical skills. The mode of delivery is co-operative training. The time spent by the trainees in the real work place/ industry will give them enough exposure to the actual world of work and enable them to get hands-on experience. The co-operative approach will be supported with school-based lecture-discussion, simulation and actual practice. These modalities will be utilized before the trainees are exposed to the industry environment.

Hence based on the nature of the occupation, location of the TVET institutions, and interest of the industry alternative mode of cooperative training such as apprenticeships, internship and traineeship will be employed. In addition, in the areas where industry is not sufficiently available the established production and service centers/learning factories in TVET institutions will be used as cooperative training places. The Training-Institution and identified companies have forged an agreement to co-operate with regard to the implementation of this program.

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1.9. TVET-Program Structure

Unit of Competence		Module Code & Title		Training Outcomes	Duration (In Hours)
AGR CRP1 01 0322	Perform Field Crop Production	AGR CRP1 M01 0422	Performing Field Crop Production	<ul style="list-style-type: none"> • Prepare inputs, tools and equipment for field crop production • Undertake Field crop agronomic practices • Clean up store, tools and equipment • Record and document 	55
AGR CRP1 02 0322	Perform Horticultural Crop Production	AGR CRP1 M02 0422	Performing Horticultural Crop Production	<ul style="list-style-type: none"> • Prepare materials, tools and equipment for horticultural production work • Undertake horticultural production work • Handle materials and equipment • Record and document 	55
AGR CRP1 03 0322	Carryout Basic Nursery Work	AGR CRP1 M03 0422	Carrying out Basic Nursery Work	<ul style="list-style-type: none"> • prepare materials, tools and equipment for nursery work • Prepare Seed bed and pots • Carry out planting/sowing Operations • Care for Seedlings • Store and stockpile materials • Clean up on completion of nursery work 	55

			and Report		
AGR CRP1 04 0322	Identify and determine Basic Properties of Soil	AGR CRP1 M04 0422	Identifying and determining Basic Properties of Soil	<ul style="list-style-type: none"> • Prepare for soil sampling • Identify soil profile and physical properties of soil • Collect soil samples for testing 	55
AGR CRP1 05 0322	Prepare Compost	AGR CRP1 M05 0422	Preparing Compost	<ul style="list-style-type: none"> • Prepare raw materials for compost preparation • Prepare compost • Monitor composting process • Conduct quality control inspection 	55
AGR CRP1 06 0322	Apply Soil and water conservation practices	AGR CRP1 M06 0422	Applying Soil and water conservation practices	<ul style="list-style-type: none"> • Preparation for moisture conservation • Under take moisture stress area conservation activity • Undertake farm land conservation • Clean up and store materials and equipment • Record and report work activities 	62
AGR CRP1 07 0422	Identify important crop pests	AGR CRP1 M07 0422	Identifying important crop pests	<ul style="list-style-type: none"> • Apply workplace requirements and instructions concerning crop pest identifications 	62

			<ul style="list-style-type: none"> • Conduct field assessment • Recognize crop pest 		
AGR CRP1 08 0322	Apply Chemicals and safety rules	AGR CRP1 M08 0422	Applying Chemicals and safety rules	<ul style="list-style-type: none"> • Follow requirements and instructions • Follow chemical handling and storage rules • Prepare Chemicals and calibrate equipment • Apply chemicals • Follow instructions to empty and clean equipment and containers 	62
AGR CRP1 09 0322	Apply Agricultural Extension Communication	AGR CRP1 M09 0422	Applying Agricultural Extension Communication	<ul style="list-style-type: none"> • Follow requirements and instructions • Follow chemical handling and storage rules • Prepare Chemicals and calibrate equipment • Apply chemicals • Follow instructions to empty and clean equipment and containers 	55
AGR CRP1 10 0322	Implement Agribusiness Marketing	AGR CRP1 M10 0422	Implementing Agribusiness Marketing	<ul style="list-style-type: none"> • Understand concept of agricultural marketing • Understand concepts of agribusiness 	41

			<ul style="list-style-type: none"> • Identify marketing targets for Agricultural products • Implement marketing strategy • Establish contract farming • Apply Agricultural marketing services 		
AGR CRP1 11 0322	Apply Basics of Human Nutrition Practices	AGR CRP1 11 04322	Applying Basics of Human Nutrition	<ul style="list-style-type: none"> • Identify Categories of agricultural foods items • Recognize malnutrition in the community • Identify the role of agriculture in nutrition • Demonstrate diversified Agricultural food production and consumption techniques • Perform proper handling and storage of agricultural food products • Document and report food production, consumption and difficulties 	48
AGR CRP1 12 0322	Apply 5S Procedures	AGR CRP1 M12 0422	Applying 5S Procedures	<ul style="list-style-type: none"> • Develop understanding of quality system • Sort needed items from unneeded • Set workplace in order 	41

		<ul style="list-style-type: none"> • Shine work area • Standardize activities • Sustain 5S system 	
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*The time duration (Hours) indicated for the module should include all activities in and out of the TVET institution.

1.10 Institutional Assessment

Two types of evaluation will be used in determining the extent to which training outcomes are achieved. The specific training outcomes are stated in the modules. In assessing them, verifiable and observable indicators and Standards shall be used.

The **formative assessment** is incorporated in the training modules and form part of the training process. Formative evaluation provides the trainee with feedback regarding success or failure in attaining training outcomes. It identifies the specific training errors that need to be corrected, and provides reinforcement for successful performance as well. For the teacher, formative evaluation provides information for making instruction and remedial work more effective.

Summative Evaluation the other form of evaluation is given when all the modules in the program have been accomplished. It determines the extent to which competence have been achieved. And, the result of this assessment decision shall be expressed in the term of institutional Assessment implementation guidelines.

Techniques or tools for obtaining information about trainees' achievement include oral or written test, demonstration and on-site observation.

1.11 TVET Teachers Profile

The teachers conducting this particular TVET Program are **B Level** and above who have satisfactory practical experiences or equivalent qualifications.

LEARNING MODULE 01	
TVET-PROGRAMME TITLE: CROP PRODUCTION LEVEL I	
MODULE TITLE: Performing field crop production	
MODULE CODE: AGR CRP1 M01 0422	
NOMINAL DURATION: .55 Hours	
MODULE DESCRIPTION: This module covers the competence covers the knowledge, skills and attitude required to Prepare tools and equipment for field crop production, under take field crop agronomic practices, clean up, store materials, equipment, record and document	
<p>LEARNING OUTCOMES</p> <p>At the end of the module the trainee will be able to:</p> <p>LO1. Prepare inputs, tools and equipment for field crop production</p> <p>LO2. Undertake Field crop agronomic practices</p> <p>LO3. Clean up store, tools and equipment</p> <p>LO4 Record and document</p>	
<p>MODULE CONTENTS:</p> <p>LO1. Preparing inputs, tools and equipment for field crop production</p> <p>1.1. Identifying and Checking inputs, tools and equipment</p> <p>1.2. Manual handling and techniques loading and unloading</p> <p>1.3. Selecting and checking suitable Personal Protective Equipment (PPE).</p> <p>1.4. Identifying and reporting OHS hazards</p> <p>LO2. Undertaking field crop agronomic practices</p> <p>2.1. Observing safe and appropriate environmental conditions</p> <p>2.2. Conducting agronomic practices</p> <p>2.3. Observing workplace procedures for handling and disposal of waste materials</p> <p>LO3. Cleaning and storing, tools and equipment</p> <p>3.1 Storing waste materials in designated area</p> <p>3.2 Checking tools, equipment and machinery</p> <p>3.3 Cleaning and storing materials, equipment and machinery</p> <p>3.4 Nursery hygiene and quality control (EG)</p> <p>LO4 Recording and documenting</p> <p>4.1. Reporting problems or difficulties in completing work</p> <p>4.2. Recording and reporting materials, equipment and machinery condition</p> <p>4.3. Reporting work activities and outputs in Standard format</p>	

LEARNING METHODS:

- Lecture and Discussion
- Braine storming
- Practical demonstration
- Practical exercise
- Audio Visual
- Role playing

ASSESSMENT METHODS:

- Written test
- Oral questioning
- Practical (group work)
- Assignment
- Presentation

ASSESSMENT CRITERIA:

LO.1. Prepare inputs, tools and equipment for field crop production

- The required inputs, tools and equipment are identified.
- Materials, tools and equipment are checked with insufficient or faulty
- Correct manual handling and techniques for loading and unloading materials are used to minimize damage to the load, person and the vehicle.
- Suitable Personal Protective Equipment (PPE) are selected and checked.
- OHS hazards are identified and reported

LO2. Undertake field crop agronomic practices

- Safe and appropriate environmental conditions for agronomic practices are observed.
- Conduct field crop agronomic practices
- Workplace procedures in relation to workplace practices, handling and disposal of materials are observed.

LO3. Clean and store, tools and equipment

- Waste material produced during cropping work is stored in a designated area
- Tools, equipment and machinery are checked for wear/damage, and prepared for transporting/storage
- Materials, equipment and machinery are cleaned and stored in safe work site while completing cropping activities.

LO4 Record and document

- Problems or difficulties in completing work to required Standards and time lines are reported.
- Materials, equipment and machinery condition after work are recorded and reported
- Work activities and outputs are reported in Standard format

Annex: Resource Requirements

AGR CRP1 M01 0422 Performing Field Crop Production				
Item No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Item: Trainee)
A. Learning Materials				
1.	TTLM	prepared by the trainer	25	1:1
	Work sheet	Prepared by trainer	25	1:1
	Module	Prepared by trainer	25	1:1
2.	Reference Books			
2.1	Principles of Field Crop Production	2 nd ed john H. Martin	10	10:
2.2	https://www.pdfdrive.com	Google.com et /opera	1	1:1
2.2	Agronomy text	B.Chandrasekaran etal. 2010	7	1:5
3.	Journals/Publication/Magazines			
B. Learning Facilities & Infrastructure				
1.	Class room	6mx5m	1	1:25
2	Library	10 x8 sqm	1	1:25
4	Arm chair	1x1sqm	1	1:25
5.	Teachers chair	1.x1sqm	1	1:25
4.	Teachers table	1.5x1sq	1	1:25
5.	Black /white board		1	1:25
6.	Computer	Desk top	1	1:25
7.	LCD Projector		1	1:25
C. Consumable Materials				
1.	Duster	white/black boar	1	1:25
2	Chalk		1	1:25
5	Marker	Dot type	1	1:25
6	Paper	A4	2 Ream	2:5
8	Pen	Bic	2 Piece	2:25

9	Stapler		1pieces	1:25
10	Steeple		1packet	1:25
11	Lime	Kg		5:25
12	Teachers uniform	White gown	1	1:25
13	Lap top bag	ELCO	1	1:25
14	Rake	Standard	5	1:7
15	Machetes	Crocodile	7	1:5
16	Sickles	Sharp teeth	5	1:7
17	Tape meter ,	10 m	5	1:7
18	Secateurs,	Stain less steel	7	1:5
19	Spades,	Standard	5	1:7
20	Forks,	Standard	5	1:7
21	Hoes,	Standard	7	1:5
22	Cart	Plastic	3	3:25
23	Box	Plastic	2	2:25
24	Water can	Plastic	5	1:7
25	Augers	Open and sharp age	5	5:7
26	boots/shoes	Rubber	25	1:1
27	safety goggles,	Glass	25	1:1
28	face mask	Plastic	25	1:1
29	Ear protectors	Spoge	25	1:1
30	Overalls	Silk	25	1:1
32	sun hat	Cotton	25	1:1

LEARNING MODULE 02	
TVET-PROGRAMME TITLE: CROP PRODUCTION LEVEL I	
MODULE TITLE: Performing Horticultural Crop Production	
MODULE CODE: AGR CRP1 M02 0422	
NOMINAL DURATION: .55 . Hours	
MODULE DESCRIPTION: This module covers knowledge, skills and attitude required to Prepare materials, tools and equipment for horticultural crop production wok, undertake horticultural production wok, handle materials and equipments and record and document.	
LEARNING OUTCOMES At the end of the module the trainee will be able to: LO1. Prepare materials, tools and equipment for horticultural production work LO2. Undertake horticultural production work LO3. Handle materials and equipment LO4. Record and document	
MODULE CONTENTS: LO1. Preparing materials, tools and equipment's 1.1. Identifying and checking inputs, materials, tools and equipment 1.2. Manual handling and techniques loading and unloading 1.3. Selecting and checking suitable Personal Protective Equipment (PPE). 1.4. Identifying and reporting OHS hazards LO2. Undertaking horticultural production work 2.1. Undertaking horticultural crop work 2.2. observing and applying workplace policy and procedures 2.3. maintaining a clean and safe work site LO3. Handling materials and equipment 3.1 Storing waste materials in designated area 3.2 Checking tools, equipment and machinery 3.3 Cleaning and storing materials, equipment and machinery LO4 Recording and documenting 4.1. Reporting problems or difficulties. 4.2. Recording and reporting materials, equipment and machinery condition 4.3. Reporting work activities and outputs	
LEARNING METHODS:	

- Lecture and Discussion
- Braine storming
- Practical demonstration
- Practical exercise
- Audio visual
- Role playing

ASSESSMENT METHODS:

- Written test
- Oral questioning
- Practical(group work)
- Assignment
- Presentation

ASSESSMENT CRITERIA:

LO.1. Prepare materials, tools and equipment for horticultural crop production work

- The required **inputs**, materials, Tools and Equipment are identified.
- Materials, Tools and Equipment are checked with insufficient or faulty.
- Correct manual handling and techniques for loading and unloading materials are used to minimize damage to the load, person and the vehicle.
- Suitable Personal Protective Equipment (PPE) are selected and checked
- OHS hazards are identified and reported

LO2. Undertake horticultural production work

- Horticultural crop work is undertaken in a safe and environmentally appropriate manner according to workplace guidelines.
- Workplace policy and procedures in relation to workplace practices, handling and disposal of materials are observed and applied
- A clean and safe work site is maintained while working

LO3. Handle materials and equipment

- Waste material generated during horticultural work is stored in a designated area
- Tools, equipment and machinery are checked for wear/damage, and prepared for storage according to workplace policy and procedures
- Materials, equipment and machinery are cleaned and stored

LO4 Record and document

- Problems or difficulties in completing work to required Standards of the industry are reported
- Materials, equipment and machinery condition after work is recorded and reported
- Work activities and outcomes are reported in Standard format

Annex: Resource Requirements

AGR CRP1 M02 0422 Performing horticultural Crop Production work				
Item No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Item: Trainee)
A. Learning Materials				
1.	TTLM	prepared by the trainer	25	1:1
	Operation sheet	prepared by the trainer	25	1:1
	Module	prepared by the trainer	25	1:1
2.	Reference Books			
3	Fundamentals of horticulture & production technology of fruit crops	Dr. B. HEMLA NAIK	10	10:1
4	Crop Production Techniques of Horticultural Crops	Volume 1 Geoffrey R. Dixon 2004	5	5:25
5	Agronomy text	B.Chandrasekaran etal. 2010,	25	1:1
6.	Journals/Publication/Magazines			
B. Learning Facilities & Infrastructure				
1.	Class room	6mx5m	1	1:25
2.	Arm chair	1.x1.2sqm	25	1:1
3.	Teachers chair	1x1.2sqm	1	1:1
4.	Teachers table	1.5x1sqm	1	1:1
5.	Black /white board		1	1:25
6.	Computer	Desk top	1	1:25
7.	LCD Projector		1	1:25

C. Consumable Materials				
1.	Duster	white/black board	1	1:25
2	Chalk		1 packet	1:25
5	Marker	Dot and erasable	1 packet	1:25
6	Paper	A4	2 Ream	2:25
8	Pen	Bic	2 Piece	2:25
9	Stapler	Standard	1pices	1:25
1 0	Steeple	Standard	1packet	1:25
1 2	Teachers uniform	White gown	1	1:25
1 3	Lap top bag	ELCO	1	1:25
1.	Rake	Standard	25	1:1
2	Machetes	Crocodile	25	1:1
3	Sickles	Sharp teeth	35	1:1
4	Tape meter	10 m	7	1:5
5	Secateurs	Stain less steel	7	1:5
6	Spades	STANDAR D	7	1:5
7	Forks,		7	1:5
	Hoes,	Long hand	7	1:5
	Box	Plastic	5	1:7
	Water can	Plastic	25	1:1
	Knives,	Stain less steel	5	1:7
	Dust bins	Plastic	5	1:7
	Buckets	Plastic	5	1:7
	Secateurs,	Stain less	7	1:5

		steel		
	Ladders	Iron	1	1:25
	Drip pipe	Pvc	1	1:25
	Sprinklers,	Pvc	1	1:25
	Water hoses	Plastic	100	3:1
	hose fittings	Plastic	25	1:7
	Augers	Stain less steel	25	5:7
	boots/shoes	Rubber	25	5:7
	safety goggles,	Plastic	25	5:7
	face mask	Plastic	25	5:7
	Ear protectors	Sponge	25	5:7
	Overalls	Nylon	25	5:7
	Gloves	Rubber	25	5:7
	sun hat	Net	25	5:7

LEARNING MODULE 03

TVET-PROGRAMME TITLE: CROP PRODUCTION LEVEL I

MODULE TITLE: **Carrying out Basic Nursery Work**

MODULE CODE: **AGR CRP1 M03 0422**

NOMINAL DURATION: 55 Hours

MODULE DESCRIPTION: This module covers the knowledge, skills and attitude required to prepare materials, tools and equipment for nursery work, undertake nursery work activities, seed bed and pot preparation. Carry out planting/sowing Operations, Care for Seedlings, stockpile materials, clean up on completion of nursery work finally record and report.

LEARNING OUTCOMES

At the end of the module the trainee will be able to:

- LO1.** prepare materials, tools and equipment for nursery work
- LO2.** Prepare Seed bed and pots
- LO3.** Carry out planting/sowing Operations
- LO4.** Care for Seedlings
- LO5.** Store and stockpile materials
- LO6.** Clean up on completion of nursery work and Report

MODULE CONTENTS:

LO1. Preparing material, tools and equipment for nursery work

- 1.1 Identifying and Checking materials, tools and equipment
- 1.2 demonstrating techniques of loading and unloading materials
- 1.3 Selecting and checking suitable Personal Protective Equipment (PPE).
- 1.4 Providing nursery support and workplace information.
- 1.5 Identifying and reporting OHS hazards

LO2. Preparing Seed bed and pots

- 2.1. Ploughing, Pulverizing and Leveling soil
- 2.2. Identifying and preparing potting materials
- 2.3. Selecting, mixing, filling and arranging soil for potting

LO3. Carrying out planting/sowing Operations

- 3.1. Selecting, Treating and Maintaining Planting material
- 3.2. Handling and transporting planting material
- 3.3. Carrying out Planting

LO4 Caring Seedlings

- 4.1. Applying treatments for seedling.
- 4.2. Application of water for seedling
- 4.3. Training seedlings

LO5. Storing and stocking materials

- 5.1. Storing, preparing and processing plant debris and waste materials
- 5.2. Stocking Surplus materials

LO6. Cleaning and reporting on completion of nursery work

- 6.1 Cleaning, maintaining and storing tools and equipment.
- 6.2 Recording and documenting nursery establishment and activities
- 6.3 Reporting problems or difficulties
- 6.4 Recording and reporting materials, equipment and machinery condition
- 6.5 Communicating work completion and hazards information
- 6.6 Reporting work out come

LEARNING METHODS:

- Lecture and Discussion
- Braine storming
- Practical demonstration
- Practical exercise
- Audio Visual
- Role playing

ASSESSMENT METHODS:

- Written test
- Oral questioning
- Practical (group work)
- Assignment
- Presentation

ASSESSMENT CRITERIA:

LO1. Prepare material, tools and equipment for nursery work

- The required materials, tools and equipment's are identified
- Materials, tools and equipment's are checked with insufficient or faulty items reported
- Techniques used when loading and unloading materials demonstrate correct manual handling, and minimize damage
- Suitable personal protective equipment (PPE) is selected and checked prior to use.
- Nursery support is provided according to OHS requirements and workplace information.
- Nursery work is undertaken in a safe and environmentally appropriate manner according to nursery working manual.
- Instructions and directions provided by supervisor are followed
- OHS hazards are identified and reported to the supervisor

LO2. Prepare Seed bed and pots

- The seed and transplanting blocks are ploughed according to the work guideline of the organization
- The seed and transplanting blocks are pulverized using the appropriate farm tools according to the organizational work manual
- The seed and transplanting blocks are levelled and are prepared for bed lay out according to organizational work manual
- Appropriate pot materials are identified and prepared according to the specification
- Suitable soil materials are selected and mixed based on the Standard
- Suitable soil materials are filled and arranged according to the procedure

LO3. Carry out planting/sowing Operations

- Planting material is selected according to the type of Crop and enterprise quality Standards.
- Planting material is treated according to the crop and based on the guidelines.
- Planting material is maintained under suitable conditions that will ensure maximum viability.
- Planting material is handled and transported to the site with no signs of transport damage.
- Planting is carried out according to the planting plan

LO4 Care Seedlings

- Treatments are applied to plantings according to the supervisor's directions.
- Water is applied to plantings according to the irrigation

- Schedule and established sustainable farming practices.
- Seedlings are trained according to the supervisor's directions.

LO5. Store and stock materials

- Plant debris and waste material produced during nursery activities are stored according to supervisor's instructions.
- Plant debris and waste materials are prepared and processed in an appropriate and safe manner according to supervisor's instructions.
- Surplus materials are stockpiled for removal according to supervisor's instructions.

LO6. Clean and report on completion of nursery work

- Plants and materials are stored according to supervisor's instructions and OHS requirements.
- Tools and equipment are cleaned, maintained and stored according to manufacturer's specifications and supervisor's instructions.
- Nursery establishment and activities are recorded and documented in Standard format
- Problems or difficulties in completing work to required Standards or timelines are reported to supervisor.
- Materials, equipment and machinery condition after work is recorded and reported to supervisor
- Work completion and hazards information is communicated to work colleagues and the supervisor.
- Work outcomes are reported in Standard format to the supervisor.

Annex: Resource Requirements

AGR CRP1 M03 0422 Carrying out Basic Nursery Work				
Item No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Item: Trainee)
A. Learning Materials				
1.	TTLM	prepared by the trainer	25	1:1
	Practical manual	prepared by the trainer	25	1:1
	Module	prepared by the trainer	25	1:1
2.1	carry out basic measurements and calculations	www.dtwd.wa.gov.au	1	1:1
2.2	Agronomy text	B.Chandrasekar etal. © 2010	5	1:7
4.	Journals/Publication/Magazines			
B. Learning Facilities & Infrastructure				
1.	Class room	6x5m	1	1:35
2.	Arm chair	1x1.2msq	25	1:1
3.	Teachers chair	1x1.2sqm	1	1:1
4.	Teachers table	1.5mx1m	1	1:1
5.	Black /white board		1	1:35
6.	Computer	Desktop	1	1:35
7.	LCD Projector		1	1:25
C. Consumable Materials				
1.	Duster (white/black board)		1	1:25
2	Chalk	Gross	1 packet	1:25
5	Marker	Erasable	1 packet	1:5
6	Paper	A4	2 Ream	2:25
8	Pen	Bic	2 Piece	2:25
9	Stapler		1pices	1:25

10	Steeple		1packet	1:25
11	Teacher's uniform	White Gawon	1pieces	1:25
12	Lap top bag	ELCO	1pieces	1:25
D.	Tools and Equipment			
1.	Rake		5	1:7
2	Machetes	Crocodile	5	1:7
3	Sickles	Sharp teeth	5	1:7
4	Tape meter	10m	5	1:7
5	Secateurs	Stain less steel	7	1:5
6	Spades,	standard	5	1:7
7	Forks,	standard	5	1:7
10	Box	Wood	2	2:25
11	Water can	Plastic	7	1:5
12	Knives,	Stain less steel	5	1:7
13	Dust bins	Plastic	3	3:25
14	Buckets	Plastic	5	1:7
15	Secateurs	Steel	5	1:7
16	Drip pipe	Pvc	5	1:7
17	Sprinklers	Pvc	5	1:7
18	Hoses	Long hand	5	1:7
19	hose fittings	Plastic	5	1:7
20	Wheelbarrows	Metal	3	3:25
21	Trolleys,	Metal	3	3:25
22	Scissors,	Steel	7	1:5
23	Media trays	Plastic/wood	5	1:7
24	String	nylon rope	5(roll)	1:7
25	pegs	1m size	25	1:1
26	Hand Saw	Stain less steel	3	3:25
27	Hammer	Plastic	5	1:7
28	Steel capped boots/shoes	Softy	25	1:1

29	safety goggles,	glass	25	1:1
30	face mask	Plastic	25	1:1
31	Ear protectors	sponge	25	1:1
32	Overalls	nylon	25	1:1
33	Gloves	Rubber	25	1:1
34	sun hat	Standard	25	1:1

LEARNING MODULE 04
TVET-PROGRAMME TITLE: CROP PRODUCTION LEVEL I
MODULE TITLE : Identifying and Determining Basic Properties of Soil
MODULE CODE: AGR CRP1 M04 0422
NOMINAL DURATION: .55 . Hours
MODULE DESCRIPTION: This module covers the knowledge, skills and attitude required to prepare for soil sampling, collect soil samples for testing, identify soil profile and physical properties and assist soil testing operations.
<p>LEARNING OUTCOMES</p> <p>At the end of the module the trainee will be able to:</p> <p>LO1. Prepare for soil sampling</p> <p>LO2. Identify soil profile and physical properties of soil</p> <p>LO3. Collect soil samples for testing</p>
<p>MODULE CONTENTS:</p> <p>LO1. Preparing for soil sampling</p> <ol style="list-style-type: none"> 1.1 Selecting tools, equipment and machinery according to site conditions 1.2 identifying soils sample techniques based on site plans requirements 1.3 identifying areas of homogeneous soil types for sampling 1.4 selecting and using suitable personal protective equipment (PPE) 1.5 maintaining and cleaning work area <p>LO2. Collecting soil samples for testing</p> <ol style="list-style-type: none"> 2.1. Preparing tools and equipment for collecting soil sample 2.2. Identifying area for soil sample collection 2.3. Excavating holes and taking samples randomly from designed area 2.4. Identifying, assessing, implementing and reporting OHS hazards 2.5. Selecting, using and maintaining suitable safety and PPE 2.6. Collecting, preparing, packing, labelling and dispatching samples <p>LO3. Identifying soil profile and physical properties of soil</p> <ol style="list-style-type: none"> 3.1 Identifying physical characteristics of the soil 3.2 Determining soil profile based on guide line 3.3 Cleaning and storing sampling and testing tools and equipment 3.4 Disposing waste material

3.5 Recording results in an established format

LEARNING METHODS:

- Lecture and Discussion
- Braine storming
- Practical demonstration
- Practical exercise
- Audio Visual
- Role playing

ASSESSMENT METHODS:

- Written test
- Oral questioning
- Practical (group work)
- Assignment
- Presentation

ASSESSMENT CRITERIA:

LO1. Prepare for soil sampling

- Tools, equipment and machinery are selected according to site conditions and testing agency
- Soils sample techniques are identified according to site plans requirements
- Areas of homogeneous soil types are identified for sampling
- Suitable safety equipment and personal protective equipment (PPE) are selected and used
- A clean and safe work area is maintained throughout and on completion of work

LO2. Collect soil samples for testing

- Tools and equipment for collecting soil samples are prepared.
- Area for soil sample collection is identified from workplace records or according to enterprise work procedures
- Holes are excavated and **Samples** are taken randomly from the designated area according to recognized sampling techniques
- OHS hazards are identified, risks assessed and controls implemented and reported to the supervisor.
- Suitable safety and PPE are selected, used and maintained.
- Samples for site and off-site testing are collected and prepared, packaged, accurately labelled, recorded and dispatched according to testing agency requirements and enterprise work procedures.

LO3. Identify soil profile and physical properties of soil

- The physical characteristics of the soil are identified according to investigative requirements and best practice guidelines
 - Soil profile is determined, where appropriate according to the guidelines.
 - Sampling and testing tools and equipment are cleaned of all residues and returned to storage according to manufacturer specifications and enterprise work procedures.
 - All containers, leftover fluids and waste are disposed of safely and appropriately.
- Results are recorded in an established format according to enterprise work procedures

Annex: Resource Requirements

AGR CRP1 M04 0422 Identifying and Determining Basic Properties of Soil				
Item No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Item: Trainee)
A.	Learning Materials			
1.	TTLM	prepared by the trainer	25	1:1
2	Practical manual/operation sheet	prepared by the trainer	25	1:1
	Module	prepared by the trainer	25	1:1
2.	Reference Books			
2.1	Methods of soil analysis, part I,	Black, C.A; 1965 American Society of Agronomy. Madison,	25	1:1
2.2	Agronomy text	B. Chandrasekaran etal. 2010	5	1:7
4.	Journals/Publication/Magazines			
B.	Learning Facilities & Infrastructure			
1.	Class room	6x5sqm	1	1:25
2.	Arm chair	1x1.2sqm	25	1:1
3.	Teachers chair	1x1.2msqm	1	1:1
4.	Teachers table	1.5x1sqm	1	1:1
5.	Black /white board	Standard	1	1:25
6.	computer	Desk top	1	1:25
7.	LCD Projector	Standard	1	1:25
C.	Consumable Materials			
1.	Duster (white/black board)	Standard	1	1:25
2	Chalk	White/color	1 packet	1:25
5	Marker	Erasable	1 packet	1:25

6	Paper	A4	2 Ream	2:25
8	pen	Lex	2 Piece	2:25
9	Stapler		1pices	1:25
10	Steeple		1packet	1:25
11	Teachers uniform	White gown	1pices	1:25
12	Teachers bag	ELCO	1pices	1:25
D. Tools and Equipment				
1.	Rake		5	1:7
2	Machetes	Crocodile	5	1:7
3	Sickles		5	1:7
4	Tape meter ,	10m	5	1:7
5	Secateurs,	Stain less steel	5	1:7
6	Spades,	STANDARD	5	1:7
7	Forks,		5	1:7
8	Plastic bag	Polytyion	7	1:5
9			Box	Wood
10	Water can	Plastic	5	1:7
11	Knives	Stain less steel	5	1:7
12	Dust bins	Basket	2	2:25
13	Buckets	Plastic	5	1:7
14	canvas		1	1:25
15	hoe	STANDARD	5	1:7
16	Wheel barrows	Mteal	3	3:25
17	Trolleys	Standard	3	3:25
18	Scissors	Stain less steel	2	2:25
19	String	Nylon rope	5 (rol)	1:7
20	peg	1m	25	25:25
21	Hand Saw	Standard	2	2:35
22	hammer	Plastic	2	2:25
23	Steel capped boots/shoes	Rubber	25	1:1
24	safety goggles	Glass	25	1:1

25	face mask	Plastic	25	1:1
26	Ear protectors	sponge	25	1:1
27	Overalls	Nylon	25	1:1
28	Gloves	Rubber	25	1:1
29	sun hat	Net	25	1:1

LEARNING MODULE 05	
TVET-PROGRAMME TITLE: CROP PRODUCTION LEVEL I	
MODULE TITLE: Preparing Compost	
MODULE CODE: AGR CRP1 M05 0422	
NOMINAL DURATION: . 55 Hours	
MODULE DESCRIPTION: This module covers the knowledge, skills and attitude required to prepare raw materials for compost preparation, Prepare compost, monitor composting process, and conduct quality control inspection.	
<p>LEARNING OUTCOMES</p> <p>At the end of the module the trainee will be able to:</p> <p>LO1. Prepare raw materials for compost preparation</p> <p>LO2. Prepare compost</p> <p>LO3. Monitor composting process</p> <p>LO4 Conduct quality control inspection.</p>	
<p>MODULE CONTENTS:</p> <p>LO1. Preparing raw materials for compost</p> <ol style="list-style-type: none"> 1.1. Identifying raw materials and additives 1.2. Collecting and checking locally available materials 1.3. Assessing physical contamination 1.4. Using composting technology and methods 1.5. Pre-processing raw materials variously into suitable forms 1.6. Mixing pre-processed raw materials into suitable feedstock 1.7. Separating, collecting and storing crop residue/by-product 1.8. Selecting and checking PPE and OHS hazards. <p>LO2. Preparing compost</p> <ol style="list-style-type: none"> 2..1 Selecting and cleaning site for compost preparation 2..2 Handling feedstock mixtures for composting 2..3 Assigning batch numbers and documentation 2..4 Preparing compost 2..5 Maintaining clean up area 2..6 Cleaning processing equipment to avoid contamination. <p>LO3. Monitoring composting process</p> <ol style="list-style-type: none"> 3.1 Monitoring composting batch by observation 	

- 3.2 Maintaining processing and operations records
- 3.3 Observing, reporting and taking remedial action

LO4 Conducting quality control inspection.

- 4. 1 Determining fundamental characteristics of compost quality
- 4. 2 Inspecting and assessing finished compost
- 4. 3 Observing and reporting faults or variations
- 4. 4 Processing further non-compliant product
- 4. 5 Confirming compliance of compost.
- 4. 6 Completing batch documentation
- 4. 7 Reporting work outcomes.
- 4. 8 Noting feedback

LEARNING METHODS:

- Lecture and Discussion
- Braine storming
- Practical demonstration
- Practical exercise
- Audio video
- Role playing

ASSESSMENT METHODS:

- Written test
- Oral questioning
- Practical
- Assignment
- Presentation

ASSESSMENT CRITERIA

LO1. Prepare raw materials for compost preparation

- Raw materials and additives are identified
- Locally available materials are collected and checked to ensure compliance with work procedures
- Assessment of physical contamination
- Composting technology and methods to be used are confirmed as appropriate to raw material types and product requirements.
- Raw materials are variously pre-processed into suitable forms for composting according to product requirements.
- Pre-processed raw materials are mixed into suitable feedstock mixtures for composting according to documented recipes or batches.
- Crop residue/by-product is separated, collected and stored in appropriate place from the crop in accordance with crop type
- Suitable Personal Protective Equipment (PPE) and OHS hazards are selected and checked prior to use.

LO2. Prepare compost

- select and clean site for compost preparation
- Feedstock mixtures for composting are handled according to technology, appropriate method, and best practice and procedures.
- Batch numbers or codes are assigned and batch documentation is created to enable tracking of batch through compost production cycle.
- prepare compost according to the Standards of the industry
- Clean up area is maintained
- Processing equipment is cleaned as required to avoid contamination between batches.

LO3. Monitor composting process

- Composting batch is monitored by observation and use of field-testing equipment to maintain effective composting process and efficient compost production schedule.
- Processing and operations records are maintained for process control and to track batch through the compost production cycle.
- Faults or variations observed at any stage of process are reported and remedial action is taken to maintain effective and consistent compost production.

LO4 Conduct quality control inspection

- Finished compost are inspected and assessed for compliance with product requirements
- Faults or variations observed are reported
- Non-compliant product is further processed as directed to processing technique; compost and faces batch management.
- Compliance of compost with product quality requirements is confirmed.
- Batch documentation are completed for compliant compost Sales and operational staff members are informed that product is suitable for sale and/or preparation of value-added products.
- Work outcomes are reported.
- Feedback on performance product is sought and any required improvements are noted for future action.

Annex: Resource Requirements

AGR CRP1 M05 0422 Preparing Compost				
Item No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Item: Trainee)
A. Learning Materials				
1.	TTLM	prepared by the trainer	25	1:1
2	Operation sheet	prepared by the trainer	25	1:1
	Nodule	prepared by the trainer	25	1:1
2.	Reference Books			
2.1	Handbook for Composting and Compost Use in Organic Horticulture	Edited by André W.G. van April 11, 2016	25	1:25
4.	Journals/Publication/Magazines			
B. Learning Facilities & Infrastructure				
1.	Class room	6mx5m	1	1:25
2.	Arm chair	1x1.2msqm	25	1:1
3.	Teachers chair	1x1.2sqm	1	1:25
4.	Teachers table	1.5mx1m	1	1:25
5.	Black /white board		1	1:25
6.	Computer	desktop	1	1:25
7.	LCD Projector		1	1:25
C. Consumable Materials				
1.	Duster	white/black board	1	1:25
2	Chalk	Gross	1 packet	1:25
5	Marker	Erasable	1 packet	1:25

6	Paper	A4	2 Ream	2:25
8	Pen	Bic	2 Piece	2:25
9	Pencil	HB/dot	2 Piece	2:25
10	Stapler		1Piece	1:25
11	Staples		1packet	1:25
D.	Tools and Equipment			
1.	Oxygen probe		1	1:25
2	Sieve	0.2mm diameter	1	1:25
3	Bin balance		1	1:25
4	Sensitive balance		1	1:25
5	Spade	Standard	25	1:25
6	Fork	Stain less steel	25	1:25
7	Moisture tester		1	1:25
8	Temperature probe		1	1:25
9	Water Electrical Conductivity (EC) meter		1	1:25
10	masks/Respirator	Plastic	25	1:25
11	Earmuffs		25	1:25
12	Fire extinguishers		1	1:25
13	Goggle/Face mask	Plastic	25	1:25
14	Safety footwear	Rubber	25	1:25
15	Reflector high visibility vests		25	1:25
16	Protective clothing/Overall	Nylon	25	1:25
17	Hard hats	Helmet	25	1:25
18	UV protection lotions		25	1:25
19	Gloves	Rubber	25	1:25

LEARNING MODULE 06	
TVET-PROGRAMME TITLE: Crop Production Level I	
MODULE TITLE: Applying Soil and water conservation practices	
MODULE CODE: AGR CRP1 M06 0422	
NOMINAL DURATION: 62 Hours	
<p>MODULE DESCRIPTION: This module covers the knowledge, skills and attitude required to Identified and prepares for moisture conservation, under take moisture stress area conservation activity, undertake irrigated area, undertake farm land conservation, clean up and store materials and equipment, record and report work activities.</p>	
<p>LEARNING OUTCOMES</p> <p>At the end of the module the trainee will be able to:</p> <p>LO1. Preparation for moisture conservation</p> <p>LO2. Under take moisture stress area conservation activity</p> <p>LO3. Undertake farm land conservation</p> <p>LO4 Clean up and store materials and equipment.</p> <p>LO5. Record and report work activities</p>	
<p>MODULE CONTENTS:</p> <p>LO1. Preparation for moisture conservation</p> <ol style="list-style-type: none"> 1.1. Identifying the required materials, tools and equipment 1.2. Conducting checks on all materials, tools and equipment. 1.3. Correct manual handling techniques of loading and unloading 1.4. Selecting and checking (PPE). 1.5. Identifying and providing OHS hazards. <p>LO2. Under taking moisture stress area conservation activity</p> <ol style="list-style-type: none"> 2.1. Identifying, site selection and land preparation 2.2. Identifying moisture stress 2.3. Identifying conservation methods (Split) 2.4. Undertaking work task. 2.5. Carrying out interactions with farmers and customers. <p>LO3. Undertaking farm land conservation</p> <ol style="list-style-type: none"> 3. 1 Assessing indigenous soil and water conservation techniques. 3. 2 Conserving and maintaining in-situ soil and water conservation 	

- 3.3 . Prioritizing physical and biological soil and water conservation technique.
- 3.4 . Enhancing community awareness and participation.
- 3.5 Identifying types and species of trees.
- 3.6 Identifying physical soil and water conservation practice

LO4 Cleaning up and storing materials and equipment.

- 4.1. Handling and transporting materials, equipment and machinery.
- 4.2. Storing or disposing off and recording waste material produced
- 4.3. Cleaning, maintaining and storing tools and equipment.

LO5. Recording and reporting work activities

- 5.1 Recording and documenting activities accomplishment.
- 5.2 Reporting problems or difficulties in completing work.
- 5.3 Recording materials, tools and equipment damages.
- 5.4 Reporting work activities and outcomes.

LEARNING METHODS:

- Lecture and Discussion
- Braine storming
- Practical demonstration
- Practical exercise
- Role playing

ASSESSMENT METHODS:

- Written test
- Oral questioning
- Practical(group work)
- Assignment
- Presentation

ASSESSMENT CRITERIA

LO1. Preparation for moisture conservation

- The required materials, tools and equipment are identified
- Checks are conducted on all materials, tools and equipment with insufficient or faulty items.
- Correct manual handling and techniques for loading and unloading materials are used to minimize damage to the load and the vehicle
- Suitable Personal Protective Equipment (PPE) are selected and checked prior to use.
- OHS hazards are identified and provided according to OHS requirements and workplace information.

LO2. Under take moisture stress area conservation activity

- Site selection and land preparation are identified according to production requirements
- Moisture stress and other areas establishment activities and conservation methods are identified
- Work task is undertaken in a safe and environmentally appropriate manner.
- Interactions with farmers and customers are carried out in a positive and professional manner.

LO3. Undertake farm land conservation

- Indigenous soil and water conservation techniques are assessed.
- Conserve and maintain in-situ soil and water conservation
- Physical and biological soil and water conservation technique are prioritized.
- Community awareness and participation is enhanced.
- Types and species of trees are identified
- Physical soil and water conservation practice considering soil type slope and construction materials identified

LO4 Clean up and store materials and equipment.

- Materials, equipment and machinery are handled and transported.
- Waste material produced during soil and water conservation practice establishment and conservation work is store or disposed of and recorded.
- Tools and equipment are cleaned, maintained and stored.

LO5. Record and report work activities

- Activities accomplishment are recorded and documented
- Problems or difficulties in completing work to required standards or timelines are reported.
- Materials, tools and equipment damages are recorded.
- Work activities and outcomes are reported.

Annex: Resource Requirements

AGR CRP1 M06 0422 Applying Soil and water conservation practices				
Item No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Item: Trainee)
A.	Learning Materials			
1.	TTLM	prepared by the trainer	25	1:1
2	Operation sheet	prepared by the trainer	25	1:1
	Module	prepared by the trainer	25	1:1
2.	Reference Books			
2.1	Soil and Water Conservation for Productivity and Environmental Protection	Fourth Edition Frederick R. Troeh 2010	5	1:5
2.2	Soil and Water Conservation in Ethiopia	Kebede Tato 2 nd ed 2016	5	1:5
2.3	Sustainable land management –a new approach to soil and water conservation in ethiopia	Mitku Haile etal. 2006	5	1:5
4.	Journals/Publication/Magazines			
B.	Learning Facilities & Infrastructure			
1.	Class room	6x5 sqm	1	1:25
2.	Arm chair	1x1.2sqm	25	1:1
3.	Teachers chair	1x1.2sqm	1	1:25
4.	Teachers table	1.5x1sqm	1	1:25
5.	Black /white board		1	1:25
6.	Computer	desktop	1	1:25
7.	LCD Projector		1	1:25

C. Consumable Materials				
1.	Duster	white/black board	1	1:25
2	Chalk	Gross	1 packet	1:25
5	Marker	Erasable	1 packet	1:25
6	Paper	A4	2 Ream	2:25
7	Pen	Bic	2 Piece	2:25
8	Pencil	HB/dot	2 Piece	2:35
9	Stapler		2 Piece	2:25
9	Flip chart	Sinner line	1unit	1:25
D. Tools and Equipment				
1.	Rope	Nylon	1 roll	1:25
2	empty sacks		5	5:25
3	plastic sheets		1 roll	1:25
4	Seed	Kg	20	20:25
5	Seedling	No.	25	1:1
6	Harnesses		5	5:25
7	Plough	Frequency	2 times	2:25
8	green forage,	Live		
9	Hoe	Standard	7	7:25
10	Sickle		5	1:25
11	Water pump,	Pvc	1set	1:25
12	Moisture tester or meter		1	1:1
13	Axe	Steel	5	5:25
14	Hammer	Plastic	7	7:25
15	Meter tape	10m	5	5:25
16	watering can	Plastic	7	7:25
17	Barrel	Meta	5	5:25
18	Spade	Standard	7	7:25
19	Wheelbarrow	Standard	3	3:25
20	Rack	Standard	7	7:25

21	Hayfork	Standard	6	6:25
22	Silo/pit	Standard	5	5:25
23	Store	7x6msqm	1	1:25
24	plastic boots/shoes	Plastic	25	1:1
25	Overalls	Nylon	25	1:1
26	Gloves	Rubber	25	1:1
27	sun hat	Net	25	1:1
28	sunscreen lotion	Standard	25	1:1
29	safety goggles	Glass	25	1:1
30	face mask	Plastic	25	1:1
31	ear Muff (ear protectors)	Plastic	25	1:1
32	Fire extinguisher	Standard	1	1:1
33	Spirit level/water level	Standard	3	3:25
34	Ranging pole	Plastic	5	5:25

LEARNING MODULE 07	
TVET-PROGRAMME TITLE: CROP PRODUCTION LEVEL I	
MODULE TITLE: Identifying important crop pests	
MODULE CODE: AGR CRP1 M 07 0422	
NOMINAL DURATION: 62 Hours	
MODULE DESCRIPTION: This module covers the knowledge, skills and attitude required to apply workplace requirements and instructions concerning crop pest identifications, conduct field assessment and recognize crop pest.	
LEARNING OUTCOMES	
At the end of the module the trainee will be able to:	
LO1. Apply workplace requirements and instructions concerning crop pest identifications	
LO2. Conduct field assessment	
LO3. Recognize crop pest	
MODULE CONTENTS:	
LO1. Applying workplace requirements and instructions concerning crop pest identifications	
1.1. Identifying roles and responsibilities of people	
1.2. Recognizing and following principles and guide of crop pest identifications	
1.3. Identifying and reporting occupational health and safety hazards	
1.4. Following organizational procedures	
LO2. Conducting field assessment	
2.1 Selecting and preparing equipment for scouting	
2.2 Carrying out Field scouting	
2.3 Reporting observed crop pests and disorders	
LO3. Recognizing crop pest.	
3.1 Collecting and identifying crop pests	
3.2 Identifying sign and symptoms of common crop pests	
3.3 Distinguishing sign and symptoms of common crop insect pests	
3.4 Recognizing common crop weeds	
3.5 Identifying soil born crop pests	
3.6 Identifying vertebrate and migratory crop pests	
3.7 Selecting, using, maintaining and storing PPE	
3.8 Maintaining records and reports	

LEARNING METHODS:

- Lecture and Discussion
- Braine storming
- Practical demonstration
- Practical exercice
- Role playing

ASSESSMENT METHODS:

- Written test
- Oral questioning
- Practical (group work)
- Presentation

ASSESSMENT CRITERIA

LO1. Apply workplace requirements and instructions concerning crop pest identifications

- Roles and responsibilities of people in the workplace are identified under the control of the supervisor
- Principles and guide lines in crop pest identifications are recognized and followed as required
- Occupational health and safety hazards are identified and reported to the supervisor
- Organizational procedures are followed

LO2. Conduct field assessment

- Equipment is selected and prepared for scouting according to enterprise guidelines and manufacturers specifications
- Field scouting carried out based on the principles and guidelines
- Observed crop pests and disorders reported to supervisor

LO3. Recognize crop pest

- Crop pests are collected and identified using common and local names
- Identify sign and symptoms of common crop pests
- Distinguish sign and symptoms of common crop insect pests
- Recognize common crop weeds pests
- Identify soil born crop pests
- Identify vertebrate and migratory crop pests
- Suitable personal protective equipment (PPE) is selected use maintained and stored
- Records and reports are maintained

Annex: Resource Requirements

AGR CRP1 M07 0422 Identifying important crop pests				
Item No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Item: Trainee)
A.	Learning Materials			
1.	TTLM	prepared by the trainer	25	1:1
	Module	prepared by the trainer	25	1:1
	Work sheet	prepared by the trainer	25	1:1
2.	Reference Books			
2.1	General Concepts in Integrated Pest and Disease Management	Springer, 2017	25	1:1
	Handbook of Pest Management in Organic Farming	Edited by Vincenzo Vacante 2018	25	1:1
4.	Journals/Publication/Magazines			
B.	Learning Facilities & Infrastructure			
1.	Class room	6x5sqm	25	1:25
2.	Arm chair	1x1.2sqm	25	1:1
3.	Teachers chair	1x1.2sqm	1	1:25
4.	Teachers table	1.5x1sqm	1	1:25
5.	Black /white board		1	1:25
6.	Computer	Desk top	1	1:25
7.	LCD Projector		1	1:25
C.	Consumable Materials			
1.	Duster (white/black board)		25	1:25
2	Chalk	Gross	1 packet	1:25
5	Marker	Erasable	1 packet	1:25
6	Paper	A4	2 Ream	2:25
8	Pen	Bic	2 Piece	2:25

9	Pencil	HB/dot	2 Piece	2:25
10	Stapler		1 Piece	2:25
D. Tools and Equipment				
1.	Rope	Nylon	5	5:25
2	empty sacks		5	5:25
3	plastic sheets	Roll	1 roll	1:25
4	Seed	Kg	20	20:25
5	Seedling	No.	25	1:1
6	Harnesses		5	5:25
7	Plough		2 times	2:25
8	green forage,	Live		
9	Hoe	long hand	7	7:25
10	Sickle		5	5:25
11	Water pump,	Pvc	1set	!:1
12	Moisture tester or meter		1	1:1
13	Axe	Steel	5	5:25
14	Hammer	Plastic	7	7:25
15	Meter tape	10m	5	5:25
16	watering can	Plastic	7	7:25
17	Barrel	Metal	5	5:25
18	Spade	Standard	7	7:25
19	Wheelbarrow	Metal	3	3:25
20	Rack	Standard	7	7:25
21	Hayfork	Standard	6	1:25
22	Silo/pi	Standard	5	1:25
23	Store	3x4sqm	1	1:25
24	plastic boots/shoes	Rubber	25	1:1
25	Overalls	Nylon	25	1:1
26	Gloves	Rubber/plastic	25	25:25
27	sun hat	Net	25	1:1
28	sunscreen lotion	Standard	25	25:25
29	safety goggles	Glass	25	25:25

30	face mask	Plastic	25	25:25
31	ear Muff (ear protectors)	Sponge	25	25:25
32	Fire extinguisher	Standard	1	1:25

LEARNING MODULE 08	
TVET-PROGRAMME TITLE: CROP PRODUCTION LEVEL I	
MODULE TITLE: Applying Chemicals and safety rules	
MODULE CODE: AGR CRP1 M08 0322	
NOMINAL DURATION: 62 Hours	
<p>MODULE DESCRIPTION: This module covers the knowledge, skills and attitude to follow requirements and instructions concerning chemicals, recognize risks associated with chemicals, follow chemical handling and storage rules, check and maintain application and personal protective equipment, prepare Chemicals and calibrate equipment, apply chemicals, follow instructions to empty and clean equipment containers.</p>	
<p>LEARNING OUTCOMES</p> <p>At the end of the module the trainee will be able to:</p> <p>LO1. Follow requirements and instructions</p> <p>LO2. Follow chemical handling and storage rules</p> <p>LO3. Prepare Chemicals and calibrate equipment</p> <p>LO4 Apply chemicals</p> <p>LO5 Follow instructions to empty and clean equipment and containers</p>	
<p>MODULE CONTENTS:</p> <p>LO1. Following requirements and instructions</p> <ul style="list-style-type: none"> 1.1 Identifying individuals roles and responsibilities 1.2 Recognizing and following chemical handling and use 1.3. Recognizing pesticides meaning and their Functions 1.4. Identifying Chemical labels and hazards 1.5. Identifying risks associated with chemicals 1.6. Checking and maintaining pre and post operation 1.7. Preparing and adjusting personal protective equipment's <p>LO2. Following chemical handling and storage rules</p> <ul style="list-style-type: none"> 2.1. Following chemical handling and storage instructions 2.2. Identifying chemical storage locations 2.3. Following instructions and safety rules 2.4. Following procedures of chemical accident 	

LO3. Preparing Chemicals and calibrating equipment

- 3.1. Measuring and decanting of chemicals with directions
- 3.2. Practicing simple calibration of equipment and chemicals
- 3.3. Following safe working practices

LO4 Applying chemicals

- 4.1. Identifying and assessing OHS hazards and risk
- 4.2. application of required dose of chemicals
- 4.3. Applying chemical on the target field
- 4.4. Observing re-entry, withholding, plant back and restocking periods

LO5. Following instructions to empty and cleaning equipment and containers

- 5.1 Following instructions for emptying and clean-up equipment
- 5.2 disposal of containers and unused chemicals or biological agents
- 5.3 Identifying and disposing containers and unused chemicals

LEARNING METHODS:

- Lecture and Discussion
- Braine storming
- Practical demonstration
- Pra tical exercice
- Rôle playing

ASSESSMENT METHODS:

- Written test
- Oral questioning
- Practical (group)
- Interview/Observation
- Presentation

ASSESSMENT CRITERIA:

LO1. Follow requirements and instructions

- Identify individuals Roles and responsibilities
- Recognize and follow Safety procedures involved in chemical handling and use
- Pesticides meaning and their Functions are recognized.
- Chemical labels and hazards are identified
- Risks associated with chemicals is identified
- Pre and post operational checks and maintenance on application equipment is carried out according to manufacturer's specifications
- Application and personal protective equipment's are prepared and adjusted

LO2. Follow chemical handling and storage rules

- Chemical handling and storage instructions on labels are followed
- Chemical storage locations are identified
- Instructions and Safety rules are followed for transport, handling and storage of chemicals
- Procedures are followed in the event of chemical accident and/or spillage

LO3. Prepare chemicals and calibrating equipment

- Measurement and decanting of chemicals comply with directions
- Simple Calibration of equipment and chemicals based on the procedures and label recommendations is practiced.
- Safe working practices relevant to the situation are followed

LO4 Apply chemical

- Hazards are identified and associated risks recognized
- Follow requirements for application equipment to accurately and effectively apply the required dose of the chemical to the target
- Apply chemical on the target field
- Re-entry, withholding, plant back and restocking periods are observed as determined by label directions

LO5. Follow instructions to empty and cleaning equipment and containers

- Follow instructions for Emptying and clean-up
- Recognize instructions for disposal of containers and unused chemicals or biological agents
- Identify and dispose containers and unused chemicals

Annex resource

AGR CRP1 M08 0422 Applying Chemicals and safety rules				
Item No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Item: Trainee)
A. Learning Materials				
1.	TTLM	Trainer guide	1 pcs	1:25
		Assessment packet	1 pcs	1:25
		Learning guide	25 pcs	1:1
	Operation sheet		1	1:35
2.	Poster	Up to date	5 pcs	1:5
3	Audio visual	CD	2	2:25
5	Reference books			
	Guide to Best Practice Guidelines to Best Practice for the Process and Chemical Industries	Third Edition 2015	25	1:25
B. Learning Facilities and Infrastructure				
5.	Lecture room	6x5sqm	1	1:25
6.	Laboratory	8x6sqm	1	1:25
7.	Standard farm (plots)	10x5sqm	1 plot	1:25
9	Library	10x8sqm	1	1:25
10	Computer	Desktop	1	1:25
11	LCD Projector		1	1:25
12	Arm chair	1x1.2sqm	25	1:1
13	Teacher's chair	1x1.2sqm	1	1:1
14	Teachers table	1.5x1sqm	1	1:1
C. Consumable Materials				
8.	Printing paper	A4	5rim	2:25
9.	log book		25	1:1
10.	Pencil	HB/dot	25 pcs	1:1

11.	Marker	Colored	25 pcs	1:1
12	Duster	white/black board	1	1:25
13	Chalk		1 packet	1:25
D. Tools, Equipment and Materials				
12.	Knapsack sprayer	Diaphragm & piston operated	1 pcs	1:25
13	Pesticides	Based on formulation	1L each	1:25
14	Mist blower/motorized Knapsack		2	2:25
15.	ULV		2	2:25
16.	Drone technology		1	1:25
17.	Hand held pneumatic sprayers		2	2:25
18	Spot on applicators		2	2:25
19	Hand lenses	Glass	5	1:5
20	Chemicals	2-4-D	1L	1:25
E. Personal protective equipment (PPEs)				
19.	Boots	Rubber/latex	25 pcs	1:1
20.	Overalls	long sleeve	25 pcs	1:1
21.	Gloves	Rubber/latex	25 pcs	1:1
22.	Respirator	Plastic	25 pcs	1:1
23.	Face mask (guard)	Plastic	25 pcs	1:1
24.	Sunscreen lotion		25 pcs	1:1
25.	Hat	Net	25 pcs	1:1
26	Goggles	Glass	25pcs	1:1

LEARNING MODULE 09	
TVET-PROGRAMME TITLE: CROP PRODUCTION LEVEL I	
MODULE TITLE: Applying Agricultural Extension Service	
MODULE CODE: AGR CRP1 M09 0322	
NOMINAL DURATION: 55 Hours	
MODULE DESCRIPTION: This module covers the knowledge, skills and attitudes required to understand the Concept and evolution of agricultural Extension, apply extension methods and Approaches, apply Agricultural extension Communication and facilitation for technology promotion, Conduct training and record and document data	
LEARNING OUTCOMES	
At the end of the module the trainee will be able to:	
LO1. Understand the Concept and evolution of Agricultural Extension	
LO2. Apply Extension methods and Approaches	
LO3. Apply Agricultural Extension Communication and Facilitation for technology promotion	
LO4 Conduct Training	
LO4 Record and Document Data	
LO5 Recording and Documenting Data	
MODULE CONTENTS:	
LO1. Understanding the Concept and evolution of Agricultural Extension	
1.1 Understanding the concept of Agricultural extension	
1.2 Expressing the evolution and progress of agricultural extension	
1.3 Understanding the role of extension in agricultural development	
1.4 Determining the importance of Agricultural extension	
1.5 Understanding extension planning activities	
LO2. Applying Extension methods and Approaches	
2.1. Understanding extension methods to provide Extension services	
2.2. Understanding extension approaches	
2.3. Understanding the importance of extension methods and approaches	
2.4. Applying appropriate extension methods and approaches lines	
LO3. Applying Agricultural Extension Communication and Facilitation for technology promotion	
3.1. Understanding the concept, principle and type of communication	
3.2. Identifying, understanding and solving Communication barriers	

- 3.3. Defining elements of extension communication
- 3.4. Understanding audio visual techniques
- 3.5. Recommending roles and characteristics of extension communicator
- 3.6. Understanding the basic concept of facilitation
- 3.7. Applying the roles and responsibilities of a facilitator
- 3.8. Understanding conflict resolution skill
- 3.9. Applying the skills of a facilitator

LO4 Conducting Training

- 4.4. Conducting need assessment
- 4.5. Carrying out preparation facilities
- 4.6. Conducting implementation to capacitate trainees
- 4.7. Carrying-out evaluation understand the outcome

LO5 Recording and Documenting Data

- 5.1 developing data collecting formats
- 5.2 collecting and organizing appropriate data
- 5.3 documenting and reporting collected and organized data

LEARNING METHODS:

- Lecture and Discussion
- Braine storming
- Practical demonstration
- Practical exercise
- Role playing

ASSESSMENT METHODS:

- Written test
- Oral questioning
- Practical (group work)
- Presentation

ASSESSMENT CRITERIA:

LO1. Understand the Concept and evolution of Agricultural Extension

- understand the concept of Agricultural extension
- Express the evolution and progress of agricultural extension
- Understand the role of extension in agricultural development
- Determine the importance of Agricultural extension
- Understand extension planning activities

LO2. Apply Extension methods and Approaches

- understanding extension methods to provide Extension services
- understanding extension approaches
- understanding the importance of extension methods and approaches
- Applying appropriate extension methods and approaches lines

LO3. Apply Agricultural Extension Communication and Facilitation for technology promotion

- Understand the concept, principle and type of communication
- Identify, understand and solve Communication barriers
- Define elements of extension communication
- Understand audio visual techniques to provide Agricultural Extension and communication
- Recommend roles and characteristics of extension communicator
- Understand the basic concept of facilitation
- Apply the roles and responsibilities of a facilitator
- Understand conflict resolution skill
- Apply the skills of a facilitator for communication & technology promotion

LO4 Conduct Training

- Conduct need assessment
- Carry out preparation facilities for the training process
- Conduct implementation to capacitate trainees
- carry-out evaluation understands the outcome

LO5 Record and Document Data

- Develop data collecting formats
- Collect and organize appropriate data
- Document and report Collected and organized data

Annex: Resource Requirements

AGR CRP1 M09 0422 Applying Agricultural Extension Service				
Item No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Item: Trainee)
A. Learning Materials				
1.	TTLM	TTTLM prepared by the trainer	25	1:1
	Module	prepared by the trainer	25	1:1
2.	Reference Books			
2.1	INTRODUCTION TO AGRICULTURAL EXTENSION AND RURAL SOCIOLOGY	DR. J.A. Salawu etal. 2018	25	1:1
4.	Journals/Publication/Magazines			
B. Learning Facilities & Infrastructure				
1.	Class room	7mx5m	1	1:25
2.	Arm chair	1x1.2sqm	25	1:1
3.	Teachers chair	1x1,2sqm	1	1:1
4.	Teachers table	1x1sqm	1	1:1
5.	Black /white board	1x1sqm	1	1:25
6.	Computer	Desk top	1	1:25
7.	LCD Projector		1	1:25
C. Consumable Materials				
1.	Duster (white/black board)		1	1:25
2	Chalk	White/color	1 packet	1:35
5	Marker		1 packet	1:5
6	Paper	A4	2 Ream	2:35
8	Pen	Standard	2 Piece	2:35

LEARNING MODULE 10	
TVET-PROGRAMME TITLE: CROP PRODUCTION LEVEL I	
MODULE TITLE: Implementing Agribusiness Marketing	
MODULE CODE: AGR CRP1 M10 0322	
NOMINAL DURATION: .41 Hours	
<p>MODULE DESCRIPTION: This module covers the knowledge, skills and attitude required to Understand concept of agricultural marketing Understand concepts of agribusiness Identify marketing targets for Agricultural products Implement marketing strategy Establish contract farming, and Apply Agricultural marketing services.</p>	
<p>LEARNING OUTCOMES</p> <p>At the end of the module the trainee will be able to:</p> <p>LO1. Understand concept of agricultural marketing</p> <p>LO2. Understand concepts of agribusiness</p> <p>LO3. Identify marketing targets for Agricultural products</p> <p>LO4 Implement marketing strategy</p> <p>LO5 Establish contract farming</p> <p>LO6 Apply Agricultural marketing services</p>	
<p>MODULE CONTENTS:</p> <p>LO1.Understanding concept of agricultural marketing</p> <p>1.1 Understanding concept of agricultural marketing</p> <p>1.2 Understanding importance of agricultural marketing services</p> <p>1.3 Identifying and understanding roles of agricultural market-oriented service</p> <p>1.4 Identifying and understanding principles of agricultural marketing and strategies</p> <p>1.5 understanding marketing mix to implement agricultural marketing activities</p> <p>1.6 Understanding and identifying types of marketing services</p> <p>LO2. Understanding concepts of agribusiness</p> <p>2.1. Understanding Concept of agribusiness for agricultural marketing</p> <p>2.2 Understanding Importance of agribusiness services</p> <p>2.3 Identifying and understanding roles of agribusiness-oriented service</p> <p>2.4 Identifying and understanding principles of agribusiness and strategies</p> <p>2.5. Understanding characteristic of agribusiness to implement Agribusiness</p> <p>2.6. Understanding and distinguishing dimension and structures of Agribusiness</p> <p>LO3. Identifying marketing targets for Agricultural products</p> <p>3.1 Identifying marketing targets for Agricultural products and services</p> <p>3.2 Understanding approaches of agricultural market product and service.</p> <p>3.3 Using segment descriptors to display the targets of agricultural market</p>	

3.4 Identifying strategic plan of agricultural marketing options

3.5 Preparing business plans

LO4 Implementing marketing strategy

4.1. Designing agricultural marketing functions strategy.

4.2. Developing action plan

4.3. Identifying and coordinating require resource

4.4. Implementing marketing mix

LO5 Establishing contract farming

5.1 Understanding concept of contract farming

5.2 Identifying types of contract farming

5.3 Understanding and identifying models of contract farming

5.4. Identifying steps and procedures of contract farming establishments

5.5 Identifying and applying contract farming requirements

5.6 Establishing contract farming systems

LO6 Applying Agricultural marketing services

6.1 Identifying agricultural products

6.2 Conducting need assessment

6.3 Developing market strategies

6. 4 Collecting and organizing customer feedbacks

6.5 Organizing and documenting data

LEARNING METHODS:

- Lecture and Discussion
- Braine storming
- Practical demonstration
- Simulation
- Role playing

ASSESSMENT METHODS:

- Written test
- Oral questioning
- Presentation
- Practical (group work)

ASSESSMENT CRITERIA:

LO.1. Understand concept of agricultural marketing

- Understand concept of agricultural marketing
- Understand importance of agricultural marketing services
- Identify and understand roles of agricultural market-oriented service
- Identify and understand principles of agricultural marketing and strategies
- Understand marketing mix to implement agricultural marketing activities
- Understand and identify types of marketing services

LO2. Understand concepts of agribusiness.

- Understand concept of agribusiness for agricultural marketing
- Understand importance of agribusiness services
- Identify and understand roles of agribusiness-oriented service
- Identify and understand principles of agribusiness and strategies
- Understand characteristic of agribusiness to implement Agribusiness
- Understand and distinguishing dimension and structures of Agribusiness

LO3. Identify marketing targets for Agricultural products

- Identify marketing targets for Agricultural products and services
- Understand approaches of agricultural market product and service.
- Use segment descriptors to display the targets of agricultural market
- Identify strategic plan of agricultural marketing options
- prepare business plans are to perform cost and benefit analysis

LO4 Implement marketing strategy

- Design agricultural marketing functions strategy.
- Develop action plan
- Identify and coordinate require resource
- Implement marketing mix

LO5 Establish contract farming

- Understand concept of contract farming
- Identify types of contract farming
- Understand and identify models of contract farming
- Identify steps and procedures of contract farming establishments
- Identify and apply contract farming requirements
- Establish contract farming systems

LO6 Apply agricultural marketing services

- Identifying agricultural products
- Conducting need assessment
- Developing market strategies
- Collecting and organizing customer feedbacks
- Organizing and documenting data

Annex: Resource Requirements

AGR CRP1 M10 0422 Implementing Agribusiness Marketing				
Item No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Item: Trainee)
A.	Learning Materials			
1.	TTLM	prepared by the trainer	25	1:1
	Module	prepared by the trainer	25	1:1
2.	Reference Books			
2.1	Agribusiness Management	Freddie Barnard Fourth ed. 2012	25	1:1
4.	Journals/Publication/Magazines			
B.	Learning Facilities & Infrastructure			
1.	Class room	7mx5m	1	1:25
2.	Arm chair	Wood	25	1:1
3.	Teachers chair	Plastic	1	1:1
4.	Teachers table	1.5x1m	1	1:1
5.	Black /white board		1	1:25
6.	Computer	Desk top	1	1:25
7.	LCD Projector		1	1:25
C.	Consumable Materials			
1.	Duster (white/black board)		1	1:25
2	Chalk	Whit/colored	1 packet	1:25
5	Marker	Erasable	1 packet	1:25
6	Paper	A4	2 Ream	2:25
8	Pen	Bic	2 Piece	2:25
9	Pencil	HB/dot	1 pack	1:25
10	Stapler		1 piece	1:25

LEARNING MODULE 11	
TVET-PROGRAMME TITLE: CROP Production Level I	
MODULE TITLE : Applying Basics of Human Nutrition Practices	
MODULE CODE : AGR ANP1 M011 0422	
NOMINAL DURATION : 48 Hours	
<p>MODULE DESCRIPTION : This unit covers the knowledge, skill and attitude required to categorize agricultural foods items, recognize malnutrition in the community, identify the role of agriculture in nutrition and contribute to the awareness creation of the community in utilization of agricultural products.</p>	
<p>LEARNING OUTCOMES</p> <p>At the end of the module the trainee will be able to:</p> <p>LO1: Identify Categories of agricultural foods items</p> <p>LO2: Recognize malnutrition in the community</p> <p>LO3: Identify the role of agriculture in nutrition</p> <p>LO4: Demonstrate diversified Agricultural food production and consumption techniques</p> <p>LO5: Perform proper handling and storage of agricultural food products</p> <p>LO6: Document and report food production, consumption and difficulties</p>	
<p>MODULE CONTENTS:</p> <p>LO1: Identify Categories of agricultural foods items</p> <ol style="list-style-type: none"> 1.1. Identifying and explaining basic terminologies and concepts in nutrition 1.2. Identifying and explaining food groups, nutrient and their sources of balanced diet 1.3. Identifying and describing origin and composition of food stuffs 1.4. Identifying and explaining energy dense and nutrient dense food sources <p>LO2: Recognize malnutrition in the community</p> <ol style="list-style-type: none"> 2.1. Identifying and explaining physical signs of malnutrition 2.2. Identifying forms, causes and consequences of malnutrition 2.3. Promoting measures to overcome malnutrition 2.4. Making awareness creation programs <p>LO3: Identify the role of agriculture in nutrition</p> <ol style="list-style-type: none"> 3.1. Recognizing and promoting the role of agriculture for food Variety 3.2. Describing the contribution of agriculture sector in nutrition sensitive intervention 3.3. Identifying and communicating nutrition sensitive agricultural practices 	

LO4: Demonstrate diversified Agricultural food production and consumption techniques

- 4.1. Identifying and discussing importance of diet diversification
- 4.2. Identifying and demonstrating techniques of diversified food production
- 4.3. Assessing and implementing techniques of enhancing the nutrient content of foods
- 4.4. Identifying utensils and demonstrating cooking techniques
- 4.5. Selecting and using PPE
- 4.6. Demonstrating balanced and nutrient dense diet preparation

LO5: Perform proper handling and storage of agricultural food products

- 5.1. Explaining importance of hygiene
- 5.2. Identifying storage facilities and supporting family holds
- 5.3. Handling and storing agricultural products
- 5.4. Demonstrating methods and techniques of handling and storing

LO6: Document and report food production, consumption and difficulties

- 6.1. Documenting diversified food production and consumption activities
- 6.2. Reporting difficulties happened in the processes

LEARNING METHODS:

- Lecture and Discussion
- Demonstration
- Role playing
- Group work

ASSESSMENT METHODS:

- Written test with Oral questioning
- Quizzes and assignment
- Practical demonstration

ASSESSMENT CRITERIA:

LO1: Identify Categories of agricultural foods items

- Basic terminologies and concepts in nutrition are identified and explained
- Food groups, nutrient and their sources of balanced diet are identified and explained
- Origin and composition of food stuffs are identified and described
- Energy dense and nutrient dense food sources are identified and explained

LO2: Recognize malnutrition in the community

- Physical signs of malnutrition are identified and explained
- Forms, causes and consequences of malnutrition in different groups of community are identified
- Measures to overcome malnutrition, importance of maintenance of adequate and balanced diet are promoted
- Contribution is made in elders, family heads and women awareness creation programs

LO3: Identify the role of agriculture in nutrition

- The role of agriculture as source of variety foods is recognized and promoted
- The contribution of agriculture sector in nutrition sensitive intervention is described
- Nutrition sensitive agricultural practices are identified and communicated as per the nutrition program guideline

LO4: Demonstrate diversified Agricultural food production and consumption techniques

- Importance of diet diversification is identified and discussed with family holds and community according to the program guideline
- Techniques of diversified food production are identified and demonstrated to farmers and family members
- Techniques of enhancing the nutrient content of family foods are assessed and implemented according to the program guideline and cultural requirements of the rural community
- Utensils are identified and cooking techniques demonstrated for specific agricultural products
- PPE are selected and used in accordance to OHS requirement and code of ethics
- Balanced and nutrient dense diet preparation is demonstrated using food stuff ingredients

LO5: Perform proper handling and storage of agricultural food products

- Importance of hygiene for nutrition is explained
- Storage facilities are identified and family holds supported in construction.
- Agricultural products are safely handled and store

- Methods and techniques of safely handling and storing agricultural products are demonstrated in accordance products requirement

LO6: Document and report food production, consumption and difficulties

- Diversified food production and consumption activities are documented
- Difficulties happened in the processes are reported to the respective authorities.

Annex: Resource Requirements

AGR ANP2 M02 0422 Carrying out husbandry practices of ruminants				
Item No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Item: Trainee)
A.	Learning Mterials			
1.	TTLM	TTTLM prepared by the trainer	25	1:1
2.	Reference Books	Payne, W.J.A. & Wilson, R.T. (1999). Animal Husbandry in the Tropics. (5th ed.).	5	1:5
		Williamson, G & Payne, W.J.A (1990). An Introduction to Animal Husbandry in the Tropics.	5	1:5
3	Journals/Publication	Standard	5	1:5
B.	Learning Facilities & Infrastructure			
1.	Class room	7*8 =56m ²	1	1:25
2.	Library	Standard	1	1:25
3.	Demonstration site	2 hectare	2	1:12
4	Laboratory	Standard	1	1:35
5	Work shop	10*10 =100m ²	1	1:25
6	Audiovisual room	7*8 =56m ²	1	1:25
7	White board	Standard	1	1:25
8	Black board	Standard	1	1:25
9	chalk	Standard	1 Packet	1:1

10	Parker	Standard	2 Packet	1:12
11	Eraser	Standard	1	1:25
12	Work station	10*10 =100m2	1	1:25
C.	Consumable Materials			
1	Savlon	Standard	20 litter	1:1
2	alcohol	Standard	20 litter	1:1
4	Milk	Whole milk	25 litter	1:1
D.	Tools and Equipment's			
1.	Weighing scale	Standard	2	1:12
2.	Tattoo pliers	Standard	2	1:12
3.	Hooves Trimmer	Standard	2	1:12
4.	Dehorning saw	Standard	2	1:12
5.	Dehorning wire	Standard	5	1:5
6.	Crush	Standard	5	1:5
7.	Ear tag applicator	Standard	5	1:5
8.	Hammer	Standard	5	1:5
9.	Bull holder/ nose lead	Standard	25	1:1
10.	Burdizo	Standard	5	1:5
11.	Branding iron	Standard	2	1:12
12.	Ear tags	Standard	5	1:5
13.	Waterier	Standard	7	1:5
14.	Feeding trough Heart girth	Standard	1	1:25
15.	Drench guns	Standard	1	1:25
16.	Vaccinating guns	Standard	5	1:5
17.	Strip cup	Standard	2	1:5
18.	Lubricant	Standard	2	1:5
19.	Litmus paper	Standard	2 pack	1:12
20.	Shovel	Standard	2	1:12
21.	Wheel barrow	Standard	1	1:25
22.	Mineral boxes	Standard	2	1:12
23.	Vaccine Syringes	Standard	2	1:12
24.	Sprayer	Standard	2	1:12

25.	Scissors	Standard	2	1:12
26.	Forceps	Standard	2	1:12
27.	AI gun	Standard	2	1:12
28.	Liquid Nitrogen Container	Standard	1	1:25
29.	Measuring Rod	Standard	2	1:12
30.	Thermometer	Standard	2	1:12
1.	Plastic boots/shoes	Standard	25	1:1
2.	Overalls	Standard	25	1:1
3.	Gloves	Standard	25	1:1
4.	Apron	Standard	25	1:1
5.	Plastic boots/shoes	Standard	25	1:1
6.	Sun hat	Standard	25	1:1
7.	Sunscreen lotion	Standard	25	1:1
8.	Safety goggles	Standard	25	1:1
9.	Face mask	Standard	25	1:1
10.	Ear protectors	Standard	25	1:1
11.	Sun hat	Standard	25	1:1
12.	Sunscreen lotion	Standard	25	1:1

LEARNING MODULE 12

TVET-PROGRAMME TITLE: Crop Production Level I

MODULE TITLE : Applying 5S Procedures

MODULE CODE : **AGR CRP1 M12 0422**

NOMINAL DURATION : 41 Hours

MODULE DESCRIPTION : This module covers the knowledge, skills and attitude required to apply 5S techniques to his/her workplace. It covers responsibility for the day-to-day operations of the workplace and ensuring that continuous improvements of Kaizen elements are initiated and institutionalized.

LEARNING OUTCOMES

At the end of the module the trainee will be able to:

- LO1.** Develop understanding of quality system
- LO2.** Sort needed items from unneeded
- LO3.** Set workplace in order
- LO4.** Shine work area
- LO5.** Standardize activities
- LO6.** Sustain 5S system

MODULE CONTENTS:

LO1. Developing and Understanding of Quality System

- 1.1 Discussing quality assurance procedures of the organization
- 1.2 Understanding quality system and improvement in the workplace
- 1.3 Identifying the workplace requirements and elements of quality assurance system
- 1.4 Explaining the 5S system

LO2. Sorting needed items from unneeded items

- 2.1 Identifying items in the workplace
- 2.2 Distinguishing essential and non-essential items
- 2.3 Sorting items to achieve deliverables and value expected by customers
- 2.4 Sorting items for required purposes
- 2.5 Placing non-essential item in a appropriate place
- 2.6 Checking the essential items in the workplace

LO3. Setting Workplace in Order

- 3.1 Identifying the location for essential item
- 3.2 Placing item in assigned location
- 3.3 Returning the items after use
- 3.4 Checking each item regularly

LO4. Shining Work Area

- 4.1 Keeping the work area clean
- 4.2 Conducting regular housekeeping activities
- 4.3 Cleaning the work area at beginning and end of shift

LO5. Standardize Activities

- 5.1 Following the procedures
- 5.2 Following checklists for activities
- 5.3 Keeping workplace to specific Standard

LO6. Sustaining 5S system

- 6.1 Cleaning up workplace
- 6.2 Identifying the situations and take actions specified in procedures
- 6.3 Inspecting workplace to the specified Standard
- 6.4 Recommending improvements in the workplace

LEARNING METHODS:

- Lecture and Discussion
- Demonstration
- Role playing

ASSESSMENT METHODS:

- Written test with
- Oral questioning
- Practical (group work)
- Presentation

ASSESSMENT CRITERIA:

LO1. Develop Understanding of Quality System

- Discuss quality assurance procedures of the enterprise or organization
- Understand the relationship of quality system and continuous improvement in the workplace
- Identify and relate to workplace requirements the purpose and **elements** of quality assurance (QA) system
- Explain the **5S system** as part of the quality assurance of the work organization

LO2. Sort needed items from unneeded

- Identify all **items** in the work area
- Distinguish between essential and non-essential items
- Sort items to achieve deliverables and value expected by downstream and final customers
- Sort items required for regulatory or other required purposes
- Place any non-essential item in a appropriate place other than the workplace
- Regularly check that only essential items are in the work area

LO3. Set Workplace in Order

- Identify the best location for each essential item
- Place each essential item in its assigned location
- After use immediately return each essential item to its assigned location
- Regularly check that each essential item is in its assigned location

LO4. Shine Work Area

- Keep the work area clean and tidy at all times
- Conduct regular housekeeping activities during shift
- Ensure the work area is neat, clean and tidy at both beginning and end of shift

LO5. Standardize Activities

- Follow **procedures**
- Follow checklists for activities, where available
- Keep the work area to specified Standard

LO6. Sustain 5S system

- Clean up after completion of job and before commencing next job or end of shift
- Identify situations where compliance to Standards is unlikely and take actions specified in procedures

- Inspect work area regularly for compliance to specified Standard
- Recommend improvements to lift the level of compliance in the workplace

Annex: Resource Requirements

AGR CRP1 M12 0422 Applying 5S Procedures				
Item No.	Category/Item	Description/ Specifications	Qty.	Recommended Ratio (Item: Trainee)
A. Learning Materials (Disability inclusive learning guide)				
1.	TTLM	TTTLM prepared Ministry of Labor and skill	25 Pcs	1:1
2.	Reference Books			
2.1	Gemba KAIZEN	2nd Edition Masaaki Imai	5 Pcs	1:5
3.	Journals/Publication/Magazines	Published/unpublished	2 Pcs	1:12
B. Learning Facilities & Infrastructure				
1.	Lecture room	Standard	1	
2.	Workshop	Standard	1	
3.	Store	Standard	1	
4.	Library	105 – 180 m2 area Needed Per Trainee	1	
5.	Instructional Audio video	Library/classroom location	It depends	1:1
6.	Visual training Media	LCD, Laptops	1 Pcs	1:35
7.	Teaching boards	White board ,Flip chart ,Smart board	1 Pcs	1:35
8.	Arm chair	55 Cm *74 Cm *100Cm	35 Pcs	1:1
9.	Notice board	120*100 Cm	1 Pcs	1:35
10.	White board	240 Cm *120 Cm	1 Pcs	1:35
Consumable material				
1.	Detergent	Liquid	10 Lt	1:2

2.	Sweeper	Sponge	5 Pcs	1:5
Tools and equipment				
1.	5s Slogans	Per workshop	5 Pcs	1:5
2.	5s Map	Per workshop	5 Pcs	1:5
3.	Shelves	Per workshop	5 Pcs	1:5
4.	Kaizen Board	Per workshop	1 Pcs	1:35

APPENDEX-1

Learning Methods:				
For none impaired trainees	Reasonable Adjustment for Trainees with Disability (TWD)			
	Low Vision	Deaf	Hard of hearing	Physical impairment
Lecture-discussion	<ul style="list-style-type: none"> ❖ Provide large print text ❖ Prepare the lecture in Audio/video ❖ Organize the class room seating arrangement to be accessible to trainees ❖ Write short notes on the black/white board using large text ❖ Make sure the luminosity of the light of class room is kept ❖ Use normal tone of voice ❖ Encourage trainees to record the lecture in audio format ❖ Provide Orientation on the physical feature of the work shop ❖ Summarize main points 	<ul style="list-style-type: none"> ❖ Assign sign language interpreter ❖ Arrange the class room seating to be conducive for eye to eye contact ❖ Make sure the luminosity of the light of class room is kept ❖ Introduce new and relevant vocabularies ❖ Use short and clear sentences ❖ Give emphasis on visual lecture and ensure the attention of the trainees ❖ Avoid movement during lecture time ❖ Present the lecture in video format ❖ Summarize main points 	<ul style="list-style-type: none"> ❖ Organize the class room seating arrangement to be accessible to trainees ❖ Speak loudly ❖ Ensure the attention of the trainees ❖ Present the lecture in video format ❖ Ensure the attention of the trainees 	<ul style="list-style-type: none"> ❖ Organize the class room seating arrangement to be accessible for wheelchairs users. ❖ Facilitate and support the trainees who have severe impairments on their upper limbs to take note ❖ Provide Orientation on the physical feature of the work shop

Demonstration	<ul style="list-style-type: none"> ❖ Conduct close follow up ❖ Use verbal description ❖ Provide special attention in the process of guidance ❖ facilitate the support of peer trainees ❖ Prepare & use simulation 	<ul style="list-style-type: none"> ❖ use Sign language interpreter ❖ Use video recorded material ❖ Ensure attention of the trainees ❖ Provide structured training ❖ Show clear and short method ❖ Use gesture ❖ Provide tutorial support (if necessary) 	<ul style="list-style-type: none"> ❖ Illustrate in clear & short method ❖ Use Video recorded material ❖ Ensure the attention of the trainees ❖ Provide tutorial support (if necessary) 	<ul style="list-style-type: none"> ❖ Facilitate and support the trainees having severe upper limbs impairment to operate equipments/ machines ❖ Assign peer trainees to assist ❖ Conduct close follow up ❖ Provide tutorial support (if necessary)
Group discussion	<ul style="list-style-type: none"> ❖ Facilitate the integration of trainees with group members ❖ Conduct close follow up ❖ Introduce the trainees with other group member ❖ Brief the thematic issues of the work 	<ul style="list-style-type: none"> ❖ Use sign language interpreters ❖ Facilitate the integration of trainees with group members ❖ Conduct close follow up ❖ Introduce the trainees with other group member 	<ul style="list-style-type: none"> ❖ Facilitate the integration of trainees with group members ❖ Conduct close follow up ❖ Introduce the trainees with other group member ❖ Inform the group members to speak loudly 	<ul style="list-style-type: none"> ❖ Introduce the trainees with their peers

Exercise	<ul style="list-style-type: none"> ❖ Conduct close follow up and guidance ❖ Provide tutorial support if necessary ❖ provide special attention in the process 	<ul style="list-style-type: none"> ❖ Conduct close follow up and guidance ❖ Provide tutorial support if necessary ❖ provide special attention in the process/practical training ❖ Introduce new and relevant vocabularies 	<ul style="list-style-type: none"> ❖ Conduct close follow up and guidance ❖ Provide tutorial support if necessary ❖ provide special attention in the process/ practical training 	<ul style="list-style-type: none"> ❖ Assign peer trainees ❖ Use additional nominal hours if necessary
Individual assignment	<ul style="list-style-type: none"> ❖ prepare the assignment questions in large text ❖ Encourage the trainees to prepare and submit the assignment in large texts ❖ Make available recorded assignment questions ❖ Facilitate the trainees to prepare and submit the assignment in soft or hard copy 	<ul style="list-style-type: none"> ❖ Use sign language interpreter ❖ Provide briefing /orientation on the assignment ❖ Provide visual recorded material 	<ul style="list-style-type: none"> ❖ Provide briefing /orientation on the assignment ❖ Provide visual recorded material 	

ASSESSMENT METHODS:				
Interview		<ul style="list-style-type: none"> ❖ Use sign language interpreter ❖ Ensure or conform whether the proper communication was conducted with the trainee through the service of the sign language interpreter ❖ Use short and clear questioning ❖ Time extension 	<ul style="list-style-type: none"> ❖ Speak loudly ❖ Using sign language interpreter if necessary 	<ul style="list-style-type: none"> ❖ Use written response as an option for the trainees having speech challenges
Written test	<ul style="list-style-type: none"> ❖ Prepare the exam in large texts ❖ Use interview as an option if necessary ❖ Prepare the exam in audio format ❖ Assign human reader (if necessary) ❖ Time extension 	<ul style="list-style-type: none"> ❖ Prepare the exam using short sentences, multiple choices, True or False, matching and short answers ❖ Avoid essay writing ❖ Time extension 	<ul style="list-style-type: none"> ❖ Prepare the exam using short sentences, multiple choices, true or false, matching and short answers if necessary. 	<ul style="list-style-type: none"> ❖ Use oral response as an option to give answer for trainees having severe upper limb impairment ❖ Time extension for trainees having severe upper limb impairment
Demonstration /Observation	<ul style="list-style-type: none"> ❖ Brief the instruction or provide them in large text ❖ Time extension 	<ul style="list-style-type: none"> ❖ Use sign language interpreter ❖ Brief on the instruction of the exam ❖ Provide activity-based/ practical assessment method ❖ Time extension 	<ul style="list-style-type: none"> ❖ Provide activity based assessment ❖ Brief on the instruction of the exam ❖ Use loud voice ❖ Time extension 	<ul style="list-style-type: none"> ❖ Provide activity based assessment ❖ Conduct close follow up ❖ Time extension

Acknowledgement

The **Ministry of Labor and Skills** wishes to thank and extend its appreciation for the trainers who donated their effort and time to develop this outcome-based curriculum for the TVET program **CROP PRODUCTION Level I**.

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			April, 2022

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