

SECTION 3 TRAINING STANDARDS

This set of standards provides Technical and Vocational Education and Training (TVET) providers with information and other important requirements to consider when designing training programs for Agricultural Crops Production NC III.

This includes information on curriculum design; training delivery; trainee entry requirements; tools and equipment; training facilities; and trainers qualification.

3.1 CURRICULUM DESIGN

Course Title: **AGRICULTURAL CROPS PRODUCTION**

NC Level: **NC III**

Nominal Training Duration: 18 Hours (Basic)
14 Hours (Common)
413 Hours (Core)
445 Hours (Total)

Course Description:

This course is designed to enhance the knowledge, skills and attitude of Tailor in accordance with industry standards. In general, it covers core competencies on **undertaking preparation of land for agricultural crop production, implementing a post-harvest program, implementing a plant nutrition program, controlling weeds and preparing and applying chemicals.** In agronomic, it covers core competencies on **establishing agronomic crops, undertaking agronomic crop maintenance activities, undertaking agronomic crop harvesting activities, saving, preparing and storing agricultural seed and implementing vertebrate pest control program.**

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

BASIC COMPETENCY

Unit of Competency	Learning Outcomes	Methodology	Assessment Approach
1. Lead workplace communication.	1.1. Communicate information about workplace processes 1.2. Lead workplace discussions 1.3. Identify and communicate issues arising in the workplace	<ul style="list-style-type: none">• Group discussion• Role play• Brainstorming	<ul style="list-style-type: none">• Observation• Interviews

2. Lead small teams.	2.1. Provide team leadership 2.2. Assign responsibilities among members 2.3. Set performance expectation for team members 2.4. Supervise team performance	<ul style="list-style-type: none"> • Lecture • Demonstration • Self-paced (modular) 	<ul style="list-style-type: none"> • Demonstration • Case studies
3. Develop and practice negotiation skills	3.1. Identify relevant information in planning negotiations 3.2. Participate in negotiations 3.3. Document areas for agreement	<ul style="list-style-type: none"> ▪ Direct observation ▪ Simulation/role playing ▪ Case studies 	<ul style="list-style-type: none"> ▪ Written test ▪ Practical/performance test
4. Solve problems related to work activities	4.1. Explain the analytical techniques 4.2. Identify the problem 4.3. Determine the possible cause/s of the problem	<ul style="list-style-type: none"> ▪ Direct observation ▪ Simulation/Role playing ▪ Case studies 	<ul style="list-style-type: none"> ▪ Written test ▪ Practical/performance test
5. Use mathematical concepts and techniques	5.1. Identify mathematical tools and techniques to solve problem 5.2. Apply mathematical procedures/solution 5.3. Analyze results	<ul style="list-style-type: none"> ▪ Direct observation ▪ Simulation/role playing ▪ Case studies 	<ul style="list-style-type: none"> ▪ Written test ▪ Practical/performance test
6. Use relevant technologies	6.1. Identify appropriate technology 6.2. Apply relevant technology 6.3. Maintain/enhance relevant technology	<ul style="list-style-type: none"> ▪ Direct observation ▪ Simulation/role playing ▪ Case Studies 	<ul style="list-style-type: none"> ▪ Written test ▪ Practical/performance test

COMMON COMPETENCY

Unit of Competency	Learning Outcomes	Methodology	Assessment Approach
1. Apply safety measures in farm operations	1.1. Determine areas of concern for safety measures 1.2. Apply appropriate safety measures 1.3. Safekeep/maintain/dispose tools, materials and outfit.	<ul style="list-style-type: none"> Self-paced/modular Lecture/Discussion Interaction Practical Demonstration Visit/tour 	<ul style="list-style-type: none"> Oral/Written Interviews Direct Observation Practical Demonstration
2. Use farm tools and equipment	2.1. Prepare and use farm tools 2.2. Prepare and operate farm equipment 2.3. Perform preventive maintenance procedures/practices	<ul style="list-style-type: none"> Self-paced/modular Lecture/Discussion Interaction Practical Demonstration Visit/tour 	<ul style="list-style-type: none"> Oral/Written Interviews Direct Observation Practical Demonstration
3. Perform estimation and basic calculation	3.1. Perform estimation 3.2. Perform basic workplace calculation 3.3. Apply corrective measures as necessary	<ul style="list-style-type: none"> Self-paced/modular Lecture/Discussion Interaction Practical Exercise 	<ul style="list-style-type: none"> Oral/Written examination Practical exercise

CORE COMPETENCY

General			
Unit of Competency	Learning Outcomes	Methodology	Assessment Approach
1. Undertake preparation of land for agricultural crop production	1.1 Prepare for cultivation	<ul style="list-style-type: none"> Discussion 	<ul style="list-style-type: none"> Written exam Actual Designing
	1.2 Prepare the cultivating equipment	<ul style="list-style-type: none"> Discussion Demonstration 	<ul style="list-style-type: none"> Written exam Actual Demonstration Observation

	1.3 Cultivate soil	<ul style="list-style-type: none"> ▪ Discussion ▪ Demonstration 	<ul style="list-style-type: none"> ▪ Written exam ▪ Actual Demonstration ▪ Observation
	1.4 Prepare site for planting	<ul style="list-style-type: none"> ▪ Demonstration 	<ul style="list-style-type: none"> ▪ Actual Demonstration ▪ Questioning
	1.5 Complete land preparation operations	<ul style="list-style-type: none"> ▪ Demonstration 	<ul style="list-style-type: none"> ▪ Actual Demonstration ▪ Questioning
2. Implement a post-harvest program	2.1 Prepare for implementation of post-harvest operations	<ul style="list-style-type: none"> ▪ Discussion 	<ul style="list-style-type: none"> ▪ Written exam
	2.2 Co-ordinate post-harvest work	<ul style="list-style-type: none"> ▪ Demonstration 	<ul style="list-style-type: none"> ▪ Actual Demonstration ▪ Questioning
	2.3 Implement post-harvest treatments	<ul style="list-style-type: none"> ▪ Demonstration 	<ul style="list-style-type: none"> ▪ Actual Demonstration ▪ Questioning
	2.4 Implement hazardous waste disposal guidelines	<ul style="list-style-type: none"> ▪ Demonstration 	<ul style="list-style-type: none"> ▪ Actual Demonstration ▪ Questioning
	2.5 Implement packaging requirements of produce	<ul style="list-style-type: none"> ▪ Demonstration 	<ul style="list-style-type: none"> ▪ Actual Demonstration ▪ Questioning
	2.6 Implement storage requirements of produce	<ul style="list-style-type: none"> ▪ Demonstration 	<ul style="list-style-type: none"> ▪ Demonstration with Questioning
3. Implement a plant nutrition program	3.1 Prepare for implementation of the plant nutrition program	Demonstration Field visit	Direct Observation and Interview
	3.2 Monitor soil pH	<ul style="list-style-type: none"> ▪ Demonstration ▪ Simulation 	<ul style="list-style-type: none"> ▪ Direct Observation and Interview
	3.3 Determine nutritional problems in plants	<ul style="list-style-type: none"> ▪ Demonstration ▪ Simulation 	<ul style="list-style-type: none"> ▪ Direct Observation and Interview
	3.4 Prepare to use fertilizers	<ul style="list-style-type: none"> ▪ Demonstration ▪ Simulation 	<ul style="list-style-type: none"> ▪ Direct Observation and Interview

	3.5 Prepare application equipment	<ul style="list-style-type: none"> ▪ Demonstration ▪ Simulation 	▪ Direct Observation and Interview
	3.6 Apply specific products at appropriate rates	<ul style="list-style-type: none"> ▪ Demonstration ▪ Simulation 	▪ Direct Observation and Interview
4. Control weeds	4.1 Assess weed infestation	<ul style="list-style-type: none"> ▪ Demonstration ▪ Simulation 	▪ Direct Observation and Interview
	4.2 Plan the implementation of control measures	<ul style="list-style-type: none"> ▪ Demonstration ▪ Simulation 	▪ Direct Observation and Interview
	4.3 Implement control measures	<ul style="list-style-type: none"> ▪ Demonstration ▪ Simulation 	▪ Direct Observation and Interview
	4.4 Monitor control weeds	<ul style="list-style-type: none"> ▪ Demonstration ▪ Simulation 	▪ Direct Observation and Interview
5. Prepare and apply chemicals	5.1 Determine the need for chemical use	<ul style="list-style-type: none"> ▪ Demonstration ▪ Simulation 	▪ Direct Observation and Interview
	5.2 Prepare appropriate chemical	<ul style="list-style-type: none"> ▪ Demonstration ▪ Simulation 	▪ Direct Observation and Interview
	5.3 Prepare to use chemicals according to the label and MSDS	<ul style="list-style-type: none"> ▪ Demonstration ▪ Simulation 	▪ Direct Observation and Interview
	5.4 Apply chemicals	<ul style="list-style-type: none"> ▪ Demonstration ▪ Simulation 	▪ Direct Observation and Interview
	5.5 Clean up following chemical application	<ul style="list-style-type: none"> ▪ Demonstration ▪ Simulation 	▪ Direct Observation and Interview
	5.6 Record application details	<ul style="list-style-type: none"> ▪ Demonstration ▪ Simulation 	▪ Direct Observation and Interview

Agronomic			
Unit of Competency	Learning Outcomes	Methodology	Assessment Approach
1. Establish agronomic crops	1.1 Prepare machinery and equipment for use	<ul style="list-style-type: none"> ▪ Demonstration ▪ Simulation 	<ul style="list-style-type: none"> ▪ Direct Observation and Interview
	1.2 Prepare for agronomic crop establishment		
	1.3 Sow the crop		
	1.4 Complete seeding operations		
2. Undertake agronomic crop maintenance activities	2.1 Assess agronomic crop condition, growth and requirements	<ul style="list-style-type: none"> ▪ Demonstration ▪ Simulation 	<ul style="list-style-type: none"> ▪ Direct Observation ▪ Interview
	2.2 Apply fertilizer and amendments		
	2.3 Monitor crop condition, growth and requirements		
	2.4 Complete cleaning and hygiene operations		
3. Undertake agronomic crop harvesting activities	3.1 Prepare to harvest agronomic crops	<ul style="list-style-type: none"> ▪ Demonstration ▪ Simulation 	<ul style="list-style-type: none"> ▪ Direct Observation ▪ Interview
	3.2 Prepare the harvesting equipment		
	3.3 Harvest crops		
	3.4 Complete harvesting operations		
4. Save, prepare and store agricultural seed	4.1 Select seed from agricultural crops	<ul style="list-style-type: none"> ▪ Demonstration ▪ Simulation 	<ul style="list-style-type: none"> ▪ Direct Observation ▪ Interview
	4.2 Evaluate and grade seed		

	4.3 Store seed		
	4.4 Collect and deliver seed		
5. Implement vertebrate pest control program	5.1 Assess requirements for pest control	<ul style="list-style-type: none"> ▪ Demonstration ▪ Simulation 	<ul style="list-style-type: none"> ▪ Direct Observation ▪ Interview
	5.2 Prepare to implement control program		
	5.3 Control vertebrate pests		
	5.4 Complete control program		

3.2 TRAINING DELIVERY

The delivery of training should adhere to the design of the curriculum. Delivery should be guided by the 10 basic principles of competency-based TVET.

- The training is based on curriculum developed from the competency standards;
- Learning is modular in its structure;
- Training delivery is individualized and self-paced;
- Training is based on work that must be performed;
- Training materials are directly related to the competency standards and the curriculum modules;
- Assessment is based in the collection of evidence of the performance of work to the industry required standard;
- Training is based both on and off-the-job components;
- Allows for recognition of prior learning (RPL) or current competencies;
- Training allows for multiple entry and exit; and
- Approved training programs are Nationally Accredited

The competency-based TVET system recognizes various types of delivery modes, both on and off-the-job as long as the learning is driven by the competency standards specified by the industry. The following training modalities may be adopted when designing training programs:

- The dualized mode of training delivery is preferred and recommended. Thus programs would contain both in-school and in-industry training or fieldwork components. Details can be referred to the Dual Training System (DTS) Implementing Rules and Regulations.

- Modular/self-paced learning is a competency-based training modality wherein the trainee is allowed to progress at his own pace. The trainer just facilitates the training delivery.
- Peer teaching/mentoring is a training modality wherein fast learners are given the opportunity to assist the slow learners.
- Supervised industry training or on-the-job training is an approach in training designed to enhance the knowledge and skills of the trainee through actual experience in the workplace to acquire specific competencies prescribed in the training regulations.
- Distance learning is a formal education process in which majority of the instruction occurs when the students and instructor are not in the same place. Distance learning may employ correspondence study, audio, video or computer technologies.

3.3 TRAINEE ENTRY REQUIREMENTS

Trainees or students wishing to gain entry into this course should possess the following requirements:

- can communicate either oral and written
- physically and mentally fit
- with good moral character
- can perform basic mathematical computation

This list does not include specific institutional requirements such as educational attainment, appropriate work experience, and others that may be required of the trainees by the school or training center delivering the TVET program.

3.4 TOOLS AND EQUIPMENT AND MATERIALS AGRICULTURAL CROPS PRODUCTION NC III

Recommended list of tools, equipment and materials for the training of 25 trainees for Agricultural Crops NC III

TOOLS		EQUIPMENT		MATERIALS	
QTY	DESCRIPTION	QTY	DESCRIPTION	QTY	DESCRIPTION
25 pcs	• Bolos	2	• Booth/temporary shed	250 pcs.	• Agri bags, plastic
10 pcs	• Broomstick	5	• Cart (Kariton & paragus)	500 pcs.	• Bamboo stick
5 pcs	• Calculator	1	• Coolroom	5 pcs.	• Basket
5 pcs	• Container	1	• Comb-tooth harrow	5 rims	• Bond paper
5 sets	• Cutting tools	5	• Computer with record keeping	5 pcs.	• Catching nets

			software applications		
5 sets	• Digging tools	1	• Crates	3 dozen	• Clips
2 pcs	• Drying meter	1	• Drying oven	5 sacks	• Coconut dust
10 pcs	• Dulos	1	• Farm/ field	5 sacks	• Compost
5 pcs	• Fruit crate	1	• Greenhouse/nurseries	1 sack of each	• Fertilizers-various
5 sets	• Harvesting tools	1	• Harvesting equipment	1 kit	• First aide supplies/medicine
25 pcs	• Hat	1	• Irrigation system (sprinkler, mist/drip irrigation)	5 bottles	• Flower inducer
5 pcs	• Knapsack sprayer	1	• Mower (grass cutter)	5 bottles	• Fungicides
5 sets	• Knife	1	• Over head projector (OHP)	25 pairs	• Gloves
5 pcs	• Light hoe	1	• Portable chain saw	5 sacks	• Growing media (garden soil, sewed sand, compost, soil, manure and sawdust/rice
2 pcs	• Moisture meter	1	• Post-Harvest treatment equipment	5 pcs.	• Killing bottles
5	• Personal protection equipment	1	• Power sprayer		
2 pcs	• Petri-dish	1	• Propagation Equipment	5 pcs.	• Marking pens
3 pcs	• pH meter	1	• Pump for irrigation	25 pcs.	• Masks
5 pcs	• Pick mattock	1	• Rotavator	25 pcs.	• Material Safety Data Sheets
5 pcs	• Picking knife	1	• Service vehicle	5 sacks	• Mulching material
5 pcs	• Plow	1	• Sorting /Grading equipment	25 m	• Hair nets
2 sets	• Plumbing tools	2	• Spike tooth	20	• Packaging

			harrow		materials, assorted
5 sets	• Post-Harvest treatment tools	1	• Storage room	5	• Pail
25 pcs	• Protective coat	1	• Surface irrigation system	5 rims	• Paper/bond
25 pcs	• Protective gadgets		• Tractor/Carabao	25	• Pencil
5 pcs	• Pruning sheers		• Typewriter	25	• Pens
5 pcs	• Rake			5 bottles	• Pesticides/Insecticides
10 pcs	• Scissors	25	TRAINING MATERIALS	5 pieces	• Pieces of cloth
5	• Seed bed	2	• Brochures	100	• Plastic bag
5	• Seedling tray	2	• Instructional supplies & materials	1 set	• Plumbing supplies
10	• Shovel	5	• Visual aids	250	• Pots
15	• Sprinklers	5	• Reference materials/Books (technical information on horticultural and agronomic crops)	Variety	• Propagation materials e.g. seeds spores, cuttings etc.,
2	• Step ladder	5	• Reference manuals (first aide kit with reference manual)	5 sacks	• Propagating media (garden soil, sawdust, sand, composed, coconut coir)
2	• Storage tools/cabinet	5	• Data (Data on result of soil analysis)	3 sacks	• Rice hull
25 pcs	• Transplanting tools	5	• Procedural manuals	3 rolls	• Rope, (small, med. Large)
25 pcs	• Trowel		• Soil samples analysis	3 boxes	• Rubber band
			• Examples of farm standard operating procedures (SOPs)	25 pairs	• Rubber boots
					• Rubber knots
				25 sacks	• Sacks
					• Sample of

					matured vegetable crops
				5 boxes	• Seed box
					• Seedlings, assorted
				2 packs per crop	• Seeds
				5	• Soil auger
				5 rolls	• String
				5 bottles	• Tetrazolium chemical
					• Transplanting supplies
				5 pcs.	• Detergent, liquid and powder soap
				5 pcs.	• Brush

3.5 TRAINING FACILITIES AGRICULTURAL CROPS PRODUCTION NC III

Based on a class intake of 25 students/trainees

SPACE REQUIREMENT	SIZE IN METERS	AREA IN SQ. METERS	TOTAL AREA IN SQ. METERS
A. Building (permanent)			170.30
• Student/Trainee Working Space	2.00 x 2.00 per student/trainee	4.00 per student	100.00
• Learning Resource Center	3.00 x 5.00	15.00	15.00
• Facilities/Equipment/Circulation (30% of teaching accommodation)			39.30
• Store Room	4.00 x 4.00	16.00	16.00
B. Experimental Land Area	5 sq m /trainee	125.00	125.00

Note: Experimental area will change according to availability of land.

3.6 TRAINERS' QUALIFICATION

AGRICULTURAL CROPS PRODUCTION NC III

TRAINER QUALIFICATION (TQ IV)

- Must be a holder of NC IV
- Must have undergone training on Training Methodology IV (TM IV)
- Must be physically and mentally fit
- *Must have at least 2 years job/industry experience

* Optional. Only when required by the hiring institution
Reference: TESDA Board Resolution No. 2004 03

3.7 Institutional Assessment

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

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