Republic of Rwanda
Ministry of Education

RTB | RWANDA TVET BOARD

FERTILIZER APPLICATION

AGRFA302 Apply Fertilizer

Competence

RQF Level: 3

Learning Hours 50

Credits: 5

Sector: Agriculture and food processing

Trade: Agriculture

Module Type: General

Curriculum: AFPAGR3001- TVET Certificate 3 in Agriculture

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<table>
<tr><td>Purpose statement</td><td colspan="5">This module describes the skills, knowledge and attitude required to apply fertilizer. it is designed for learners who have successfully completed 9 years' basic education or its equivalent and pursuing TVET level III in Agriculture. At the end of this module, learners will be able to prepare for fertilizer application operations, prepare tools, materials, and equipment, and use fertilizers. Qualified learners deemed competent may work in various places including open field, Nursery and greenhouses performing a range of tasks related to crop growing. She/he can work alone or with others under supervision.</td></tr>
<tr><td>Learning assumed to be in place</td><td colspan="5">Applied chemistry</td></tr>
<tr><td rowspan="7">Delivery modality</td><td colspan="2">Training delivery</td><td>100%</td><td colspan="2">Assessment</td><td>Total 100%</td></tr>
<tr><td colspan="2">Theoretical content</td><td>30%</td><td rowspan="5">Formative assessment</td><td>30%</td><td rowspan="5">100%</td></tr>
<tr><td colspan="2">Practical work:</td><td rowspan="3">70%</td><td rowspan="3">70%</td></tr>
<tr><td>• Group project and presentation</td><td>20%</td></tr>
<tr><td>• Individual project /Work</td><td>50%</td></tr>
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Elements of Competency and Performance Criteria

Elements of competency	Performance criteria
1. Prepare for fertilizer application operations	1.1. Instructions provided by supervisor are correctly interpreted.
	1.2. Tools and equipment are adequately selected referring to the type of fertilizer
	1.3. Risks, occupational, health and safety (OHS) hazards are properly identified, assessed according to food and environmental standards
	1.4. PPE are properly selected according to the desired operation
	1.5. Environmental implications of the fertilizer are properly identified according to regulations
2. Prepare tools, materials, and equipment	2.1. Site is properly identified according to crop requirements
	2.2. Fertilizers are properly identified according to crop nutritional requirements
	2.3. Tools and equipment are properly selected according to the types of fertilizers and their methods of application.
	2.4. Organic fertilizers are effectively prepared referring to procedures
	2.5. Records are properly kept as required by supervisor
3. Use fertilizers	3.1. Fertilizers application methods are properly identified according to the cropping system
	3.2. Weather conditions are properly considered according to the site location

	3.3.	Fertilizers are properly applied according to the protocol
	3.4.	Records are properly kept as required by supervisor

Course content

Learning outcomes	At the end of the module the learner will be able to: 1. Prepare for fertilizer application operations 2. Prepare tools, materials, and equipment 3. Use fertilizers

Learning outcome 1: Prepare for fertilizer application operations	Learning hours: 10

Indicative content

- **Interpretation of instructions**

✓ Instructions on task to be done in fertilizer application

- **Selection of tools and equipment**

✓ Criteria for tools and equipment selection for fertilizers application

- **Assessment of risks, occupational Health, and Safety (OHS) hazards**

✓ Types of hazards associated with fertilizer application

✓ Hazard risks

- **Selection of PPE**

✓ Types/categories of PPE used in fertilizers application

✓ Criteria of PPE selection

- **Identification of environmental implication of the fertilizer**

✓ Definition of environmental impact assessment

✓ Types of impact on environmental implication of applying fertilizers

- Negative impact
- Positive impact

Resources required for the learning outcome

Equipment	Computer, DVD player, Projector, white board and Wheelbarrow
Materials	Antiseptic gel, Manure fork, Markers, Newspapers, Notebook, Pegs, Rake maker, Repirators, Reports, Ropes, Sacs, Scientific papers, water and PPE, Internet connection
Tools	Blackboard, Books, Boots, Buckets, Chalks, Ear protectors, Facemasks, First aid kit, Flipchart, Footwear, forked hoe, Hand hoe, High visibility clothes, Markers,

	Measuring tape, Shovel, Sickles, Spade, Sprayer and Watering can
Facilitation techniques	Demonstration, simulation, Individual, group work, Practical exercise Individualized, Trainer guided, Group discussion
Formative assessment methods	Written assessment, Oral presentation, Performance assessment

Learning outcome 2: Prepare tools, materials, and equipment	**Learning hours: 20**
Indicative content	
• **Identification of site** ✓ Indicators of soil fertility status ✓ Soil characteristics regarding soil fertility • **Identification of fertilizer** ✓ Essentials crop nutrients and their functions ✓ Types of fertilizers based on composition ✓ Types of fertilizer based on sources/origin • **Selection of tools and equipment** ✓ Selection criteria of tools and equipment for fertilizers application • **Preparation of organic fertilizers** ✓ Criteria of raw material selection ✓ Types of organic fertilizers ✓ Procedure to make compost fertilizers ✓ Procedure to make farm yard manure fertilizers ✓ Steps to make green manure fertilizers • **Keeping of records** ✓ Content of record form ✓ Method of record keeping	
Resources required for the indicative content	
Equipment	Computer, DVD players, Projector and Nutrients deficiency kits
Materials	Books, Field, Internet, Newspapers, Plant residues, Related books, Reports scientific

	paper and PPE
Tools	Field notebook, Flip chart, Forks, Hand hoe, Knife, Markers and Pens
Facilitation techniques	Demonstration and simulation, Individual and group work, Practical exercise, Individualized, Trainer guided and Group discussion
Formative assessment methods	Written assessment, Oral presentation, Performance assessment, Product based assessment and Project based assessment

Learning outcome 3: Use fertilizers	**Learning hours: 20**
Indicative content	
• **Identification of fertilizers application methods** ✓ Types of fertilizers ✓ Different methods of fertilizers application ✓ Factors of selection fertilizers application methods • **Consideration of weather conditions** ✓ Weather conditions for fertilizers application planning ✓ Impacts of weather conditions on fertilizers application • **Applying of fertilizers** ✓ Selection criteria of fertilizers ✓ Fertilizers application rates ✓ Fertilizers application frequency ✓ Time of fertilizers application • **Keeping of records** ✓ Methods of record keeping ✓ Template content	
Resources required for the indicative content	
Equipment	Fire source, Internet connection, computers, projector, sprayers, power tiller and Water
Materials	Demonstration field, Fertilizers, Watering can, Related books, Reports and scientific paper, Water
Tools	Water Black board, Chalks, Farm tools, Flip chart and Markers
Facilitation techniques	Demonstration and simulation, Individual and group work, Practical exercise, Individualized, Trainer guided and Group discussion
Formative assessment methods	Written assessment, Oral presentation, Performance assessment, Product based assessment and Project based assessment

References

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