

ESTABLISH AGRICULTURAL CROPS

UNIT CODE: AGR/OS/EXT/CR/01/4

UNIT DESCRIPTION

This unit describes the competencies required by a trainee in order to competently establish a crop. It involves preparing to establish a crop, establishing the crop and completing crop establishment as well as carrying out waste management and documentation.

ELEMENTS AND PERFORMANCE CRITERIA

| ELEMENT These describe the key outcomes which make up workplace function (to be stated in active voice) | PERFORMANCE CRITERIA These are assessable statements which specify the required level of performance for each of the elements (to be stated in passive voice) <i>Bold and italicized terms are elaborated in the Range</i> |
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| 1. Prepare the land | 1.1 <i>Tools ,equipment , materials and supplies</i> are identified and gathered based on the requirements of the job 1.2 Soil for analysis is sampled as per appropriate <i>sampling method</i> 1.3 Soil erosion is controlled based on topography, soil type and level of degradation 1.4 <i>Crop</i> choice is made according to <i>farm plan</i> and soil analysis report. 1.5 <i>Land preparations</i> are determined and selected according to the condition of the land and the crop type. 1.6 <i>Growing structure</i> is prepared in accordance with the crop production manual 1.7 <i>Personal Protective Equipment (PPE)</i> is worn as per the workplace policy 1.8 Land is prepared according to condition of the land and type of selected operation |
| 2. Establish the crop | 2.1 <i>Tools ,equipment and supplies</i> are identified and gathered based on the requirements of the workplace |

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| | <p>2.2 The time of planting is determined based on ecological zone</p> <p>2.3 The planting materials are identified and gathered according to the type of crop</p> <p>2.4 The crop is planted according to crop type, and planting method</p> <p>2.5 Fertilizer is applied according to soil analysis report</p> |
| 3. Manage the crop | <p>3.1 Gapping and/or thinning is done depending on germination pattern</p> <p>3.2 Weed and pest control is done using appropriate control method according to the crop type</p> <p>3.3 Soil and water conservation measures are applied according to the topography of the land and the type of soil</p> <p>3.4 Established crops are irrigated according to the crop water requirements and appropriate irrigation method</p> |
| 4. Complete crop establishment | <p>4.1 Crop establishment activities are documented in the appropriate farm records.</p> <p>4.2 Unused materials are stored as per manufacturer's instructions</p> <p>4.3 Waste and recyclable materials are handled according to environment management regulations</p> |

RANGE

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

| VARIABLE | RANGE (May include but are not limited to :) |
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| Crop | <ul style="list-style-type: none"> • Food crops: <ul style="list-style-type: none"> - Beans - Maize - Potatoes - Wheat • Horticultural crops: <ul style="list-style-type: none"> - Cabbages - Carrots - Flowers - Kales - Onions - Tomatoes • Industrial crops: <ul style="list-style-type: none"> - Avocado - Coffee - Cotton - Macadamia - Tea - Livestock fodder |
| Farm plan | <ul style="list-style-type: none"> • Farm layout • Rotation program/plan • Crop protection program/plan • Cropping seasons |
| Land preparations | <ul style="list-style-type: none"> • Site clearing • Zero tillage • Primary tillage • Secondary tillage • Minimum tillage • Tertiary operations |

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| Tools, equipment and machinery | <ul style="list-style-type: none"> • Land clearing tools/equipment/machinery <ul style="list-style-type: none"> - Axes - Mower - Panga - Rake - Rotavator - Slasher - Tractor - Wheel barrow • Tillage tools/equipment/machinery <ul style="list-style-type: none"> - Disc plough - Fork jembe - Harrows - Hoe - Mouldboard plough - Ridgers - Tractor • Soil sampling tools/equipment <ul style="list-style-type: none"> - Buckets - Soil auger - Spade |
| Soil sampling method | <ul style="list-style-type: none"> • Random • Stratified • Systematic |
| Growing structure | <ul style="list-style-type: none"> • Green houses • Nursery Structures • Seedling Trays |
| Personal protective equipment | <ul style="list-style-type: none"> • Gumboots • Overall • Gloves • Breathing mask • Goggles • Cap |

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| Planting materials | <ul style="list-style-type: none"> • Seed • Cuttings • Tubers • Vines • Corms |
| Planting method | <ul style="list-style-type: none"> • Broadcasting • Row planting • Dribbling • Under sowing • Over sowing |
| Planting manuals | <ul style="list-style-type: none"> • Seed production manuals • Plant breeders' manuals • Researchers' recommendations • Tree planting manuals |
| Control method | <ul style="list-style-type: none"> • Chemical • Mechanical • Cultural • Biological |
| Soil and water conservation measures | <ul style="list-style-type: none"> • Contour farming • Terracing • Filter strips • Mulching • Cover cropping • Drip irrigation • Gabions |
| Farm records | <ul style="list-style-type: none"> • Farm diary • Journals • Ledgers |
| Environment management regulations | <ul style="list-style-type: none"> • Environmental Management and Coordination Act – EMCA • National environmental management authority regulations • Standard operation procedures for the organization |

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

Required Skills

The individual needs to demonstrate the following skills:

- Farm machines calibration
- Fertilizer and agrochemical handling
- Tools and equipment handling
- Tilling
- Measuring
- Leveling
- Gapping
- Pruning
- Spraying
- Pests, diseases and nutrients deficiency scouting
- Soil sampling
- Operation of farm machinery
- Observation
- Planting
- Recording

Required Knowledge

The individual needs to demonstrate knowledge of:

- Farm power
- Types and uses of farm implements and machinery
- Basic tools and equipment used in crop production
- Soil fertility management
- General crop production technologies
- Basic Soil sampling and testing
- Soil conservation
- Phyto-sanitary requirements
- Good Agricultural Practices
- Occupational safety and health
- Tillage types
- Types of planting materials
- Irrigation methods
- Soil and water conservation methods
- Maintenance of farm machines
- Farm Records

- Agro-ecological zones
- Weeds and weed control
- Crop pests and pest control.

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

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| 1. Critical Aspects of Competency | <p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Prepared land to the required tilth 1.2 Used materials, tools and equipment appropriately 1.3 Observed occupational safety measures keenly 1.4 Efficiently used the farm inputs 1.5 Applied soil and water conservation measures keenly 1.6 Observed laid down environmental workplace policy keenly 1.7 Established crop correctly 1.8 Documented crop establishment activities well |
| 2. Resource Implications | <p>The following resources must be provided:</p> <ul style="list-style-type: none"> 2.1 Assessment location- functional farm with various established crops at different growing stages, farm implements and equipment. 2.2 Personal protective equipment 2.3 human resources |
| 3. Methods of Assessment | <p>Competency in this unit may be assessed through:</p> <ul style="list-style-type: none"> 3.1 Observation 3.2 Oral interview 3.3 Written exam 3.4 Third party report |
| 4. Context of Assessment | <p>Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment.</p> |
| 5. Guidance information for assessment | <p>Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.</p> |