



NQF Level: **1** US No: **116201**

# Assessment Guide

## Primary Agriculture

# Harvesting agricultural crops



Assessor: .....

Workplace / Company: .....

Commodity: ..... Date: .....

## Before we start...

This assessment guide contains all necessary activities and instructions that will enable the assessor and learner to gather evidence of the learner's competence as required by the unit standard. This guide was designed to be used by a trained and accredited assessor whom is registered to assess this specific unit standard as per the requirements of the AgriSETA ETQA.

Prior to the delivery of the program the facilitator and assessor must familiarise themselves with content of this guide, as well as the content of the relevant Learner Workbook.

The assessor, facilitator and learner must plan the assessment process together, in order to offer the learner the maximum support, and the opportunity to reflect competence.

The policies and procedures that are required during the application of this assessment are available on the website of the AgriSETA and should be strictly adhered to. The assessor must familiarise him/herself with this document before proceeding.

This guide provides step-by-step instructions for the assessment process of:

<b>Title:</b>	Harvest agricultural crops		
<b>US No:</b>	<b>116201</b>	<b>NQF Level:</b>	<b>1</b>
		<b>Credits:</b>	<b>5</b>

This unit standard is one of the building blocks in the qualification listed below. Please mark the qualification you are currently assessing, because that will be determined by the context of application:

Title	ID Number	NQF Level	Credits	Mark
National Certificate in Animal Production	48970	1	120	<input type="checkbox"/>
National Certificate in Mixed Farming Systems	48971	1	120	<input type="checkbox"/>
National Certificate in Plant Production	48972	1	120	<input type="checkbox"/>

Please mark the learning program you are enrolled in:

Are you enrolled in a:	Y	N
Learnership?	<input type="checkbox"/>	<input type="checkbox"/>
Skills Program?	<input type="checkbox"/>	<input type="checkbox"/>
Short Course?	<input type="checkbox"/>	<input type="checkbox"/>

### Note to Assessor:

If you are assessing this module as part of a full qualification or learnership, please ensure that you have familiarized yourself with the content of the qualification.

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**SO 1, SO 6**

**Instructions to learner:**

In groups investigate and determine the harvest practices used at your place of work. Answer the questions below.

**Learner Workbook: Page 3    Facilitator Guide: Page 11**

1. Identify the equipment you may need for harvesting a crop grown in your area.

**Model Answer(s):**

*None provided. The activity relates to crop and even site specific investigations and answers may differ.*

2. Describe how these tools are stored.

**Model Answer(s):**

*None provided. The activity relates to crop and even site specific investigations and answers may differ.*

3. Develop a harvesting checklist for use on a crop grown in your area.

**Model Answer(s):**

*None provided. The activity relates to crop and even site specific investigations and answers may differ.*

**My Notes ...**

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**Instructions to learner:**

Answer the questions below in relation the crops produced at your place of work. Perform Demonstrations where required

**Learner Workbook: Page 4    Facilitator Guide: Page 12**

1. Define Maturity Indexing and sampling.

**Model Answer(s):**

**Maturity Indexing:** *Maturity indexing is, simply put, the process of monitoring the physiological development of fruit as it ripens.*

**Sampling:** *Taking of a few individual fruits from some trees in the orchard of the same cultivar. These fruits then represent all the fruits in that orchard and specific cultivar.*

2. In a tree crop sample a section of an orchard for the analyses of sugar content.

**Model Answer(s):**

*None provided. The activity relates to crop and even site-specific investigations and answers may differ.*

3. Explain how you would determine whether a field crop such as maize has reached the correct moisture content or harvest.

**Model Answer(s):**

- ◆ *Walk in a zigzag fashion through the maize field and pick ears from different plants spread out over the whole field.*
- ◆ *One should harvest enough ears to generate 5 kg of seed.*
- ◆ *Do not pick ears from the outside rows as these plants are not representative of the field - Remove the leaves and thresh them.*
- ◆ *Place the seeds in a container and mix the seed of the different plants thoroughly.*
- ◆ *Now take a representative sample by taking hands-full of seeds from different places and at different depths out of the container. The sample should be at least 1 kg in mass.*
- ◆ *If there are no instruments available on the farm to determine the moisture content, the sample can be taken to a co-op which handles grain crops.*
- ◆ *Determine the moisture content*
- ◆ *If the moisture content is 15% or above, wait at least another week and repeat the procedure. Repeat this until the desired moisture content of 13 % or less has been reached.*

**Instructions to learner:**

Answer the questions below with respect to the crops grown at your place of work.

**Learner Workbook: Page 5    Facilitator Guide: Page 13**

1. Demonstrate and explain how you would go about harvesting the following crops (where the crop is not grown at your place of work, provide explanations only):

**Model Answer(s):**

**Citrus**

*Once picking starts, a few basics guidelines should be adhered to, as set out below.*

*Picking bags are suspended from the side of the pickers and not in front of them.*

*This prevents damage to the fruit as the picker leans against a ladder or pushes into branches in the canopy.*

*Pickers walk with full picking bags and not run, as running will bounce and chafe the fruit, leading to the development of oleocellosis.*

*When picking bags are emptied they should be placed close to or on existing fruit lying in the bulk bins or picking trailers before being emptied. This will also limit injury.*

*Once a bag has been emptied, it must be opened and shaken to remove loose twigs, leaves and sand that might have collected during the picking process.*

*Fruit that were dropped during the picking process must not be picked up off the ground and put with export fruit. Similarly, fruit lying on the ground and in contact with the soil should not be picked up and mixed with export fruit.*

*When varieties that are susceptible to oleocellosis are harvested, filling of bulk bins and trailers should be limited. The extent of the limitation will depend on the specific condition, but it would generally never be approximately 50% of the volume of the bin/trailer. As an added precaution, rubber or cardboard sheeting can be used to line bins providing protection.*

**Tomatoes (soft Fruit)**

*Ensure that clear instructions on which colour fruits should be harvested and which should be left for the next picking are provided. Follow the site procedures where they are available. Provide examples of some poor quality fruits and what should be done if such fruit are encountered. These fruits bruise easily and should not be thrown into the picking crates from a distance*

**Vegetable Crops - Beans**

*Vegetables should be harvested during the cool part of the morning and should be stored as soon as possible. If the produce is destined for the market, ensure that the storage conditions are correct for the produce. If they are destined for processing, they should be cooled and stored under refrigeration to preserve flavour and quality. You need to ensure that you know the basic harvest practice for each crop you are dealing with. What follows are some examples of harvest practices for different crops.*

*Beans – green - pods are about the diameter of a pencil. To determine harvest readiness bend them in the middle, if they snap easily, they can be harvested.*

- 2. Prepare to harvest a section of a field crop grown in your area. Following the guidelines below.
  - a. Identify the equipment needed
  - b. Ensure proper hygiene has been applied
  - c. Identify the crop specific harvest procedures
  - d. Ensure the correct harvest procedures are applied.

**Model Answer(s):**  
None provided. The activity relates to crop and even site specific investigations and answers may differ.

**My Notes ...**

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**Instructions to learner:**

Answer the questions below with respect to the crops grown at your place of work.

**Learner Workbook: Page 6    Facilitator Guide: Page 14**

1. Describe the safety precautions that are required when:

**Model Answer (s):**

**Working with harvesting equipment:**

*Operators should not touch any machine unless he/she is trained to conduct maintenance on the machinery. When machinery is involved, it is best to wear overalls, protective gloves and closed end shoes (not barefoot or sandals). All parts of the body, except the face are covered, reducing the risk of injury due to stray rocks or even plant debris during the harvest process. Wear protective eye wear. Fine dust, soil and plant particles are always present during mechanical harvesting of dry products such as maize and soybean, and can cause severe eye damage -*

*Due to the dust and fine particles surrounding the harvester at work, dust masks should be used to prevent these from being inhaled. Do not wear loose clothes that may be caught in moving parts of machinery.*

**Applying post harvest chemicals:**

**Model Answer**

*None provided. Ensure that the correct Personal Protective Equipment is used and that industry or crop specific procedures have been followed.*

2. What are the main rules for personal health and safety with regards to harvesting?

**Model Answer (s)**

*Wash hands under running water and with soap after each visit to the bathroom.*

*Wear a hair net if you are involved in packing and further processing of the produce*

*Wear a mask over the mouth and nose if you have to handle fruits and vegetables.*

*In the case of a severe cold or other disease, inform your employer or group leader so that the correct health procedures can be followed.*

*If you have or if you suspect you have some other contagious disease, inform your employer or group leader so that the appropriate measures can be followed. This may involve you being used in aspects of the harvest process which will not place you in direct contact of the produce etc... Remember your problem might be curable, but if you do not inform or trust your employer or group leader with this information, you could suffer unnecessarily.*



*When you have open wounds on your body, cover it with clothes or bandages. Replace bandages at least once a day and make sure you are treating the condition correctly. If the wound is on the hands, use gloves when the produce has to be handled. Also inform your employer or group leader of this situation, to ensure the right health procedures are followed.*

*In case of an accident during the harvesting or post harvesting of the crop, call the person(s) responsible for first aid to the scene of the accident, and then inform the group leader and employer immediately.*

*If a fellow worker is not adhering to the rules set out by the employer, report it to the group leader or employer promptly. Rules are usually set to protect all role players in the harvest process, this includes you, and a person not following these rules are not only endangering him/herself, but you also. Therefore, love yourself and report any potential problems promptly.*

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**SO 5**

**Instructions to learner:**

Answer the questions below with respect to the crops grown at your place of work.

**Learner Workbook: Page 7      Facilitator Guide: Page 15**

1. At your place of work - investigate and determine what waste is generated during harvest

**Model Answer(s):**  
*None provided. The activity relates to crop and even site specific investigations and answers may differ.*

2. Categories the waste into major groups and determines how the waste is disposed of.

**Model Answer(s):**  
*None provided. The activity relates to crop and even site specific investigations and answers may differ.*

**My Notes ...**

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# Summative Test and Attitude & Attribute Evaluation

**B**efore the knowledge test is undertaken, the learner must be reminded of what is expected from him / her in terms of summative and reflexive competence. Read and explain to the learner, the **Preparation for Your Final Assessment** section in the learner workbook. Learners and assessor should sign off this section to acknowledge that this step was completed.

Please set up a knowledge test from the questions given as a guideline to learners and supply each learner with a test sheet.

Supply each report with the following heading:

<b>Unit Standard:</b>	116201	<b>NQF Level:</b>	1
<b>Learner Name:</b>			

Model Questions	Model Answers
1. Why is the timing of harvest important - refer to effects on your crop	If the harvested produce is overly mature they will be stringy and coarse. Produce picked too soon may be too tender and will lack substance and flavour.
2. Explain why care should be taken during handling of harvested crops to ensure they are not damaged or contaminated. Refer to crop specific procedures used in your environment.	There are many steps and processes that the produce has to go through before it reaches the end user. If produce is damaged it becomes prone to diseases which will cause it to spoil. This will lead to loss in income for the producer.

<p>3. Name four main aspects that will determine at what stage of maturity you will harvest your crop. Discuss these aspects with reference to your environment and crop.</p>	<p>The market destination The purpose of the produce i.e. is it to be used as fresh or processed produce. The time it takes for the produce to reach the consumer. If the produce is aimed at the local market the fruit may be harvested when ripe or are about to ripen If the produce is destined for the export market the fruit can be harvested when fruit is mature, but not ripe yet. The external appearance of the produce is less important when the fruit is meant for processing. There remains quality standards such as: Water, sugar and acid content of the fruit.</p>
<p>4. Name the three main environmental factors that will influence storage of harvested crops. Make reference to how the crop you are involved with is stored.</p>	<p>Temperature. The conversion of sugar to starch is critical in products such as sweet corn and peas. It is necessary to cool these products immediately after harvest to minimize this conversion. If possible, harvest vegetables early in the morning or right before you intend to use them. Moisture. Proper humidity varies with different commodities. In general however leafy vegetables need a high humidity (95 %) whereas onions should be stored in a drier atmosphere (65 to 70 % relative humidity). Ventilation. Wilting and tissue breakdown are minimized if the storage area is well ventilated.</p>
<p>5. Why are sanitation procedures required during harvest? Refer to the sanitation procedures in place in your place of work.</p>	<p>The purpose of sanitation is to eliminate pathogens, which may be present.</p>

<p>6. Name the basic principals of Orchard hygiene. Refer to the orchard hygiene procedures practiced at your place of work</p>	<p>In order to avoid mould infections and rind damage a number of standard orchard hygiene practices could also be implemented. Prune trees of dead and branches twigs Prune the trees to allow light and air movement through trees Harvest cultivars that are susceptible to splitting early Never place fallen fruit into bins together with fresh fruit.</p>
<p>7. Describe how you would go about collecting a sample for ripeness testing on a tree crop. Where relevant refer to procedures that may be in use in your place of work.</p>	<p>Divide the field into equal parts or sampling units using individual trees as sampling units. Number the sampling units starting from one. Then using a random number generator (on a calculator) or random number tables, select 5 sampling units that to be sampled. Once selected go to those specific sampling units and sample the area. In the case of tree crop divide the tree into 4 quadrants. Pick a fruit from each quadrant representing and from each of the lower middle and upper part of each quadrant. Also sample from the outer reaches of the branches and the inner (closer to the stem)</p>

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### Assessment Feedback Form

Comments / Remarks	
<p>Feedback to learner on assessment and / or overall recommendations and action plan for competence:</p>	
<p>Feedback from learner to assessor:</p>	
<p><b>Assessment Judgement</b> You have been found:</p> <p><input type="radio"/> Competent</p> <p><input type="radio"/> Not yet competent in this unit standard</p>	<p>Actions to follow:</p> <p><input type="radio"/> Assessor report to ETQA</p> <p><input type="radio"/> Learner results and attendance certification issued</p>
<p><b>Learner's Signature:</b></p>	<p><b>Date:</b></p>
<p><b>Assessor's Signature:</b></p>	<p><b>Date:</b></p>
<p><b>Moderator's Signature:</b></p>	<p><b>Date:</b></p>