



NQF Level: 4 US No: 116320

Assessment Guide

Primary Agriculture

Plan & maintain environmentally sound agricultural processes



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:

Title:	Plan and maintain environmentally sound agricultural processes
US No:	116320
NQF Level:	4
Credits:	8

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	48976	4	120	<input type="checkbox"/>
National Certificate in Mixed Farming Systems	48977	4	120	<input type="checkbox"/>
National Certificate in Plant Production	48975	4	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.

Individual activity:

Write a report

Learner Guide: Page 31 Facilitator Guide: 12

Obtain a copy of the legislation governing the usage of water from rivers in South Africa. Write a report on how your farm is adhering to these prescriptions and give solutions to eliminate shortfalls of water mismanagement on your farm.

Model Answer(s):

The answer is not limited to the following:

The National Water Act

The National Water Act, No 36 of 1998 (‘the National Water Act’) recognises that water is a natural resource that belongs to all people. The National Water Act regulates the manner in which persons obtain the right to use water and provides for just and equitable utilisation of water resources.

Sustainability and equity are identified as central guiding principles in the protection, use and management of water resources. These guiding principles recognise:

- the basic human needs of present and future generations;
- the need to protect water resources;
- the need to share some water resources with other countries; and
- the need to promote social and economic development through the use of water.

National government, acting through the Minister of Water Affairs and Forestry, is responsible for the achievement of these fundamental principles. Being empowered to act on behalf of the nation, the Minister has the ultimate responsibility to fulfill certain obligations relating to the use, allocation and protection of water resources.

Water use licensing

Water use requires a licence or other form of regulatory authorisation under the National Water Act. For the purposes of the National Water Act, ‘water use’ includes, among other things: taking water from a water resource; storing water; impeding or diverting the flow of water in a watercourse; disposing of waste in a manner that may detrimentally impact on a water resource; and altering the bed, banks, course or characteristics of a watercourse. The exception to this is

'water use' identified under schedule 1 to the National Water Act or if that water use is a contribution of an lawful 'water use' which existed prior to the commencement of the National Water Act:

Pollution of water resources

The National Water Act provides for situations where the pollution of a water resource occurs as a result of activities on land. The person who owns, controls, occupies or uses the land in question is responsible for taking all reasonable measures to prevent any pollution of a water resource from occurring, continuing or recurring.

If these measures are not taken, the catchment management agency concerned may do whatever is necessary to prevent the pollution or to remedy its effects. The catchment management agency may then recover all the costs incurred as a result of it so acting from such person.

In recovering these costs, the catchment management agency may also claim from any person who would have benefited from the measures taken by it.

The National Water Act lists the acts and omissions that constitute offences, including the associated penalties. These offences include unlawfully, intentionally or negligently committing any act or omission that pollutes or detrimentally affects a water resource.

In addition to the criminal proceedings, the National Water Act also provides for an enquiry into the harm, loss or damage suffered as a result of an act or omission constituting an offence. In this regard, the court may award damages for the loss or harm suffered by the person. Furthermore, the court may order that the remedial measures to be implemented be undertaken either by the accused or the relevant water management institution. The offences set out in the National Water Act have also been designated in terms of schedule 3 to NEMA.

My Notes ...

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Group activity:

Class presentation

Learner Guide: Page 62 Facilitator Guide: Page 15

Divide into groups of 4 and do a class presentation on how you would implement one of the following on your farm: 1 a Rotation system for livestock, 2 a rotation system of different crops to conserve the fertility of the soil.

Model Answer(s):

The answer should cover some of the following

Course Rotation This diagram illustrates the classic form of the Norfolk four-course rotation system, which allowed a great and sustainable increase in productivity from farmland. In the first year, fields were sown with wheat, which was then harvested and sold. In the second year, root crops were grown on the land and fed to animals, which were then sold; the animals' manure was used to fertilize the land. In the third year, barley (with soil-enriching clover) was sown and manured; then ryegrass was sown in the fourth year, fixing valuable nitrogen into the soil and providing direct grazing for animals which fertilized the fields before being sold, ready for the wheat crop which would begin the cycle again.

Organic matter is an important element in maintaining good physical conditions in the soil; it contains the entire soil reserve of nitrogen and significant amounts of other nutrients, such as phosphorus and sulphur. Soil productivity is thus markedly affected by the organic-matter balance maintained in the soil. Because most cultivated vegetation is harvested instead of being left to decay, organic materials that would ordinarily enter the soil upon plant decomposition are lost. To compensate for this loss, various standardized methods are employed. The two most important of these methods are crop rotation and artificial fertilization.

Crop rotation consists of growing different crops in succession on the same land, rather than utilizing a one-crop system or a haphazard change of crops. In the rotation system, crops are alternated on the basis of the amounts and types of organic matter that each returns to the soil. Because frequent tillage hastens the oxidative loss of organic matter, rotations usually include one or more sod crops (crops that grow on the surface of the ground) that require little or no tillage. Deep-root penetration on the part of certain leguminous crops, such as alfalfa, provides better drainage as a result of the channels left after the roots decay (see Legume).

The rotation system employs special types of crops such as cover crops and green-manure crops. Cover crops are those crops planted to protect the soil during winter and, if a leguminous crop is used, to promote nitrogen fixation. Green-manure crops are grown solely to be ploughed into the ground and serve to increase the organic-matter content of the soil. Although no yield is expected of a green-manure crop, it should increase the yield of subsequent crops planted in the same fields.

The older method of increasing the organic content of the soil is the use of such fertilizers as manure and compost. The manuring of soil with animal waste has been practised for many thousands of years and serves as a source of various complex organic compounds that are important in the growth of plants. Compost, which usually consists of a mixture of dead vegetable and animal matter, has a purpose similar to that of a manure and is often treated with chemical fertilizers to increase its effectiveness.

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Group activity:

Write a report

Learner Guide: Page 62 Facilitator Guide: Page 15

Write a report on the methods used on your farm to prevent soil erosion. Have a class discussion about the conservation strategies that you think may be possible to implement on your farm.

Model Answer(s):

Answer will vary but must be possible to perform economically and must be lasting.

My Notes ...

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Summative Test and Attitude & Attribute Evaluation

Before 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:

Unit Standard:	116320	NQF Level:	4
Learner Name:			

Questions	Model Answers
1. What will be the ultimate renewable energy resource?	The sun
2. Define "Dryland system"	Crops are dependent on rain as no irrigation is used to supply water
3. Name the 3 major rivers in South Africa	Orange, Vaal and Limpopo
4. Name 4 National parks in SA	E.g Kalagadi, Kruger, Addo, Bergkwagga

<p>5. Define " Plant Succession"</p>	<p>Succession in the Plant Community A field devastated by fire or cleared for industrial or agricultural use will recover its vegetation relatively quickly in the absence of erosion. In the first years of recovery, bare earth becomes grassland, populated by opportunistic species that can tolerate the bleak environmental conditions. Soon, shrubs and other more competitive plants intermingle and dominate. Tree seedlings crop up, and by the end of the first century a coniferous forest occupies what was an overgrazed or blackened stretch of earth. The shady forest forms a new environment in which, after another half-century, the seedlings of other kinds of trees may outcompete the initial residents.</p>
<p>6. What is NEMA?</p>	<p>The National Environmental Management Act, No. 107 of 1998 ('NEMA') came into operation in January 1999. NEMA's primary purpose is to provide for co-operative environmental governance by establishing principles for decision-making on all matters affecting the environment. NEMA also establishes procedures and institutions that will promote public participation in environmental management.</p>
<p>7. What do you understand under "The polluter pays principle"</p>	<p>The 'polluter pays' principle provides that 'the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects must be paid for by those responsible for harming the environment'</p>
<p>8. Define the term: Conservation</p>	<p>sustainable use of natural resources, such as soils, water, plants, animals, and minerals.</p>

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>Assessment Judgement 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>Learner's Signature:</p>	<p>Date:</p>
<p>Assessor's Signature:</p>	<p>Date:</p>
<p>Moderator's Signature:</p>	<p>Date:</p>