

ASSESSMENT GUIDE FOR LEARNERS & LEARNER WORKBOOK

Plant Nutrition & Soil Management

Level 5

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Title:		Manage Soil Systems					
Applied Title:		Manage Soil Systems					
Field:		Agriculture and Nature Conservation					
Sub-Field:		Primary Agriculture					
SETA (SGB):		AgriSETA					
Skills Area:		Plant Nutrition and Soil Management					
Context:		Citrus Production					
US No:	116371	Level:	5	Credits:	10	Notional Hours:	100
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Based on the Production Guidelines of:



Supported by:



Unit standard alignment and assessment tool development:

Cabeton Training and Development

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Directions

This material is aimed at learners wishing to complete this unit standard. The 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 is designed to be used by the learner with guidance from a facilitator and a trained assessor to develop competence in all knowledge, skills and attitudes required by this unit standard.

This guide contains step-by-step instructions for the assessment process. These steps are as follows:

Step	Description	Timeframe
1	Learner Assessment Contract	Before delivery of program
2	Learner Declaration of Authenticity	Before delivery of program
3	Learning Assumed to Be in Place	Before delivery of program
4	Learner Assessment Plan for Gathering of Evidence	Before delivery of program
5	Assessment Activity Workbook	During delivery of program, assessment after delivery of program
6	Multimedia Presentation	After delivery of program
7	Practical Assessment	After delivery of program
8	Re-assessment Procedures	After completion of assessment
9	Documentation	After completion of assessment
10	Administration and Completion of Portfolio of Evidence	After completion of assessment

Step 1

Learner Assessment Contract

The assessor and / or the facilitator holds a pre-assessment briefing with you before the learning program starts in order to guide you and assist you to make sure that you understand exactly what is expected from you in order to become competent in this learning module.

As part of the pre-assessment briefing, the learner assessment contract must be signed. The assessor will assist you and explain the agreement to you in detail.

Learner Assessment Contract	
Learner's Name:	
Assessor's Name:	
Unit Standard:	116371
Your rights as a learner are: 1. You have a right to appeal against any judgment given as a result of any assessment. You must have valid reasons for doing this. 2. You have the right to an interpreter if you need one. However, if one of the learning assumptions for the unit standard is that you are competent within the language of assessment, you may not have an interpreter. 3. You can ask that an impartial observer attend any assessment. This observer may not take any part in the assessment. 4. If you do not agree with the assessment, you have the right to have your assessment internally moderated. If you still do not agree with the result of the assessment you can ask that the ETQA to perform an external moderation on the assessment. If any verification upholds the assessment findings, you will be held liable for all the costs of the verification. If any verification rules that you have been aggrieved as a result of the assessment, your assessor will be held liable for all cost of verification. 5. If during the assessment you are found not yet competent, your assessor will encourage you to master the areas where you have not reached competency. This will be recorded on a development plan. You are required to arrange with the assessor for a new assessment schedule. The assessor can only permit three such re-assessments. If a learner has not reached mastery after three additional attempts, the assessor reserves the right to remove you from the program.	
<u>Qualification</u> This standard leads to the award of credits for unit standard 116371. Once the assessment is complete application will be made to register and certify you for that standard with the AgriSETA. You may contact the assessor or facilitator at any time for information to assist you with further studies.	
<u>Confidentiality</u> Each assessment application, the outcomes, results and reviews will be treated as a confidential matter by you, the learner, the facilitator(s), assessor(s), and moderator(s). No references will be made to anyone or any organisation outside the SETA about the status of an application during the assessment process.	

Consent

I, the learner, hereby state that I have read the above and understood the contents thereof. I was given the opportunity to clarify any issues relating to the assessment process and my assessment plan. I have requested this assessment of my own free will and without duress.

Learner's Signature		Date:	
Assessor's Signature		Date:	



Step 2

Learner Declaration of Authenticity

It is important that we make sure that each learner supplies original evidence completed by himself / herself and according to the level of knowledge and skill that he / she has acquired from the learning process.

Please sign the following declaration:

I hereby declare that the following documentary evidence is my own. I certify that the process followed was ethical and did not infringe on the copyright of any individual or organisation.			
Learner's Signature		Date:	
Assessor's Signature		Date:	



Step 3

Learning Assumed to Be in Place

Do you have all the knowledge and skills necessary to begin this learning process?

This is a level 5 module of learning, and we have to make sure that you have already learnt all the skills, knowledge and attitudes that you will need to use in this module. It will help you to understand and learn more easily in this module, and it is important that we know whether you are ready to move on.

Please look at the list of unit standards below of modules that you should have completed before undertaking this one. Tell us whether you have completed each of the unit standards or modules, and if you did, tell us when you learnt this.

If you need help in understanding this list, please ask the facilitator or assessor.

<i>NQF Level</i>	<i>Unit Standard Number</i>	<i>Learning Module Name</i>	<i>No, I Have Not Completed It</i>	<i>Yes, I Have Completed It</i>	<i>If Yes, When Did You Complete It?</i>
NQF4	Literacy and Numeracy				
4	116311	Implement soil fertility and plant nutrition practices			
Learner's Signature		Date:			
Assessor's Signature		Date:			

Step 4

Learner Assessment Plan for Gathering of Evidence

As the assessor has explained to you, the aim of an assessment is not to catch you out, but rather to help you develop all the skills, knowledge and attitudes that you need to move forward. It is important that you know what is expected from you and that you play an active role every step of the way.

Let us plan for the assessment together. Below are the steps that you have to work through in order to show that you are competent in this module. Check them carefully and discuss each step with the assessor. Agree with the assessor on the dates on which each step has to be completed or documents handed in. Write the dates in the right-hand column as a reminder.

Learner Assessment Plan		
Module / Unit Standard Name:	Manage Soil Systems	
Module / Unit Standard Registration Number:	116371	
Step Number	Step Description and Learner's Tasks	Completion / Submission Date
5	Assessment Activity Workbook - In this step, you complete certain tasks in class or as homework. - It is important that you complete every task and understand why it is necessary, because it will help you to gain the knowledge, skills and attitudes that you need to be found competent in this learning module. - If there are things that you are unsure about, please ask the facilitator or the assessor to explain it to you again. - You hand in the completed workbook to the facilitator or assessor who will help you to check your progress. - The assessor or facilitator mark it and discuss areas that need more work with you.	
6	Multimedia Presentation - There are many important things that you need to remember about plant nutrition and soil management in order to be found competent in this learning module, and so that you can do your job well and move on to level six. - You have to present a multimedia presentation about the tasks set in the formative activities of this module. - There is a detailed list of things that you need to know in this guide and examples of the types of questions that you could be asked. - Please prepare yourself well and remember to ask the facilitator or assessor to explain anything that you do not understand.	

7	Practical Assessment - You have to develop very specific character traits and attitudes and have to be able to do very specific tasks to be competent in this learning module, be good in this job, and to be able to move on to level six. - Going out into the field, and showing and explaining certain skills and attitudes, is the most appropriate way for you to show that you are competent in the skills and attitudes that are needed. - You will have an opportunity to practice these tasks and develop these attitudes during your practical learning module. - There is a list of all the things that you would have to be able to show and explain in this guide. - Please prepare yourself well and remember to ask the facilitator or assessor to explain anything that you do not understand.		
8	Re-Assessment Procedure - What if the assessor tells you that you have not met the right standard or that you still need more evidence to prove your competence? - The assessor explains to you exactly what you need to do or learn to become competent. - You and the assessor and / or facilitator, develop an action plan together, and you may be granted a second or even a third opportunity to prove your competence. - Remember you have the right to appeal against the assessor's decision, if you feel it is unfair. There is a copy of the form in the back of this guide if you need it.		
9	Paperwork - If you have met the standard that is explained for each step of the process you will be found competent in this unit standard. - The assessor will discuss everything with you in detail and will ask you to fill in and sign forms throughout the process. - You will also be given an opportunity to write down any comments you might have on the assessment process. - Once the assessor has given you the final declaration of competence, you will be asked to give some feedback in order to help everyone to improve the learning and assessment process. - Please think carefully. It might really help other learners in the future.		
10	Administration and Completion of Portfolio of Evidence All the documents, or copies of them, must be kept on file as part of your portfolio of evidence.		
Into the Future - The assessor will discuss what happens next and when you will get a certificate of competence. - It is also important to remember that you learnt this module for a specific reason. Discuss with the assessor, facilitator, mentor, and / or coach how you can move forward in your career with this level of competence. - Also remember that the learning process never stops. Plan together with the assessor, facilitator, coach, and / or mentor what you need to learn next.			
Learner's Signature		Date:	
Assessor's Signature		Date:	

Step 5

Assessment Activity Workbook

- The activities that follow are designed to help you gain the skills, knowledge and attitudes that you need in order to become competent in this learning module.
- It is important that you complete all the activities and worksheets, as directed in the learner guide and at the time indicated by the facilitator.
- It is important that you ask questions and participate as much as possible in order to play an active role in reaching competence.
- When you have completed all the activities and worksheets, hand this workbook in to the assessor who will mark it and guide you in areas where additional learning might be required.
- You should not move on to the next step in the assessment process until this step is completed, marked and you have received feedback from the assessor.

Activity 1 – Worksheet
Complete the worksheet below in your own words.
Discuss the reasons why more than one method is used to determine the available P in soils.
What does the term K% on a soil analyses report mean?
A soil analyses report states that the pH (water) of a soil from a citrus orchard is 5.1. Discuss the evaluation of this value.
If an acid soil contains 15% Mg and 68% Ca, what type of lime is required?

Name and discuss the two major steps in the evaluation of leaf analyses results.
Why does a “normal” or optimum concentration of an element, such as nitrogen, in the leaf not always reflects an optimal status?
Apart from the leaf analyses report and the reference standards, what else is required to make a fertilisation recommendation?
Recordkeeping of leaf analyses is important for reaching an optimal nutritional status. Discuss this statement.
Name the reasons why the timing of the application of nitrogen to bearing citrus is so important.
The reasons to recommend split applications of nitrogen are based on a number of factors. Name one.
Single or double super phosphates are applied in a narrow strip below the drip line of the trees. Name two reasons for this practise.

Name one main difference between the applications of nutrients when using drip and micro-jet irrigation.

The application of foliar sprays with urea is sometimes recommended for July and/or October. What are the reasons for the July and October sprays?

Apply the following information to evaluate the leaf and soil analyses and formulate fertilisation recommendations for orchard C:

Sunshine Farm

Hoedspruit, Limpopo

Orchard Information – Citrus

Orchard Information

Orchard Number:	C	Type of irrigation:	Micro-jets
Cultivar:	Navels	Fertigation:	No
Selection:	Washington	Trees per Ha:	400
Rootstock:	Rough lemon	Planting date:	Oct 1983
Sampling Date:	11 March 2005		

Crop Information

Yield – Previous Season:		40t/ha	
Yield – Estimate This Season:		50t/ha	
Fruit size:	Too small	Juice %:	OK
Skin Quality/Colour:	OK	Acid %:	Too low
TSS:	OK	Physiological Disorders:	None

Fertilisers Applied (g or ml/tree)

Type	Quantity	Date	Quantity	Date	Quantity	Date
LAN	750g	Jul 05	350g	Aug 05	150g	Sep 05
Gypsum	2000g	Aug 05				

Foliar Sprays Applied(g or ml per 100 litres water)

Type	Quantity	Date	Quantity	Date	Quantity	Date
Low Biuret Urea	1000g	Jul 05				
Zinc Nitrate	150ml	Oct 05				
Manganese Sulphate	200g	Oct 05				

FERTILISATION PROGRAM – CITRUS			
Orchard:		Size:	
Cultivar/Variety:		Trees per ha:	
<i>Fertiliser</i>		<i>Quantity</i>	<i>Time of Application</i>
Soil Applications		g per tree	
Foliar Sprays		g per 100l water	
Remarks:			

Use the fertilisation programs for orchards A and E in the example, and the fertilisation program compiled above for orchard C to compile the following soil application programs.

SOIL APPLICATION PROGRAM							
Month:	July 2006						
Product:	Limestone Ammonium Nitrate (LAN)						
Orchard	Size (ha)	Trees per ha	*Total Trees	Recommend (g per tree)	**Total Recommend per Orchard (kg)	Applied (g per tree)	Total Applied per Orchard
Total							

SOIL APPLICATION PROGRAM							
Month:	October 2006						
Product:	Potassium Chloride (KCL)						
<i>Orchard</i>	<i>Size (ha)</i>	<i>Trees per ha</i>	<i>*Total Trees</i>	<i>Recommend (g per tree)</i>	<i>**Total Recommend per Orchard (kg)</i>	<i>Applied (g per tree)</i>	<i>Total Applied per Orchard</i>
Total							

Use the fertilisation programs for orchards A and E in the example, and the fertilisation program compiled above for orchard C to compile the following foliar application program.

FOLIAR APPLICATION PROGRAM							
Month:	July 2006						
Product:	Low Biuret Urea						
<i>Orchard</i>	<i>Size (ha)</i>	<i>Litres per ha</i>	<i>*Total Litres</i>	<i>Recommend (g per 100l)</i>	<i>**Total Recommend per Orchard (kg)</i>	<i>Applied (g per ha)</i>	<i>Total Applied per Orchard</i>
Total							

Use the information provided in the example in section 3 and calculate the efficiency rate if the yield for the orchard was 40 tons per hectare. Assess the efficiency rate and discuss possible causes for it.

Obtain a soil or leaf analyses report from the farm where you are completing your practical duties. Complete the worksheet below.

The image contains two logos. The top logo is for 'citrus academy' in a green, lowercase, sans-serif font. The bottom logo is for 'CRW' in a grey, uppercase, sans-serif font, with a stylized circular icon to its left that is divided into four colored segments (red, yellow, green, and blue).

Make recommendations in terms of nutrient additions to the soil based on the report. Motivate your recommendations.

Draw a flow diagram to explain how and why the nutrient requirements of a specific variety of citrus, grown on the farm where you are completing your practical duties, changes over a year.




Complete the worksheet below in your own words.

[illegible]

From a survey, the following soil properties were identified as not being optimal and in need of attention. Evaluate the soil utilisation plan and make final recommendations.

<i>Property That Need to Be Corrected / Managed</i>	<i>Implications If Not Corrected</i>	<i>Possible Corrective Action</i>	<i>Recommendation</i>
pH (water) is 5.84	Retarded root development. Very difficult to mix to acceptable depth after planting.	Apply 8,000 kg calcitic lime per ha 50cm deep.	
Salt content is high (150 ohms) at a depth of 80cm	The salts are deep down in the profile and if not brought to the surface during soil preparations, should be harmless.	Do not mix the soil in a down-up-manner and keep the salts at the bottom	
P (bray 1) = 2mg/kg	Retarded root development. Very difficult to mix to acceptable depth after planting.	Apply 1,250kg single supers per ha 50cm deep	
The soil is layered. 0-25cm contains 17%, 25-35cm 5%, 35-80cm 20% and 80+cm 38% clay .	Restricted water movement and root penetration.	The 0 to 60cm layer must be mixed to destroy the sandy layer at 25 to 35cm, but do not bring the soil below 60cm to the surface.	
Potential effective rooting depth is 70cm	Suitable for micro-jets and drippers provided the other limitations are corrected.	Create a homogeneous layer of soil from the top to 50 or at the deepest 60cm deep.	

As a guideline the minimum soil depth is set at 500mm. What other factors will influence this decision?

Why is it better to incorporate the P-sources and liming material before planting?

Activity 5 – Worksheet

Complete the worksheet below in your own words.

Use the databases below to make recommendations for the application of lime and potassium. The minimum for pH (water) is 6.00 and for potassium 150mg/kg.

<i>Orchard</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
5	6.71	6.62	6.46	6.31	6.17	5.94
6	5.56	5.88	6.43	6.31	6.16	6.05
7	5.89	6.42	6.58	6.44	6.37	6.31
8	6.33	6.52	6.34	6.37	6.24	6.17

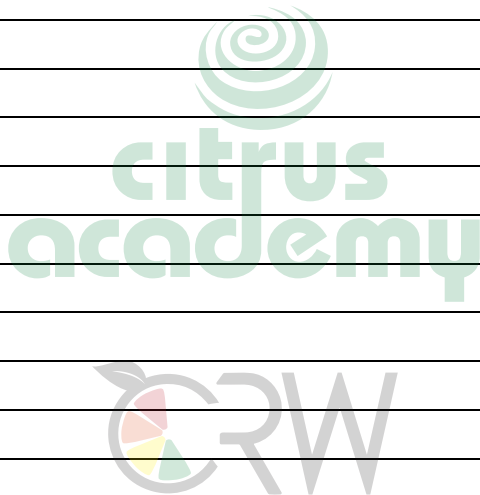
<i>Orchard</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
5	121	152	182	195	164	154
6	165	173	154	179	166	172
7	201	276	234	251	244	221
8	174	169	174	180	176	170

Name two fixed, two temporary variable and two variable soil properties.

How is fruit analyses data recorded?

Why are samples to determine the fixed properties taken more than once?

For a citrus orchard on the farm where you are completing your practical duties, find a soil map and all the available soil information to date. This may include initial soil analyses reports and all records of actions taken. Attach all the documents to your workbook and answer the questions below.

The image contains two logos. The top logo is for 'citrus academy', featuring a green spiral icon above the word 'citrus' in a bold, lowercase sans-serif font, with 'academy' in a smaller, lowercase sans-serif font below it. The bottom logo is for 'CRW', featuring a stylized circular icon with a leaf and three colored segments (red, yellow, green) next to the letters 'CRW' in a large, bold, sans-serif font.[illegible]

Activity 7 – Worksheet

Complete the worksheet below in your own words.

Name the five phases of the life of a citrus orchard.

Name two important actions that need to be done during each phase.

Evaluate the following nutrient management plan:

<i>Type</i>	<i>Quantity Date</i>	<i>Quantity Date</i>	<i>Quantity Date</i>	<i>Quantity Date</i>
LAN	2x400g Jul 06	350g Aug 05	250g Sept	
KCl	250g Oct 06			

<i>Type</i>	<i>Quantity Date</i>	<i>Quantity Date</i>	<i>Quantity Date</i>	<i>Quantity Date</i>
Low Biuret Urea	1000g Jul 06	1000g Oct 05		
Copper Oxychloride	150g Jul 06			
Manganese Sulphate	2x200g Oct 06			
Zinc Nitrate	150ml Oct 06			

Name the two main soil preparation methods used in citriculture.

Describe the preparation procedures of a ridge.

When lime is required, the application will be recommended before the pH of the soil in an existing orchard reaches the acid range of <6.00. What are the reasons?

Activity 8 – Mind Map

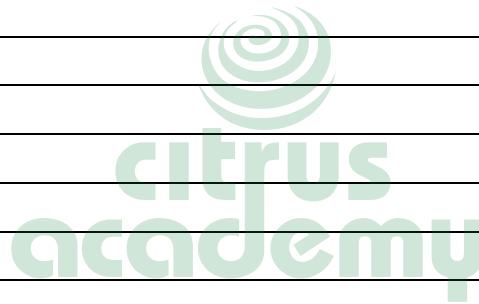
Draw a mind map to explain what a soil system management plan consists of and how it is applicable to the farm where you are completing your practical duties.



Refer to the soil map and initial analyses reports that you obtained for activity 6. Design a soil system management plan for the specific orchard.

[illegible]

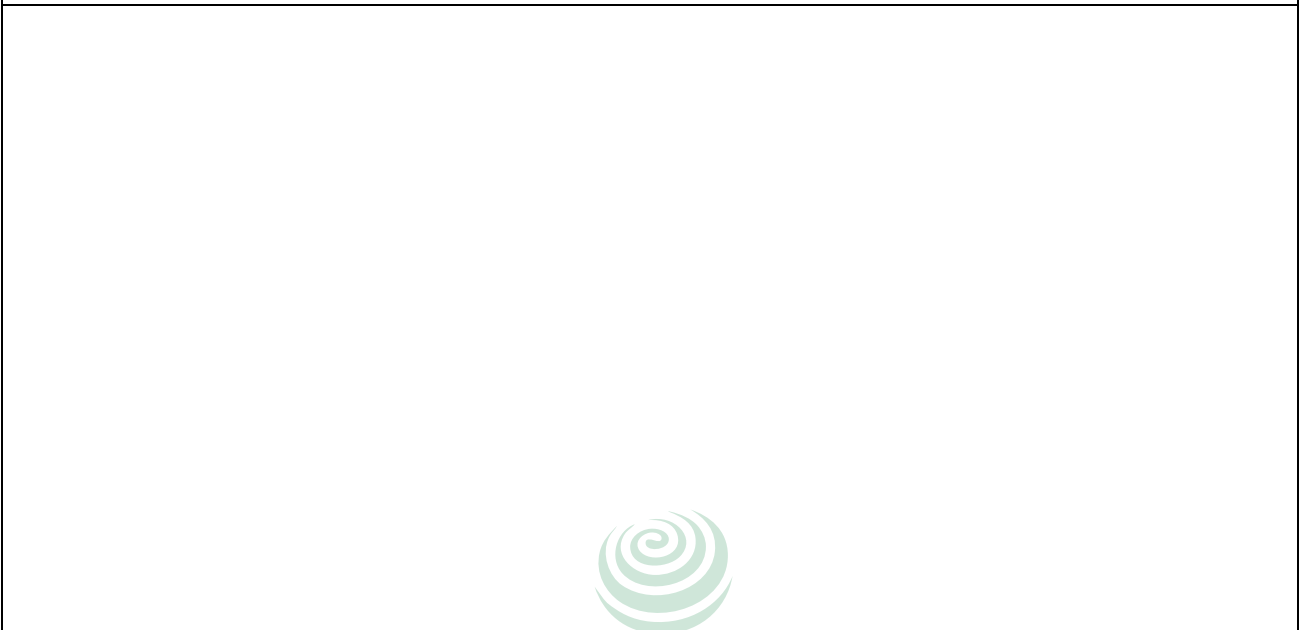
Now swap your soil system management plan with a class mate. Write a brief report on your class mate's plan with reference to sustainability. Motivate your report findings and suggest improvements.



Activity 10 – Worksheet

Complete the worksheet below in your own words.

Draw a diagram in which you explain the links between a nutrient management plan and soil conservation, water availability and crop requirements respectively.



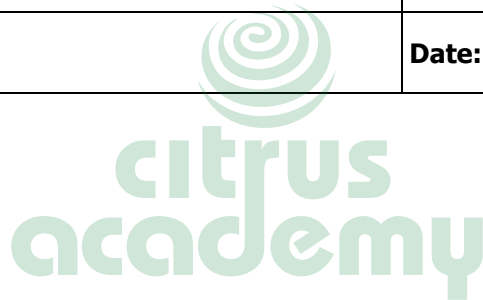
Explain in your own words how you would determine if a nutrient management plan is suitable in terms of:

- Soil conservation

- Water availability

- Crop requirements

Assessment Feedback Form – Activity Workbook			
		Comments / Remarks	
Feedback to learner on assessment			
Feedback from learner to assessor			
Learner's Signature		Date:	
Assessor's Signature		Date:	



Step 6

Strategy Design and Database Development

You are now ready for step six of the assessment process, the design of a soil management strategy and creation of a database to support it. Check your plan carefully to make sure that you prepare in good time.

You have to score an overall mark of at least 85% in this project in order to be found competent.

Inform the assessor if you have any special needs or requirements **before** the agreed date for the assessment project. You might, for example, require an interpreter to translate the questions to your mother tongue. Please write your request down in your activity workbook on the front page and explain why you have made this request. Ask the assessor to sign next to your request to prove that they are aware of your special request.

Use this checklist to help you design this strategy and its database. These are examples of possible questions that might help you to organise your thoughts before attempting the design of the project. All the information you need was taught in the classroom and can be found in the learner guide that you received.

<i>Example Questions</i>	<i>I Have Revised This and Understand It Well</i>	<i>I Am Unsure of This and Need to Ask the Facilitator or Assessor to Explain It Again</i>
What does soil management mean?		
Why is soil management a priority?		
What does soil management address?		
What does soil management achieve?		
Whose responsibility is a soil management strategy?		
How can soil management strategies be implemented viably, sustainably and profitably?		
What are the main components of a soil management plan?		
How do the components of the soil management plan link logically?		
How long does a soil management plan run?		
What has to be kept on record for a soil management plan to be successful?		
What information is gained from the records/data kept during a soil management plan?		
Does the information gained from the records/data kept during a soil management plan allow you to make any adjustments to your plan?		
The assessor or facilitator has explained this step to me and I have revised these questions.		
Learner's Signature		Date:
Assessor's Signature		Date:

The assessor will give you feedback on the test and guide you if there are areas in which you still need further development.



Step 7

Attitudes and Attributes Assessment

You are now ready for step seven of the assessment process, the Attitude and Attribute assessment. Check your plan carefully to make sure that you prepare in good time.

Inform the assessor if you have any special needs or requirements before the agreed date for the assessment test. You might, for example, require an interpreter to translate the questions to your mother tongue, or you might need to take this test orally. Please write your request down in your activity workbook on the front page and explain why you have made this request. Ask the assessor to sign next to your request to prove that they are aware of your special request.

Use the checklist below to help you prepare for the part of the practical assessment when you are observed on the attitudes and attributes that you need to have to be found competent for this learning module.

<i>Observations</i>	<i>I Am Sure of This and Understand It Well</i>	<i>I Am Unsure of This and Need to Ask the Facilitator or Assessor to Explain What It Means</i>
Can you identify problems and deficiencies correctly?		
Are you able to work well in a team?		
Do you work in an organised and systematic way while performing all tasks and tests?		
Are you able to collect the correct and appropriate information and / or samples as per the instructions and procedures that you were taught?		
Are you able to communicate your knowledge orally and in writing, in such a way that you show what knowledge you have gained?		
Can you base your tasks and answers on scientific knowledge that you have learnt?		
Are you able to show and perform the tasks required correctly?		
Are you able to link the knowledge, skills and attitudes that you have learnt in this module of learning to specific duties in your job or in the community where you live?		

- The assessor will complete a checklist that gives details of the points that are checked and assessed by the assessor.
- The assessor will write commentary and feedback on that checklist. They will discuss all commentary and feedback with you.
- You will be asked to give your own feedback and to sign this document.
- It will be placed together with this completed guide in a file as part of your portfolio of evidence.

Step 8

Re-Assessment Procedure

The assessor will discuss in detail with you what to do in case you require a re-assessment, and when the re-assessment will take place.



Step 9

Paperwork

Please assist the assessor by filling in these forms and signing then as instructed.

Learner Information Form			
Unit Standard	116371		
Program Date(s)			
Assessment Date(s)			
Surname			
First Name			
Learner ID / SETA Registration Number			
Job / Role Title			
Home Language			
Gender	Male	Female	
Race	African	Coloured	Indian/Asian White
Employment	Permanent	Non-permanent	
Disabled	Yes	No	
Date of Birth			
ID Number			
Contact Telephone Numbers			
Email Address			
Postal Address			

Assessor Report and Summative Evidence Collection Summary for Unit Standard 116371– Level 5					
Description	Evidence Gathered		Benchmark	Competent / Not yet Competent	Feedback and Comments
	Foundational and Embedded Knowledge	Practical Skills, Underpinning Knowledge and Reflexive Competence			
Specific Outcome 1: Interpret soil and leaf analysis and make appropriate nutrient application recommendations <i>Range:</i> A recommendation refers to nutrient application, which includes but is not limited to agrochemical or organic nutrient material	Formative Activities Summative Presentation	Formative Activities Summative Presentation	85% competence in all areas		
Specific Outcome 2: Optimise soil utilisation plan according to crop and soil requirements <i>Range:</i> Soil utilisation plan refers to but is not limited to crop establishment and can include conservation areas and infrastructure planning, taking into account soil depth, drainage, infiltration rate, pH, water holding capacity, field capacity, soil horizons, soil aeration, erosion danger, organic content, active biomass, texture, clay content, structure, biological content, compaction, CEC, CAC, nutrient content, C:N ratios	Formative Activities Summative Presentation	Formative Activities Summative Presentation	85% competence in all areas		

Assessor Report and Summative Evidence Collection Summary for Unit Standard 116371– Level 5					
Description	Evidence Gathered		Benchmark	Competent / Not yet Competent	Feedback and Comments
	Foundational and Embedded Knowledge	Practical Skills, Underpinning Knowledge and Reflexive Competence			
Specific Outcome 3: Keep all records regarding soil properties and use to build a database for future reference <i>Range:</i> Records refer to but not limited to leaf, soil and fruit analysis, soil maps and observations of soil properties and crop yields	Formative Activities Summative Presentation	Formative Activities Summative Presentation	85% competence in all areas		
Specific Outcome 4: Design a soil system management strategy <i>Range:</i> Soil systems refer to but are not limited to soil maps, field histories, slope / contours, mulching, application of nutrients, soil preparation techniques, rehabilitation, erosion control measures, compaction control measures, controlled traffic, and crust formation control measures, chemical, physical and biological properties	Formative Activities Summative Presentation	Formative Activities Summative Presentation	85% competence in all areas		
Specific Outcome 5: Create and implement a database for soil management	Formative Activities Summative Presentation	Formative Activities Summative Presentation	85% competence in all areas		
Embedded Knowledge: The learner is able to demonstrate a basic knowledge of: 1. Sampling procedures 2. Chemical, properties of soil – pH, nutrient	Formative Activities Summative Questionnaire	Formative Activities Summative Presentation	Overall minimum test score of 85%		

Assessor Report and Summative Evidence Collection Summary for Unit Standard 116371– Level 5					
Description	Evidence Gathered		Benchmark	Competent / Not yet Competent	Feedback and Comments
	Foundational and Embedded Knowledge	Practical Skills, Underpinning Knowledge and Reflexive Competence			
status and degradation, C:N relation in soil, Cation Exchangeable Capacity, Cation Absorptive Capacity, Buffering capacity, etc. 3. Physical properties of soil – texture, structure, soil profiles, crust formation, erosion types, compaction, and degradation 4. Biological properties and processes of soil 5. Soil ecology – soil organisms, food webs, role of water and oxygen in soil 6. Soil health and conservation 7. Role of living organisms 8. Conservation practices – runoff control, contours, etc. 9. Tillage operations – mechanical, non-mechanical, organic, minimum and zero tillage 10. Application of nutrients – liquid and solid 11. Soil preparation – primary and secondary soil preparation methods, mulching 12. Soil preparation and fertiliser application equipment 13. Nutrients – mixtures, limes, calcitic and dolomitic lime, single nutrients and compost, liquids, etc. 14. Calibration of equipment 15. Characteristics of the nutrients					

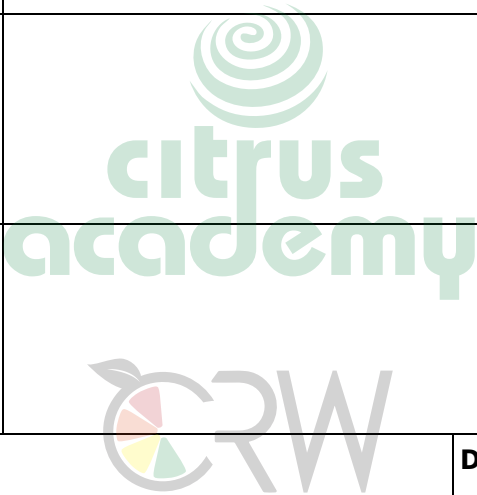
Assessor Report and Summative Evidence Collection Summary for Unit Standard 116371– Level 5					
Description	Evidence Gathered		Benchmark	Competent / Not yet Competent	Feedback and Comments
	Foundational and Embedded Knowledge	Practical Skills, Underpinning Knowledge and Reflexive Competence			
16. Role of nutrients in the plant 17. Rules and regulations for transport, storage and handling of agro-chemicals					
Unit Standard CCFOs: 1. Problem solving relates to all specific outcomes 2. Teamwork relates to all specific outcomes 3. Self-management relates to all specific outcomes 4. Interpreting information relates to all specific outcomes 5. Communication relates to all specific outcomes 6. Use science and technology relates to all specific outcomes 7. The world as a set of inter-relatedness systems relates to all specific outcomes 8. Self development relates to all specific outcomes	N/a	Rating Scale	Minimum rating of 3:5 in each criteria or overall average of 3:5		

Learner Assessment Re-Actionnaire			
Questions		Response	
How did the assessor encourage you to be involved in the assessment process?			
Did the assessor take your special needs into account? If so, how?			
Did the assessor agree on the assessment procedures with you?			
Was feedback relevant to your needs?			
Were you always aware of the outcome of the assessment?			
Did the assessor help you to explore ways of becoming competent whenever you were judged NYC?			
Did the assessor allow you to ask questions?			
Did you always agree with assessment decisions?			
Was all appropriate documentation completed and signed and did you receive copies?			
Did the assessor assist or prevent you in any way when gathering evidence so as to obscure its authenticity?			
All the evidence submitted in my name is my authentic work, which was not acquired by any unethical means.			
Learner's Signature		Date:	
Assessor's Signature		Date:	
Moderator's Signature		Date:	

Assessor's Assessment Review and Improvement Document	
Issues	Comments
Did the assessment go according to plan?	
Did anything unexpected happen?	
Were you pleased with the assessment decision; i.e. was it what you expected?	
How could the process have been carried out more efficiently?	
How could the process of assessing the knowledge be improved?	
How could the Performance Observation checklist be improved?	
Was the evidence you gathered sufficient to make a judgment of competence?	
Was the way you obtained feedback from the learner effective?	
Were you pleased with the way you communicated your decision to the learner? If not, how could this have been improved?	
How would you improve the assessment process?	

Assessment Appeal Form

Any candidate has the right of appeal against any not-yet-competent decision by the assessor. If you wish to appeal, please complete the form below.

Appeal Form			
I hereby appeal against the outcome of my assessment.			
Date:			
Learner's Name:			
Assessors Name:			
Organisation:			
Assessment Details: Criteria, role, standards Used, etc.			
Issue to be Reviewed:			
Learner's Signature		Date:	
Assessor's Signature		Date:	

Step 10

Administration and Completion of Portfolio of Evidence

All the documents or copies thereof, as prescribed previously, must be kept on file as part of the learner portfolio of evidence.

