

ASSESSMENT GUIDE FOR LEARNERS & LEARNER WORKBOOK

Plant Nutrition & Soil Management

Level 3

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Title:		Manage Soil Fertility and Plant Nutrition					
Applied Title:		Manage Soil Fertility and Plant Nutrition in a Citrus Production Environment					
Field:		Agriculture and Nature Conservation					
Sub-Field:		Primary Agriculture					
SETA (SGB):		AgriSETA					
Skills Area:		Plant Nutrition and Soil Management					
Context:		Citrus Production					
US No:	116267	Level:	3	Credits:	5	Notional Hours:	50
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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	Knowledge Questionnaire	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:	116267
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 116267. 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 3 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>
2 (ABET 4)	Literacy and Numeracy				
2	116053	Understand basic soil fertility and plant nutrition			
3 (F)	116269	Supervise the collection of agricultural data			
3	116218	Explain the planning and scheduling of tasks in a production environment			
3	116214	Interpret factors influencing agricultural enterprises and plan accordingly			
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 Fertility and Plant Nutrition	
Module / Unit Standard Registration Number:	116267	
<i>Step Number</i>	<i>Step Description and Learner's Tasks</i>	<i>Completion / Submission Date</i>
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	Knowledge Questionnaire - 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 four. - You have to do a questionnaire to check if you have gained all this knowledge. - 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 four. - 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 – Group Activity

Develop and draw a flow diagram of the steps that you would follow when you need to apply a granular fertiliser.

Discuss these steps in your group according to the principles below, and make notes for yourself:

Possible risk areas for the personal safety of the staff who is involved in the process.

Possible mistakes that can be made in the process and what the financial consequences of those mistakes might be.

Possible impacts that the process or mistakes in the process might have on the ecological environment.

Activity 2 – Case Study

Joe is a citrus farmer in the Limpopo province of South Africa. Two years ago he upgraded his irrigation system to a micro-jet system. Last year he changed from manual fertiliser to a fertigation system. He has found that the system works very well in some areas of his farm, but in a small area there are some problems.

He decided to resolve the plan step-by-step. He went out and beaconed off the exact area where the problems are experienced. Then he checked exactly what kinds of problems were occurring. He identified the following:

Indicator: Two-year old and older leaves on the trees

Symptoms: A large number of the old leaves have a light yellow colour. These leaves started yellowing just before or during a new leaf flush with some immediate leaf drop after that.

Deficiency Identified: Nitrogen (N)

He then decided to consult an expert and increase the application of nitrogen (N) and potassium (K) in his fertigation program. Unfortunately the problem still did not improve. Then he decided to take some soil samples to see whether there might be any clues to be found in the soil. The laboratory results showed that the pH of the soil was high and that the clay content of the soil was also quite high. He then decided to include a super phosphate in his fertigation program, which helped to alleviate the problem.

Now answer the questions below:

What was the first indication that Joe had that there is a problem?

Explain in your own words what steps Joe followed to try and identify the reasons for the problem.

What would you have done differently?

Do you think that Joe came to the correct conclusion and applied the correct solution to the problem? Motivate your answer.

Activity 3 – Worksheet

Complete the worksheet below.

Name three important considerations when calibrating for manual soil applications of granular fertilisers.

Name three major considerations when calibrating equipment to apply foliar nutrient sprays.

Name the most important issue when applying fertilisers (nutrient solutions) by means of fertigation through micro-jets.

Activity 5 – Worksheet

Discuss the questions below with a partner and write down the conclusions that you reach.

Why is it important to keep records of samples? What do you think these records could be used for?

What could happen if no records were kept of samples?

Activity 6 – Worksheet

Complete the worksheet below.

What will the result be of too high concentrations of the following elements on the quality of citrus fruit?

Nitrogen	
Phosphorus	
Potassium	

Apart from increasing the application rate of fertilisers, how can a too low status of the following nutrient elements be corrected?

Nitrogen	
Potassium	
Iron	

Activity 7 – Group Brainstorm

Brainstorm as a group and find answers to the questions below. You may refer to your level 2 learner guide if necessary.

What are the physical soil properties?

What are the chemical soil properties?

What kinds of impact might these properties have on plants and plant nutrition?

The impact that we have discussed above may be direct or indirect. The impact of physical properties is mostly indirect, while the impact of chemical properties is mostly direct. Give a practical example of a direct impact that the chemical properties of soil might have on the nutrition of a plant?

Give a practical example of an indirect impact that the physical properties of soil might have on the nutrition of a plant?

Activity 8 – Worksheet

Complete the worksheet below.

Give reasons why the following physical and chemical properties of soils will impact on plant nutrition.

Physical Properties

Texture

Structure

Soil Layering

Soil Depth

Aeration

Chemical Properties

pH

Resistance

Salinity

Organic Material

Fertility

Activity 9 – Worksheet

Complete the worksheet below.

Describe the positioning of a profile pit.

Describe the major components of a soil profile.

Describe the use of profile pits to initiate a soil map.

Activity 10 – Group Activity

In your group, revise what you have already learnt about soil preparation by drawing a mind map. Refer to your level 2 learner guide is necessary.



Discuss the questions below in your group and complete.

What are the different methods of soil preparation?

What do you know about mechanical soil preparation?

What do you know about non-mechanical soil preparation?

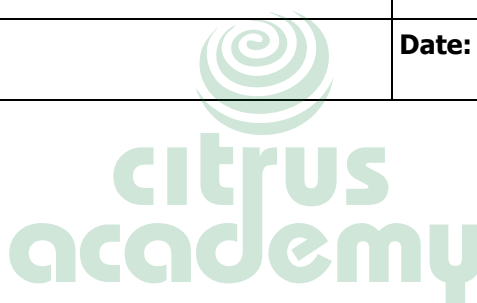
Activity 11 – Worksheet

Complete the worksheet below.

What is the basic requirement of the soil in the root zone?

How will layering restrict root development?

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

Knowledge Questionnaire

You are now ready for step six of the assessment process, the knowledge questionnaire. 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 questionnaire in order to be found competent.

Inform the assessor if you have any special needs or requirements **before** the agreed date for the assessment questionnaire. You might, for example, require an interpreter to translate the questions to your mother tongue, or you might need to take this questionnaire 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 this checklist to help you prepare for the questionnaire. These are examples of possible questions that might appear in the questionnaire. 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>
Explain how you would mix fertiliser to apply through: • A dripper system (fertigation) • Foliar application		
Explain in your own words what calibration means?		
Make a list of equipment that would need to be calibrated during the fertilisation process.		
What does the zeroing of a scale have to do with calibration?		
Do you think that a general farm worker is involved in the calibration of fertilisation equipment? Explain your answer.		
Write a job card in order to explain the following to another member of your team: "Collect 100 kilograms of Manganese Sulphate for application as a foliar spray in a dose of 200 grams per 100 litres of water."		
In your own words, describe why you think it would be important to take samples of each of the following: • Leaves • Soil		
Explain whose duty the taking of the following samples would be on a citrus farm: • Leaves • Soil		
Describe briefly in your own words how to take a leaf sample.		
Describe briefly in your own words how to take a soil sample.		

Example Questions	<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>
Describe in detail what happens to a sample after it has been taken.		
Give an example of one service provider who can help you with the analysis of leaf and soil samples.		
Explain the physical properties of soil in your own words.		
Explain the chemical properties of soil in your own words.		
What would happen if: - You applied a foliar spray with a mist blower on a windy day? - You applied a too strong fertiliser mix to your orchard? - You forgot to fertilise as per recommendations?		
What would be your recommendation for soil preparation if: - There is a very hard rock layer approximately 30cm under the topsoil. - There is a distinct colour difference between soil horizons at a depth of 60cm.		
What would be the visible defect in a citrus tree if there was too little of the following macro nutrient element available: - Nitrogen - Phosphorous - Potassium - Calcium		
What would be the visible defect in a citrus tree if there were too little of the following micro nutrient element available: - Boron - Zinc - Iron - Manganese		
What is the purpose of mulching?		
Why would we add compost to soil in a citrus orchard?		
Do you think that adding fertiliser to soil can improve the soil? Explain your answer in detail.		
Explain in your own words what does it mean to rip soil?		
Do you think that all soil should be ripped? Explain your answer.		
Do you think that you should till all soil? Explain your answer.		
Explain in your own words what you understand by the term soil ecology?		
Give a practical example on a citrus farm of how soil health and soil conservation can be promoted.		
Explain in your own words what you understand by the term run-off control.		
Explain what role contours can play in soil conservation practices on a citrus farm.		

Example Questions		<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>
Do you think that soil preparation that stops as soon as you have completed the primary preparation of the soil, in other words, when you are ready to plant you Citrus trees for the first time? Motivate your answer.			
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 questionnaire and guide you if there are areas in which you still need further development.



Step 7

Practical Assessment

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

- This part of the assessment requires you to go into the orchard and practically show the assessor that you can perform specific tasks correctly.
- The assessor will also ask you questions about the tasks that you are required to perform to make sure that you understand it well.
- Remember that this module of learning also helps you to develop certain attitudes and personality traits. The assessor will ask you specific questions and observe you throughout the process to judge whether you have developed these.
- You will have to score an overall mark of at least 85% in every section of this practical assessment in order to be found competent.
- You will also need to score a minimum mark of three out of five for the attitudes and attributes section in order to be found competent.

Inform the assessor if you have any special needs or requirements before the agreed date for the assessment questionnaire. You might, for example, require an interpreter to translate the questions to your mother tongue, or you might need to take this questionnaire 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 practical assessment. This is a list of the skills that you may be asked to show. You will be asked specific questions regarding these tasks and the knowledge that you need to apply in order to do it correctly. All the information you need was taught in the classroom and you should have practiced them during the practical part of your learning.

As part of your learning in this module, you will be required to perform practical duties on a citrus farm, concerned with soil management and plant nutrition activities on a citrus farm. You have to take part in the following activities, during this practical learning time period:

<i>Tasks and 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>
Task 1: Prepare for soil nutrient applications using specialised equipment		
• The ability to use specialised equipment is demonstrated		
• The ability to calibrate specialised equipment is demonstrated		
• The ability to collect the appropriate nutrients for application from storage facilities is demonstrated		

Tasks and Questions	<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>
Task 2: Supervise the collection of samples, storage and dispatch of samples to appropriate service providers		
The ability to take and handle leaf, soil and fruit samples according to prescribed procedures are demonstrated		
The process of recording and dispatching the samples to the appropriate service provider is explained		
Task 3: Identify and interpret symptoms of nutritional deficiencies in various crops and make basic recommendations		
The relationship between plant abnormalities and deficiencies of specific macro- and micro- nutrients is explained		
Basic recommendations for improving soil fertility are made		
Task 4: Supervise and implement soil preparation and remediation		
An understanding of the special cultivation needs of various soils is demonstrated		
Appropriate implements and/or methods for soil preparation are selected		

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.

Observations	<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?		

<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>
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

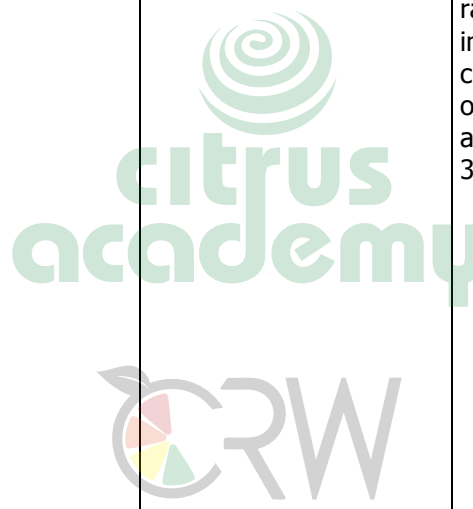
Please assist the assessor by filling in these forms and signing then as instructed.

Learner Information Form			
Unit Standard	116267		
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 116267– Level 3					
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: Prepare for soil nutrient applications using specialised equipment <i>Range:</i> Nutrient application refers to but is not limited to fertiliser or compost spreaders and planters	Summative Questionnaire	Observation checklist of practical tasks integrated with knowledge and reflexive competence questionnaire	85% competence in all areas		
Specific Outcome 2: Supervise the collection of samples, storage and dispatch of samples to appropriate service providers <i>Range:</i> Samples for leaf, soil and fruit analysis	Summative Questionnaire	Observation checklist of practical tasks integrated with knowledge and reflexive competence questionnaire	85% competence in all areas		
Specific Outcome 3: Demonstrate an understanding of the properties of soil and how these impact on plant nutrition and soil preparation <i>Range:</i> Soil properties may include chemical, physical and biological properties	Summative Questionnaire	Observation checklist of practical tasks integrated with knowledge and reflexive competence questionnaire	85% competence in all areas		

Assessor Report and Summative Evidence Collection Summary for Unit Standard 116267– Level 3					
Description	Evidence Gathered		Benchmark	Competent / Not yet Competent	Feedback and Comments
	Foundational and Embedded Knowledge	Practical Skills, Underpinning Knowledge and Reflexive Competence			
Specific Outcome 4: Identify and interpret symptoms of nutritional deficiencies in various crops and make basic recommendations <i>Range:</i> Macronutrients may include among others nitrogen, phosphorous, potassium and calcium. Micronutrients may include among others boron, zinc, iron and manganese. Simple recommendations on steps to correct nutrient deficiencies	Summative Questionnaire	Observation checklist of practical tasks integrated with knowledge and reflexive competence questionnaire	85% competence in all areas		
Specific Outcome 5: Supervise and implement soil preparation and remediation <i>Range:</i> Soil preparation methods refer to mechanical and non-mechanical approaches, minimum tillage, no tillage and both primary and secondary soil preparation. Remediation includes methods of dealing with acidity and aluminium or iron toxicity, water logging, compost making, etc.	Summative Questionnaire	Observation checklist of practical tasks integrated with knowledge and reflexive competence questionnaire	85% competence in all areas		

Assessor Report and Summative Evidence Collection Summary for Unit Standard 116267– Level 3					
Description	Evidence Gathered		Benchmark	Competent / Not yet Competent	Feedback and Comments
	Foundational and Embedded Knowledge	Practical Skills, Underpinning Knowledge and Reflexive Competence			
Embedded Knowledge: The learner is able to demonstrate a basic knowledge of: 1. Sampling procedures 2. Chemical, properties of soil – pH, nutrient status 3. Physical properties of soil – texture, structure, soil profiles 4. Biological properties of soil 5. Soil ecology e.g. 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 9. Tillage operations – mechanical, non-mechanical, organic, minimum and zero tillage and application of nutrients (liquid and solid) 10. Primary and secondary soil preparation methods 11. Soil preparation and fertiliser application equipment 12. Nutrients – mixtures, limes, calcite and dolomite lime, single nutrients and compost, liquids, etc. 13. Calibration of equipment	Summative Questionnaire	N/a	Overall minimum test score of 85%		

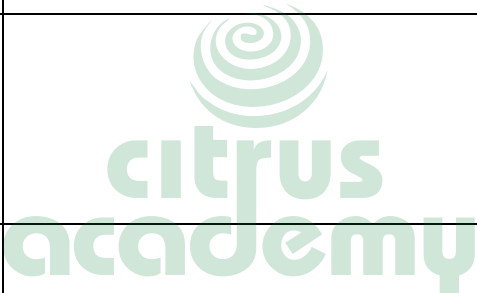
Assessor Report and Summative Evidence Collection Summary for Unit Standard 116267– Level 3					
Description	Evidence Gathered		Benchmark	Competent / Not yet Competent	Feedback and Comments
	Foundational and Embedded Knowledge	Practical Skills, Underpinning Knowledge and Reflexive Competence			
Unit 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.

