



LEARNER WORKBOOK

Pest, disease and weed management



Title:	Control Pests, Diseases and Weeds on All Crops Effectively and Responsibly						
Applied Title:	Control Pests, Diseases and Weeds on subtropical fruit Effectively and Responsibly						
Field:	Agriculture and Nature Conservation						
Sub-Field:	Primary Agriculture						
SETA (SGB):	AgriSETA						
Skills Area:	Pest, disease & weed management						
Context:	Subtropical fruit Production						
US No:	116124	Level:	2	Credits:	2	Notional Hours:	40
Author:	Cabeton Training & development et al						
Adaptation:	T. Bekker						

This material is adapted from production learning material developed by and under license from:



Disclaimer

By accepting this document and reading its contents you agree to be bound by the terms of this disclaimer.

The use of the contents of this document is at your own risk. The Citrus Academy does not warrant that the content of this document is suitable for your intended use or that it is free of inaccuracies or omissions. The opinions and advice expressed in this document are not necessarily those of the Citrus Academy. The Citrus Academy, its directors, officers, employees, agents and contractors shall not be liable for any loss or damage of any nature suffered by any person as a direct or indirect result of the use of, or inability to use any advice, opinion or information contained in this document, or any misrepresentation, misstatement or omission, whether negligent or otherwise, contained in this document.

You indemnify the Citrus Academy against any claim by any third party against the Citrus Academy, its directors, officers, employees, agents or contractors arising from, or in connection with, the use of, or reliance on, the contents of this document. It is your responsibility to determine suitability of the contents of this document for your intended use.

Table of Contents

Directions	4
Step 1	5
Step 2	7
Step 3	8
Step 4	9
Step 5	11
Step 6	23
Step 7	25
Step 8	27
Step 9	28
Step 10.....	35

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:

<i>Step</i>	<i>Description</i>	<i>Timeframe</i>
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	Report Writing	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:	116124
Your rights as a learner are:	
<ol style="list-style-type: none"> 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 116124. 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 2 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>
1 (ABET 4)	Literacy and Numeracy				
1	116204	Recognise pests, diseases and weeds on crops			
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:	Control Pests, Diseases and Weeds on All Crops Effectively and Responsibly	
Module / Unit Standard Registration Number:	116124	
<i>Step Number</i>	<i>Step Description and Learner's Tasks</i>	<i>Completion / Submission Date</i>
5	<p>Assessment Activity Workbook</p> <ul style="list-style-type: none"> • 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	<p>Report Writing</p> <ul style="list-style-type: none"> • There are many important things that you need to remember about pests, diseases and weeds in relation to subtropical fruit production in order to be found competent in this learning module, and so that you can do your job well and move on to level three. • You have to write a report 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	<p>Practical Assessment</p> <ul style="list-style-type: none"> • 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 three. • 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. 	

	<ul style="list-style-type: none"> 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	<p>Re-Assessment Procedure</p> <ul style="list-style-type: none"> 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	<p>Paperwork</p> <ul style="list-style-type: none"> 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	<p>Administration and Completion of Portfolio of Evidence</p> <ul style="list-style-type: none"> All the documents, or copies of them, must be kept on file as part of your portfolio of evidence. 	
<p>Into the Future</p> <ul style="list-style-type: none"> 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:

Activity 2 – Research Project

The facilitator will assign two subtropical fruit pests to you from the Identification Manual. You need to do the following:

- Research the pests and design identification sheets for them.
- Try to find and include pictures of the insects and the damage they cause.
- On each sheet, explain in your own words how to identify the damage that the pest causes on subtropical fruit plants or fruit.
- Prepare notes on how the insect causes damage to subtropical fruit plants and describe the economic impact of this damage.
- Determine whether this is a phytosanitary pest. Explain in your own words what the term “phytosanitary” means.
- Find out if and how the pests can be avoided, what their natural enemies are (if any) and what other actions can be taken against it.
- Not all pests occur in all subtropical fruit-growing regions in South Africa. Find out if this pest is found in the area where you work and how much of a problem it presents.
- Present your findings to the class.
- Paste the identification sheets below, and use the extra space to make notes with regard to the control measures and distribution of the pests.

Blank space for pasting identification sheets and notes.

Date of Interview:	
Details of Interviewed Person	
Name:	
Contact Details:	
Subject Matter Expertise / Qualifications:	
Signature:	

Activity 5 – Research Project

The facilitator will assign two subtropical fruit diseases to you from the table at the end of the learner guide. You need to do the following:

- Research the diseases and design identification sheets.
- Classify the disease according to the type of micro-organism that causes it.
- Determine whether this is a phytosanitary disease.
- Try to find more pictures of the symptoms and damage related to these diseases.
- Explain in your own words how to identify the damage that these diseases cause to subtropical fruit.
- Find out if and how the disease can be avoided and what other actions can be taken against it.
- Find out whether the diseases occur in your geographical area.
- Present your findings to the class.
- Paste the identification sheets below, and use the extra space to make notes with regard to your other research.

Activity 7 – Worksheet

Answer the questions below

What are the different methods used to control weeds?

How does chemical weed control work?

How does manual weed control work?

How does biological weed control work?

How does the use of cover crops help to control weeds?

How does the use of mulch help to control weeds?

What are the dangers when using mulch to control weeds?

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

Activity 10 – Interview an Expert

In pairs, consult the pest control manager or consultant of the farm where you are completing your practical duties and gather information about the questions below. Briefly summarise their answers in your own words.

How do you know if a pest population will lead to economic losses?
What is the threshold value for one pest commonly found in the area?
What does this threshold value mean?
What will happen if this threshold value is exceeded and control measures are not applied?
What is the scouting strategy and procedures for the farm?

Date of Interview:	
Details of Interviewed Person	
Name:	
Contact Details:	
Subject Matter Expertise / Qualifications:	
Signature:	

Activity 11 – Class Discussion

Have a class discussion around the questions below and write down the conclusions that you reach.

What protective clothing and equipment should be used when plant protection products are applied?
What hygiene procedures should be followed when scouting?
What health and safety procedures should be followed when plant protection products are applied?
Why are hygiene, health and safety procedures important?
What should be done to protect the environment when plant protection products are applied?

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

Report Writing

You are now ready for step six of the assessment process. Check your plan carefully to make sure that you prepare in good time. Remember to seek advice from your workplace, subject matter experts and literature to assist you in the writing of your report. Where possible, included examples and pictures in your report and apply the report to your work experience and environment.

You have to be found competent by a qualified assessor to be declared competent

Inform the assessor if you have any special needs or requirements **before** the agreed date for the assessment poster to be completed. 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 this checklist to make sure you are well prepared. These are guidelines of the points that have to be included in your report.

<i>Example Questions</i>	<i>I Have Revised This and Understood It Well</i>	<i>I Am Unsure of This and Need to Ask the Facilitator or Assessor to Explain It Again</i>
What is the difference between beneficial insects and pest insects?		
Name the most common pests found on the crop.		
Recognise at least one pest.		
Describe how at least one pest can be controlled.		
What are the different control methods for pests?		
Name the most common diseases found on the crop.		
Recognise at least one disease.		
How can at least one disease be controlled or eliminated?		
What is a phytosanitary pest or disease?		
Give an example of a phytosanitary pest or disease		
How do phytosanitary pests or diseases influence subtropical fruit production?		
Name the most common weeds found around the crop.		
How do weeds affect the crop?		
Recognise at least one weed.		
What are the different methods to control weeds?		
What does "scouting" mean?		
What do you do before, during and after scouting?		

What do threshold values of pests mean?		
What happens when the threshold value of a pest is observed and recorded?		
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 have to hand in evidence from your workplace confirming that you have participated in a pest scouting activity and have worked according to the procedures and expectations of your workplace. Attach the Scouting Sheet to your workbook and ensure that you ask your supervisor or the person observing you during the scouting exercise to sign, date and supply contact details on the scouting sheet and below.

Because Scouting Sheets differ between different farms and organisations, you have to hand in the Scouting Sheet that is used in your own workplace. No form is supplied for you for this purpose.

Learner's Signature		Date:	
Observer's Signature		Date:	
Observer's Contact Details:			
Observer's Relation to Learner: (e.g. Supervisor)			

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?		

Assessment Guide – Learner

Skills Area: Pests, Diseases and Weeds

Level: 2

Unit Standard: 116124

- 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 them as instructed.

Learner Information Form				
Unit Standard	116124			
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 116124 – Level 2					
<i>Description</i>	<i>Evidence Gathered</i>		<i>Benchmark</i>	<i>Competent / Not yet Competent</i>	<i>Feedback and Comments</i>
	Foundational and Embedded Knowledge	Practical Skills, Underpinning Knowledge and Reflexive Competence			
<i>Specific Outcome 1:</i> Recognise and report on common insects associated with the specific agricultural enterprise.	Attend all lectures Complete workbook as per instruction	Summative assessment. Summative report Pest Scouting exercise	85% competence in all areas		
<i>Specific Outcome 2:</i> Recognise common symptoms of diseases.	Attend all lectures Complete workbook as per instruction	Summative assessment. Summative report Pest Scouting exercise	85% competence in all areas		
<i>Specific Outcome 3:</i> Identify by common name the types of weeds present in the field.	Attend all lectures Complete workbook as per instruction	Summative assessment. Summative report Pest Scouting exercise	85% competence in all areas		
<i>Specific Outcome 4:</i> Old and new damage is observed and distinguished between and reported on.	Attend all lectures Complete workbook as per instruction	Summative assessment. Summative report Pest Scouting exercise	85% competence in all areas		
<i>Specific Outcome 5:</i> Notice and assist with monitoring of pests (scouting) and explaining if pest levels have not decreased after spraying or other control measures were applied.	Attend all lectures Complete workbook as per instruction	Summative assessment. Summative report Pest Scouting exercise	85% competence in all areas		

Assessment Guide – Learner

Skills Area: Pests, Diseases and Weeds

Level: 2

Unit Standard: 116124

Assessor Report and Summative Evidence Collection Summary for Unit Standard 116124 – Level 2					
Description	Evidence Gathered		Benchmark	Competent / Not yet Competent	Feedback and Comments
	Foundational and Embedded Knowledge	Practical Skills, Underpinning Knowledge and Reflexive Competence			
<p>Embedded Knowledge:</p> <p>The learner is able to demonstrate a basic knowledge of:</p> <ol style="list-style-type: none"> 1. Insect anatomy 2. Categories and types of pests 3. Pest levels that cause economic loss 4. Common plant diseases 5. Common pests 6. Common predators 7. Common beneficial insects 8. Common diseases 9. Life cycle of an insect 10. Natural enemies 11. Ways of spreading 12. Contamination 13. Implication of contamination on the quality and marketability of the product 14. Importance of hygiene 15. Scouting procedures 	<p>Attend all lectures</p> <p>Complete workbook as per instruction</p>	<p>Summative assessment.</p> <p>Summative report</p> <p>Pest Scouting exercise</p>	<p>Overall minimum test score of 85%</p>		
<p>Unit Standard CCFO's:</p> <ol style="list-style-type: none"> 1. Problem solving relates to specific outcomes 1 to 5 2. Self-Management relates to specific outcomes 1 to 5 3. Interpreting information relates 	<p>N/a</p>	<p>Rating Scale</p>	<p>Minimum rating of 3:5 in each criteria or overall average of 3:5</p>		

Assessment Guide – Learner

Skills Area: Pests, Diseases and Weeds

Level: 2

Unit Standard: 116124

Assessor Report and Summative Evidence Collection Summary for Unit Standard 116124 – Level 2					
<i>Description</i>	<i>Evidence Gathered</i>		<i>Benchmark</i>	<i>Competent / Not yet Competent</i>	<i>Feedback and Comments</i>
	Foundational and Embedded Knowledge	Practical Skills, Underpinning Knowledge and Reflexive Competence			
to specific outcomes 1 to 5 4. Communication relates to specific outcomes 1 to 5 5. Science and technology relates to specific outcomes 1 to 5 6. The world as a set of related systems relates to specific outcomes 1 to 5 7. Self-development relates to specific outcomes 1 to 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.