



Citrus Orchard Foreman Occupational Learning

Work Scenario Guide

G3: Harvest Management

Qualification:	110667 – Occupational Certificate: Orchard and Vineyard Foreman
Work Scenario:	G3: Harvest Management
Learning Area:	G: Plan and oversee the harvesting of citrus crop
Scenario Description:	Harvesting is a complex process that needs to be carefully managed. Oversee harvesting activities to ensure that all workers are performing harvesting activities safely, efficiently, and effectively.

© Citrus Academy 2026

1st edition (06/2026)

Content originator:
Citrus Academy

Occupational alignment:
Ukudla Namanzi (Pty) Ltd

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. Neither the Citrus Academy NPC nor Citrus Research International (Pty) Ltd or the Citrus Growers' Association NPC 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 NPC, Citrus Research International (Pty) Ltd or the Citrus Growers' Association NPC. The Citrus Academy NPC, Citrus Research International (Pty) Ltd and the Citrus Growers' Association NPC, their 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 NPC, Citrus Research International (Pty) Ltd and the Citrus Growers' Association NPC against any claim by any third party against the Citrus Academy NPC, Citrus Research International (Pty) Ltd or the Citrus Growers' Association NPC, their 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.

Contents

Alignment Information	4
Qualification	4
Modules	4
Learning Outcomes	5
Chapter 1 Harvest Management	7
1. Harvesting Procedures	7
1.1. Snap Picking	7
1.2. Clipping	7
2. Factors Influencing Harvesting	8
2.1. Weather	8
2.2. Fruit Quality	8
2.3. Market Conditions	8
2.4. Expected Yield	8
2.5. Picking Time	8
3. Pre-Picking Checks	9
4. Harvesting Guidelines	9
5. Postharvest Procedures	10
Chapter 2 Harvest Health & Safety	12
1. Harvest Health and Safety	12
2. Safety Precautions	12
3. Health and Safety Regulations	13
4. Health and Safety Plan Components	13
4.1. First Aid	13
4.2. Equipment	13
4.3. Personal Hygiene	13
4.4. Protective Clothing	14
4.5. Emergency Plan	14
4.6. Reporting Procedures	14

Alignment Information

Qualification

The content of this learner guide is aligned to the following occupational qualification:

SAQA QUAL ID	Qualification Title			
110667	Occupational Certificate: Orchard and Vineyard Foreman			
Originator				
Development Quality Partner – AgriSETA				
Primary Or Delegated Quality Assurance Functionary			NQF Sub-Framework	
-			OQSF - Occupational Qualifications Sub-Framework	
QUALIFICATION TYPE		FIELD		SUBFIELD
Occupational Certificate		Field 01 - Agriculture and Nature Conservation		Primary Agriculture
Abet Band	Minimum Credits	Pre-2009 NQF Level	NQF Level	Qual Class
Undefined	147	Not Applicable	NQF Level 04	Regular-ELOAC

Modules

The content of this learner guide is aligned to the following modules of the occupational qualification above.

Module Code	Module Title	Level	Credits
Knowledge Modules			
611202-001-00-KM-01	Plant Structure and Physiology	4	5
611202-001-00-KM-02	Vineyard or Orchard Establishment	3	2
611202-001-00-KM-03	Vineyard or Orchard Manipulation Processes	3	8
611202-001-00-KM-04	Harvesting	3	4
611202-001-00-KM-05	Basic Principles of Plant Nutrition	4	4
611202-001-00-KM-06	Crop Protection	3	3
611202-001-00-KM-07	Assets in Horticultural Production	3	2
611202-001-00-KM-08	Farm Business Management and Farming Process Management	4	8
611202-001-00-KM-09	Human Resource Management and Processes	4	8
611202-001-00-KM-10	Overseeing Farming Resource Utilisation	4	8
Practical Skill Modules			
611202-001-00-PM-01	Organise, Allocate and Monitor Availability and Productive Use of Resources	4	5
611202-001-00-PM-2a	Set Team and Individual Performance Goals to Enhancing Team Performance	4	10
611202-001-00-PM-2b	Control Vineyard or Orchard Practices	4	10

611202-001-00-PM-03	Supply Accurate Daily Orchard or Vineyard and Production Information	4	10
Work Experience Modules			
611202-001-00-WM-01	Vineyard or Orchard Resource Optimisation	4	20
611202-001-00-WM-02	Skilled and Motivated Work Team Output	4	20
611202-001-00-WM-03	Daily Orchard or Vineyard and Production Information Availability	4	20

Learning Outcomes

The content of this learner guide is aligned to the following learning outcomes of the modules above.

Knowledge Topics	
Outcome Code	Module Title
KM-04-KT02	Principles and practices of harvesting crop
IAC0201	The impact of climatic and other environmental conditions on harvesting is explained
IAC0202	The correct application of crop harvesting methods is discussed
IAC0203	The safe handling of tools and equipment is described
IAC0204	The care and maintenance of harvesting tools and materials (cleaning, sanitizing, basic maintenance and repairs) is outlined
IAC0205	The handling of fruit and transport immediately post-harvest to limit injury and damage to fruit during and after harvesting described
IAC0206	The practices to control the development of decay and /or physiological disorders during and post-harvesting are outlined
IAC0207	The measures to prevent fruit contamination are described
KM-04-KT03	Post-harvest processes
IAC0303	The procedures for cleaning, sterilising and storage of harvesting equipment is outlined
IAC0304	Stocktaking of harvesting equipment is delineated
Practical Skills	
PM-01-PS03	Organise and allocate equipment and agri-chemicals to the work team to perform vineyard or orchard practices
IAC0301	The equipment identified is correct according to the different production processes
IAC0302	The number of tools/equipment is correct according to the output norms of the Vineyard or orchard
IAC0303	The quantity of agri-chemicals is correct according to the size of the Vineyard or orchard
IAC0304	Activities are correctly assigned to team members according to the size of the team and capabilities of the team members
IAC0305	All stock and equipment are accounted for after the production activities
PA0301	Obtain relevant information regarding the logistical processes for a production unit
PA0302	Describe the process of the production unit to organize availability of equipment and chemicals (draw from the store)
PA0303	Describe the process to issue equipment and tools relevant to the operation to workers
PA0304	Develop a procedure for the sanitising of equipment used in the vineyard or orchard
PA0305	Describe the process of sound stock control during operations in a unit
PA0306	Deal with incidents and accidents by applying first aid
AK0301	Techniques and formats for the development of production plans

AK0302	Techniques for the interpretation of financial information such as budgets and cash flow
AK0303	Forecasting techniques
AK0304	Controlling and maintaining quality standards
AK0305	Techniques to exercise cost control
AK0306	Techniques for continuous improvement
AK0307	Techniques to analyse and summarise farm information

Chapter 1

Harvest Management

learning outcomes

The content of this chapter is aimed at helping you to:

- Manage harvesting.

1. Harvesting Procedures

Now that we have designed our harvest plan and prepared for the harvest, we can begin the actual harvest. As you know, citrus is generally picked by hand. The fruit is placed into picking bags, which are then emptied into bins or trailers placed in strategic positions in the orchard. Where trees are too tall to reach the fruit while standing on the ground, ladders are used.

The bins or trailers are transported to a central collection point on the farm, or directly to the packhouse. Methods to pick citrus fruit mechanically have developed, but are generally only useful where orchards are being stripped of fruit destined for juice processing, as mechanical picking is more likely to injure fruit.

There are essentially two methods that are used to pick citrus fruit by hand, being:

- Snap picking
- Clipping

1.1. Snap Picking

Snap picking is a method whereby fruit is twisted off sharply by hand without using a tool to cut the stem. Snap picking is not recommended for export fruit for a number of reasons.

The calyx buttons are pulled out easily, oleocellosis develops because of the pressure on fruit as it is pulled and twisted, and stems are sometimes not cleanly broken off. Because of these risks, snap picking is only used for non-export fruit, such as when picking for processing, or clearing left-over fruit after harvest.

1.2. Clipping

Clipping makes use of specifically designed clippers that are used to cut the stem of the fruit. Clipping is generally recommended in most situations. Purpose-built clippers are used to cut the stem as close to the button, or calyx, as possible without injuring the shoulder of the fruit.

Long stems of between 1mm and 4mm, which result from inefficient cutting, are a frequent problem in harvesting and can lead to injuries to fruit when they are put into the picking bags, trailers or bins. Injuries of this nature can cause the fruit to decay at a later stage. If fruit is handled roughly or if the shoulders are cut by inexperienced pickers or pickers who are not taking enough time, it also increases the risk of fruit decay.

2. Factors Influencing Harvesting

There are different factors that can influence harvesting. Factors such as the weather, fruit quality and market conditions, must all be considered when harvesting. Other matters that will influence the planning of the harvesting operation are the volume of fruit to be picked, the timeframe in days available for picking the fruit, and the amount of daylight hours available per day. Let's discuss each of these factors below:

2.1. Weather

Harvest planning must always take short- and medium-term weather forecasts into account. Citrus fruit cannot be harvested if the fruit is wet. The oil glands in the rind of the fruit becomes turgid and fragile when fruit is wet, and in very cold, humid conditions. When fruit is handled in these conditions, the oil glands in the rind rupture, causing oleocellosis.

This means that you cannot harvest during or just after it rained, or in the early morning when there is dew on the fruit. As a general guideline, harvesting should only take place under these conditions:

- Temperature – 13-30°C
- Relative humidity – <70%

Research that was done recently also found a higher incidence of peteca spot on lemons if they are picked within two days after a cold front, especially if the cold front was accompanied by rain.

2.2. Fruit Quality

Fruit should only be harvested once all internal quality parameters are met. External parameters such as fruit colour can still be adjusted by packhouse processes such as degreening, but internal quality will not change after picking, because ripening processes, such as where citric acid is broken down and converted to sugar inside the fruit, stops after picking.

For more information on the internal quality factors and how to know when they are at the right levels, revisit the material on maturity indexing.

2.3. Market Conditions

Market conditions and specific market opportunities may also impact on the decisions made around harvesting. It might in some instances be worth it to delay harvesting by chemical applications in order to extend the harvesting period or to move the harvesting period to a later stage when fruit availability might be lower and thus market prices higher.

2.4. Expected Yield

The number of hectares to be picked influences when picking will start and the number of pickers that should be employed. The cultivar spread and the expected yield, market requirements and picking practices for each cultivar are central to harvest planning.

2.5. Picking Time

As fruit cannot be picked in the early morning when it is still wet from overnight dew and the harvesting of fruit mainly takes place during the winter months when daylight hours is shorter than during the summer time, the hours during which fruit can be

picked per day are fewer. This must be considered when planning the harvest and the time necessary when harvesting a certain section.

3. Pre-Picking Checks

Once all the conditions are ready for harvesting the harvesting plan can be implemented and harvesting can start. The harvesting plan will indicate which block of fruit must be harvested and how many pickers should be used to harvest the block within the specific timeframe. Before picking begins, the harvest manager needs to make sure of a few things.

Firstly, harvesting teams should be divided into groups of no more than twenty pickers per trailer. If there are more than twenty pickers per trailer, too many people will be hanging around the trailer waiting to empty their bags and that might cause fruit injuries as pickers rush and push against each other.

As we've mentioned, the internal quality of the fruit and the weather conditions in the orchard need to be at the correct specifications. All picking equipment should be in a good condition and be supplied to all workers who need them.

You also need to make sure that picking teams are informed about the method (snap picking or clipping) of picking that will be used, and aware of any other decisions concerning the picking of the fruit. This might include, for example, whether trees are to be stripped or whether fruit of only a certain quality are to be picked.

Finally, workers must have adequate ablution facilities (such as toilets and hand-washing stations) available to them during the harvesting process.

4. Harvesting Guidelines

Finally, after all our hard work preparing and planning, picking can now start. Let's discuss some general and some specific pieces of advice for managing harvest and ensuring everything goes as smoothly and quickly as possible, while producing the best fruit possible.

Firstly, when the picking teams are transported to the orchard and issued with equipment, they should keep their equipment with them. Workers should not trade equipment, as they may receive an un-sanitized piece of equipment without realising it hasn't been cleaned.

Picking bags must be suspended from the side of the pickers and not hang in front of them. This is to prevent damage to the fruit as the picker leans against a ladder or pushes into branches in the canopy. Pickers should walk with full picking bags and not run, as running will bounce and chafe the fruit, leading to the development of oleocellosis.

To limit fruit injury when picking bags are emptied, the bag should be placed close to or on fruit lying in the bulk bins or picking trailers before being emptied. Once a bag has been emptied, it must be upended and shaken to remove loose twigs, leaves and sand that might have collected during the picking process.

An extremely important rule that you need to make sure your workers follow is about dropped fruit. Any fruit that is dropped during the picking process or are lying on the ground must not be picked up off the ground and put with export fruit. Further, any fruit that hangs low in the tree, so that water could have splashed up onto it, must not be picked and placed with the other export fruit, as it could be contaminated with soil pathogens.

When varieties that are susceptible to oleocellosis are involved, bulk bins and trailers should not be filled completely. How far the bins or trailers are filled depends on the specific conditions, but as a rule of thumb, it should be filled only to between 50% and 75% of the capacity of the bin or trailer.

As an added precaution, rubber or cardboard sheeting can be used as bin liners to give additional protection to the fruit. If bins are used, bins can also be left on the orchard floor

overnight for a maximum of 24 hours, before being taken to the packhouse, allowing for a degree of wilting which reduces the risk of oleocellosis.

Finally, any other general farming activities taking place on the farm can have an effect on the harvesting operation. All activities must be coordinated to ensure a smooth harvesting operation. Harvesting must take precedence over all other farming activities, as it is arguably the most important production practice performed on the farm. Other tasks, such as irrigation scheduling, plant manipulation and fertiliser applications, must be scheduled in such a way the harvesting process will not be influenced by these activities.

5. Postharvest Procedures

Harvested fruit must be taken to the packhouse within 24 hours after being harvested. If left in the loading zone for an extended period during this 24-hour period, particularly in the warmer autumn months, the fruit should preferably be kept under cover in a well-ventilated shed or under shade-cloth to prevent excessive wilting and softening of the fruit.

summary

Chapter 1 – Harvest Management

- Factors such as the weather, fruit quality, market conditions, expected yield and harvesting timeframe, must all be considered when harvesting is planned.
- As a general guideline, harvesting should only take place when the fruit is dry, the temperature is between 13 and 30°C, relative humidity is lower than 70%.
- Fruit should only be harvested once all internal quality parameters are met.
- The harvesting plan will indicate which block of fruit must be harvested and how many pickers should be used to harvest the block within the specific timeframe.
- During picking, the supervisor must make sure that fruit safety and quality is maintained and that there will be a constant supply of empty trailers or bins to the picking team.
- Harvesting must take precedence over all other farming activities.
- Citrus is generally picked by hand using one of two methods, namely snap picking and clipping.
- After picking, the fruit is placed into picking bags, emptied into bins or trailers, then transported to a central collection point on the farm, or directly to the packhouse.
- Mechanical methods to pick citrus have developed but are only useful for stripping fruit destined for juice processing, as they are more likely to injure the fruit.
- Snap picking is picking fruit by twisting it sharply off the tree by hand without using a tool to cut the stem and is not recommended for export fruit.
- Clipping makes use of specifically designed clippers that are used to cut the stem of the fruit, and is generally recommended in most situations.
- Snap picking is faster, but there is a greater danger of injury and damage to the fruit, whereas clipping is slower and safer.
- Bad cutting practices, like handling the fruit roughly, cutting the fruit itself, and leaving the stems too long can all damage the fruit and thus cause losses.
- Pickers should walk with full picking bags and not run.

- Fruit that was dropped during the picking process or are lying on the ground must not be picked up off the ground and put with export fruit.
- Harvested fruit must be taken to the packhouse within 24 hours after being harvested, otherwise the fruit should preferably be kept under cover to prevent excessive wilting and softening of the fruit.

assessment activities

- ✓ **Activity P1:** Complete this activity to test your knowledge of harvest management.

Chapter 2

Harvest Health & Safety

The content of this chapter is aimed at helping you to:

- Implement a health, hygiene, and safety plan during harvesting.

1. Harvest Health and Safety

Harvesting citrus, especially on a large farm, is a large operation, with a large number of workers, as well as a lot of complex machinery and tools which can seriously injure or even kill a worker if mishandled.

Every person involved in harvest must be aware of the health, hygiene and safety regulations with regard to handling fresh produce and using the tools and equipment involved. Every person must take responsibility for limiting food safety and worker health and safety risks.

It is the responsibility of farm management to make all workers aware of the inherent dangers that picking equipment holds. The best approach to providing this information is to formulate and document a health and safety plan, that not only puts in place procedures for protecting worker health and safety, but that is also aimed at protecting product safety.

To ensure the effectiveness of the health and safety plan, critical areas that must be managed and monitored must be identified. These areas include setting up regulations and procedures to manage:

- The picking processes
- Use of picking equipment
- Availability of ablution and sanitation facilities
- Availability of an emergency plan in case of serious injury
- Training of staff to ensure understanding of the health and safety plan
- Recordkeeping procedures

2. Safety Precautions

The most dangerous points in terms of worker safety is the picking of the fruit, especially where ladders are used, and the transport of fruit to the packhouse. All pickers must be aware of the correct method of using tools such as clippers to avoid injury while picking.

Pickers must also be aware of the correct method of using ladders and must ensure that they are placed securely against the tree canopy before climbing up, at the same time taking care not to injure the tree or fruit that are still on the tree.

Safety measures with regard to trailers and tractors should include guards on trailer wheels and covers over moving machinery parts, such as belts, fans, and PTO shafts. Procedures and checks must be put in place by management to ensure that workers are protected. All workers must be aware of these procedures and supervisors must take the responsibility of ensuring that prescribed precautions are adhered to.

3. Health and Safety Regulations

The health and safety plan must be made while considering regulations as set out in the occupational health and safety act published by the Department of Labour. This is the governing document that oversees worker health and safety in any working environment.

On most farms there is also at least one accreditation system in place. These accreditation systems are usually required by overseas markets before they will allow a producer to export fruit to them. GlobalGAP is the system that is used most commonly on farms. It includes regulations on how farming practices should be structured to ensure safe and sustainable farming and sets minimum requirements to ensure worker health and acceptable living conditions.

The requirements of accreditation systems and current legislation must be incorporated and adhered to when formulating the health and safety plan, and – more generally – the harvesting plan.

4. Health and Safety Plan Components

Earlier we mentioned the creation of a health and safety plan. Let's discuss it in more detail here. Generally, a health and safety plan should include information and procedures about:

- First aid
- Equipment
- Personal hygiene
- Protective clothing
- Emergency plan
- Reporting procedures

4.1. First Aid

In every picking team at least one member must have first aid training and be in possession of a valid first aid certificate. This person will be the team's health and safety officer. Because most of the workers employed for picking are not in the permanent employ of the farm and only employed during the picking season, in most cases the health and safety officer will be the team supervisor.

It is the responsibility of the health and safety officer to ensure that a basic medical kit is available to treat any injuries that might occur during picking and that an emergency plan is in place to ensure medical help to a severely injured person.

4.2. Equipment

Workers must be trained in the correct use of all equipment used for the harvesting of citrus. Training must not only include the correct way of using equipment to minimise the threat of personal injury, but also the correct way to use equipment to ensure food safety. Workers operating mechanical equipment such as tractors and trailers require extra training on their safe use.

4.3. Personal Hygiene

Prior to picking, all staff on picking teams should wash their hands with disinfectant soap at mobile washing facilities available in the orchard. After using the toilet facilities, they must again wash their hands. Disinfectant soap and water must be available at all times at ablution facilities.

The pickers' nails must be short to minimise the risk of injuries to the fruit. Pickers that are sick must not be allowed to work. Any open sores or injuries must be covered with plaster before a picker is allowed to handle fruit.

A person that has a contagious disease must report it to the supervisor and not participate in the harvesting process until he or she is declared fit by a medical doctor. Though fruit undergoes a number of disinfectant and fungicidal treatments in the packhouse, it is unlikely but possible that contagious viral or bacterial diseases can be transferred to the end consumer through infected fruit.

4.4. Protective Clothing

Pickers are issued with overalls and headwear at the beginning of the picking process. This protective clothing must be worn at all times, and it is the responsibility of the pickers to ensure that the clothing is laundered regularly. If sorters are posted at the bins or trailers to cull unexportable fruit, they must wear gloves. Tractor drivers must wear overalls and other prescribed protective clothing while driving.

4.5. Emergency Plan

One of the most important components of a health and safety plan is a simple plan that can be implemented effectively in the case of emergency. An emergency plan consists of different procedures to provide for different kinds of emergencies. The health and safety officer are responsible for ensuring that the rest of the team is informed on how the emergency plan works and what is expected of each of them if an emergency should occur.

In the case of fire, assembly points must be identified and marked where workers must gather. Assembly point must be easily accessible and have various escape points. At the assembly point, the health and safety officer must account for all members of the picking team before leading workers to safety. Assembly points must be identified all over the farm before the picking season and marked on a map. This will help authorities to render assistance to workers if required.

In the case of serious injury, the health and safety officer must contact the harvesting coordinator or farm manager immediately, who will contact the emergency services immediately to ensure rapid response. The health and safety officer must render all help he can to the injured worker whilst they are awaiting help.

4.6. Reporting Procedures

Should any of the picking staff injure themselves while picking, it must be reported to the team supervisor and an incident sheet should be filled in and signed before the injured person can return to the picking team.

All other unusual incidents must also be reported to the supervisor or harvesting manager to enable them to assess the possible risk to food safety and worker health and safety.

summary

Chapter 2 – Harvest Health & Safety

- The best approach to implementing health and safety on a farm is to formulate and document a health and safety plan.

- The requirements of accreditation systems and current legislation must be incorporated and adhered to when formulating the health and safety plan, and – more generally – the harvesting plan.
- A health and safety plan incorporates different components, generally including reference to first aid, equipment, personal hygiene, protective clothing and equipment, emergency plan, and reporting procedures.
- Every person involved must be aware of the health, hygiene and safety regulations involved in handling fresh produce and using the tools and equipment involved.
- The most critical points in terms of worker safety are the picking of the fruit, especially where ladders are used, and the transport of fruit to the packhouse.
- All pickers must be aware of the correct method of using tools and equipment such as clippers, ladders and tractors to avoid injury while picking.
- All workers must be aware of the procedures put in place by management and supervisors must take the responsibility of ensuring that prescribed precautions are adhered to.
- Protective clothing, such as headwear and overalls, must always be worn, and it is the responsibility of the pickers to ensure that the clothing is laundered regularly.
- If sorters are posted at the bins or trailers to cull fruit that is obviously not suitable for export, they must wear gloves.
- Workers must be aware of personal hygiene requirements, including hand-washing and general cleanliness.
- Workers that are suffering from contagious diseases must report this to the supervisor or manager.
- All injuries and other unusual occurrences must be reported to the supervisor or manager immediately.

assessment activities

- ✓ **Activity P2:** Complete this activity to test your knowledge of harvest health and safety.
- ✓ **Activity F1:** Complete this activity to test your knowledge of the entire module.