



Citrus Orchard Foreman Occupational Learning

Work Scenario Guide

17: Asset Replacement

Qualification:	110667 – Occupational Certificate: Orchard and Vineyard Foreman
Work Scenario:	I7: Asset Replacement
Learning Area:	I: Oversee the management and maintenance of production infrastructure, machinery and equipment
Scenario Description:	You need to participate in developing replacement strategies for infrastructure, vehicles, machinery, tools and equipment, to ensure that assets are replaced before the end of their lifespan, to ensure no breakdowns in production due to faulty or outdated assets.

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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-07-KT01	Assets
IAC0102	The life cycle of an asset is described
KM-07-KT03	Maintenance of on-farm infrastructure, systems, tools, equipment and machinery
IAC0302	The effect of wear and tear on the durability of the machines and equipment is analysed
KM-10-KT02	Management of Agricultural Assets
IAC0203	The life cycle of physical assets (from cradle to grave) is given along with the replacement considerations (financial, technological and other)
Practical Skills	

Chapter 1

Asset Replacement

learning outcomes

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

- Replace assets.

1. Asset Replacement

Unfortunately, even a well-maintained, carefully used asset cannot last forever. Over time assets such as machinery or vehicles will deteriorate, and even if you can keep them going with repairs or replacement parts; eventually the repairs will be more expensive than what the asset is worth.

If replacements are handled properly and performed efficiently, downtime will be minimised, and production will not be too negatively affected. Replacements done at the right time can also save a lot of money on maintenance, as older assets may require more frequent repairs, resulting in high maintenance costs.

Further, you may need to replace an asset if regulations require it. For example, a new environmental regulation or safety standard may come into place, which may mean that an old tractor is no longer fit for use and needs to be replaced.

2. Assessing the Need for Replacement

Replacing an asset, especially a large important one like an irrigation system or a tractor, can be a big job, so you should be absolutely sure if you need to replace it. There are several factors that must be considered when determining if replacement is the best option.

Firstly, you should look at the age of the asset. By age we don't just mean how long it has existed, but also how many operational hours it has been used for. These figures affect the likelihood of failure and maintenance costs, so you should stick to the supplier or manufacturer's recommendations regarding lifespan of the asset.

Aside from the age of the asset, if an asset is constantly breaking down and requiring repairs, it may well be more cost-effective in the long run to replace it now rather than continuing with endless repairs.

It is therefore good practice that all repairs and maintenance are tracked in the asset register, including the date, type of repairs performed, and cost. If the cost of repairs over the last year exceeds a certain threshold (such as 30-40% of the cost of a new asset of the same type), you should absolutely consider replacement.

Another reason to consider replacement is if newer assets with improved technology are released. These technological improvements can greatly increase productivity, so reduce energy usage, and limit environmental impact; all of which can lead to high savings on production costs.

Any replacement should also be considered by performing a cost-benefit analysis. This is where you compare the long-term profit (or loss) of replacing an asset or continuing to use the old asset and repairing it where needed.

This calculation should include the total cost of ownership, including maintenance, fuel, and repair costs; compared with the cost of purchasing a new asset and the expected increase in efficiency or productivity.

Although a brand-new, top-of-the-line asset may seem very expensive, it may, in the long term, save you much more money than trying to keep an old asset running. You should therefore always perform these cost-benefit calculations when considering replacements.

3. Budgeting for Asset Replacement

When planning replacements, you should consult with management or other personnel responsible for budgeting to see whether the funds for the replacement are even available in the first place. If management decides that the replacement can go ahead, the cost of the asset will be included in the annual budget, usually specifically dedicated to asset replacement.

Unfortunately, sometimes a replacement can be absolutely necessary, but the farm might simply not have the funds to purchase the new asset. In this situation you may have to save for a few seasons or look into financing or loans.

4. Phased Replacements

As you know, assets can be extremely costly, especially for something like an irrigation system, so sometimes it may be that there really is no way to get the money for an asset all at once.

In these situations, you should look into doing what is called a 'phased replacement'. A phased replacement is when only parts of the asset are replaced at a time. For example, this might involve replacing only the pipes of the irrigation system one season, then the pump the next season, then the power supply the next season, and so on.

Which parts will be replaced when and in which order will be decided by factors like the cost, importance of the part, condition of the specific part, and available funds. You should consult with management regarding the phased replacement plan so that they can include it in other financial considerations.

summary

Chapter 1 – Asset Replacement

- Over time assets deteriorate, and it will eventually be more cost-effective to replace them than to keep repairing them.
- If replacements are handled properly and performed efficiently, downtime will be minimised, and production will not be too negatively affected.
- Replacements done at the right time can save a lot of money on maintenance, as older assets may require more frequent repairs, resulting in high maintenance costs.
- Assets may require replacement if regulations require it.
- When considering replacement, you should consider the age of the asset, its condition, and the possible gains of newer assets.

- If the cost of repairs over a period exceeds a certain threshold (such as 30-40% of the cost of a new asset of the same type), you should consider replacement.
- Any replacement should also be considered by performing a cost-benefit analysis, where you compare the long-term profit (or loss) of replacing an asset or continuing to use the old asset.
- When planning replacements, you should consult with management or other personnel responsible for budgeting to see whether the funds are available.
- If a farm cannot afford an asset immediately, you may have to save for a few seasons or look into financing or loans.
- A phased replacement is when only parts of the asset are replaced at a time, to avoid spending too much money at once.

assessment activities

- ✓ **Activity P1:** Complete this activity to test your knowledge of asset replacement.
- ✓ **Activity F1:** Complete this activity to test your knowledge of the entire module.