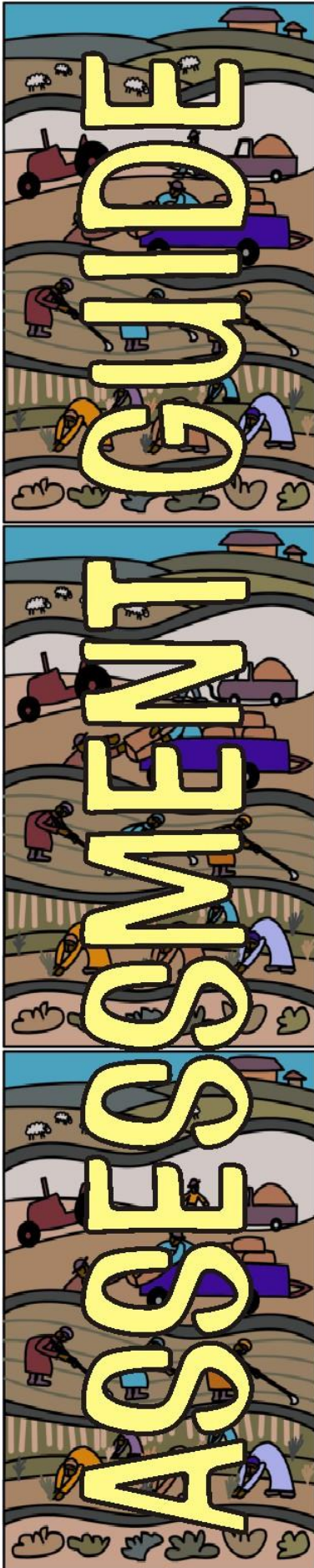




# **SEEDWAY CAPITAL** Pty Ltd

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# Assessment Guide

## Primary Agriculture

Manage the quality  
of animal harvesting  
products



Assessor: .....

Workplace / Company: .....

Commodity: ..... Date: .....

The availability of this product is due to the financial support of the National Department of Agriculture and the AgriSETA.



agriculture

Department:  
Agriculture  
REPUBLIC OF SOUTH AFRICA



## Before we start...

This assessment 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 was designed to be used by a trained and accredited assessor whom is registered to assess this specific unit standard as per the requirements of the AgriSETA ETQA.

Prior to the delivery of the program the facilitator and assessor must familiarise themselves with content of this guide, as well as the content of the relevant Learner Workbook.

The assessor, facilitator and learner must plan the assessment process together, in order to offer the learner the maximum support, and the opportunity to reflect competence.

The policies and procedures that are required during the application of this assessment are available on the website of the AgriSETA and should be strictly adhered to. The assessor must familiarise him/herself with this document before proceeding.

This guide provides step-by-step instructions for the assessment process of:

**Title:** Manage the quality of the harvesting of animal products

**US No:** 116307

**NQF Level:** 4

**Credits:** 3

This unit standard is one of the building blocks in the qualification listed below. Please mark the qualification you are currently assessing, because that will be determined by the context of application:

Title	ID Number	NQF Level	Credits	Mark
National Certificate in Animal Production	48979	4	120	⏏
National Certificate in Plant Production	49009	4	120	⏏

Please mark the learning program you are enrolled in:

Are you enrolled in a:	Y	N
Learnership?	⏏	⏏
Skills Program?	⏏	⏏
Short Course?	⏏	⏏

### Note to Assessor:

If you are assessing this module as part of a full qualification or learnership, please ensure that you have familiarized yourself with the content of the qualification.

## Instructions to learner:

Individual written assignment

**Learner Guide: Page 8    Facilitator Guide: Page 13**

List at least 5 raw products of animal origin and then provide a list of the processed products that can be derived from those raw products. Use a table to present your results. Remember, one raw product can be processed into several different secondary products.

Does the learner list five products of animal origin and then provide a list of the processed products that can be derived from those raw products?

### Model Answer(s):

<b>Animal Product</b>	<b>Processed Product derived there from</b>
Milk	Cheese, yoghurt, amasi (sour milk), butter, body lotion
Wool	Fire resistant blankets, insulation material, socks, scarves, knitting wool
Manure	Fertiliser, compost, floors of traditional houses, cement for walls of traditional houses, fuel for cooking fires
Skin	Handbags, shoes, jackets, décor items (cushions, mats etc.)
Meat	Sausages, polony, patties, viennas
Hooves	Gelatin, glue, dog chew toys
Eggs	Long-lasting paint, cosmetics

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## Instructions to learner:

Individual written assignment

**Learner Guide: Page 9    Facilitator Guide: Page 13**

Decide on three processed products of animal origin. For each of these products, discuss the quality requirements of the consumer for each of these products. Try and think of all the things that are important to you as a consumer. Be strict. Say to yourself, "For my money, I believe this product should provide me \_\_\_\_\_. If not, I will take it back and ask for a refund!"

Does the learner provide evidence that he/she understands the concept of consumer requirements for quality?

### Model Answer(s):

<b>Processed Product</b>	<b>Quality characteristic</b>
Pasteurised Milk	Wholesome, nutritious, hygienic, long-lasting
Wool Socks	Warm, soft, comfortable, able to absorb moisture, long-lasting, does not hook easily or unravel
Leather Shoes	Fashionable, comfortable, allows foot to "breathe", long-lasting
Meat Sausage	Convenience, wholesome, nutritious, hygienic
Dog chew toys	Long lasting, safe for pets

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## Instructions to learner:

Individual written assignment

**Learner Guide: Page 11    Facilitator Guide: Page 13**

The quality of a non-food product is defined differently to that of a food product. Draw a table where you compare the quality characteristics of food products with those of non-food products.

Does the learner show the ability to differentiate between the quality characteristics of a food product and a non-food product?

### Model Answer(s):

<b><i>Food Product Quality Characteristics</i></b>	<b><i>Non-Food Product Quality Characteristic</i></b>
Wholesome	Fashionable
Nutritious	Warm
Hygienic	Soft
Convenient to prepare and eat	Comfortable
Well-packaged	Able to absorb moisture
Long-lasting (does not spoil quickly)	Long-lasting (durable)
Free of residues or harmful additives	Attractive in appearance
Tasty	Useful (Fit for purpose)
Favourable texture (smooth, creamy or tender etc.)	
Attractive in appearance	
Wholesome, nutritious, hygienic, long-lasting, convenience, safe	

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## Instructions to learner:

Individual written report

**Learner Guide: Page 27    Facilitator Guide: Page 15**

Visit a production or processing unit with the permission of the manager of the unit (Wear the appropriate safety and protective clothing and follow the hygiene rules of the establishment).

Do a risk analysis of the production or value-adding system using the format shown above. Identify risk areas (areas of influence on products which could impair quality), name the hazards that are present at that risk point and name methods that can be used in order to control quality at that point.

Does the learner show the ability to identify risk areas, name hazards that are present at a risk point and name methods to control quality at that risk point?

### Model Answer(s):

A simple risk analysis for sausage making (Also showing the cost benefit):

<b>Where risk occurs</b>	<b>Hazard sources</b>	<b>Possible actions</b>	<b>Potential cost benefit</b>
At the meat grinding (mincing) machine	The operator of the mincing/grinding machine picks up the chunks of meat with his/her hands to place in the grinding machine. If the operator's hands are dirty then the risk of contamination between different sausage lots occurs.	Possible action 1: The operator should wash his/her hands with anti-bacterial soap and rinse and dry his/her hands between every lot. Possible action 2: The operator should wear new disposal plastic gloves for each batch.	An operator makes 50kg batches of ground mince to go on to the sausage maker. At R 30/kg this means 50kg x R30/kg = R 1500. If a batch is contaminated with bacteria such as Salmonella then R 1500 could be lost. Additionally if the sausage were to cause illness among a wide group of consumers the loss in revenue due to the poor reputation of the manufacturer could have even higher financial losses. The cost of one bottle of anti-bacterial soap is R 15 and can last for 1 week. The cost benefit of this control method is thus R1485 or 100 times the cost of the control. If the operator makes 5 batches of ground mince per day, and uses 5 separate pairs of plastic disposal gloves at R 1.00 per pair, then the cost of the gloves will be R 5.00 per day. This relates to a total cost of R 25.00 per week. The anti-bacterial soap may be a cheaper option.

## Instructions to learner:

Individual written report

**Learner Guide: Page 28    Facilitator Guide: Page 15**

Using the risk analysis done in the previous exercise (of the production or value-adding system that you visited), choose two control points and your suggested control measures and perform a cost benefit analysis of your suggested risk control methods. If you make assumptions regarding the costs explain how you arrived at those assumptions.

Is the learner able to justify a quality control method by demonstrating its cost benefit?

### Model Answer(s):

A simple risk analysis for sausage making (Also showing the cost benefit):

<b>Where risk occurs</b>	<b>Hazard sources</b>	<b>Possible actions</b>	<b>Potential cost benefit</b>
At the meat grinding (mincing) machine	The operator of the mincing/grinding machine picks up the chunks of meat with his/her hands to place in the grinding machine. If the operator's hands are dirty then the risk of contamination between different sausage lots occurs.	Possible action 1: The operator should wash his/her hands with anti-bacterial soap and rinse and dry his/her hands between every lot. Possible action 2: The operator should wear new disposal plastic gloves for each batch.	An operator makes 50kg batches of ground mince to go on to the sausage maker. At R 30/kg this means $50\text{kg} \times R30/\text{kg} = R 1500$ . If a batch is contaminated with bacteria such as Salmonella then R 1500 could be lost. Additionally if the sausage were to cause illness among a wide group of consumers the loss in revenue due to the poor reputation of the manufacturer could have even higher financial losses. The cost of one bottle of anti-bacterial soap is R 15 and can last for 1 week. The cost benefit of this control method is thus R1485 or 100 times the cost of the control. If the operator makes 5 batches of ground mince per day, and uses 5 separate pairs of plastic disposal gloves at R 1.00 per pair, then the cost of the gloves will be R 5.00 per day. This relates to a total cost of R 25.00 per week. The anti-bacterial soap may be a cheaper option.





### Instructions to learner:

Group work and individual written report

**Learner Guide: Page 28    Facilitator Guide: Page 15**

The class will be divided into three equal groups. In your group discuss the impact of various control procedures and methods on the quality of a product of animal origin of your choosing. Especially discuss whether these control procedures will be simple and viable to implement. Write down your discussion points.

Does the group work demonstrate that the learners have actively engaged with the subject matter?

### Model Answer(s):

The written report should demonstrate knowledge of:

- The complete process of production of a raw product or manufacture of a processed product of animal origin (Example: The process of producing clean raw milk, or the process of producing a tasty, wholesome cheese)
- The identification of risk points (Example: Extraction of milk from the cow)
- The ability to identify the quality characteristics of the product that could be negatively influenced at the risk points (Example: Bacterial contamination of the milk)
- The ability to identify those factors that could negatively influence the quality characteristics at the risk points (Example: Contamination of the milk by the dirty hands of a handler, dirty milking equipment, dusty feed in the milking parlour)
- The ability to suggest control procedures at those risk points (Example: Milkers should wash their hands before and during milking, the milking equipment should be properly cleaned after every milking using the equipment manufacturer's guidelines, feed provided in the milking parlour should be dust free)
- The ability to justify the control procedures by analysing the cost benefit of the procedures (Example: The cost of anti-bacterial soap versus the cost of having to dispose of all the milk in a bulk tank if the microbial load is too high)

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## Instructions to learner:

Individual written report

**Learner Guide: Page 30    Facilitator Guide: Page 16**

In the example of the grinding of mince in a sausage manufacturing plant two solutions to the problem of bacterial contamination of ground mince lots was provided: that the operator wash his/her hands between lots **OR** that the operator wear a new pair of disposal plastic gloves for each lot.

More than one solution to quality control issues will often be available. Using one critical control point identified in Activities IV, V and VI suggest at least three alternative practices regarding the management of quality of the particular animal product that you investigated.

Does the learner show an ability to provide more than one alternative to control risk in a production of processing system?

### Model Answer(s):

#### **Hazard:**

The operator of the mincing/grinding machine picks up the chunks of meat with his/her hands to place in the grinding machine. If the operator's hands are dirty then the risk of contamination between different sausage lots occurs.

#### **Possible action 1:**

The operator should wash his/her hands with anti-bacterial soap and rinse and dry his/her hands between every lot.

#### **Possible action 2:**

The operator should wear new disposal plastic gloves for each batch.

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## SO 4

### Instructions to learner:

Individual written report

**Learner Guide: Page 34    Facilitator Guide: Page 17**

Choose a product of animal origin (either a raw product or a processed product) and convince the reader that you have a thorough knowledge of the process of that product's manufacture or production (As is shown in the example of the correct flaying procedure described above). Use clear language to describe every step of the process of manufacture or production.

Does the learner show an understanding of the complete product production or processing system of a product of animal origin?

### Model Answer(s):

**The following section demonstrates the knowledge regarding the complete process of correctly flaying a carcass:**

The factors which determine the suitability of a tanned hide or skin do not start with the curing process, but with the removal of the hide or skin from the carcass. Once it has been removed from the carcass, the handling it receives immediately thereafter is of vital importance for the retention of quality. The final shape of the hide or skin is more important than most people realise. The value of the processed hide or skin depends on the way in which the cutting lines are made on the carcass.



The preparation begins with flaying or the removal of the hide or skin from the animal after slaughtering, followed by curing of the hide or skin by the addition of salt to dry and preserve the material until it can be processed further into leather. By carefully following the various preparation steps the value of the leather can be conserved. The correct preparation steps are discussed below.

### Slaughtering and flaying

Slaughtering should be done early in the morning or late in the afternoon when the temperature is low and the air is cool to prevent bacterial growth on the hide or skin. It is also important to bleed the animal well after slaughter, otherwise the blood stays behind in the skin and the blood veins will show in the grain surface of the leather. This can also happen when dead or very old animals are slaughtered. Poor handling of carcasses after slaughtering can also damage the skin.

### Ripping lines

These are the cutting lines along which the skin is to be removed from the carcass. When the wrong lines are used, the value of the skin is reduced. The right ripping lines are shown in the figure to the right.

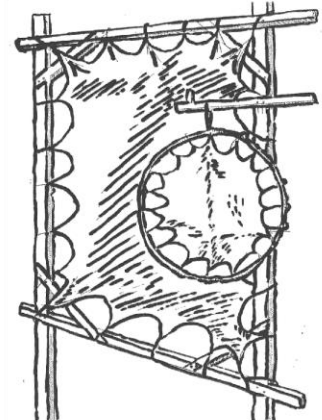
### Hints on removing the skin

Blood should be drained from the carcass taking care that the minimum amount of blood contaminates the skin or comes into contact with the hide or the skin. This will discourage bacterial spoilage

Use a sharp flaying knife with a rounded blade so as to avoid bad flay cuts on the hide or skin. Do not use the flaying knife where it is possible to simply pull the skin from the carcass. However, pulling too hard will result in "butchers strain" marks on the leather.

Remove the hide or skin from the animal immediately after slaughter and allow the hide or skin to cool off in a clean place out of the sun and off the ground to prevent bacterial contamination.

Blood and dirt on hides and skins can be washed off with clean cold water.



## **Curing**

The aim of curing hides and skins is to make them resistant to bacterial attack. They can then be transported or stored until the tanner is able to process them. There are three methods commonly used for salt curing hides or skins, which are as follows.

### **a. Wet- salting**

Cover the flesh side of the hide or skin with salt and stack the skins in a pile. The salt takes up the water inside the hide or skin and draws off a mixture of blood and water. Most bacteria will not increase in numbers in very salty water.

### **b. Dry salting**

The salting hide or skin is hung in the shade to dry or dried in hot air in tunnels where the climate is wet. Dry salting is usually carried out in places where salt can be bought, but storage and transporting of wet salted hides is difficult. The method of application is the same as for wet salting. After the minimum treatment period of 48 hrs where the hides or skin have been in contact with the salt, the loose salt is shaken off and the hides or skins are then dried by hanging symmetrically along the line of the backbone over horizontal poles with diameters not less than 7 cm. The hides or skins are placed initially with the flesh side uppermost on the poles for drying and then turned over with the hair side uppermost to complete the drying on the wool/hair side.

### **c. Air-drying**

If it is difficult to get salt for curing, the skins can be dried by air, but only in dry climates. The skins should be dried in the shade, with sufficient air movement otherwise the outside of the skin will dry too fast, leaving the inside wet and the skin will rot on the inside. They can be hung over poles as described for dry salting or the skins can be stretched with strings from all sides in the frame to let the skin dry uniformly, as shown in the figure to the right.





## Instructions to learner:

Individual written report

**Learner Guide: Page 35    Facilitator Guide: Page 17**

Continue with your report in Activity IX A and B: Clarify those points at which the quality of the final product may be impaired and provide methods to reduce and completely prevent such hazards.

Does the learner show an understanding of risk points at which the quality characteristics that are of importance to the consumer of the product under discussion may be impaired and how to control quality at those points?

### Model Answer(s):

- Do not use a flaying knife if it is possible to pull the hide or skin off the carcass, especially in the case of sheep where the skin can be eased off by hand.
- The hide or skin must be removed from the carcass immediately after slaughter while it is still warm, as this makes its removal easier.
- Use a flaying knife, and handle it with care because hides and skins can be badly damaged by cuts and flaying marks, and this lowers their value.
- As little blood as possible should come into contact with the hide or skin and the carcass should be well-bled before flaying the skin from the carcass.
- All cuts to the hide or skin must be made from the inside to the outside to prevent contamination.
- Contamination of the carcass because of dirty hands, hooks, rollers and protective clothing must be prevented.
- Hygienic, clean conditions will help to maintain the quality of hides and skins
- Contact between the meat and the hide or skin must be prevented at all costs.
- To prevent contamination, lactating udders must be cut off as soon as possible and placed in a container.

# Summative Test and Attitude & Attribute Evaluation

**B**efore the knowledge test is undertaken, the learner must be reminded of what is expected from him / her in terms of summative and reflexive competence. Read and explain to the learner, the **Preparation for Your Final Assessment** section in the learner workbook. Learners and assessor should sign off this section to acknowledge that this step was completed.

Please set up a knowledge test from the questions given as a guideline to learners and supply each learner with a test sheet.

Supply each report with the following heading:

<b>Unit Standard:</b>	116307	<b>NQF Level:</b>	4
<b>Learner Name:</b>			

Questions	Model Answers
1. Define quality.	The degree to which a set of inherent (existing) characteristics fulfils requirements.
2. Name five factors that may be used to refer to the quality of a food product.	<ol style="list-style-type: none"> <li>1. Eating / drinking quality (appearance, texture, flavour)</li> <li>2. Convenience (availability, ease of preparation)</li> <li>3. Stability (shelf-life, quality retention)</li> <li>4. Wholesomeness (safety, purity)</li> <li>5. Nutritive value (nutrient content, nutrient availability, caloric value)</li> </ol>
3. Define quality control.	The degree to which control is measured against predetermined requirements (quality).
4. Name four stages of the production of a processed animal product that may influence product quality.	<ul style="list-style-type: none"> <li>• The farm</li> <li>• Transport</li> <li>• The processing plant</li> <li>• Distribution and resale</li> </ul>

5. What is the most numerous type of micro-organism in milk?	bacteria
6. Name five sources of contamination of milk?	<ul style="list-style-type: none"> <li>• The animal</li> <li>• The air</li> <li>• Animal feeds</li> <li>• The milker</li> <li>• The milk container</li> </ul>
7. Name three critical factors that influence the microbiological status of meat.	<ol style="list-style-type: none"> <li>1. the microbiological status of the animal at slaughter</li> <li>2. the extent of transfer of micro-organisms to the meat during slaughtering and</li> <li>3. the temperature, time and other conditions of storage and distribution.</li> </ol>
8. Name the three main sources of contamination of meat.	<ol style="list-style-type: none"> <li>1. The slaughter man's knife after the opening lines</li> <li>2. The hands and fore arms of the slaughter man.</li> <li>3. Contact between freshly exposed surfaces of the carcass and dirty hides, fleece or slaughtering surfaces.</li> </ol>
9. Name the six main principles of quality control.	<ol style="list-style-type: none"> <li>1. Defining quality</li> <li>2. Quality control</li> <li>3. Measuring quality</li> <li>4. Analysing quality</li> <li>5. Methods to evaluate quality</li> <li>6. New techniques for improving quality</li> </ol>
10. What are the objectives of a Risk or Hazard Analysis?	<ul style="list-style-type: none"> <li>• To identify where the hazards occur</li> <li>• To identify the nature of the hazards</li> <li>• To identify potential solutions to minimise risks that might damage the consumer or cause complaints.</li> </ul>

## Assessment Feedback Form

Comments / Remarks	
<p>Feedback to learner on assessment and / or overall recommendations and action plan for competence:</p>	
<p>Feedback from learner to assessor:</p>	
<p><b>Assessment Judgement</b> You have been found:</p> <p> <input type="radio"/> Competent  <input type="radio"/> Not yet competent in this unit standard </p>	<p>Actions to follow:</p> <p> <input type="radio"/> Assessor report to ETQA  <input type="radio"/> Learner results and attendance certification issued </p>
<p><b>Learner's Signature:</b></p>	<p><b>Date:</b></p>
<p><b>Assessor's Signature:</b></p>	<p><b>Date:</b></p>
<p><b>Moderator's Signature:</b></p>	<p><b>Date:</b></p>