

NQF Level: 4 US No: 116282

# Assessment Guide

## Primary Agriculture

### Intermediate Animal Nutrition



Assessor: .....

Workplace / Company: .....

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

## 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:** Explain intermediate animal nutrition.

**US No:** 116282

**NQF Level:** 4

**Credits:** 4

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	ρ
National Certificate in Plant Production	49009	4	120	ρ

Please mark the learning program you are enrolled in:

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

### 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 15**

**Facilitator Guide: Page 12**

Visit your local Farmer's Co-operative or feed manufacturer.

Compile a list of protein rich feeds and energy rich feeds sold by this Co-operative or Feed manufacturer and obtain their prices.

Does the learner show evidence that he/she visited a local feed store or farmers co-operative and obtained the prices of protein and energy rich feeds?

**Model Answer(s):**

Feed	Feed stores visited (Prices per ton)			
	AFGRI	TWK	PSP	Highfeed
Fishmeal	R5 103.18			
Blood meal				R 2 920. 00
Sunflower	R4 936.16			
Cotton oil cake meal	R2 020	R2 425.75		
Whole cotton seed		R 1 770.00		
Molasses meal	R1 084.75			
Hominy chop	R1 311.00	R1 704.25	R1 120.00	
Copra 23% protein			R 1 442.00	
Maize		R1 375	R 1 500.00	
Soya oil cake			R2 692.60	
Lucerne meal			R1 650.00	
Feed Urea	R3 213.60	R3 439.40	R 3 172.00	

**Instructions to learner:**

Group activity

**Learner Guide: Page 15**

**Facilitator Guide: Page 12**

The class will be divided into two equal-sized groups.

One group of learners will research the role of minerals in the functioning of the body and the other group will research the role of vitamins in the body. Each group must name and describe the roles of each nutrient, as well as symptoms of their deficiency.

A representative from each group will present the group findings in class at a date to be decided.

Does the group work provide evidence that the learners engaged with the subject topic? Was the presentation well prepared and delivered? Does each learner in the group have the complete assignment in their portfolio of evidence?

**Model Answer(s):**

***The role of minerals in the body and symptoms of their deficiency***

- *Mineral imbalances and deficiencies can cause sub-optimal production and reproduction even when there is an abundant feed supply. At least 15 mineral elements are nutritionally essential for ruminants. There are seven major or macro minerals (Ca, P, K, Na, Cl, Mg and S) and eight trace or micro minerals (Fe, I, Zn, Cu, Mn, Co, Mo and Se). An excess of Cu, F, Mn, Mo or Se can also cause toxicities. Toxicities can also occur where excess arsenic, lead, cadmium, mercury or aluminium, occurs.*
- *The macro elements like calcium, phosphorus and magnesium forms the structural part of the skeleton of an animal. Na, K, Ca and Cl are important for maintaining osmotic gradients and ionic balance. Phosphorus also has a central role in the energy metabolism of the animal. Copper is essential for the functioning of a wide variety of enzymes and a shortage thereof results in symptoms that vary from anaemia to a lowering of fertility to a loss of crimp in wool. Cobalt forms part of Vitamin B12 which is essential for the utilization of propionic acid.*
- *When Ca is deficient neuromuscular irritability can occur (as is often seen in milk fever in the high-producing cow) and bone and teeth formation can be negatively affected.*
- *A deficiency of Phosphorus results in bone growth disorders and general malaise and wasting often associated with general starvation.*
- *Grass tetany can result from low cellular levels of Magnesium.*
- *A Na (sodium) deficiency produces a specific craving for salt (pica) and animals often lick rocks and poles in an attempt to satisfy the craving.*
- *A Potassium (K) deficiency leads to paralysis of striated muscles and the heart muscle.*
- *The deficiency of iron leads to anaemia.*

- *Copper deficiencies result in anaemia, atrophy of heart muscles, reproductive disorders and foetal death in rats and depigmentation and loss of crimp in wool.*
- *Zinc deficiency results in gross abnormalities of skeletal structures and the skin, skin lesions in mice, rats, pigs, poultry and cattle, and reduces spermatogenesis and decreases the mobility of spermatozoa.*
- *Deficiencies of Manganese result in bone and cartilage malformations, defective ovulation, testicular degeneration, and infant motility.*
- *Cobalt deficiency symptoms include anaemia, loss of appetite and poor growth.*
- *An iodine deficiency results in goitre (which is visible as a swelling of the area around the thyroid glands in the neck).*
- *Selenium deficiencies may manifest themselves as "white muscle disease" (a muscular dystrophy), decreases in fertility and liver necrosis.*

***The role of vitamins in the body and symptoms of their deficiency***

- *Some vitamins play a major role in mineral metabolism. For example, Vitamin D is important for the mineralization of calcium into the bone structure.*
- *Phosphorus plays an important role in the transfer of energy in the body. It is also a very important part of the skeleton and along with calcium forms the main mineral components of bone.*
- *The following is a list of the important known vitamins. They are divided into two groups:*

<i>Fat soluble vitamins</i>	<i>Water soluble vitamins</i>
<i>Vit A</i>	<i>Vit B1 (Thiamine)</i>
<i>Vit D</i>	<i>Vit B2 (Riboflavin)</i>
<i>Vit E</i>	<i>Vit B6 (Pyridoxine)</i>
<i>Vit K</i>	<i>Niacin</i>
	<i>Pentatonic acid</i>
	<i>Biotin</i>
	<i>Folic acid</i>
	<i>Vit 12 (siano cobalimine)</i>
	<i>Inositol</i>
	<i>Vit C (Ascorbic acid)</i>

- *Some vitamins can be synthesized by the animal body. These include Vitamin K and the B vitamins. All other vitamins need to be supplied via external sources. Humans, apes, other primates and guinea pigs especially have an important Vitamin C requirement, which if left unchecked can lead to a condition called scurvy.*
- *Vitamin A deficiencies result in loss of sight (vision), reproductive abnormalities, hyperkeratinisation of the skin and other epithelial tissues (especially the eyes), and slow growth and deformities of teeth.*
- *Vitamin D deficiency results in deformities of bones (shape and strength).*
- *Vitamin E deficiencies result in degenerative conditions of the skeletal muscles (white muscle disease), heart muscles and muscles of the uterine wall.*
- *Vitamin K deficiency leads to the inability for blood to clot (thus, if injured an animal will bleed to death).*



**Instructions to learner:**

Individual quiz

**Learner Guide: Page 33**

**Facilitator Guide: Page 13**

Complete the following simple feed formulation quiz in your own time.

A pregnant doe of 50 kg requires 4% of her body weight in dry matter.

The leaves of trees and shrubs that she eats contain approximately 70% dry matter.

However, because she is pregnant she needs a concentrate diet to make up for the protein to allow the growth of her foetus and to get her udder in a healthy condition to produce adequate milk.

The ratio of concentrate to browse in her diet should be 1:3. In other words, 25% of her intake should be concentrate and 75% of her intake should be browse.

1. How much dry matter (in kilograms) does this doe require per day?
2. Of the total dry matter (in kilograms) how much of this feed should be concentrate (in kilograms) and how much should be browse (in kilograms)?  
Concentrate \_\_\_\_\_ Browse \_\_\_\_\_
3. If you have 10 does that are pregnant and weigh 50 kilograms, how much concentrate should you have on hand every day?
4. How many 50kg bags of feed will you need to purchase and store for the last month of the goats' 5-month pregnancy (remember, the last month of pregnancy is very important for foetus growth and preparation for milk production)? (Tip: a month has 30 days)
5. If a 50 kg bag of feed measures 20 cm x 40 cm x 70 cm, how much space will you require in your storeroom for one month of feed?
6. How would you prepare your storeroom to receive this feed, and what system will you put in place to check the level of feed in your storeroom?

Does the learner show a basic understanding of feed formulation and feed management?

**Model Answer(s):**

1. A pregnant doe of 50 kg requires 4% of her body weight in dry matter. The leaves of trees and shrubs that she eats contains approximately 70% dry matter. However, because she is pregnant she needs a concentrate diet to make up for the protein to allow the growth of her foetus and to get her udder in a healthy condition to produce adequate milk. The ratio of concentrate to browse in her diet should be 1:3. In other words, 25% of her intake should be concentrate and 75% of her intake should be browse. How much dry matter (in kilograms) does this doe require per day? 2 kilograms
2. Of the total dry matter (in kilograms) how much of this feed should be concentrate (in kilograms) and how much should be browse (in kilograms)?  
Concentrate 0.5 kilograms Browse 1.5 kilograms
3. If you have 10 does that are pregnant and weigh 50 kilograms, how much concentrate should you have on hand every day? 5 kilograms
4. How many 50kg bags of feed will you need to purchase and store for the last month of the goats' 5-month pregnancy (remember, the last month of pregnancy is very important for foetus growth and preparation for milk production)? (Tip: a month has 30 days)  $5\text{kg per day} \times 30\text{ days} \times 5\text{ months} = 750\text{ kg}$ , Divided by 50kg bags = 15 bags weighing 50kg each
5. If a 50 kg bag of feed measures 20 cm x 40 cm x 70 cm, how much space will you require in your storeroom for one month of feed?  
 $5\text{kg per day} \times 30\text{ days} = 150\text{ kg}$  Divided by 50kg bags = 3 bags weighing 50kg each are required each month, A total space of  $20 \times 40 \times 70 \times 3 = 0.168$  cubic metres.
6. How would you prepare your storeroom to receive this feed, and what system will you put in place to check the level of feed in your storeroom?  
You would ensure that the storeroom is pest (rodent and bird) free, free of damp and wet, is able to protect the feed from direct sunlight. It would be a good idea to place the bags of concentrate on a platform raised above the ground (like a pallet). The storeroom should be clean, and there should not be toxic substances stored along with the feed (paint, spirits, pharmaceuticals, fertilisers). The first-in-first-out principles should be applied in the storeroom. So, if there is already some feed in the storeroom that feed should be placed in front and used before the new feed is used.  
A simple system which can serve as a reminder to order new feed, is to place a marker (like a coloured disk) between the feed bags at the level at which a new order for feed should be placed. For example, you have 6 bags of concentrate feed packed on top of one another. Between bags 3 and 4 you place a bright pink Frisbee. Then you start using your feed from the top of the pile. You use bag number 1, followed by bag number 2, followed by bag number 3 – Hey presto! You find the bright pink Frisbee lying on top of bag number 4. It reminds you to order new feed, so that it will arrive before you have used up all of the 6 bags.

**Instructions to learner:**

Individual written assignment

**Learner Guide: Page 42****Facilitator Guide: Page 14**

To be able to understand the working of an animal feed factory it is necessary to visit a factory so that everything can be explained, observed and questioned. By arrangement, the facilitator will take you to an animal feed factory. Be attentive; ask questions, make sketches of the equipment that you see, draw process flow diagrams to illustrate the movement of feed ingredients through the entire process. Try and answer the following questions:

1. The origin of all the ingredients that they use in the factory.
2. The transport and the way the raw products are received.
3. The storage of the raw products.
4. The preservation of the raw products as well as the finished products.
5. The control of pests such as insects and rodents that may damage the raw products.
6. The handling of the raw product during the process. How they make sure that the correct amount of the product is mixing in the correct ratio.
7. How they make use of alternative products to replace a product that is not available at that time.
8. How they mix small amounts into big amounts.
9. Their quality control methods to ensure that the finished product meets the minimum requirements of the product.
10. How they handle the roughage that they use to produce complete feeds.
11. How they use concentrates and handle them.
12. Make sure that you understand how they make use of computer programs to balance their rations.
13. Make sure that you understand what types of rations they produce and why are some of the rations sold in bulk form and others in bags.

14. Ask the persons what the expected shelf life of their products are.
15. Ask the person to give a brief explanation of the different acts that regulate the feed industry or where you can get the act.
16. After your visit to the commercial feed factory, feed mill or feed manufacturer, write a short assignment on your visit and hand in as part of your portfolio of evidence.

Did the learner activity get involved in the field trip by asking questions, doing further self study, drawing machinery that was observed and sketching process paths at the feed manufacturing plant?

**Model Answer(s):**

*The facilitator will have accompanied the learners on this field trip. Manufacturing processes, methodologies and equipment will differ from one feed company to the next, thus model answers cannot be provided for this assignment. The learners should however show an understanding of the following concepts in their reports merely by asking the relevant questions and reporting the answers:*

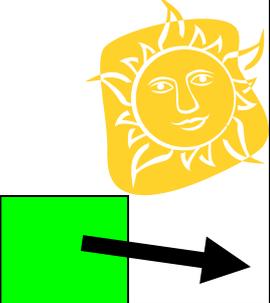
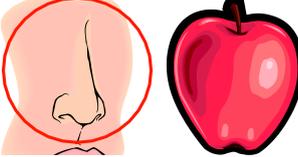
- *The origin of all the ingredients that they use in the factory.*
- *The transport and the way the raw products are received.*
- *The storage of the raw products.*
- *The preservation of the raw products as well as the finished products.*
- *The control of pests such as insects and rodents that may damage the raw products.*
- *The handling of the raw product during the process. How they make sure that the correct amount of the product is mixing in the correct ratio.*
- *How they make use of alternative products to replace a product that is not available at that time.*
- *How they mix small amounts into big amounts.*
- *Their quality control methods to ensure that the finished product meets the minimum requirements of the product.*
- *How they handle the roughage that they use to produce complete feeds.*
- *How they use concentrates and handle them.*
- *Make sure that you understand how they make use of computer programs to balance their rations.*
- *Make sure that you understand what types of rations they produce and why are some of the rations sold in bulk form and others in bags.*
- *Ask the persons what the expected shelf life of their products are.*
- *Ask the person to give a brief explanation of the different acts that regulate the feed industry or where you can get the act.*

*The report should also include drawings and sketches of process flows and the equipment observed in operation during the field trip.*



**Model Answer(s):**

*How to make silage –  
A preserved feed for the seasons of feed shortage*

<p>1. Grow your crop as normal</p> 	<p>2. When ripe harvest your crop as normal</p> 	<p>3. Use the material that is left on the land after harvesting</p> 
<p>4. Cut down this material</p> 	<p>5. Cut it into small pieces</p> 	<p>6. If green wilt in the sun</p> 
<p>7. Dig a hole in the ground or use a large container that can be closed tightly</p> 	<p>8. Good silage smells like apples</p> 	<p>9. Feed to your animals</p> 

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SO 5

**Instructions to learner:**

Individual quiz

**Learner Guide: Page 54**

**Facilitator Guide: Page 16**

Complete the following quiz, by writing the letter of the correct answer into the column following the numbered question:

Does the learner show an understanding of feed quality control issues?

**Model Answer(s):**

No.	Question		Correct answer
1	Quality can be defined as the degree of _____ that a thing possesses	d	a. Good Manufacturing Practices
2	How many samples of chopped hay per lot should be taken when sampling?	g	b. metabolism
3	All incoming feed ingredients should be checked for:	e	c. representative
4	Feed quality depends on the quantitative amounts of the feed components, and the digestibility and _____ of those components	b	d. excellence
5	GMP stands for:	a	e. Moisture, colour, off odour, presence of foreign material, texture and uniformity, evidence of heating, biotoxins
6	All scales should be checked at least this often	i	f. daily
7	The purpose of accurate sampling is to get a _____ sample of the feed	c	g. 10
8	An inventory of all feed additives used should be updated this often	f	h. Quality control procedures
9	All feed manufacturers should have written _____	h	i. Annually

**Instructions to learner:**

Individual assignment

**Learner Guide: Page 56**

**Facilitator Guide: Page 17**

Obtain the Farm Feed Act of 1947 (Act no 36) and Notice 498 of 2006 Annexure A "South African Policy on Animal Feeds" from the AFMA website ([www.afma.co.za](http://www.afma.co.za)).

Study these documents carefully and write a 1-page summary of those aspects that will have practical implications for mixing of feed on your own production unit. For example, if the feed you are mixing is for your own use only, the feed labelling regulations may not be relevant to your situation. However, the use of certain feed additives is prohibited and you will not be able to use these additives in your rations since your livestock or livestock product will be sold for public consumption.

**Note:** The implications of the Farm Feed Act will be completely different between a farm which mixes its own feed for own use and a feed manufacturing company that manufactures farm feeds for sale.

Does the learner show an understanding of the implications of the Farm Feed Act and its application to his or her own farming operation?

**Model Answer(s):**

*Although we will not be selling the feed that is mixed at "Sunny Hill Dairy Farm" but will be using it for the nutrition of our own dairy herd, the Farm Feed Act has the following implications for our feed mixing activities:*

- *We will not need to register our feed with the Registrar of Farm Feeds since we will not be selling the feed to the public or other farmers*
- *We will however need to keep comprehensive records of each batch of feed that we mix on the farm. These records should include the results of quality checks done on the feed ingredients, the date on which the batch was made, the composition of the batch and the mixing instructions, the quantity mixed*
- *No labelling will be required.*
- *Invoicing procedures are not relevant although we will keep invoices and records of all feed concentrates, additives, pre-mixes etc. that were not produced on the farm*
- *The feed needs to be stored in such a way that they are protected against damage, deterioration and contamination. They should be stored separate from each other.*
- *The labourers doing the mixing will have adequate knowledge of the process and conform to all the safety requirements necessary during the operation of feed mixing equipment*
- *The facilities will be kept orderly and clean*
- *The facilities will be suitable for the purpose of feed mixing and storage*
- *We will not be able to use any feed additives that are prohibited by the law*
- *We will adhere to the maximum and minimum levels of stock remedies required by the law*

**Instructions to learner:**

Individual calculations

**Learner Guide: Page 60**

**Facilitator Guide: Page 18**

1. You own a herd of 50 sheep which graze natural pastures. Half of them weigh 40kg, the other half weigh 50kg. Assume that the dry matter intake of these sheep is 2.5% of their body mass per day. Work out the dry matter feed requirements of this herd for a one-month period (30 days).
2. Assume that the weight gain of the sheep weighing 50 kg is 150 g per day. What is the feed conversion ratio of this part of your herd? Is this feed conversion ratio better or worse than the feed conversion ratio of 6.8 given in the feedlot steer example above? Why do you think this is so?
3. If you obtained a feed conversion ratio of 4 in your "SUPER" herd of sheep, how much weight would they be gaining every day (both the 40kg sheep and the 50kg sheep)?

Does the learner interpret the feed performance data correctly?

**Model Answer(s):**

You own a herd of 50 sheep. Half of them weigh 40kg, the other half weigh 50kg. Assume that the dry matter intake of these sheep is 2.5% of their body mass per day. Work out the dry matter feed requirements of this herd for a one-month period (30 days).

*25 sheep at 40 kg each – consume 2.5% of 40kg = 1 kg of dry matter per day*

*25 sheep at 50 kg each – consume 2.5% of 50 kg = 1.25 kg of dry matter per day*

*The herd consumes: (25 x 1) + (25 x 1.25) = 56.25kg dry matter per day*

*The herd consumes: 56.25kg x 30 days = 1.6875tons of dry matter per month*

Assume that the weight gain of the sheep weighing 50 kg is 150 g per day. What is the feed conversion ratio of this part of your herd? Is this feed conversion ratio better or worse than the feed conversion ratio of 6.8 given in the feedlot steer example above? Why do you think this is so?

*From calculation number 1, it was found that the sheep weighing 50 kg consume 1.25kg of dry matter per day. If they grow 150g every day, then the feed conversion ratio is  $1.25/0.150 = 8.333$ .*

*This feed conversion ratio is worse than the 6.8 given in the example of the feedlot steer.*



## 9

### SO 8

#### Instructions to learner:

Individual written assignment

Learner Guide: Page 65

Facilitator Guide: Page 19

Using the information provided in this session prepare a feed flow calendar for a herd of sheep grazed in a summer rainfall area. Indicate where supplementation should occur and what type of supplementation should take place. Assume that the female flock is mated in March. Gestation in small stock is 5 months. Weaning takes place at 4 months.

Does the learner show an understanding of the principles of feed flow planning and management?

#### Model Answer(s):

Supplementation required	Veld condition	Stage of production	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
None	Veld nutrition adequate	Females dry												
Provide 200g per animal complete feed	Extra feed will stimulate ovulation	Start Flush feeding												
Provide 200g per animal complete feed	Continue with flush feeding	Females are covered												
None	Veld nutrition adequate	Early Gestation												
None	Veld nutrition adequate	Early Gestation												
Non-protein nitrogen in winter lick (if urea beware of	Protein shortage	Mid Gestation												
Non-protein nitrogen in winter lick (if urea beware of	Protein shortage	Last Trimester												
Concentrate supplementation (including protein and	Protein and energy shortage	Last Trimester and parturition												
Concentrate supplementation (including protein and	Protein and energy shortage	Parturition and early lactation												
Supplemental energy source	Energy shortage	Lactation												
Supplemental energy source	Energy shortage	Lactation												
None	Veld nutrition adequate	Lactation												

## Summative Test and Attitude & Attribute Evaluation

Before 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>	116282	<b>NQF Level:</b>	4
<b>Learner Name:</b>			

Questions	Model Answers
1. What nutrients are known as the building blocks of body structure ?	<ul style="list-style-type: none"> <li>• <i>Proteins and particularly the amino acids.</i></li> </ul>
2. Name the 10 essential amino acids.	<ul style="list-style-type: none"> <li>• <i>Valine, Leucine, Isoleucine, Threonine, Methionine, Arginine, Lysine, Histidine, Phenylalanine, Tryptophan</i></li> </ul>
3. Why is it not necessary to supply all the amino acids requirements of a ruminant in its ration?	<ul style="list-style-type: none"> <li>• <i>Because the micro-organism in the rumen can synthesize it and the ruminant will then digest the micro-organism</i></li> </ul>
4. Why is too much carbohydrates in the form of starch dangerous for a ruminant?	<ul style="list-style-type: none"> <li>• <i>The ruminant can develop acidosis. Lactic acid bacteria proliferate in the place of the normal bacterial population causing high levels of lactic acid. This will cause stasis of the rumen.</i></li> </ul>
5. Name the two main groups of vitamins.	<ul style="list-style-type: none"> <li>• <i>The fat-soluble vitamins and the water-soluble vitamins.</i></li> </ul>
6. What is the most abundant mineral in the skeleton of the farm animal?	<ul style="list-style-type: none"> <li>• <i>Calcium</i></li> </ul>
7. Do all animals need Vitamin C through their diet ?	<ul style="list-style-type: none"> <li>• <i>No. Only humans, primates and guinea pigs need supplementation. The other animals can manufacture it in their body tissue.</i></li> </ul>

Questions	Model Answers
8. Name three factors which can influence an animal's nutrient requirements	<ul style="list-style-type: none"> <li>• <i>Species, breed, age, sex, production potential, stage of production, ill or healthy, the product they produce</i></li> </ul>
9. Define "Maintenance Ration"	<ul style="list-style-type: none"> <li>• <i>A maintenance ration is one which provides sufficient nutrients for the maintenance of the essential processes of life. The animal will remain in good health without a decrease or increase in body mass.</i></li> </ul>
10. What is the last ingredient that should be added to a feed mixture?	<ul style="list-style-type: none"> <li>• <i>Molasses</i></li> </ul>
11. Name the two types of feed mixing systems	<ul style="list-style-type: none"> <li>• <i>Batch mixing and continuous mixing systems</i></li> </ul>
12. Name the two most common types of preserved feeds	<ul style="list-style-type: none"> <li>• <i>Hay and silage</i></li> </ul>
13. Name three factors which influence the quality of hay	<ul style="list-style-type: none"> <li>• <i>The type of material from which the hay is produced. The growth stage of the material. The method used to make the hay. The form in which it is fed to the animal.</i></li> </ul>
14. Name three problems that may arise in rations	<ul style="list-style-type: none"> <li>• <i>Mold growths. The presence of anti-nutritional factors such as tannins. Contamination with poisons and poisonous plants. The inclusion of dead animals. Poor quality raw material.</i></li> </ul>
15. Which acid is necessary for silage preservation?	<ul style="list-style-type: none"> <li>• <i>Lactic acid</i></li> </ul>
16. What does GMP stand for?	<ul style="list-style-type: none"> <li>• <i>Good manufacturing practices</i></li> </ul>
17. What Act controls the Farm Feed industry?	<ul style="list-style-type: none"> <li>• <i>Act 36 of 1947. The Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act.</i></li> </ul>
18. Define "Feed Conversion Ratio"	<ul style="list-style-type: none"> <li>• <i>The amount of product produced per weight of feed consumed</i></li> </ul>
19. The management of feed throughout the production cycle is known as _____ planning.	<ul style="list-style-type: none"> <li>• <i>Feed Flow</i></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</p> <p><input type="radio"/> Not yet competent in this unit standard</p>	<p>Actions to follow:</p> <p><input type="radio"/> Assessor report to ETQA</p> <p><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>