

## ANIMAL FEED PROCESSING

**UNIT CODE:** 0721 351 02A

**TVETCDACC UNIT CODE:** AGR/CU/LFP/CR/02/4/MA

**UNIT DURATION:** 240 Hours

### **Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Process animal feed

### **Unit Description**

This unit covers the competencies required in processing animal feed. It involves sourcing feedstuffs, processing feed ingredients, mixing feed batches, packaging processed feeds and storing processed feeds.

### **Summary of Learning Outcomes**

By the end of this unit, trainee should be able to:

SNO	Learning Outcomes	Duration (Hours)
1.	Source feedstuff	30
2.	Process Feed Ingredients	50
3.	Mix feed batches	60
4.	Package processed feeds	60
5.	Store processed feeds	40

### **Learning Outcomes, Content and Suggested Assessment Methods**

Learning outcomes	Content	Suggested assessment methods
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1. Source of feedstuff	<p>1.1. Personal protective equipment</p> <ul style="list-style-type: none"> <li>1.1.1. Gumboots</li> <li>1.1.2. Overall</li> <li>1.1.3. Goggles</li> <li>1.1.4. Helmet</li> <li>1.1.5. Nose masks</li> <li>1.1.6. Gloves</li> </ul> <p>1.2. Feedstuffs</p> <ul style="list-style-type: none"> <li>1.2.1. Roughages</li> <li>1.2.2. Concentrates</li> <li>1.2.3. Additives.</li> </ul> <ul style="list-style-type: none"> <li>1.3.1 Feed ingredients</li> <li>1.3.2 Proteins</li> <li>1.3.3 Carbohydrates</li> <li>1.3.4 Fats and oils</li> <li>1.3.5 Vitamins;</li> <li>1.3.6 Minerals;</li> <li>1.3.7 Additives</li> </ul> <p>1.3. Feedstuff records</p> <p>1.4. Feed waste management</p>	<ul style="list-style-type: none"> <li>• Practical</li> <li>• Third party report</li> <li>• Projects</li> <li>• Portfolio of evidence</li> <li>• Written tests</li> <li>• Oral questions</li> </ul>
2 Process Feed Ingredients	<p>2.1 Personal protective equipment</p> <ul style="list-style-type: none"> <li>2.1.1 Eye protection equipment</li> <li>2.1.2 Hearing protection equipment</li> <li>2.1.3 Feet protection equipment</li> <li>2.1.4 Respiratory protection equipment</li> <li>2.1.5 Gloves</li> <li>2.1.6 Full body suits</li> </ul> <p>2.2 Feed processing tools, equipment and materials</p> <ul style="list-style-type: none"> <li>2.2.1 Grinders</li> <li>2.2.2 Crushers</li> <li>2.2.3 Hammer mills</li> <li>2.2.4 Shovels</li> </ul> <p>2.3 Feedstuff treatment methods</p> <ul style="list-style-type: none"> <li>2.3.1 Drying</li> <li>2.3.2 Flaking</li> <li>2.3.3 Pelleting</li> <li>2.3.4 Grinding</li> <li>2.3.5 Mixing</li> <li>2.3.6 Crushing</li> </ul>	<ul style="list-style-type: none"> <li>• Practical</li> <li>• Third party report</li> <li>• Projects</li> <li>• Portfolio of evidence</li> <li>• Written tests</li> <li>• Oral questions</li> </ul>

	<p>2.3.7 Roasting</p> <p>2.3.8 Cooling</p> <p>2.3.9 Dry rolling</p> <p>2.3.10 Pressure cooking</p> <p>2.3.11 Exploding</p> <p>2.3.12 Reconstitution</p> <p>2.3.13 Extrusion</p> <p>2.3.14 Gelatinization</p> <p>2.3.15 Popping</p> <p>2.3.16 Micronizing</p> <p>2.3.17 Crumbling</p> <p>2.4 Quality control measures</p> <p>2.5 Waste management</p>	
3	<p>3.1 Personal protective equipment</p> <p>3.1.1 Eye protection equipment</p> <p>3.1.2 Hearing protection equipment</p> <p>3.1.3 Feet protection equipment</p> <p>3.1.4 Respiratory protection equipment</p> <p>3.1.5 Gloves</p> <p>3.1.6 Full body suits</p> <p>3.2 Feed mixing tools and equipment</p> <p>3.3 Feed ingredients</p> <p>3.3.1 Proteins</p> <p>3.3.2 carbohydrates</p> <p>3.3.3 fats and oils</p> <p>3.3.4 Vitamins</p> <p>3.3.5 Minerals</p> <p>3.4 Additives and supplements</p> <p>3.4.1 Antibiotics</p> <p>3.4.2 Chemical preservatives</p> <p>3.4.3 Fermentation products</p> <p>3.4.4 Probiotics</p> <p>3.4.5 Flavors</p> <p>3.4.6 Sweeteners</p> <p>3.4.7 Any other additives</p> <p>3.5 Feed ingredient weighing and recording</p> <p>3.6 Feed ingredient mixing</p> <p>3.7 Feed sample analysis</p> <p>3.8 Feed records</p> <p>3.9 Feed waste management</p>	<ul style="list-style-type: none"> <li>• Practical</li> <li>• Third party report</li> <li>• Projects</li> <li>• Portfolio of evidence</li> <li>• Written tests</li> <li>• Oral questions</li> </ul>
4	<p>1.1. Packaging materials</p>	<ul style="list-style-type: none"> <li>• Practical</li> </ul>

processed feeds	4.4.1 Plastic material 4.4.2 Biodegradable Paper bags 4.4.3 Bins /containers 4.4.4 Pallet shrinks wrap 1.2. Feed packaging 1.3. Feed labelling 4.1.1 Product name 4.1.2 Net weight 4.1.3 Ingredients list 4.1.4 Guaranteed analysis 4.1.5 Feeding instructions 4.1.6 Manufacturer instructions 4.1.7 Expiration date. 1.4. Packaged feed records	<ul style="list-style-type: none"> <li>• Third party report</li> <li>• Projects</li> <li>• Portfolio of evidence</li> <li>• Written tests</li> <li>• Oral questions</li> </ul>
5 Store processed feeds	1.1. Storage tools and equipment 5.1.1 Racking system 5.1.2 pallets 5.1.3 cartons and boxes 5.1.4 filing cabinets... 1.2. Feed store preparation 5.2.1 Cleaning 5.2.2 Dusting/fumigation... 1.3. Feed Storage records 1.4. Feeds quality 5.4.1 Feed composition analysis 5.4.2 Moisture content testing 5.4.3 Microbial quality control 5.4.4 Storage condition monitoring 5.4.5 Chemical analysis	<ul style="list-style-type: none"> <li>• Practical</li> <li>• Third party report</li> <li>• Projects</li> <li>• Portfolio of evidence</li> <li>• Written tests</li> <li>• Oral questions</li> </ul>

### Suggested Methods of Instruction

- Practical
- Role playing
- Discussion
- Direct instruction

### Recommended Resources for 25 Trainees

S/No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio
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				(Item: Trainee)
<b>A</b>	<b>Learning Materials</b>			
1.	Textbooks	Animal nutrition textbooks	5 pcs	1:5
2.	Feed processing manuals	KALRO feed processing manual	1	1:25
3.	Charts	feed	5	1:5
4.	PowerPoint presentations	For trainer's use		
<b>B</b>	<b>Learning Facilities &amp; infrastructure</b>			
6.	Lecture/theory room		1	1:25
7.	Workshop		1	1:25
8.	Laboratory		1	1:25
9.	Site		1	1:25
<b>C</b>	<b>Consumable materials</b>			
10.	Packaging materials sacks	easyvet.com	25 pcs	1:1
11.	Labels printed	easyvet.com	25 pcs	1:1
12.	Feed	easyvet.com	25 pcs	1:1
<b>D</b>	<b>Tools and Equipment</b>			
13.	Grinders		25 pcs	1:1
14.	Crushers		25 pcs	1:1
15.	Hammer mills		25 pcs	1:1
16.	Shovels		25 pcs	1:1