

## **DAIRY CATTLE MANAGEMENT**

**UNIT CODE:** 0811 351 09A

**TVET CDACC UNIT CODE:** AGR/CU/AP/CR/02/4/MA

### **Relationship to Occupational Standards**

This unit addresses the unit of competency: Manage Dairy Cattle

**Duration of Unit: 120 Hours**

### **UNIT DESCRIPTION**

This unit specifies competencies required to manage dairy cattle which involves construction dairy cattle structures, feeding of dairy cattle, breeding of dairy cattle, managing of dairy calf, production of clean milk, performing dairy cattle routine management practices and marketing of dairy products

### **Summary of Learning Outcomes**

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

<b>S/No</b>	<b>Learning Outcomes</b>	<b>Duration (Hours)</b>
1.	Construct dairy cattle structures	40
3.	Feed dairy cattle	10
4.	Breed dairy cattle	10
5.	Manage dairy calf	20
6.	Produce clean milk	10
7.	Perform dairy cattle routine management practices	30
<b>Total</b>		<b>120</b>

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

<b>Learning Outcome</b>	<b>Content</b>	<b>Suggested Assessment Methods</b>

1. Construct dairy cattle structures	1.1 Dairy production tools and equipment 1.1.1 Milking machine 1.1.2 Milking parlor 1.1.3 Buckets 1.2 Site selection of dairy cattle structures 1.2.1 Crushes 1.2.2 Milking parlor 1.2.3 Barn 1.2.4 Feeding facility 1.2.5 Cattle shed 1.2.6 Cattle dips 1.2.7 Feed storage facility 1.2.8 Farm office 1.3 Designing of dairy cattle structures 1.4 Construction of dairy cattle structures 1.5 Maintenance of dairy cattle structures 1.5.1 Repairing 1.5.2 Cleaning 1.5.3 Dusting 1.5.4 creasing 1.6 Dairy structure maintenance records 1.7 Waste management	<ul style="list-style-type: none"> <li>• Written assessment</li> <li>• Practical</li> <li>• Projects</li> <li>• Third party report</li> <li>• Portfolio of evidence</li> <li>• Oral questions</li> </ul>
2. Feed dairy cattle	2.1 Tools and equipment 2.2 Identification of dairy cattle feeds	<ul style="list-style-type: none"> <li>• Written assessment</li> <li>• Practical</li> <li>• Projects</li> </ul>

	<p>2.2.1 Carbohydrates</p> <p>2.2.2 Proteins</p> <p>2.2.3 Vitamins</p> <p>2.2.4 Minerals</p> <p>2.2.5 Fats/ lipids</p> <p>2.2.6 Water</p> <p>2.3 Grouping of dairy cattle based on nutritional requirements</p> <p>2.3.1 Young</p> <p>2.3.2 Dry</p> <p>2.3.3 Lactating</p> <p>2.3.4 In calf</p> <p>2.3.5 steers</p> <p>2.4 Dairy cattle feeding regime</p> <p>2.5 Feeding dairy cattle</p> <p>2.6 Dairy feed intake evaluation.</p> <p>2.7 Feed conversion efficiency evaluation</p> <p>2.8 Dairy cattle feeding records</p> <p>2.9 Waste management</p>	<ul style="list-style-type: none"> <li>• Third party report</li> <li>• Portfolio of evidence</li> <li>• Oral questions</li> </ul>
3. Breed dairy cattle	<p>3.1 Breeding tools and equipment</p> <p>3.1.1 AI Kit</p> <p>3.1.2 Semen straws</p> <p>3.2 Dairy cattle breeds</p> <p>3.2.1 Friesian</p>	<ul style="list-style-type: none"> <li>• Written assessment</li> <li>• Practical</li> <li>• Projects</li> <li>• Third party report</li> <li>• Portfolio of evidence</li> <li>• Oral questions</li> </ul>

	<p>3.2.2 Aryshire</p> <p>3.2.3 Sahiwal</p> <p>3.2.4 Jersey</p> <p>3.2.5 Brown Swiss</p> <p>3.3 Selection methods</p> <p>3.3.1 Pedigree</p> <p>3.3.2 Sibling</p> <p>3.3.3 Family</p> <p>3.3.4 Progeny</p> <p>3.4 Heat signs in dairy cattle</p> <p>3.5 Flushing</p> <p>3.6 Breeding methods and technologies</p> <p>3.6.1 Artificial insemination</p> <p>3.6.2 Natural method</p> <p>3.6.3 Cross breeding</p> <p>3.6.4 Pure breeding</p> <p>3.6.5 Inbreeding</p> <p>3.6.6 Embryo transfer</p> <p>3.6.7 Surrogate</p> <p>3.7 Gestation management</p> <p>3.8 Care of In-calf dairy cows</p> <p>3.9 Steaming up</p> <p>3.10 Parturition management</p> <p>3.11 Breeding records</p>	
4. Manage dairy calf	<p>4.1 Calf management tools, equipment and materials</p> <p>4.2 Preparing calf pen</p>	<ul style="list-style-type: none"> <li>• Written assessment</li> <li>• Practical</li> <li>• Projects</li> </ul>

	<p>4.3 Handling of calf at birth</p> <p>4.4 Feeding calf on colostrum</p> <p>4.5 Fostering of orphaned calves</p> <p>4.6 Preparation of artificial colostrum</p> <p>4.7 Calf identification</p> <ul style="list-style-type: none"> <li>4.7.1 Ear tagging</li> <li>4.7.2 Ear notching</li> <li>4.7.3 Branding</li> <li>4.7.4 Neck chains</li> <li>4.7.5 Straps with numbers</li> </ul> <p>Ear tattooing</p> <p>4.8 Calf housing</p> <p>4.9 Introduction of calf to roughage feeding</p> <p>4.10 Disbudding of calfa and removal of extra mammary teats</p> <p>4.11 Calf weighing</p> <p>4.12 Monitoring of calf growth rate</p> <p>4.13 Calf weaning</p> <p>4.14 Management and disposal of waste</p>	<ul style="list-style-type: none"> <li>• Third party report</li> <li>• Portfolio of evidence</li> <li>• Oral questions</li> </ul>
5. Produce clean milk	<p>5.1 Milking materials and equipment</p> <ul style="list-style-type: none"> <li>5.1.1 Cups</li> <li>5.1.2 Herd Test Buckets</li> <li>5.1.3 Thermometer</li> </ul>	<ul style="list-style-type: none"> <li>• Written assessment</li> <li>• Practical</li> <li>• Projects</li> <li>• Third party report</li> <li>• Portfolio of evidence</li> </ul>

	<p>5.1.4 Separator</p> <p>5.2 Assembling of milking cows</p> <p>5.3 Restraining of milking cows</p> <p>5.4 Cleaning and pre-dipping of udder</p> <p>5.5 Carrying out of mastitis test</p> <p>    5.5.1 CMT</p> <p>    5.5.2 Strip cup</p> <p>5.6 Stimulation of milk let down</p> <p>5.7 Milking techniques</p> <p>    5.7.1 Hand milking</p> <p>    5.7.2 Milking machine</p> <p>5.8 Milking</p> <p>5.9 Disinfecting of udder hindquarters</p> <p>5.10 Releasing of Milked cow</p> <p>5.11 Sieving and weighing milk</p> <p>5.12 Storage of milk and cooling</p> <p>5.13 Maintenance of milk production records</p> <p>5.14 Cleaning of milking equipment</p> <p>5.15 Cleaning of milking parlor</p>	<ul style="list-style-type: none"> <li>• Oral questions</li> </ul>
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	<p>5.16 Storage of re-usable materials</p> <p>5.17 Management and disposal of waste</p>	
6. Perform dairy cattle routine management practices	<p>6.1 Identification method</p> <ul style="list-style-type: none"> <li>6.1.1 Ear tagging</li> <li>6.1.2 Ear notching</li> <li>6.1.3 Branding</li> <li>6.1.4 Neck chains</li> <li>6.1.5 Straps with numbers</li> <li>6.1.6 Ear tattooing</li> </ul> <p>6.1 Dehorning and disbudding of cattle</p> <p>6.2 Trimming of overgrown hooves</p> <p>6.3 Culling of dairy cattle</p> <p>6.4 Control of external and internal parasites methods</p> <ul style="list-style-type: none"> <li>6.4.1 Dipping</li> <li>6.4.2 Bush clearing</li> <li>6.4.3 Dusting</li> <li>6.4.4 Spraying</li> <li>6.4.5 Deworming</li> <li>6.4.6 Drenching</li> </ul> <p>6.5 Vaccination</p> <p>6.6 Cattle isolation and quarantine to control notifiable diseases</p> <p>6.7 Provision of clean water ad-libitum to dairy cattle</p>	<ul style="list-style-type: none"> <li>• Written assessment</li> <li>• Practical</li> <li>• Projects</li> <li>• Third party report</li> <li>• Portfolio of evidence</li> <li>• Oral questions</li> </ul>

7. Market dairy cattle products	7.1 Conducting market survey 7.2 Dairy cattle products <ul style="list-style-type: none"> <li>7.2.1 Milk</li> <li>7.2.2 Hides</li> <li>7.2.3 Hooves</li> <li>7.2.4 Cream.</li> <li>7.2.5 Butter.</li> <li>7.2.6 Fermented.</li> <li>7.2.7 Yogurt.</li> <li>7.2.8 Cheese</li> </ul> 7.3 Dairy cattle transportation 7.4 Maintenance of marketing records	<ul style="list-style-type: none"> <li>• Written assessment</li> <li>• Practical</li> <li>• Projects</li> <li>• Third party report</li> <li>• Portfolio of evidence</li> <li>• Oral questions</li> </ul>
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### Suggested methods of delivery

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- Practical
- Project
- Demonstration
- Group work and Discussions
- Direct instruction

### Recommended Resources

S/No.	Category/Item	Description/Specifications	Quantity	Recommended Ratio (Item: Trainee)
<b>A</b>	<b>Learning Materials</b>			
1.	Charts	Flip Charts Rules and Regulations	5	1:5

2.	Markers	whiteboard markers and permanent markers	5	1:5
3.	Video clips  Audio tapes	MP4, MP3	5	1:5
4.	Newspapers and Handouts	Daily	25	1:1
5.	Business Journals	Annual, Monthly, Daily	25	1:1
6.	National Pig Development Programme Manual	updated	5	1:5
7.	Breeder's manuals by breeders like Cobb and Issa Brown	updated	5	1:5
<b>B</b>	<b>Learning Facilities &amp; Infrastructure</b>			
8.	Lecture/Theory Room	(9* 8 sq. metres)	1	1:25
9.	Internet Connection	WI-FI, Dial-Up, Cable, Fixed-wireless,	1	1:25
10.	Drinkers	1	1	1:25
11.	Feeding trough	1	1	1:25
12.	Grass	1	1	1:25
13.	Shrub	Well equipped	1	1:25
14.	<ul style="list-style-type: none"> <li>• Crushes</li> <li>• Milking parlor</li> <li>• Barn</li> <li>• Crushes, Feeding facility</li> <li>• Cattle shed, Cattle dips</li> </ul>	In good condition	1	1:25

	<ul style="list-style-type: none"> <li>• Feed storage facility</li> <li>• dairy farm</li> <li>• Farm office</li> <li>• Pasture forage</li> <li>• Hay, Silage</li> <li>• Straw</li> <li>• Grain by-products</li> </ul>			
<b>C</b>	<b>Consumable Materials</b>			
1.	Flashcards	Alphabet, Numbers, Math	25	1:1
2.	Stationery	Printing Papers, and Exercise Books Sizes A4, A3, A2 etc	5 reams	1:5
3.	Dairy cattle feeds	<ul style="list-style-type: none"> <li>• Carbohydrates</li> <li>• Proteins</li> <li>• Vitamins</li> <li>• Minerals</li> <li>• Fats/ lipids</li> <li>• Water</li> </ul>	Adequate	
<b>D</b>	<b>Tools And Equipment</b>			
1.	Wheelbarrow	Any model	5	1:5
2.	Scissors	LED.LCD, Laser	5	1:5
3.	Hand drill	Glass, melamine, porcelain	1	1:25
4.	Panga	Any five	5	1:5
5.	Measuring tape	Any five	5	1:5
6.	Spade	Any five	5	1:5
7.	String/line	Any five	5	1:5
8.	Surgical blades	In good condition	5	1:5

9.	Ear Notchers	In good condition	5	1:5
10.	Milking machine	In good condition	1	1:25
11.	<ul style="list-style-type: none"> <li>• Animal Restraint</li> <li>• Cleaning</li> <li>• Cups</li> <li>• Herd Test Buckets</li> <li>• Thermometer</li> <li>• Separator</li> <li>• CMT</li> <li>• Strip cup</li> <li>• Milking machine</li> <li>• Ear tattooing</li> </ul>		5 in each category	1:5
12.	Ear tags	In good condition	5	1:5
13.	Neck chains	In good condition	5	1:5
14.	Straps with numbers	In good condition	5	1:5
15.	Branding			
16.	Herd Test Buckets Thermometer			
F	<b>Specimens</b>			
1.	Dairy breeds	<ul style="list-style-type: none"> <li>• Dairy Cattle</li> <li>• Friesian</li> <li>• Ayrshire</li> <li>• Sahiwal</li> <li>• Jersey</li> <li>• Brown Swiss</li> </ul>	1each type	1:5