

## APPLY DAIRY MICROBIOLOGY PRINCIPLES

ISCED UNIT CODE: 0721 451 08A

TVET CDACC UNIT CODE: DA/OS/PM/CC/04/5/MA

### UNIT DESCRIPTION

This unit specifies the competencies required by a Dairy Plant Technologist level 6 to Apply Dairy Microbiology Principles. It involves utilizing dairy microorganism, applying dairy hygiene practices, and controlling dairy microorganisms.

### ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
These describe the key outcomes which make up workplace functions	These are assessable statements which specify the required level of performance for each of the elements <i>(Bold and italicized terms are elaborated in the range)</i>
1. Utilize dairy microorganism	1.5 <b><i>Beneficial dairy microorganisms</i></b> are identified as per work requirements 1.6 Beneficial dairy microorganisms are used as per work requirements 1.7 Fermentation process is monitored as per work instruction manual. 1.8 Enzymatic activity is monitored as per work instruction manual 1.9 Fermentation process records are maintained as per work instruction manual.
2. Apply dairy hygiene practices	2.1 <b><i>Inspection</i></b> of dairy plant is carried out as per code of hygiene practice. 2.2 <b><i>Microbial tests</i></b> are carried out as per work instruction manual. 2.3 Dairy plant is cleaned as per work instruction manual 2.4 <b><i>Dairy plant environment</i></b> hygiene is maintained as per work instruction manual. 2.5 Employee hygiene is maintained as per code of hygiene practice.

	2.6 Dairy hygiene records are maintained as per work instruction manual
3 Control dairy microorganisms	<p>3.1 <i>Harmful dairy micro-organisms are identified</i> as work instruction manual</p> <p>3.2 Harmful dairy micro-organisms are <i>controlled</i> as per work instruction manual.</p> <p>3.3 Harmful dairy micro-organisms control record is maintained as per work instruction manual.</p>

## RANGE

This section provides work environment and conditions to which the performance criteria apply. It allows for different work environment and situations that will affect performance.

Variable	Range
1. Beneficial dairy microorganisms may include but are not limited to:	<ul style="list-style-type: none"> <li>• Bacteria</li> <li>• Fungi</li> <li>• Protozoa</li> </ul>
2. Inspection may include but are not limited to:	<ul style="list-style-type: none"> <li>• Hygiene and sanitation</li> <li>• Facility layout and design</li> <li>• Equipment and machinery</li> <li>• Raw material handling</li> </ul>
3. Microbial test may include but are not limited to:	<ul style="list-style-type: none"> <li>• Standards plate count</li> <li>• Total plate count</li> <li>• Coliforms plate count</li> <li>• Yeast and mold count</li> </ul>
4. Dairy plant environment may include but are not limited to:	<ul style="list-style-type: none"> <li>• Processing area</li> <li>• Packaging area</li> <li>• Dairy laboratory</li> <li>• Waste disposal area</li> </ul>
5. Harmful dairy micro-organisms may include but are not limited to:	<ul style="list-style-type: none"> <li>• Salmonella</li> <li>• Escherichia coli</li> </ul>

	<ul style="list-style-type: none"> <li>• <i>Listeria monocytogenes</i></li> <li>• <i>Staphylococcus aureus</i></li> </ul>
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## REQUIRED KNOWLEDGE AND SKILLS

This section describes the knowledge and skills required for this unit of competency.

### Required knowledge

The individual needs to demonstrate knowledge of:

- Dairy microorganism
- Dairy hygiene practice
- Microbial test
- Enzymatic activities

### Required skills

The individual needs to demonstrate the following skills:

- Use of dairy microorganism
- Dairy hygiene practices applications
- Control dairy microorganisms
- Communication skills
- Problem solving
- Analytical skills
- Observation of laboratory safety

## EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required knowledge and skills range.

2 Critical aspects of competency	<p>Assessment requires evidence that the candidate:</p> <p>1.4 Used Beneficial dairy microorganisms as per work requirements</p> <p>1.5 Carried out inspection of dairy plant as per code of hygiene practice.</p> <p>1.6 Carried out microbial tests as per work instruction manual.</p>
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	<p>1.7 Cleaned dairy plant as per work instruction manual</p> <p>1.8 Maintained employee hygiene as per code of hygiene practice.</p>
6. Resource implications	<p>The following resources should be provided:</p> <p>2.4 Appropriately simulated environment where assessment can take place</p> <p>2.5 Access to relevant work environment</p> <p>2.6 Resources relevant to the proposed activities or tasks</p>
7. Methods of assessment	<p>Competency in this unit may be assessed through:</p> <p>3.7 Practical assessment</p> <p>3.8 Oral questioning</p> <p>3.9 Portfolio of evidence</p> <p>3.10 Interviews</p> <p>3.11 Third party report</p> <p>3.12 Written tests</p>
8. Context of assessment	<p>Competency may be assessed:</p> <p>2.3 Workplace</p> <p>2.4 Simulated work environment</p>
9. Guidance information for assessment	<p>Holistic assessment with other units relevant to the industry sector and workplace job role is recommended.</p>