



Republic of Rwanda
Ministry of Education



RTB | RWANDA
TVET BOARD

RAW MILK RECEPTION

FOPMR303

RECEIVE RAW MILK

Competence

RQF Level: 3

Learning Hours



50

Credits: 5

Sector: Agriculture and Food Processing

Trade: Food Processing

Module Type: Specific

Curriculum: AGRFOP3003- TVET Certificate 3 Food Processing

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Issue Date: September 2022

Purpose statement	This module covers the skills, knowledge and attitudes required to perform raw milk reception in both milk collection centers (MCC) and dairy Industry. Upon the completion of this module, the trainee will be able to prepare work area, tools, equipment and materials required to receive raw milk and will also be able to carry out raw milk tests and store raw milk in accordance to the protocol and raw milk specifications under regular and directive supervision.						
Delivery modality	Training delivery			100%	Assessment		Total 100%
	Theoretical content			30%	Formative assessment	30%	50%
	Practical work:			70%		70%	
	• Group project and presentation	20%					
	• Individual project /Work	50%					
				Summative Assessment		50%	

Elements of Competency and Performance Criteria

Elements of competency	Performance criteria
1. Prepare work place, tools, materials and equipment	1.1. Tools, equipment and materials are properly selected according to their use
	1.2. Work area is well cleaned according to standards operating procedures and cleaning methods
	1.3. Reagents are correctly prepared according to testing protocol
2. Perform raw milk testing	2.1. Raw milk is well sampled according to sampling techniques
	2.2. Sample is correctly analysed according to the type of test and testing protocol
	2.3. Raw milk is well graded according to raw milk specification
3. Store raw milk	3.1. Raw milk is accurately measured and filtered according to the raw milk specification.
	3.2. Storage conditions are effectively monitored according the raw milk specification
	3.3. Record keeping is correctly done according to the traceability.

Learning outcomes	At the end of the module the learner will be able to: 1. Prepare work place, tools, materials and equipment 2. Perform raw milk testing 3. Store raw milk
Learning outcome 1: Prepare work place, tools, materials and equipment	Learning hours: 10
Indicative content	
• Selection of Tools, equipment and materials used in raw milk reception ✓ Differentiation of tools, equipment and materials used in raw milk reception. + Tools and materials for Sampling + Tools, equipment and materials for testing + Tools, equipment and materials for storage + Tools, equipment and materials for cleaning ✓ Selection criteria of tools, equipment and materials for raw milk reception + List Criteria for raw milk reception + List Criteria for tools and equipment + List Criteria for cleaning agent and reagent ✓ Functionality /specifications and adjustment of tools and equipment • Cleaning of the work area ✓ Purpose of cleaning work area ✓ List of hygienic safety precautions ✓ Preparation of cleaning product + Factors affecting cleaning ✓ Application of cleaning Method + wet cleaning + dry cleaning ✓ Application of cleaning technics + CIP and COP ✓ Check the effectiveness of cleaning. ✓ Arrangement of the work area + purpose of arrangement + setting up of the work area • Preparation of testing reagents ✓ Preparation of alcohol	

Resources required for the learning outcome : : Prepare work place, tools, materials and equipment

Equipment	Lacto scan, incubator, PPE, weighing balance, khjerdah machine, cooler, hand dryer, microscope, computer, table, milking can, pump, water tank, projectors, watch, Autoclave
Materials	Raw milk, cleaning agent , food laboratory reagent t, Water, culture media, papers, insecticides, chalk, black , flip chart, marker, detergent, disinfectant, all purpose cleaner, glass cleaner, garbage bag, records forms, reference standard
Tools	lactometer, Thermometer, PH meter, Alcoholmeter, mastitis kits, antibiotic kits, Brush, Mops, Bucket, Broom, spoon, measuring cylinder, Filters, first aid kit, Bunsen burner, Pen, note book, cup, waste bin, petri dish, insect killer, micropipette, beaker, colony counter, plate, calculator, basin, milk sampler, traps, Broom, black board, cleaning tools
Facilitation techniques	• Demonstration and simulation • Individual and group work • Practical exercise • Group discussion • Audio visual material
Formative assessment methods	• Written assessment • Oral presentation • Performance assessment

Indicative content

- Raw milk sampling
 - ✓ Description of raw milk
 - ✓ Description sampling
 - ✚ Purpose of sampling
 - ✓ Application of Sampling techniques
 - ✓ Handling of sample
- Sample Analysis
 - ✓ Purpose of raw milk testing
 - ✓ Description of raw milk test types
 - ✓ Performing raw milk testing and result interpretation.
- Grading of raw milk
 - ✓ Description of grading
 - ✚ Purpose of grading.
 - ✚ Grading parameters
 - ✓ Performing grading

Resources required for the indicative content

Equipment	lactometer, lacto scan, Incubator, PPE, Weighing balance, Cooler, Hand dryer, Computer, Microscope, Autoclave, projector, fire extinguisher, tables
Materials	Raw milk, cleaning agent , reagent, Water, sanitizers.
Tools	Thermometer, PH meter ,Alcoholmeter, antibiotic kits, cleaning tools ,spoon, measuring cylinder, Filters, first aid tool kit, Bunsen burner, Pen, note book, cup, waste bin, funnels, alcohol gun, glass ware(test tube)
Facilitation techniques	• Demonstration and simulation • Individual and group work • Practical exercise • Brainstorming • Experimentation • Field visit
Formative assessment	• Written assessment • Oral presentation

methods	• Performance assessment
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Learning outcome 3: Store raw milk	Learning hours: 10
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Indicative content

- filtration of raw milk
 - ✓ Purpose of filtration
 - ✓ Types of filter for raw milk
 - ✓ Apply filtration technique/method
 - ✓ Measuring the quantity of raw milk
- Storing of raw milk
 - ✓ Purpose of raw milk storage
 - ✓ Setting storage conditions
 - ✓ Monitoring of raw milk storage conditions
- Record keeping
 - ✓ Purpose of keeping record
 - ✓ List of data recorded in raw milk reception
 - ✓ Apply Method of keeping record.

 Electronic (soft copies)

 hardcopies

Resources required for the indicative content
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Equipment	Cooling tank, , Refrigerator ,Filters, Hand dryer, Computer
Materials	Raw milk ,Book ,Pen ,Electricity ,raw milk, cleaning product, water, detergent, disinfectant, utensils, record templates
Tools	Thermometer, Hygrometer, first aid tool kit, measuring cylinder. Cleaning tools
Facilitation techniques	• Demonstration and simulation • Individual and group work • Practical exercise • Field visit • Audio visual material
Formative assessment methods	• Written assessment • Oral presentation • Performance assessment

Integrated situation

Bwiza MCC located in Musanze district, recently received 500 liters of milk daily for supplying to SAWA dairy industry. At the arrival to SAWA dairy industry, raw milk undergoes further tests, during analysis they found the antibiotics, raw milk adulterations while pH was below the acceptable level for raw milk. The management of SAWA take decision to reject milk, directly notify Bwiza MCC tackled cases and request them to correct the cases as it happens more than one times. The management of Bwiza MCC wishes to recruit you as raw milk receptionist to correct the recurrence of that cases.

Tasks:

1. Receive 1 liter of raw milk and perform raw milk platform test.

Instructions:

- Raw milk storage condition should be respected
- Duration for task is 1hour

Tools, laboratory reagent and equipment are in the Laboratory room.

Resources

Tools	Thermometer, PH meter, Alcoholmeter, mastitis kits, antibiotic kits, Brush, Mops, Bucket, Broom, spoon, measuring cylinder, Filters, first aid kit, Bunsen burner, Pen, note book, cup, waste bin, petri dish, insect killer, micro pipette, beaker, colony counter, calculator, basin, milk sampler, traps.
Equipment	Broom, lactometer, lacto scan, incubator, PPE, weighing balance, khjerdah machine, cooler, hand dryer, microscope computer, table, milking can ,pump, water tank
Materials/ Consumables	Raw milk , cleaning agent , reagent , Water , culture media , papers , insecticides

Assessable outcomes	Assessment criteria (Based on performance criteria)	Indicator	Observation		Marks allocation
			Yes	No	
Learning outcome1: prepare work place, tools, material, and equipment (30%)	1.1. Tools, equipment, materials are properly selected according to their use.	Ind.1: Tools are selected			3
		Ind.2. Equipment are selected			3
		Ind.3. Materials are selected			3
	1.2. Work area is well cleaned according to the standard operating procedures and cleaning method.	Ind.1 Cleaning agent are selected			3
		Ind.2. Procedures of cleaning techniques are respected			3
		Ind.3 Work area is cleaned			3
		Ind.4 Work area is arranged			3
		Ind.5 Safety precautions are respected			3
	1.3. Reagent are correctly prepared according to testing protocol.	Ind.1. Reagent are selected			3
		Ind.2. Reagent are prepared			3
Learning outcome 2: Perform raw milk testing (40%)	2.1. Raw milk is well sample according to sampling techniques.	Ind.1. Sampling techniques are applied			4
		Ind.2 Raw milk is sampled			5
		Ind.3 Sample is handled			3
	2.2. Sample is correctly analyzed according to the types of test and testing protocols.	Ind.1.Protocols are followed			4
		Ind.2. Alcohol test is conducted			3
		Ind3. Density is measured			4
		Ind 4. PH is measured			3
		Ind 5. Temperature is measured			3
		Ind.6 Results are interpreted			4
	2.3. Raw milk is well graded	Ind.1 Grading parameters are			3

	according to raw milk specifications	respected			
		Ind.2. Raw milk is graded			4
Learning outcome 3: Store the raw milk (30%)	3.1. Raw milk is accurately measured and filtrated according to the raw milk specifications	Ind.1 Raw milk is measured			3
		Ind.2. Raw milk are filtered			3
	3.2.storage condition are effectively monitored according to raw milk specification.	Ind.1 Storage conditions are set			8
		Ind.2 Storage conditions are controlled			5
	3.3 Record keeping is correctly done according to the traceability	Indi.1. Data are recorded			8
		Ind.2. Record are kept			3
Total marks		100			
Percentage Weightage		100%			
Minimum Passing line % (Aggregate): 70%					

References:

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