

-SQA- SCOTTISH QUALIFICATIONS AUTHORITY

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NATIONAL CERTIFICATE MODULE DESCRIPTOR

-Module Number- 1180490 -Session-1990-91
-Superclass- SH

-Title- MILKING (x¹/₂)

-DESCRIPTION-

Purpose This module is designed to enable the student to acquire the skills and knowledge necessary for the safe and hygienic production of milk.

It is aimed at those who wish to develop their ability at craft level within the land-based sector.

Preferred Entry Level 1180100 Basic Care of Mammals.

Outcomes The student should:

1. describe the basic structure of the udder and the mechanism of milk secretion and let down;
2. carry out the routine of preparing, operating, cleaning and maintaining milking and ancillary equipment;
3. milk record a herd of dairy cows;
4. outline the main causes of changes in the hygienic and compositional quality of milk which are associated with the milking process.

Assessment Procedures Acceptable performance in the module will be satisfactory achievement of all the Performance Criteria specified for each Outcome.

The following abbreviations are used below:

PC Performance Criteria
IA Instrument of Assessment

Note: The Outcomes and PCs are mandatory and cannot be altered. The IA may be altered by arrangement with SQA. (Where a range of performance is indicated, this should be regarded as an extension of the PCs and is therefore mandatory.)

OUTCOME 1 DESCRIBE THE BASIC STRUCTURE OF THE UDDER AND THE MECHANISM OF MILK SECRETION AND LET DOWN

- PCs (a) The identification of position of external anatomical features is correct.
 (b) The identification of position of internal anatomical features is correct.
 (c) The description of the mechanism of milk secretion and let down is accurate.

IA (1) Short Answer Questions for Performance Criteria (a) and (b)

The student will be presented with short answer questions to test the application of knowledge and skills required to describe the basic structure of the udder and the mechanism of milk secretion and let down.

The exercise will consist of 8 short answer questions allocated as follows:

- (i) Performance Criterion (a) 3
 (ii) Performance Criterion (b) 5

Satisfactory achievement of this part of the Outcome will be based on the student producing correct responses as follows:

- (i) 3 out of 3
 (ii) 4 out of 5

IA (2) Restricted Response for Performance Criterion (c).

The student will be presented with restricted response questions to test the application of knowledge and skills required to describe the basic structure of the udder and the mechanism of milk secretion and let down.

The exercise will consist of 3 restricted response questions on Performance Criterion (c).

Satisfactory achievement of this part of the Outcome will be based on the student producing 3 correct responses for Performance Criterion (c).

OUTCOME 2 CARRY OUT THE ROUTINE OF PREPARING, OPERATING, CLEANING AND MAINTAINING MILKING AND ANCILLARY EQUIPMENT

- PCs
- (a) The procedures in preparing equipment are in accordance with good farm practice.
 - (b) The preparation of the cows for milking is appropriate to the requirements of hygienic milk production.
 - (c) The operation of equipment is in accordance with good farm practice.
 - (d) The milking routine is effective in meeting the requirements of health, hygiene and efficiency.
 - (e) The cleaning and disinfection of equipment is in accordance with statutory requirements.
 - (f) The maintenance of milking and ancillary equipment is in accordance with good farm practice.

IA Practical Exercise

The student will be set a practical exercise which tests the application of knowledge and skills required to carry out the routine of preparing, operating, cleaning and maintaining milking and ancillary equipment.

The exercise will centre on a given farm situation and the student will be expected to carry out the following routines on one occasion for a minimum of 10 cows:

- (i) preparation of the equipment;
- (ii) preparation of cows for milking;
- (iii) operation of the equipment;
- (iv) effective milking routine;
- (v) cleaning and disinfection of the equipment;
- (vi) maintenance of milking and ancillary milking equipment.

The assessment should be carried out with the aid of an observation checklist.

Satisfactory achievement of the Outcome will be based on all the Performance Criteria being met.

OUTCOME 3 MILK RECORD A HERD OF DAIRY COWS

- PCs
- (a) The reading of individual cow milk yield is accurate.
 - (b) The recording of milk yields is accurate and clear.

IA Practical Exercise

The student will be set a practical exercise which tests the application of knowledge and skills required to milk record a herd of dairy cows.

The exercise will centre on a given situation and the student will be expected to record individual cow milk yields for a minimum of 10 cows, on one occasion and present the data in a clear form.

The assessment should be carried out with the aid of an observation checklist.

Satisfactory achievement of the Outcome will be based on Performance Criteria being met.

OUTCOME 4 OUTLINE THE MAIN CAUSES OF CHANGES IN THE HYGIENIC AND COMPOSITIONAL QUALITY OF MILK WHICH ARE ASSOCIATED WITH THE MILKING PROCESS

- PCs
- (a) The identification of factors affecting hygienic quality of milk is correct.
 - (b) The identification of factors associated with the milking process which affect milk composition are correct.
 - (c) The procedures taken by the stockman to prevent and treat mastitis are in accordance with good farm practice.
 - (d) The disposal procedures for mastitic milk are in accordance with the statutory requirements.

IA Short Answer Questions

The student will be set short answer questions to test the knowledge required to outline the main causes of changes in the hygienic and compositional quality of milk, which are associated with the milking process, steps taken by stockman to prevent and treat mastitis and disposal of mastitic milk.

The exercise will consist of 15 short answer questions allocated as follows:

- (i) Performance Criterion (a) 6
- (ii) Performance Criterion (b) 3
- (iii) Performance Criterion (c) 4
- (iv) Performance Criterion (d) 2

Satisfactory achievement of the Outcome will be based on correct responses, allocated as follows:

- (i) 5 out of 6
- (ii) 2 out of 3
- (iii) 3 out of 4
- (iv) 2 out of 2

**The following sections of the descriptor are offered as guidance.
They are not mandatory.**

CONTENT/CONTEXT

Safety regulations and safe working practices and procedures should be adhered to at all times.

Corresponding to Outcomes 1-4:

1. Simple anatomy and physiology as a prelude to the techniques and procedures used in clean milk production. Factors influencing milk let down.
2. The practical activity should relate to a particular milking installation and routine. Maintenance work must extend to monitoring the efficiency of the plant and making modifications where necessary (including ancillary equipment, eg. parlour feeders). Cow identification and application of any in-parlour activities required.
3. Knowledge of the purposes of milk recording. Reading and recording in an appropriate manner for individual cow and whole herd. Drawing of samples and appreciation of ways in which sample may be contaminated.
4. Hygienic quality standards, composition of milk. Penalties/premiums. Factors affecting hygienic quality. Factors associated with milking which influence milk composition - complete milking out of cows, influence of mastitis, efficiency of washing and draining the plant. Steps taken to prevent and control mastitis. Use of antibiotics - withholding of milk. Antibiotic penalties.

SUGGESTED LEARNING AND TEACHING APPROACHES

The majority of the time spent on this module should be taken up with practical activities.

Demonstration and analysis of a milking routine should precede any individual activity. A list of items should be available so that students can check the maintenance of the milking installation and ancillary equipment (eg. feeders) regularly.

Visit(s) could be made to other milking plants and the procedures studied in some detail.

There are a number of good video tapes available which go through parlour procedures step-by-step and could with advantage be used in this module.