



## National Unit specification: general information

**Unit title:** Calf Rearing Systems (SCQF level 6)

**Unit code:** H2MX 12

**Superclass:** SH

**Publication date:** October 2012

**Source:** Scottish Qualifications Authority

**Version:** 01

### Summary

This Unit allows learners to develop a range of skills and knowledge required to work on a calf rearing unit. Learners will learn about the development of the digestive system, feeding and housing systems, and how to maintain healthy and productive calves.

This is an optional Unit within the National Certificate in Agriculture (SCQF level 6) but is also available as a free-standing Unit.

Successful completion of this Unit may facilitate progression to further study of livestock or to related employment.

### Outcomes

- 1 Describe the feeding requirements of calves from birth to weaning.
- 2 Select suitable calf rearing systems for given requirements.
- 3 Feed calves pre and post weaning.
- 4 Maintain healthy and productive calves.

### Recommended entry

While entry is at the discretion of the centre, learners would benefit from some prior knowledge of livestock. This could be evidenced by the achievement of the Unit *Dairy Production*, or equivalent.

## **General information (cont)**

**Unit title:** Calf Rearing Systems (SCQF level 6)

### **Credit points and level**

1 National Unit credit at SCQF level 6: (6 SCQF credit points at SCQF level 6\*)

*\*SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

### **Core Skills**

Opportunities to develop aspects of Core Skills are highlighted in the support notes of this Unit specification.

## **National Unit specification: statement of standards**

### **Unit title: Calf Rearing Systems (SCQF level 6)**

Acceptable performance in this Unit will be the satisfactory achievement of the standards set out in this part of the Unit specification. All sections of the statement of standards are mandatory and cannot be altered without reference to SQA.

#### **Outcome 1**

Describe the feeding requirements of calves from birth to weaning.

##### **Performance Criteria**

- (a) Describe the digestive system of the newly born calf.
- (b) Describe the digestive system of the weaned calf.
- (c) Describe the feeding requirements of calves throughout their digestive development.

#### **Outcome 2**

Select suitable calf rearing systems for given requirements.

##### **Performance Criteria**

- (a) Select a feeding system in accordance with calf requirements.
- (b) Select a housing system in accordance with calf requirements.

#### **Outcome 3**

Feed calves pre and post weaning.

##### **Performance Criteria**

- (a) Prepare liquid feed in accordance with good farm practice.
- (b) Feed calves with liquid and solid feed in accordance with good farm practice.
- (c) Clean feeding equipment in accordance with good farm practice.

#### **Outcome 4**

Maintain healthy and productive calves.

##### **Performance Criteria**

- (a) Identify good and ill health in calves.
- (b) Describe appropriate biosecurity measures for prevention and control of disease.
- (c) Carry out a range of routine calf stock tasks.
- (d) Complete records in accordance with health, safety and animal welfare standards.

## **National Unit specification: statement of standards (cont)**

**Unit title:** Calf Rearing Systems (SCQF level 6)

### **Evidence Requirements for this Unit**

Written and/or oral and performance evidence is required to demonstrate that the learners have achieved all of the Outcomes and Performance Criteria. Evidence may be generated holistically and will incorporate the following components relating to each of the Outcomes.

For Outcome 1, learners must provide evidence of the following in closed-book conditions:

Description of the digestive system to include:

- ◆ Identification of the five components of the calf digestive system
- ◆ Identification of the proportions of the stomach compartments at birth and maturity
- ◆ Description of development of the rumen from birth to maturity

Description of feeding requirements to include:

- ◆ Identification of three benefits of colostrum to include nutrition, passive immunity, and laxative effect
- ◆ Description of the feed and feeding regime appropriate to the age of the calf from birth to rumen maturity

For Outcome 2, learners must provide evidence of the following in closed-book conditions:

- ◆ Selection of three feeding systems appropriate to a given situation giving at least one reason for the choice of each feeding system
- ◆ Selection of at least one housing system appropriate to a given situation giving at least three reasons for choice

For Outcome 3, learners must provide performance evidence of the following:

- ◆ Preparation of liquid feed to the correct mix, in sufficient quantity, at the correct temperature
- ◆ One feeding technique which is in accordance with good farm practice
- ◆ Cleaning and sterilising the equipment used in feed preparation and feeding in accordance with good farm practice

For Outcome 4, learners must provide evidence of the following:

- ◆ Identification of five common calf diseases, including reference to appearance and behavioural changes, and temperature fluctuations
- ◆ Description of five bio security measures related to the prevention and control of disease
- ◆ Accurate completed records for two different purposes for at least one animal

Learners must also provide performance evidence of their ability to carry out at least five from the following list: disbudding, weighing, haltering, injecting, tagging, taking temperature, changing bedding.

## National Unit specification: statement of standards (cont)

### Unit title: Calf Rearing Systems (SCQF level 6)

This part of the Unit specification is offered as guidance. The support notes are not mandatory.

While the exact time allocated to this Unit is at the discretion of the centre, the notional design length is 40 hours.

### Guidance on the content and context for this Unit

This Unit has been developed as an optional Unit within the National Certificate (NC) in Agriculture (SCQF level 6), but is also available as a free-standing Unit.

Learners would benefit from having some prior knowledge of livestock. Where this Unit is delivered as part of the NC, it would be beneficial if learners had previously completed the Unit *Livestock Husbandry Health and Welfare*.

In this Unit, learners are required to describe the feeding requirements of calves from birth to weaning, and select calf rearing systems for given requirements. They will learn about feeding calves pre and post weaning, and how to maintain healthy and productive calves.

This Unit may prepare learners for progression to Higher National Agriculture Units, or other related land-based qualifications or to related employment.

Outcome 1 provides learners with underpinning knowledge of calf digestion from birth to weaning and of the feed and regime requirements at the different stages of maturity. This will prepare learners for the practical activities of Outcomes 3 and 4.

Learners will be required to visually identify the components of the calf's digestive system and describe the development of the digestive system from to rumen maturity. This will include oesophageal groove, small intestine, rumen, omasum, and abomasums, as well as development of rumen size and lining, and the proportions of the varying stomachs. The changes in the digestive system relating to feeding methods and materials should also be considered along with the effects on the stomach lining.

Learners need to be able to relate feedstuffs and feeding methods to the various stages of development. This should include colostrum, milk powder, milk formulations, milk temperature, natural milk, proprietary calf feeds (coarse mix and rough mix), farm mixes, and roughages (hay and silage). The introduction of solid feeds prior to weaning and the importance of protein should be covered.

Outcome 2 provides learners with underpinning knowledge of calf rearing systems. Learners will select calf feeding and housing systems which meet the needs of calves in given situations. The level of selection expected by learners will be appropriate to SCQF level 6. Once a day/ twice a day bucket feeding, cold ad-lib, automated hot ad-lib, computer controlled, buckets, teats, acidified, and veal systems will be included.

Housing systems should include individual or group housing made of wood or metal. Pen layout and factors such as temperature, space, cleanliness, ventilation, air movement, and drainage should be taken into account in relation to all types of indoor and outdoor rearing.

## National Unit specification: statement of standards (cont)

### Unit title: Calf Rearing Systems (SCQF level 6)

Outcome 3 provides learners with the opportunity to prepare and provide feeding to calves. Quantity, correct mix, and temperature will be covered, and learners will be required to feed calves using at least one technique. Cleaning and sterilisation of all feeding equipment should be highlighted in relation to good farm practice and prevention of disease.

Visits and practical tasks will allow learners to gain experience and develop employment skills. Learners must be briefed before the task, and supervised to ensure safe practice. Tutors should record successful completion of tasks using an observation check-list.

Outcome 4 is practical and provides learners with the opportunity to gain knowledge and skills relating to maintaining healthy and productive calves. Records of basic data may include: date of birth, breed, sex, weight, purchase price, sale price, health problems, and vaccinations.

When identifying good and ill health of calves, centres should cover: behaviour and appearance, scours, pneumonia, ringworm, dehydration, temperature, naval ill (joint ill), iodine, diphtheria, bloat.

Consideration of biosecurity measures for prevention and control of disease should include: closed herd, environmental measures, hygiene, disinfection, isolation, medicated feed, vaccination, ventilation, stocking densities, avoid mixed ages.

The range of diseases considered could include navel-ill, scours, ringworm, pneumonia, bloat, diphtheria, mange, lice, etc.

Learners should know how to disbud, weigh, ear tag (or permanently identify) and record calves in accordance with health, safety and animal welfare standards.

This Unit is broadly aligned to the following National Occupational Standards (NOS) for Livestock Production, from Lantra:

- LP1 Assist with preparing and maintaining livestock accommodation
- LP3 Adopt good bio-security practices at work
- LP4 Establish and maintain conditions appropriate to the welfare of livestock
- LP7 Provide feed and water to livestock

### Guidance on learning and teaching approaches for this Unit

This Unit should be delivered in as practical a context as possible with delivery taking place both in the calf house and in a classroom setting. The emphasis should always be on the practical application of knowledge and understanding and there is considerable scope for integration of delivery across the Outcomes and PC. There is also scope for integration with other Units, particularly *Dairy Production*.

Tutors must ensure that ensure that learners adhere to appropriate health and safety guidelines in all practical activities.

## National Unit specification: statement of standards (cont)

### Unit title: Calf Rearing Systems (SCQF level 6)

Learners would benefit from a balanced approach to learning by undertaking site visits to calf houses, agricultural merchants, and participating in classroom activities to develop knowledge and understanding. Working in pairs, practical handling can be undertaken including disbudding calves, and group work can be carried out in the classroom situation to cover the theory underpinning the subject area.

By adopting the above learning and teaching approaches and/or through the Outcomes and corresponding Evidence Requirements, the Unit should provide learners with an opportunity to develop the following essential skills for life, learning and work:

- ◆ Employability — through developing practical skills in line with good farm practice and working on time limited tasks
- ◆ Sustainability — through considering the use of resources and recycling
- ◆ Technical skills — through handling, feeding and treating the calves
- ◆ Organisational skills — in terms of personal management through punctuality, record keeping, etc
- ◆ Interpersonal skills — through contact with farm staff and in class groups

### Opportunities for developing Core Skills

In this Unit, learners will develop knowledge and skills in how to successfully rear calves through knowledge of the digestive system, use of appropriate feeds, and practical husbandry exercises. Learners will:

- ◆ Describe the digestive system of calves
- ◆ Plan suitable feeding and housing systems
- ◆ Calculate and measure appropriate feed quantities
- ◆ Identify the state of health of calves
- ◆ Describe control and prevention measures
- ◆ Carry out a range of calf stock tasks
- ◆ Maintain records

This means that as they are doing this Unit, learners may develop aspects of the Core Skills of *Communication*, *Numeracy* and *Problem Solving*.

In addition, aspects of the following Core Skills could be developed where particular learning and teaching approaches are adopted:

- ◆ *Working with Others*, eg through working in pairs when carrying out stock tasks
- ◆ *ICT*, eg through recording data electronically, using the internet to research feeds and housing systems

## National Unit specification: statement of standards (cont)

**Unit title:** Calf Rearing Systems (SCQF level 6)

### Guidance on approaches to assessment for this Unit

The following approaches to assessment are suggested.

- Outcome 1: This could be assessed by a combination of short answer questions, labelling diagrams, and identification exercises.
- Outcome 2: This could be assessed by a written assignment.
- Outcome 3: This could be assessed by individual practical exercises, using assessor observation checklist
- Outcome 4: This could be assessed by a combination of restricted response questions, or photo identification combined with the required practical performance evidence.

Both the practical and written/oral elements of the Unit lend themselves to holistic assessment approaches. Learners could maintain a folio of evidence to record their work throughout the Unit.

### Opportunities for the use of e-assessment

E-assessment may be appropriate for some assessments in this Unit. By e-assessment we mean assessment which is supported by Information and Communication Technology (ICT), such as e-testing or the use of e-portfolios or e-checklists. Centres which wish to use e-assessment must ensure that the national standard is applied to all learner evidence and that conditions of assessment as specified in the Evidence Requirements are met, regardless of the mode of gathering evidence. Further advice is available in *SQA Guidelines on Online Assessment for Further Education (AA1641, March 2003)*, *SQA Guidelines on e-assessment for Schools (BD2625, June 2005)*.

### Disabled learners and/or those with additional support needs

The additional support needs of individual learners should be taken into account when planning learning experiences, selecting assessment instruments, or considering whether any reasonable adjustments may be required. Further advice can be found on our website [www.sqa.org.uk/assessmentarrangements](http://www.sqa.org.uk/assessmentarrangements)



## History of changes to Unit

Version	Description of change	Date

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