Unit 21: Undertaking Sheep Production

Unit code: F/600/9150

QCF Level 3: BTEC National

Credit value: 10

Guided learning hours: 60

● Aim and purpose

This unit aims to introduce learners to the skills and knowledge needed for sheep production, and how these can be applied in practice. It is designed for learners in centre-based settings looking to progress into the sector or onto further/higher education.

This unit enables learners to relate sheep husbandry and management skills to flock management. It also applies information on nutrition, welfare and marketing in a practical situation.

● Unit introduction

Sheep production takes place in most regions of the UK. Farmed under extensive systems in the uplands, it plays an important role in managing the environment and supporting the rural economy. In lowland areas sheep are farmed more intensively, producing finished lamb for the market. This unit is suitable for delivery in any part of the UK. Learners will be taught about their local system and be made aware of the national picture and the relationship between the different systems.

This unit focuses on developing and improving learners' sheep management skills. This is achieved through learners participating in the management of a sheep flock. They will be involved in making up a flock and preparations for tupping, managing a flock through to lambing, caring for new born lambs and planning the nutrition and health of a flock throughout the year.

Learners will develop the practical skills needed to handle and work with sheep, together with knowledge of the role that practical and managerial skills play in profitable sheep production.

Learners will develop an awareness of the regulations governing the transportation of livestock. They will also be aware of the need to record medicine usage and all tasks and treatments carried out.

On completion of this unit, learners will be able to manage a flock of sheep throughout the year, and undertake all relevant practical tasks successfully.

● Learning outcomes

On completion of this unit a learner should:

1   Understand common sheep production and marketing systems

2   Understand sheep production

3   Be able to care for a breeding sheep flock from pre-lambing through to summer grazing

4   Be able to maintain the health and wellbeing of a sheep flock.

Unit content

1 Understand common sheep production and marketing systems

Sheep production systems: stratification of the sheep industry in the UK; local production systems

Selection of suitable breeds: breed comparisons; choice of breeds for different production systems

Marketing: marketing options for ewes and lambs; market criteria; marketing data analysis

2 Understand sheep production

Select suitable stock for breeding: breeding stock selection; use of selection programmes in flock improvement; breeding programmes

Preparation for breeding: preparation of ewes and rams for breeding; condition scoring; checking ewes' teeth, feet and udders; checking rams; health and safety; animal welfare

Routine procedures: checking and trimming feet; treating lameness; dagging ewes and lambs; ear tagging ewes or lambs; administering treatments for internal and external parasites; vaccinating sheep; the role of veterinary medicines in treating and controlling disease; record keeping; health and safety; animal welfare

3 Be able to care for a breeding sheep flock from pre lambing through to summer grazing

Nutrition: nutritional requirements of the flock at the various stages of the cycle (pre-tupping, tupping, mid and late pregnancy, lambing, lactation); types of feed; requirements for conservation and grazing; maintenance of grazing areas

Preparations for pre-lambing and lambing: feeding programme plan; feeding for a flock of in-lamb ewes; methods of preventing abortion and dealing with aborting ewes; identification of ewes that need assistance; assisting with lambing; importance of the ewe/lamb bond; identification of ewes with metabolic problems; methods of prevention; scanning; health and safety; animal welfare

Care of the newborn lamb: importance of adequate colostrum; navel treatments; tail docking; methods of castrating lambs; feeding lambs using a stomach tube; common problems; disease prevention in lambs during the first few weeks of life; methods of preventing abortion, dealing with aborting ewes; causes of and prevention of hypothermia in newborn lambs; taking the temperature of lambs; fostering lambs; record keeping; health and safety; animal welfare

4 Be able to maintain the health and wellbeing of a sheep flock

Sheep health and welfare: signs of health; symptoms of major sheep diseases (twin lamb disease, lameness, strike, worms, respiratory infections, entropion, frothy mouth); checking field for suitability for sheep; completing medicine records; construction of a health plan for the flock; safe storage of medicines

Selection of stock for market: grading of finished lambs; selection and preparation of lambs for the market; current, relevant regulations including those governing the transport of livestock; completion of movement records; health and safety; animal welfare

Performance indicators: calculation of relevant performance indicators (lambing percentage, lamb mortality, financial indicators)

Assessment and grading criteria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria for a pass grade describe the level of achievement required to pass this unit.

Assessment and grading criteria		
To achieve a pass grade the evidence must show that the learner is able to:	To achieve a merit grade the evidence must show that, in addition to the pass criteria, the learner is able to:	To achieve a distinction grade the evidence must show that, in addition to the pass and merit criteria, the learner is able to:
P1 explain the stratification system of the UK sheep industry in terms of local breeds and production systems		
P2 compare the main sheep breeds and their suitability for different production systems	**M1** discuss the choice of breeds for different production systems	
P3 describe market requirements and marketing opportunities for common sheep production systems		
P4 assess the suitability of stock for breeding [IE]		
P5 explain how to prepare a flock for breeding	**M2** justify the selection of suitable male and female breeding stock	
P6 explain the control/prevention of common sheep diseases and disorders [TW]	**M3** explain how preparations for breeding can improve performance	
P7 plan the nutrition of the flock at the various stages of the cycle (pre-tupping, tupping, mid and late pregnancy, lambing, lactation)		**D1** explain health procedures for a selected flock of sheep including required record keeping
P8 care for rams, ewes and new born lambs [TW]	**M4** plan the nutrition of the flock at the various stages of the cycle (pre-tupping, tupping, mid and late pregnancy, lambing, lactation)	**D2** justify the grassland management and nutrition plan in terms of its ability to meet given objectives
P9 plan grassland management for a flock of ewes and lambs		
P10 carry out routine procedures on ewes, rams and lambs		

Assessment and grading criteria

To achieve a pass grade the evidence must show that the learner is able to:	To achieve a merit grade the evidence must show that, in addition to the pass criteria, the learner is able to:	To achieve a distinction grade the evidence must show that, in addition to the pass and merit criteria, the learner is able to:
P11 keep records		
P12 select stock for market	**M5** work out flock performance indicators.	**D3** evaluate flock performance and identify areas for improvement.
P13 identify the symptoms of the main sheep diseases/ disorders.		

PLTS: This summary references where applicable in the pass criteria, in the square brackets, the elements of the personal, learning and thinking skills. It identifies opportunities for learners to demonstrate effective application of the referenced elements of the skills.

Key	IE – independent enquirers	RL – reflective learners	SM – self-managers
	CT – creative thinkers	TW – team workers	EP – effective participators

Essential guidance for tutors

Delivery

Delivery of this unit will involve practical and written assessments, visits to suitable farm and ancillary businesses and link to industrial experience placements.

Whichever delivery methods are used, it is essential that tutors stress the importance of animal welfare, sound environmental management and the need to manage the resource using approved methods.

Health and safety issues relating to working with stock and equipment must be stressed and reinforced regularly, and risk assessments must be undertaken before any practical activities. Adequate personal protective equipment (PPE) must be provided and used following the production of suitable risk assessments.

Tutors should consider integrating the delivery, private study and assessment for this unit with other relevant units and assessment instruments learners are taking as part of their programme of study.

In order for learners to gain maximum benefit from this unit they should have a basic knowledge of sheep. In this unit learners will develop the knowledge and skills needed to manage a sheep flock, and to be aware of the factors that contribute to flock profitability.

Health and safety and animal welfare are important considerations for a flock manager, and learners will develop an understanding of the regulatory framework surrounding flock management.

This unit should be delivered in a practical context wherever possible. Learners should be involved in practical flock husbandry tasks and see flock management in operation so they can see classroom theory being put into operation in real-life situations.

Outline learning plan

The outline learning plan has been included in this unit as guidance and can be used in conjunction with the programme of suggested assignments.

The outline learning plan gives **an indication of the volume of learning it would take the average learner** to achieve the learning outcomes. It is **indicative and is one way of achieving the credit value.**

Learning time should address all learning (including assessment) relevant to the learning outcomes, regardless of where, when and how the learning has taken place.

Topic and suggested assignments/activities and/assessment
Introduction and unit overview.
Assignment 1: **Practical Diaries** (P1, P2, P3, P4, P5, M1)
Tutor introduces the assignment.
Stratification system and the importance of sheep in UK/EU agriculture.
Breed comparison and evaluation and practical breed recognition.
Assignment 2: **Flock Management Calendar**(P7, P8, P10, M2, M3, M4, D2)
Tutor introduces the assignment.
The breeding cycle.
Practical skills development; preparing sheep for breeding.
Practical skills development; routine treatments.
Flock nutrition.

Topic and suggested assignments/activities and/assessment
Assignment 3: Flock Health (P6, P9, P13, D1)
Tutor introduces the assignment.
Care of the flock prior to lambing and care of the newborn lamb.
Sheep diseases, signs, incidence and routine prevention.
Grassland management.
Assignment 4: Flock Performance (P11, P12, M5, D3)
Tutor introduces the assignment.
Consideration of flock performance indicators, and an analysis of flock results.
Investigate market opportunities.
Select stock for market.
Unit review.

Assessment

For P1, learners should be able to explain the stratification system of sheep production using examples based on local flock management systems. P2 and P3 cover sheep breeds and sheep marketing. Evidence could be a report or assignment.

For P4, P5, P6, P7, P8, P9, P10, P11 and P12, learners should be able to undertake the practical skills associated with flock husbandry, namely selecting breeding stock, preparing stock for breeding, administering routine treatments, feeding sheep, identifying signs of lambing and assisting at lambing, selecting stock for sale and operating a grazing system. This will involve recording their activities to refer to when working towards the merit and distinction grades, and also when being assessed against skills checklists. Learners will need to consider health and safety, animal welfare and use of personal protective equipment when undertaking these tasks. For P11, learners should keep records associated with the activities completed for P2 to P7. Evidence could be drawn from a mixture of practical observation records and oral presentations.

For M1, learners must choose suitable breeds from a range available locally and justify their choice. Justification should be on the basis of substantiated evidence.

For M2, learners should justify the breeding stock chosen for P2 explaining why given animals were selected or rejected.

For M3, learners should comment on the preparations for breeding undertaken for P5, explaining why each task is undertaken and the role that key tasks have in improving flock performance.

For M4, learners should examine flock nutrition and grassland management covered in P7 and P9 by preparing a nutritional and grassland management plan for a given flock.

For M5, learners should work out flock performance indicators. Tutor guidance may be required to identify appropriate indicators.

For D1, learners could produce a health plan for the flock, detailing the nature and timing of treatments to be administered together with a justification for their recommendations.

For D2, learners could produce a grazing and nutritional plan for the flock detailing timing and types of feed to be used, relating these to other management considerations and to grassland management issues. Learners will need to justify their recommendations.

For D3, learners should evaluate the flock performance indicators prepared for M5 identifying strengths and weaknesses. Evidence for D1, D2 and D3 could be in the form of a report that links to the pass critera.

Programme of suggested assignments

The following table shows a programme of suggested assignments that cover the pass, merit and distinction criteria in the grading grid. This is for guidance and it is recommended that centres either write their own assignments or adapt any Edexcel assignments to meet local needs and resources.

Criteria covered	Assignment title	Scenario	Assessment method
P1, P2, P3, P4, P5, M1	Practical Diaries	Record details of skills demonstrated throughout one sheep production cycle.	Practical observation and assessment. Written assessment – diary plus skills checklists.
P7, P8, P10, M2, M3, M4, D2	Flock Management Calendar	Detail the stages of the flock management cycle, explaining the importance of each stage. Prepare a chart indicating grazing and conservation areas for a given flock.	Poster display.
P6, P9, P13, D1	Flock Health	Prepare a leaflet for someone new to sheep management explaining how, when and why diseases/disorders are managed.	Completed leaflet.
P11, P12, M5, D3	Flock Performance	Collate and analyse results for a sheep flock.	Written report and analysis.

Links to National Occupational Standards, other BTEC units, other BTEC qualifications and other relevant units and qualifications

This unit forms part of the BTEC land-based sector suite. This unit has particular links with:

Level 2	Level 3
Introduction to Farm Animal Production	Element LP10.1 Maintain the health and welfare of livestock during birth Element LP10.2 Care for the mother and her young
	Element LP28.1 Establish, implement and evaluate a heard breeding plan
	Understanding Livestock Breeding and Nutrition
	Understand and Promote Animal Health

Essential resources

Learners will need access to a commercial flock of breeding ewes, selling progeny and cull stock, and should observe demonstrations and carry out tasks associated with sheep production. They must also have the opportunity to handle breeding stock and carry out associated tasks.

All the equipment needed to carry out tasks must be in good working order and suitable for the purpose of the job. Animal welfare concerns mean that learners must be supervised whilst carrying out stock tasks. Health and safety must be considered at all times so as not to endanger learners. Access to production and breeding data, including carcass grading data, is vital for analysis and comparison.

Access to other sheep flocks would be advantageous. This will enable learners to observe other methods of sheep husbandry, feeding systems and building types, along with different management techniques. Learners must be aware of the potential biosecurity risk when visiting other sheep units.

Tutors delivering this unit should be competent and experienced in sheep management and husbandry tasks. Ideally, they should have recent industrial experience within the sheep production industry or show evidence of regular contact with the industry and/or technical updating.

Employer engagement and vocational contexts

This unit focuses on the practical and operational aspects of sheep flock management and will give learners the knowledge and skills needed to manage a sheep flock. Centres are encouraged to create and develop links with local sheep flock managers, meat plants and veterinary practices. This could be via guest lecturers or farm visits to see a range of flock management activities in operation. Learners could develop and apply their knowledge by participating in practical farm sessions.

Indicative reading for learners

Textbook

Henderson D – *The Veterinary Book for Sheep Farmers* (Old Pond Publishing, 1990) ISBN 978-1903366301

Journal

The Sheep Farmer

Websites

www.eblex.org.uk/betterreturns	EBLEX Better Returns Programme
www.moredun.org.uk	Moredun Group
www.nationalsheep.org.uk	National Sheep Association

Delivery of personal, learning and thinking skills (PLTS)

The following table identifies the PLTS opportunities that have been included within the assessment criteria of this unit:

Skill	When learners are …
Independent enquirers	selecting stock for sale
Team workers	working with colleagues to catch, treat and move sheep.

Although PLTS opportunities are identified within this unit as an inherent part of the assessment criteria, there are further opportunities to develop a range of PLTS through various approaches to teaching and learning.

Skill	When learners are …
Independent enquirers	researching breeds of sheep investigating marketing opportunities
Creative thinkers	producing, with tutor support, key performance indicators for a sheep flock
Reflective learners	analysing flock performance indicators
Team workers	working with colleagues to catch, restrain and administer treatments to sheep
Self-managers	keeping a weekly log of activities undertaken on the flock
Effective participators	participating in group activities to apply skills learned in class.

Functional Skills — Level 2

Skill	When learners are …
ICT – Use ICT systems	
Select, interact with and use ICT systems independently for a complex task to meet a variety of needs	using the internet to research sheep breeds and diseases
Use ICT to effectively plan work and evaluate the effectiveness of the ICT system they have used	
Manage information storage to enable efficient retrieval	
Follow and understand the need for safety and security practices	
Troubleshoot	
ICT – Find and select information	
Select and use a variety of sources of information independently for a complex task	
Access, search for, select and use ICT-based information and evaluate its fitness for purpose	
ICT – Develop, present and communicate information	
Enter, develop and format information independently to suit its meaning and purpose including: • text and tables • images • numbers • records	
Bring together information to suit content and purpose	
Present information in ways that are fit for purpose and audience	
Evaluate the selection and use of ICT tools and facilities used to present information	
Select and use ICT to communicate and exchange information safely, responsibly and effectively including storage of messages and contact lists	producing written assignments

Skill	When learners are ...
Mathematics	
Understand routine and non-routine problems in a wide range of familiar and unfamiliar contexts and situations	working out feeding rates for stock
Identify the situation or problem and the mathematical methods needed to tackle it	
Select and apply a range of skills to find solutions	
Use appropriate checking procedures and evaluate their effectiveness at each stage	
Interpret and communicate solutions to practical problems in familiar and unfamiliar routine contexts and situations	calculating dosage rates and live-weight gains
Draw conclusions and provide mathematical justifications	analysing key performance indicators
English	
Speaking and listening – make a range of contributions to discussions and make effective presentations in a wide range of contexts	contributing to discussions
Reading – compare, select, read and understand texts and use them to gather information, ideas, arguments and opinions	reading product labels to identify suitable products such as feedstuffs, medicines etc to give to sheep reading welfare codes and biosecurity recommendations
Writing – write documents, including extended writing pieces, communicating information, ideas and opinions, effectively and persuasively	producing written logs/diaries of work undertaken preparing leaflets/posters to explain tasks to be undertaken and sequencing of events.