Unit 12: International Sheep Production

Delivery guidance

Approaching the unit

Unit 12: International Sheep Production is an internally assessed optional unit available to learners studying the Level 3 International Diplomas in Agriculture (at 540, 720 and 1080 GLH). It is both a knowledge- and a skills-based unit and learners will find the knowledge, understanding and skills developed in this unit invaluable when pursuing a career in any aspect of the agricultural industry.

Tutors should use a wide variety of methods in the classroom-based sessions in order to ensure that learners achieve a good level of knowledge and understanding of sheep production systems used; diet management and health and production targets; and the routine husbandry practices of sheep during the production cycle. This unit demands that knowledge is combined with extensive practical learning and it is envisaged that the centre facilities will be used along with strong external connections with sheep producers and employers. Guest speakers from the agricultural industry, such as sheep producers, would also enhance the learners' experience when delivering this unit.

Delivering the learning aims

Learning aim A

This unit could be introduced by discussing the importance of legislation and welfare standards in key aspects of sheep production, such as culling, husbandry and sustainability. This will lead seamlessly into learning aim A, which focuses on the sheep production systems used. This learning aim draws upon the knowledge learners will receive from *Unit 9: International Poultry Production*, *Unit 10: Farm Livestock Husbandry*, *Unit 11: International Pig Production*, *Unit 14: International Dairy Production, Unit 15: Livestock Health and Diseases*, and *Unit 16: Livestock Nutrition*, establishing any prior knowledge that learners have of sheep production. This is because there will be similarities regarding the methods and processes when producing any livestock and this can be drawn upon by learners when studying the unit.

Learners require a sound knowledge and understanding of the importance of the welfare needs of sheep and how these needs can be met, as well as the variation of production systems and their impact on both sheep welfare and production numbers. In addition to this, learners must understand the difficulties of cost effective husbandry, maintaining welfare standards and being profitable within sheep production.

It is envisaged that once learners have a good understanding of the current conditions in the sheep industry, tutors can then cover the different production systems and maintenance of welfare standards of sheep. Tutors will need to cover the factors that affect the decision as to which production system is used, as well as sheep breeds, liveweight and deadweight selling and carcass classification. Field suitability, biosecurity, environmental impacts and pollution control will also have to be considered. In order to cover all of the content, offsite visits to local sheep producers, auctions and guest speakers will prove beneficial.

Preparation for breeding including the suitable selection of animals to meet production aims and welfare standards must be investigated. This will also involve the need to comply with breeding policies and regulations. Guest speakers and offsite visits will prove

invaluable. Learners will also need to have an understanding of how stock is selected for sale, including the grading of finished animals, saleability and performance indicators.

Learning aim B

For learning aim B, learners will need to carry out diet management and feeding practices during the production cycle to maintain health and production targets. In order to do this, classroom-based sessions will initially be required to ensure that learners have secured a thorough understanding of the nutritional requirements of sheep and how this changes throughout their different life and production stages. Presentations, tutor-led discussions and active learning sessions will need to take place in the classroom to ensure that learners understand the nutritional requirements and how these are met in the different sheep production systems.

In addition, learners will also need to have an awareness and understanding of the different types of sheep diet available and their uses, including any causes, treatments and prevention of common nutritional problems and deficiencies.
Practical activities will enhance learner understanding and skills regarding the use and recognition of different sheep feeds, following different feeding plans and using different feeding equipment. A variety of offsite visits can be arranged to give learners the opportunity to assess the grazing suitability of land for sheep first-hand, as well as grazing preferences and different grazing habits of hill, upland and lowland sheep.

Learning aim C

For learning aim C, learners will need to know how to carry out routine husbandry of sheep during the production cycle to meet current welfare and husbandry standards. They will need to consider the preparations required for pre-lambing and lambing, such as feeding programmes and methods, identifying ewes that need assistance, and scanning and marking. Learners will have to be able to demonstrate their knowledge regarding the care of newborn lambs, maintaining high levels of animal welfare in accordance with legislative requirements and best practice.

This learning aim would be best delivered initially through active learning (e.g. producing posters and leaflets, conducting research, writing up evaluations) in a classroom-based setting to ensure a sound knowledge and understanding of the welfare needs and legislative demands when producing sheep. Practical activities can be arranged in a sheep production setting (ideally with a variety of production systems such as both indoor and outdoor) or if this is not possible, practical work can be carried out in one setting while tutors can arrange for visits to other production systems. This will give learners the opportunity to witness the husbandry practices of sheep in different types of production systems. Guest speakers can also be invited into the centre to discuss these practices and assist learners with any queries they may have relating to the industry.

Assessment model

Learning aim	Key content areas	Recommended assessment approach
A Investigate sheep production systems	**A1** Sheep production systems **A2** Preparation for breeding **A3** Selecting animals for market and the role of performance indicators	A report on a selected sheep production system and the production cycle.
B Carry out diet management and feeding practices during the production cycle to maintain health and production targets	**B1** Nutritional requirements **B2** Diet management and feeding practices **B3** Grazing **B4** Nutritional problems	A portfolio of evidence, to include: ● planning documents ● evidence of carrying out routine sheep feeding and husbandry tasks to meet current standards and health and production targets.
C Carry out routine husbandry of sheep during the production cycle to meet current welfare and husbandry standards	**C1** Routine husbandry **C2** Preparations for pre-lambing and lambing **C3** Care of the newborn lamb	

Assessment guidance

This is an internally assessed optional unit available for the Level 3 International Diplomas in Agriculture (at 540, 720 and 1080 GLH), which is assessed using a number of independent tasks. The recommended assessment approach suggests two different assignments.

The first assignment covers learning aim A, which is a written report where learners are to concentrate on sheep production systems and the sheep production cycle. In order to gather the evidence for this learning aim, tutors can arrange for learners to embark on practical activities working with sheep in different production systems. They can also organise various visits to relevant establishments with different sheep production systems and/or talks from guest speakers such as sheep producers from the industry. This will allow learners to compare and contrast different production systems and select the one that they would like to report on for their summative assessment.

The second assessment covers learning aims B and C and learners are required to build a portfolio of evidence that demonstrates they have considered planning documents; evidence of carrying out routine sheep husbandry and feeding tasks safely; and meeting industry standards as well as following health and safety requirements. In order to gather the research for this assessment, learners will be able to use the practical activities carried out while completing the unit. In addition, the offsite visits and guest speakers can help by outlining the routine husbandry practices and feeding requirements in different production systems.

Getting started

This provides you with a starting place for one way of delivering the unit, based around the recommended assessment approach in the specification.

| Unit 12: International Sheep Production |
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| **Introduction** |
| This unit gives learners an understanding of the different sheep production systems used and their advantages and disadvantages for welfare and production levels. Learners will gain a sound knowledge of all the different production systems and how these systems maintain the health and welfare of sheep for a range of different purposes. |
| **Learning aim A – Investigate sheep production systems** |
| Tutors could begin this learning aim with a discussion establishing any prior learner knowledge. This can lead to a description of the different production systems, what they involve and the considerations of these, as well as any welfare and cost implications of them. For learning aim A1, tutors can deliver a presentation about the current welfare standards in the sheep industry. This can include the advantages and disadvantages of indoor and outdoor systems, including upland, lowland, hill and extensive. Tutors can ask learners to form into small groups to research extensive, hill, upland and lowland production systems. They are to research their allocated system and produce a factsheet that outlines the advantages and disadvantages, as well as the husbandry and welfare implications of them. These factsheets can be copied and distributed to the class so that they have a comprehensive set of notes for reference. Tutors can deliver a presentation about the factors that may affect a farmer's choice of production system, including financial, economic, marketing, locational and environmental factors, current trends in farming practices and legislative requirements. Learners can then visit at least two different sheep production settings looking at these financial, economic, marketing, locational and environmental factors as well as the legislative requirements that are being implemented. Learners are to record their findings and the class will discuss them afterwards. Tutors can arrange for a guest speaker such as a sheep producer to come into the centre and talk to learners about liveweight and deadweight selling, carcass classification and grading, current trends and market changes. This could be followed by a visit to a livestock auction so that learners can look at the different sheep breeds, their features and characteristics. Tutors can ask learners to form into different groups and issue each group with a different production system and field suitability aspect. They are then to identify the most suitable sheep breeds for upland, lowland, hill and extensive production systems. Tutors can deliver a short presentation about the importance of various biosecurity measures and disease prevention used in sheep production. Learners can then form into small groups to identify different biosecurity measures, such as disinfection and sheep dips, and discuss when they would be used. A tutor-led discussion about the environmental impact of biosecurity measures and ways the impact can be reduced. Learners are to carry out practical work with sheep working through a practical book to ensure they cover health and safety, movement of sheep, prevention of pest and vermin in sheep production systems, feeding and watering using a range of different systems and a range of bedding types. They are to record evidence of this in their practical workbook. |
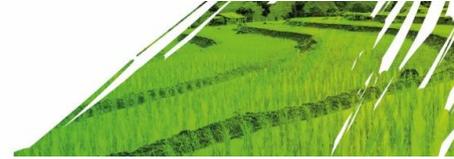
- Tutors can facilitate a class discussion about the legislation and welfare standards covering key aspects of sheep production, including culling, husbandry, transport and sustainability.

- Learners to form into small groups and prepare notes about the welfare implications of castration, tail docking, mulesing, lambing stress, environmental stresses and transportation before presenting back their findings to the class.

- For learning aim A2, tutors can deliver a short presentation about the factors that need to be considered when selecting stock (i.e. rams and ewes) for breeding.

- Tutors can allocate each learner with a ram and ewe, and they are to complete their extended pedigree obtaining secondary data through independent research. Learners will then feed back their findings in a class discussion on the usefulness of this information when breeding, selecting sheep for breeding and improving flocks.

- Working in small groups, tutors can give learners some case studies of different sheep with varying characteristics such as hill, upland and lowland breeds and their environmental adaptations. Learners are to rank them in order of the most to the least suitable for breeding and then discuss as a class.

- Learners are to participate in practical activities to assess and evaluate a ram and an ewe prior to breeding. They must carry out health checks for both sheep flocks and individual sheep; body condition score sheep; and carry out behavioural assessments both on flocks and individual animals.

- Tutors can deliver a presentation about signs and indicators of ovulation, the oestrus cycle, the role of hormones, heat observation and optimum time for service.

- Tutors can arrange for a guest speaker (ideally a vet) to come into the centre and talk to learners about pregnancy diagnosis techniques; andrology and sperm analysis, principles and application; and health and safety throughout the preparation for sheep breeding.

- Throughout the delivery of this learning aim, learners will have carried out classroom sessions, practical sessions and employer involvement that they can utilise when producing their summative assessment. This should be in the form of a written report looking at sheep production systems and the sheep production cycle.

Learning aim B – Carry out diet management and feeding practices during the production cycle to maintain health and production targets

- Tutors can begin this learning aim with a short discussion to recap and establish any prior learner knowledge regarding different nutrients. Ask learners where different nutrients come from within a sheep diet.

- For learning aims B and C, the use of practical workbooks or portfolios will be necessary for learners to record information and gather evidence for their summative assessments.

- For learning aim B1, facilitate a group discussion about the different nutritional requirements of sheep at the different life stages/stages of growth and development as well as different feeding systems.

- Tutors can deliver a presentation on the changes to nutritional requirements when weaning, breeding for twins, increasing daily gains, pregnant and finishing.

- Learners can participate in multiple practical activities where they must select the appropriate equipment, prepare feeds and feed lambs on milk replacers, while tutors observe and provide witness statements for learners' portfolios of evidence.

- For learning aim B2, learners are to work in the sheep areas and identify the different feeding and watering equipment required. They can discuss the advantages and disadvantages of this equipment in terms of efficiency, ease of use, hygiene and cleaning.

- Learners are to examine sheep feed and assess its quality and interpret the nutritional content from the packaging. This will include forages, concentrates and supplemental feeding of root crops. They will then examine feed storage and assess their suitability for maintaining feed quality and preventing contamination.

- Learners are to form into pairs and tutors to issue each pair with a scenario about a sheep flock, along with information about their feeding regime including feed types, frequency and methods of feeding. They are to evaluate its appropriateness and suggest any changes that they could make to improve it.

- Tutors can facilitate a group discussion about feeding records and recording systems such as feed board, databases and online recording systems. Cover weight gain and maintenance at each life stage and their importance.

- For learning aim B3, learners can participate in a practical activity where they can assess land for the grazing suitability for sheep. This can be followed by a tutor- led discussion about different grazing methods, their advantages and disadvantages, including continuous and rotational methods, diversity of grass species and location (including hill, upland and lowland environments).

- For learning aim B4, tutors can deliver a short presentation on the common nutritional problems in sheep, such as poor appetite, reduced growth and lethargy.

- Learners are formed into small groups and are allocated with different nutritional problem. They are to conduct research and produce a leaflet outlining the causes of the problem, its recommended treatment(s) and prevention. These leaflets can be copied and distributed to the class so that they have a comprehensive set of notes for reference.

- The summative assessment for learning aim B should be in the form of a practical portfolio and learners will have gathered evidence for this throughout the practical sessions. Formative assessments can take place during the course of the practical sessions.
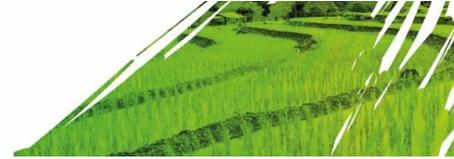
Learning aim C – Carry out routine husbandry of sheep during the production cycle to meet current welfare and husbandry standards

- Tutors could begin this learning aim by facilitating a group discussion about the routine husbandry requirements of sheep. Ask learners to draw upon their practical experience from learning aim A and build on the notes they have taken from their practical workbooks.

- For learning aim C1, learners are to undertake a substantial amount of practical sessions working with sheep. They should be involved in all aspects of routine husbandry and practical workbooks (or portfolios) should be used to ensure that learners are competent at carrying out routine husbandry tasks with sheep.

- Within their practical sessions, learners will cover housing, bedding, equipment, biosecurity, feeding, watering, health checking and maintenance, use of preventative treatments, treating lameness, using foot dips and sprays, dagging, ear tagging, observing vaccination, maintaining records, routine practices, handling and restraint techniques and working safely with sheep.

- Learners can participate in a group discussion and contribute to a spider diagram drawn on the board. They are to record as many issues in sheep production as they can think of and think about the ways to minimise these issues.

- Tutors can deliver a presentation about the importance of the different records required to keep within sheep production and the advantages of good record systems. This should include the advantages and disadvantages of the different ways to record information.

- Learners can form into small groups to discuss the isolation of replacement stock, the need to isolate, its purpose and when/how to isolate. This information could be presented back to the rest of the class by delivering a short presentation or facilitating a class discussion on learner findings.

- Tutors are to deliver a short presentation about the preparation that would need to take place prior to lambing.

- Learners can form into small groups to produce a husbandry plan for sheep ready to have lambs. This husbandry plan needs to include feeding, monitoring, scanning, marking and caring for individuals in the flock.

- Facilitate a tutor-led discussion on the health indicators and signs of normal and abnormal health in pregnant ewes and during lambing time.

- For learning aim C3, tutors can deliver a short presentation about the care of newborn lambs and how high welfare standards impact upon survival rates and reduce instances of mortality.

- Tutors can organise for a visit (or practical activity) in the centre's sheep area during lambing time, so that learners can observe a range of scenarios where care of lambs to different degrees is required.

- Learners are to form into pairs and tutors can allocate each pair with one factor related to the care of a newborn lamb, such as: naval treatment, use of probiotics and prebiotics, tail docking, castration (non-surgical), stomach tubing, temperature taking and fostering. Learners are to conduct research and produce a factsheet outlining the factor and why it is used in sheep production. These factsheets can be copied and distributed to ensure all learners have a comprehensive set of notes for reference.

- Tutors can deliver a presentation on the common problems, treatments and prevention in newborn lambs, including lethargy, profuse salivation, rejection and umbilical infection.

- Learners are to participate in an interactive whiteboard activity where they approach the board and annotate it with disease prevention methods in lambs in the first few weeks of life. This can be followed by a class discussion based on these annotations.
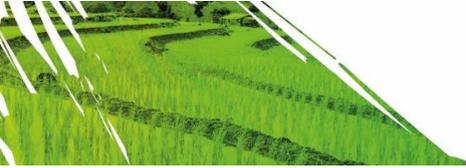
- As with learning aim B, the summative assessment for learning aim C is a portfolio of evidence. Learners will have completed the practical activities, offsite visits and talks from guest speakers and should be collecting evidence throughout to add to their portfolios.
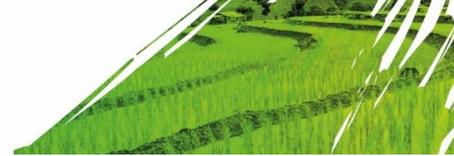
Details of links to other BTEC units and qualifications, and to other relevant units/qualifications

This unit links to:

- Unit 9: International Poultry Production
- Unit 10: Farm Livestock Husbandry
- Unit 11: International Pig Production
- Unit 13: International Beef Production
- Unit 14: International Dairy Production.

Resources

In order to deliver this unit, centres will need access to a range of different livestock in order to carry out practical husbandry, feeding and breeding activities. If there is only one sheep production system at the centre, liaison with other sheep producers will be required.

In addition to the resources listed below, publishers are likely to produce Pearson-endorsed textbooks that support this unit of the BTEC Internationals in Agriculture/Horticulture/Land-based subjects. Check the Pearson website (http://qualifications.pearson.com/endorsed-resources) for more information as titles achieve endorsement.

Textbooks

Cardell K, *Practical Sheep Keeping*, Crowood Press Ltd, 2012 ISBN 9781847973399

Gillespie J and Flanders F, *Modern Livestock and Poultry Production*, CENGAGE Delmar Learning, 2010 ISBN 9781428318083 – a useful text that covers the different production of all livestock

Skelley WC, *Sheep Production: With Information on the Breeding, Care and Management of Sheep*, Bowen Press, 2011 ISBN 9781446531471 – a detailed text on sheep management and production

Winter A and Phythian C, *Sheep Health, Husbandry and Disease: A Photographic Guide*, Crowood Press Ltd, 2011 ISBN 9781847972354 – a useful reference text for learners to identify specific cases of ill health and problems in sheep

Websites

'Gov.uk' – search for 'Animal Welfare' for DEFRA, the government organisation that outlines the animal welfare and legislation of keeping, transporting and maintaining records when keeping livestock.

'Royal Society for the Prevention of Cruelty to Animals (RSPCA)' – a website to find out more information about the welfare of farm animals in the UK.

'National Sheep Association' – a useful website offering advice, guidance and information on the changes to trends in sheep farming and sheep production.

Pearson is not responsible for the content of any external internet sites. It is essential for tutors to preview each website before using it in class so as to ensure that the URL is still accurate, relevant and appropriate. We suggest that tutors bookmark useful websites and consider enabling learners to access them through the school/college intranet.